U.S. Department of the Interior
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Preliminary Environmental Assessment
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Roberts Mountain Complex

Wild Horse Gather
and
Population Management Plan

Eureka County, Nevada

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1.0 Introduction

This Environmental Assessment (EA) is a site-specific analysis of the potential impacts that could result with the implementation of the Proposed Action or alternatives to the Proposed Action. This EA has been prepared to disclose and analyze the environmental effects of the Proposed Action, which consists of gathering and removing excess wild horses from within and outside the Roberts Mountain, Fish Creek (north) and Whistler Mountain Herd Management Areas (HMAs), referred to as the Roberts Mountain Complex (RMC). Also analyzed are several population management methods that would be implemented with the objective of reducing population growth levels. A Supplemental Information Report (SIR) is also referenced throughout the EA as it includes additional information and detail. Refer to Map 1, SIR 13 which displays the HMAs included within the Complex and Map 2 which displays the extent of the project area.

The Proposed Action would allow for an initial gather event with subsequent, follow-up gathers to be conducted over the next 10 years from the date of the initial gather operation in order to achieve and maintain Appropriate Management Levels (AMLs) and continue fertility control management. This EA will assist the Bureau of Land Management (BLM) Mount Lewis Field Office (MLFO) in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any significant effects could result from the analyzed actions. Following the requirements of NEPA (40 CFR 1508.9 (a)), this EA describes the potential impacts of a No Action Alternative, the Proposed Action and Alternatives for the RMC. If the BLM determines that the Proposed Action for the Complex is not expected to have significant impacts a Finding of No Significant Impact (FONSI) would be issued, and a Decision Record would be prepared. If significant effects are anticipated, the BLM would prepare an Environmental Impact Statement.

1.1. Background

Since the passage of the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA), Public Law 92-195, (as amended) management knowledge regarding wild horse population levels has increased. For example, it has been determined that wild horses are capable of increasing their numbers by 15% to 25% annually, resulting in the doubling of wild horse populations about every 4 years (NRC 2013). This has resulted in the BLM shifting program emphasis beyond just establishing AML and conducting wild horse gathers, to include a variety of management actions that further facilitate the achievement and maintenance of healthy and stable wild horse populations and a "thriving natural ecological balance". Management actions resulting from shifting program emphasis include increasing fertility control, adjusting sex ratio and collecting genetic samples to assess genetic diversity. This also includes issuing ten-year plans which allow for incremental and follow-up gathers to implement population management, remove excess horses and meet management objectives over time, with the overarching goal to reduce annual growth rates, maintain the herd within AML and ensure heathy wild horses and healthy rangelands in the long term.

1.2. Description of the Proposed Gather Area

The RMC is located 30 miles northwest of Eureka, Nevada in Eureka County, west of State Highway 278 and north of U.S. Highway 50. The HMAs within the Complex total 162,537 acres. The RMC includes the HMAs identified above and the Kobeh Valley Herd Area which exists between the HMAs. The total size of the Complex is 190,000 acres. Refer to Map 1 which displays the HMAs in the Complex.

The Roberts Mountain HMA consists of 99,990 acres and is 17 miles long by 10 miles wide. The HMA shares the eastern boundary with the Whistler Mountain HMA.

The eastern boundary of the Whistler Mountain HMA lies along Highway 278. The HMA consists of 43,247 acres and is 16 miles long and 7 miles wide, situated to the east of the Roberts Mountain HMA.

A portion of the Fish Creek HMA exists north of U.S. Highway 50 and would be included within the gather

area. 19,300 acres or 7.6% of the Fish Creek HMA is located within the area known as Kobeh (pronounced Kō-bē) Valley and is west of the Whistler Mountain HMA and south of the Roberts Mountain HMA.

The gather area would include the Roberts Mountain, Three Bars, Romano, and Lucky C livestock Allotments. Areas outside of the HMA boundaries within the Santa Fe Ferguson, Grass Valley, Dry Creek Simpson Park and JD Allotments could also be included. The entire gather area encompasses approximately 556,509 acres. Refer to Map 2 which displays the Roberts Mountain Complex Gather/Project Area.

Few physical boundaries exist between the HMAs to restrict regular interchange and movement; therefore, the area is managed as a Complex.

Maps available in the SIR include:
Map 1: HMA boundaries
Map 2: Extent of Gather/Project area and Grazing Allotments
Map 3: Herd Areas
Map 4: Vegetation Habitat Types
Map 5: Pronghorn Habitat
Map 6: Mule Deer Habitat
Map 7: Greater Sage Grouse Habitat
Map 8: Wilderness Study Areas
Map 9: 2022 Helicopter Survey Overview

1.3. Appropriate Management Level (AML)

The AML is defined as the number of adult horses or burros (expressed as a range with an upper and lower limit) to be managed within an HMA[1]. Forage for WH&B (AUMs) is allocated based on the AML upper limit. The RMC has a cumulative AML range of 170-184 wild horses which has been established through Final Multiple Use Decisions.

The AML for the Roberts Mountain HMA was established through Final Multiple Use Decisions (FMUDs) issued by the Mount Lewis Field Office (MLFO) October 1994 for the Roberts Mountain and Three Bars Allotments and was established as a single number. The Whistler Mountain and Fish Creek HMA AMLs were established through the Fish Creek Complex FMUD issued September 2004 by the MLFO and were established as an AML range. The population within these HMAs can fluctuate depending on the seasonal movement of these wild horses.

Refer to the following table, which displays the established AMLs and estimated populations by HMA. The most recent population inventory was completed in February 2022.

[1] H-4700-1 Wild Horses and Burros Management Handbook

Table 1. Established AML by HMA and Allotment

HMA	Allotment	Decision	AML (wild horses)	2022 Post Foaling Population[2]
Roberts Mountain	Roberts Mountain	FMUD 1994	92	1132
	Three-Bars	FMUD 1994	58	
Whistler Mountain	Lucky C	FMUD 2004	2-4	19
	Romano	FMUD 2004	12-20	
Fish Creek	Lucky C	FMUD 2004	6-10	25
Total			**170-184[3]**	**1,176**

The AMLs established through FMUDs were determined to be the level of use by wild horses, which would provide for a thriving natural ecological balance and prevent deterioration of the range[4]. The AMLs were also determined to be the levels, which would provide for sound and healthy populations within the capacity of the habitat to provide forage and water, even in "poor" drought years or severe winters. AMLs were established following the collection, analysis, and interpretation of many years' worth of monitoring data, which included precipitation, use pattern mapping, trend, production, census/inventory and carrying capacity analysis. Monitoring has continued to document conditions in the Complex. Information about monitoring within the RMC is detailed in the SIR at 4.0.

In the case of the Whistler Mountain and Fish Creek HMAs, AML ranges were established in which the upper number represents the maximum population for which thriving natural ecological balance would be maintained. The lower range represents the number of animals to remain following a wild horse gather in order to allow for an anticipated 3-4 year gather cycle and prevent the population from exceeding the established AML between gathers. "We interpret the term AML…to mean that "optimum number" of wild horses which results in a thriving natural ecological balance (TNEB) and avoids a deterioration of the range" (109 IBLA 119 API 1989[5]). The Roberts Mountain HMA AML was set as a single number of 150 wild horses. Since the HMA does not have an AML range, proper management dictates management within a range below what would be considered the high AML. For these purposes, a low AML range of 90 would be used for the Roberts Mountain HMA which would allow approximately 3 foaling seasons before the established AML was again exceeded. Therefore, the total range for the Complex would be 110-184 for the purposes of population management within this EA.

There is currently no Herd Management Area Plan (HMAP) in place for the Roberts Mountain Complex or any of the individual HMAs. The Interior Board of Land Appeals has held that an HMAP is not a prerequisite to BLM conducting a gather operation (Animal Protection Institute of America, 109 IBLA 112, 127 (1989)), so long as the record otherwise substantiates compliance with the WFRHBA. Based on all available information, BLM had determined under the WFRHBA that excess wild horses are present and that a gather for removal of excess animals and application of population control measures is necessary to achieve a thriving natural ecological balance. While BLM has not prepared a formal HMAP document, the major components of the HMAP have nonetheless been addressed by BLM, including the establishment of the HMA, AML and objectives for managing the Complex (through Shoshone-Eureka Resource Area

[2] These figures also include wild horses located outside of HMA boundaries and represent the 2022 inventory with the addition of 19% growth due to foaling.

[3] Since the Roberts Mountain HMA does not have an AML range, proper management dictates management within a range below what would be considered the high AML. For these purposes, a low AML range of 90 would be used for the Roberts Mountain HMA which would allow approximately 3 foaling seasons before the established AML was again exceeded. Therefore, the range for the Complex would be 110-184 for the purposes of population management within this EA.

[4]. Refer to the documents at Section 1.6.

[5]. U.S. Department of the Interior, Internal Board of Land Appeals (IBLA), Animal Protection Institute (API).

(SERA) Management Plan (RMP))and other decision documents), monitoring and evaluating whether management objectives are being met (as summarized in this NEPA document), and establishing a ten-year management plan (through the Proposed Action and Alternatives being analyzed). The BLM is also providing an opportunity for public participation through the comment period for this EA.

Based upon all information available at this time, the BLM has determined that approximately 1,066 excess wild horses currently exist within the RMC[6]. These excess wild horses need to be removed in order to achieve the established AML, restore a thriving natural ecological balance (TNEB) and prevent degradation of rangeland resources. This assessment is based on factors including, but not limited to the following rationale:

- The estimated populations exceed the established AML range for the project area (Table 1). A gather to achieve the AML has not been completed since 2008.
- Excess wild horses are establishing home ranges outside of identified HMA and HA boundaries. It is estimated that in excess of 60% of the existing population is inhabiting lands outside of the HMA boundaries where use by wild horses has not been designated (based on the most recent aerial survey completed in February 2022).
- Public safety issues have arisen due to increased incidents of wild horses on State Highway 278 due to a growing population of wild horses outside of the HMA boundaries.
- Public land nuisance issues have occurred and worsened over several years as horses breach and damage fences and gates to access forage and water on private lands outside of HMA boundaries.
- Upland rangeland communities are degraded and at risk of further loss of perennial forage species.
- The RMC has been impacted by drought recently and on an ongoing basis impacting forage and water availability and rangeland health.
- Monitoring and historical information indicate that future emergency removals would be necessary due to lack of water and/or forage if gathers are not conducted to reduce the population to AML.
- The RMC includes Priority habitat for Grater Sage Grouse and important habitat for Pronghorn, Mule deer and other wildlife species.

The SIR at 4.0 details monitoring data collected and assessed within the RMC. Vegetation, climate, inventory/distribution, and actual use data was assessed, and the AMLs within the Complex determined to be valid, with no adjustment to AMLs warranted at this time. The AMLs would be addressed as additional monitoring data becomes available, and future Rangeland Health Assessments are completed to assess the use of these areas by wild horses, livestock, and wildlife.

1.4 Purpose and Need

The purpose of the Proposed Action is to gather and remove excess wild horses from within and outside the RMC and to reduce the wild horse population growth rates to achieve and maintain established AML ranges.

The need for the action is to prevent undue or unnecessary degradation of the public lands associated with excess wild horses, and to restore a thriving natural ecological balance and multiple-use relationship on public lands, consistent with the provisions of Section 1333(b) of the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA).

[6] [6] Gather, removal and target post population numbers would be adjusted in subsequent gather events as informed by resource issues, population growth rates and success of fertility/population management programs, and estimated wild horse herd sizes within and outside of the RMC. The wild horse population increases each year due to the new foal crop, so the number of horses gathered and removed will likely be higher depending on when the gather takes place. Follow-up gathers will also need to address the over population and additional foal crops until management objectives of reaching low-end of AML are obtained.

1.5 Land Use Plan Conformance and Consistency with Other Authorities

This document is tiered or conforms to the following documents:

- Shoshone-Eureka Resource Area (SERA) Management Plan (RMP) Objectives (Shoshone-Eureka RMP Record of Decision dated 1986 and Shoshone-Eureka RMP Amendment, Record of Decision dated 1987).
- Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment (ARMPA) (BLM 2015)

1.6 Relationship to Statutes, Regulations, or other Plans

The Federal Land Policy and Management Act of 1976 (FLPMA) requires that an action under consideration be in conformance with the applicable BLM land use plan(s), and be consistent with other federal, state, and local laws and policies to the maximum extent possible.

The Proposed Action is in conformance with the WFRHBA, the Code of Federal Regulations (CFR) at 43 CFR §4700, and policies. Refer to the Supplemental Information Report at 1.0 and 2.0.

The WFRHBA mandates the BLM to "*prevent the range from deterioration associated with overpopulation*", and "*remove excess horses in order to preserve and maintain a thriving natural ecological balance and multiple use relationships in that area".*

Also the WFRHBA sec 1333 (b)(1) states: "*The purpose of such inventory shall be to: make determinations as to whether and where an overpopulation exists and whether action should be taken to remove excess animals; determine appropriate management levels or wild free-roaming horses and burros on these areas of public land; and determine whether appropriate managements should be achieved by the removal or destruction of excess animals, or other options (such as sterilization, or natural control on population levels)*."

Section 2 (f) of the Wild Free-Roaming Horses and Burros Act defines excess animals as follows: *"excess animals" means wild free-roaming horses or burros (1) which have been removed from an area by the Secretary pursuant to application law or, (2)* ***which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area*** *(emphasis added).*

Furthermore, 3 (b) (2) of the Act states:

> *"Where the Secretary determines on the basis of (i) the current inventory of lands within his jurisdiction; (ii) information contained in any land use planning completed pursuant to section 202 of the Federal Land Policy and Management Act of 1976; (iii) information contained in court ordered environmental impact statements as defined in section 2 of the Public Rangelands Improvement Act of 1978; and (iv) such additional information as becomes available to him from time to time, including that information developed in the research study mandated by this section, or in the absence of the information contained in (i-iv) above on the basis of all information currently available to him,* ***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.*** *Such action shall be taken, . . . until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation". (emphasis added).*

The Interior Board of Land Appeals (IBLA) in Animal Protection Institute et al., (118 IBLA 63, 75 (1991)) found that under the WFRHBA, BLM is not required to wait until the range has sustained resource damage to reduce the size of the herd, instead proper range management dictates removal of "excess animals" before range conditions deteriorate in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area. This can also be understood to mean that the BLM is not required to wait until wild horse health is compromised to initiate removal of excess wild horses as this would further violate the WFRHBA and CFRs.

The gather of wild horses within the Roberts Mountain HMA has been analyzed previously in the *Roberts Mountain Herd Management Area, Maintenance Wild Horse Gather Environmental Assessment EA#: NV 062-EA-01-17,* issued by the Battle Mountain Field Office February 2001. This EA was prepared for a wild horse gather that took place in July 2001. The most recent gather was completed in January 2008. That gather was analyzed in the *Roberts Mountain Complex Wild Horse Gather Environmental Assessment NV062-EA07-120*, issued in May 2007. These EAs involved a thorough analysis of the potential impacts associated with a proposed wild horse gather within this HMA.

Additionally, the Fish Creek and Whistler HMA were evaluated within the documents listed below in the process of establishing AML for these EAs. This EA tiers to these existing documents and will incorporate relevant portions of the EAs, Evaluations, Final Multiple Use Decisions (FMUDs) by reference, where applicable.

- *Roberts Mountain Complex Wild Horse Gather Environmental Assessment NV062-EA07-120, May 2007,*
- *Fish Creek Complex Final Multiple Use Decision, September 2004,*
- *Fish Creek Complex Evaluation and Rangeland Health Assessment, EA #NV062-EA04-69, August 2004,*
- *Fish Creek Complex Evaluation and Rangeland Health Assessment, June 2004,*
- *Roberts Mountain Herd Management Area, Maintenance Wild Horse Gather Environmental Assessment EA#: NV 062-EA-01-17, February 2001,*
- *Area Manager's Final Multiple Use Decision for the Three Bars Allotment, October 1994,*
- *Area Manager's Final Multiple Use Decision for the Roberts Mountain Allotment, October 1994.*

The Proposed Action is also consistent with the following:

- *Standards and Guidelines for Rangeland Health as developed by the Northeastern Great Basin RAC (SIR at 1.3).*

1.7 Decision to Be Made

The authorized officer would determine whether to implement removal of excess wild horses and the proposed population growth supression measures in order to achieve and maintain population size within the established AML and prevent deterioration of the range resulting from the current wild horse overpopulation. The authorized officer's decision is limited to the need to remove excess wild horses and to implement fertility control and sex ratio adjustment to achieve and maintain population size within AML. It would not set or adjust AML, nor would it adjust livestock use, as these were set through previous decisions, and are outside of the scope of this EA.

2.0 Description of Alternatives, Including Proposed Action

2.1 Introduction:

The following section details the Proposed Action and Alternatives that will be analyzed in this EA, as well as alternatives considered, but not carried forward for analysis. The following alternatives will be analyzed:

- **Proposed Action:** Conduct an initial gather or gathers to remove excess animals in order to achieve and maintain the population within the AML range, apply population growth suppression methods that includes fertility control (vaccines and/or intrauterine devices [IUDs]) to released mares, and sex ratio adjustment of 60% male and 40% female.Then, over a 10-year period after the initial gather(s) have achieved low AML, conducted maintenance gathers and apply fertility control methods to maintain low AML.
- **Alternative A:** Conduct an initial gather or gathers to remove excess animals in order to achieve and maintain the population within the AML range, apply fertility control methods (vaccines and/or IUDs) to released mares, and release a small, non-reproducing component of males (up to 37 geldings).
- **Alternative B:** Conduct an initial gather or gathers to remove excess wild horses in order to achieve and maintain within AML range without implementation of additional population growth suppression methods.
- **Alternative C.** No Action Alternative (No Wild Horse gathers or removals, no population growth suppression).

The Proposed Action was developed to achieve and maintain horse numbers at the established AMLs, remove excess animals from the range, prevent further deterioration to the range, and ensure the long-term success of the wild horses within the Complex. Modification of sex ratios for released studs and mares (Proposed Action and Alternative A) and implementing a small non-reproducing component (Alternative A) would be analyzed to assess the effectiveness of slowing population growth for the Complex in addition to removals alone or the use of fertility control methods targeted for mares.

Although the No Action Alternative does not comply with the WFRHBA and does not meet the purpose and need for the action in this EA, it is included as a basis for comparison with the Proposed Action and other action alternatives.

Under the No Action Alternative, a gather to remove excess wild horses would not occur. There would be no active management to control the size of the wild horse population or to bring the wild horse population to the established AML. The current wild horse population would continue to increase at an average rate of 20% per year. Wild horses residing outside the HMAs, and HA would remain in areas not designated for management of wild horses. Increasing numbers of excess wild horses would continue to deteriorate rangelands within the Complex, public safety concerns and private property issues would increase as well. The failure to reduce wild horses to levels that are in keeping with available resources and the BLM's multiple use mission would increase the likelihood that the BLM would eventually need to take emergency actions to address the overpopulations of wild horses and limited water/forage resources.

The following table compares the Alternatives that will be analyzed within this EA.

Table 2: Overview of RMC Alternatives

Alternative	Fertility Control Management	Sex Ratio Adjustment	Non-Reproducing Component	Achieve AML Range	Action
Proposed Action	X	X	NA	X	Removals, Fertility Control and Sex Ratio Adjustment
Alt. A	X	NA	X	X	Removals, Fertility Control and Gelding
Alt. B	NA	NA	NA	X	Removal Only
Alt. C	NA	NA	NA	NA	No Action

2.2 Proposed Action Alternative (Removals, Fertility Control and Sex Ratio Adjustment)

The Proposed Action would include implementation of gathers and removals of excess wild horses within the Complex to achieve low-end of AML and maintain the AML range, and administer fertility control measures to gathered and released horses over a period of ten years from the initial gather. This Alternative would also include sex ratio adjustment so that the resulting herds would have no more than approximately 60% studs and 40% mares, which is another method that can reduce population growth rates. During subsequent gather operations, excess wild horses would be removed from outside of HMA boundaries, excess wild horses would be removed to achieve the low range of AML within HMAs, and a sufficient number of wild horses may be gathered to implement the population growth suppression components of the Proposed Action (such as fertility control vaccine first dose and booster dose administration, and further sex ratio adjustments, if needed). Meeting the objectives of complete removal of horses outside of HMA boundaries, achievement of the low AML within the HMAs, and application of population growth suppression methods may not be possible during the initial gather event. This is contributed to excess wild horses evading capture, gather efficiency, underestimated population counts, and population growth of approximately 20% each year. Planning for management over the ten-year time frame would allow BLM to achieve management goals and objectives of attaining a herd size that is within the established range of AML, reducing population growth rates, and obtaining a thriving natural ecological balance on the range as identified within the WFRHBA, and removal of horses from outside of HMA boundaries. Refer to Map 2 for the estimated spatial extent of herd management actions.

The following table reflects the estimated population and gather figures for an initial gather to take place prior to the 2023 foaling season. If the gather does not take place until following the 2023 foaling season, the numbers will need to be adjusted. Future gather and removal numbers would be adjusted accordingly based on inventory data and population estimates that are current at that time in the future.

Table 3: Proposed Action, Initial Population and Gather/Removal Figures

GATHER AREA	Est. Population[7]	Est. Gather Number	Est. Un-gathered	Est. to Remove	Est. to Release	Est. Post-gather[8]
Inside HMA	430	366	64	320	46	110
Outside HMA	746	634	112	634	0	112
Total	1176	1000[9]	176	809[10]	46	222

It is expected due to gather efficiencies, under-estimates of the actual wild horse population, annual foal

[7] The estimated population is based on the direct count during the February 2022 helicopter survey, with the addition of the estimated foals born during spring 2022. This represents the estimated population as of September 2022 and is estimated to be the population during a gather operation that would take place early winter 2022, or later winter 2023. If a gather does not occur prior to the FY23 foal crop, population is anticipated to increase by approximately 20% and removal numbers may be adjusted based off current aerial surveys.

[8] Since the Roberts Mountain HMA does not have an AML range, proper management dictates management within a range below what would be considered the high AML. For these purposes, a low AML range of 90 would be used for the Roberts Mountain HMA which would allow approximately 3 foaling seasons before the established AML was again exceeded. Therefore, the range for the Complex would be 110-184 for the purposes of population management.

[9] Estimated gather numbers based on ability to capture 85% of the population, which could vary depending on terrain, animal location, weather conditions, and animal movement experienced before and during the gather, and may be much less.

[10] Removal numbers are subject to change based on the actual population at the time of the gather as well as capture effectiveness. Release numbers would be determined based on the proportion of the population that could be gathered as well as location.

crop, and off range-corral space availability, that it may not be possible to attain low AML during a single initial gather (i.e. not enough horses are successfully captured and removed to reach low AML). If low AML is not achieved with the first gather the BLM Mount Lewis Field Office would return to the Complex to remove the remaining excess horses above low AML in once or more (if necessary) follow up gathers. Gather efficiencies are typically no greater than 85% (and may be as low as 65-75%) which is what was utilized to develop the 'estimated un-gathered' values in the table above. This would result in horses still remaining in areas outside of HMA boundaries. The BLM would return to the Complex continue to remove excess wild horses from within and outside of HMA boundaries. Additionally, the numbers in the above table are based on the direct count obtained during the 2022 helicopter survey and do not reflect the adjustment based on analysis by USGS which is ongoing. For these reasons, the actual number of horses within the Complex are likely higher than reflected in the tables by an estimated 10-20%.

Follow-up gather events would continue over a 10-year period to remove additional excess wild horses necessary to achieve and maintain the range of AML, and to gather a sufficient number of wild horses as to implement the population growth suppression components of the Proposed Action, which includes fertility control vaccines (PZP vaccine, GonaCon vaccine), IUDs and sex ratio adjustment for wild horses remaining in the Complex. If the population again exceeds AML during the 10-year period after bringing the population back to low AML and applying fertility controls, one or more follow-up gathers could be implemented to remove additional excess wild horses above AML in order to provide degraded range resources sufficient opportunity and time to recover. Prioritization of excess wild horse removals would be as follows:

- Areas where public health and safety issue have been identified, private land and non HMA,
- Areas where resource degradation/deficiency has been identified and within HMAs to reach and maintain low AML.

Selective removal procedures would prioritize removal of younger excess wild horses within the Complex, allowing older, healthy, less adoptable wild horses, to be released back to the Complex. BLM would begin implementing the population growth suppression components (PZP vaccine, GonaCon vaccine, IUDs, sex ratio adjustment) of this alternative as part of the initial gather to the extent possible, depending on the numbers of animals gathered. To help improve the efficacy and duration of fertility control vaccines, mares could be held for an additional 30 days and given a booster injection prior to release. It is expected that the population will always include a certain proportion of fertile mares, including animals that are never gathered, and mares whose reversible fertility control vaccines have become ineffective over time, or whose IUDs have fallen out. Typical gather efficiencies do not exceed 85% and may be 65-75%.

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

2.2.1 Population Management

The management objectives for RMC is to achieve low AML as immediately as possible and to maintain AML over the 10-year plan period through population controls and removal of additional excess animals if the population again exceeds AML. BLM would implement population growth suppression measures to include:

- Administration of fertility control measures (i.e. PZP vaccines, GonaCon vaccine or newly developed vaccine formulations, IUDs) to released mares
- Sex ratio adjustment to 60% male and 40% female

A very large fraction of the mare population within AML would need to be effectively contraceptive in order to cause substernal decline in the annual growth rate. The winequus population modeling shows that even with a high fraction of mares treated the population is still anticipated to grow over time. Other population models have shown that a combination of removals and fertility control can lead to more efficient wild horse population management than either gathers along, or fertility control along (de Seve and Boyles-Griffin 2013, Fonner and Bohara 2017).

Gather methods would include helicopter drive, bait, and water trapping. It is expected that not all horses would be able to be captured, as gather efficiencies rarely exceed 80-85% especially in larger Complexes. As a result, a proportion of wild horses (15-20%+) in the project area would not be captured or treated through the 10-year period of the Proposed Action. As shown in Table 3, it is estimated that approximately 46 horses would be released following the initial gather event to result in a post gather population size of 110 wild horses within the Roberts Mountain Complex boundaries. This would equate to an estimated 34 studs and 12 mares released within the HMA during the initial gather to provide a post gather sex ratio of 60:40 favoring studs given an estimated on-range sex ratio of 50:50 in the uncaptured horses. The post gather population would be comprised of approximately 12 mares treated with some form of fertility control, 32 untreated mares, and 66 studs within the boundaries of the HMAs and any remaining uncaptured, untreated horses outside of HMA boundaries.

At the current population, if a single gather were to be immediately implemented to reach low AML, the BLM would gather and remove approximately 809 excess wild horses within the Complex. However, the wild horse population grows each year and if an initial gather is delayed, or if multiple gathers are necessary to achieve low AML, the number of excess wild horses needing gather and removal to achieve low AML would be higher. All components incorporated into the Proposed Action would allow BLM to achieve management goals and objectives of attaining a herd size that will not exceed AML and TNEB on the range as identified within the WFRHBA.

While the agency's plan is to promptly remove all excess animals above low AML, it is unlikely that a single gather can achieve this because of gather efficiency limitations (animals evading capture during the gather operations), logistical limitations (e.g. weather conditions, terrain and large geographic area to be gathered), population inventory under counts, space capacity limitations (for holding removed animals), and limited contractor availability and expertise that limit the number of gathers that can be conducted annually at the national level. As a result, it often requires more than a single gather to bring the population to low AML, if only to capture animals that would have been removed if they had not evaded capture during the gather, or because a gather was ended early due to inclement weather conditions. BLM's management to achieve a thriving natural ecological balance is also not limited to removing excess animals, but also including measures to reduce annual population growth and to allow for recovery of degraded vegetation and riparian areas impacted by the wild horse over population—which requires a sufficient time frame of active management to achieve these objectives.

For these reasons, a ten-year gather plan is needed to (1) remove excess wild horses and burros and bring the population down to low end of AML as expeditiously as possible; (2), 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 Complex and (3) to manage the wild horse population at AML so as to provide sufficient time for vegetation 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, there will be the need for at least one or more follow-up gathers in order to remove all excess animals above the low end of AML and gathers will also be necessary over the course of the ten-year period to apply population control measures that will help reduce the overall population growth rate. Since vegetative and riparian recovery occurs slowly, even

after the immediate overpopulation has been addressed and low AML has been achieved,, management for a thriving natural ecological balance to allow for recovery of degraded resources will require maintaining wild horses' population with the AML by removing animals in excess of AML (as a result of further population growth) during the 10-year decision period to ensure range recovery.

While in the temporary holding corrals horses would be identified for removal or release based on age, gender, health and/or other characteristics. As a part of periodic sampling to monitor wild horses' genetic diversity in the Complex, hair follicle samples would be collected from approximately 25-40 horses from the RMC. Samples would be collected for analysis to assess the levels of observed heterozygosity, which is a measure of genetic diversity (BLM 2010), within the Complex and may be analyzed to determine relatedness to established breeds and other wild horse herds. Mares identified for release would be aged, microchipped and freeze-marked for identification prior to being released to help identify the animals for future treatments/boosters and assess the efficacy of fertility control treatments.

2.2.2. Population Growth Suppression Methods

The Proposed Action would include population growth suppression methods such as fertility control vaccines or IUDs. In cases where a booster vaccine dose is required, mares could be held for approximately 30 days and given a booster injection prior to release. Over the course of multiple gathers through the 10-year time period, BLM would treat/retreat mares with fertility control to help meet herd management objectives. Field darting could also be utilized to treat identifiable mares with boosters where and if feasible. 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.

All mares that are trapped and selected for release would be treated with fertility control treatments (PZP vaccines [ZonaStat-H, PZP-22], GonaCon vaccine or most current formulation, or IUDs) to prevent pregnancy in the following year(s). A program of identification and tracking would be implemented to allow for effective management of the program. Mares would be freezemarked and microchipped for future identification during gathers and on the range.

Sex ratio adjustment would be available as a tool that would further aid in reducing population growth rates. The goal would be to realize a post gather population of 60% studs and 40% mares. It may not be feasible to implement this tool in all gather operations depending upon gather and release numbers. Detailed analysis on population growth suppression methods is discussed further in the SIR at 7.0, as well as Standard Operating Procedures (SOPs) located in the SIR at 9.0.

2.2.2.1. Porcine Zona Pellucida (PZP) Vaccine

Immunocontraceptive Porcine Zona Pellucida (PZP) vaccines are currently being used on nearly40 areas where wild or feral horses are managed by the National Park Service, US Forest Service, the BLM, or other management organizations and its use is appropriate for free-ranging wild horse herds.

The BLM currently uses two PZP formulations for fertility control of wild horse mares, ZonaStat-H (sometimes also called PZP native vaccine) and PZP-22 vaccine pellets. As other formulations are approved for use by BLM, they may be applied through future gathers or darting activities. ZonaStat-H can easily be remotely administered (dart-delivered) in the field, but its use is typically restricted to where mares are relatively approachable. Darting can be implemented when animals are gathered into corrals or opportunistically by applicators near water sources or along main wild horse trails out on the range. Blinds may be used to camouflage applicators to allow efficient treatment of as many mares as possible. PZP can also be applied via hand injections using plastic syringes when animals are gathered into corrals and chutes. In keeping with the EPA registration for ZonaStat-H (EPA 2012; reg. no. 86833-1), a training certification through the Science and Conservation Center in Billings Montana is required to apply that vaccine to equids.

When applying ZonaStat-H, first the primer with modified Freund's Complete adjuvant is given and then the booster with Freund's Incomplete adjuvant is given 2-6 weeks later. Preferably, the timing of the booster dose is at least 1-2 weeks prior to the onset of breeding activity. Following the initial two inoculations, annual boosters are required to maintain contraception. For maximum effectiveness, PZP would be administered within the December to February timeframe.

For the PZP-22 formulation administered during gathers, each released mare would receive a single dose of the PZP-22 contraceptive vaccine pellets at the same time as a dose of the ZonaStat-H vaccine with modified Freund's Complete adjuvant. The pellets are applied to the mare with a large gauge needle and jab-stick into the hip. Although PZP-22 pellets have been delivered via darting in trial studies (Rutberg et al. 2017, Carey et al. 2019), BLM does not plan to use darting for PZP-22 delivery until there is more demonstration that the pellets can be reliably delivered via dart. Therefore, wild horses must be gathered for each application of this formulation.

Under the Proposed Action, mares being treated for the first time would receive a liquid primer dose along with time release pellets. BLM would return to the HMA as needed to re-apply PZP-22 and/or ZonaStat-H and initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Application methods could be by hand in a working chute during gathers, or through field darting if mares in some portions of the Complex prove to be approachable. Both forms of PZP can safely be reapplied as necessary to control the population growth rate. Even with repeated booster treatments of PZP, it is expected that most, if not all, mares would return to fertility, and not all mares would be treated or receive boosters within the Complex due to the sheer numbers of the population, the large size of the Complex and logistics of wild horse gathers or darting programs. Once the population is at AML and population growth seems to be stabilized, BLM could use population planning software (i.e., PopEquus, currently in development by USGS Fort Collins Science Center) to determine the required frequency of re-treating mares with PZP or other fertility control methods. Refer to the SIR at 9.0 (SOPs).

2.2.2.2. Gonadotropin Releasing Hormone (GnRH) Vaccine, GonaCon

GonaCon is an immunocontraceptive vaccine which has been shown to provide multiple years of infertility in several wild ungulate species, including horses (Killian et al., 2008; Gray et al., 2010, Baker et al. 2018). GonaCon-Equine meets most of the criteria that the National Research Council of the National Academy of Sciences (NRC 2013) used to identify the most promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. GonaCon-Equine is approved for use by authorized federal, state, tribal, public and private personnel, for application to wild and feral equids in the United States (EPA 2013, 2015). Its use is appropriate for free-ranging wild horse herds.

GonaCon uses the gonadotropin-releasing hormone (GnRH), a small neuropeptide that performs an obligatory role in mammalian reproduction, as the vaccine antigen. When combined with an adjuvant, the GnRH vaccine stimulates a persistent immune response resulting in prolonged antibody production against GnRH, the carrier protein, and the adjuvant (Miller et al., 2008). The most direct result of successful GnRH vaccination is that it has the effect of decreasing the level of GnRH signaling in the body, as evidenced by a drop in luteinizing hormone levels, and a cessation of ovulation. The lack of estrus cycling that results from successful GonaCon vaccination has been compared to the typical winter period of anoestrus in open mares. As anti-GnRH antibodies decline over time, concentrations of available endogenous GnRH increase and treated animals usually regain fertility (Power et al., 2011).

As with other contraceptives applied to wild horses, the long-term goal of GonaCon-Equine use is to reduce or eliminate the need for gathers and removals (NRC 2013). GonaCon-Equine vaccine is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced in a USDA-APHIS laboratory. The intended effect of the vaccine is as a contraceptive. GonaCon is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine

product (Miller et al. 2013).

Under the Proposed Action, the BLM would return to the Complex 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 cause a longer duration and higher rate of contraceptive effectiveness (Baker et al. 2018), which is generally the intent. GonaCon-Equine can safely be reapplied as necessary to control the population growth rate. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, mares would return to fertility at some point, although that may take 5 or more years (Baker et al. 2018). Therefore, depending on their lifespan, it is possible that mares who receive multiple doses of GonaCon-Equine vaccine may remain contracepted until they die. Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM would make a determination as to the required frequency of new mare treatments and mare re-treatments with GonaCon or other fertility control methods, to maintain the number of horses within AML.

2.2.2.3. Intrauterine Devices (IUDs)

IUDs are considered a temporary fertility control method that does not generally cause future sterility (Daels and Hughes 1995). It is expected that IUDs would only be inserted in non-pregnant (open) mares. Wild mares receiving IUDs would be checked for pregnancy by a veterinarian prior to insertion of an IUD. When wild horses are gathered, the majority are pregnant, but a fraction is not. Candidate mares for treatment would need to be transported to an off-range corral so they can be screened by a veterinarian to ensure they are not pregnant, because any transcervical procedures can cause a pregnancy to terminate. Screening could be with transrectal palpation or ultrasonography. Those screening procedures require restraint and evacuation of the colon, but do not require sedation or analgesia. For palpation, the veterinarian uses a sleeved hand in the rectum to feel for a fetus in the uterus. For ultrasound screening, the veterinarian brings the ultrasound probe (transducer) with a sleeved hand into the mare's rectum, and visualizes the uterus. If palpation or ultrasound indicate that the mare is pregnant, then she is not considered for IUD application. Only a veterinarian would introduce IUDs in open wild mares. Open mares that do receive an IUD must also be transported back to the range for release.

Based on promising results from studies in domestic mares, BLM has begun to use IUDs to control fertility as a wild horse and burro fertility control method on the range. The initial management use was in mares from the Swasey HMA, in Utah. The BLM has supported and continues to support research into the development and testing of effective and safe IUDs for use in wild horse mares (Baldrighi et al. 2017, Holyoak et al. 2021). However, existing literature on the use of IUDs in horses allows for inferences about expected effects of any management alternatives that might include use of IUDs, and support the apparent safety and efficacy of some types of IUDs for use in horses (refer to the SIR at 7.3 and 9.4 for more detail about IUDs).

Flexible IUDs may cause relatively less discomfort than hard IUDs (Daels and Hughes 1995). The 2013 National Academies of Sciences (NAS) report considered IUDs and suggested that research should test whether IUDs cause uterine inflammation, and should also test how well IUDs stay in mares that live and breed with fertile stallions. Since that report, researchers tested a Y-shaped IUD to determine retention rates and assess effects on uterine health; retention rates were greater than 75% for an 18-month period, and mares returned to good uterine health and reproductive capacity after removal of the IUDs (Holyoak et al. 2021). Also, the University of Massachusetts has developed a magnetic IUD that has been effective at preventing estrus in non-breeding domestic mares (Gradil et al. 2019, Joonè et al. 2021, Gradil et al. 2021). The overall results are consistent with results from an earlier study (Daels and Hughes 1995), which used O-shaped silicone IUDs.

2.2.2.4 Sex Ratio Adjustment

Sex ratio adjustment, leading to a reduced proportion of mares 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), the technique leads to fewer foals being born, relative to the total herd size. Sex ratio is typically adjusted in such a way that 60 percent of the horses 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 being born, at least for a few years – this can extend the time between gathers, and reduce impacts on-range, and costs off-range. Additional detail about sex ratio adjustment is available in the SIR at 7.5.

2.3 Alternative A (Fertility Control with Non-Reproducing Component)

This alternative is similar to the Proposed Action with the exception that a small portion of the population would be non-reproducing (geldings) rather than implementing sex ratio adjustment to favor studs. Fertility control methods for mares would be as described under the Proposed Action (PZP vaccine, GonaCon vaccine, IUDs). In addition to bringing the wild horse population to low AML, approximately 37 gelded horses – that would otherwise be excess animals permanently removed from the range and sent to off-range corrals for adoption/sales or off-range pastures – may be returned to the range and managed as a non-breeding component of the herd, so long as the geldings do not result in the population exceeding mid-range AML. This equates to approximately 25% of the post gather population as geldings. Including some fertility control-treated mares and some geldings in the herd at mid-AML herd size would allow for management of a total wild horse population within the Complex that would be larger than low AML, while still reducing population growth rates compared to those of an untreated herd and achieving a thriving natural ecological balance. Including some geldings in the herd is expected to slow population growth rates, partly as a result of the larger number of males than females in the horse herd, and partly because geldings that retain harems do appear to prevent fertile stallions from breeding with females, at least for some number of years after gelding (King et al. 2022). Primary gather methods would include helicopter drive, bait, and water trapping. It is expected that not all horses would be able to be captured, as gather efficiencies rarely exceed 80-85% especially in larger Complexes. As a result, a proportion of wild horses (15-20%+) in the project area would most likely not be captured or treated over a 10-year period. However, future gathers may involve additional gelding of some geldings that were missed in the earlier gathers to maintain the non-reproducing component of the Complex.

2.3.1. Gelding

In order to reduce the total number of excess wild horses that would otherwise be permanently removed from the Complex, a portion of the male population would be managed as geldings. The procedures to be followed for gelding of stallions are detailed in the Gelding Standard Operating Procedures (SOPs) in the SIR at 10.

Gelding Procedure

BLM routinely gelds all excess male horses that are captured and removed from the range prior to their adoption, sale, or shipment to Off-Range Pastures (ORPs). The gelding procedure for excess wild horses removed from the range is conducted at temporary (field) or off range corrals by licensed veterinarians and follows industry standards. Under the Alternative A, in addition to returning the population of wild horses to low AML, up to 37 geldings could be returned to resume their free-roaming behaviors on the public range instead of being permanently removed from the Complex, which could bring the population to mid-AML. Geldings have been released on BLM lands as a part of herd management in the Barren Valley complex in Oregon (BLM 2011), the Challis HMA in Idaho (BLM 2012), and the Conger HMA in Utah (BLM 2016). By including some geldings in the population and having a slightly skewed sex ratio with more males than females overall, the anticipated result would be a reduction in per-capita population growth rates while allowing for management of a larger total wild horse population on the range. Stallions that would otherwise be permanently removed as excess wild horses would be selected for gelding and release.

No animals which appear to be distressed, injured, or in poor health or condition would be selected for gelding. Stallions would not be gelded within 72 hours of capture. The surgery would be performed at a BLM-managed holding center by a veterinarian using general anesthesia and appropriate surgical techniques (see Gelding SOPs in and additional detail in SIR at 10).

During the procedure, the animal is sedated then placed under general anesthesia. Ropes are placed on one or more limbs to help hold the animal in position and the anesthetized animals are placed in either lateral or dorsal recumbency. The surgical site is scrubbed and prepped aseptically. The surgeon would wear sterile gloves. The scrotum is incised over each testicle, and the testicles are removed using a surgical tool to control bleeding. The incision is left open to drain. Each animal would be given a Tetanus shot, antibiotics, and an analgesic.

Any males that have an inguinal or scrotal hernias would be removed from the population, sent to a BLM prep corral facility and be treated surgically as indicated if possible or euthanized if they have a poor prognosis for recovery according to BLM policy: Washington Office Permanent Instruction Memorandum (WO PIM) 2021-007. Horses with only one descended testicle may be removed from the population and managed at a BLM prep corral facility according to BLM policy or anesthetized with the intent to locate the undescended testicle for castration. If an undescended testicle cannot be located, the animal may be recovered and removed from the population if no surgical exploration has started. Once surgical exploration has started those that cannot be completely castrated would be euthanized prior to recovering them from anesthesia according to BLM policy. All animals would be rechecked by a veterinarian the day following surgery. Those that have excessive swelling, are reluctant to move or show signs of any other complications would be held in captivity and treated accordingly as they normally would in a BLM facility. Once released to the wild no further veterinary interventions are possible.

Selected stallions would be shipped to an off-range corral, gelded, and returned to the range within 30 days. Gelded animals would be monitored periodically for complications for approximately 7-10 days following release. This monitoring may be completed either through aerial recon if available, or field observations from major roads and trails. The goal of this monitoring is to detect complications if they are occurring and determine if the horses are freely moving about the Complex. All adults would have been freeze-marked at the first gather to facilitate posttreatment and routine field monitoring. Post-gather monitoring would be used to document whether geldings form bachelor bands or intermix with the breeding population as expected. Other periodic observations of the long-term outcomes of gelding could be recorded during routine resource monitoring work. Such observations would include but not be limited to band size, social interactions with other geldings and harem bands, distribution within their habitat, forage utilization and activities around key water sources. Periodic population inventories and future gather statistics may contribute to BLM's ongoing considerations about managing a portion of the herd as non-breeding animals, as an effective approach to slowing the annual population growth rate by replacing breeding mares with sterilized animals, when used in conjunction with other population control techniques. Management of a gelding population would allow for management at mid-AML, instead of gathering and removing excess animals to low AML.

By itself, it is unlikely that gelding would allow the BLM to achieve its wild horse population management objectives since a single fertile stallion is capable of impregnating multiple mares, and stallions other than the dominant harem stallion may also breed with some mares. Adequate reduction of female horse fertility rates would be expected to result only if a large proportion of male horses in the population are sterile, because of their social behavior (Garrott and Siniff 1992). Therefore, to be fully effective, use of gelding (alone) to control population growth requires that either the entire male population be gathered and treated (which is not practical and is not being considered here) or that some percentage of the female wild horses in the population also be gathered and treated with some form of fertility control. If the mare treatment is not of a permanent nature (e.g., application of PZP vaccine, GonaCon, IUDs) the mares may need to be

gathered and retreated on a periodic basis.

2.4 Alternative B (No Implementation of Population Controls)

Under this alternative, BLM would implement periodic gathers to remove excess animals to achieve and maintain the AML range as the only tool utilized. No fertility control, sex ratio adjustment or gelding would be implemented. Gathers would continue as needed over a 10-year period as described under the Proposed Action. While wild horses would be gathered to the within the low range of AML, the AML would be exceeded sooner than under the Proposed Action or Alternative B since per-capita fertility rates would be higher as no population controls would be implemented.

2.5 Comparison of Action Alternatives

The following table displays the RMC estimated target post gather population within the with numbers of mares and sex ratio that could occur under each alternative.

Table 4: Sex Ratios and Target Populations by Alternative

Alternative	Target population	Mares	Studs	Geldings	% Male
Proposed Action	110	44	66	0	60%
Alternative A	147	55	55	37	63%
Alternative B	110	55	55	0	50%

2.6 Management Actions Common to The Proposed Action and Alternatives A and B

Both Alternatives A and B would authorize the BLM to gather horses and remove excess wild horses to achieve low AML, and to maintain the AML through maintenance gathers while implementing fertility control for the next 10 years following the start date of the initial gather.

The primary gather techniques would be the helicopter-drive and water/bait trapping. The use of roping from horseback could also be used when necessary. Multiple, temporary gather sites (traps) would be used to gather wild horses both from within and outside the boundaries of the HMAs within the Complex. In addition to public lands, private property may be utilized for gather sites and temporary holding facilities (with the landowner's permission) if necessary, to ensure accessibility and/or based on prior disturbance. Use of private land would be subject to Standard Operating Procedures (SOPs) and to the written approval/authorization of the landowner. Refer to the SIR at 6.0 for the SOPs.

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.

Temporary gather and holding sites would be no larger than 1.0 acre. 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 the 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.

The BLM would make every effort to place gather sites in previously disturbed areas, but if new sites are needed, a cultural inventory would be completed prior to using the new gather site. If cultural resources are encountered, the location of the gather/ holding site would be adjusted as needed to avoid all cultural resources.

No gather sites would be set up on Greater sage-grouse leks, known populations of sensitive species, in

riparian areas, in cultural resource sites, sacred sites, paleontological sites or Wilderness Study Areas (WSAs). All gather sites, holding facilities, and camping areas on public lands would be recorded with Global Positioning System equipment, given to the BLM Battle Mountain Invasive, Non-native Weed Coordinator, and then assigned for monitoring and any necessary treatment during the next several years for invasive, non-native weeds. All gather and handling activities (including gather site selections) would be conducted in accordance with SOPs in SIR 6.

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

Wildlife Stipulations (Common to Alternatives A and B)

- If gather operations were to be conducted during the migratory bird and raptor nesting season (March 1 – July 31) a nest clearance survey would be conducted by BLM Biologist at trap, corral, and staging areas.
- Trap sites and corrals would not be located in active special status species habitat.
- Greater sage-grouse Required Design Features (RDFs) that are identified in Appendix C of the 2015 ARMPA, would be applied in Greater sage-grouse habitat. Please see the SIR for list of RDFs applicable.
- Corrals would not be constructed within 1.2 miles of an active or pending lek during lekking season (March 1 to May 15).
- Prior to gathers, BLM would coordinate with NDOW regarding locations of staging areas to address Greater sage-grouse concerns. The following timing restrictions would be adhered to the best of BLM's abilities while not impeding gather operations:
    - Helicopter and water trapping gather would not occur during the lek timing restriction of March 1 – May 15 to protect breeding Greater sage-grouse.
    - Helicopter gathers would not occur during the nesting timing restriction of April 1 – June 30 within 4 miles of an active or pending lek.
    - Water trapping operations would not occur during nesting timing restriction April 1 – June 30 within 1.2 mile of an active or pending lek.
    - Water trapping operations would not occur at springs and seeps during brood-rearing timing restriction of May 15 – September 15 if determined by the BLM wildlife biologist the locations are considered Greater sage-grouse brood habitat.

2.6.1. Helicopter Drive Trapping

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

Helicopter-drive trapping may be needed to meet management objectives to capture the highest percentage of wild horses possible. The appropriate gather method would be decided 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. The use of roping from horseback could also be used when necessary. Based on historic knowledge of wild horse distribution, it is estimated that multiple trap sites may be used during trapping activities.

Helicopter drive trapping involves use of a helicopter to herd wild horses into a temporary trap. The SOPs outlined in the SIR at 6 would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impacts or injury to the wild horses. Utilizing the topography, traps would be set in areas with high probability of horse access. This would assist with capturing excess wild

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 horses. The wings form an alley way used to guide the 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 horses to the trap location. The pilot uses a pressure and release system while guiding them to the trap sites, allowing them to travel at their own pace. As the herd approaches the trap the pilot applies pressure, and a prada/guide horse is released guiding the wild horses into the trap. Once 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 horses. BLM staff would be present on the gather at all times to observe animal condition, ensure humane treatment of wild horses, and ensure contract requirements are met.

Per BLM IM 2013-059 and BLM IM 2010-164, helicopter landings would not be allowed in wilderness except in the case of an emergency.

2.6.2. Bait/Water Trapping

Bait and/or water trapping would be used as appropriate to gather wild horses efficiently and effectively. Bait and water trapping may be utilized when wild horses are in an area where there are limited resource (such as food or water). The use of bait and water trapping, though effective in specific areas and circumstances, would not be timely, cost-effective or practical as the primary or sole gather method for the Complex. However, water or bait trapping could be used as a supplementary approach to achieve the desired goals of the Action Alternatives throughout portions of the Complex. Bait and/or water trapping generally require a longer window of time for success than helicopter drive trapping. Although traps would be set in a high probability area for capturing excess wild horses residing within the area and at the most effective time periods, time is required for the 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 horse area, or around a pre-set water or bait source. The portable panels would be set up to allow wild horses to go freely in and out of the corral until they have adjusted to it. When the wild horses fully adapt to the corral, it is fitted with a gate system. The adaptation of the horses creates a lower stress trapping method. During this acclimation period the horses would experience some stress due to the panels being setup and perceived access restriction to the water/bait source. See Water and Bait Trapping SOPs in the SIR at 6.

Gathering excess horses using bait/water trapping could occur at any time of the year with the exception of wildlife timing restrictions that may be required. Traps would remain in place until the target numbers of animals are removed. As the proposed bait and/or water trapping in this area is a lower stress approach to gathering wild horses, such trapping can continue into the foaling season without harming the mares or foals.

2.6.3. Gather-related Temporary Holding Facilities (Corrals)

Wild horses that are gathered would be transported from the gather sites to a temporary holding corral. At the temporary holding corral wild horses would be sorted into different pens by gender, age, health or proposed disposition. Mares would be identified for fertility control and treated at the corrals. The horses would be provided good quality hay and water. At the temporary holding facility, a veterinarian, when present, would provide recommendations to the BLM regarding care and treatment of recently captured wild horses. 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),

in accordance with Wild Horse and Burro Euthanasia Policy WO PIM 2021-007.

Herd health and characteristics data would be collected as part of continued monitoring of the wild horse herds. Genetic baseline data would be collected to monitor the genetic health of the wild horses within the combined project area. Additional samples may be collected to analyze ancestry.

Gathered wild horses would be transported to BLM Off-Range Corrals (ORCs) formerly short-term holding facilities, where they would be prepared for adoption and/or sale to qualified individuals or transfer to off-range pastures or other disposition authorized by the WFRHBA.

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

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

Upon arrival, recently captured wild horses are off-loaded by compartment and placed in holding pens where they are provided good quality hay and water. Most wild 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 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 and per WO PIM 2021-007. Wild 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 horses have transitioned to their new environment, they are prepared for adoption, sale, or transport to Off-Range Pastures (ORPs). Preparation involves freeze marking the animals with a unique identification number, vaccination against common diseases, castration, microchipping, and de-worming. At ORC facilities, a minimum of 700 square feet of space is provided per animal.

2.6.5. Adoption

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

2.6.6. Sale with Limitations

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

2.6.7. Off-Range Pastures

When shipping wild horses for adoption, sale, or Off-Range Pastures (ORPs), the animals may be transported for up to a maximum of 24 hours. Immediately prior to transportation, and after every 24 hours

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

2.6.8. Euthanasia or Sale without Limitations

Under the WFRHBA, healthy excess wild horses can be euthanized or sold without limitation if there is no adoption demand for the animals. However, for several decades Congress has prohibited the use of appropriated funds for this purpose. If Congress were to lift the current appropriations restrictions, then it is possible that excess horses removed from the Complex 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 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 WO PIM 2021-007 or most current edition. Conditions requiring humane euthanasia occur infrequently.

2.6.9. 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 Gathers within Nevada (SIR mat 14.0). 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 horses), to the wild horses (e.g., by ensuring observers would not be in the line of vision of wild 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 horses. Observation locations placed at gather or holding sites 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 horses. Only essential gather operation personnel would be allowed at the trap site during operations.

2.7 Alternatives Considered but Eliminated from further Consideration

The following alternatives to the helicopter drive and bait/water trapping method for the removal of wild horses and population control to reach the established AML were considered but eliminated from detailed analysis for the reasons stated below.

2.7.1. Field Darting Horses with ZonaStat-H (Native PZP) or GonaCon-Equine

This alternative was eliminated from further consideration as the **sole** method of population reduction and control due to the difficulties inherent in darting wild horses in the project area. Field darting of wild horses generally works more efficiently in areas with good access where animals are acclimated to the presence of people who come to watch and photograph them. The size of the Complex is large (>190,000 acres) and many remote areas do not have adequate access. Horse behavior limits their approachability/accessibility, so that the number of mares expected to be treatable via darting would be insufficient to control growth

rates adequately. The formulation of PZP also requires a booster given every year following treatment to maintain the highest level of efficacy. Annual darting of wild horses in large areas can be very difficult to replicate and could be unreliable. Additionally, this alternative would not include the removal of the large number of horses residing outside of HMA boundaries, or of the large numbers of excess horses within the HMAs; leaving these horses on the range would allow continued impacts to rangeland resources and competition for resources among horses. For these reasons, this alternative was determined to not be an effective or feasible as the **sole** population control method to wild horses in the Complex. Darting is included as a potential tool for use under the Proposed Action in areas that may be deemed suitable in the future, and to be implemented in concert with the other methods detailed in the Proposed Action. This alternative would not meet the Purpose and Need and was not considered further

2.7.2. Control of Wild Horse Numbers by Fertility Control Treatment Only (No Removals)

This alternative included gathering a significant portion of the existing population (85%) and implementing fertility control treatments only, without removal of excess wild horses.

This alternative would not meet the purpose and need and therefore was eliminated from further consideration. The wild horse population would not be brought to within the established AML range, and populations would continue to grow even further in excess of AML, allowing resource concerns to further escalate. Additionally, excess wild horses existing outside of HMA boundaries would not be removed. Implementation of this alternative would result in increased gather and fertility control costs without achieving a thriving natural ecological balance or resource management objectives.

2.7.3. Chemical Immobilization

Chemical immobilization as a method of capturing wild horses is not a logistically feasible alternative because it is a very specialized technique and is strictly regulated. .

2.7.4. Use of Wrangler on Horseback Drive-trapping

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

2.7.5. Designate the HMAs to be Managed Principally for Wild Horse Herds Under 43 C.F.R. 4710.3-2.

HMAs are designated in the Land Use Planning (LUP)/Resource Management Planning (RMP) process for the long-term management of wild horses. The Battle Mountain District does not administer any designated Wild Horse or Burro Ranges, which under 43 C.F.R. 4710.3-2 are "to be managed principally, but not necessarily exclusively, for wild horse or burro herds." There are currently four designated Wild Horse or Burro Ranges in the western states. This alternative would involve no removal of wild horses and would instead address excess wild horse numbers through removal or reduction of livestock within the HMAs. In essence, this alternative would exchange use by livestock for use by wild horses. Because this alternative would mean converting the HMAs to wild horse Ranges and modifying the existing multiple use relationships established through the land-use planning process, it would first require an amendment to the RMP, which is outside the scope of this EA. This alternative was not brought forward for analysis because it is inconsistent with the 1986/1987 SERA RMP (refer to Section 1.3) and the WFRHBA which directs the Secretary to immediately remove excess wild horses where necessary to ensure a thriving natural ecological balance and multiple use relationship. This alternative is also inconsistent with the BLM's multiple use management mission under FLPMA. Changes to or the elimination of livestock grazing cannot be made

through a wild horse gather decision. Furthermore, even with significantly reduced levels of livestock grazing within the gather area relative to the permitted levels authorized in the 1986/1987 SERA RMP, there is insufficient habitat for the current population of wild horses, as confirmed by monitoring data. As a result, this alternative was not analyzed in detail.

2.7.6. Increasing the Appropriate Management Levels for Wild Horses

This alternative would include delay of a gather until the AMLs can be reevaluated. This alternative is not consistent with the WFRHBA, Public Rangelands Improvement Act (PRIA), FLPMA or the existing RMP.

Monitoring and other historical data collected within the Complex 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 horses above the currently established AML to reverse downward trends, promote improvement of rangeland health and ensure safety and health of wild horses. Severe range degradation would occur in the meantime and large numbers of excess wild horses would ultimately need to be removed from the range in order to achieve the 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 the range from deterioration associated with an overpopulation of wild horses. Raising the AML where there are known resource degradation issues associated with an overpopulation of wild horses does not meet the Purpose and Need to restore a thriving natural ecological balance or meet Rangeland Health Standards.

2.7.7. Re-Evaluate the HMA Boundary in a Land Use Plan Amendment

This alternative would delay a gather until a LUP/RMP Amendment evaluated the RMC to consider modification of the HMA boundaries, potentially changing the boundaries (increase or decrease in acres) of the HMAs from the original Herd Area boundaries. This alternative was not carried forward for the same reasons as 2.7.6. above. LUP Amendments are lengthy and often controversial processes that involve all resources and uses. The RMC includes many resources and issues which would require intensive analysis including Greater sage grouse, Lahontan Cutthroat Trout, Wilderness Study Area, riparian areas, rangelands impacted by fire and general resource health and allocation of forage. Amending the existing LUP/RMP is outside the scope of this EA.

2.7.8. Remove or Reduce Livestock Within the HMAs

This alternative would involve no removal of wild horses and would instead address excess wild horse numbers through removal or reduction of livestock within the HMAs. In essence, this alternative would simply exchange use by livestock for use by wild horses. This alternative was not brought forward for analysis because it is inconsistent with the SERA RMP, and the WFRHBA which directs the Secretary to immediately remove excess wild horses.

The proposal to reduce livestock would not meet the Purpose and Need for action identified in Section 1.2: Eliminating or reducing grazing in order to shift forage use to wild horses would not be in conformance with the existing LUP/RMPs and is contrary to the BLM's multiple-use mission as outlined in FLPMA and would be inconsistent with the WFRHBA and PRIA. It was Congress' intent to manage wild horses and burros as one of the many uses of the public lands, not a single use. Therefore, the BLM is required to manage wild horses and burros in a manner designed to achieve a thriving natural ecological balance between wild horse and burro populations, wildlife, domestic livestock, vegetation and other uses.

Information about the Congress' intent is found in the Senate Conference Report (92-242) which accompanies the 1971 WFRHBA (Senate Bill 1116): "*The principal goal of this legislation is to provide for the protection of the animals from man and not the single use management of areas for the benefit of wild free-roaming horses and burros. It is the intent of the committee that the wild free-roaming horses and burros be specifically incorporated as a component of the multiple-use plans governing the use of the public*

lands."

Furthermore, simply re-allocating livestock Animal Unit Months (AUMs) to increase the wild horse AMLs would not achieve a thriving natural ecological balance. Wild horses are unlike livestock which can be confined to specific pastures, limited to specific periods of use, and specific seasons-of-use so as to minimize impacts to vegetation during the critical growing season and to riparian zones during the summer months. Wild horses are present year-round and their impacts to rangeland resources cannot be controlled through establishment of a grazing system, such as for livestock. Thus, impacts from wild horses can only be addressed by limiting their numbers to a level that does not adversely impact rangeland resources and other multiple uses.

Livestock grazing can only be reduced or eliminated through provisions identified within regulations at 43 CFR § 4100 and must be consistent with multiple use allocations set forth in LUP/RMPs. Such changes to livestock grazing cannot be made through a wild horse gather decision and are only possible if BLM first revises the LUPs to allocate livestock forage to wild horses and to eliminate or reduce livestock grazing. Because this alternative is inconsistent with the SERA RMP, it would first require an amendment to the SERA RMP, which is outside the scope of this EA.

2.7.9. Wild 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. The alternative of using natural controls to achieve a desirable AML has not been shown to be feasible in the past (NRC 2013).

Survival rates for wild horses on western USA public lands are high (Ransom et al. 2016). None of the significant natural predators from native ranges of the wild equids in Europe, Asia, and Africa — wolves, brown bears, and African lions — exist on the wild horse ranges in the western United States. Mountain lions are known to predate on horses, primarily foals, in a few herds (Andreasen et al. 2021), but predation contributes to biologically meaningful population limitation in only a handful of herds. In some cases, adult annual survival rates exceed 95%.

Many horse herds grow at sustained high rates of 15-25% per year and are not a self-regulating species (NRC 2013). The NAS report (NRC 2013) concluded that the primary way that equid populations self-limit is through increased competition for forage at higher densities, which results in smaller quantities of forage available per animal, poorer body condition and decreased natality and survival. It also concluded that the effect of this would be impacts to resource and herd health that are contrary to BLM management objectives and statutory and regulatory mandates. This alternative would result in a steady increase in the wild horse populations which would continue to exceed the carrying capacity of the range resulting in a catastrophic mortality of wild horses in the Complex, and irreparable damage to rangeland resources.

While some members of the public have advocated "letting nature take its course", allowing horses to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild horses. The damage to rangeland resources that results from excess numbers of wild horses is also contrary to the WFRHBA, which mandates the Bureau 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*".

Title 43 CFR § 4700.0-6 (a) states "*Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat*". As the vegetative and water resources are over utilized and degraded to the point of no recovery as a result of the wild horse

overpopulation, wild horses would start showing signs of malnutrition and starvation. The weaker animals, generally the older animals, and the mares and foals, would be the first to be impacted. It is likely that a majority of these animals would die from starvation and dehydration which could lead to a catastrophic die off. The resultant population could be heavily skewed towards the stronger stallions which could contribute to social disruption in the Complex. Competition between wildlife and wild horses for forage and water resources would be severe. Wild horses can be aggressive around water sources, and some wildlife may not be able to compete (Hall et al. 2018), which could lead to the death of individual animals. Wildlife habitat conditions would deteriorate as wild horse numbers above AML reduce herbaceous vegetative cover, damage springs and increase erosion, and could result in irreversible damage to the range. This degree of resource impact would likely lead to management of wild horses at a greatly reduced level if BLM is able to manage for wild horses at all within the Complex in the future. For these reasons, this alternative was eliminated from further consideration. This alternative would not meet the Purpose and Need for this EA which it is to remove excess wild horses from within and outside the Complex and to reduce the wild horse population growth rates to manage wild horses within established AML ranges.

3.0 Affected Environment/Environmental Effects

3.1 Identification of Issues:

Internal scoping was conducted by an interdisciplinary (ID) team, which 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 H-1790-1 (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 Battle Mountain District BLM in particular.

Table 5 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.

Table 5. Summary of Supplemental Authorities and Other Elements of the Human Environment

Resource/Concern	Issue(s) Analyzed? (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
Air Quality and Climate Change	N	The proposed gather area is not within an area of non-attainment, or areas where total suspended particulate matter exceed Nevada air quality standards. Areas of disturbance would be small and temporary. Air quality and Climate impacts caused by air pollutant emissions from vehicle-based gather activities are expected to be *de minimis* due the short duration and small scale of such activities.
Areas of Critical Environmental Concern (ACEC)	N	Resource is not present.
Cultural Resources	N	In accordance with the SOPs for Gather and Handling Activities in (SIR at6X), gather facilities would be placed in previously disturbed areas. Should new, previously undisturbed gather sites or holding facility locations be required, appropriate Class III cultural resource inventories would be conducted to avoid placing gather facilities in areas with cultural resources and to ensure that measures are taken to avoid any cultural resource impacts.
Forest Health	N	Project has a negligible impact directly, indirectly and cumulatively to forest health. Detailed analysis not required.
Migratory Birds	Y	Effects to resource are analyzed in this EA, Section 3.5.
Livestock	Y	Effects to resource are analyzed in this EA, Section 3.6.
Native American Religious and other Concerns	N	No potential traditional religious or cultural sites of importance have been identified in the project.

Resource/Concern	Issue(s) Analyzed? (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
Wastes, Hazardous or Solid	N	No hazardous or solid wastes exist in the Complex, nor would any be introduced.
Water Quality, Drinking/Ground	N	The proposed action or alternatives would not affect drinking or groundwater quality. The project design would avoid surface water and riparian systems and no water wells would be affected.
Environmental Justice and Socioeconicos	N	The Proposed Action would not have disproportionately high or adverse effects on low income or minority populations. Health and environmental statues would not be compromised. The Proposed Action would not disproportionately impact social or economic values.
Floodplains	N	The project analysis area was not included on FEMA flood maps.
Farmlands, Prime and Unique	N	Resource not present.
Species Threatened, Endangered or Proposed for listing under the Endangered Species Act.	N	Resources analyzed under Wildlife , Section 3.5.
Wetlands/Riparian Zones	Y	Effects to resource are analyzed in this EA, Section 3.4.
Non-native Invasive and Noxious Species	Y	Analysis in EA, Section 3.8
Wilderness/WSA	Y	Effects to resource are analyzed in this EA, Section 3.7.
Lands with Wilderness Characteristics	N	The MLFO does not have a LWC inventory presently, therefore, LWC units with or without wilderness characteristics cannot be identified presently. Impacts to Wilderness Character are same as those analyzed under Wilderness and WSA.
Human Health and Safety	N	Risks have been assessed to mitigate any safety hazards in the form of safety plans and risk management worksheets.
Wild and Scenic Rivers	N	Not Present.
Special Status Plant and Animal Species	Y	Effects to resource are analyzed in this EA under Vegetation, Section 3.5
Fish and Wildlife	Y	Effects to resource are analyzed in this EA under Wildlife Section 3.5
Paleontology	N	Not present
Wild Horses	Y	Effects to resource are analyzed in this EA, Section 3.3.
Soils Resources	Y	Effects to resource are analyzed in this EA, Section 3.11.
Water Resources (Water Rights)	N	Permitted or pending water uses would not be affected.
Mineral Resources	N	There would be no modifications to mineral resources through the Proposed Action.
Vegetation Resources	Y	Impacts under each alternative could result in improving or deteriorating native plant communities. Effects to resource are analyzed in this EA, Section 3.9.
Recreation	N	Recreation is considered present; however, the horse gathering activities would not majorly affect recreation resources in the area. Potential recreational opportunities within the horse gather area include dispersed camping, hunting, hiking, wildlife watching, etc. The major affected recreational activity that would be most affected would be the hunting with NDOW units (143 and 155). Per NDOW hunting regulations, hunters should check with their local BLM office to inquire about horse gathering activities within their hunt unit/area. Hickison Petroglyphs Recreation area is located near the gather area; however, they should not be affected by the gather event.

Resource/Concern	Issue(s) Analyzed? (Y/N)	Rationale for Dismissal from Detailed Analysis or Issue(s) Requiring Detailed Analysis
Visual Resources	N	Impacts to visual resources would be present; however, the horse gathering activities would not majorly affect visual resource management resources in the area. The gathering activities would not put in place permanent structures and would only occur for set time periods. Impacts would be negligible.

3.2. General Setting

The RMC is located within Central Nevada, northwest of Eureka, Nevada and flanked on the east by State Route 278, on the south by US Highway 50, and on the west, by the Simpson Park Range. Elevations within the Complex range from approximately 5,000 feet to 11,000 feet. Annual precipitation ranges from approximately 6-8 inches or less on some of the valley bottoms to 20 inches on the mountain peaks. Most of this precipitation comes during the winter and spring months in the form of snow, supplemented by localized thunderstorms during the summer months. Temperatures range from greater than 90 degrees Fahrenheit in the summer months to minus 20 degrees in the winter. Other common uses of public lands in the area include domestic livestock, mining, hunting and recreation. The area supports abundant wildlife habitat for mule deer, pronghorn, Greater sage grouse (GRSG) and other wildlife species.

The RMC includes the Roberts Mountains and surrounding foothills and valleys within the Roberts Mountain and Whistler Mountain HMAs and the portion of the Fish Creek HMA north of US Highway 50. For the purposes of this EA, the RMC project area includes all surrounding areas outside of the HMA boundaries where wild horses are known to reside or may exist in the future. Refer to Maps 1 and 2 in the SIR.

3.3. Wild Horses

Affected Environment

The Roberts Mountain HMA has been discussed in detail within the 2001 and 2007 Gather EAs identified in Section 1.6. Additionally, the Whistler Mountain and Fish Creek HMAs have been discussed in detail within the Fish Creek Complex Rangeland Health documents also identified in Section 1.6

3.3.1. Description of the Complex

Refer to the maps in the SIR at 13 which display the RMC and various attributes of interest, as well as Section 3 of the SIR which includes additional detail about the Complex.

The original Herd Area (HA) boundaries are limited to areas of the public lands identified as being habitat utilized by wild horses and/or burros at the time of the passage of the Wild Free-Roaming Horse and Burro Act of 1971. The Fish Creek HMA north of U.S. Highway 50 was originally known as the Kobeh Valley Herd Area and identified as part of the Fish Creek and Whistler Mountain HMAs in the SERA RMP approved March 1986. Refer to Map 3 which displays the Herd Areas within the RMC.

The Roberts Mountain HMA identified for long-term management of wild horse through the 1986 RMP is a smaller area than the Herd Area identified in 1971. The HMA encompasses lower elevation areas outside of the Roberts Mountain Wilderness Study Area (WSA) and reflects the area where the wild horses have most commonly been observed since 1971 per historic inventory data.

The initial planning numbers for wild horse management within these HMAs were originally designated within the 1988 Shoshone-Eureka Rangeland Program Summary (RPS). Following the 1994 Allotment Evaluations for Roberts Mountain and Three Bars Allotment, and the 2004 Rangeland Health Assessment

for the Fish Creek Complex, the AMLs were established for these areas. The following table displays the AML, and current estimated populations for the HMAs within the Complex. The most recent inventory flight was conducted in February 2022. The number of animals counted in those flights is almost certainly lower than the actual number of animals that were present at that time. The figures below reflect 19% increase from the direct count to account for spring 2022 foaling, but because some animals present in February 2022 were not counted, even the 'current population estimate' in the table below is likely to be lower than the true number of animals that will be in the RMC by fall 2022.

Table 6. AML and Current Populations

HMA	Allotment	AML (horses)	AML Year	Current Population Estimate
Roberts Mountain	Three Bars	58	1994 FMUD	1,132
	Roberts Mountain	92	1994 FMUD	
Fish Creek (north)	Lucky C (north)	6-10 North of Hwy 50	2004 FMUD	25
Whistler Mountain	Lucky C (north)	2-4		19
	Romano	12-20		
Totals		170-184	--	1,176

Movement of wild horses between Roberts Mountain HMA, Kobeh Valley Herd Area, Fish Creek HMA (north), and Whistler Mountain HMA has long been documented. The highway right-of-way fence on U.S. Highway 50 precludes movement of the wild horses in the northern portion of the Fish Creek HMA (in Kobeh Valley) with the portion of the Fish Creek HMA south of U.S. Highway 50. As a result, the northern portion of the Fish Creek HMA is managed as a Complex with the Roberts Mountain and Whistler Mountain HMAs, and inventory and gathers planned to take into account the year-round habitat needs for the wild horses and these inherent movement patterns. Though portions of the Lucky C, Three Bars, and Roberts Mountain grazing Allotments are fenced, wild horses are able to move through unfenced portions and through open gates, to take advantage of various areas of the Complex depending upon environmental conditions and habitat needs. A substantial portion of the population is located outside of the HMA/Complex boundary in areas not designated for use by wild horses. The current estimate is 746 wild horses or 63% of the population outside of HMA boundaries.

3.3.2. Roberts Mountain Complex Habitat

The RMC consists of the land area between Roberts Mountain and U.S. Highway 50. This includes Lone Mountain in the south, Kobeh Valley throughout the central portion of the Complex, Whistler Mountain and Mount Hope with portions of Diamond Valley in the eastern portion and foothills of Roberts Mountain in the northern portion of the Complex.

The majority of the RMC consists of gentle slopes/foothills and valley bottoms and is comprised of three basic types of habitats: low elevation sage brush and greasewood valley, mid elevation and foothill sagebrush and pinyon juniper, and higher elevation mountain with mix of open sagebrush covered hills and pinyon juniper forest lands. Map 4 displays the general habitat types within the RMC.

The primary habitat within the Complex is Wyoming Big Sagebrush with an understory of perennial grasses identified as a Loamy 8–10-inch precipitation zone which comprises 51% of the Complex (Major Land Resource Area 28B). The next largest habitat type is Pinyon Pine and Juniper with varying densities of cover and understory species including sagebrush, which exists in the foothills and higher elevations, often on steeper slopes. The Pinyon and Juniper ecological sites comprise 19% of the RMC. Refer to the SIR at 4 for additional information about vegetation communities within the RMC, as well as Section 3.9 of the

EA.

The Wyoming Big Sagebrush sites are an important habitat for wild horses and provide year-round habitat as well as important winter habitat. These sites should provide nutritious perennial grass species in the understory of the Wyoming sagebrush along with other shrubs and forbs. Ongoing monitoring within the RMC has shown that important perennial grass species are often limited or absent from the understory throughout much of the Complex. In some cases, bare ground or annual weeds are dominant in the understory. Monitoring in recent years also shows that trends have not improved since monitoring was completed prior to the last gather in 2008. With ongoing drought conditions and use by an overpopulation of wild horses, the perennial grasses are not thriving and at risk of further loss. Refer to Section 3.9 and SIR at 4 for additional information about the vegetation, climate, and monitoring.

Pinyon/Juniper sites are located in the northern portion of the Complex and extend onto Roberts Mountain outside of the HMA boundaries, and throughout the Whistler Mountain and Fish Creek (north) HMAs. Areas of lower density provide some forage in the understory, whereas thick stands do not, and do not provide optimal habitat.

Wild horses typically utilize the higher elevations more frequently during summer months but do use the lower elevation valleys year-round.

Water sources are limited within the low elevation valley portions of the RMC. Water is the most limiting factor for management within these HMAs. Water becomes even more critical during years of drought conditions, which occur 3-4 years out of 10, especially in conjunction with high populations of wild horses. This has become more apparent in recent years with increasing issues of horses damaging fences to enter private land to access food and water. Occurrences of horses entering the highway right-of-way and private land have increased in recent years. For the past two summers, 20-30 horses have entered private meadows and destroyed fences in search of forage and water.

3.3.3. Inventory, Distribution, and Current Population

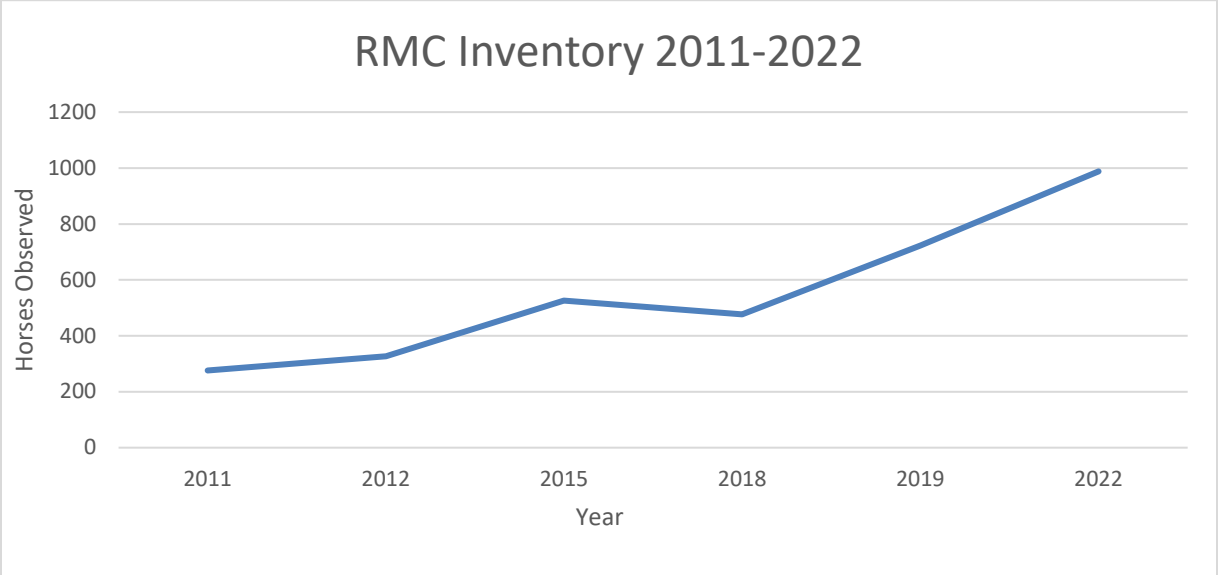
Since the most recent gather in 2008, six separate helicopter inventory flights have been conducted throughout the RMC. In addition, four resource monitoring flights were completed to document animal and resource conditions in light of ongoing drought. The inventory flights show a steady increase of 15-20% growth per year as shown in the graph below. The following table displays the inventory and resource flight information.

Table 7: Inventory and Resource Flight Information

Month/Year	Flight Type	Observed Horses	Percent outside of HMA boundaries	Percent foals observed
August 2011	Helicopter Inventory/Survey	276	57%	20%
August 2012	Resource flight			
November 2012	Helicopter Inventory/Survey	327	55%	16%
January 2014	Resource flight			
September 2015	Helicopter Inventory/Survey	526	71%	20%
February 2016	Resource flight			
March 2017	Resource flight			
March 2018	Helicopter Inventory/Survey[11]	477	56%	1%
September 2019	Helicopter Inventory/Survey	723	67%	20%
February 2022	Helicopter Inventory/Survey	988	63%	0.1%

[11] The March 2018 inventory was completed during poor visibility due to low clouds and flat light in winter conditions that severely decreased the ability to document horses. Therefore, an additional flight was completed the following year during summer months.

Figure 1



The most recent inventory of the Roberts Mountain Complex was completed in February 2022 and included both within and outside of the HMA boundaries. A total of 988 wild horses were observed through a direct count, which undercounts the true number of animals present in the surveyed area (NRC 2013). Approximately 14% of the horses observed were estimated to be yearlings based on size and other characteristics, but uncertainties around identifying yearlings mean that this precentage does not necessarily represent the herd growth rate for 2021. One newborn foal was observed. Inside of HMA boundaries 361 horses were observed with the remaining 627 horses or 63% of the total observed located outside of the HMA boundaries. Refer to Map 9 in the SIR at 13 which displays the distribution of the horses observed during the 2022 Helicopter Survey.

Based on the most recent inventory flight completed in February 2022, it is estimated that the current 2022, post foaling population within the RMC is at least 1,174 horses. Note the large numbers of wild horses located outside of the HMA boundaries. Based on the inventory data, it is estimated that 746 horses are currently located outside of the HMA boundaries, with 361 located within the HMA boundaries. The horses located outside of the HMA boundaries are existing in areas where no wild horse management has been designated and are competing with other species for forage, as well as impacting valuable water sources and important wildlife habitat.

3.3.4. Genetic Considerations

The Roberts Mountain HMA has been sampled for genetic variability in 2001 and 2008. Hair samples were collected from 29 horses during the 2008 gather event and sent to Texas A&M for analysis. The report concluded that the Roberts Mountain HMA has a higher number of variants than the mean for feral herds, with a relatively low number of alleles at risk of loss. Allelic diversity is well above the average for feral herds. The data is consistent with a population that receives occasional input from other herds. Genetic variation, as indicated by observed heterozygosity (Ho) is above the feral mean. Because the population has been consistently growing since 2008, it is unlikely that the horses in the RMC have experienced any meaningful decrease in genetic diversity since horses in the area were last sampled. The Roberts Mountain HMA horses are most genetically similar with light racing and riding breeds, followed by North American gaited breeds. The report concluded with these recommendations: *Current variability levels are high enough that no action is needed at this point. Population number are adequate for maintenance of genetic*

variation for the next several generations and if continued gene flow of the herd with neighboring herds continues, variation levels will likely remain high. (Cothran, 2010). The results show high levels of variation within the population (Cothran, 2010).

Blood samples were collected from 34 horses during the 2001 gather and sent to Stormont Labs in California. Hair follicle samples would be collected during the next gather event, for genotyping at an established panel of microsatellite loci (NRC 2013). Blood samples are no longer used for genetic analyses of wild horses and burros. In addition to measures of observed heterozygosity and allelic diversity, results may include analysis of ancestral genetics in addition to genetic variability.

The wild horses of the Roberts Mountain HMA are able to mix to a limited degree with the Rocky Hills HMA. Prior to construction of the U.S. Highway 50 right-of-way fence in the mid 1980's, wild horses could mix with those of Fish Creek and North Monitor HMAs. Similarly, right-of-way fences built along SR 278 on the eastern boundary of Whistler Mountain HMA in the early 1990s, further prevented any mixing that may have been occurring with the Diamond HMA.

Because of history, context, and periodic introductions, wild horses that live in the RMC are not a truly isolated population. The National Academies of Sciences report to the BLM (2013) recommended that single HMAs should not be considered isolated genetic populations. Rather, managed herds of wild horses should be considered as components of interacting metapopulations, connected by interchange of individuals and genes due to both natural and human-facilitated movements. In the specific case of the RMC, the ancestry of horses in this area is of mixed origin from a number of domestic breeds commonly used in the region. These animals are part of part of a larger metapopulation (NAS 2013) that has demographic and genetic connections with other BLM-managed herds in Nevada, and beyond.

Herds in the larger metapopulation have a background of shared domestic breed heritage, and natural and intentional movements of animals between herds. This background is very similar to that of many other herds managed by the BLM. Under the action alternatives, management of the RMC herd could use wild horse introductions from other HMAs to augment observed heterozygosity, which is a measure of genetic diversity, 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 2010), and this could be done if genetic monitoring results in the future indicate that observed heterozygosity in RMC horses drops below the threshold for action (0.66, for microsatellite loci; NRC 2013).

The 2013 National Academies of Sciences report included evidence that shows that the RMC herd is not genetically unusual, with respect to other wild horse herds. Specifically, Appendix F of the 2013 NAS report is a table showing the estimated 'fixation index' (Fst) values between 183 pairs of samples from wild horse herds. Fst is a measure of genetic differentiation, in this case as estimated by the pattern of microsatellite allelic diversity analyzed by Dr. Cothran's laboratory. Low values of Fst indicate that a given pair of sampled herds has a shared genetic background. The lower the Fst value, the more genetically similar are the two sampled herds. Values of Fst under approximately 0.05 indicate virtually no differentiation. (Frankham, R., J. D. Ballou, and D. A. Briscoe. 2010. Introduction to conservation genetics, second edition. Cambridge University Press, New York, New York.). Fst values for the Roberts Mountain HMA herd had pairwise Fst values that were less than 0.05 with 100 other sampled herds. These results support the interpretation that RMC horses are components in a highly connected metapopulation that includes horse herds in many other HMAs.

Refer to SIR at 3.0 for more information about the HMAs and wild horses within the proposed gather area.

3.3.5. Wild Horse Characteristics

Wild horses of the Roberts Mountain HMA are known for good conformation, size, colors and behavior characteristics. Wild horses within the Whistler Mountain HMA and Kobeh Valley are similar to those in the Roberts Mountain HMA. The build of the horses is consistent with a history of domestic ranch stock, with good muscling, strong legs and sizes that reach in excess of 15 hands tall. Colors include a large proportion of dun, palomino and buckskin in addition to sorrel, chestnut, bay, roan, brown and black. The RMC horses are highly sought after by adopters.

3.3.6. Recent Wild Horse Gather Activity

The most recent gather was completed in January 2008 and included the entire Complex. The gather was an emergency operation as horses were in very thin condition and deep, crusted snow covered the valley, making pawing through the snow in search of forage difficult. Midway through the gather, a resource helicopter flight was completed to evaluate the location and condition of remaining horses in the Complex. Most horses in the lower valley elevations were very thin and weak. Others, located north and east of the Roberts Mountain HMA boundary were accessing forage on open hillsides and were in acceptable body condition. In order to avoid further stress on any additional horses, the horses outside of the Roberts Mountain HMA were left alone and the distressed horses inside the HMA boundaries were gathered and removed. A small, on-site adoption event was held with the gather in which 5 weanlings were adopted. The following shows the outcome of the 2008 gather.

Table 8: 2008 RMC Gather Results

Captured	373
Shipped for Adoption	331
Adopted	5
Adopted Orphan	1
Euthanized	11
Released	25
Estimated post gather[12]	120-147

Prior to the 2008 gather event, a gather of the Complex was completed in July 2001. At the completion of the 2001 gather, 580 wild horses had been captured, and 131 wild horses released back to the HMA. During this gather, 28 water stressed horses were gathered from the western portion of the Whistler Mountain HMA. An on-site adoption event was held in which 36 horses were adopted throughout Nevada and surrounding states. To date, no fertility control of any kind has been administered in the RMC.

Environmental Effects

3.3.7. Impacts common to all Action Alternatives (Proposed Action and Alternatives A and B)

The Action Alternatives would involve successive helicopter drive trap and bait and water trapping operations over a period of ten years with the goal of achieving and maintaining the AML within the Complex, as well as gathering and removing excess wild horses outside of HMA boundaries. Through routine trapping operations every 2-3 years, excess wild horses would be gathered and removed from the range. The overarching goal, whether it occurs in the initial gather event or subsequent operations, would be to achieve AML and maintain the population within the AML range over the long term.

Removal of excess wild horses and attainment of a Thriving Ecological Natural Balance would improve herd health. Decreased competition for forage and water resources would reduce stress and promote

[12] Post gather estimate based on analysis from May 2007 and August 2011 Inventory flights utilizing 17-20% annual rate of increase.

healthier animals. Historical knowledge about wild horse populations in general, and specifically the RMC, has shown that improved health and condition of mares and foals would be realized as the actual population comes into line with the population level that can be sustained with available forage and water resources and would allow for healthy range conditions (and healthy animals) over the longer-term.

By maintaining wild horse population size within the AML range, there would be a lower density of wild horses across the Complex, reducing competition for resources and allowing the wild horses that remain to use their preferred habitat. Removing excess wild horses and maintaining the established AML would be expected to improve forage quantity and quality and promote healthy, self-sustaining populations of wild horses in a thriving natural ecological balance and multiple use relationship on the public lands in the area. Deterioration of the range associated with wild horse overpopulation would be reduced. Managing wild horse 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 long-term.

The removal of excess wild horses to AML and maintaining the population within that level would reduce damage to the range from the current overpopulation and allow vegetation resources time to recover over short term.

The proposed gather would remove excess wild horses within and outside the RMC. All wild horses residing outside the HMA would be removed, thereby reducing or eliminating impacts by wild horses to resources where wild horse management has not been designated. Wild horse gathers would be planned on a periodic basis to achieve and maintain the AML over a 10-year period.

Should initial gather events not achieve the AML, individuals in the herd could still be subject to increased stress and possible death as a result of continued competition for water and forage. The areas experiencing heavy and severe utilization levels by wild horses would likely still be subject to some excessive use and impacts to rangeland resources, those being concentrated trailing, riparian trampling, increased bare ground, etc. These impacts would be expected to continue until the project area's population can be reduced to the AML range and concentration of horses can be reduced. Once AML can be achieved and maintained, distribution of wild horses across the RMC should be optimized, and utilization levels maintained at levels to allow for improved plant vigor and reproduction.

It is not expected that genetic health would be affected by the Proposed Action or Action Alternatives. Available data from genetic sampling are that this population contains high levels of genetic diversity at this time (Cothran, 2010). The AML range of 170-184 in the Complex should provide for acceptable genetic diversity. If at any time in the future the genetic diversity in the RMC is determined to need improvement then a large number of other HMAs could be used as sources for fertile wild horses that could be transported into the area of concern.

3.3.7.1. Helicopter Drive Trapping

The BLM has been conducting wild horse gathers since the mid-1970s. and has been using helicopters for such gathers since the late 1970's. During this time, methods and procedures have been identified and refined to minimize stress and impacts to wild horses during gather implementation. Published reviews of agency practice during gathers and subsequent holding operations confirm that BLM follows guidelines to minimize those impacts and ensure humane animal care and high standards of welfare (GAO 2008, AAEP 2011, Greene et al. 2013, Scasta 2019). Refer to the Wild Horse Gather SOPs located in the SIR at 6.30 for information on the methods that are utilized to reduce injury or stress to wild horses and burros during gathers, and photos of gather procedures. The Comprehensive Animal Welfare Policy (CAWP) IM 2015-151 would be implemented to ensure a safe and humane gather occurs and would minimize potential stress

and injury to wild horses. The gather process is described in SIR at 6.17.

Through the history of the wild horse and burro program various impacts to wild horses as a result of gather activities have been observed. Under the Action Alternatives, potential impacts to wild horses would be both direct and indirect, occurring to both individual horses and the population as a whole. Much of the discussion below applies to both Helicopter Drive and Bait and Water Trapping operations.

Individual, direct impacts to wild horses 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. Mortality to individual animals from these impacts is infrequent but does occur in 0.5% to 1% of wild horses gathered in a given gather (Scasta 2019). Other impacts to individual wild horses include separation of members of individual bands of wild horses and removal of animals from the population.

When being herded to trap site corrals by the helicopter, injuries sustained by wild horses may include bruises, scrapes, or cuts to feet, legs, face, or body from rocks, brush or tree limbs. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are very rarely fatal and are treated on-site until a veterinarian can examine the animal and determine if additional treatment is indicated. Another rare occurrence is a horse that trips or steps in a hole during the drive to the trap and sustains a broken limb and must be euthanized immediately. Typically, healthy wild horses are in peak physical fitness as an inherent part of being wild on thousands of acres of rangeland. They are known to have strong lungs, hooves, bones and stamina when compared to typical domestic counterparts.

Other injuries may occur after a horse 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, horses may sustain a spinal injury or a fractured limb. Similar injuries could be sustained if wild horses were captured through bait and/or water trapping, as the animals still need to be sorted, aged, transported, and otherwise handled following their capture. These injuries can result from kicks and bites, or from collisions with corral panels or gates.

To minimize the potential for injuries from fighting, the animals are transported from the trap site to the temporary (or short-term) holding facility where they are sorted as quickly and safely as possible, then moved into large holding pens where they are provided with hay and water. Most injuries are a result of the horse's temperament, meaning they do not remain calm and lash out more frequently, which can vary between HMAs depending upon genetics, exposure to humans, and gather history.

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

Indirect individual impacts are those which occur to individual wild horses after the initial event. These may include miscarriages in mares, increased social displacement, and conflict in studs. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief 1-2-minute skirmish between older studs which ends when one stud 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 1 to 5% of the captured mares, particularly if the mares are in very thin body condition or in poor health. A small number of foals may be orphaned during a gather. This can occur if the mare rejects the foal, the foal becomes separated from its mother and cannot be matched up following sorting, the mare 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 are usually in poor condition. Every effort is made to provide appropriate care to orphan foals. BLM or Contractor staff may administer electrolyte solutions or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in a foster home in order to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor. The occurrences described above can occur regardless of whether the operation is a helicopter drive or bait/water trap gather.

Through the capture and sorting process, wild horses are examined for health, injury, and other defects. Once sorted, the wild horses are given hay and unlimited water. During this time, the BLM may consult with a veterinarian to treat sick or injured animals or make recommendations for euthanasia. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy WO 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/pre-existing injuries (broken or deformed limbs) that cause lameness or prevent the animal from being able to maintain an acceptable body condition (greater than or equal to BCS 3); old animals that have serious dental abnormalities or severely worn teeth and are not expected to maintain an acceptable body condition, and wild horses that have serious physical defects such as club feet, severe limb deformities, or sway back. Some of these conditions have a causal genetic component such that the animals should not be returned to the range; this prevents suffering and avoids amplifying the incidence of the deleterious gene in the wild population.

In any given gather, gather-related mortality averages only about one half of one percent (0.5%), which is very low when handling wild animals. Approximately, another six-tenths of one percent (0.6%) of the captured animals, on average, are humanely euthanized due to pre-existing conditions and in accordance with BLM policy (GAO 2008, Scasta 2019). 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 by helicopter during the 6 weeks prior to and following the expected peak of the foaling season (i.e., from March 1 through June 30), to avoid the peak that occurs in late April / early May).

3.3.7.2. Water/Bait Trapping

If water or bait trapping is implemented, it may be conducted by BLM staff or one of the water/bait trapping contractors. Trapping involves setting up portable panels around an existing water source or in an active wild horse area, or around a pre-set water or bait source. The portable panels would be set up to allow wild horses to go freely in and out of the corral until they have adjusted to it. When the wild horses fully adapt to the corral, it is fitted with a gate system. The acclimatization of the wild horses creates a low stress trap. During this acclimation period the horses would experience some stress due to the panels being setup and perceived access restriction to the water/bait source. If necessary, all other water sources may be made unavailable to wild horses in order to encourage them to use the water in the water trapping corrals. In the case of bait trapping, corrals are established in areas of higher probability of success such as trailing areas or near water sources.

Trap corrals would be checked every day, which may be facilitated by the use of remote game cameras. When actively trapping wild horses, the trap would be checked on a daily basis. Wild horses would be

either removed immediately and transported to a temporary central holding facility nearby, or fed and watered for up to several days prior to transport to a BLM holding/preparation facility.

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 wild horses residing within the area and at the most effective time periods, time is required for the horses to acclimate to the trap and/or decide to access the water/bait, and even under ideal conditions, horses may not enter the traps. Because of extended time frames, animals that are nearing or are already in a thin condition, may become additionally compromised if they choose not to enter the water or bait corrals.

Gathering of the excess wild horses 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 horses in the area, reach AML, to implement population control measures, and to remove animals residing outside HMA boundaries. Generally, bait/water trapping is most effective when a specific resource is limited, such as water during the summer months. As bait and/or water trapping in this area is considered a low stress approach to gathering of wild horses, such trapping can continue into the foaling season without harming the mares or foals.

Typically, when bait and water trapping is employed, the horses trapped are the ones that are removed, and no horses are held for release. This results in little to no options for selection of age, characteristics or other criteria for release or removal as compared to selective removal criteria available during helicopter drive trap operations. In the event that selection and holding for release is implemented on a bait or water trap operation, it can often lead to long hold times (days to weeks) and additional stress to the animals held on site for extended periods of time while the bait and water trapping progresses. This provides additional opportunities for injuries and death to occur and prolongs the stresses associated with human activity.

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. Mortality of individual horses from these activities is rare but can occur as described above. Other impacts to individual wild horses include separation of members of individual bands and removal of animals from the population.

Indirect impacts can occur to horses after the initial stress event and could include increased social displacement or increased conflict between studs. These impacts are known to occur intermittently during wild horse gather operations. Traumatic injuries could occur and typically involve bruises caused by biting and/or kicking. Horses 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 wild horse gather operations. Since handling, sorting and transportation of horses would be similar to those activities under helicopter drive trapping, the direct and indirect impacts would be expected to be similar as well. This is further affirmed by Scasta, 2020 in the assessment of ten years of bait and helicopter gather data, which found that mortality rates did not differ by capture technique.

3.3.7.3. Wild Horses Remaining or Released Back into the Complex

The wild horses 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 and their 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.

Similar impacts would be expected with wild horses released back to the range following the conclusion of the gather operation. 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 horses that have been desensitized to vehicles and human

activities to return to areas where they were gathered.

3.3.7.4. Transport, Off-range Corrals, Off-range Pastures, and Adoption Preparation

Wild horses selected for removal from the range are transported to the receiving Off-Range Corrals (ORC) in straight-deck semi-trailers or stock trailers. Vehicles are inspected by the BLM Contracting Officer's Representative (COR) and Project Inspectors (PIs) prior to use to ensure the horses can be safely transported and that the interior of the vehicle is in a sanitary condition. Horses are segregated by age and sex and loaded into separate compartments. A small number of mares may be shipped with foals. Transportation of recently captured wild horses is limited to a maximum of 10 hours per CAWP. During transport, potential impacts to individual horses can include stress, as well as slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild horses are in extremely poor condition, it is rare for an animal to die during transport.

Recently captured wild horses, generally mares, 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. Similarly, some mares may lose their pregnancies. Every effort is taken to help the mare make a quiet, low-stress transition to captivity and domestic feed to minimize the risk of miscarriage or death. Wild horses that are healthy, generally make a smooth transition both at the temporary holding corrals and once moved to Off Range Corrals.

A veterinarian examines each load of horses and provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness, or serious physical defect (such as severe tooth loss or wear, club feet, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the AVMA. Wild horses in very thin condition or with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries as indicated.

After recently captured wild horses have transitioned to their new environment, they are prepared for adoption or sale. Preparation involves freezemarking and micro chipping the animals with a unique identification number, drawing a blood sample to test for equine infectious anemia, vaccination against common equine diseases, castration, and de-worming. During the preparation process, potential impacts to wild horses are similar to those that can occur during transport. Injury or mortality during the preparation process is low but can occur, and includes primarily scrapes and bruises from handling and sorting.

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

Adoption applicants are required to have at least a 400-square-foot corral with panels that are at least six feet tall for horses over 18 months of age. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse for one year and the horse and the facilities are inspected to assure the adopter is complying with the BLM's requirements. After one year, the adopter may take title to the horse, at which point the horse becomes the property of the adopter. Adoptions are conducted in accordance with 43 CFR § 4750.

Buyers must fill out an application and be pre-approved before they may buy a wild horse. A sale-eligible wild horse is any animal that is more than 10 years old or has been offered unsuccessfully for adoption at least 3 times. The application also specifies that all buyers are not to sell to slaughter buyers or anyone who

would sell the animals to a commercial processing plant. Sale of wild horses are conducted in accordance with the 1971 WFRHBA and any congressional limitations that are presently in place.

Off-Range Pastures (ORPs), known formerly as long-term holding pastures, are designed to provide excess wild horses with humane, and in some cases life-long care in a natural setting off the public rangelands. There, wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition.

Mares and sterilized stallions (geldings) are segregated into separate pastures. About 58,500 wild horses 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, Washington, 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 ORPs, less than one percent is age 0-4 years, 49 percent are age 5-10 years, and about 51 percent are age 11+ years.

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

Although the animals are placed in ORP, they remain available for adoption or sale to qualified individuals; and foals born to pregnant mares in ORP are gathered and weaned when they reach about 8-12 months of age and are also made available for adoption. The ORP contracts specify the care that wild horses must receive to ensure they remain healthy and well-cared for. Handling by humans is minimized to the extent possible, although regular on-the-ground observation by the ORP contractor and periodic counts of the horses to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians. A small percentage of the animals may be humanely euthanized if they are in very poor condition due to age or other factors. Horses residing on ORP facilities live longer, on the average, than wild horses residing on public rangelands, and the natural mortality of wild horses in ORP averages approximately 8% per year, but can be higher or lower depending on the average age of the horses pastured there (GAO-09-77, Page 52).

3.3.7.5. Euthanasia and Sale without Limitation

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

3.3.8. Effects Common to the Proposed Action and Alternative A

Both the Proposed Action and Alternative A include the application of fertility control to mares released to the range following the gather event. Through routine trapping operations every 2-3 years, excess wild horses would be gathered and removed from the range. Additional horses within the population would be captured so as to enable implementation of fertility control (vaccines and/or IUDs) to mares. Any mares that would be returned to the range would be treated with fertility control (PZP vaccines, GonaCon, IUDs).

The overarching goal, whether it occurs in the initial gather event or subsequent operations, would be to achieve the AML and maintain the population within the AML range over the long term.

3.3.8.1. BLMs Use of Contraception in Wild Horse Management

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 wild 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. The WFRHBA of 1971 specifically provides for contraception and sterilization (section 3.b.1) as management approaches that can be used to achieve and maintain herds at AML. No finding of excess animals is required for BLM to pursue contraception in wild horses or wild burros. PZP or GonaCon vaccines would be administered only to females. Extensive detail about fertility control vaccines is located in the SIR at heading 7.0.

Fertility control would be applied to all breeding age mares that are captured and released during a gather operation. Successful implementation of fertility control programs requires a 90% gather efficiency in order to have enough animals in the initial gather available for release post-gather. If gather efficiencies are not sufficient for the attainment of the chosen action, or if BLM is unable to remove a sufficient number of wild horses in the initial gather, the MLFO would return to gather and remove excess horses and continue to treat and re-treat mares with fertility control. Maintenance gathers would occur to reapply fertility control and to remove adoptable excess wild horses over the next 10 years following the date of the initial gather. Mares or studs would be selected for release to maintain a diverse age structure, historic herd characteristics, and conformation (body type). Fertility control treatments would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Supplemental Information Report at 9.0). In the future, remote darting may be implemented in lieu of or in combination with gathers if determined to be effective and appropriate to maintain the fertility control treatments in the Complex and maintain the population within the AML.

Contraception has been shown to be a cost effective and humane treatment to slow increases in wild horse populations or, when used with other techniques, to reduce horse population size (Bartholow 2004, de Seve and Boyles-Griffin 2013). All fertility control methods in wild animals are associated with potential risks and benefits, including effects of handling, frequency of handling, physiological effects, behavioral effects, and reduced population growth rates (Hampton et al. 2015). Contraception by itself does not remove excess horses from an HMA's population, so if a wild horse population is in excess of AML, then contraception alone would result in some continuing environmental effects of horse overpopulation. Successful contraception reduces future reproduction. Limiting future population increases of horses could limit increases in environmental damage from higher densities of horses.

Successful contraception would be expected to reduce the frequency of horse gather activities, as well as wild horse management costs to taxpayers. Bartholow (2007) concluded that the application of 2- or 3-year contraceptives to wild mares could reduce operational costs in a project area by 12-20%, or up to 30% in carefully planned population management programs. He also concluded that contraceptive treatment would likely reduce the number of horses that must be removed in total, with associated cost reductions in the number of private placements and total holding costs. Population suppression becomes less expensive if fertility control is long-lasting (Hobbs et al. 2000). Although contraceptive treatments may be associated with a number of potential physiological, behavioral, demographic, and genetic effects (detailed below and in the SIR at 7.0), 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).

The results of the population modeling indicate that the combination of fertility control and sex ratio adjustment would help to maintain lower growth rates, a population within AML and reduce the numbers of

gather operations and removed horses over the next 10 years, when compared to a removal only scenario (Alternative B). Results for the Proposed Action were similar to Alternative A, with slightly lower growth rates, population sizes and removals of excess horses over time. Refer to the Supplemental Information Report at heading 5.0 for description and results of the population modeling.

Conducting a gather to remove excess wild horses and implement fertility control that can reduce growth rates would result in multiple benefits. Decreased competition for forage following removal of excess animals, coupled with reduced reproduction as result of fertility control, should result in improved health and condition of mares and foals and would help to improve and maintain healthy range conditions over the longer-term. Additionally, reduced reproduction rates would be expected to extend the time interval between gathers and reduce disturbance to individual animals as well as herd social structure over the foreseeable future. This is supported by the gather results provided by the population model (SIR at 5.0).

3.3.8.2. Fertility Control Vaccines

Fertility control vaccines (also known as immunocontraceptives) meet BLM requirements for safety to mares and the environment (EPA 2009a, 2012). Because they work by causing an immune response in treated animals, there is no risk of hormones or toxins being taken into the food chain when a treated mare dies. The BLM and other land managers have mainly used three fertility control vaccine formulations for fertility control of wild mares on the range: ZonaStat-H, PZP-22, and GonaCon-Equine. As other formulations become available, they may be applied in the future.

In any vaccine, the antigen is the stimulant to which the body responds by making antigen-specific antibodies. Those antibodies then signal to the body that a foreign molecule is present, initiating an immune response that removes the molecule or cell. Adjuvants are additional substances that are included in vaccines to elevate the level of immune response. Adjuvants help to incite recruitment of lymphocytes and other immune cells which foster a long-lasting immune response that is specific to the antigen.

Liquid emulsion vaccines can be injected by hand or remotely administered in the field using a pneumatic dart (Roelle and Ransom 2009, Rutberg et al. 2017, McCann et al. 2017) in cases where mares are relatively approachable. 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 (BLM 2010). Booster doses can be safely administered by hand or by dart. Even with repeated booster treatments of the vaccines, it is expected that most mares would eventually return to fertility, though some individual mares treated repeatedly may remain infertile. Once the herd size in a project area is at AML and population growth seems to be stabilized, BLM can make adaptive determinations as to the required frequency of new and booster treatments.

BLM has followed policy and SOPs for fertility control vaccine application (BLM IM 2009-090). Herds selected for fertility control vaccine use should have annual growth rates over 5%, have a herd size over 50 animals, and have a target rate of treatment of between 50% and 90% of female wild horses or burros. The IM requires that treated mares be identifiable via a visible freeze brand or individual color markings so that their vaccination history can be known. The IM calls for follow-up population surveys to determine the realized annual growth rate in herds treated with fertility control vaccines. Mares treated and released into the RMC following a gather, would be freezemarked and microchipped. BLM would record all colors and markings, and include photography if possible, for future identification. Through future monitoring, darting efforts or gathers, a monitoring and identification database would be further expanded. Refer to SIR at 9.0 for Fertility Control SOPs.

Porcine Zona Pellucida (PZP) Vaccine

For additional detail about the use of PZP as a fertility control agent, please refer to the SIR at heading 7.1, and the Standard Operating Procedures at heading 9.0. PZP may be applied to mares prior to their release

back into the HMA. 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. PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced as the liquid PZP vaccine ZonaStat-H, an EPA-registered commercial product (EPA 2012, SCC 2015), or as PZP-22, which is a formulation of PZP in polymer pellets that may lead to a longer immune response (Turner et al. 2002, Rutberg et al. 2017). Currently, ZonStat-H can also be applied via remote darting in the field.

For the PZP-22 vaccine pellet formulation administered during gathers, each released mare would receive a single dose of the PZP contraceptive vaccine pellets at the same time as a dose of the liquid PZP vaccine with modified Freund's Complete Adjuvant. Most mares recover from the stress of capture and handling quickly once released back into the HMA and none are expected to suffer serious long-term effects from the injections, other than the direct consequence of becoming temporarily infertile. Injection site reactions associated with fertility control treatments are possible in treated mares (Roelle and Ransom 2009, Bechert et al. 2013, French et al. 2017), but swelling or local reactions at the injection site are expected to be minor in nature. In subsequent years, Native PZP (or the currently most effective formulation) could be administered as a booster dose using the one-year liquid PZP vaccine by field or remote darting. The dart-delivered formulation produced injection-site reactions of varying intensity, though none of the observed reactions appeared debilitating to the animals (Roelle and Ransom 2009). Joonè et al. (2017a) found that injection site reactions had healed in most mares within three months after the booster dose, and that they did not affect movement or cause fever.

Darting can be implemented opportunistically by applicators near water sources or along main trails out on the range. Blinds may be used to camouflage applicators to allow efficient treatment of as many mares as possible. Applicators would be trained and certified in darting techniques and recordkeeping protocols. A tracking database would be utilized to document treated mares, and the history of treatment and foal production. This would include a list of marked horses and/or a photo catalog with descriptions of the animals to assist in identifying which ones have been treated and which ones still need to be treated. Application of fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures.

The historically accepted hypothesis explaining PZP vaccine effectiveness posits that when injected as an antigen in vaccines, PZP causes the mare's immune system to produce antibodies that are specific to zona pellucida proteins on the surface of that mare's eggs. The antibodies bind to the mare's eggs surface proteins (Liu et al. 1989), and effectively block sperm binding and fertilization (Zoo Montana, 2000). Because treated mares do not become pregnant but other ovarian functions remain generally unchanged, PZP can cause a mare to continue having regular estrus cycles throughout the breeding season. Other research has shown, though, that there may be changes in ovarian structure and function due to PZP vaccine treatments (e.g., Joonè et al. 2017b, 2017c). Research has demonstrated that contraceptive efficacy of an injected liquid PZP vaccine, such as ZonaStat-H, is approximately 90% or more for mares treated twice in one year (Turner and Kirkpatrick 2002, Turner et al. 2008). The highest success for fertility control has been reported when the vaccine has been applied November through February. High contraceptive rates of 90% or more can be maintained in horses that are boostered annually with liquid PZP (Kirkpatrick et al. 1992). Approximately 60% to 85% of mares are successfully contracepted for one year when treated simultaneously with a liquid primer and PZP-22 pellets (Rutberg et al. 2017). Application of PZP for fertility control would reduce fertility in a large percentage of mares for at least one year (Ransom et al. 2011).

Gonadotropin Releasing Hormone (GnRH) Vaccine (GonaCon)

GonaCon may be applied to mares prior to their release back into the HMA. 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 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). Additional detail about the use of GonaCon is available in the Supplemental Information Report at heading 7.2 and SOPs at 9.0.

GonaCon is an immunocontraceptive vaccine which has been shown to provide multiple years of infertility in several wild ungulate species, including horses (Killian et al., 2008; Gray et al., 2010). GonaCon uses the gonadotropin-releasing hormone (GnRH), a small neuropeptide that performs an obligatory role in mammalian reproduction, as the vaccine antigen. When combined with an adjuvant, the GnRH vaccine stimulates a persistent immune response resulting in prolonged antibody production against GnRH, the carrier protein, and the adjuvant (Miller et al., 2008). The most direct result of successful GnRH vaccination is that it has the effect of decreasing the level of GnRH signaling in the body, as evidenced by a drop in luteinizing hormone levels, and a cessation of ovulation. The lack of estrus cycling that results from successful GonaCon vaccination has been compared to typical winter period of anestrus in open mares. As anti-GnRH antibodies decline over time, concentrations of available endogenous GnRH increase and treated animals usually regain fertility (Power et al., 2011).

Changes in hormones associated with anti-GnRH vaccination lead to measurable changes in ovarian structure and function. The volume of ovaries reduced in response to treatment (Garza et al. 1986, Dalin et al. 2002, Imboden et al. 2006, Elhay et al. 2007, Botha et al. 2008, Gionfriddo 2011a, Dalmau et al. 2015). Treatment with an anti-GnRH vaccine changes follicle development (Garza et al. 1986, Stout et al. 2003, Imboden et al. 2006, Elhay et al. 2007, Donovan et al. 2013, Powers et al. 2011, Balet et al. 2014), with the result that ovulation does not occur.

BLM may apply GonaCon-Equine to captured mares and could return to the HMA as needed to reapply GonaCon-Equine by field or remote darting. GonaCon-Equine can safely be reapplied as necessary to control the population growth rate. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, mares would return to fertility at some point, although that may take 5 or more years (Baker et al. 2018). Therefore, depending on their lifespan, it is possible that mares who receive multiple doses of GonaCon-Equine vaccine may remain contracepted until they die.Even if that is the case, a prolonged return to fertility would be consistent with the desired effect of using GonaCon (e.g., effective contraception). Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM would make a determination as to the required frequency of new mare treatments and mare re-treatments with GonaCon to maintain the number of horses within AML.

Injection site reactions associated with immunocontraceptive treatments are possible in treated mares (Roelle and Ransom 2009). Whether injection is by hand or via darting, GonaCon-Equine is associated with some degree of inflammation, swelling, and the potential for abscesses at the injection site (Baker et al. 2018). Swelling or local reactions at the injection site are generally expected to be minor in nature, but some may develop into draining abscesses. Detailed effects of GonaCon are located in the Supplemental Information Report at 7.2.

PZP and GonaCon Indirect Effects

One expected long-term, indirect effect on wild horses treated with fertility control such as PZP or GonaCon would be an improvement in their overall health (Turner and Kirkpatrick 2002). Many treated mares would not experience the biological stress of reproduction, foaling, and lactation as frequently as untreated mares. The observable measure of improved health is higher body condition scores (Nuñez et al. 2010). After a treated mare returns to fertility, her future foals would be expected to be healthier overall and would benefit from improved nutritional quality in the mare's milk. This is particularly to be expected if there is an improvement in rangeland forage quality at the same time, due to reduced wild horse population size. Past

application of fertility control has shown that mares' overall health and body condition remains improved even after fertility resumes. Fertility control vaccine treatment may increase mare survival rates, leading to longer potential lifespan (Turner and Kirkpatrick 2002, Ransom et al. 2014a). To the extent that this happens, changes in lifespan and decreased foaling rates could combine to cause changes in overall age structure in a treated herd (i.e., Turner and Kirkpatrick 2002, Roelle et al. 2010), with a greater prevalence of older mares in the herd (Gross 2000). Observations of mares treated in past gathers showed that many of the treated mares were larger than, maintained higher body condition than, and had larger healthy foals than untreated mares. For additional information, refer to the SIR at 7.0.

Intrauterine Devices (IUDs)

IUDs are considered a temporary fertility control method that does not generally cause future sterility issues (Daels and Hughes 1995). It is expected that IUDs would only be inserted in non-pregnant (open) mares, and only by a veterinarian. Wild mares receiving IUDs would be checked for pregnancy prior to insertion of an IUD. Based on promising results from pasture-based studies in domestic mares, BLM has begun to use IUDs to control fertility as a wild horse and burro fertility control method on the range. The initial management application used Y-shaped silicone IUDs (EPA 2020) in mares from the Swasey HMA, in Utah. The BLM has supported and continues to support research into the development and testing of effective and safe IUDs for use in wild horse mares (Baldrighi et al. 2017, Holyoak et al. 2021). However, existing literature on the use of IUDs in horses allows for inferences about expected effects of any management alternatives that might include use of IUDs and support the apparent safety and efficacy of some types of IUDs for use in horses.

Flexible IUDs may cause relatively less discomfort than hard IUDs (Daels and Hughes 1995). The 2013 National Academies of Sciences (NAS) report considered IUDs and suggested that research should test whether IUDs cause uterine inflammation and should also test how well IUDs stay in mares that live and breed with fertile stallions. Since that report, researchers tested a Y-shaped silicone IUD to determine retention rates and assess effects on uterine health; retention rates were greater than 75% for an 18-month period, and mares returned to good uterine health and reproductive capacity after removal of the IUDs (Holyoak et al. 2021). Also, the University of Massachusetts has developed a magnetic IUD that has been effective at preventing estrus in non-breeding domestic mares (Gradil et al. 2019). The overall results for flexible IUDs (Gradil 2019, Joonè et al. 2021, Holyoak et al. 2021) are consistent with results from an earlier study (Daels and Hughes 1995), which used O-shaped silicone IUDs. Refer to SOPs at SIR 9.4 and additional detail about IUDs at SIR 7.3 for more detailed information about IUDs.

3.3.8.3. Proposed Action

The Proposed Action would involve successive helicopter drive trap and bait and water trapping operations over a period of ten years with the goal of achieving and maintaining the AML within the Complex, as well as gathering and removing excess wild horses outside of HMA boundaries. Through routine trapping operations every 2-3 years, excess wild horses would be gathered and removed from the range. Additional horses within the population would be captured so as to enable implementation of fertility control (vaccines and/or IUDs) to mares. Stallions would be selected for release with the objective of establishing a 60% male ratio on the range. Any mares that would be returned to the range would be treated with fertility control (PZP vaccines, GonaCon, IUDs). The overarching goal, whether it occurs in the initial gather event or subsequent operations, would be to achieve the low range of AML and maintain the population within the AML range over the long term.

Sex ratio adjustment, leading to a reduced proportion of mares 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), the technique leads to fewer foals being born, relative to the total herd size. Sex ratio is typically adjusted in such a way that 60 percent of the horses 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 – this can extend the time between gathers, and reduce impacts on-range, and costs off-range.

Stallions would be selected for release to increase the sex ratio to approximately 60% stallions of the post gather herd size. Stallions would be selected to maintain a diverse age structure, historical herd characteristics and body type (conformation). It is expected that releasing additional stallions to reach the targeted sex ratio of 60% males would result in smaller band sizes, larger bachelor groups, and some increased competition for mares. With more stallions involved in breeding it should result in a slightly higher genetic effective population size (Ne) relative to total herd size.

The results of the population modeling indicate that the combination of fertility control and sex ratio adjustment would help to maintain lower growth rates and a lower average population size which is closest to the AML. The modeling also indicates that the Proposed Action could have the fewest gather events over the analysis period compared to all other Action Alternatives and lower numbers of horses gathered and removed when compared to a removal only scenario (Alternative B). Refer to the Supplemental Information Report at heading 5.0 for description and results of the population modeling. Though Alternative A expresses lower growth rates and numbers of horses removed over time as compared to the Proposed Action, the trade-off could be that there would likely be fewer gather events and fewer horses gathered overall when the Proposed Action and Alternative A are compared through the modeling.

3.3.8.4. Alternative A

Alternative A would be similar to the Proposed Action with the exception that a small number of stallions would be castrated prior to release to the range, rather than a post gather sex ratio of 60:40 favoring studs. Under this alternative, approximately 37 studs would be castrated, which would comprise no more than 25% of the post gather population. The post gather population goal would be the mid-AML range of 147 wild horses. Fertility control would be implemented for all released mares as described for the Proposed Action. The post gather population would be approximately 60:40 (male:female).

Castration (the surgical removal of the testicles, also called gelding or neutering) is a well-established surgical procedure for the sterilization of domestic and wild horses. The procedure is relatively straight forward, rarely leading to serious complications and seldom requires postoperative veterinary care. Gelding adult male horses results in reduced production of testosterone which directly influences reproductive behaviors. Although 20-30% of domestic horses, whether castrated pre- or post-puberty, continued to show stallion-like behavior (Line et al. 1985), it has been thought that free roaming wild horse geldings would exhibit reduced aggression toward other horses and reduced reproductive behaviors. At Conger HMA indicate that a non-zero fraction of geldings that were returned to the range with their social band did continue with females, apparently excluding fertile stallions, for at least 2 years (King et al. 2022). Gelding of domestic horses most commonly takes place before or shortly after sexual maturity, and age-at-gelding can affect the degree to which stallion-like behavior is expressed later in life. Additional detail and analysis is provided in the SOPs in the SIR at 10.0 and within the SIR at 7.6.

The surgery would be performed by a veterinarian using general anesthesia and appropriate surgical techniques. The final determination of which specific animals would be gelded for release would be based on the professional opinion of the attending veterinarian in consultation with the Authorized Officer. Though castration (gelding) is a common surgical procedure, minor complications are not uncommon after surgery, and it is not always possible to predict when postoperative complications would occur. Fortunately, the most common complications are almost always self-limiting, resolving with time and exercise. Individual impacts to the stallions during and following the gelding process should be minimal and would mostly involve localized swelling and bleeding. A small amount of bleeding is normal and generally

subsides quickly, within 2-4 hours following the procedure. Some localized swelling of the prepuce and scrotal area is normal and may begin between one to 5 days after the procedure. Swelling should be minimized through the daily movements (exercise) of the horse during travel to and from foraging and watering areas. Most cases of minor swelling should be back to normal within 5-7 days, more serious cases of moderate to severe swelling are also self-limiting and resolve with exercise after one to 2 weeks. Serious complications (eviscerations, anesthetic reaction, injuries during handling, etc.) that result in euthanasia or mortality during and following surgery are rare and vary according to the population of horses being treated. Normally one would expect serious complications in less than 5% of horses operated under general anesthesia, but in some populations these rates can be as high as 12% (Shoemaker 2004). These complications are generally noted within 3 or 4 hours of surgery but may occur any time within the first 7 days following surgery. If they occur, they would be treated in the same manner as at BLM facilities. There was no observed mortality in geldings at the Conger HMA study, and geldings retained good body condition (King et al. 2022).

When gelding procedures are done in the field, geldings would be released near a water source, when possible, approximately 24 to 48 hours following surgery. When the procedures are performed at a BLM-managed facility, selected stallions would be shipped to the facility, gelded, held in a separate pen to minimize risk for disease, and returned to the range within 30 days.

BLM would make efforts to monitor gelded animals for complications for approximately 7-10 days post-surgery and release. This monitoring would be completed either through aerial recon if available or field observations from major roads and trails. It is not anticipated that all the geldings would be observed but the goal would be to detect complications if they are occurring and determine if the horses are freely moving about the HMA. Once released, geldings are expected to resume free-roaming behaviors. King et al. (2022) noted that geldings maintained good body condition in the wild, and had behaviors that were comparable to fertile stallions, other than that geldings engaged in more affiliative and less marking and reproductive behaviors. Periodic observations of the long-term outcomes of gelding would be recorded during routine resource monitoring work. Such observations could include but not be limited to band size, social interactions with other geldings and harem bands, distribution within their habitat, forage utilization and activities around key water sources. Periodic population inventories and future gather statistics may assist BLM to determine if managing a portion of the herd as non-breeding animals is an effective approach to slowing the annual population growth rate and extending the gather cycle when used in conjunction with other population control techniques, while allowing more horses to remain on the range.

Surgical sterilization techniques, while not reversible, may provide reproductive control on horses without the need for any additional handling of the horses as required in the administration of chemical contraception techniques. By including some geldings in the population and having a slightly skewed sex ratio with more males than females overall, the result would be that there would be a relatively lower number of breeding females in the population and, hence, a lower per-capita growth rate.

Results of the Population Modeling are discussed in the SIR at 5.0. The addition of the use of gelding and management of the population at the mid-AML would increase the level of needed future management over the years in the way of number of gather events and application of fertility control. However, modeling shows that Alternative A would maintain a higher average population size of any of the Action Alternatives. A trade off of this Alternative could be higher numbers of treated mares over time, which would result in reduced growth rates of the population as compared to the Proposed Action or Alternative B. Modelling shows that this could result in a slightly lower number of wild horses removed from the range over the analysis period.

3.3.8.5. Alternative B

Much like the Proposed Action and Alternative A this action would address the need to remove excess wild

horses while bringing the population on the range to the low AML. This action would address attainment and maintenance of a thriving natural ecological balance over the course of a ten-year period. This alternative would not include any populations controls (vaccines/IUDs/gelding) to mares or studs.

Direct impacts to the wild horse population would be the decreased population to low AML during gathers resulting in reduced competition for scarce resources within the Complex such as water, forage, and space. Improved body condition should be experienced in the short term by the remaining wild horse population in the Complex. There would be increased opportunities for wild horses to utilize higher quality habitat related to a reduction in competition in these areas and to lessened pressure on the habitat itself. Reduced wild horse densities should result in less competition between bands, improved band stability and increased rangeland health trends.

This alternative would directly impact the BLM's Wild Horse Program's ORCs and ORPs. Under Action Alternative B the population would increase at a higher rate than the Proposed Action or Alternative A resulting in more frequent gathers and considerably more animals being removed over time, due to the lack of any population growth suppression. This is shown in the Population Modeling Results located in the SIR at 5.0. The modeling results show that a higher percent of trials would result in a total of three gather events (89%) over the analysis period as compared to Alternative A (76%) or the Proposed Action (6%). Alternative A and the Proposed Action have more trials that only have two gather event compared to Alternative B.

Currently the BLM is facing limited funding available to pay for the cost of holding excess wild horses. Due to national WHB program constraints, the available funding and space at these facilities may be needed for other higher priority removals. This action would not address population control on the range by reducing population growth and would not slow population growth over the long-term. Intervals between gathers would be smaller, and increased numbers of excess wild horses would be removed to ORC and ORPs as shown by the population modeling (below and at SIR 5)

3.3.8.6. Population Modeling Discussion

To analyze the potential effects that could occur to the wild horse populations from the Action Alternatives or the No Action Alternatives, the WinEquus wild horse population model was utilized. Information about the analysis of all alternatives and simulations is located in the SIR at 5.0.

Each simulation was modeled for 100 trials over 10 years. The modeling was completed prior to the February 2022 inventory flight and utilized a population estimate that was slightly lower than the current estimate. Results were obtained for minimum, average, and maximum population sizes, growth rates, gathers, and numbers of animals that could need to be gathered and removed through gathers. Data were also generated for the "typical trial" which is similar to the average of all 100 trials. The population used for the Action Alternatives included only the horses within the HMAs which is currently estimated to be 324 wild horses. This was done knowing that these horses would be the only horses on which management tools were applied, as the horses outside of the HMA (estimated 700 horses) would be removed during each gather event, with no population control management.

Table 9: Winequus Model Average Populations

Trial	Average Population Sizes in 11 Years –			
	Proposed Action	Alternative A	Alternative B	No Action
Lowest Trial	165	181	181	2023
Median Trial	185	210	210	3059
Highest Trial	217	232	224	3735

Table 10: Average Population Growth Rates in 10 Years

Trial	Population Growth Rates in 10 Years			
	Proposed Action	Alternative A	Alternative B	No Action
Lowest Trial	4.8	4.4	12.1	12.3
Median Trial	10.7	8.5	17.7	20.1
Highest Trial	16.2	12.5	24.0	24.2

Table 11: Median Trial Gather Results

Alternative	Median Trial Gather Results -- Totals in 11 Years		
	Gathered	Removed	Treated
Proposed Action	456	323	40
Alternative A	608	300	91
Alternative B	664	559	0
No Action	0	0	0

Table 12: Number of Gathers through the Analysis Period

Alternative	Total Number of Gathers – Percent of Trials		
	2 Gathers	3 Gathers	4 Gathers
Proposed Action	94%	6%	NA
Alternative A	23%	76%	1%
Alternative B	9%	89%	2%
No Action	NA	NA	NA

3.3.9. No Action Alternative

Under the No Action Alternative, no population growth suppression actions or wild horse removals (gather events) would take place. The population of the wild horses within the RMC would continue to grow an average annual rate of 20 % per year. The No Action Alternative was put through the population model (SIR at 5.0). Of 100 trials simulated through the population model, the population reflected a potential range of 2,023-3,735 wild horses with a potential maximum population of nearly 9,000 wild horses within the Complex after 10 years. These figures are displayed in the table below.

Table 13: Population Size in 11 years – No Action

Trial	Population Sizes in 11 Years – No Action		
	Minimum	Average	Maximum
Lowest Trial	1025	2023	3678
Median Trial	1025	3059	6380
Highest Trial	1025	3735	8984

Wild horses are a long-lived species with survival rates estimated between 80 and 97% which, along with high fertility rates, may be the determinant of wild horse population increases (Garrott and Taylor 1990, Ransom et al. 2016). Refer also to the SIR at 3.4. Predation and disease have not substantially regulated wild horse population levels within or outside the Complex. Throughout the region few predators exist to control wild horse populations. Some mountain lion predation may occur but does not appear to be substantial, as evidenced by the continued high growth rates in the herds. Coyotes are not prone to prey on wild horses unless the horses are young, or extremely weak. Being a non-self-regulating species (NRC 2013), there would be a steady increase in wild horse numbers for the foreseeable future, which would continue to exceed the carrying capacity of the range.

High AML is the maximum number of adult wild horses for which, along with other multiple uses of the public lands, thriving natural ecological balance would be maintained and avoid deterioration of the rangeland. A continuing uncontrolled increase of the population above the established AML would result

in continued degradation to habitat and impacts to wild horse health.

Uncontrolled increases in the wild horse population, depletion of forage and water resources and degradation of plant communities would result in decline of the body condition, and health of the wild horse population, ultimately resulting in catastrophic losses to the herd, which would be a function of the available forage and water and the degradation of the habitat.

Individual wild horses would be at risk of death by starvation and lack of water as the population continues to grow annually, as further evidenced by the history of emergency removals. Once the vegetative and water resources are at critically low levels due to an overpopulation of wild horses, the weaker animals, generally the older animals and the mares and foals, are the first to be impacted. The wild horses would compete for the available water and forage resources, affecting mares and foals most severely. It is likely that a majority of these animals that die from resource competition would be affected by starvation and dehydration. The resultant population could be extremely skewed towards the stronger stallions which would lead to significant social disruption in the Complex. Social stress would increase. Fighting among stud horses would increase as well as injuries and death to all age classes of animals as the studs protect their position at scarce water sources.

Water would become increasingly limiting especially within the Whistler Mountain HMA and Kobeh Valley, necessitating an emergency gather to be conducted. Private land nuisance issues would continue and increase in frequency and degree.

As populations continue to increase beyond the capacity of the habitat, more bands of horses would continue to expand outside of the Complex boundaries in search of forage and water into areas that are not designated for their use, further competing with wildlife and livestock for resources and space. This alternative would result in increasing numbers of wild horses in areas not designated for their use, increasing the spatial distribution and severity of impacts to rangeland resources.

This alternative would be expected to result in increasing damage to important wildlife habitat both inside and outside of the boundaries of the Complex. Trampling and trailing damage by wild horses in/around riparian and impacts to rangeland resources would also be expected to increase, resulting in larger, more extensive areas of poor range condition, some of which might be unable to recover even after removal of excess horses. Competition for the available water and forage among wild horses, domestic livestock, and native wildlife would continue and further increase.

Concentrated use by wild horses would continue to cause degradation through high utilization levels, trampling, depletion of perennial key species and erosion. By managing the public lands in this way, the vegetative and water resources would be impacted to the point that they have limited potential for recovery, as is already occurring in some areas hardest hit by the excess wild horses. As a result, the No Action Alternative, would not ensure healthy rangelands, would not allow for the management of a healthy wild horse population, and would not promote a thriving natural ecological balance.

Significant loss of the wild horses in the Complex due to starvation or lack of water, along with reduced forage production as a result of degraded rangelands, would have obvious consequences to the long-term viability of the herd. Irreparable damage to the resources, which would include primarily vegetative, soil and riparian resources, would have obvious impacts to the future of the RMC and all other users of the resources, which depend upon them for survival. Allowing wild horses to die of dehydration and starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild horses.

The No Action Alternative would not be acceptable to the BLM nor most members of the public and would

violate the Wild Free-Roaming Horses and Burros Act, Federal Regulations, BLM policy and Resource Advisory Council Standards and Guidelines. The BLM realizes that some members of the public advocate "letting nature take its course", however allowing horses to die of dehydration and starvation would be inhumane treatment and clearly indicates that an overpopulation of horses exists in the HMAs.

The damage to rangeland resources that results from excess numbers of wild horses is also contrary to the WFRHBA, which mandates the Bureau 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*." Promulgated Federal Regulations at Title 43 CFR 4700.0-6 (a) state "*Wild horses shall be managed as self- sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat"* (emphasis added).

3.4. Riparian/Wetland Areas and Surface Water Quality

Riparian areas occupy a small but unique position on the landscape in the RMC and are important to water quality, water quantity, and forage. Riparian sites provide habitat needs for many species and support greater numbers and diversity of wildlife than any other habitat type in the western United States.

Riparian areas at high elevations support cottonwood and aspen woodlands. Small riparian areas and their associated plant species occur throughout the RMC near seeps, springs, and along sections of perennial drainages. Many of these areas support limited riparian habitat (forage) and water flows. Trampling and trailing damage by wild horses is evident at inside and outside of the RMC; soil compaction and surface and rill erosion are evident. Some of the spring sources within the RMC are minimally functioning because of factors such as over utilization and trampling effects. The current over population of wild horses is contributing to resource damage and decline in functionality of spring sources.

Affected Environment

Riparian-Wetland Resources and Water Quality have been described within the documents identified in Section 1.4. Within the Roberts Mountain HMA, there are a number of perennial and ephemeral streams, which include Roberts, Rutabaga, and Henderson Creeks, and Meadow and Cottonwood Canyons. There are also abundant springs and seeps, most of which are located in the higher elevational zones above 6,000 feet. Wild horses outside of the RMC boundaries are impacting riparian and meadow habitat in the Cottonwood Creek, Meadow Creek Jackass Creek, Vinini Creek, Frazier Creek Gabel Canyon drainages that provide important brood rearing habitat for greater sage-grouse.

Since the previous gather in 2008, Proper Functioning Condition (PFC) evaluations were completed for many of the perennial streams and springs within the RMC gather area. There are two separate monitoring methods for PFC that address current conditions for Lotic (streams, creeks, rivers, etc.) and Lentic (springs, seeps, meadows, etc.) waters. Both PFC monitoring methods rate the waters either at PFC, Functioning-at Risk (FAR), or Nonfunctional (NF). For the RMC gather area a total of 49.2 miles of Lotic PFC was conducted within the RMC gather area, which resulted in 29.6 miles in PFC, 15.6 miles in FAR, and 4.0 miles in NF (See Lotic table 3 in SIR 4.0). For Lentic PFC, a total of 38.6 acres was surveyed, which resulted in 6.4 acres in PFC, 23.8 acres in FAR, and 8.5 acres in NF. (see Lentic table 4 in SIR 4.0). These evaluations indicate that much of the Lotic waters are in PFC, while a majority of the Lentic waters are in FAR condition. Results of the PFC monitoring are available in the SIR at 4.4.

Field monitoring has shown that wild horses have impacted the riparian areas through grazing and trampling of the banks. Wild horses are known to have negatively impacted Cottonwood, Rutabaga and Vinini Creeks through utilization and trampling. Mud Springs consists of a large water filled depression in the southern portion of Kobeh Valley that is the only water available to wild horses year-round the area, and can dry up completely during drought years, or under heavy use by wild horses. Water quality analysis has not been

completed within the RMC.

Waters are scarce within the Whistler Mountain HMA and Kobeh Valley south to U.S. Highway 50, which includes the northern portion of the Fish Creek HMA. There are no perennial or ephemeral streams. Waters consist of a few low producing artesian wells, seeps, springs and depressions. When livestock are on the allotments, some wells are operated by the livestock permittee to provide water to cattle.

Two water sources exist within Kobeh Valley, that are associated with the northern portion of the Fish Creek HMA; however, there are no springs located within the HMA boundaries. This spring/artesian well consists of a crater (150' dia. by 2'deep), and the riparian area had been all but eliminated due to use by livestock and wild horses.

Treasure Well is also an artesian well Wild horses have been known to use this area incidentally.

RAC Standard 2, Riparian and Wetland Sites for Lucky C Allotment was rated as not applicable in conjunction with the Fish Creek Complex Rangeland Health Assessment due to the lack of sources.

Within the Whistler Mountain HMA, three springs were rated for Functioning Condition prior to the 2008 gather. Trap Corral Spring was rated as Functional at Risk, trend not apparent, and it was noted that wild horse use had contributed to bare ground at the spring. Hash and Garden Springs were both rated Non-Functional. Garden Spring is not utilized frequently by wild horses; however, heavy wild horse use was noted at Hash Spring. There are no springs within the west side of the Whistler Mountain HMA in Kobeh Valley.

During the Rangeland Health Assessment completed in 2004, it was determined that RAC Standard 2, Riparian and Wetland Sites, was not being met and significant progress not being made within the Romano Allotment. It was also determined that wild horses (in addition to livestock), were significant causal factors for the Standard not being met.

The lack of water available within Kobeh Valley and limited water available within the western portion of the Whistler Mountain HMA has resulted in animal health and private land nuisance issues. In 2001, the removal of 28 wild horses from Kobeh Valley and the west portion of Whistler Mountain HMA was necessary due to lack of water. Wild horses were in poor condition and would have died of dehydration if not removed. Since 2001, various numbers of wild horses have used the area, and have caused problems for a local landowner through breaching private property fences to access water. These issues are still ongoing, with 25-30 horses regularly entering private land and impacting private meadows and damaging fences. The AML established for these HMAs in 2004 was intended to take into consideration the lack of waters, and allow for incidental use in Kobeh Valley, and limited use in the Whistler Mountain HMA in association with the Roberts Mountain HMA.

Environmental Consequences

Proposed Action and Action Alternatives

The proposed wild horse gather would not have any direct impacts to riparian wetland zones or water quality within the RMC because trap sites and holding corrals are not constructed near riparian areas.

The proposed gather would indirectly impact riparian wetland zones and water quality within the RMC through decreased utilization and trampling by wild horses in these sensitive areas, and removal of wild horses outside of Complex boundaries that are impacting riparian and meadow habitat. Achieving and maintaining the established AML, would promote improved riparian wetland areas and prevent further degradation of riparian areas from high populations of wild horses. Lower concentrations of wild horses across the Complex would also reduce the amount of annual use on Mud Springs, resulting in increased

availability of water through the year, and increased cover of riparian vegetation. Incidents of wild horses breaching private fences to access water on private property would also be reduced or eliminated.

In most cases, wild horses visit water sources briefly. The exception may include large open springs or meadow complexes. High wild horse population and density of animals in relation to limited water sources may result in degradation of water sources. Achievement of the established AMLs would ensure that wild horse populations do not exceed the forage and water availability, providing for optimal dispersion of wild horses and reduction of impacts to riparian resources. Achievement of AML would ensure that short and long-term objectives are met and contribute to improvement of riparian resources. Refer to the SIR at 4.0 for additional information about monitoring of riparian resources within the RMC.

Population Modeling Discussion between Alternatives
As shown in the population modeling located in the SIR at 5.0, the Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events over the analysis period when compared to the Action Alternatives or the No Action Alternative. All of the Action Alternatives would maintain horse populations at levels near or at the established AMLs and remove wild horses from outside of HMA boundaries which would benefit riparian resources throughout the Complex.

No Action Alternative (No Wild Horse Gather)
Wild horse population size would continue to increase in excess of the established AML in the absence of removals or any efforts to reduce population growth. According to the population modeling analysis (SIR at 5.0) the population could exceed reach nearly 9,000 horses within 10 years. Average population levels produced by the model could range from 2,023 to 3,735 wild horses. Emergency removals would be required as the population exceeds the ability to be supported by the available waters. Use of riparian areas by this level of wild horses, would have obvious consequences to the condition of riparian resources within the Complex, and resulting quality of riparian habitat for wildlife. Downward trends would continue from heavy utilization of riparian vegetation and browse and trampling by wild horses. Riparian areas rated below PFC (Functional at Risk and Non-Functional) would not improve and irreparable damage could occur to a substantial number of riparian systems within and outside of the Complex that are important to many species of wildlife and watershed function.

Water quality throughout the Complex would continue to be affected by high populations of wild horses using the limited water sources throughout the Complex.

3.5. Wildlife (including Threatened and Endangered Species, Migratory Birds and Sensitive Species)

Affected Environment

Pronghorn
The majority of the RMC is year-round pronghorn habitat, which includes areas outside of the HMA to the North and West that are outside of HMA boundaries. Map 5 located in the SIR at 13 displays pronghorn habitat within the Complex and the gather area.

Mule Deer
There are numerous types of mule deer habitat within the RMC and outside of the HMA boundaries where wild horses also exist. These include crucial winter habitat in the Southern portion in the vicinity of Lone Mountain and the Fish Creek HMA north area, and transitional range on the east side of the Complex throughout Kobeh Valley and Whistler Mountain. North of the Complex, critical summer and summer range exist outside of the HMA boundaries which are being impacted by wild horses not allocated for use in these areas. Numerous mule deer movement corridors exist through the RMC. Refer to Map 6 located

in the SIR at 13, and displays the habitat types within the project area.

Greater Sage-Grouse

Substantial greater sage-grouse (GRSG) habitat exists within the boundaries of the RMC as well as outside of the HMA boundaries in areas where horses exist. The categories of GRSG habitat include Priority Habitat Management Area (PMHA), General Habitat Management Area (GHMA) and Other Habitat Management Area (OHMA). GRSG use the majority of the RMC throughout the year for all of their seasonal habitat needs. These needs include breeding lekking nesting, brood-rearing, and winter. GRSG require an herbaceous understory of forbs and grass to provide nest concealment, as well as to provide a diet of forbs and insects for the adults and their chicks. Riparian areas are frequently used by greater sage-grouse for late brood-rearing habitat.

These habitats exist within 99% of the RMC boundaries, with 62% of the RMC comprised of the Priority Habitat classification. The following table provides an overview of the acreages of each GRSG habitat type within the boundaries of the RMC.

Table 14: GRSG Habitat within the RMC

Habitat Type	Acres within the RMC
PHMA	117,159
GHMA	49,958
OHMA	9,988
Total within RMC	177,105

The GRSG habitats outside of the RMC boundaries are similar to those within the Complex as identified on Map 7. The GRSG habitat areas outside of designated HMA boundaries where horses exist are experiencing impacts by wild horses which are not designated for use in these areas. By overgrazing due to the population being 639% over the AML, GRSG habitat is being affected. GRSG habitat in the area is experiencing grazing pressure, riparian area loss, and degradation of crucial forage and cover. According to the USFWS, adolescent GRSG survival estimates can be affected by food availability, weather, and habitat quality (Schroeder et al. 1999, p. 14; Connelly et al. 2004, p. 3–12; 11 Connelly et al. 2011a, pp. 65–66; Taylor et al. 2012, p. 338). Therefore, taking pressure off the habitat could positively affect the species in and outside of the RMC.

The presence of wild horses is associated with a reduced degree of greater sage-grouse lekking behavior (Muñoz et al. 2020). Moreover, increasing densities of wild horses, measured as a percentage above AML, are associated with decreasing greater sage-grouse population sizes, measured by lek counts (Coates et al 2020).

The RMC includes habitat critical to greater sage-grouse. There are many GRSG active or pending lek areas within the RMC, and extensive spring habitat. The highest values are outside of the HMAs near the western edge by Coilis Creek. Birds mate and nest in the lower elevation with high levels of use outside of the HMA where horses are trespassing. Some brood-rearing use is made of higher meadow and riparian areas on Roberts Mountain and the western edge of the HMA boundary. There is a substantial amount of preferred winter habitat in the RMC horse gather area in and outside of the HMA.

Wild horses can impact wildlife habitat throughout the Complex. They can impact ecosystems within the Great Basin by effecting vegetation and soil patterns which could affect greater sage-grouse in that region (Beever and Aldridge 2011). Grass cover is crucial to greater sage-grouse in all four seasons (Crawford et al. 2004, Hagen et al. 2007). Riparian areas and lentic meadows are important ecosystems to many species living within semi-arid rangeland. With a decrease of wild horses at riparian areas within the RMC it would give the intensely grazed areas a chance to recover (Burdick et al. 2021). Substantial numbers of wild horses exist outside of established HMAs where use for wild horses has not been designated, resulting in direct

competition with wildlife in these areas.

Impacts to wildlife, migratory birds, sensitive species, and threatened and endangered (T&E) species that may inhabit the proposed gather area have also been described within this document identified in Section 4.2.3. Wildlife stipulations are listed in section 2.6 of this document. In section 15.0 of the SIR is a list that identifies numerous BLM special status species that may potentially occur within the RMC, including several bat, reptile, raptor, and other bird species.

Predominant habitat types within the Complex which are likely to support migratory birds include aspen, mountain riparian, mountain shrub, sagebrush, pinyon/juniper, salt desert scrub, playa and cliffs/talus habitat types. The migratory bird nesting season is from March 1 through July 31 (including raptors). No surface disturbing activity (staging, trapping, or corrals) can be conducted during this time period without a nesting bird survey of the proposed project area. Any ground clearing or other vegetation-disturbing action during the migratory bird nesting season (roughly, April through July) risks a violation of the Migratory Bird Treaty Act by destroying the eggs or young of common shrub-nesting birds such as the sage thrasher, sage sparrow, Brewer's sparrow, horned lark, and Western meadowlark.

Lahontan Cutthroat Trout

Impacts to Lahontan cutthroat trout (LCT) habitat would not be expected as no traps or corrals would be established in those areas. The removal of wild horses from outside of the HMA boundaries would prevent any conflicts between wild horses and LCT in the near future.

Monte Neva Paintbrush

The Monte Neva Paintbrush (*Castilleja* salsuginosa) is an endemic species to only two know locations, one of which is at Monte Neva Hot Springs on private property in White Pine County, and the other at Hot Springs Hill in Kobeh valley in Eureka County. The Monte Neva Paintbrush was listed as a sensitive species by the BLM. The Hot Springs Hill population is partially protected by exclosures that were constructed in 2012 by the BLM and FWS. This area is located outside of the HMA, but horses still frequent the area. The portions of the area outside of the grazing exclosures are heavily impacted by off-road vehicles, livestock, and wild horses. It is uncertain the degree to which wild horses are impacting the Monte Neva Paintbrush population, but their presence is unlikely to benefit from wild horse pressure.

Environmental Consequences

Proposed Action and Action Alternatives

Conducting wild horse gather operations within and outside of the RMC would have minimal, short-term direct impacts to wildlife. Some wildlife present in or near trap sites or holding facilities could be temporarily displaced. Large mammals and some birds may run or fly (flush from the nest) during helicopter operations, but animals should return to normal activities post disturbance. Small mammals, birds, and reptiles would be displaced at staging areas and slower moving animals may be adherently killed. Overall, there would be no impact to animal populations as a result of gather operations. Bait and water trapping operations would last longer, and since waters could be utilized for traps, various wildlife species may avoid those areas.

The possibility exists that special status species could be disturbed during gather activities. However, trap sites for helicopter drive trapping would typically be located in areas that have previously been disturbed (i.e. gravel pits), and for short periods of time (1-3 days). Bait or water traps could be placed anywhere that would provide optimum success and would typically be in place much longer. Should it be determined necessary by a qualified biologist, trap sites would be inventoried prior to selection to determine the presence of sensitive species. If potential impacts could not be mitigated, these areas would be avoided.

Gather activities would not conflict with nesting periods for most bird species. Any new staging, corral, and trap sites with vegetation would be surveyed for nesting birds, if gather operations were to occur during the migratory bird breeding season. Refer to the Standard Operating Procedures in the SIR at 1.2, and Section 6.0 for avoidance measures would be utilized to minimize impacts to GRSG.

Impacts to Lahontan cutthroat trout (LCT) habitat would not be expected as no traps or corrals would be established in those areas. On the contrary, removing wild horses from outside of the HMA boundaries would prevent any future conflicts between wild horses and LCT.

Wildlife and wildlife habitat would be indirectly affected by the Proposed Action as it pertains to resulting improvements in resource health from current management. Reduction of the current wild horse population and achievement of the established AMLs provides the best opportunity for conservation, protection, and preservation of identified species and their habitats.

Removing excess wild horses within and outside of the boundaries of the RMC would result in decreased competition between wild horses and wildlife for available forage and water resources as soon as the gather is completed. Utilization on key forage species would be reduced to healthier levels, improving the quantity and quality of forage available to wildlife. Riparian areas and aspen stands within the Complex provide vital habitat to wildlife. Habitat conditions in riparian areas, aspen stands, and uplands are expected to improve to the benefit of most wildlife, migratory birds, and special status species, including GRSG. Management for healthy rangelands and achievement of RAC Standards would benefit sensitive species such as GRSG as well as most other wildlife species.

Population Modeling Discussion between Alternatives

As shown in the population modeling located in the SIR at 5.0, the Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events over the analysis period when compared to the Action Alternatives or the No Action Alternative, which would have the most benefits to all wildlife species. However, all of the Action Alternatives would maintain wild horse populations at levels near or at the established AMLs and remove wild horses from outside of HMA boundaries which would benefit wildlife resources throughout the Complex.

No Action Alternative (No Wild Horse Gather)

Wildlife would not be disturbed or displaced by gather operations under the No Action alternative. With no action to remove excess wild horses within or outside of the RMC, the wild horse population would continue to increase to the detriment of wildlife and wildlife habitat. Through the analysis of potential population increases through the WinEquus population model (SIR at 5.0), it was determined that within 10 years, populations could reach nearly 9,000 wild horses within the Complex with average populations that could range from 2,023 to 3,735 wild horses over the analysis period.

Competition between wildlife and wild horses for forage and water resources would continue to increase wild horse numbers continue to grow. As competition increases, some wildlife species may not be able to compete successfully, potentially leading to increased stress and possible dislocation or death of native wildlife species over the long-term. Rangeland vegetation currently receiving heavy, critical growth period or repeated use by wild horses would continue to be impacted. Throughout the region, downward trends in key perennial species would be continue in conjunction with reductions in ecological condition. As this occurs, vegetation would also experience reduced production levels resulting in reduced forage availability to wildlife, livestock, and wild horses, and reduced soil stability. Further degradation would be likely and could be irreversible if the proposed gather does not occur to achieve the AMLs and thriving natural ecological balance.

Important habitat utilized by GRSG would continue to be degraded by wild horses, in addition to riparian

area, aspen communities, and meadow complexes valuable to many species of wildlife. Wild horses would continue to expand outside of the HMA boundaries and as such would increase in numbers in areas near LCT habitat, further increasing the risk of negative impacts.

3.6. Livestock Grazing

Affected Environment

The RMC includes numerous grazing allotments, with the addition of those located outside of HMA boundaries where wild horses are known to exist. The following table displays information about the permitted use, and proportions associated with the RMC.

Table 15. Livestock use within the RMC

HMA	Allotment	Livestock Type	Permitted Animal Unit Months (AUMs)[13]	% of HMA comprised by the Allotments	% of Allotment Within the HMA	% of Allotment outside of HMAs
Roberts Mountain	Roberts Mountain	Cattle	7,316	64%	38%	62%
		Sheep	2,310			
	Three Bars	Cattle	4,111	36%	46%	54%
		Sheep	1,729			
Whistler Mountain/Fish Creek	Lucky C	Cattle	3,054	Fish Creek 7.6%	17%	72%
				Whistler Mtn. 28%	11%	
Whistler Mountain	Romano	Cattle	2,887	Whistler Mtn. 72%	32%	68%
Totals						--

Roberts Mountain HMA

The permitted livestock use for the Roberts Mountain was allocated in the 1994 FMUDs for the Roberts Mountain and Three Bars Allotments. This allocation was based on carrying capacity analysis completed through the Roberts Mountain and Three Bars Allotment Evaluations completed in 1994. Through the FMUD and subsequent settlement agreements, livestock active preference was reduced by 20% and 27% for the Three Bars and Roberts Mountain Allotments respectively. Additionally, grazing systems were implemented, and recommendations and terms and conditions identified to protect important wildlife habitat.

Total billed AUMs the Roberts Mountain Allotment between 2017-2021 has ranged from 63-76% of the permitted use, and averaged 70% through this period. Three Bars billed AUMs ranged from 53-70% during this period and averaged 63.6% of permitted use. Both the Three Bars and Roberts Mountain Allotments are comprised of many pastures. As indicated in the above table, the portion of the allotments within the HMA are 38 and 46%, for the Roberts Mountain and Three Bars allotment, respectively. Therefore the portions of billed AUMs that are grazed within the HMA are less than the allotment totals.

Rangeland Health Evaluations (RHAs) have not been completed for either of these grazing allotments. RHAs will be completed within both allotments in future years. At this time, the Standards for Rangeland Health would be assessed and changes to the livestock management system implemented if deemed necessary.

[13]. 43 CFR 4100.0-5 defines Animal Unit Month (AUM) as the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month (which equates to 5 sheep).

Throughout the Roberts Mountain HMA, livestock and wild horses are able to utilize the same habitat, and have dietary overlap (SIR at 8.0). Wild horses tend to travel farther from water and may use some higher elevations than cattle in the summer months. Livestock, however, can be controlled by herding, and through the use of wells or temporary water hauls operated by the permittees. Due to the limited water availability and other management considerations, the Coils and Nichols Pastures within the Kobeh Valley portion of the Roberts Mountain HMA have not been utilized extensively by livestock and have consistently been utilized to a greater degree by wild horses than by livestock.

Fish Creek and Whistler Mountain HMAs

A comprehensive Rangeland Health Assessment was completed in 2004 for the Fish Creek Complex, which includes the Lucky C and Romano Allotments, in addition to others south of U.S. Highway 50 associated with the remaining portion of the Fish Creek HMA. The analysis of the data resulted in adjustments to livestock use and establishment of AMLs for wild horses within the Fish Creek and Whistler Mountain HMAs. As a result, livestock management systems were implemented for all of the allotments, which included changes in season of use and changes to permitted use.

Carrying capacity analysis was completed for all allotments within the Fish Creek Complex, using utilization data and actual use for wild horses and livestock. Through the FMUD issued in September 2004, the permitted livestock use for the Lucky C Allotment was reduced by 40%, to 3,054 AUMs and management system developed to avoid use during the critical growth periods.

Through the FMUD, the Romano Allotment active preference received an increase of 825 AUMs that had been placed into voluntary non-use in the 1990's through a transfer. The historic preference for the allotment was 5,079 AUMs. The 2004 FMUD, established the permitted use at 2,887 AUMs.

Total billed AUMs for the Lucky C Allotment for the past 5 years (2017-2021) have been 100% of the permitted AUMs. For the same time period, the total billed AUMs for the Romano allotment have been on average 75% of the total permitted AUMs.

Within these allotments, wild horse and livestock use can exhibit 100% overlap. As with the Roberts Mountain and Three Bars Allotments, livestock use can be controlled through the use of wells and other water sources. Wild horses utilize the allotments in relation to climate, forage quality and water needs through the year.

A substantial proportion of the wild horse population associated with the RMC exists outside of HMA boundaries where wild horse management has not been designated. Excess wild horses in these areas have a direct impact to resource availability and rangeland health. The following table displays the grazing allotments that are located outside of the RMC boundaries and in which wild horses have been documented since 2008. The average percentage of billed AUMs compared to permitted AUMs for the past 5 years have been 76, 89, 65, and 31% for the JD, Santa Fe Ferguson, Willow Ranch, and Dry Creek Allotments, respectively.

Environmental Consequences

Proposed Action and Action Alternatives:

It is not anticipated that the proposed gather activities would have any negative impacts to the livestock operations within the allotments associated with the Complex. There is a remote possibility that temporary disturbances would occur to sheep or cattle grazing within the allotments if livestock were present at the time the wild horse gather operations were completed. Should bait/water trapping activities be proposed in the future, planning and coordination with livestock permittees would be needed to ensure success of trapping and avoid conflicts with livestock.

The effects of wild horse populations on livestock, wildlife, and vegetation resources are largely functions of dietary and spatial overlap between species. Within the RMC, there is the potential for a large degree of overlap between use by wild horses and livestock. Implementation of the Proposed Action or Action Alternatives would indirectly impact livestock operations through improvement of the quality and quantity of forage available through achievement of the established AMLs, and progress towards attainment of RAC Standards and Guidelines over the long term. Refer to Section 3.9 and the SIR at 4.0 for additional information about the Vegetation Resources within the Complex on which permitted livestock use.

Population Modeling Discussion between Alternatives
As shown in the population modeling located in the SIR at 5.0, the Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events over the analysis period when compared to the Action Alternatives or the No Action Alternative. Preventing further rangeland degradation from a population in excess of the established AML would benefit water and forage resources and reduce competition between wild horses and livestock. All of the Action Alternatives would maintain horse populations at levels near or at the established AMLs and remove wild horses from outside of HMA boundaries which would benefit rangeland resources throughout the Complex, and thus, livestock management.

No Action Alternative (No Wild Horse Gather)
Wild horse populations would continue to increase and exceed the capacity of the habitat to provide forage and water. Within 10 years, the populations could exceed 4800% of the established AMLs without any efforts to control the population or remove excess wild horses. Refer to Population Modeling results in the SIR at 5.0. Uncontrolled increases in the wild horse populations would result in continued heavy and severe use of vegetation resources leading to further degradation of plant communities and susceptibility of invasive species to degraded rangeland. Downward trends of key perennial species and deterioration of ecological condition would continue. This would result in poor soil stability, reduced production levels, and reduced forage availability to wildlife, livestock, and wild horses throughout the Complex.

3.7. Wilderness Study Area

Affected Environment

Within the RMC gather area exist two Wilderness Study Areas (WSAs). The information is presented below. Refer also to SIR at 13 (Map 8) for a Map of the WSAs.

Table 17: WSAs within the Roberts Mountain Complex

WSA	Acres
Roberts Mountain	15,090
Simpson Park	46,670

Wilderness preservation is part of the BLM's multiple-use mandate, and the wilderness resource is recognized as one of the many resource values considered in the land-use planning process. The Federal Land Policy and Management Act (FLPMA) of 1976 directed the BLM to inventory and study all lands for wilderness characteristics (nationwide studies began around 1980). To be designated as a WSA, an area had to have: at least 5,000 acres of public lands, naturalness, and outstanding opportunities for solitude or primitive and unconfined types of recreation.

WSAs are known for their rugged, remote and sometimes inaccessible mountain peaks and ranges. Canyons in some of the WSAs consist of rock outcroppings, spires, rock faces, and ridges with sheer vertical drops.

Vegetation consists mainly of dense pinyon pine and juniper woodland with a sagebrush and grass understory. WSAs are managed to ensure they are unimpaired for preservation as wilderness until Congress has determined to designate them as wilderness or release them from WSA status.

The BLM manual Management of Wilderness Study Areas (6330) provides guidance for management of WSAs. The 6330 manual addresses wild horse and burro management in Section D, page 1-36 which specifically allows for the use of helicopters for the gathering of wild horses. In addition, the 6330 manual states:

> *"Wild horse and burro herds are managed in WSAs only within geographic areas identified as having been used by a herd as its habitat in 1971 as directed by the Wild Free-Roaming Horse and Burro Act. Wild horses and burros are managed to remain in balance with the productive capacity of the habitat; this includes managing herds so as not to impair wilderness characteristics. Wild horse and burro populations must be managed at appropriate management levels so as to not exceed the productive capacity of the habitat (as determined by available science and monitoring activities), to ensure a thriving natural ecological balance, and to prevent impairment of wilderness characteristics, watershed function, and ecological processes. The BLM should limit population growth or remove excess animals as necessary to prevent the impairment of the WSA."*

The Simpson Park and Roberts Mountain WSAs occupy high elevation, remote areas of steep and rough terrain. These areas are outside of wild horse HMA boundaries and typically not utilized heavily. A review of historic inventory files found that a few sightings of horses were observed in the Roberts Mountain WSA during flights in the early 1990's, 2012 and 2019. Similarly, only a few occurrences were documented within the Simpson Park WSA during flights in 1978, 1993, 2005 and 2015.

Environmental Effects

Proposed Action, and Action Alternatives

Impacts to opportunities for solitude could occur during helicopter gather operations due to the possible noise of the helicopter. These impacts would cease when the gather was completed. No surface impacts would occur within the WSA since all gather sites and holding facilities would be placed outside WSA boundaries.

Since the proposed gather excludes the use of motorized/mechanized vehicles within the WSAs, the non-impairment criteria would be met, and the completion of a wild horse gather would not result in any unacceptable impacts to WSA lands. Also as stated above helicopters and fixed wing aircrafts may be used for aerial surveys and for the gathering of wild horses and burros.

The proposed gather would result in the complete removal of all wild horses from areas not designated for their use, and maintenance of AML within the HMA. As a result, riparian areas and native vegetation would benefit and experience improvement, and wilderness values and wildlife habitat would be enhanced throughout the region. Inventory data indicates incidental use may occur by wild horses within the WSA boundaries. Through gather events over the years, wild horses would be removed from outside designated HMA boundaries and would have a much lower likelihood of being within or impacting the WSAs in any way. It is expected that any difference between the Action Alternatives would be negligible.

Because it is unlikely that all horses could be removed from outside of the RMC in the vicinity of the Roberts Mountain RMC in the initial gather event, it is possible that remaining horses could continue incidental use within the WSA, most likely in summer months.

Population Modeling Discussion between Alternatives
As noted above, impacts to the WSAs through implementation of the Proposed Action of Alternatives could include impacts to solitude during active gather events, and impacts from wild horses within the WSAs which are outside of HMAs. As shown in the population modeling located in the SIR at 5.0, the Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events over the analysis period when compared to the Action Alternatives or the No Action Alternative. Therefore, the Proposed Action would most likely benefit WSA resources the most when compared to other Alternatives. However, all of the Action Alternatives would maintain horse populations at levels near or at the established AMLs and remove wild horses from outside of HMA boundaries which would benefit WSAs throughout the Complex.

No Action Alternative
The No Action Alternative would allow wild horses to continue utilizing resources within the WSA outside of established HMA boundaries. The growth of the population to potentially nearing 9,000 wild hor4ses within the next 10 years (SIR at 5.0) would certainly result in increased numbers of wild horses impacting resources within the WSA as more animals leave HMA boundaries in search of food and water. Over time, use of forage and water could become concentrated and heavy, leading to degradation of wilderness values. The sight of heavy horse trails, trampled vegetation and areas of high erosion would detract from the wilderness experience within the WSA. The No Action Alternative would not allow for a thriving natural ecological balance, would allow wild horses to degrade wilderness values, wildlife habitat and vegetative cover, and would not be in conformance with manual 6330.

3.8. Noxious Weeds and Invasive Non-Native Species

Affected Environment

The Nevada Revised Statutes (NRS) defines a noxious weed as "any species of plant which is, or likely to be, detrimental or destructive and difficult to control or eradicate", while the BLM defines a noxious weed as, "a plant that interferes with management objectives for a given area of land at a given point in time." Changes in plant community composition from invasion of non-native/noxious plants can negatively affect wildlife, ecological and hydrological processes, livestock, and wild horses by changing fire severity and occurrence, habitat structure, and available forage. Noxious weeds, invasive and non-native species are highly competitive, and can easily spread and outcompete native vegetation through ground disturbing events from people, equipment, animals and by natural processes, such as wind and water erosion. The potential for increased weed infestations rises proportionally with increased disturbances. Horses can spread the seeds of invasive plants such as cheatgrass (i.e,, Loydi and Zalba 2009, King et al. 2019).. Heavy use of rangeland by an overpopulation of wild horses can also promote spread of weeds through reducing competition by perennial native species and increasing ground disturbance through trampling and trailing.

Executive Order 13112 (Executive Order 13112 - Invasive Species | National Invasive Species Information Center) outlines the federal responsibility to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause." Nevada Revised Statutes, Chapter 555.05 defines "noxious weeds" and mandates the extent that land owners and land management agencies must control specific noxious weed species on lands under their jurisdiction. The Battle Mountain Districts recognize the current noxious weed list designated by the State of Nevada Department of Agriculture, found at NVNoxiousWeedList_by category_2012.pdf

Guidelines for managing noxious weeds, invasive and non-native species in the Roberts Mountain Complex have been followed in accordance with the BLM District Integrated Weed Management Plan (2008). A complete inventory of the noxious and other invasive weed species has not been completed within the RMC. However, through routine monitoring infestations of noxious weeds and invasive species have been

documented. In August 2020, small populations of bull thistle and russian knapweed were treated by the NPS IPMT along 3 Bars Road. Substantial infestations of short whitetop, and musk thistle (category C listed NV noxious weeds) have been identified and mapped in this location, primarily along roads, drainages, and adjacent areas near the Roberts Mountain WSA. Invasive weeds typically establish in disturbed and high traffic areas or disturbance. Any surface disturbance activity can create a potential environment for invasive species, including wildfire. The 2012 Frazier Fire has been inventoried for noxious and invasive species. Substantial sightings of noxious and invasive species have been documented within the Frazier Fire boundary. Within the RMC project area (inside and outside of HMA boundaries), the following noxious/invasive species have been documented according to the National NISIMS database.

Table 18: Known populations of Invasive and Noxious Weeds, RMC

Scientific Name	Common Name
Acroptilon repens	Russian knapweed
Carduus nutans	Musk thistle
Centaurea stoebe	Spotted knapweed
Centaurea squarrosa	Squarrose knapweed
Cirsium vulgare	Bull thistle
Conium maculatum	Poison hemlock
Hyoscyamus niger	Black henbane
Lepidium draba	Hoary cress
Lepidium latifolium	Tall whitetop
Onopordum acanthium	Scotch thistle
Tamarix spp.	Salt cedar
Bromus tectorum	Cheatgrass
Salsola iberica	Russian thistle

Environmental Consequences

Proposed Action and Action Alternatives

The proposed wild horse gather could result in the direct spread of existing populations of invasive non-native species. Precautions would be taken prior to setting up trap sites and holding facilities to avoid areas where invasive/noxious species exist to lessen the chance of invasion or spread. The Contracting Officers Representative (COR), Project Inspector (PI), or other qualified specialist would examine proposed holding facilities and traps sites prior to construction to determine if noxious weeds were present. If noxious weeds were found, a different location would be selected. Therefore, the impacts would be negligible, and any effects of the gather would be short-term, as well as localized.

Indirect impacts of the proposed gather would be related to wild horse population size as it affects ground disturbance and rangeland health. Invasive non-native species can increase with overuse of the range by grazing animals or through surface disturbance. Maintenance of healthy populations of native perennial plant species and communities minimizes the establishment of invasive non-native weeds. It is expected that implementation of the proposed wild horse gather and achievement and maintenance of the established AML over time would result in improved condition of native rangeland and riparian areas throughout the Complex, thus limiting the potential opportunities for spread of noxious and invasive species.

Population Modeling Discussion between Alternatives

The Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events over the analysis period when compared to the Action Alternatives or the No Action Alternative (SIR at 5.0). This could result in the least amount of ground disturbance activities and greater improvement to rangeland health which would reduce risk and spread of noxious and invasive weeds. All of the Action Alternatives would maintain horse populations at levels near or at the established AMLs

and remove wild horses from outside of HMA boundaries which would benefit rangeland health throughout the Complex, and thus reduce the risk and spread of noxious and invasive weeds over the current situation.

No Action Alternative (No Wild Horse Gather):
Without any efforts to reduce the population of wild horses to the established AMLs, native rangeland resources would be subject to continued degradation, soil disturbance, and heavy and severe utilization of the vegetation. Rangeland vegetation that is currently in low ecological status or is disturbed would be vulnerable to invasive weeds. Current infestations of invasive weeds would be expected to spread and continue to increase as a result of continued impacts by wild horses. Wild horse impacts to vegetation resources would increase with increases in the population size over time, resulting in growing opportunities for invasion and spread of non-native, undesirable plant species. Population modeling completed for the No Action Alternative (SIR at 5.0) indicates that the average population could range from 2,023 to 3,735 wild horses over the next 10 years, with maximum population potential from 100 trials of the model nearing 9,000 wild horses which is 4800% of the established AML. Populations of this size would have catastrophic impacts on the native vegetation and would promote extensive spread of noxious and invasive weeds throughout the RMC.

3.9. Rangeland Vegetation Resources

Affected Environment
The Rangeland Vegetation Resource has been further described within the documents identified in Section 1.6.

Vegetation and Climate
The average climate for the Complex is characterized by hot, dry summers and cold winters exhibiting precipitation ranging from 6-10 inches in the valley floors, 8-14 inches on the alluvial fans and from 12-20 inches in the mountains. Elevations range from 5,800-10,000 feet. The Roberts Mountain and Whistler HMAs are comprised of Kobeh Valley, the far west portion of Diamond Valley, Roberts Mountain, Mount Hope, and Whistler Mountain. The portion of the Fish Creek HMA within the Complex consists of Lone Mountain and surrounding portions of Kobeh Valley.

Wyoming big sagebrush is the primary vegetation community in Kobeh Valley and comprises the largest vegetation component of the RMC. Other vegetation consists of greasewood and grass dominated ecological sites associated with the Coils Creek and Slough Creek drainages. Black sagebrush is extensive on foothills of Whistler Mountain and Lone Mountain. Pinyon/juniper is prominent throughout the higher elevations of Roberts Mountain HMA, Whistler Mountain HMA, and the Lone Mountain area of the Fish Creek HMA.

The following table displays the general vegetation types within the RMC (Re-Gap data from GIS)

Table 19: Major Vegetation Types within the RMC

Description	Acres	Percent
Inter-Mountain Basins Big Sagebrush Shrubland	133,854	70%
Great Basin Pinyon-Juniper Woodland	27,036	14%
Great Basin Xeric Mixed Sagebrush Shrubland	10,437	5%
Inter-Mountain Basins Montane Sagebrush Steppe	9,569	5%
Inter-Mountain Basins Greasewood Flat	6,064	3%
Other	3,600	2%
Total	190,548	

As the table shows, the majority of the Complex is comprised of sage brush shrubland, followed by Pinyon-Juniper woodland. The SIR at 4.0 includes more detail about the specific ecological sites within the Complex, as well as monitoring and climate data. Refer also to Map 4 in the SIR 13 which displaces general habitat types.

Drought is an ongoing occurrence and has been Severe to Extreme within the RMC since 2020 and is expected to persist. Refer to the SIR at 4.0 for more detailed information about precipitation levels and drought. Low annual precipitation levels and drought are issues throughout the RMC having affected current health and recovery of the rangeland vegetation from past over use by wild horses and livestock. Drought reduces the availability of forage to livestock, wildlife, and wild horses. During periods of drought, it becomes even more important to prevent overgrazing of key perennial plants. A significant impact of drought on rangelands is a severe reduction in herbage production. Not only is less production of forage available for animals, but heavy use can harm or kill the plants. Under severe drought conditions, forage plants may not grow at all.

During periods of drought, when limited waters are available, wild horses concentrate use within the locations of remaining waters, which can result in severe use, trailing, and complete degradation of the native perennial grasses. It is not until the forage has been denuded and the waters dried up that wild horse condition noticeably declines.

Throughout the Roberts Mountain, Fish Creek, and Whistler Mountain HMAs, vegetation condition varies widely; however, much of the upland vegetation has been degraded to some degree through historic and past use by wild horses and livestock. There have not been any large wild fires within the RMC. However, the Frazier Fire burned outside of the HMA boundaries in 2012.

National terrestrial Assessment, Inventory, and Monitoring (AIM) data has been collected throughout the RMC gather area since the last gather. However, due to the limited monitoring points within the relatively large gather area this data cannot appropriately speak to the trend or overall rangeland health or condition. This data will likely be used for a rangeland health assessment once adequate data has been collected The data can be accessed online at https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=d96ef73e800749ba8e25443661ecc55c .

Through the Three Bars and Roberts Mountain Evaluations (1994) and the Fish Creek Complex Rangeland Health Assessment (2004), carrying capacity analysis was completed from utilization data to determine the levels of use that should occur within these areas to ensure that allotment and HMA objectives were met.

Wild horse inventory flights indicate over 700 horses are be residing outside of HMA boundaries in areas that are not designated for their use. Monitoring activities have documented impacts by wild horses to upland and riparian areas through heavy utilization and trailing.

Fire and Fuels Management

The Frazier Fire burned in 2012, totaling 12,091 acres of sagebrush and pinyon juniper woodland. The area is outside of the Roberts Mountain HMA. However, wild horses have been documented within the area during inventory flights since 2015. Rehabilitation efforts were implemented following the wildfire. The presence of wild horses within the burned areas has impacted rehabilitation efforts as wild horses are not designated for use in the area.

Environmental Consequences

Proposed Action and Action Alternatives

Direct impacts of the proposed gather would include disturbance to native vegetation in and around

temporary trap sites and holding facilities due to the use of vehicles and concentration of horses in an isolated area (less than 1 acre). Trap sites and holding facility locations are usually selected in areas easily accessible to livestock trailers and standard equipment, often utilizing roads, gravel pits or other previously disturbed sites. Based on typical wild horse gather operations, it is estimated that approximately 6-8 trap-sites and 1-2 sets of holding corrals would be needed within the Complex for helicopter drive trap operations, and potentially more for bait and water trapping.

Indirect impacts of the proposed gather relate to the affects to vegetation resources as a result of reduced numbers and concentrations of wild horses within the RMC.

Achieving the AML within the RMC would prevent utilization objectives from being exceeded, reduce the amount of use during the critical growth period for perennial grasses, promote litter accumulation and increased cover of grasses, and protect key perennial grasses from being over-utilized during drought conditions. The potential for competition among wild horses, wildlife, and livestock for forage would decrease. Reduced concentrations of wild horses would contribute to improved vegetation density, increased plant vigor, seed production, seedling establishment, and forage production over current conditions. In the long-term, maintaining population levels at AML, would promote continued improvement of the vegetation resources throughout the Complex, resulting in upward trend and increased frequency of key species to the benefit of ecological processes.

Removal of excess wild horses from outside of HMA boundaries would relieve the resources of additional use, trampling and stress by wild horses and allow for increased vigor and productivity. Removal of wild horses from within and near the Frazier Fire would also further recovery and upward trends.

Within the Fish Creek and Whistler Mountain HMAs, populations of wild horses in excess of established AMLs are negatively affecting the rangeland resources. Implementing the AMLs established in the 2004 FMUD through the Proposed Action would ensure that allotment objectives are met, and significant progress made towards achieving the RAC Standards for Rangeland Health.

Population Modeling Discussion between Alternatives
As shown in the population modeling located in the SIR at 5.0, the Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events over the analysis period when compared to the Action Alternatives or the No Action Alternative. The Proposed Action could result in the highest benefit to vegetation resources throughout the Complex through utilization levels consistent with proper rangeland management, reduced or eliminated concentrated use of vegetation resources and reduction of trailing throughout the Complex. All of the Action Alternatives would maintain horse populations at levels near or at the established AMLs and remove wild horses from outside of HMA boundaries which would benefit vegetation throughout the Complex and promote improved rangeland health.

No Action Alternative (No Wild Horse Gather)
Under the No Action Alternative, the wild horse population would continue to increase as no gather would be implemented to remove excess wild horses or slow reproductive rates. Wild horses would not be removed from areas outside of the HMA boundaries where wild horse use is not designated. According to the population modeling, within 10 years, the populations could near 9,000 wild horses, or 4800% of the established AMLs.

Under increasing population levels, substantial overutilization and degradation of vegetation resources would occur. Continued downward trends in key perennial species would be expected in conjunction with reductions in ecological condition and soil stability. Degraded areas would increase throughout the RMC. Vegetation would also experience reduced production resulting in reduced forage availability to wildlife,

livestock, and wild horses. Inadequate forage would be available to sustain wild horses, livestock and wildlife, and valuable wildlife habitat would be further deteriorated or destroyed. As the wild horse population increases, irreparable damage would be done to the rangeland resources within the Complex which could compromise the habitat to support wildlife, wild horses and livestock for decades in the future or permanently without extensive rehabilitation.

Failure to implement the AMLs for the northern portion of the Fish Creek HMA and Whistler HMA as identified in the 2004 FMUD would prevent progress being made towards RAC Standards for Rangeland Health, as well as causing utilization and vegetation objectives to not be met.

3.10. Soils/Watershed

Affected Environment

Soils within the proposed gather area have been described within the documents identified in Section 1.6.

For more detailed information, please refer to the Soil Survey of Eureka County (1989) and the Soil Survey of Diamond Valley (1980) available through the Natural Resource Conservation Service (NRCS).

During recent monitoring within the RMC, observations were documented regarding soil characteristics and soil movement. Throughout Kobeh Valley, the vegetation community is characterized by large interspaces of bare ground between shrubs. In rare cases fair to moderate amounts of litter was present, and perennial grasses were not frequently observed in the interspaces. Wind scoured depressions, desert pavement, moderate to severe pedestalling was observed at most monitoring locations.

Year round use by a population of wild horses in excess of the established AML has resulted in depletion of forage species, trailing, impacts from hoof action and absence of litter. Outside of designated HMA boundaries, wild horses are impacting soil health throughout uplands and riparian areas. Refer to the SIR at 4.0 for additional information and documentation from monitoring within the RMC.

Environmental Consequences

Proposed Action and Action Alternatives

Direct impacts such as soil displacement and compaction would occur at trap sites (less than 1 acre in size) during the construction phase and gather operations. Trap sites are ideally located in areas of previous disturbance, gravel pits or along roadsides. Procedures identified in the Gather Plan and SOPs (SIR at 6.0 would be followed to minimize impacts to soils during gather operations. Based on typical gather operations, it is estimated that 6-8 trap-sites and 1-2 holding corrals would be necessary to complete the gather. Bait and water trap gathers may be placed near or on water sources and would likely be in place for much longer than traps for helicopter drive trap operations.

Achievement of AML would further result in improved rangeland health, which in turn would increase frequency and production of perennial grasses and litter to protect soils from erosion. Reduced density of wild horses throughout the Complex would also result in reduced trailing and concentrations around water sources. Maintaining AML over the long term would help improve or maintain biological crusts, where present, due to reduced hoof action by wild horses. Reduced density of horses within the RMC would also lessen the disturbance from trailing and hoof action on plants, particularly near water sources. Outside of the HMA boundaries, removal of excess wild horses would eliminate impacts to soils from wild horses not designated for long term use.

Population Modeling Discussion between Alternatives

As shown in the population modeling located in the SIR at 5.0, the Proposed Action could result in the lowest overall average wild horse population size, and the lowest numbers of gather events through the

analysis period when compared to the Action Alternatives or the No Action Alternative. As a result, the Proposed action would offer the best scenario to improve and maintain soil health and reduce soil impacts through concentrated use by wild horses (trailing, utilization, hoof damage) and through gather events. All the Action Alternatives would maintain horse populations at levels near or at the established AMLs and remove wild horses from outside of HMA boundaries which would benefit soil resources throughout the Complex as compared to the present situation.

No Action Alternative (No Wild Horse Gather)
Populations would continue to increase at an estimated 17-25% per year. Within 10 years, the population could exceed 4800% of the established AMLs, and maximum populations could near 9,000 wild horses according to analysis through the WinEquus population model (SIR at 5.0). Downward trends of rangeland health would continue, resulting in increased acreage of bare ground, death of key perennial grass and forb species, and congruent impacts to soil health. Ongoing and intensified disturbance to soils through trailing and concentrated use on vegetation and water resources would result in continued soil erosion, lowered production of deep-rooted perennial vegetation, reduced production of litter and reduced soil stability further impacting important soil functions throughout the entire RMC.

4.0 Cumulative Impact Analysis

National Environmental Policy Act (NEPA) regulations (40 CFR 1508.7) define cumulative impacts as the impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The Cumulative Effects Study Area (CESA) is the RMC and those areas outside of the HMA boundaries in which horses may exist (Map 2, SIR 13.0). Refer to Section 1.2 of the EA for a description of the project area.

The cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance that are analyzed are maintaining rangeland health and achieving and maintaining AMLs.

Scoping for this project did not identify any need to exhaustively list individual past actions or analyze, compare, or describe the environmental effects of individual past actions in order to complete an analysis, which would be useful for illuminating, or predicting the effects of the proposed action.

4.1 Past, Present, and Reasonably Foreseeable Actions

The past, present, and reasonably foreseeable future actions applicable to the assessment area are identified as the following:

Table 20: **Past, Present, and Reasonably Foreseeable Actions**

Project -- Name or Description	Status (x)		
	Past	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.	x	x	x
Livestock grazing	x	x	x
Fuels reduction and restoration projects	x	x	x
Wild horse and burro gathers and population control	x	x	x
Wildfire suppression	x	x	x
Mineral exploration, geothermal exploration, abandoned mine land reclamation	x	x	x
Gold Bar Mine	x	x	x
Mount Hope Mine	x	x	x

Project -- Name or Description	Status (x)		
	Past	Present	Future
Recreation	x	x	x
Falcon Gonder Power Line	x	x	x
Range Improvements (including fencing, wells, and water developments)	x	x	x
Wildlife guzzler construction	x	x	x
Invasive weed inventory/treatments	x	x	x
Wild horse and burro management: issuance of multiple use decisions, AML adjustments and planning, Herd Management Area Plans	x	x	x

Any future proposed projects within the Complex would be analyzed in an appropriate environmental document following site specific planning. Future project planning would also include public involvement.

4.2. Cumulative Impacts

For purposes of this analysis each potentially affected resource has been discussed below in terms of past, present and reasonably foreseeable future actions which have or will have an affect in conjunction with the Proposed Action and the No Action Alternative. The time frame for the analysis extends from 1971, when the Wild Free Roaming Horses and Burros Act was passed, to 2032, ten years past the writing of this document which is the maximum time frame to consider reasonably foreseeable actions within this analysis.

4.2.1. Wild Horses

In 1971 Congress passed the Wild Free-Roaming Horses and Burros Act (WFRHBA) which placed wild and free-roaming horses and burros, that were not claimed for individual ownership, under the protection of the Secretaries of Interior and Agriculture. In 1976 the Federal Land Policy and Management Act (FLPMA) gave the Secretary the authority to use motorized equipment in the capture of wild free-roaming horses as well as continued authority to inventory the public lands. In 1978, the Public Range Improvement Act (PRIA) was passed which amended the WFRHBA to provide additional directives for BLM's management of wild free-roaming horses on public lands.

Past actions include establishment of wild horse HMAs, establishment of AML for wild horses, wild horse gathers, vegetation treatments, mineral extraction, oil and gas exploration, livestock grazing and recreational activities throughout the area. Some of these activities have increased infestations of invasive plants, noxious weeds, and pests and their associated treatments.

Wild horses have existed within the Roberts Mountain and Whistler Mountain HMAs since prior to the passage of the WFRHBA in 1971. The 1986 SERA RMP designated the Roberts Mountain, Whistler Mountain and Fish Creek HMAs for long term management of wild horses. These HMAs partially overlap the 1971 Herd Areas which represent where horses existed at the passage of the 1971 WFRHBA. The Herd Areas are Kobeh and Roberts Mountain (see Map 1-3, SIR 13.0). Objectives for these HMAs were further defined within the SERA Rangeland Program Summary (1988). Because of movement between the HMAs, it has been determined that management should focus on these areas as a Complex. AMLs have been set through Multiple Use Decisions following evaluation of resource issues and available resource data. Through ongoing assessment of monitoring data, distribution, use patterns, habitat characteristics and health and other factors have been evaluated to direct management of these HMAs through gathers and removals.

The largest influence to wild horses since the passage of the WFRHBA in 1971 has been the completion of wild horse gathers within the Complex. Roberts Mountain HMA has been gathered four times. In 1987, 120 wild horses were gathered and removed, and no wild horses released. In 1995, 344 wild horses were captured, and 108 wild horses 10 years old and older were released. This gather was conducted under BLM

policy, which required that only horses under 9 years of age be shipped to facilities for inclusion into the adoption program. In 2001, policy changed, allowing increased flexibility to remove older animals, and select younger animals for release to the range. During this gather, 580 wild horses were captured, and 131 wild horses released. The most recent gather in 2008 was an emergency action due to poor animal conditions. A total of 373 were gathered, with 25 released back to the range.

In 2001, 28 water stressed wild horses were removed from the Whistler Mountain HMA and Kobeh Valley in conjunction with the Roberts Mountain HMA gather.

The Kobeh Valley area, outside of the Fish Creek HMA boundaries was gathered in 1994, and included the capture of 129 wild horses and release of 27 wild horses over the age of 10 years old back to the area.

Approximately 1,574 wild horses have been gathered and 1,283 excess wild horses removed from the RMC over the last 30 years. All current information shows that the populations are thriving and have not been negatively impacted.

The age selection criteria requiring the release of older horses has influenced the age structure through the years, resulting in a higher proportion of horses older than 15, an increased proportion of the population between 0-5 years of age, and a decreased proportion of 10-14 year old horses than a normal population would exhibit. However, the deviations have been minimal, and have not been extreme departures from natural age structures. Since it has been over ten years since the last gather event, it is expected that the age structure will reflect only natural birth and death processes for all animals born since that gather. No fertility control or other population controls have been implemented within the Complex except for gathers and removals.

The past gathers do not appear to have impaired genetic diversity of the population, which has been analyzed for 2001 and 2007 samples and found to be highly diverse with no concerns raised for the current time or near future. As noted in section 3.3.4, the horses in this area appear to have a high level of genetic connectivity with a large number of other wild horse herds.

Other past activities, which may have affected wild horses within these HMAs, include livestock grazing and adjustments to permitted use, water developments and fencing, and OHV use through the impacts on vegetation condition and availability, as well as water quality and quantity. The Falcon-Gonder 24K Powerline transverses the Whistler Mountain and Roberts Mountain HMAs on the east side of Kobeh Valley. The construction of the power-line caused temporary and minor disturbances to wild horses. Field and inventory observations indicate that the power-line is not affecting distribution or herd movement.

The Atlas-Gold Bar Mine operated within the western portion of the HMA for approximately 15 years in the 1980's and 1990's. This mine encompasses 1,200 acres of public land within the HMA, and an additional 70 acres of exploration. Reclamation of the area is ongoing. Mineral exploration activities have had temporary and isolated impacts to the wild horses and are increasing within the Kobeh Valley portion of the HMA. The Gold Bar Mine has been in development and operation in recent years and is located just north of the Roberts Mountain HMA. The location of the operation may have influenced east/west movement of wild horses within the HMA. However, the area does not represent ideal habitat for wild horses, so habitat loss is minimal. Increased traffic along access roads may have increased disturbance to horses and risk of vehicular accidents. However, employee training and signage with speed limits have been implemented to reduce impacts.

Behaviors of wild horses have likely also been influenced by hunters and recreationalists in the area as it is in close proximity to Eureka and offers pleasant outdoor opportunities.

Adjustments in livestock season of use, livestock numbers, and grazing systems were made through the allotment evaluation/multiple use decision process. In addition, temporary closures to livestock grazing in areas burned by wildfires, or due to extreme drought conditions, were implemented to improve range condition.

The Frazier Fire burned a large land area north of the Roberts Mountain HMA in 2012 (12,091 acres). Wild horses have frequented the area, especially after the wildfire, and may have impacted rehabilitation efforts.

Today the RMC has an estimated population of 1,174 wild horses with over 700 of them existing outside of HMA boundaries. This is in part due to the decision made during the 2008 gather to leave horses outside of the HMA boundaries that were not in stress and focus on removal of the thin and compromised horses within the HMA that were literally starving to death.

The BLM's policy is to conduct routine gathers to remove excess wild horses and to reduce population growth rates where possible. Program goals have expanded beyond establishing a "*thriving natural ecological balance*" by setting AML for individual herds to now include achieving and maintaining healthy and stable populations and controlling population growth rates.

Though authorized by the WFRHBA, current appropriations and policy prohibit the destruction of healthy animals that are removed or deemed to be excess. Only sick, lame, or dangerous animals can be euthanized, and destruction is no longer used as a population control method. An amendment to the WFRHBA allows the sale of excess wild horses that are over 10 years in age or have been offered unsuccessfully for adoption three times. BLM is adding additional ORPs in the Midwest and West to care for excess wild horses for which there is no adoption or sale demand.

The BLM is continuing to administer grazing permits and authorize grazing within the CESA. Within the proposed gather area sheep and cattle grazing occurs. Wildlife use by large ungulates such as deer, and antelope is also currently common in the CESA.

The focus of wild horse management has also expanded to place more emphasis on achieving rangeland health as measured against the RAC Standards. The Northeastern Great Basin RAC standards and guidelines for rangeland health are the current basis for assessing rangeland health in relation to management of wild horse and livestock grazing within the Battle Mountain District. Adjustments to numbers, season of use, grazing season, and allowable use will be based on evaluating achievement of or making progress toward achieving the standards.

Currently, the Gold Bar mine is actively operating in the region. The mine facilities and operations are located in the very northern portion of the Roberts Mountain HMA and outside of the HMA. The activities have likely affected wild horse movement within the area, however, wild horses have been documented within close proximity to the mine operations during helicopter surveys.

In the future, the BLM would manage wild horses within HMAs that have suitable habitat for an AML range that maintains genetic diversity, age structure, and targeted sex ratios. Current policy is to express all future wild horse AMLs as a range, to allow for regular population growth, as well as better management of populations rather than individual HMAs. Wild horses would continue to be a component of the public lands, managed within a multiple use concept.

As the BLM achieves AML on a national basis, gathers should become more predictable due to facility space. Fertility control should also become more readily available as a management tool, with treatments that last between gather cycles reducing the need to remove as many wild horses and possibly extending the time between gathers. The combination of these factors should result in an increase in stability of gather

schedules and longer periods of time between gathers.

The proposed gather area contains a variety of resources and supports a variety of uses. Any alternative course of wild horse management has the opportunity to affect and be affected by other authorized activities ongoing in and adjacent to the area. Future activities which would be expected to contribute to the cumulative impacts of implementing the Proposed Action include future wild horse gathers, continuing livestock grazing in the allotments within the area, mineral exploration and extraction, new or continuing infestations of invasive plants, noxious weeds, and pests and their associated treatments, and continued native wildlife populations and recreational activities historically associated with them. The significance of cumulative effects based on past, present, proposed, and reasonably foreseeable future actions are determined based on context and intensity.

Cumulative Effects of the Proposed Action
In the future, application of population growth suppression techniques (i.e. PZP, PZP-22, GonaCon, and Gelding) and adjustment in sex ratios would be expected to slow total population growth rates, and to result in fewer gathers with less frequent disturbance to individual wild horses and the herd's social structure. This is illustrated in the results from the Population Modeling for the alternatives which include analysis of fertility control (SIR at 5.0). However, return of wild horses back into the Complex could lead to decreased ability to effectively gather horses in the future as released horses learn to evade gather operations. The effect may be reduced gather effectiveness and the ability to capture a smaller portion of the population with each consecutive operation.

Cumulative Effects of the Proposed Action and Alternatives A and B
The cumulative effects associated with the capture and removal of excess wild horses include gather-related mortality of less than 1% of the captured animals, about 5% per year associated with transportation, ORCs, adoption or sale with limitations and about 8% per year associated with ORPs. These rates are comparable to natural mortality on the range ranging from about 5-8% per year for foals (animals under age 1), about 5% per year for horses ages 1-15, and 5-100% for animals age 16 and older (Jenkins, 1996, Garrott and Taylor, 1990). In situations where forage and/or water are limited, mortality rates in the wild increase, with the greatest impact to young foals, nursing mares and older horses. 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 mare, or animals may become too weak to travel. After suffering, often for an extended period, the animals may die. Before these conditions arise, the BLM generally removes the excess animals to prevent their suffering from dehydration or starvation.

While humane euthanasia and sale without limitation of healthy horses for which there is no adoption demand is authorized under the WFRHBA, Congress prohibited the use of appropriated funds between 1987 and 2004 and again in 2010 to present for this purpose. If Congress were to lift the current appropriations restrictions, then it is possible that excess horses removed from the Complex over the next 10 years could potentially be euthanized or sold without limitation consistent with the provisions of the WFRHBA.

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

Cumulative effects of the Proposed Action in conjunction with the past, present and reasonably foreseeable actions, would include disruption to wild horse bands and herd dynamics, and changes to distribution in the HMAs. However, effects would also include improvement of habitat quality for the wild horses within the Complex, which would contribute to long-term health of the wild horses as indicated by improved body condition, increased body size, healthier foals, and herd sustainability through drought years. An overall lower population and density of wild horses across the landscape would allow increased recovery of native vegetation that is currently degraded, as well as reduce or eliminate further degradation.

Cumulative Effects of the No Action Alternative

Under the No Action Alternative, the wild horse population within the RMC combined could exceed average 2,023 to 3,735 over the next 10 years with the maximum population nearing 9,000 horses or 4800% of the established AML (SIR at 5.0). Continued and expanded movement outside the HMAs would be expected as greater numbers of horses search for food and water for survival, thus impacting larger areas of public lands and threatening public safety as wild horses cross highways in search of forage. Heavy to severe utilization of the available forage would continue to be expected and the water available for use would become increasingly limited. Ecological plant communities would continue to be damaged to the extent that they would no longer be sustainable, and the wild horse population would be expected to crash; this result would be expedited under drought conditions. As wild horse populations continue to increase within and outside the Complex, rangeland degradation intensifies on public lands. Also, as wild horse populations increase, concerns regarding public safety along highways increase as well as conflicts with private land.

Emergency removals could be expected in order to prevent individual animals from suffering or death as a result of insufficient forage and water. Currently, these emergency removals are occurring annually and would be expected to increase in intensity as the wild horse population grows. During emergency conditions, competition for the available forage and water increases. This competition generally impacts the oldest and youngest horses as well as lactating mares 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 when emergency conditions arise, the overall population could be affected by severely skewed sex ratios towards stallions as they are generally the strongest and healthiest portion of the population. An altered age structure would also be expected.

Cumulative impacts of the No Action alternative would result in foregoing the opportunity to improve rangeland health and to properly manage wild horses in balance with the available forage and water and other multiple uses. Attainment of site-specific vegetation management objectives and Standards for Rangeland Health would not be achieved. AML would not be achieved.

Under the No Action Alternative, the degradation of the habitat by excessive populations of wild horses within the Complex would continue into the long term, and improvement to the range would not be as apparent, despite the implementation of any other activities, which may have resulted in benefits to the rangeland resource. If the populations were to increase unchecked, eventually emergency removal would be necessary to prevent catastrophic death of the herds. Irreparable damage to the arid habitat could result in the need to permanently remove all wild horses and burros from one or both of these HMAs, or to reduce AMLs in future decisions.

4.2.2. Riparian

Water quality and riparian health have historically been impacted by water development projects and use by livestock and wild horses. Some riparian areas may have also been impacted by recreational users, and historical mining and exploration activities. In the future, livestock grazing, and wild horse use would likely be the primary impacts to water quality and riparian health, in addition to construction of riparian

exclosures, recreation, and increases in OHV use. Future development of the Mt. Hope Molybdenum Mine and associated wells and pipelines could affect water availability at the springs within Kobeh Valley. The Gold Bar Mine operation could also impact water availability in the area.

Cumulative Effects of the Proposed Action and Alternatives A and B
Impacts to riparian/wetland areas and surface water quality within the RMC have resulted from past and present actions such as grazing, road construction and maintenance, agriculture, off-highway vehicle (OHV) use and recreation, mining and processing activities, aggregate operations, public land management activities, and wildland fire.

Long-term incremental impact to these resources from the proposed gather would be positive as the number of horses are decreased with this gather and over time with subsequent gathers. This would result in improved surface water quality and reestablishment of riparian areas exhibiting increased stability and vigor.

Achievement of AMLs within the Roberts Mountain and Whistler HMAs in conjunction with the past, present and future actions would lead to improvement in water quality and progress towards proper functioning condition. Future wild horse gathers to maintain AMLs would further improve riparian health.

Cumulative Impacts of the No Action Alternative
Accordingly, long-term impacts of the No Action Alternative would be further degradation of riparian areas that is already occurring, with reduced water quality and quantity available as these areas are excessively utilized by increasing wild horse populations. This would have the effect of negating any improvements that could have been realized by past or future actions.

4.2.3. Wildlife, Special Status Species, Migratory Birds and Threatened and Endangered Species (T&E)

Impacts to wildlife habitat within the RMC have resulted from past and present actions such as livestock grazing, road construction and maintenance, agriculture, OHV use and recreation, Powerlines and other right-of-way actions, and wild horses. Cumulative impacts to wildlife, migratory birds, special status species from past, present, foreseeable actions result primarily from impacts to vegetation, and the resulting habitat alteration. Impacts to habitats within the project area have accumulated primarily from the direct and indirect effects of livestock and wild horse grazing, mining, exploration and recreation and hunting. Past mining activity from the Atlas-Gold Bar mine has affected wildlife through disturbance of migration patterns, and foraging areas. The Gold Bar mine has also had similar impacts to wildlife. Past and current livestock adjustments and grazing systems promote improved habitat for wildlife.

A number of other ongoing and foreseeable human activities in the area, most notably current exploration activities and future development of Mt. Hope Molybdenum Mine, could result in adverse conditions that cumulatively affect wildlife, special status species, and migratory birds. These activities result in loss of habitat and disruption of movement patterns.

Cumulative Effects of the Proposed Action and Alternatives A and B
The cumulative impacts from the proposed gather, in addition to past, present and reasonably foreseeable future actions would be beneficial for all fisheries and wildlife and their habitat. The cumulative impacts from the proposed gather, in addition to past, present and reasonably foreseeable future actions would be beneficial for all fisheries and wildlife and their habitat. With a reduction of wild horse numbers and density, habitat within the Complex and surrounding area would have the opportunity to improve, particularly outside of HMA boundaries where wild horse use is not designated. Impacts to vegetation at riparian areas would be reduced, allowing them to slowly recover with time. Breeding, forage, nesting, and security habitat for all species would improve over time.

Cumulative Impacts of the No Action Alternative
The cumulative impacts from the No Action Alternative, in addition to past, present and reasonably foreseeable future actions would result in continual degradation of habitat for all special status species and T&E species. Horses would continue to be above AML and compete for resources with other wildlife and livestock. Breeding, foraging, nesting and security habitat for all species would continue to degrade.

4.2.4. Livestock

In 1994, BLM completed an Evaluation of the Roberts Mountain and Three Bars Allotments. The Final Multiple Use Decision (FMUD) included the establishment of grazing systems and reduced active livestock preference by 20 and 27% for the Three Bars and Roberts Mountain Allotments respectively. The Fish Creek Complex Rangeland Health Assessment, and FMUD were completed in 2004, which also adjusted livestock use and established grazing systems. The FMUD implemented a 40% reduction in active preference on the Lucky C Allotment, and an increase of 825 AUMs for the Romano Allotment. A Rangeland Health Assessment will be completed in future years for the Roberts Mountain and Three Bars Allotments. Data will be analyzed, and management recommendations developed for livestock management where Standards for Rangeland Health are not currently being met. Decisions could include increases or decreases in permitted livestock, and changes in season of use. Future adjustments to livestock management would further improve the grazing management system.

Livestock management within the Complex has been affected by mining and exploration activity through the affects to soils and vegetation removal/modification. Mining and exploration have occurred throughout the past and are ongoing within the project area. Expired, pending, and active mining notices account for approximately 55 acres of disturbance. Exploration through drilling has disturbed multiple small sites less than 1 acre in size throughout the Complex. These activities have the effect of removing vegetation, and disturbing soil, which can incrementally impact forage for livestock. The Atlas-Gold Bar mine was active for about 15 years between 1980-1995, and encompassed approximately 1200 acres of public land within the Three Bars Allotment, and involved approximately 70 acres of exploration. The Gold Bar Mine has been in operation in recent years within the Roberts Mountain and Three Bars Allotments. However, due to the relatively small footprint, there was no permanent reduction in AUMs for either Allotment.

Future development of the Mt. Hope Molybdenum Mine has the potential to affect over 16,000 acres within the Roberts Mountain and Romano Allotments. Other minor impacts to livestock management could include recreation and use by OHVs that is likely to increase in the future due to increasing populations in the Eureka area. Rangeland seedings and projects under the Three Bars Healthy Lands Initiative would result in increases of native and non-native forage and healthier rangeland conditions. These improvements along with fencing and water developments could result in substantial improvements to livestock management in the area.

Cumulative Effects of the Proposed Action and Alternatives A and B
Under the proposed gather, wild horse populations would be maintained at or near AML over the long-term. This would reduce excess pressure from wild horses on the over utilized and shared resources of forage and water, and eliminate wild horse use for the most part, outside of HMA boundaries where wild horse use has not been designated. Site conditions should experience a short-term period of improvement and a long-term attainment of achieving the Standards for Rangeland Health and allow for the perpetuity of livestock grazing.

Cumulative Impacts of the No Action Alternative
Under the No Action alternative, wild horse populations would continue to increase, including outside of the HMA boundaries. This continually increasing competition for available forage and water resources would lead to increased resource utilization and downward trends in rangeland health including loss of forage species used by livestock. Opportunities to improve rangeland health, by bringing the wild horse

population to AML and reducing resource competition and utilization, would be lost.

The No Action Alternative would not result in any long-term cumulative benefits to grazing management. Continued range deterioration and loss of water sources and riparian habitat in conjunction with any reasonably foreseeable projects or other management actions would not improve forage utilized by permitted livestock. Projects such as vegetation rehabilitation would not offset the further degradation caused by excess populations of wild horses. In the long term, the No Action Alternative could result in further reductions of livestock numbers or elimination of domestic livestock grazing within the project area.

4.2.4. Wilderness

Impacts to WSAs from past actions such as road development/improvement, grazing, range improvements, recreation and OHV use have been accounted for within the designation of the WSA boundary and planning. Due to the designation as a WSA and their position on the landscape, these areas do not typically receive impacts from humans through road development or OHV use, however, livestock grazing can occur.

Cumulative Effects of the Proposed Action and Alternatives A and B

Impacts from present and future actions are similar and should be limited to outside of the WSA boundaries. Horse gather operations have occurred in the past and would likely continue into the reasonably foreseeable future. Impacts of these operations usually have temporary negative impacts to solitude during operations but have long term beneficial effects to naturalness.

The cumulative impacts from the No Action Alternative, in addition to past, present and reasonably foreseeable future actions would have no temporary negative impacts to solitude during operations but would allow potential impacts from increasing numbers of wild horses to occur.

Cumulative Impacts of the No Action Alternative

Under the No Action Alternative, the cumulative impacts are reduced but still exist. By not gathering to AML the overall rangeland health would decrease thus allowing the opportunity for established noxious and invasive weed populations to expand and establish. Seeds can be carried on the horse's lower legs among their hair and fall off in other locations and establish as seedlings. There is a direct correlation to rangeland health and noxious and invasive weed population percentage.

4.2.5. Vegetation

Past actions that have affected vegetation within the project area primarily include livestock grazing, mining, and wild horse use. Other activities which may have and will continue to impact vegetation include recreation such as OHV use, mineral and geothermal exploration, wild land urban interface fuels reduction projects, grazing management decisions and wild horse gathers.

The Atlas-Gold Bar mine involves approximately 1,200acres of disturbance, which includes roads, pits, administrative sites and tailings. It is located within the western portion of the HMA, east of the Three Bars Ranch. This mine also involved approximately 70 acres of exploration. Substantial exploration is currently occurring within Kobeh Valley in the eastern portions of Lucky C and Roberts Mountain Allotments, which results in isolated and small areas of vegetation disturbance usually less than 1 acre in size.

Future development of the Mt. Hope Molybdenum Mine would de-vegetate thousands of acres of land within the eastern portion of the proposed gather area, for development of pits, administrative sites, and tailings and waste rock storage areas. Future OHV use may result in adverse impacts to vegetative communities. Other future activities could involve wildlife habitat enhancement projects, and fuels management projects to reduce fuels and potential risk of wildfire. Any past, present and future disturbances to soils have the potential to increase the spread of invasive and noxious weeds within the RMC.

Cumulative Effects of the Proposed Action and Alternatives A and B
The proposed gather would contribute to isolated areas of disturbed vegetation through the gather activities. In the long term, however, the achievement of AMLs in conjunction with past, present and future actions would contribute to improved vegetative resources through reduced utilization levels and upward trends.

Under the proposed gather, wild horse populations would be maintained at or near AML over the long-term. This would reduce excess pressure on the over utilized vegetative resources. Over time this would likely improve plant health, reproduction, diversity, and composition. The incremental cumulative effects of different population levels and different reproductive rates of wild horse populations over time would have varying effects on the vegetative communities they rely on for forage, the vegetative communities they travel through and seasonally occupy, and the vegetative communities around areas of water. The proposed gather and other foreseeable actions would begin to offset past negative trends in habitat modification by allowing for attainment of rangeland health standards and allotment specific objectives.

Cumulative Impacts of the No Action Alternative
Under the No Action Alternative, wild horse populations would continue to increase leading to greater resource use and consumption. The No Action Alternative would allow continued degradation of vegetation by wild horses, which in the long term would cause native vegetation to be replaced by non-native plant species and annual plants. Improvements resulting from livestock management decisions, or vegetation enhancement projects could be negated. Past impacts would not be offset, and downward trends would occur.

Opportunities to improve rangeland health and that of the vegetation, by bringing the wild horse population to AML and reducing vegetation utilization and trampling, would be lost.

4.2.7. Soils
Historically, soils within the Complex have been impacted by mineral exploration and development, road building, wild horse gathers, livestock grazing, and OHV/Recreation. These activities will continue and possibly increase into the future throughout the Complex. Wild horse and livestock use have also affected soils through utilization of vegetation and trails, which has increased susceptibility to erosion and affected rangeland health.

Exploration within Kobeh Valley is resulting in numerous, isolated and small areas of soil disturbance. Expired, pending, and active mining notices account for approximately 50 acres of disturbance within the Complex. The Atlas Mine was active for about 15 years in the 1980's and 1990's, accounting for over 1,200 total acres of soil disturbance. Future development of the Mt. Hope Molybdenum mine would also have impacts to soils, as pits and tailings and waste rock storage areas are developed, and, roads constructed and mining activities implemented. The potential disturbance to soils could be several thousand acres.

Cumulative Effects of the Proposed Action and Alternatives A and B
Direct cumulative impacts from the proposed gather would include the short-term incremental impact of disturbance and compaction from hoof action around horse corrals. However, the long-term incremental impact to soil resources/watersheds would be positive as the number of horses are decreased with this gather and over time with subsequent gathers. This would result in restored soil structure, increased stability, and improved biological function of soils resulting in increased water-holding capacity, reduced erosion and enhanced vegetation community support. When combined with past, present and reasonably foreseeable actions, the proposed wild horse gather would contribute minor amounts of soil disturbance within the Complex, which would likely be offset by improvements to rangeland health that should result from attainment of the AMLs.

Cumulative Impacts of the No Action Alternative
Under the No Action Alternative, no incremental gather-associated impacts would occur to soils/watersheds, thus the declining conditions from compaction, erosion, and consequent poor vegetation support would continue to increase as horse populations increase. Continued degradation of vegetation by wild horses would occur, with resultant disturbance to soils and increased soil instability and erosion. Improvements resulting from livestock management decisions could be negated. Other ongoing and future activities would continue to contribute to soil disturbance as well, resulting in overall increases in soil disturbance through the Complex.

Impacts Conclusion
Past actions regarding the management of wild horses have resulted in the current wild horse population within the RMC. Wild horse management has contributed to the present resource condition and wild horse herd structure within the gather area.

The combination of the past, present, and reasonably foreseeable future actions, along with the Proposed Action, should result in more stable and healthier wild horse populations, healthier rangelands (vegetation, riparian areas and wildlife habitat), and fewer multiple-use conflicts within the RMC.

5.0 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 (SIR at 6.0) 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 continue genetic diversity monitoring for the wild horses from the RMC; 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 mares 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.

6.0 Consultation and Coordination

The HQ WHB Program hosted an annual virtual public hearing on the use of motorized vehicles in the management of wild horses and burros on April 26, 2022. The lead or back-up for the lead of each BLM state office was in attendance. After a brief presentation covering the use of motorized vehicles and BLM's Comprehensive Animal Welfare Program, 18 verbal comments were made by members of the public. The BLM also received 79 additional written comments, including letters from Wyoming Governor and Wyoming state agencies. The consensus of the comments among members of the public who attended virtually was opposition to the use of helicopters for gathers. There were 456 views of the live hearing.

The use of helicopters and motorized vehicles has proven to be a safe, effective, and practical means for the gather and removal of excess wild horses and burros from the range. Since 2006, Nevada has gathered over 40,000 animals with a total mortality of 1.1% (of which .5% was gather related), which is very low when handling wild animals. BLM also avoids gathering wild horses prior to or during the peak of foaling (late April to early May) and does not conduct helicopter removals of wild horses during March 1 through June 30, unless an emergency exists.

7.0 List of Preparers

Table 21: List of Preparers

Battle Mountain District Office		
Name	**Title**	**Responsible for the Following Section(s) of this Document**
Shawna Richardson	Wild Horse Specialist	Wild Horses
Sara Nodskov	Wildlife Biologist	Wildlife, Migratory Birds, Special Status Species
Scott Distel	Planning and Environmental Coordinator	NEPA, Environmental Justice
Logan Gonzales	Outdoor Recreation Planner	Wilderness/WSA
Rhett Anderson	Range Specialist	Soil
Rhett Anderson	Range Specialist	Water, Wetlands and Riparian
Rhett Anderson	Range Specialist	Livestock Grazing
Rhett Anderson	Range Specialist	Vegetation
Andrew Monastero	Archeologist	Cultural Resources
Wilfred Nabahe	Native American Coordinator	Native American Religious Concerns