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Calico Complex Wild Horse and Burro Gather Plan Preliminary Environmental Assessment



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

**Calico Complex Wild Horse and Burro Gather
Preliminary Environmental Assessment**

Black Rock Range, Calico Mountains, Granite Range,
McGee Mountain, and Warm Springs Canyon
Herd Management Areas

Preliminary Environmental Assessment
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Humboldt, Pershing, and Washoe County Nevada

U.S. Department of the Interior
Bureau of Land Management
Winnemucca District Office
Phone: (775) 623-1500

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Chapter 1 Introduction

This Environmental Assessment (EA) has been prepared to analyze the Bureau of Land Management's (BLM) Black Rock Field Office (BRFO) proposal to gather and remove excess wild horses and burros from within and outside the Black Rock Range, Calico Mountains, Granite Range, McGee Mountain, and Warm Springs Canyon Herd Management Areas (HMAs) also referred to as the Calico Complex. Refer to Map 1, Appendix M which displays the HMAs included within the Complex

The wild horse and burro gather plan would allow for an initial gather and follow-up maintenance gathers to be conducted over the 10 years following the date of the initial gather operation, to achieve and maintain appropriate management levels and continue applying population growth suppression methods. This EA will assist the BLM BRFO 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 and the Proposed Action for the Calico Complex. 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.

This document is tiered to the *Winnemucca District Resource Management Plan/Final Environmental Impact Statement (RMP)* May 2015; *Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA) and Associated Wilderness, and other Contiguous Lands in Nevada Resource Management Plan (BRRMP)*, July 2004; and the *Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment*, (GRSG Plan Amendment) September 2015 and March 2019.

1.1 Background

Since the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, BLM has refined its understanding of how to manage wild horse population levels. By law, BLM is required to control any overpopulation, by removing excess animals, once a determination has been made that excess animals are present and removal is necessary. Program goals have always been to establish and maintain a "thriving natural ecological balance" (TNEB) which requires identifying the Appropriate Management Level (AML) for individual herds. The AML is defined as the number of wild horses and burros that can be sustained within a designated HMA which achieves and maintains a TNEB in keeping with the multiple-use management concept for the areas¹. In the past two decades, WHB program goals have also explicitly included conducting

¹ The Interior Board of Land Appeals (IBLA) defined the goal for managing wild horses (or burro) population in a thriving natural ecological balance as follows: "As the court stated in *Dahl vs Clark* supra at 594, the 'benchmark test' for determining the suitable number of wild horses on the public range is 'thriving natural ecological balance.' In the words of the conference committee which adopted this standard: 'The goal of WH&B management should be to maintain a thriving ecological balance (TNEB) between WH&B populations, wildlife, livestock and vegetation, and to protect the range from the deterioration associated with overpopulation of wild horses and burros.'"

gathers, applying contraceptive treatments to reduce total population growth rates in the short-term and increase the time between gathers necessary to remove excess animals. So as to manage for healthy wild horse and wild burro populations, and healthy rangelands by achieving and maintaining populations within the established AML. The use of fertility control methods helps reduce total wild horse population growth rates in the short term, and increases gather intervals and the number of excess horses that must be removed from the range. Other management efforts include improving the accuracy of population inventories and collecting genetic baseline data to support genetic health assessments. Decreasing the numbers of excess wild horses on the range is consistent with findings and recommendations from the National Academy of Sciences (NAS 2013), American Horse Protection Association (AHPA), the American Association of Equine Practitioners (AAEP), Humane Society of the United States (HSUS), Government Accountability Office (GAO), Office of Inspector General (OIG) and current BLM policy.

Population controls, such as the use of fertility control vaccines, intrauterine devices, or permanent sterilization, help control the population of wild horses and burros in the HMAs. However, if used as the sole approach to controlling population numbers, population controls would not allow BLM to achieve population objectives in the foreseeable future. In conjunction with other techniques (e.g. removals of excess animals and adoption/sale), fertility control can be a useful tool in a larger, more adaptive approach to wild horse and burro management.

Since 2000, approximately 7,200 wild horses and 375 wild burros have been gathered and removed from the Calico Complex, with AML gathers in 2001, 2005, 2010, and 2012. Since 2012, small gathers have been conducted to remove nuisance horses and burros from public and private lands. BLM's management of wild horses and burros must also be consistent with Standards and Guidelines for Rangeland Health and for Healthy Wild Horse Populations developed by the Sierra Front-North West Great Basin Resource Advisory Council (RAC) and the BLM's Comprehensive Animal Welfare Program (BLM 2021).

Wild horses and burros from the Complex would be gathered as a unit, preferably in conjunction with the wild horse populations in the adjacent Surprise Complex administered by California BLM, because individuals can move and interact with other animals throughout both Complexes, including during gather operations. Any gather of the Calico Complex could involve areas beyond the HMA boundaries displayed in Appendix M Map 1, because wild horses/burros have moved outside of HMAs in search of forage, water and space, due to the current over-population of wild horses/burros in this area.

The Calico Complex is located northwest of Gerlach, Nevada, and southeast of Denio, Nevada, within Humboldt and Washoe Counties. Table 1 shows the size of each HMA, its AML, current estimated herd sizes, and the number of excess animals that would need to be removed to return to AML at this time.

Table 1 Herd Management Area, Acres, AML, Estimated Population as of March 2021

Herd	Total Acres	Appropriate Management Level	Estimated Population	Excess WHB to be Removed
Black Rock Range HMA	183,524	112-186 WH	618 WH	399 WH
Calico Mountains HMA	160,831	200-333 WH	757 WH	221 WH
Granite Range HMA	103,804	155-258 WH	163 WH	None at this time
McGee Mountain HMA	41,112	25-41 WB	43 WB	2 WB
Warm Springs Canyon HMA	91,710	105-175 WH 14-24 WB	154 WH 30 WB	269 WH 6 WB
Complex Total	584,101	572-952 WH 39-65 WB	1,692WH 73WB	740WH 8 WB

WB-Wild Burros

WH-Wild Horses

The AML range was established through prior decision-making processes and re-affirmed through the Record of Decision (ROD) and RMP (2015). The AML ranges in Table 1 were established at levels that would maintain healthy wild horses, burros and rangelands over the long-term based on monitoring data collected over time as well as an in-depth analysis of habitat suitability.

The Complex was surveyed in June 2019, and the inventory was conducted using the simultaneous double observer method, in which observers in an aircraft independently detect groups of wild horses (Griffin et al. 2020). Sighting rates are estimated by comparing sighting records of the observers. Sighting probabilities for the observers are then computed from the information collected, and the overall population size is estimated. Flight inventories traditionally take place every 2 to 3 years on the Complex.

The total estimated population of wild horses associated with the Complex is 1,692 wild horses and 73 wild burros, as of December 2020. This number is based on the statistical analysis of data from the June 2019 horse population surveys in Nevada, California, and Oregon, sometimes called the “Tri-State Surveys.” Current population estimates also reflect the assumption that wild horse herds in this area increase 20% per year, which is consistent with published rates (NAS 2013). The current population is over 1.8 times over the upper limit of AML.

Upland utilization data has been collected over the past 3 to 4 years using the key forage plant method and the height weight utilization method across the allotments encompassed by the Calico Complex. Similarly, riparian data has been collected using the Multiple Indicator Monitoring (MIM) protocol on many of the Lahontan cutthroat trout (LCT) occupied and

recovery streams within the Complex. For the most part utilization and MIM data shows use levels within the defined objectives. However, there are several areas where the numbers of wild horses are affecting rangeland resource condition. Continued population growth of wild horse and burro herds will increase these effects over time.

Wild horse herd health is currently being impacted due to excess wild horses on the rangeland. Wild horses have been document in body condition score of 2 (very thin) to 5 (moderate). Large groups of wild horses are also permanently residing outside HMA boundaries in search of forage and water. Some groups also reside around and on private property, and near Highways 34 and 447 causing public safety concern for members of the public and motorists along the Highway. There have been two highway nuisance gathers conducted since June 2019 involving horses and burros outside the Calico Complex, but safety problems persist.

Based upon all information available at this time, the BLM has determined that 740 excess wild horses reside within the Calico Complex and would need to be removed, in order to achieve the high end of the established AMLs, restore a thriving natural ecological balance (TNEB) and prevent further degradation of rangeland resources resulting from the current overpopulation of wild horses. 1,197 wild horses would need to be removed to achieve the low end of AML.

1.2 Purpose and Need

The purpose of the Proposed Action is to gather and remove excess wild horses from within and outside the Calico Complex and to reduce the wild horse and burro 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 burros, and to restore a TNEB and multiple-use relationship on the public lands, consistent with the provisions of Section 1333 (b) of the 1971 Wild Free-Roaming Horses and Burros Act (WFRHBA).

1.3 Land Use Plan Conformance and Consistency with Other Authorities

The alternatives described are in conformance with the *Black Rock Desert-High Rock Canyon Emigrant Trails National Conservation Area (NCA) and Associated Wilderness, and other Contiguous Lands in Nevada Resource Management Plan (BRRMP)*, July 2004; the *Winnemucca District Resource Management Plan (WDRMP)*, May 2015; and the *Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment*, (GRSG Plan Amendment) September 2015 and March 2019. The Objective, Goals, and Actions can be found in Appendix J.

WDRMP:

Objective WHB 1: Administer HMAs to support healthy populations and achieve land health standards for WHB where a TNEB and multiple-use relationship can be achieved and maintained.

Objective WHB 5.1: Maintain Appropriate Management Levels within HMAs.

Action WHB 5.2: Gather excess WHB to low or mid AML level when populations meet or exceed the upper AML level and monitoring data supports that excess animals are present and need to be removed. All WHB residing within HAs and outside of HMAs will be removed during any population management action.

Action WHB 5.3: Use fertility control (e.g., PZP, SpayVac, GonaCon, or other approved agents) to slow population growth rates to maintain a four-year gather cycle at minimum (longer cycles preferred).

Action WHB 5.4:

(1) Allow for the use of non-reproductive animals, in part or whole, for population management of HMAs within the WD. Depending on the population growth suppression (PGS) method that is used per the specific HMA, the percentage of the non-reproductive animals within the managed herd may vary between HMAs.

Criteria for considering a HMA as a non-reproducing population:

- HMAs where the population that is targeted as being non-reproducing is separated from a neighboring HMA's reproductive population by topography, existing fences, or other features and there is no interaction between the non-reproducing and the reproducing populations. This may include HMAs that are geographically isolated from other HMAs.
- HMAs with high AML set at or below 150.
- HMA has limited potential for genetic exchange with surrounding populations.

Criteria for managing a portion of a HMA's or HMA complex's population as non-reproducing:

- HMAs where the population that is targeted as being non-reproducing does not interact with the reproducing population within a single HMA or HMA complex due to topography, existing fences, or other features causing separation and the non-reproducing population has limited potential for genetic exchange.
- Any HMA with low AML greater than 100 head.
- HMAs where gather efficiencies have been consistently below 80 percent. (Fertility control requires 80 percent gather efficiency to be effective).

BRRMP:

WHB-5: Horses and burros will be gathered from the HMAs to maintain horses and burros within the AML as funding permits. Aircraft will continue to be used for the management of, and when necessary, removal of wild horses and burros. Gather activities will be scheduled to avoid high visitor use periods whenever possible.

WHB-6: Gathers in Wilderness will continue to be conducted by herding the animals by helicopter or on horseback to temporary corrals, generally located outside of Wilderness. No landing of aircraft will occur in Wilderness Areas except for emergency purposes, and no motorized vehicles will be used in Wilderness in association with the gather operations unless such use was consistent with the minimum tool requirement for management of Wilderness.

GRSG Approved Resource Management Plan Amendment (2015)

1.6.2 Improving Habitat Condition

In addition to prescribing land use allocations and managing resource uses to minimize and avoid further surface disturbance, the ARMPAs identify management actions to restore and improve GRSG habitat.

Habitat Management—The ARMPAs contain an overall habitat management objective that “[i]n all Sagebrush Focal Areas and Priority Habitat Management Areas, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70 percent) with a minimum of 15 percent sagebrush canopy cover, consistent with specific ecological site conditions.” To move toward this goal, the ARMPAs specify GRSG habitat objectives to be incorporated into land management programs, including wild horses and burros (WHBs), grazing, and habitat restoration. These habitat objectives were developed for each of the GRSG’s life history stages within each ARMPA’s sub-region. These objectives will be used to meet the applicable land health standard in GRSG habitats.

Wild Horses and Burros—To address the localized threat due to negative influences of grazing by free-roaming WHBs, the BLM will focus on maintaining WHB herd management areas in GRSG habitat in established AML ranges. This is to achieve and maintain GRSG habitat objectives. It includes completing rangeland health assessments, prioritizing gathers and population growth suppression techniques, and developing or amending herd management area plans to incorporate GRSG habitat objectives and management considerations. The BLM will prioritize WHB management first in SFAs, then the remainder of PHMAs, and then GHMAs. In SFAs and PHMAs, the BLM will assess and adjust AMLs through the NEPA process within herd management areas when WH&Bs are identified as a significant factor in not meeting land health standards, even if current AML is not being exceeded.

GRSG Approved Resource Management Plan Amendment (2019)

2.1.5 Wild Horses and Burros (WH&B)

Management Decisions (MD)

MD WHB 1: For WHB management activities (e.g., gathers), review Objective SSS 4 and apply MDs SSS 1 through SSS 4 when reviewing and analyzing

projects and activities proposed in GRSG habitat.

MD WHB 4: Prioritize gathers and population growth suppression techniques in HMAs in GRSG habitat, unless removals are necessary in other areas to address higher priority environmental issues, including herd health impacts. Place higher priority on herd areas not allocated as HMAs and occupied by wild horses and burros in PHMAs.

MD WHB 9: When conducting NEPA analysis for wild horse/burro management activities, water developments, or other rangeland improvements for wild horses, address the direct and indirect effects to GRSG populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock.

MD WHB 10: Coordinate with professionals from other federal and state agencies, researchers at universities, and others to utilize and evaluate new management tools (e.g., population growth suppression, inventory techniques, and telemetry) for implementing the WH&B program.

1.4 Relationship to Statutes, Regulations, or other Plans

The Proposed Action is consistent with the following Federal, State, and local plans to the maximum extent possible.

- United States Department of the Interior Greater Sage-Grouse Approved Resource Management Plan Amendment (2015).
- Sierra Front/Northwest Great Basin Resource Advisory Council (RAC) Standards and Guidelines (February 12, 1997)
- Endangered Species Act – 1973
- National Environmental Policy Act of 1969 (as amended)
- Migratory Bird Treaty Act (1918 as amended) and Executive Order 13186 (1/11/01)
- Taylor Grazing Act (TGA) of 1934
- Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.)
- Public Rangelands Improvement Act (PRIA) of 1978
- United States Department of the Interior Manual (910 DM 1.3).
- Fundamentals of Rangeland Health (43 CFR 4180)
- Title 43 CFR 4100 Grazing Administration-Exclusive of Alaska
- Section 106 of the National Historic Preservation Act of 1966 (as amended).
- American Indian Religious Freedom Act of 1979
- Archaeological Resource Protection Act of 1979
- National Historic Preservation Act of 1966, as amended
- United States Department of the Interior Manual (910 DM 1.3).

The Proposed Action is consistent with all applicable regulations at Title 43 Code of Federal Regulations (43 CFR) 4700 and policies. The Proposed Action is also consistent with the *Wild Free-Roaming Horses and Burros Act of 1971 (WFRHBA)*, which mandates the Bureau 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 of 1971 sec 3 (b)(1): “The purpose of such inventory 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).” Additionally, federal regulations at 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).”

4710.4 Management of wild horses and burros shall be undertaken with the objective of limiting the animals’ distribution to herd areas.

According to 43 CFR 4720.2, upon written request from a private landowner, the authorized officer shall remove stray wild horses and burros from private lands as soon as practicable.

The Interior Board of Land Appeals (IBLA) in *Animal Protection Institute et al.*, (118 IBLA 63, 75(1991)) found that under the Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195) 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.

Other Plans

The Proposed Action and action alternatives are in conformance with Biological Opinions and Recovery Plans for Threatened and Endangered (T&E) species, including:

- ☐ *Biological Opinion for the 2003 through 2013 Livestock grazing System for the Soldier Meadows Allotment, Humboldt County, Nevada, August 14, 2003.*
- ☐ *Biological Opinion for the 2003 through 2013 Livestock Grazing System for the Paiute Meadows Allotment, Humboldt County, Nevada, June 13, 2003.*
- ☐ *Recovery Plan for the Rare Species of Soldier Meadows, 1997.*
- ☐ *Lahontan Cutthroat Trout Recovery Plan, 1995.*

1.5 Decision to be Made

The Authorized Officer would determine whether to implement all, part, or none of the Proposed Action as described in Section 2.2.1 to manage wild horses and burros within the Calico Complex. The Authorized Officer’s decision may select gather methods, number of horses gathered, and population growth suppression technique depending on the alternative or parts of any alternative chosen. The Authorized Officer would not set or adjust AML since these were set through previous decisions and the data does not support adjustment of the AML at this time.

Chapter 2 Proposed Action and Alternatives

2.0 PROPOSED ACTION AND ALTERNATIVES

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis. Alternatives analyzed in detail include the following:

- | | |
|--------------------------------------|--|
| Alternative 1 Proposed Action | – Gather and Remove Excess wild horses and burros, implement population growth suppression utilizing vaccines in horses and burros, intra-uterine devices (IUDs) in mares, manage a non-reproducing portion of non-surgically sterilized mares, and a portion of non-reproducing geldings which would be approximately ¼ of the overall population, and make sex ratio adjustments for horses so that males make up approximately 60% of the herd. |
| Alternative 2 | Action – Gather and Remove Excess wild horses and burros to low AML, implement population growth suppression vaccines in horses and burros, manage a non-reproducing portion of the population of geldings which would be approximately ¼ of the overall population, and sex ratio adjustments for horses. |
| Alternative 3 | Action – Gather and Remove Excess wild horses and burros to low AML; do not use any population growth suppression measures |
| Alternative 4 | No Action – Defer gather and removal of excess wild horses and burros |

Alternatives 1-3 were developed to respond to the identified resource issues and the Purpose and Need, to differing degrees. Alternatives 1-3 would all guide the management over a period of 10 years, beginning at the time of the initial gather. GPS radio collars and / or GPS tail tag transmitters may be used as part of monitoring efforts for Alternative 1-3. Radio collars would not be used on Stallions. Such collars and tags have been used to monitor wild horse movements in the states of Nevada, Utah, and Wyoming and are analyzed in chapter 3 of this EA.

Alternative 4, No Action, would not achieve the identified Purpose and Need. However, it is analyzed in this EA to provide a basis for comparison with other action alternatives, and to assess the effects of not conducting a gather at this time. The No Action Alternative is inconsistent with the WFRHBA and the Winnemucca District Office RMP (2015) which requires the BLM to manage the population within AML.

2.1 Description of Alternatives Considered in Detail

2.1.1 Management Actions Common to Alternatives 1-3

- The timing of the initial Calico Complex gather is subject to BLM Headquarters Office approval. Several factors such as animal condition, herd health, weather conditions, logistics, or other considerations could result in adjustments in the schedule. Multiple gathers may occur within a ten-year time frame that begins after the initial gather to achieve and maintain wild horse and burro populations within AML.
- Gather operations involve areas within the HMAs as well as outside the HMA boundaries where excess wild horses and burros are located.
- Gather operations would be conducted in accordance with the Comprehensive Animal Welfare Plan (CAWP; BLM 2021) Appendix A.
- All management activities would be humane, in accordance with the WFRHBA.
- A combination of gather methods may be used to complete the management actions and will depend on the needs of the specific actions to which method will be used. In addition to analysis of gathers to address the purpose and need, this EA and decision would address management needs in regards to public safety, emergency situations and private land issues.
- Trap sites and temporary holding facilities would be located in previously used sites or other disturbed areas whenever possible. Undisturbed areas identified as potential trap sites or holding facilities would be inventoried for cultural resources, and sensitive species. If cultural resources or sensitive species are encountered, these locations would not be used unless they could be modified to avoid impacts.
- Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2015-070, attachment 2).
- Data including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded, along with the disposition of the animal (removed or released).
- Hair follicle samples would be collected from a minimum of 25 animals returned to the range from each HMA to assess the current genetic diversity in the herds, and their relatedness to other, previously sampled herds. Samples would also be collected during future gathers as needed to determine whether BLM's management is maintaining acceptable genetic diversity (i.e., avoiding high risk of inbreeding depression).
- In the event that genetic monitoring indicates relatively low levels of observed heterozygosity (a measure of genetic diversity), additional wild horses could be introduced into the Calico Complex to augment genetic diversity in the herd.
- A BLM contract Veterinarian, Animal and Plant Health Inspection Service (APHIS) Veterinarian or other licensed Veterinarian would be on call or on site as the gather is started and then as needed for the duration of the gather to examine animals and make recommendations to the BLM for the care and treatment of wild horses, and ensure humane treatment. Additionally, animals transported to all BLM wild horse facility are inspected by facility staff and the BLM contract Veterinarian, to observe health and ensure the animals have been cared for humanely.
- GPS radio collars may be attached to wild horse mares, and / or GPS tail tags may be attached to wild horses of either sex, for the purposes of monitoring movements and foaling status.

- Noxious weed monitoring at gather sites and temporary holding corrals would be conducted following the gather by BLM.
- Monitoring of rangeland forage condition and utilization, water availability, aerial population surveys and animal health would continue.
- Proposed gather activities would not be conducted within the Soldier Meadows ACEC.
- Stream crossings would be avoided and/or the amount of times horses cross the a stream would be limited to minimize stream bank disturbance. In the event horses are herded across streams, horses would be herded across streams in multiple locations rather than in one concentrated area to minimize stream bank disturbance. Fish survey data would be utilized to identify areas of low or no LCT occupancy for use as crossing sites. In the event stream banks are trampled during the gather(s), stream bank areas would be restored to natural ground and replanted with native vegetation as soon as possible after the gather(s).
- Proposed gather activities within PHMA, GHMA, and OHMA would have the following Required Design Features:
 - RDF 7 - Require dust abatement practices when authorizing use on roads.
 - RDF 13 - Implement project site-cleaning practices to preclude the accumulation of debris, solid waste, putrescible wastes, and other potential anthropogenic subsidies for predators of GRSG.
 - RDF 19 - Instruct all construction employees to avoid harassment and disturbance of wildlife, especially during the GRSG breeding (e.g., courtship and nesting) season. In addition, pets shall not be permitted on site during construction (BLM 2005b).
 - RDF 22 - Load and unload all equipment on existing roads to minimize disturbance to vegetation and soil.

BLM's Use of Contraception in Wild Horse Management

Expanding the use of population growth suppression (PGS) to slow population growth rates and reducing the number of animals removed from the range and sent to off-range pastures (ORPs) is a BLM priority (BLM 2020). The WFRHBA of 1971 specifically provides for sterilization (section 3.b.1). No finding of excess determination is required for BLM to pursue contraception in wild horses or wild burros. Contraception has been shown to be a cost-effective and humane treatment to slow increases in wild horse populations or, when used with other techniques, to reduce horse population size (Bartholow 2004, de Seve and Boyles-Griffin 2013). All fertility control methods in wild animals are associated with potential risks and benefits, including effects of handling, frequency of handling, physiological effects, behavioral effects, and reduced population growth rates (Hampton et al. 2015). Contraception by itself does not remove excess horses from an HMA's population, so if a wild horse and burro population is in excess of AML, then contraception alone would result in some continuing environmental effects of horse and burro overpopulation. Successful contraception reduces future reproduction. Limiting future population increases of horses could limit increases in environmental damage from higher densities of horses than currently exist. Horses and burros are long-lived, potentially reaching 20 years of age or more in the wild and, if the population is above AML, treated horses and burros returned to the complex may continue exerting negative environmental effects throughout their life span. In contrast, if horses and burros above AML are removed when horses and burros are gathered, that leads to an immediate decrease in the severity of ongoing detrimental

environmental effects. A course of management actions that combines removals and fertility control can reduce negative effects of overpopulation in the near term, and also reduce the number of animals that must be removed from the range in the long term.

Successful contraception would be expected to reduce the effects of frequent gather activities on the environment, 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 adoptions and total holding costs. If applying contraception to horses requires capturing and handling horses, the risks and costs associated with capture and handling of horses may be comparable to those of gathering for removal, but adoption and long-term holding costs would be lower. Selectively applying contraception to older animals and returning them to the complex could reduce long-term holding costs for such horses, which are difficult to adopt, and could reduce the compensatory reproduction that often follows removals (Kirkpatrick and Turner 1991). On the other hand, selectively applying contraception to younger animals can slow the rate of genetic diversity loss in herds where that may be a concern – a process that tends to be slow in a long-lived animal with high levels of genetic diversity – and could reduce growth rates further by delaying the age of first parturition (Gross 2000). Although contraceptive treatments are associated with a number of potential physiological, behavioral, demographic, and genetic effects, detailed in Section 4, Environmental Effects and in Appendix D 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 Proposed Action reflects proposed management strategies that are consistent with the WFRHBA, which allows for sterilization as a means of population control as well as recommendations from the National Academy of Science (2013).

Helicopter Drive Trapping

If the local conditions require a helicopter drive-trap operation, the BLM would use a contractor or in-house gather team to perform the gather activities in cooperation with BLM and other appropriate personnel. 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, BLM IM No. 2010-164.

Helicopter drive trapping involves use of a helicopter to herd wild horses into a temporary trap. The CAWP (BLM 2021, IM 2021-002) or most current 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. Traps would be set in an area with high probability of access by horses using the topography, if possible, to assist with capturing excess wild horses residing within the area. Traps consist of a large catch pen with several connected holding corrals, jute-covered wings and a loading chute. The jute-covered wings are made of material, not wire, to avoid injury to the 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 site, allowing them to travel at their own pace. As the herd approaches the trap the pilot applies pressure and a ‘prada’ 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.

If helicopter drive-trapping operations are needed to capture the targeted animals, BLM would assure that an Animal and Plant Health Inspection Service (APHIS) veterinarian or contracted licensed veterinarian is on-site during the gather to examine animals and make recommendations to BLM for care and treatment of wild 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.

Bait/Water Trapping

Bait and/or water trapping may be used if circumstances require it or best fits the management action to be taken. Bait and/or water trapping generally require a longer window of time for success than helicopter drive trapping. Although the trap would be set in a high probability area for capturing excess wild 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 acclimation of the horses creates a low stress trapping method. During this acclimation period the horses would experience some stress due to the panels being setup and perceived access restriction to the water/bait source.

When actively trapping wild horses, the trap would be staffed or checked on a daily basis by either BLM personnel or authorized contractor staff. Horses would be either removed immediately or fed and watered for up to several days prior to transport to a holding facility. Existing roads would be used to access the trap sites.

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

Gather Related Temporary Holding Facilities (Corrals)

Wild horses that are gathered would be transported from the gather sites to a temporary holding corral in goose-neck trailers. At the temporary holding corral, wild horses would be sorted into different pens based on sex. The horses would be aged and provided good quality hay and water. Mares and their un-weaned foals would be kept in pens together. At the temporary holding facility, a veterinarian, when present, would provide recommendations to the BLM regarding

care and treatment of 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 American Veterinary Medical Association (AVMA).

Transport, Off-range Corrals, and Adoption Preparation

All gathered wild horses would be removed and transported to BLM holding facilities where they would be inspected by facility staff and if needed a contract veterinarian to observe health and ensure the animals are being humanely cared for.

Those wild horses that are removed from the range and are identified to not return to the range would be transported to the receiving off-range corrals (ORC, formerly short-term holding facility) 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. 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 off-range corral, a contract veterinarian provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. 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. 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.

Adoption

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the 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.

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 slaughter buyers or anyone who would sell the animals to a commercial processing plant. Sales of wild horses are conducted in accordance with the WFRHBA (as amended) and congressional limitations.

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 offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and two pounds of good quality hay per 100 pounds of body weight with adequate space to allow all animals to eat at one time.

Mares and sterilized stallions (geldings) are segregated into separate pastures, except at one facility where geldings and mares coexist. 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 wild horses to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians.

Euthanasia or Sale without Limitations

Under the WFRHBA (as amended), healthy excess wild horses can be euthanized or sold without limitation if there is no adoption demand for the animals. However, while euthanasia and sale without limitation are allowed under the statute, these activities have not been permitted under current Congressional appropriations for over a decade and are consequently inconsistent with BLM policy. If Congress were to lift the current appropriations restrictions, then it is possible that excess horses removed from the Calico 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 BCS of 3) or with serious physical defects would be humanely euthanized either before gather activities begin or during the gather operations. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum (WO IM) 2015-070 or most current edition).

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. This protocol is intended to establish observation locations that reduce safety risks to the public during helicopter gathers (see Appendix B). Due to the nature of bait and water trapping operations, public viewing opportunities may only be provided at holding corrals.

2.2 Alternative 1. Proposed Action

Alternative 1: Gather and Remove Excess wild horses and burros to low AML, implementation of population growth suppression utilizing vaccines for horses and burros, IUDs for horses, sex ratio adjustments for horses and managing approximately ¼ of the mares at low AML as a

permanently non-reproducing portion of the population, including mares that are sterilized with a non-surgical procedure.

This action would gather approximately 90% of the existing wild horse and burro population, remove excess animals, administer population control measures to a subset of gathered horses and burros, and return periodically to gather excess wild horses and burros to maintain AML, over a period of ten years. After the initial gather, the target removal number would be adjusted accordingly based off population inventories for the Calico Complex and the resulting projection of excess animals. The principal management goal for the Complex would be to retain a population of 572- 762 wild horses and 39-52 wild burros (611-814 total animals), which is the low end to mid AML. The majority of mares returned to the Complex would be treated with a population growth suppression vaccine (i.e., Porcine Zona Pellucida (PZP) ZonaStat, PZP vaccine pellets (PZP-22), GonaCon-Equine, or most current formulation; see Appendix C) and / or an IUD. The remainder of mares returned to the Complex would be treated with a non-surgical sterilization procedure (defined and addressed in Appendix D). Up to approximately ¼ of the population at low AML (i.e., approximately 143 animals) would be managed as a non-reproducing component, comprised of sterilized mares. The sex ratio adjustments for horses would temporarily lead to males being up to 60% of the herd. The procedures to be followed for non-surgical mare sterilization are detailed in Appendix D. Population growth suppression methods for burros would be limited to fertility control vaccines.

If gather efficiencies during the initial gather do not allow enough horses to be captured to reach low AML and treat the intended number of animals with vaccines, IUDs, non-surgical sterilization, and gelding, BLM would subsequently return to the Complex to remove excess wild horses and burros above low AML and would conduct follow-up gathers over a 10 year period to remove any additional animals necessary to achieve and maintain the low range of AML as well as to allow BLM to gather a sufficient number of wild horses and burros so as to implement the fertility control components of this action alternative.

If gather efficiencies of the initial gather exceed the target removal number of horses necessary to bring the population to low AML during the initial gather, this would allow the BLM to begin implementing the population control components (fertility control vaccines for horses and burros; IUDs, mare sterilization, and sex ratio adjustment for horses) of this alternative with the initial gather. In this scenario, horses and burros treated with fertility control measures would be released back into the Calico Complex. Population inventories and routine resource/habitat monitoring would be completed between gather cycles to document current population levels, growth rates, and areas for any follow-up gather. The subsequent maintenance gather activities would be conducted in a manner consistent with those described for the initial gather and could be conducted during the period of November through February which is identified as the period of maximum effectiveness for fertility control vaccine application. Funding limitations and competing priorities might impact the timing of maintenance gather and population control components of this action.

The Procedures to be followed for implementing fertility control vaccines and IUDs are detailed in Appendix D. Any animals that receive fertility control treatments would be freeze marked and receive a uniquely numbered RFID chip for the purpose of identifying the treated animals and tracking their treatment history. At the AML level established for the Calico Complex and based

on known seasonal movements of the horses and burros within the Complex (BLM), sufficient genetic exchange should occur to maintain the genetic health of the population, even if some of the horse herd is temporarily non-reproductive as a result of vaccines or IUDs, and if 1/4 of the mares at low AML are permanently non-reproductive. All horses identified to remain in the Complex would be selected to maintain a diverse age structure, herd characteristics, and body type (conformation). Please refer to Appendix D for further information on BLM's use of population growth suppression in wild horse management, and analyses of anticipated effects.

Under Alternative 1, no gathered mare younger than the age of 5 would be returned to the Calico Complex, and one or more of the non-surgical sterilization procedures discussed in detail in Appendix D would be conducted on a selection of mares to be returned to the Complex. All mares considered for sterilization would be 5 years old or older and would, therefore have already had some opportunity to reproduce. Any mares receiving an IUD or a non-surgical sterilization procedure would be required to be not pregnant at the time, and at a minimum body condition score of 3 (See Appendix N, Body Condition Score Chart); however, BLM BRFO will prioritize treatment to horses with body scores of 4 or better to increase the likelihood of a faster recovery. At no time would more than ¼ of the existing population on the range be sterile after the total population of the Complex is within AML.

For any non-surgical sterilization procedure in which animal handling will be required, a veterinarian will ensure use of appropriate sedation, anesthesia, analgesics and antibiotics. The procedures may take place at a private veterinarian's facility or at a contract facility approved by BLM thus giving the horses the best possible care and post operation welfare observation and recovery. Treated mares will remain at the facility for welfare monitoring and until the veterinarian is confident they are healing enough to be released. For observation opportunities please reference Appendix B.

Even when the population size of the horse herd is at the low end of AML, ¾ or more of the mares in the herd would still be potentially reproductive, and the wild horse herd would continue to receive occasional immigrants from nearby HMAs. Hair samples would be collected for genetic monitoring on an as needed basis. If genetic monitoring results for either species show a need to increase observed heterozygosity levels then BLM would augment the genetic diversity in the herd by introducing fertile adults from other HMAs.

2.3 Alternative 2.

Alternative 2 is similar to Alternative 1, except that released mares would not receive Intra-Uterine Devices (IUDs) or any non-surgical sterilization procedures of mares. The permanently non-reproducing portion of the horse population in the complex would be no more than ¼ of the total herd at low AML (143 animals), but those would be limited to geldings. This alternative is not expected to reduce annual horse herd growth rates as much as Alternative 1, but because the geldings would be a part of the total number of animals at AML, it is expected that the need for maintenance gathers over time would be less frequent than under alternatives 3 or 4.

2.4 Alternative 3.

Alternative 3 is similar to Alternative 1, except that gathers would be the only method of population management in the Complex. The BLM would gather and remove excess wild horses and burros from within and outside the Calico Complex to achieve AML with additional maintenance gathers for 10 years after the initial gather. Population suppression measures would not be applied and no changes to the herd's sex ratios would be made. Under this alternative, it is anticipated that maintenance gathers would need to occur within five years following the achievement of low AML.

2.5 Alternative 4. No Action. Defer Gather and Removal of Excess Wild Horses and Burros

Under the No Action Alternative, no gather or removal of excess wild horses or burros would occur and there would be no additional management actions undertaken to control the overpopulation of wild horses and burros within the project area at this time. The No Action Alternative does not comply with the WFRHBA of 1971, Regulations, or WDO RMP/ROD and does not meet the purpose and need for the actions in this EA. It is included as a basis for comparison with the Proposed Action.

2.5 Alternatives Considered But Eliminated From Detailed Analysis

Use of Bait and/or Water Trapping Only

An alternative considered but eliminated from detailed analysis was use of bait and/or water trapping as the sole gathering method. The use of bait and water trapping, though effective in specific areas and circumstances, would not be timely, cost-effective or practical as the sole gather method for the Calico Complex. However, water or bait trapping may be used as a supplementary approach to achieve the desired goals of Alternatives 1-4 if gather efficiencies are too low using a helicopter, if a helicopter gather cannot be timely scheduled, or for maintenance gathers. This alternative was dismissed from detailed study as a primary or sole gather method for the following reasons:

1. The project area is too large to effectively use this gather method as the primary or sole method;
2. Road access for vehicles to potential trapping locations necessary to get equipment in/out as well as safely transport gathered wild horses is limited.
3. The large numbers of horses proposed to be gathered would make water or bait trapping as a sole capture method impossible within a reasonable time frame, due to terrain, management status of land (i.e. Wilderness), etc.

Exclusive use of Field Darting PZP Treatment

BLM would administer PZP in the one year liquid dose inoculations by field darting the mares. This method is currently approved for use and is being utilized by BLM in other HMAs. This alternative was dismissed from detailed study for the following reasons: (1) the size of the area at 584,101 acres is too large to use this method; (2) the area has multiple wilderness and an

National Conservation Area which restricts access/activities within the area. (3) the presence of water sources on both private and public lands inside and outside the complex would make it almost impossible to restrict wild horse access to be able to dart horses consistently; (4) horse behavior limits their approachability/accessibility, so that the number of mares expected to be treatable via darting would be insufficient to control growth; and (5) BLM would have difficulties keeping records of unmarked animals that have been treated due to common and similar colors and patterns. For these reasons, this alternative was determined to not be an effective or feasible method for applying PZP to wild horses from the Calico complex.

Gathering the Calico complex to upper level AML

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

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

“... the term AML within the context of the statute to mean[s] that "optimum number" of wild horses which results in a thriving natural ecological balance and avoids a deterioration of the range.” (Animal Protection Institute of America v. Nevada BLM. 1989b)

Proper range management dictates removal of horses before the herd size causes damage to the range land. Thus, the optimum number of horses is fewer than the number that would cause damage. Removal of horses before range conditions deteriorate ensures that horses enjoy adequate forage and an ecological balance is maintained (Animal Protection Institute of America et al. v. Rock Springs District BLM 1991).

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

Control of Wild Horse Numbers by Natural Means

This alternative would use natural means, such as natural predation and weather, to control the wild horse population. This alternative was eliminated from further consideration because it would be contrary to the WFRHBA which requires the BLM to protect the range from deterioration associated with an overpopulation of wild horses and burros. The alternative of using natural controls to achieve a desirable AML has not been shown to be feasible (NAS 2013). Wild horse populations in the Calico Complex are not substantially regulated by predators, as evidenced by the 15-25% annual increase in the wild horse populations. In addition, wild horses are a long-lived species with documented foal survival rates exceeding 95% and are not a self-regulating species. This alternative would allow for a steady increase in the wild horse populations which would continue to exceed the carrying capacity of the range and would cause increasing damage to the rangelands until severe range degradation or natural conditions that

occur periodically – such as blizzards or extreme drought – cause a catastrophic mortality of wild horses in the complex.

Raising the Appropriate Management Levels for Wild Horses

This alternative was not brought forward for detailed analysis because it would be outside of the scope of the analysis, and would be inconsistent with the WFRHBA which directs the Secretary to immediately remove excess wild horses and to manage for a thriving natural ecological balance and for multiple uses. The AML was last reevaluated in the WDO Resource Management Plan (2015) and there is no basis for modifying the AML at this time. Available data shows that excess wild horses are present on the range, that excess horses need to be removed, and that there is insufficient water and forage within the HMA to support an increase in the wild horse AML. Given the resource degradation occurring with the current overpopulation of wild horses, it is necessary to bring the population back to AML first so the agency can collect data that would help inform whether the range could support additional horses above currently defined AML levels, while still ensuring a thriving natural ecological balance. Given the absence of data that would support a modification to the AML, and the requirement of an RMP amendment, this gather decision is not an appropriate mechanism for adjusting AML.

Remove or Reduce Livestock within the Calico Complex

This alternative would involve no removal of wild horses and would instead address the excess wild horse numbers and associated range deterioration through the removal of livestock or reductions in livestock grazing allocations within the Calico Complex. This alternative was not brought forward for analysis because it would be inconsistent with the current land use plans. This gather document and subsequent Decision Record is not the appropriate mechanism for adjusting the authorized livestock use within the allotments associated with the complex in order to reallocate forage to wild horses.

The proposal to reduce livestock would not meet the purpose and need for action. Monitoring indicates that the current overpopulation of wild horses is causing resource degradation and that there is insufficient water and forage for the number of horses present, resulting in their movement to public and private lands that are not managed for wild horses.

This alternative would also be inconsistent with the WFRHBA, which directs the Secretary to immediately remove excess wild horses. Livestock grazing can only be reduced or eliminated if BLM follows regulations at 43 CFR § 4100 and must be consistent with multiple use allocations set forth in the land-use plan. Such changes to livestock grazing cannot be made through a wild horse gather decision, and are only possible if BLM first revises the land-use plans to re-allocate livestock forage to wild horses and to eliminate or reduce livestock grazing.

Furthermore, re-allocation of livestock AUMs to increase the wild horse AMLs would not achieve a thriving natural ecological balance due to differences in how wild horses and livestock graze. Unlike livestock which can be confined to specific pastures, limited periods of use, and specific seasons-of-use so as to minimize impacts to vegetation during the critical growing season or 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.

While the BLM is authorized to remove livestock from HMAs “if necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury” (43 CFR§ 4710.5), this authority is usually applied in cases of emergency and not for general management of wild horses since it cannot be applied in a manner that would be inconsistent with the existing land-use plans. (43 CFR § 4710.1)

For the reasons stated above, this alternative was dropped from detailed analysis. For modifications in long-term multiple use management, changes in forage allocations between livestock and wild horses would have to be re-evaluated and implemented through the appropriate public decision-making processes to determine whether a thriving natural ecological balance can be achieved at a higher AML and in order to modify the current multiple use relationship established in the land-use plans.

Control of Wild Horse Numbers by Fertility Control Treatment Only

An alternative to repeatedly gather a significant portion of the existing population (95%) and implement fertility control treatments only, without removal of excess horses was modeled using a three- year gather/treatment interval over a 20 year period. Based on this modeling, this alternative would not result in attainment of the AML range for the Complex and the wild horse population would continue to have an average population growth rate of 0.8% to 6.9%, adding to the current wild horse overpopulation, albeit at a slower rate of growth. Over the next 21 years, on average 13,812 horses would need to be gathered², of those 5,984 horses³ would have been treated, and the resulting population would be 2,353 which is still 1,401 horses over (and more than 2 times) high range AML. This alternative would not bring the horse population to AML and would allow the wild horse population to continue to grow even further in excess of AML, resource concerns would escalate, and implementation of this alternative would result in significantly increased gather and fertility control costs without achieving a thriving natural ecological balance. This alternative would not meet the purpose and need for the proposed action and therefore was eliminated from further consideration.

Make Individualized Excess Wild Horse Determinations Prior to Removal

An alternative whereby BLM would make on-the-ground and individualized excess wild horse determinations prior to removal of wild horses from any HMA has been advocated by some members of the public. Under the view set forth in some comments during public commenting for previous wild horse gathers nationwide, a tiered or phased removal of wild horses from the range is mandated by the WFRHBA. ⁴ Specifically, this alternative would involve a tiered gather approach, whereby BLM would first identify and remove old, sick or lame animals in order to euthanize those animals on the range prior to gather. Second, BLM would identify and remove wild horses for which adoption demand exists, e.g., younger wild horses or wild horses with

² Each time a horse is gathered is counted, even though the same horse may be gathered multiple times during the 21 year period.

³ Each time a horse is treated with PZP-22 is counted, even though the same horse may be treated multiple times over the 21 year period.

⁴ The view that the WFRHBA requires a tiered removal process has been litigated and rejected by Federal courts. See *In Defense of Animals v. Salazar*, 675 F. Supp. 2d 89, 97-98 (D.D.C. 2009); *In Defense of Animals v. United States DOI*, 909 F. Supp. 2d 1178, 1190-1191 (E.D. Cal. 2012), *aff’d* 751 F.3d 1054, 1064-1065 (9th Cir. 2014).

unusual and interesting markings. Under the WFRHBA(1333(b)(2)(iv)(C)), BLM would then sell or destroy any additional excess wild horses for which adoption demand does not exist in the most humane and cost effective manner possible, although euthanasia and sale without limitations are currently limited by Congressional appropriations.

This proposed alternative could be viable in situations where the project area is contained, the area is readily accessible and wild horses are clearly visible, and where the number of wild horses to be removed is so small that a targeted approach to removal can be implemented. However, under the conditions present within the gather area and the significant number of excess wild horses both inside and outside of the Complex, this proposed alternative is impractical, if not impossible, as well as less humane for a variety of reasons.

First, BLM does euthanize old, sick or lame animals on the range when such animals have been identified. This occurs on an on-going basis and is not limited to wild horse gathers. During a gather, if old, sick or lame animals are found and it is clear that an animal's condition requires the animal to be put down, that animal is separated from the rest of the group that is being herded so that it can be euthanized on the range. However, wild horses that meet the criteria for humane destruction because they are old, sick or lame usually cannot be identified as such until they have been gathered and examined up close, e.g., so as to determine whether the wild horses have lost all their teeth, or are club footed, etc. Old, sick and lame wild horses meeting the criteria for humane euthanasia are also only a small fraction of the total number of wild horses to be gathered, comprising on average about 0.5% of gathered wild horses. Thus, in a gather of over 1,000 wild horses from an area of over three quarters of a million acres, potentially about five of the gathered wild horses might meet the criteria for humane destruction.

Due to the size of the gather area, access limitations associated with topographic and terrain features and the challenges of approaching wild horses close enough to make an individualized determination of whether a wild horse is old, sick or lame, it would be virtually impossible to conduct a phased culling of such wild horses on the range without actually gathering and examining the wild horses. Similarly, rounding up and removing wild horses for which an adoption demand exists, before gathering any other excess wild horses, would be both impractical and much more disruptive and traumatic for the animals. This approach would create a significantly higher level of disruption for the wild horses on the range and would also make it much more difficult to gather the remaining excess wild horses.

Furthermore, if BLM plans to apply any population controls to gathered wild horses prior to release, it would be necessary to gather more than just the excess wild horses to be removed, making this type of phased approach completely unnecessary and counter-productive.

Making a determination of excess as to a specific wild horse under this alternative, and then successfully gathering that individual wild horse would be impractical to implement (if not impossible) due to the size of the gather area, terrain challenges and difficulties approaching the wild horses close enough to make an individualized determination. This tiered approach would also be extremely disruptive to the wild horses due to repeated gather activities over a short period of time. Repeatedly gathering excess wild horses under this alternative would greatly increase the potential stress placed on the animals due to repeated attempts to capture specific

animals and not others in the band. This in turn would increase the potential for injury, separation of mare/foal pairs, and possible mortality.

This alternative would be impractical to implement (if not impossible), would be cost-prohibitive, and would be unlikely to result in the successful removal of excess wild horses or application of population controls to released wild horses. This approach would also be less humane and more disruptive and traumatic for the wild horses. This alternative was therefore eliminated from any further consideration.

Use of Alternative Capture Techniques Instead of Helicopter Capture

An alternative using capture methods other than helicopters to gather excess wild horses has been suggested by some members of the public. As no specific alternative methods were suggested, the BLM identified chemical immobilization, net gunning, and wrangler/horseback drive trapping as potential methods for gathering wild horses. Net gunning techniques normally used to capture big game animals also rely on helicopters. Chemical immobilization is a very specialized technique and strictly regulated. Currently the BLM does not have sufficient expertise to implement either of these methods and it would be impractical to use given the size of the project area, access limitations, and difficulties in approachability of the wild horses. Use of wrangler on horseback drive-trapping to remove excess wild horses can be fairly effective on a small scale. However, given the number of excess wild horses to be removed, the large geographic size of the Calico Complex gather area, access limitations, and difficulties in approaching the wild horses this technique would be ineffective and impractical. Horseback drive-trapping is also very labor intensive and can be very dangerous to the domestic horses and the wranglers used to herd the wild horses. Domestic horses can easily be injured while covering rough terrain and the wrangler could be injured if he/she falls off. For these reasons, this alternative was eliminated from further consideration.

Designation of the HMAs to be Managed Principally for Wild Horses

Designate the HMAs contained within the Calico Complex as “Wild Horse and Burro Ranges” was proposed by public comments. This action under 43 CFR 4710.3-2 would require amendment of the *Paradise-Denio and Sonoma-Gerlach Resource Area Management Framework Plans (MFPs)*, which is outside the scope of this EA. Only the BLM Director or Assistant Director (as per BLM Manual 1203: Delegation of Authority), may establish a Wild Horse and Burro Range after a full assessment of the impact on other resources through the land-use planning process. Wild Horse and Burro Range is not an “exclusive” designation. Designation would not necessarily exclude livestock use; therefore levels of livestock grazing permitted could remain the same.

Chapter 3 Affected Environment and Environmental Effects

3.1 General Setting

The Complex comprises a total of approximately 584,101 HMA acres (public and private) and is considered the primary gather area, although the total gather area is approximately 1,041,000 acres to encompass horses and burros residing in non-HMA areas in their search for water, forage and space (see Map 1). It includes the Granite Range, Calico Mountains, Trough Mountain, McGee Mountain and Black Rock Range topographic features. It is bound on the east by the Black Rock Desert, on the north by the U.S. Fish & Wildlife Sheldon Antelope Refuge, on the west by adjacent HMAs administered by the Surprise Field Office in Cedarville, California and by the small town of Gerlach, Nevada on the south.

Elevations within the Complex range from 3,920 feet along the Black Rock Desert to 9,056 feet at Granite Peak. Climate within the Complex is characterized by warm dry days, cool nights and low yearly precipitation that range from 4 inches at lower elevations to approximately 16 inches at higher elevations. Most precipitation occurs as winter snow.

Vegetation varies from salt desert shrub communities at lower elevations to big sagebrush/bunch grass communities at higher elevations. Typical species at lower elevations include shadscale, bud sage, winter fat, black greasewood, squirreltail, and Sandberg's bluegrass. Species typical in higher elevations include low sagebrush, Wyoming big sagebrush, mountain big sagebrush, bitterbrush, rabbitbrush, Utah juniper, mountain mahogany, quaking aspen, needle grass, blue bunch wheatgrass, basin wildrye, squirreltail, Indian paintbrush, and phlox. Historic wildfire scars within the Black Rock Range HMA mainly support perennial bunchgrasses. Fire scars within the Granite Range HMA support primarily cheatgrass, a non-native invasive plant.

Numerous small perennial streams and springs occur throughout the Complex. The Calico Mountains, Warm Springs Canyon, and northern portion of the Black Rock Range HMAs have many water sources, but water is limited due to unreliable water availability and low flows. Livestock water developments (e.g., wells, troughs and dirt reservoirs) authorized by the BLM are maintained under cooperative agreements with the livestock permittees. These water developments are important sources of water for wild horses and wildlife as well as livestock.

In the Great Basin high desert of Nevada the average annual precipitation is often less than 11 inches (which defines the term desert). Drought conditions occur as frequently as 6 out of every 10 years. Drought is defined by the Society for Range Management as "...prolonged dry weather when precipitation is less than 75% of the average amount" (SRM 1989).

3.2 Description of Affected Resources/Issues Discription of Affected Resources/Issues

3.3 To comply with the National Environmental Policy Act, the following elements of the human environment are subject to requirements specified in statute, regulation or executive order and must be considered.

Table 2: Supplemental Authorities (Critical Elements of the Human Environment)

Supplemental Authorities	Present	Affected	Rationale
Air Quality	YES	NO	The proposed gather area is not within an area of non-attainment or areas where total suspended particulates exceed Nevada air quality standards. Areas of disturbance would be small and temporary.
Areas of Critical Environmental Concern (ACEC's)	YES	NO	The proposed gather activities will not be conducted within the Soldier Meadows ACEC.
Cultural Resources	YES	YES	Trap sites and/or holding corrals would be placed in already disturbed areas or would be inventoried prior to use. Locations would avoid cultural resource sites. However, other potential impacts are discussed below.
Environmental Justice	NO	NO	Not affected.
Floodplains	NO	NO	Resource not present.
Invasive, Nonnative Species	YES	YES	Any noxious weeds or non-native invasive weeds would be avoided when establishing trap and/or holding facilities, would not be driven through. Noxious weed monitoring at trap/holding sites would be conducted and applicable treatment of weeds would occur per Noxious Weed Control EA#NV-020-02-19 as needed. Although low potential for establishment and spread, invasive, non-native species is carried though the analysis.
Migratory Birds	YES	YES	Discussed below.
Native American Religious Concerns	YES	YES	Discussed below.
Prime or Unique Farmlands	NO	NO	Resource not present.
Threatened & Endangered Species	YES	YES	Discussed below.

Supplemental Authorities	Present	Affected	Rationale
Wastes, Hazardous or Solid	NO	NO	Resource not present.
Water Quality (Surface/Ground)	YES	YES	Surface water would be affected and is discussed below. Ground water would not be affected.
Wetlands and Riparian Zones	YES	YES	Discussed below.
Wild and Scenic Rivers	NO	NO	Resource not present.
Wilderness	YES	YES	Discussed below.

Critical elements identified as present and potentially affected by the Action Alternatives (Alternatives 1-4) and/or the No Action Alternative include: Cultural Resources, Migratory Birds, Native American Religious Concerns, Threatened & Endangered Species, Water Quality, Wetlands and Riparian Zones, and Wilderness. Additional discussion is included in the following

3.2.1 Cultural Resources

The gather area includes a wide diversity of cultural resources from different time periods. Trap sites and holding areas are the locations that could potentially impact cultural resources. Previous inventories have identified prehistoric sites (rock art sites, lithic scatters, isolated projectile points, etc.) throughout the area. The highest concentration of prehistoric sites is in association with permanent and intermittent water sources.

Direct impacts to cultural resources are not anticipated because gather sites and temporary holding facilities would be placed in previously disturbed areas, previously inventoried areas with negative results for cultural resources, or would be inventoried for cultural resources. If cultural resources are encountered, these locations would not be utilized unless the facilities could be repositioned to avoid impacts to cultural resources.

Areas in the vicinity of permanent and intermittent water sources (i.e., riparian areas) have the highest potential for cultural resource sites. Since wild horses concentrate in these areas, soils are most likely to be compacted, increasing runoff and subsequently increasing erosion.

Environmental Affects

Alternatives 1-3

Removal of excess wild horses and burros under the three alternatives would lead to a reduction in indirect impacts to cultural resources in riparian zones where concentrations of horses/burros can lead to damage and displacement of artifacts and features as well as erosion of surface cultural deposits containing valuable information.

Alternative 4

Since this alternative does not remove wild horses and burros from the rangeland, adverse impacts would continue to occur at archaeological sites.

3.2.2 Invasive, Nonnative Species

Several federal laws, regulations and policies guide BLM management activities to control noxious weeds and invasive non-native species on public lands. Laws applicable to control invasive vegetation include: the Federal Land Policy and Management Act; Carlson-Foley Act of 1968; Plant Protection Act of 2000; Federal Noxious Weed Act of 1974; The Federal Insecticide, Fungicide and Rodenticide Act of 1972; and the Noxious Weed Control Act of 2004. To comply with these Laws, BLM policy directs the agency to inventory and control invasive vegetation utilizing integrated weed control management techniques.

Nevada Revised Statutes, Chapter 555.05 defines “noxious weeds” and mandates land owners and land management agencies to include control of noxious weeds on lands under their jurisdiction.

Nevada has listed 47 non-native invasive plant species that require control. Of these 47 species, 14 species have been identified in the Winnemucca District, see Appendix E.

Weed infestations have been found within the Calico Complex area including; Scotch thistle (*Onopordum acanthium*), hoary cress (*Cardaria draba*), and Russian knapweed (*Acroptilon repens*). Other noxious weeds that have been observed in the region, include saltcedar (*Tamarix spp.*), and perennial pepperweed (*Lepidium latifolium*). Infestations of exotic annual plants including cheat grass (*Bromus tectorum*), tumble mustard (*Sisymbrium altissimum*), halogeton (*Halogeton glomerata*), and Russian thistle (*Salsola tragus*) commonly dominate areas that have been previously overgrazed or have burned from wildfire. The entire project area has not been inventoried for the presence of invasive non-native species.

Environmental Affects

Alternative 1-3

The action alternatives are expected to result in fewer invasive species within the Calico Complex. By decreasing wild horse and burro populations levels, associated utilization levels in the uplands and the riparian areas are anticipated to also decrease. This would enable native species to seed out, while enhancing plant vigor, and increasing competitive abilities with the invasive species present, leading to a decreases in invasive species.

Alternative 4

The No Action Alternative would not result in direct impacts from gather operations.

3.2.3 Migratory Birds

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668 (a))

The U.S. Fish and Wildlife Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

An assessment area-wide inventory has not been completed for this project. Rather, the potential for migratory birds to occur within the assessment area was determined by reviewing the Nevada Natural Heritage Program (NNHP) database, Nevada Department of Wildlife (NDOW) known occurrence data, and knowledge of migratory birds within the Winnemucca District. A list of MBTA protected birds are found in 50 C.F.R. 10.13.

Environmental Affects

Alternative 1-3

The project area contains riparian and sagebrush habitats, therefore potential impacts to neotropical migrants may be expected. The action alternatives would not directly impact migratory bird populations. The gather could occur when migratory species are within the HMA. Small areas of migratory bird habitat would be impacted by trampling at trap sites and holding facilities. This impact would be minimal (generally less than 0.5 acre/trap site), temporary, and short-term (two weeks or less) in nature. Indirect impacts would be related to WHB densities and patterns of use. The reduction in the current WHB populations would provide opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. The action alternatives would support a more diverse vegetative composition and structure through improvement and maintenance of healthy populations of native perennial plants. Habitat improvements would result for migratory bird species including loggerhead shrikes, Brewer's sparrows, sage thrashers, burrowing owls and migratory and resident raptor species. According to Paige and Ritter (1999), "Long-term heavy grazing may ultimately reduce prey habitat and degrade the vegetation structure for nesting and roosting. Light to moderate grazing may provide open foraging habitat."

Alternative 4

The continued over-population of wild horses within the Complex would lead to indirect impacts due to the increasing inability of rangelands to support healthy populations of native perennial plants. These indirect impacts to vegetative communities would increase each year that a gather is postponed.

3.2.4 Native American Religious Concerns

Numerous laws and regulations require consideration of Native American concerns. These include the National Historic Preservation Act of 1966 as Amended (NHPA), the American Indian Religious Freedom Act of 1978 (AIRFA) as amended, Executive Order 13007 (Indian Sacred Sites), Executive Order 13175 (Consultation and Coordination with Tribal Governments), the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), the Archaeological Resources Protection Act of 1979 (ARPA) as well as NEPA and FLPMA.

The proposed action is within the traditional territory of the *Kamodökadö* ("jack-rabbit eaters"), the *Atsakudöka tuviwarai* ("red butte dwellers"), the *Aga' ipañinadökadö* ("fish lake eaters"), *Madökadö* ("wild onion eaters"), and the *Sawa' waktödö-tuviwarai* ("sage-brush mountain dwellers") bands of Northern Paiute peoples (Stewart 1941). These bands are identified with modern groups that include the Summit Lake Paiute Tribe, the Fort McDermitt Paiute and Shoshone Tribe, the Pyramid Lake Paiute Tribe, the Susanville Indian Rancheria and Winnemucca Indian Colony.

Horses are believed to have been introduced into the Paiute and Shoshone societies from trade with the Comanche and other Plains groups (Shimkin 1986). By the mid-19th century, the horse had a substantial impact on the political organization of the Paiute and Shoshone, plus their subsistence and trade. The ethnographic literature presents no clear cut trend on whether horses were used as food by the Northern Paiutes and Shoshone. Some Native Americans argue though that the horse has always been in Nevada since time immemorial.

Environmental Affects

Alternatives 1-3

Native Americans utilize a variety of plants for medicinal and other uses. They also consider all water to be sacred. Several hundred springs are located within the gather area. Both of these resources can be adversely affected by domestic and wild horses. Removal of horses would benefit vegetation growth and spring health.

Springs at Soldier Meadows are considered especially important to the Summit Lake Tribe as places of religious or spiritual significance, but no traps or holding areas would be established in riparian areas around springs. There are no known traditional cultural properties or sacred sites in the identified trap site/holding areas.

Alternative 4

Under this alternative, without the removal of horses, springs and vegetation would continue to be degraded. Soldier Meadows, since it is exclosed, would continue to receive minimal impact from horses.

3.2.5 Threatened & Endangered Species

BLM is required by the Endangered Species Act of 1973, as amended (ESA) to ensure that no federal action jeopardizes a threatened, endangered, or proposed species. A species list was requested from the United States Fish and Wildlife Service (USFWS) for the proposed project area, per their online version (2-11-2021; <https://ecos.fws.gov/ipac/>). The Nevada USFWS responded on February 11, 2021 with an electronic version of the official species list. The species list showed the following listed, proposed and candidate species which may occur within the project area:

- Desert dace (*Eremichthys acros*) a threatened species.
- Lahontan cutthroat trout (*Oncorhynchus clarkia henshawi*) a threatened species
- Whitebark Pine (*Pinus albicaulis*) a proposed threatened species

Desert dace

The desert dace has been federally listed as Threatened since 1985 (Federal Register Volume 50, p. 50304,). At the time of listing, critical habitat was also listed and encompasses 50 feet on each side of designated thermal springs and their outflow streams (USFWS 1997). The desert dace occupied habitat was fenced off in 2005 and the potential trap/holding sites are outside of the fenced area. For this reason, the proposed activities are judged to have no impact on this species or its habitats and will be dismissed from further analysis.

Lahontan cutthroat trout

Several streams within the Complex support existing populations of Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*, LCT). LCT is a federally listed Threatened species since 1975 (Federal Register Vol. 40, p. 29864). Mahogany, Summer Camp, Snow, and Colman Creeks exist entirely within the Soldier Meadows Allotment (SMA) and currently are occupied by LCT. North Fork Battle Creek exists within the Paiute Meadows Allotment and is currently occupied by LCT. While Colman Creek is closed to livestock grazing, monitoring data collected in 2020 showed moderate levels of utilization and stream bank trampling associated with wild horses. Mahogany Creek is fenced within the Mahogany Exclosure, and typically is not subject to extensive wild horse use. However, periodically wild horses are documented within the exclosure. Observations from Summer Camp and Snow Creek currently show limited horse use, but are within the Black Rock Range HMA.

Several streams within the Complex have been identified as priority streams for LCT recovery in the 1995 USFWS LCT Recovery Plan and the 1999 NDOW Species Management Plan for LCT. The streams identified are as follows: Donnelly Creek (SMA); Bartlett and Paiute Creeks (Paiute Meadows Allotment); Snow Creek (Pine Forest Allotment); Cottonwood, Granite, Red Mountain, and Rock Creeks (Buffalo Hills Allotment). There is currently no known LCT within these streams.

Whitebark pine

Whitebark pine grows in dry, windy, and cold sites characterized by rocky, poorly developed soils and snowy, wind-swept exposures. It pioneers many harsh subalpine and alpine sites. There are two known locations of whitebark pine within the Complex, one location in the Pahute Peak Wilderness and one location in the Pine Forest Range. No impacts to whitebark pine are anticipated from the proposed activities and this species has been dismissed from further analysis.

Environmental Affects

Alternative 1-3

The action alternatives, resulting in decreased population levels of wild horse and burros would directly benefit the LCT found within the Calico Complex. The decrease in WHB populations would result in lower utilization levels found in riparian areas and would be expected to result in less damage to the springs and streams, thus increasing habitat quality for LCT .

Direct impacts to LCT would be minimal due to the short-term duration of any helicopter gather activities. Although horses may cross streams during gather operations causing some trampling in riparian areas and stream banks, any impacts would be short-term and minor. The stream banks could receive greater impacts than under normal wild horse movement crossing a stream with larger numbers when being herded by the helicopter. Stream bank damage would be minimized partially due to the timing of the proposed action and soil conditions (dry or potentially frozen). The likelihood of adverse effects to LCT is also minimized because the proposed work will be completed outside the spawning season for LCT (between April and July). No direct impacts would occur to LCT from trap/holding sites, observers, or increased traffic associated with gather operations since construction of these areas on LCT streams is prohibited.

Immediate and long term beneficial effects to LCT in the Complex include the reduction of the size of the wild horse herds from a current estimate of 1,692 to approximately 572-619. This reduction will reduce the effects that large numbers of horses have on stream bank trampling, increased sedimentation, reduced vegetation cover, and improve habitat conditions for LCT. No critical habitat has been designated for LCT; therefore, none will be affected.

Alternative 4

Under this alternative, population levels of wild horse and burros would continue to increase within the Calico Complex. The increase in WHB populations would result in increased utilization levels, increased sedimentation, and reduced vegetation cover found in riparian areas. Increases in WHB populations could result in further damage to the springs and streams, thus impacting habitat quality for LCT .

3.2.6 Water Quality (Surface and Ground)

The Complex (excluding McGee Mountain HMA) is estimated to contain several hundred springs with spring brooks associated with larger springs that range from a few feet to miles in length. Grazing at spring sources and along the associated spring brooks by large ungulates (cattle, wild horses, and wild burros) typically lead to decreases in water quality due to increased nutrient loading, water temperatures, bacterial contamination and sediment loading. When faced with limited water sources, wild horses/burros will also paw with their hooves in springs to try and acquire more water. Native wildlife species also make contributions to bacterial loading. The decreases in water quality result from surface disturbance associated with hoof action, removal of vegetation, trampling, compaction, and deposition of manure. The Nevada Division of Environmental Protection has not listed any of the water bodies within the Complex on the State of Nevada List of Impaired Water Bodies (Section 303(d) of the Clean Water Act). Waters classified as Class A such as Mahogany Creek are protected by grazing exclosures. Class A waters are a suitable water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The waters shall be suitable for fish, shellfish, and wildlife propagation and survival.

The McGee Mountain HMA has limited water sources. The main water sources within the HMA are wells (Bog Hot and Torpedo), of which the permittee has the majority of water rights and only operates generators on these during the cattle grazing season. The BLM has water rights for wildlife to water 12 antelope for 12 months on Bog Hot well. All other sources of water (springs and water impoundments) are located outside of McGee Mountain HMA. Water sources currently utilized by McGee Mountain's wild burros have decreasing water quality due to increased nutrient loading, bacterial contamination and sediment loading.

Environmental Affects

Alternative 1-3

The action alternatives would result in a decrease in WHB populations within the Calico Complex; therefore, reducing the impacts to water quality due to the decrease in demand for the limited water sources within the complex. A decrease in hoof pawing action is also expected, thus increasing the water quality within the Calico Complex.

Alternative 4

Under this alternative, without the removal of horses, springs water sources would continue to be degraded. Soldier Meadows, since it is exclosed, would continue to receive minimal impact from horses.

3.2.7 Wetlands and Riparian Zones

Many of the riparian zones within the Complex (excluding McGee Mountain) are associated with spring fed systems and subsequent spring brooks. Large spring brooks and streams with perennial flows commonly contain fisheries, including Lahontan cutthroat trout as described in Section 3.2.5. Small spring systems with short brooks or no brooks are scattered throughout the Complex and provide water, forage and habitat diversity for native wildlife, livestock and wild horses. These systems typically occupy less than 1% of the landscape but are disproportionately important for biodiversity and users of the landscape, including humans. Monitoring data showed systems with cattle or wild horse use had more site disturbance, lower stubble heights, and increased levels of bare ground when compared to un-grazed systems. While livestock are authorized in areas overlapping with wild horse and burros, livestock are regulated through defined grazing systems. They are typically only on the range for a few month at a time in the sampled areas, and can be removed to prevent degradation to wetland and riparian zones. Conversely, wild horses use these area year-long, unless heavy snow pushes them to lower elevation, thus the regulation of resource condition cannot be achieved, resulting in degradation and decreased functionality of wetlands and riparian zones.

In analyzing monitoring and other available data, the cause of disturbance (e.g. livestock vs. wild horse) was estimated when clear evidence to distinguish the use was present. Effects on vegetation from utilization or trampling by either wild horses or livestock are typically evident by the presence of animals at a site, the presence and kind of hoof prints, the presence and type of manure (e.g. stud piles), the presence and type of rolling or wallowing areas, and the timing of the use or disturbance (since livestock are limited to allotments by specific grazing periods). When clear evidence was not available to distinguish between livestock or wild horses, no assignment of cause of disturbance was made.

Riparian surveys and professional observations show that levels of wild horse use within the Complex has adversely affected wetland functionality and riparian vegetation through prolonged site disturbance, utilization, and compaction. These factors are preventing the attainment of Proper Functioning Condition (PFC) or significant progress toward attaining PFC in certain areas within the Complex. Wild horses contributed to the non-attainment of RAC Standard 2 (riparian standard) for the Soldier Meadows and the Paiute Meadows allotments Rangeland Health Assessments completed in 2003. More recent observations and data show that this standard is in jeopardy of not being met in riparian areas within the Complex as a result of excess wild horses. Wild horse populations need to be reduced below high AML range to allow for these systems to recover.

Water sources (springs and water impoundments) for the McGee Mountain wild burros are located outside of McGee Mountain HMA. A spring complex to the east of the HMA is the preferred water source and has been degraded by the overpopulation of wild burros. This assessment was based on the percentage of bare ground, trailing, un-vegetated shorelines, and

receding riparian-wetland area. The utilization of saltgrass (*Distichlis spicata* (L.) Greene) in the riparian zones of Three Springs was ocularly estimated to be between 81-100%.

Environmental Affects

Alternative 1-3

The action alternatives would result in a decrease in WHB populations, which would directly result in increased riparian area and wetland functionality. By decreasing the year round pressure on wetlands and riparian areas, forage utilization levels and trampling are expected to decrease. Thus increasing the likelihood of functioning wetland and riparian conditions within the Calico Complex.

Alternative 4

Under this alternative, without the removal of horses, riparian zones and wetland areas would continue to degrade, with further loss of functionality and habitat quality. Soldier Meadows, since it is exclosed, would continue to receive minimal impact from horses.

3.2.8 Wilderness

The proposed project area includes 351,604 acres of Wilderness within the: East Fork High Rock Canyon, High Rock Lake, North Black Range, Pahute Peak, Black Rock Desert, Little High Rock Canyon, Calico, and Pine Forest Range Wilderness. With the exception of the Pine Forest Range Wilderness, these wilderness areas were designated by the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Act of 2000 (NCA Act); the Pine Forest Range Wilderness was designated under the HR 433 Pine Forest Recreation Enhancement Act of 2013 (PFRE Act). The NCA Act recognizes special features of the wilderness areas: wagon ruts, historic inscriptions, prehistoric and historic Native American sites, large natural potholes, threatened fish and sensitive plants, and a largely untouched emigrant trail view shed. The NCA Act additionally identifies the unique segments of the Northern Great Basin and its broad representation of land forms, plant, and animal species, including “free roaming horses and burros.” The PFRE act recognizes priceless habitat for numerous species of plants and wildlife and thousands of acres of land that remain in a natural state as special features of the Pine Forest Range Wilderness.

The Wilderness Act of 1964 established a “National Wilderness Preservation System to be composed of federally owned areas designated by Congress as “wilderness areas”, these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.” The Wilderness Act of 1964 mandates that Wilderness areas are managed in a manner that maintains or enhances the areas Wilderness Characteristics. Wilderness Characteristics include: untrammelled, natural, undeveloped, and outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Environmental Affects

Alternatives 1-3

The action alternatives 1-3 include helicopter overflights under 300 feet to herd WHB in areas that overlap with wilderness. All temporary trap sites are located outside of the wilderness boundaries. The Minimum Requirements Decision Guide (MRDG – Appendix P) identifies the use of helicopter overflights within wilderness as the minimum tools required to conduct the action alternatives 1-3.

The Wilderness Act defines untrammeled as a place where ecological systems are unhindered and free from intentional actions of modern human control or manipulation. Herding WHB within wilderness for capture is a trammeling activity, as it is a human manipulation of the natural processes or conditions that exist within the wilderness boundary. In this case, the presence of WHB is the natural condition, as legislated by the Wild Free-Roaming Horses and Burros Act of 1971 (P.L. 92-195), and as a result of the presence of WHB in the affected wilderness areas prior to their designation as wilderness. The action alternatives 1-3 would negatively impact the untrammeled quality of wilderness character because the action alternatives are a trammeling action as an anthropocentric management approach is being taken to manage WHB populations.

No motorized vehicles, no landing of aircraft, and no temporary installments would be located within wilderness: therefore the undeveloped character of wilderness would not be affected.

The action alternatives 1-3 would impact the opportunity for solitude and primitive recreation during the gather activities, throughout the indefinite duration of this proposal. The impact to solitude or primitive and unconfined recreation are expected to occur as a result of the presence and noise of helicopter use for the duration of the gather. The entirety of the wilderness areas will not be negatively impacted as the action is ephemeral by nature, though this quality of wilderness character would be negatively impacted for the duration of gather and monitoring operations where the presence and sound of helicopter use is prevalent.

The action alternatives 1-3 aim to remove excess WHB to reduce their population to the low level AML for the proposed area overlapping the wilderness. By removing the excess WHB the natural quality of wilderness character may be preserved and enhanced by reducing the degradation due to excess animals within the wilderness. Removing the excess WHB may reduce or eliminate the impact of excess animals competing with native wildlife for forage utilization, excess trampling of native vegetation and reduce trampling watersheds and other riparian areas within the wilderness areas.

Alternative 4

The No Action Alternative would not result in direct impacts from gather operations. The opportunities for solitude and primitive recreation, untrammeled, and undeveloped qualities of wilderness character would not be affected. However, the natural quality of wilderness character may be indirectly impacted. If the WHB populations exceed their AML, the potential herd health and impacts to the landscape from excess WHB may occur. Excess WHB may compete with

native populations of wildlife, overgraze riparian areas, and trample native vegetation at and near springs and other water sources. For these reasons, the natural quality of wilderness character would not be preserved and would potentially degrade.

3.3 Additional Affected Resources

In addition to the supplemental authorities above, the following resources may be affected by the Action Alternatives (Alternatives 1-4) and/or the No Action Alternative:

Table 3: Additional Affected Resources

OTHER RESOURCES	Present	Affected
Fisheries	YES	YES
Public Health & Safety	YES	YES
Rangeland Management	YES	YES
Recreation	YES	YES
Special Status Species	YES	YES
Soils	YES	YES
Vegetation	YES	YES
Wild Horse and Burro	YES	YES
Wilderness Study Area	YES	YES
Wildlife	YES	YES

3.3.1 Fisheries

Several of the streams in the proposed project area currently contain salmonid species. The streams with salmonids that have not been discussed in section 3.2.5 are Alder Creek, Bartlett Creek, Granite Creek, Knott Creek, Knott Creek Reservoir, and Red Mountain Creek. These streams include a variety of salmonids, including: rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), and bowcutt trout (rainbow x cutthroat hybrid, *Oncorhynchus mykiss* x *Oncorhynchus clarkii*).

Refer to sections 3.2.6 and 3.2.7 for more information on impacts to fisheries habitat from horses.

3.3.2 Public Health and Safety

In recent gathers, members of the public have increasingly traveled to the public lands to observe BLM's gather operations. Members of the public can inadvertently wander into areas that put them in the path of wild horses that are being herded or handled during the gather operations, creating the potential for injury to the wild horses or burros and to the BLM employees and contractors conducting the gather and/or handling the horses as well as to the public themselves. Because these horses are wild animals, there is always the potential for injury when individuals get too close or inadvertently get in the way of gather activities.

The helicopter work is done at various heights above the ground, from as little as 10-15 feet (when herding the animals the last short distance to the gather corral) to several hundred feet (when doing a recon of the area). While helicopters are highly maneuverable and the pilots are very skilled in their operation, unknown and unexpected obstacles in their path can impact their ability to react in time to avoid members of the public in their path. These same unknown and unexpected obstacles can impact the wild horses or burros being herded by the helicopter in that they may not be able to react and can be potentially harmed or caused to flee which can lead to injury and additional stress. When the helicopter is working close to the ground, the rotor wash of the helicopter is a safety concern by potentially causing loose vegetation, dirt, and other objects to fly through the air which can strike or land on anyone in close proximity as well as cause decreased vision. Though rare, helicopter crashes and hard landings can and have occurred (approximately 10) over the last 30+ years while conducting wild horse and burro gathers which necessitates the need to follow gather operations and visitor protocols at every wild horse and burro gather to assure safety of all people and animals involved. Flying debris caused by a helicopter incident poses a safety concern to BLM and contractor staff, visitors, and the wild horses and burros.

During the herding process, wild horses or burros will try to flee if they perceive that something or someone suddenly blocks or crosses their path. Fleeing horses can go through wire fences, traverse unstable terrain, and go through areas that they normally don't travel in order to get away, all of which can lead them to injure people by striking or trampling them if they are in the animal's path.

Disturbances in and around the gather and holding corral have the potential to injure the government and contractor staff who are trying to sort, move and care for the horses and burros by causing them to be kicked, struck, and possibly trampled by the animals trying to flee. Such disturbances also have the potential for similar harm to the public themselves.

Environmental Affects

Alternative 1-3

The action alternatives would directly reduce the likelihood of collisions with WHBs on well travelled routes and roads within the Calico Complex. The BLM is committed to allowing access by interested members of the public to the fullest possible degree without compromising safety or the success of operations. To minimize risks to the public from helicopter operations, the gather Contractor is required to conduct all helicopter operations in a safe manner, and to comply with FAA regulations (FAR) 91.119 (14 CFR § 91.119) 5 and BLM IM No. 2010-164. Public observations sites would also be established in locations that reduce safety risks to the public (e.g., from helicopter-related debris or from the rare helicopter crash landing, or from the potential path of gathered horses), to the wild horses (e.g., by ensuring observers would not be in the line of vision of 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. The Tri-State-Calico Complex Wild Horse and Burro Gather Observation Protocol found in Appendix B provides the public with the opportunity to safely observe the gather operations. Every attempt would be made to identify one or more observation sites at the gather location that offer good viewing opportunities, although there may be circumstances (flat

terrain, limited vegetative cover, private lands, etc.) that require viewing locations to be at greater distances from the gather site to ensure safe gather operations or that preclude visitor access.

Alternative 4

Under the no action alternative the likelihood of collisions with the public on well travelled routes and roads is expected to not be affected. No gather operations would take place, thus not impacting public health and safety.

3.3.3 Rangeland Management

Through previous decisions, the BLM has allocated the available forage to wild horses, wildlife, and domestic livestock. Other decisions have resulted in adjustments to livestock numbers, seasons of use, and for implementation of grazing systems and the associated range improvements to promote rangeland health.

While the present livestock grazing systems and efforts to manage the wild horse population within AML has reduced historic impacts, the current overpopulation of wild horses is continuing to contribute to areas of moderate to heavy vegetation utilization, trailing and trampling damage and is preventing the BLM from managing for rangeland health and a TNEB and multiple-use relationship on the public lands in the area.

Data collected within the complex area shows certain areas where year-round wild horse and burro use is impacting vegetation (see Appendix M (photos). The action alternatives analyzed in this EA would result in the reduction in competition between wild horses and other users (i.e. native wildlife and domestic livestock) for the limited available forage and water resources. Direct improvements in soils and riparian condition would be expected in the short term and result in fewer multiple-use conflicts within and adjacent to the Calico Complex.

Over the long-term, improving the range would further benefit all users and the resources they depend on for forage and water.

Alder Creek Allotment

There has been little change on the Alder Creek Allotment from 2011 to present. Little to no change has been indicated in the little monitoring data available. Little to no monitoring data has been collected in recent years on the uplands.

Soldier Meadows Allotment

The Soldier Meadows Allotment has been grazed by livestock over the past five to six years. Livestock numbers have consistently been below authorized numbers, especially in drought years. In 2019 and 2020 livestock numbers were between 400-600 head even though full numbers were billed for the year. Monitoring data has been collected fairly consistently over the past several years. The data show that the levels of use have been gradually increasing even though livestock use (see actual use tables, Table 5 below) has decreased each year. This is attributed to the increasing overpopulation of wild horses and burros.

Buffalo Hills Allotment

The Buffalo Hills Allotment was grazed by livestock from 2012 to 2017. In late 2017 the Buffalo Hills Allotment was transferred to a new permittee. Limited numbers of livestock were on the allotment in 2018. In 2019 livestock turnout consisted of less numbers than authorized and a shorter duration. Limited monitoring data has been collected over the past few years, but what has been recorded shows that wild horse utilization levels have increased along with bank alteration on the Multiple Indicator Monitoring (MIM) site on Wagontire creek.

Leadville Allotment

There has been no change to the authorized use or operator on the Leadville Allotment. The operator has been running fewer numbers over the past few years due to drought and annual fluctuation. Monitoring data has been collected on the allotment for the past few years, which shows that utilization levels have increased due to the increasing wild horse population within the allotment.

Paiute Meadows Allotment

The permittee has taken some non-use during periods of drought but otherwise has been running at authorized numbers. Water hauling is still occurring on the allotment to help keep livestock distributed in some areas of the allotment. The permittee has also been maintaining range improvements within the allotment which should help with distribution and available water capacity for both livestock and wild horses. Monitoring data has been collected over the past few years, which shows that utilization levels have increased due to the increasing wild horse and burro populations. The vegetation on the south end of the allotment is showing signs of consistent over use by wild horses, signs include reduced numbers of key species, reduced plant vigor, and key species mortality (see appendix M photos).

Monitoring reports can be referenced in Appendix L.

Table 4: Livestock Permitted AUMs

Allotment	1982 AUMs	2015 AUMs	2019 AUMs	2020 AUMs
Alder Creek	11,787	5,913	4,287	4297
Buffalo Hills	11,920	4,114	1,156	3964
Leadville	2,567	1,291	1,298	1298
Paiute Meadows	7,827	4,299	4,298	4298
Soldier Meadows	16,070	12,168	8,785	8785
Totals	56,203	27,785	19,824	22,642

Table 5: Grazing Use (AUMs) by Year

Allotment	Actual Use 2016	Actual Use 2017	Actual Use 2018	Actual Use 2019	Authorized (Billed) Use 2020
Alder Creek	6195*	5913*	5910*	6081*	4297

Buffalo Hills	3962	3987	156**	1177	3964
Leadville	496	667	762	884	1298
Paiute Meadows	3987	4104	4109	4148	4298
Soldier Meadows	4077	6655*	6037	4977	8785
Total	18,717	21,326	16,974	17,267	22,642
	*Billed use since actual use was not received.				
	**Only one permittee ran cattle on Buffalo Hills this year.				

Environmental Affects

Alternatives 1-3

The action alternatives analyzed in this EA would result in the reduction in competition between wild horses and other users (i.e. native wildlife and domestic livestock) for the limited available forage and water resources. Direct improvements in soils and riparian condition would be expected in the short term and result in fewer multiple-use conflicts within and adjacent to the Calico Complex.

Over the long-term, improving the rangeland would further benefit all users and the resources they depend on for forage and water.

Alternative 4

The action alternative would result in no action; therefore, increasing the competition for the limited forage and water supplies within the Calico Complex, adding to the higher utilization levels being measured annually in addition to the declining riparian and soil conditions would be expected to continue.

3.3.4 Recreation

Recreation resources that exist in the area are mainly outdoor recreation, wildlife watching/photography, off-roading, wild horse and burro watching/photography, and hunting. The gather area encompasses portions of the Special Recreation Management area in the Black Rock Desert-High Rock Canyon-Emigrant Trails National Conservation Area. The area is in the wilderness and rustic management zones and is preferred area by visitors who enjoy wilderness areas and historic landmarks. Dates of the gather would determine the amount of impact to visitors as use levels range from low in winter, moderate to high in the summer, and peaks in the fall during hunting seasons with season opening weekends having the highest visitation of the year.

The capture area includes four Nevada Hunt Units (012, 014, 032, and 034). Hunting opportunities for big game (California big horn sheep, mule deer, and antelope) and upland game (blue and ruffed grouse, chukar, and Hungarian partridge) are present in these hunting units.

Special Recreation Permit activities and events occur within the capture area, including but not limited to guided motorized tours, guided backpacking trips, and hunting outfitter and guide operations.

Soldier Meadows Campground and Cabin is in the northwest portion of capture area. Recreation opportunities for scenic viewing, photography, and camping occur in this area year-round.

Environmental Affects

Alternative 1-3

The action alternatives analyzed in this EA would result in disturbance to recreation activities and experiences. Gather activities, such as helicopter use, would affect recreation experiences designated in the rustic and wilderness zones such as, opportunities solitude, sense of immersion in the natural environment, tranquility and user conflicts and disturbance to hunting activities, and SRP events/activities. Expected, short term direct improvements to recreationalists: reduced risk of direct collisions with wild horses, and riparian and soil improvements.

Alternative 4

The action alternative would result in no action; therefore, increasing the competition for the limited forage and water supplies within the Calico Complex , and declining riparian and soil conditions would disrupt scenic qualities and viewing opportunities for visitors. Along with the increased likelihood of collisions with recreationists on the travel routes within the Complex due to an over population of WHB.

3.3.5 Soils

A wide range of soils occur within the Complex, ranging from deep saline-alkaline soils associated with valley bottoms, to shallow loamy soils at higher elevations in the mountain ranges. Soil development generally occurred under low precipitation regimes, and required extensive time frames to form.

Aerial monitoring indicates increasingly heavy trailing by wild horses and burros between limited water sources and foraging areas. Trailing and hoof action by wild horses and burros has the potential to accelerate erosion following intense summer convection storms or rapid snow melt through increased soil compaction. Extensive wild horse and burro utilization and trailing are occurring in the Complex and are decreasing vegetative cover while altering vegetative composition, particularly in areas of water sources. Changes in vegetative composition can reduce soil infiltration rates, which increases run off and soil erosion, as well as decreased soil productivity.

Environmental Affects

Alternative 1-3

Trailing and hoof action by wild horses and burros would be expected to decrease due to the decrease in WHB population levels within the Calico Complex. This would lead to increased soil functionality and productivity, while decreasing potential erosion and soil loss.

Alternative 4

The no action alternative would result in increase soil erosion due to trailing and hoof action by an over population of WHB.

3.3.6 Special Status Species

The potential for special status species (SSS) to occur in the assessment area was determined by reviewing the Sensitive Species List for Nevada (updated November 22, 2017) and reviewing existing data sources of known occurrences and suitable habitat. The species listed in Appendix H are known to occur or have the potential to occur within the assessment area based on a search of the NNHP database (2021), NDOW diversity database (2021), and knowledge of the area. Other special status species may be present in the assessment area if suitable habitat exists.

Sensitive Species by Habitat Type within the Calico Complex

(*Sensitive Species)

Intermountain Cold Desert Scrub

The Intermountain Cold Desert Shrub type is the most extensive habitat type in the state of Nevada and within the Complex (WAPT 2012). “Community composition is largely influenced by soil salinity and drainage. Most often, the salt desert shrub type is dominated by either shadscale or greasewood. At the lowest flats of the valleys where soils drain poorest and salinities are highest, the most salt-tolerant plants are found, including pickleweed and quailbush. The salt desert shrub type generally gives way to sagebrush somewhere near the tops of the alluvial fans where the primary fault lines of the mountain range are situated. These upper soils are often gravelly and well-drained, and are more likely to support spiny hopsage, bud sagebrush, and associated plants. The dominant grass species in the salt desert shrub type is Indian ricegrass, and to a lesser extent, needle-and-thread grass” (WAPT 2012). Bald Eagles*, Golden Eagles*, and Prairie Falcons* are some of the sensitive raptor species that feed on prey populations found within this habitat type. Intermountain Cold Desert Shrub habitat provides nesting structure, protection from predators, and thermal cover for sensitive species such as Loggerhead Shrike*, Sage Sparrow*, Brewer’s Sparrow*, and Sage Thrasher*. This habitat type also provides sandy soils for sensitive species to burrow and/or den in and rock features to provide protection from predators, including Burrowing Owl*, pale kangaroo mouse*, dark kangaroo mouse*, long-nosed leopard lizard*, and Great Basin collared lizard*.

Sagebrush

“In Nevada, eight species are predominantly dependent on sagebrush habitat for most of their life history needs: pygmy rabbit*, Great Basin pocket mouse, sagebrush vole, sagebrush lizard, Greater Sage-Grouse* (GRSG), Sage Thrasher*, Brewer’s Sparrow*, and Sage Sparrow* (the last three also occur as breeding species in cold desert scrub, but to a much lesser degree)” (WAPT 2012). “Several species nest on habitats adjacent to sagebrush habitat, but spend most of their hunting time over sagebrush range where they primarily prey on ground squirrels and jack rabbits (e.g., Prairie Falcons* on cliffs and rimrock, and Ferruginous Hawks* on the pinyon-juniper edge or sometimes on rimrock)” (WAPT 2012).

“The GRSG is probably the species most extremely adapted to the use of sagebrush itself. GRSG are equipped with a specially-designed grinding organ that fuses the crop and the gizzard to address the difficult challenges of digesting sagebrush herbaceous matter. The year-round diet of the adult GRSG consists of 98% sagebrush leaves, which gives the bird the ability to winter on sagebrush range” (WAPT 2012). The Complex contains key GRSG habitat including

approximately 507,000 acres of summer habitat, 597,000 acres of nesting/early brood-rearing habitat, and 703,000 acres of winter habitat. There are forty-seven (47) known leks within the Complex; fourteen (14) of which are known to be active. Leks are communal breeding ground for GRSG and are commonly considered to be the center of nesting activity.

GRSG habitat conservation efforts identified by the BLM Nevada and Northern California GRSG Approved Resource Management Plan Amendment (ARMPA) and Final Environmental Impact Statement (FEIS), Record of Decision signed September 22, 2015 guide management of GRSG habitat. The 2015 ARMPA was later revised and another ROD was signed March 15, 2019. Per the 2015 GRSG ARMPA there is approximately 318,000 acres of particularly important habitat for GRSG, known as priority habitat management area (PHMA), 246,000 acres of generally important habitat for GRSG, known as general habitat management area (GHMA), and 139,000 acres of habitat identified as other habitat management area (OHMA) within the Complex. Per the 2019 GRSG ARMPA, there is approximately 322,000 acres of PHMA, 216,000 acres of GHMA, and 104,000 acres of OHMA within the Complex. See Maps 5 & 6 for GRSG habitat areas in and around the Complex, per the 2015 & 2019 GRSG ARMPAs (respectively). For the purposes of this document, impacts to GRSG habitat will be evaluated under the 2015 ARMPA and the 2019 GRSG ARMPA. See Appendix J for more information about the 2015 & 2019 GRSG ARMPAs.

Aspen Woodlands

“Aspen produce forage for both wildlife and domestic livestock. Healthy aspen communities consist of developed dense multi-age structure that provides benefits to wildlife dependent upon the diverse nature of these communities” (WAPT 2012). Aspen provide nesting structure, roosting, foraging, and escape cover for the Northern Goshawk*. The flammulated owl*, silver-haired bat*, and hoary bat* are supported by Aspen woodlands for forage, nesting, and protective cover. Cavities within aspen woodlands provide nesting, roosting, and insect prey base in dying trees to for several bat species such as the fringed myotis*, little brown myotis*, long-eared myotis*, and western small-footed myotis*. Downed wood “creates favorable conditions for Columbia spotted frogs (slow moving water*) as well as stores ground moisture and maintains mesic microsites (northern rubber boa*)” (WAPT 2012).

Intermountain Rivers & Streams

“More than 75% of the species in Nevada are strongly associated with riparian vegetation (U.S. General Accounting Office, 1993), including 80% of the birds (Dobkin, 1998). Almost all of these systems provide surface water for wildlife at some point in the year, and some provide critical year-round water” (WAPT 2012). Montane riparian areas associated with intermountain rivers and streams provide nesting structure, foraging, roosting, protection, and thermal cover for the Northern Goshawk*, Lewis’s woodpecker*, and rufous hummingbird*. Lowland riparian areas support several sensitive species such as Bald Eagle*, burrowing owl*, Preble’s shrew*, and LCT* (see section 3.2.5 for more information).

Springs & Springbrooks

“Springbrooks are the areas of flowing water linked to the spring source. Springs are generally divided into three main categories: cold springs (springs near or below mean annual air temperature), warm or thermal springs (springs 5 to 10°C (40 to 50°F) above mean annual air temperature), and hot springs (springs more than 10°C (50°F) above mean annual air

temperature)” (WAPT 2012). “Springs provide a vital water source between infrequent surface waters, providing water availability and food resources for a wide range of Nevada’s wildlife, from bighorn sheep, elk, and deer; to birds and bats” (WAPT 2012). Cold springs provide habitat for Columbia spotted frog*, Northern leopard frog*, and western toad* within the Complex. Thermal warm and hot springs support endemic species such as the desert dace* (see Section 3.2.5 for more information) and several rare springsnail species* (*Pyrgalopsis*).

Environmental Affects

Alternatives 1-3

Impacts Common to Action Alternatives affecting sensitive wildlife species behavior may be disrupted due to noise from the low-flying helicopter and running wild horses during gather activities. There is the possibility of damage to SSS and their habitat due to trampling by WHB. These impacts are expected to be minimal, temporary, and short-term in nature. There is a possibility that SSS plants and less mobile animals would be trampled. Small areas of SSS habitat may be impacted by trampling at trap sites and holding facilities. This impact would be minimal (generally less than 0.5 acre/trap site), temporary, and short-term (two weeks or less) in nature.

Because of the known effects that overpopulated WHB herds can cause in rangeland ecosystems, overpopulated WHB herds are considered a threat to GRSG habitat quality, particularly in the species’ western range (Beever and Aldridge 2011, USFWS 2013). The presence of WHB is associated with a reduced degree of GRSG lekking behavior (Muñoz et al. 2020). Moreover, increasing densities of WHB, measured as a percentage above AML, are associated with decreasing GRSG population sizes, measured by lek counts (Coates 2020). Where WHB and GRSG co-occur, burros’ year-round use of low-elevation habitats may lead to a high degree of overlap between burros and GRSG (Beever and Aldridge 2011). Sagebrush dependent species such as GRSG would benefit from increased cover and forage availability especially near riparian areas due to their nesting/brood-rearing needs. With the implementation of Required Design Features RDFs (see Appendix J), the potential impacts to lekking GRSG would be avoided. The implementation of RDFs would also prevent accumulation of anthropogenic waste (to prevent attracting predators of GRSG) and minimize disturbance to vegetation and soil by loading & unloading equipment on existing roads/disturbance.

While some WHB grazing may increase native plant diversity through presence of horse feces (which contains seeds, moisture, and nutrients), WHB grazing has also been documented to alter upland vegetation, increase bare ground and soil erosion potential, increase soil compaction and increase susceptibility to invasive plant species (Boyd et al., 2017, Ostermann-Kelm et al., 2009). The reduction in the current WHB populations would provide opportunity for vegetative communities to progress toward achieving a thriving natural ecological balance. The action alternatives would support a more diverse vegetative composition and structure through improvement and maintenance of healthy populations of native perennial plants. The reduction of WHB numbers would allow the habitat to restore to its natural condition and to support the SSS that rely on those vegetation communities.

Decreased WHB levels would reduce conflicts between WHB and wildlife at limited water sources (Hall et al., 2016, Boyd et al., 2017). Reduced use of vegetation would result in

increased plant vigor, production, seedling establishment, and ecological health of important wildlife habitat. SSS that rely on riparian habitat (intermountain rivers/streams and springs) would be expected to directly benefit from an increase in forage availability, vegetation density, structure, and cover.

Impacts from Alternative 4 (No Action)

Although there would be no direct impacts expected under this alternative, there would be continuing or increasing impacts due to overpopulated WHB. Maintaining or increasing the current numbers of excess WHB within the Complex, augmented by yearly population growth, would result in continued impacts to SSS populations and habitats. WHB populations would be expected to increase every year. Competition between SSS and WHB would be expected to continue and the associated decrease in herbaceous vegetation would reduce SSS forage availability and quality. SSS habitat would also continue to be impacted by the physical action of WHB utilization; habitats associated with wetland and riparian areas (including GRSG nesting/brood-rearing habitats) would continue to degrade due to removal of residual stubble height and soil compaction, leading to increased disturbance and levels of bare ground (Hall et al., 2016). Increasing WHB populations would increase use around riparian areas and associated trampling, thereby degrading riparian habitats and the important functions these sites for SSS.

3.3.7 Vegetation

Vegetation varies from salt desert shrub communities at lower elevations to big sagebrush/bunch grass communities at higher elevations. Typical species at lower elevations include shadscale, bud sage, winter fat, black greasewood, squirreltail, and Sandberg's bluegrass. Species typical in higher elevations include low sage, Lahontan sagebrush, Wyoming big sagebrush, mountain big sagebrush, bitterbrush, rabbit brush, Utah juniper, needle grass, blue bunch wheatgrass, basin wildrye, squirreltail, Indian paintbrush, and phlox.

Ecological Site Inventories were conducted for Leadville in 1987, Soldier Meadows in 1991, Paiute Meadows in 1992, and Buffalo Hills in 1993, Alder Creek in (1994) and remain largely representative of current vegetative conditions. Sites with high levels of invasive species, lower elevation sites with past fires, and areas in the vicinity of water sources were rated in lower conditions. Wetland and riparian sites, particularly those associated with small spring meadow areas were also typically rated in lower conditions. Riparian stream communities dominated by woody vegetation, primarily willows, rose and aspens, typically have better vegetation conditions than those dominated by herbaceous vegetation. See 3.2.6.

Once wild horse/burro populations are returned to AML and remain at AML long enough to collect monitoring data reflective of populations at AML, it will be possible to determine if wild horses are still causing impacts that lead to non-attainment of standards for the next Rangeland Health Assessments or, alternatively, whether any upward adjustments to the AML can be made.

Environmental Affects

Alternative 1-3

The action alternatives will reduce the WHB populations to within the established AML resulting in decreased pressure on key forage species within the uplands and riparian areas. This will reduce negative impacts to the vegetation resource while allowing for native species recovery, resulting in a lesser likelihood of invasive species and improve riparian systems

functionality within the Calico Complex.

Alternative 4

The no action alternative would result in over utilization of vegetation within the uplands and riparian areas, increasing over the levels already observed within the Calico Complex. This would lead to a higher likelihood of invasive species, reduced functionality of riparian systems, and negative changes to vegetative communities.

3.3.8 Wild Horses and Burros

Wild horses and burros are the descendants of domesticated horses that were introduced to North America. Wild horse and burro populations grow at 15-20 percent a year, and predation does not typically prevent populations from growing; maintaining a herd within an AML requires removing animals in roundups, also known as gathers, and may require management actions that limit population growth rates (NAS 2013). Wild horse herds compete with native wildlife for forage and water resources. Since 2010, population inventory flights have been conducted in the Calico Complex every two to three years. These population inventory flights have provided information pertaining to population numbers, foaling rates, distribution, and herd health. A population inventory was conducted in June 2019 on the Calico Complex using the simultaneous double-observer method (Griffin et al. 2020). The current estimated wild horse population of 1,692 wild horses is based on estimates from that survey, and projected herd growth since that time, and is now (January 2021) approximately 3.1 times greater than the low range of AML. BLM has conducted numerous removals of excess wild horses that are causing public safety concerns along highways and private property issues. However as the wild horse population continues to exceed AML by ever larger numbers, groups of horses would continue to leave the complex in search of forage and water resources, with the potential of causing safety concerns and private land issues.

Monitoring data shows that wild horses are having negative impacts on rangeland health conditions. Wild horses have been documented as a contributing factor to riparian area degradation, with some areas at risk of downward trends or becoming non-functional. Please reference Appendix L for monitoring data.

Diet/dietary Overlap with Other Species

Numerous studies identify dietary overlap of preferred forage species and habitat preference between horses, cattle, and wildlife species in the Great Basin ecosystems for all season (Ganskopp 1983; Ganskopp et al. 1986, 1987; McInnis 1984; McInnis 1987; Smith et al 1982; Vavra and Sneva 1987). A strong potential exists for exploitative competition between horses and cattle under conditions of limited forage (water and space) availability (McInnis et al. 1987).

Although horses and cattle are often compared as grazers, horses can be more destructive to the range than cattle due to their differing digestive systems and grazing habits. The dietary overlap between wild horses and cattle is much higher than with wildlife, and averages between 60 and 80% (Hubbard and Hansen 1976, Hansen et al. 1977, Hanley 1982, Krysl et al. 1984, McInnis and Vavra 1987). Horses are cecal digesters while most other ungulates including cattle, pronghorn, and others are ruminants (Hanley and Hanley 1982, Beever 2003). Cecal digesters do not ruminate, or have to regurgitate and repeat the cycle of chewing until edible particles of plant

fiber are small enough for their digestive system. Ruminants, especially cattle, must graze selectively, searching out digestible tissue (Olsen and Hansen 1977). Horses, however, are one of the least selective grazers in the West because they can consume high fiber foods and digest larger food fragments (Hanley and Hanley 1982, Beever 2003).

Wild horses can exploit the high cellulose of graminoids, or grasses, which have been observed to make up over 88% of their diet (McInnis and Vavra 1987, Hanley 1982) but shrubs – including sagebrush – can represent a large part of a horse's diet, at least in summer in the Great Basin (Nordquist 2011). However, this lower quality diet requires that horses consume 20-65% more forage than a cow of equal body mass (Hanley 1982, Menard et al. 2002). With more flexible lips and upper front incisors, both features that cattle do not have, wild horses trim vegetation more closely to the ground (Symanski 1994, Menard et al. 2002, Beever 2003). As a result, areas grazed by horses may retain fewer plant species and may be subject to higher utilization levels than areas grazed by cattle or other ungulates. Horses can compete with managed livestock in forage selected (Scasta et al. 2016). For the majority of wild horse herds, there is little overall evidence that population growth is significantly affected by predation. As a result of the potential for wild horse populations to grow rapidly, impacts from wild horses on water, soil, vegetation, and native wildlife resources (Davies and Boyd 2019) can increase exponentially unless there is active management to limit their population sizes.

The USFWS (2008), Beever and Aldridge (2011), Chambers et al (2017) and Crist et al. (2019) summarize much of the literature that quantifies direct ecosystem effects of wild horse presence. Beever and Aldridge (2011) present a conceptual model that illustrates the effects of wild horses on sagebrush ecosystems. In the Great Basin, areas without wild horses had greater shrub cover, plant cover, species richness, native plant cover, and overall plant biomass, and less cover percentage of grazing-tolerant, unpalatable, and invasive plant species, including cheatgrass, compared to areas with horses. Grazing by wild horses can have severe impacts on water source quality, aquatic ecosystems and riparian communities as well (Beever and Brussard 2000; Barnett 2002; Nordquist 2011; USFWS 2008; Earnst et al. 2012; USFWS 2012, Kaweck et al. 2018), sometimes excluding native ungulates from water sources (Ostermann-Kelm et al. 2008; USFWS 2008; Perry et al. 2015; Hall et al. 2016; Gooch et al. 2017; Hall et al. 2018). Impacts to riparian vegetation per individual wild horse can exceed impacts per individual domestic cow (Kaweck et al. 2018). A potential benefit of a horse's digestive system may come from seeds passing through system without being digested but the benefit is likely minimal. Wild horses can spread nonnative plant species, including cheatgrass, and may limit the effectiveness of habitat restoration projects. Horses require access to large amounts of water; an individual can drink an average of 7.4 gallons of water per day (Groenendyk et al. 1988). Despite a general preference for habitats near water (e.g., Crane et al. 1997), wild horses will routinely commute long distances (e.g., 10+ miles per day) between water sources and palatable vegetation (Hampson et al. 2010). Wild burros can also substantially affect riparian habitats (e.g., Tiller 1997), native wildlife (e.g., Seegmiller and Ohmart 1981), and have grazing and trampling impacts that are similar to wild horses (Carothers et al. 1976; Hanley and Brady 1977; Douglas and Hurst 1983). Competition from a large dominant species may drive niche partitioning of other species (Carothers and Jaksi, 1984; Ziv et al., 1993; Schuette et al., 2013). During periods of increased temperature and decreased precipitation, horses monopolized access to water sources, leaving limited time for other species; this raises concerns about resource availability for native wildlife

in water-limited environments (Hall et al. 2016)

Population modeling was completed for the Calico Complex using Version 3.2 of the WinEquus population (Jenkins 1996) to analyze how the alternatives would affect the wild horse population. This modeling analyzed removal of excess wild horses within no fertility control, as compared to removal of excess wild horses with fertility control for released horses. The No Action (no removal) Alternative was also modeled. One objective of the modeling was to identify whether any of the alternatives “crash” the population or cause extremely low population numbers or growth rates. Minimum population levels and growth rates were found to be within or above levels that would be grounds for concern and adverse impacts to the population are not likely under any of Alternatives 1-4. Graphic and tabular results are also displayed in detail in Appendix G.

Impacts common to Action Alternatives 1-3

Helicopter/Bait and water trap impacts to wild horses and burros

Indirect impacts can occur to horses and burros after the initial stress event (capture) and 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 biting and /or kicking bruises. Horses may potentially strike or kick gates, panels or the working chute while in corrals or trap which may cause injuries. Lowered competition for forage and water resources would reduce stress and fighting for limited resources (water and forage) and promote healthier animals. Indirect individual impacts are those impacts which occur to individual wild horses after the initial stress event, and may include spontaneous abortions in mares. 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 skirmish which occurs among studs following sorting and release into the stud pen, which lasts less than a few minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual animal.

Spontaneous abortion events among pregnant mares following capture is also rare, though poor body condition at time of gather can increase the incidence of spontaneous abortions. Given the two different capture methods proposed, spontaneous abortion is not considered to be an issue for either of the two proposed capture methods, since helicopter/drive trap method would not be utilized during peak foaling season (March 1 thru June 30), unless an emergency exists, and the water/bait trapping method is anticipated to be low stress.

Foals are often gathered that were orphaned on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor, unthrifty condition. Orphans encountered during gathers are cared for promptly and rarely die or have to be euthanized. It is unlikely that orphan foals would be encountered since majority of the foals would be old enough to travel with the group of wild horses. Also depending on the time of year the current foal crop would be six to nine months of age and may have already been weaned by their mothers.

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 and techniques used by the gather contractor or BLM staff would help minimize the risks of heat stress. Heat stress does not occur often, but if it does, death can result. Most temperature related issues during a gather can be mitigated by adjusting daily gather times to avoid the extreme hot or cold periods of the day. The BLM and the contractor would be pro-active in controlling dust in and around the holding facility and the gather corrals to limit the horses' exposure to dust.

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

Since 2006, BLM Nevada has gathered over 40,000 excess animals. Of these, gather related mortality has averaged only 0.5%, which is very low when handling wild animals (GAO 2008, Scasta 2019). Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy. This data affirms that the use of helicopters and motorized vehicles are a safe, humane, effective and practical means for gathering and removing excess wild horses and burros from the range. For animals left on the range after gather activities, transient changes in social relations may result from gathers, but these do not fundamentally change the social structure of wild horses, which tend to live in bands of several mares and their offspring with one or more mature stallions. Hansen and Mosley (2000) concluded that gather activities had no effect on observed wild horse foraging or social behaviors, in terms of time spent resting, feeding, vigilant, traveling, or engaged in agonistic encounters. BLM policy prohibits gathering wild horses with a helicopter (unless under emergency conditions) during the period of March 1 to June 30 which includes and covers the six weeks that precede and follow the peak of foaling period (mid-April to mid-May).

Through the capture and sorting process, wild horses are examined for health, injury and other defects. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy IM 2015-070 is used as a guide to determine if animals meet the criteria and should be euthanized. Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or which prevent them from being able to travel or maintain body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses that have congenital (genetic) or serious physical defects such as club foot, or sway back and should not be returned to the range.

Temporary Holding Facilities During Gathers

Wild horses gathered would be transported from the trap sites to a temporary holding corral within the Calico Complex in goose-neck trailers or straight-deck semi-tractor trailers. At the temporary holding corral, the wild horses would be aged and sorted into different pens based on sex. The horses would be provided ample supply of good quality hay and water. Mares and their un-weaned foals would be kept in pens together. All horses identified for retention in the HMA would be penned separately from those animals identified for removal as excess. All mares identified for release would be treated with fertility control vaccine in accordance with the

Standard Operating Procedures (SOPs) for Fertility Control Implementation in Appendix C.

At the temporary holding facility, a veterinarian, would provide recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA).

Transport, Short Term Holding, and Adoption Preparation

Wild horses removed from the range as excess would be transported to the receiving short-term holding facility in a goose-neck stock trailer or straight-deck semi-tractor trailers. Trucks and trailers used to haul the wild horses would be inspected prior to use to ensure wild horses can be safely transported and that the interior of the vehicle is in a sanitary condition. Wild horses would be segregated by age and sex when possible and loaded into separate compartments. Mares and their un-weaned foals may be shipped together. Transportation of recently captured wild horses is limited to a maximum of 10 hours. 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.

Upon arrival, recently captured wild horses are off-loaded by compartment and placed in holding pens where they are fed good quality hay and water. Most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. At the short-term holding facility, a veterinarian provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild 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) that was not diagnosed previously at the temporary holding corrals at the gather site would be humanely euthanized using methods acceptable to the AVMA. Wild horses in very thin condition or animals with injuries are sorted and placed in hospital pens, fed separately and/or treated for their injuries. Recently captured wild 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.

After recently captured wild horses have transitioned to their new environment, they are prepared for adoption or sale. Preparation involves freeze-marking the animals with a unique identification number, vaccination against common diseases, castration, and de-worming. 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.

Mortality at short-term holding facilities averages approximately 5% (GAO 2008), and includes animals euthanized due to a pre-existing condition, animals in extremely poor condition, animals that are injured and would not recover, animals which are unable to transition to feed; and animals which die accidentally during sorting, handling, or preparation.

Adoption

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

Sale with Limitation

Buyers must fill out an application and be pre-approved before they may buy a wild 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 congressional limitations that are presently in place.

Off-range Pastures

During the past 5 years (FY2015-2019), the BLM has removed approximately 30,000 excess wild horses or burros from the Western States. Most animals not immediately adopted or sold have been transported to Off-Range pastures in the Midwest given current Congressional prohibitions on selling excess animals without limitations, or on euthanizing healthy animals for which no adoption or sale demand exists as required by the WFRHBA.

Potential impacts to wild horses from transport to adoption, sale or Off-range Pastures (ORP) are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or ORP, animals may be transported for a maximum of 24 hours. Immediately prior to transportation, and after every 24 hours of transportation, animals are offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and 2 pounds of good quality hay per 100 pounds of body weight with adequate bunk space to allow all animals to eat at one time. The rest period may be waived in situations where the anticipated travel time exceeds the 24-hour limit but the stress of offloading and reloading is likely to be greater to the animals than the stress involved in the additional period of uninterrupted travel.

Off-range 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 (i.e., the horses are not kept in corrals) and with the forage, water, and shelter necessary to sustain them in good condition. About 36,700 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, South Dakota , Iowa, Missouri, Wyoming, Montana, Nebraska, and Utah. Establishment of an ORP is subject to a separate NEPA and decision-making process. Located primarily in mid or tall grass prairie regions of the United States, these ORPs are highly productive grasslands compared to the more arid western rangelands. These pastures comprise about 400,000 acres (an average of about 10-11 acres per animal). Of the animals currently located in ORP, less than one percent is age 0-4 years, 49 percent are age 5-10 years, and about 51 percent are age 11+ years.

Mares and sterilized stallions (geldings) are segregated into separate pastures. Although the animals are placed in ORP, they remain available for adoption or sale to qualified individuals; and foals born to pregnant 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 wild horses to ascertain their well-being and safety are conducted by BLM personnel and/or veterinarians. A very small percentage of the animals may be humanely euthanized if they are in very poor condition due to age or other factors. 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). Wild horses residing on ORP facilities live longer, on the average, than wild horses residing on public rangelands,

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, while euthanasia and sale without limitation are allowed under the statute, these activities have not been permitted under current Congressional appropriations for over a decade and are consequently inconsistent with BLM policy. If Congress should remove this prohibition, then excess horses removed from the Calico Complex 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.

Wild Horses Remaining or Released into the HMA following Gather

Under the Proposed Action, the post-gather population of wild horses would be about 611 wild horses, which is the low end of the AML range for the Calico Complex. Reducing population size would also ensure that the remaining wild horses are healthy and vigorous, are not at risk of death or suffering from starvation due to insufficient habitat coupled with the effects of frequent drought (lack of forage and water), and that the population does not exceed AML between gathers.

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

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

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

The remaining wild horses not captured would contribute to the resulting social structure and herd demographics (including age and sex ratios, and survival and fertility rates). No observable effects to the remaining population associated with the gather impacts would be expected except a heightened shyness toward human contact.

Impacts to the rangeland as a result of the current overpopulation of wild horses would be reduced under the action alternatives. Fighting among stud horses would be expected to decrease since they would protect their position at water sources less frequently; injuries and death to all age classes of animals would also be expected to be reduced as competition for limited forage and water resources is decreased.

Indirect individual impacts are those impacts which occur to individual wild horses after the initial stress event, and may include spontaneous abortions in mares, and 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 skirmish which occurs among older studs following sorting and release into the stud pen, which lasts less than two minutes and ends when one stud retreats. Traumatic injuries usually do not result from these conflicts. These injuries typically involve a bite and/or kicking with bruises which don't break the skin. Like direct individual impacts, the frequency of occurrence of these impacts among a population varies with the individual animal.

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

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

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

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

During summer gathers, roads and corrals may become dusty, depending upon the soils and specific conditions at the gather area. The BLM ensures that contractors mitigate any potential impacts from dust by slowing speeds on dusty roads and watering down corrals and alleyways.

Despite precautions, it is possible for some animals to develop complications from dust inhalation and contract dust pneumonia. This is rare, and usually affects animals that are already weak or otherwise debilitated due to older age or poor body condition. Summer gathers pose increased risk of heat stress so Contractors use techniques that minimize heat stress, such as conducting gather activities in the early morning, when temperatures are coolest, and stopping well before the hottest period of the day. The helicopter pilot also brings in the horses at an easy pace. If there are extreme heat conditions, gather activities are suspended during that time. Water consumption is monitored, and horses or burros are often lightly sprayed with water as the corrals are being sprayed to reduce dust. The wild horses and burros appear to enjoy the cool spray during summer gathers. Individual animals are also monitored and veterinary or supportive care administered as needed. Electrolytes can be administered to the drinking water during gathers that involve animals in weakened conditions or during summer gathers. Additionally, BLM Wild Horse and Burro staff maintains supplies of electrolyte paste if needed to directly administer to an affected animal. As a result of adherence to SOPs and care taken during summer gathers, potential risks to wild horses associated with summer gathers can be minimized or eliminated.

During winter gathers, wild horses and burros are often located in lower elevations, in less steep terrain due to snow cover in the higher elevations. Subsequently, the animals are closer to the potential gather corrals, and need to maneuver less difficult terrain in many cases. However, snow cover can increase fatigue and stress during winter gathers, therefore the helicopter pilot allows horses to travel slowly at their own pace. The Contractor may plow trails in the snow leading to the gather corrals to make it easier for animals to travel to the gather site and to ensure the wild horses can be safely gathered.

Through the capture and sorting process, wild horses are examined for health, injury and other defects. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy. BLM Euthanasia Policy IM-2015-070 is used as a guide to determine if animals meet the criteria and should be euthanized (refer to SOPs Appendix A). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or which prevent them from being able to travel or maintain body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses that have congenital (genetic) or serious physical defects such as club foot, or sway back and should not be returned to the range.

GPS Radio Collars and Tail Tags

To facilitate the BLM's monitoring of released wild horses, United States Geological Survey (USGS) staff may affix small, lightweight GPS radio transmitters (GPS tail tags) into the tails of wild horses, and / or fit GPS radio collars to wild mares, before such animals are released back to the Calico Complex. This would be a part of BLM's wild horse monitoring. Telemetry-based monitoring would allow the Bureau of Land Management (BLM) to more easily observe the outcome of fertility control treatments, and to learn more about wild horse movement patterns in the Complex. The primary reasons to conduct this non-destructive data collection activity would be, first, to monitor the outcome of fertility control treatments and, second, to learn more about wild horse movements in the area. Having tail tags or radio collars on mares will allow the BLM,

or the USGS as a cooperating agency, to periodically locate the animals with telemetry and check whether they have a foal. The kind of detailed information about wild horse movements in the Complex that GPS telemetry can provide is not currently available. The location data from the telemetry devices is expected to inform the BLM about natural resources that the wild horses use throughout the year.

USGS would affix tags or collars on fewer than 100 horses over the 10-year period, with no more than 50 attached at a time. The tail-mounted GPS units (< 50 g) or GPS radio collars (< 1 kg) would be programmed to collect multiple locations per day. Both the collars and the tail-braid attachments are designed to prevent negative impacts to horse welfare and are expected to detach from the horse within 3 years. The collars have a longer expected duration of use, and would be more informative for fertility control monitoring. The tail tags have a more limited duration of use, but will increase the number of animals providing monitoring results for seasonal movements. Both collars and tail tags are solid-battery powered and will include a very-high frequency (VHF) transmitter to facilitate unit location and recovery. See Appendix K for further details on GPS collar and tag application, and periodic monitoring to ensure ongoing animal safety.

Genetic Diversity

It is not expected that observed heterozygosity would be greatly reduced by the Action Alternatives. The AML range of 572-952 wild horses in the Complex should provide for a relatively high genetic effective population size and correspondingly low rate of loss of observed heterozygosity (well below 1% per generation, which is a suggested level in BLM 2010). Wild horse baseline genetic sampling occurred in the Calico HMA (Cothran 2012a), Granite Range HMA (Cothran 2012b), Warm Springs Canyon HMA (Cothran 2012c), and Black Rock HMA when it was Black Rock East HMA (Cohran 2012d) and Black Rock West HMA (Cothran 2012e). In those 2011 samples, observed heterozygosity was above the mean for feral herds at Calico HMA and Granite Range HMA, and only slightly below the mean at Warm Springs Canyon HMA and Black Rock Range East; those values were not cause for concern at the time. The 2011 samples from Black Rock Range West were lower, and Cothran (2012e) recommended augmenting that herd with periodic introductions of new animals from other HMAs. However, in terms of genetic similarity the animals sampled from Black Rock Range West clustered with samples from Black Rock Range East, and Warm Springs Canyon HMAs (Cothran 2012d). This genetic similarity of animals within the Calico complex can be taken as indication that there is movement and genetic exchange between these HMAs, and within the current boundaries of the Black Rock Range HMA. If ongoing genetic monitoring revealed an unacceptably low level of observed heterozygosity, fertile animals from other HMAs could be introduced from other similar herds, in keeping with guidelines from the BLM WHB herd management handbook 4700 (BLM 2010). Even if $\frac{1}{4}$ of mares were sterile, and another fraction were temporarily infertile, the high starting heterozygosity levels in the herd and the relatively high herd size lead to the expectation that the rate of loss of heterozygosity over time should not be of concern (Roelle and Oyler-McCance 2015).

Because of history, context, and periodic introductions, wild horses that live in the Calico Complex should not be considered as truly isolated populations (NAS 2013). 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. These animals are part of a larger metapopulation (NAS 2013) that has demographic and genetic connections with other BLM-managed herds in Nevada, Oregon, California, and beyond. Wild horse herds in the larger metapopulation have a background of diverse domestic breed heritage, probably caused by natural and intentional movements of animals between herds. Under the proposed action, hair samples would be collected during gathers, from at least 25 animals, to assess the genetic diversity in each HMA. Analysis would determine whether management is maintaining acceptable genetic diversity (and avoiding excessive risk of inbreeding depression). Under all action alternatives, wild horse introductions from other HMAs could be used if needed, to augment observed heterozygosity, which is a measure of genetic diversity, the result of which would be to reduce the risk of inbreeding-related health effects. Introducing a small number of fertile animals every generation (about every 8-10 years) is a standard management technique that can alleviate potential inbreeding concerns (BLM 2010).

Other evidence also shows that the herds in the Calico Complex are not genetically unusual, with respect to other wild horse herds. Specifically, the 2013 NAS report is a table showing the estimated 'fixation index' (F_{st}) values between 183 pairs of samples from wild horse herds. F_{st} is a measure of genetic differentiation. Low values of F_{st} indicate that a given pair of sampled herds has a shared genetic background. The lower the F_{st} value, the more genetically similar are the two sampled herds. Values of F_{st} under approximately 0.05 indicate virtually no differentiation. Values of 0.10 indicate very little differentiation. Only if values are above about 0.15 are any two sampled subpopulations considered to have evidence of elevated differentiation (Frankham et al 2010). F_{st} values for the 2011 horse samples from each of Calico HMA, Granite Range HMA, Warm Springs Canyon HMA, Black Rock Range East and Black Rock Range West (now combined into one Black Rock Range HMA) had pairwise F_{st} values that were less than 0.075 with 80 or more other sample sets (117 for Calico HMA, 138 for Granite Range HMA, 127 for Warm Springs Canyon HMA, 167 for Black Rock Range East and 82 for Black Rock Range West). These results suggest that herds surrounding the Calico complex were extremely similar to a third or more of other BLM-managed herds, supporting the interpretation that Calico Complex horses are components in a highly connected metapopulation that includes horse herds in many other HMAs.

Burros have not yet been sampled to quantify baseline genetic diversity in the Complex, but the action alternatives would allow for that. The BLM will be able to use information from baseline genetic monitoring analysis to inform ongoing management. With a relatively small herd size at the AML of 39-65 burros, and a somewhat isolated location relative to other wild burro herds, it is quite likely that this herd will require periodic introduction of animals from other herds. However, application of temporary fertility control vaccines is not expected to substantially increase the rate of heterozygosity loss, because it is unlikely that all jennies in the herd will be treated, or that the vaccine treatments will lead to lifelong fertility suppression in treated animals.

Fertility Control

BLM has identified fertility control as a method that could be used to protect rangeland ecosystem health and to reduce the frequency of wild horse and burro gathers and removals. Expanding the use of population growth suppression to slow population growth rates and reduce

the number of animals removed from the range and sent to ORP is a BLM priority. The WFRHBA specifically provides for contraception (section 3.b.1). No finding of excess animals is required for BLM to pursue contraception in wild horses or wild burros. Please refer to appendix C for further detailed analysis on fertility control in wild horse and burro management, and the effects of various methods.

Environmental Effects

Alternative 1 (Proposed Action)

The Proposed Action would remove excess wild horses within the Calico Complex and outside the Calico Complex boundary. Under this alternative, excess wild horses would be removed to the lower range of the AML. All wild horses residing outside the complex would be removed. Fertility control vaccines and / or IUDs would be applied to all breeding age mares that are captured and released after low AML is achieved, except that up to approximately ¼ of the population on the range at low AML for horses (i.e., about 143) may be sterilized through non-surgical means. Sex ratio manipulation would be used with wild horses so that, by turning back more males than females, the overall horse sex ratio would be no more than 60% male. Female burros (jennies) returned to the range would be treated with fertility control vaccines.

Successful implementation of this alternative requires a 90-95% gather efficiency in order to have enough animals in the initial gather available for release post-gather. Historically, gather efficiencies have averaged about 80% on this complex; at this level of efficiency, all the wild horses gathered would need to be removed in order to restore population size to within the established AML. If gather efficiencies do not allow for the attainment of the chosen action the BRFO would return in two to three years from the initial gather to remove excess wild horses and apply fertility control treatments. This would allow the BRFO to achieve the desired goal of reaching the low range of AML as well as to gather a sufficient number of remaining horses to implement fertility control treatments to control population growth.

When gather efficiencies have been able to achieve horse numbers within the range of AML maintenance gathers to reapply fertility control and to remove adoptable wild horses would be conducted during the 10 years following the date of the initial gather. Mares selected for release would be treated with fertility control vaccines and/ or IUDs (except that up to ¼ of mares at low AML may be non-surgically sterilized) and released back to the range. Vaccinations and IUDs would be applied in keeping with standard operating procedures (SOPs, Appendix C). Consideration of which animals are selected for release would reflect the objective of adjusting the overall horse sex ratio with 60% males 40% females. Mares and studs would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

Decreased competition for forage following removal of excess animals, coupled with reduced reproduction as a result of fertility control, should result in improved health and condition of mares and foals that remain on the range, and would 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.

The removal of excess horses, and maintenance of the herd at AML it would reduce damage to

the range from the current overpopulation of wild horses and allow vegetation resources time to recover over the next 4-5 years. As a result, there would be fewer disturbances to individual animals and the herd, and a more stable wild horse social structure would be provided. Removal of excess wild horses would also improve herd health. Lower competition for forage and water resources would reduce stress and promote healthier animals.

All fertility control methods affect the behavior and physiology of treated animals (NAS 2013), and 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). Because applying fertility control vaccines or IUDs, or sterilizing animals, requires capturing and handling, the risks and costs associated with capture and handling of horses may be comparable to those of gathering for removal, but with expectedly lower adoption and long-term holding costs in the long term. Although fertility control vaccines can be applied remotely (via darting); that method was not considered to be a reliable enough method of delivery in the Complex (see ‘Alternatives Considered but Eliminated’).

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

Fertility Control Vaccines

Immunocontraceptive Porcine Zona Pellucida (PZP) vaccines are currently being used on over 75 areas managed for wild horses by the National Park Service, US Forest Service, and the Bureau of Land Management and its use is appropriate for free-ranging wild horse herds. A full review of PZP vaccines and their effects is in Appendix D. Taking into consideration available literature on the subject, the National Academies of Sciences concluded in their 2013 report that PZP vaccine was one of the preferred available methods for contraception in wild horses and burros (NAS 2013). PZP vaccine use can reduce or eliminate the need for gathers and removals (Turner et al. 1997). PZP vaccines meet most of the criteria that the NAS (2013) used to identify promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. It has been used extensively in wild horses (NAS 2013), and in a population of feral burros in territory of the US (Turner et al. 1996). PZP vaccine can be relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is commercially produced as ZonaStat-H, an EPA-registered product (EPA 2012, SCC 2015), as PZP-22, which is a formulation of PZP in polymer pellets that can lead to a longer immune response (Turner et al. 2002, Rutberg et al. 2017, Carey et al. 2019), and as Spay-Vac (Roelle et al. 2017). ZonaStat-H can easily be remotely administered (dart-delivered) in the field, but only where mares are relatively approachable.

Under the Proposed Action, mares being treated with PZP vaccine 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. 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 refine estimates of the required frequency of re-treating mares with PZP or other fertility control methods.

The immune-contraceptive GonaCon-Equine vaccine meets most of the criteria that the National Research Council of the National Academy of Sciences (NAS 2013) used to identify the most promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. A full review of GonaCon and other GnRH vaccines and their effects is in Appendix D. GonaCon-Equine is approved for use by authorized federal, state, tribal, public and private personnel, for application to wild and feral equids in the United States (EPA 2013, 2015). Its use is appropriate for free-ranging wild horse herds. Taking into consideration available literature on the subject, the National Research Council concluded in their 2013 report that GonaCon-B (which is produced under the trade name GonaCon-Equine for use in feral horses and burros) was one of the most preferable available methods for contraception in wild horses and burros (NAS 2013). GonaCon-Equine has been used on feral horses in Theodore Roosevelt National Park (Baker et al. 2018) and on a small number of wild horses in the Water Canyon area within the Antelope Complex (DOI-BLM-NV-L020-2015-0014-EA). GonaCon-Equine can be remotely administered in the field in cases where mares are relatively approachable, using a customized pneumatic dart (McCann et al. 2017). Use of remotely delivered (dart-delivered) vaccine is generally limited to populations where individual animals can be accurately identified and repeatedly approached within 50 meters or less (BLM 2010).

As with other contraceptives applied to wild horses, the long-term goal of GonaCon-Equine use is to reduce or eliminate the need for gathers and removals (NAS 2013). GonaCon-Equine vaccine is an EPA-approved pesticide (EPA, 2009a) that is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced in a USDA-APHIS laboratory. Its categorization as a pesticide is consistent with regulatory framework for controlling overpopulated vertebrate animals, and in no way is meant to convey that the vaccine is lethal; the intended effect of the vaccine is as a contraceptive. GonaCon is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine product (Miller et al. 2013). If stored at 4° C, the shelf life is 6 months (Miller et al 2013). Miller et al. (2013) reviewed GonaCon environmental safety and toxicity. When advisories on the product label (EPA 2015) are followed, the product is safe for users and the environment (EPA 2009b). EPA waived a number of tests prior to registering the vaccine, because GonaCon was deemed to pose low risks to the environment, so long as the product label is followed (Wang-Cahill et al. in press).

Under the Proposed Action, the BLM would return to the Complex for additional gathers, as

needed, to re-apply GonaCon-Equine and initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Booster dose effects may lead to increased effectiveness of contraception, which is generally the intent. GonaCon-Equine can safely be reapplied as necessary to control the population growth rate. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, mares would eventually return to fertility at some point, although the average duration of effect after booster doses has not yet been quantified. It is unknown what would be the expected rate for the return to fertility rate in mares boosted more than once with GonaCon-Equine. Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM 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.

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 prior to insertion of an IUD. Up through the present time (October 2020), BLM has not used IUDs to control fertility as a wild horse and burro fertility control method on the range. 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. unpublished data). 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 (see Appendix D).

Soft 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., unpublished results). 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 are consistent with results from an earlier study (Daels and Hughes 1995), which used O-shaped silicone IUDs.

Non-surgical Mare Sterilization Procedures

Population growth suppression becomes less expensive if fertility control is long-lasting (Hobbs et al. 2000), such as with spaying and neutering. For the purposes of this EA, ‘non-surgical sterilization’ is defined to be the non-surgical sterilization of a female horse (mare) by physical means. The physical means considered here include forms of oviduct blockage; for the purposes of this analysis, these are considered non-surgical insofar as no incisions are required. Unlike in dog and cat spaying, these non-surgical forms of mare sterilization do not entail removal of the ovaries or uterus. Only healthy mares in BCS score of 3 or greater would be considered.

The specific non-surgical sterilization procedures could include any form of procedure that leads a mare to be unable to become pregnant, or to maintain a pregnancy, but that does not entail

incision. The two transcervical procedures analyzed below are physical, non-surgical sterilization methods that cause long-term blockage of the oviduct, so that fertile eggs cannot go from the ovaries to the uterus. A detailed analysis of those methods and their expected effects is included in Appendix D.

When wild horses are gathered, the majority are pregnant, but a fraction is not. Treated mares would need to be screened to ensure they are not pregnant, because 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 the non-surgical sterilization procedure.

One form of non-surgical oviduct blockage procedure, "endoscopic oviduct ablation," infuses medical-grade N-butyl cyanoacrylate glue into the oviduct (Bigolin et al. 2009). In the procedure, the veterinarian passes an endoscope through the cervix, to visualize the interior of the uterus. Treated mares would stand in a padded, hydraulic chute. Banamine may be administered intravenously prior to the procedure to minimize transient colic (abdominal cramping) following the procedure. Ketamine may be added on an as needed basis for additional standing chemical restraint. Fecal material is removed from the rectum, the tail is wrapped and suspended, the perineal and vaginal areas are cleansed. A sterilized, flexible endoscope would be placed into the vaginal vault and advanced through the cervix in an atraumatic manner. A veterinary team is required to manipulate and operate the endoscope monitor, insert and hold the endoscope, manipulate and position the fine-tipped catheter into the oviduct, and infuse the fluid into the oviduct. The uterus would be partially inflated with filtered room air to visualize the oviduct papilla located at the proximal end of the uterine horn. A sterile catheter is guided to each uterotubal junction (which is the entrance to the oviduct), and surgical-grade glue (N-butyl cyanoacrylate) is introduced to the oviduct, where it causes blockage. After the procedure, the uterus could be infused with an antibiotic and saline to minimize the potential for infection secondary to any unintended bacterial contamination. The mares are monitored initially for 10 minutes, and observed by a veterinarian twice per day for 10-14 days, but no further pain management is expected to be needed. Any mare showing signs of postoperative complications would receive treatment as indicated by a veterinarian. The total duration of the procedure per mare is expected to be less than 30 minutes. A pilot project used this approach in six domestic mares and has shown that after three years of breeding by a fertile stallion, all six mares remained infertile (Dr. I. Liu, UC Davis Emeritus Professor, personal communication to BLM). After receiving support from the California legislature (AWHC 2019), the method has been successfully used on more equines in 2020 at UC Davis.

Another form of non-surgical oviduct blockage procedure, "endoscopic laser ablation of the oviduct papilla," is similar to the procedure described above, except that the oviducts are blocked via heating from a laser to ablate the oviduct papilla. The diode laser is expected to immediately "seal" the oviduct opening and the resulting inflammatory reaction is expected to result in additional scar tissue formation, forming a barrier to the passage of eggs from the ovary to the uterus. Local anesthesia could be dripped directly onto each oviduct papilla to minimize any discomfort. This

method has been used successfully in Georgia (unpublished results).

Neither of these non-surgical procedures damages the ovaries. The mare would be sterile, although she would continue to have estrus cycles. Because of the retention of estrus cycles, it is expected that behavioral outcomes would be similar to those observed for PZP vaccine treated mares. Namely, mares would continue with breeding behaviors during the typical breeding season.

If the non-surgical sterilization techniques are either of the two noted above, then mares chosen for the non-surgical sterilization procedure could include adult females and immature females estimated to be older than 8 months. Immature females could be included because there are no concerns regarding space for instruments, as an endoscope and associated instruments delivered through the endoscope are the only tools used, and only open females would receive the procedure.

Sex Ratio Adjustment

Sex ratio adjustment, leading to a reduced fraction 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. As new foals are born into the herd, the ratio tends to become closer to a 50-50 ratio. In the absence of other fertility control treatments, a 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. A more complete analysis of sex ratio adjustment is in Appendix D.

Alternative 2

Alternative 2 is similar to Alternative 1, except that no mares returned to the range would have a non-surgical sterilization procedure or receive IUDs. Up to approximately $\frac{1}{4}$ of all horses on the range at low AML (i.e., about 143) may be geldings, and the wild horse herd could have up to 60% males overall at times. Because the fertility control vaccines used are potentially reversible, all of the horses on the range would be potentially fertile, after vaccine effects wear off. Even while vaccines are effective, it is not expected that the BLM would be able to capture and treat all the mares in the herd, such that it is expected that a large fraction (i.e., $\frac{1}{2}$ or more, depending on gather efficiencies) of the mares and jennies at any given time would be fertile. Up to $\frac{1}{4}$ of the males at low AML (i.e., about 143) could be geldings. This 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 do appear to prevent fertile stallions from breeding with females, at least for some number of years after gelding (USGS, unpublished data). Fertile studs would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).

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 horse population would be managed as geldings (castrated males). The procedures to be followed for gelding of stallions are detailed in the

Gelding Standard Operating Procedures (SOPs) in Appendix I. Chemical vasectomy was identified as a promising method in the 2013 NAS report, but chemical vasectomy has since been identified as an unsuccessful method in horses (Scully 2015); the method is, therefore, not being considered for use under these alternatives. Gelded animals would be monitored periodically after release. This monitoring would be completed either through aerial reconnaissance, if available, or through ground-based observations from major roads and trails. It is not anticipated that all the geldings would be observed but monitoring may detect complications if they are occurring, and confirm that horses are freely moving about the HMA. Once released, preliminary results from Conger HMA indicate that geldings would continue to move and behave like fertile stallions, at least for the initial year or two after treatment (USGS, unpublished data). Periodic but informal observations of geldings 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.

Alternative 3

Under this alternative no population growth suppression methods would be utilized for animals remaining on the range. A gate cut removal would be implemented rather than a selective removal and implementing fertility control measures. The post-gather sex ratio would be about 50:50 mares to studs, or would slightly favor males. This would be expected to result in fewer and smaller bachelor bands, increased female reproduction on a proportional basis within the herd, larger band sizes, and individual mares would likely begin actively producing at a slightly older age.

Alternative 4

Under the No Action Alternative, there would be no active management to control the population size within the established AML at this time. In the absence of a gather, wild horse and burro population would continue to grow at an average rate of approximately 20% per year. Without a gather and removal now, the wild horse and burro population grow to approximately 2,500 in four years time based on the average annual growth rate. Wild burro populations would grow to approximately 100 in four years time based on the average annual growth rate, approximately 15%.

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

maintain a thriving natural ecological balance and multiple-use relationship in that area.”

3.3.9 Wilderness Study Areas

The designation of the Lahontan Cutthroat Trout Natural Area resulted in the area receiving Instant Study Area (ISA) status, which affords the same management as a Wilderness Study Areas (WSA). Section 603 (c) of FLPMA directs how the BLM is to manage “lands under wilderness review,” which includes WSAs. These lands are to be managed in a manner so as not to impair the suitability of such areas for preservation as wilderness. Consequently, actions proposed within WSAs are to be evaluated on the basis of their possible direct and indirect impacts on the untrammeled character of the area and wilderness values of naturalness, solitude and primitive or unconfined recreation, and special features

Within the proposed project area there are three areas which are identified in the WDRMP to contain Wilderness characteristic: Warm Springs, Granite Peak, and Buckhorn Peak. The WDRMP states that “individual projects proposed within areas identified as possessing wilderness characteristics will be evaluated during the NEPA process for impacts to wilderness characteristics. Mitigation measures to protect wilderness characters will be applied as appropriate.” There are a few areas within the project site which have not undergone LWC inventory analysis, and if these areas contain LWC is unknown at this time.

Environmental Effects

Impacts Common to Action Alternatives 1-3

Impacts to these areas wilderness characteristics will be consistent with the impacts to wilderness character (see Section 3.2.8). The sight and noise of helicopters would be noticeable throughout the WSA during gather activities and would temporarily reduce opportunities for solitude. Dates of gather activities would determine the amount of impact to visitors as use levels range from extremely low in winter, low to moderate in the summer, and peak in the fall during hunting seasons with season opening weekends having the highest visitation of the year. Over the long-term, the gather would indirectly decrease trampling, trailing, hedging, and forage utilization of native grasses thereby maintaining vegetative cover and natural conditions. The action alternatives include mitigation measures to avoid impairing the wilderness characteristics of the areas including: setting up trap sites outside of the boundary on pre disturbed ground and not utilizing motorized vehicles or landing aircraft within WSA boundaries. The action alternatives are not anticipated to impair the suitability of the WSA or LWC areas for preservation of wilderness, should Congress decide to act on the areas in the future.

Alternative 4 No Action:

The impacts to WSAs or wilderness characteristics from the No Action Alternative are expected to be consistent with the impacts to wilderness character (see Section 3.2.8). Under this alternative, no WHB would be gathered and impacts from overpopulation of WHB would continue. These include removal of natural vegetation, damage to water sources, and increased erosion. These impacts represent continued reduction of the quality of the natural conditions, scenic qualities, and conservation aspects of wilderness study areas. Because this alternative would defer the gather until a later date, the long-term impacts to the WSA’s natural characteristic would continue to occur.

3.3.10 Wildlife

Terrestrial wildlife resources in the Complex are typical of the Northern Great Basin and the variety of habitat types within the Complex include Intermountain Cold Desert Scrub, Sagebrush, Aspen Woodlands, Intermountain Rivers & Streams, and Springs & Springbrooks (see Special Status Species Section 3.3.6). Common wildlife species within the Complex include coyote, black-tail jackrabbit, desert cottontail, bobcat, and numerous raptors, reptiles, and other small mammal species (See Appendix H for list of known or potential species that may occur within the Complex). Mule deer and pronghorn antelope are common big game species in the area.

Mule Deer

The Complex contains approximately 501,000 acres of mule deer habitat. Deer are generally classified as browsers, with shrubs and forbs making up the bulk of their annual diet. The diet of mule deer is quite varied; however, the importance of various classes of forage plants varies by season. In winter, especially when grasses and forbs are covered with snow, their entire diet may consist of shrubby species. WHBs have little dietary overlap with mule deer. WHBs almost exclusively graze while mule deer mostly browse; however, forage competition can occur when desirable grass forage for WHB becomes limited due to degraded range conditions, drought, or overuse and they must subsist on a diet of forbs and shrubs. Competition between WHB and mule deer exists primarily at water sources.

Pronghorn Antelope

The Complex contains approximately 613,000 acres of pronghorn antelope habitat. Approximately 114,000 acres is considered crucial winter range, where antelope concentrate on winters with heavy snow accumulations. Pronghorn use open country with few trees and short shrubs. Wet meadows associated with spring meadows provide succulent green forage during hot dry summer months. These are the habitats that WHB also prefer. Antelope diets consist of forbs and grasses during the spring and early summer and shrub browse the remainder of the year. Heavy WHB utilization of spring meadows removes succulent forage antelope depend on during the hot summer months as well as causing degradation of these important habitats.

Environmental Effects

Impacts Common to Action Alternatives 1-3:

In addition to direct impacts previously analyzed for Migratory Bird (Section 3.2.3), T&E (Section 3.2.5), and SSS (Section 3.3.6), direct impacts would consist primarily of disturbance and displacement to wildlife by the low-flying helicopter and construction of temporary trap/holding facilities. Typically, the natural survival instinct of wildlife to this type of disturbance is to flee from the perceived danger. These impacts would be minimal, temporary, and of short duration. There is a slight possibility that non-mobile or site-specific animals would be trampled.

Indirect impacts would be related to WHB densities. Managing WHB population with AML range would decrease competition for available cover, space, forage, and water between WHB and other wildlife. Reduced harvest of vegetation would result in increased plant vigor, production, seedling establishment, and ecological health of important wildlife habitat. Resident populations of mule deer and pronghorn antelope would benefit from an increase in forage

availability, vegetation density and structure.

Alternative 4 No Action:

No direct impacts are expected under this alternative. Maintaining the current excess WHB numbers within the Complex, augmented by yearly population growth, would result in continued impacts to wildlife populations and habitats. WHB populations are expected to increase every year gather activities are postponed. Upland habitats would continue to see WHB utilization and the associated decrease in herbaceous vegetation would reduce wildlife forage availability and quality. Wildlife habitat would also continue to be impacted by the physical action of horse movement. Continued heavy grazing or trampling would occur on spring meadow systems. The result would be to decrease water availability, leading to increased competition for this critical resource. Habitats associated with wetland and riparian areas would remain degraded due to removal of residual stubble height and compaction, leading to increased disturbance and levels of bare ground, thereby degrading riparian habitats and the important functions these sites represent for many wildlife species.

Chapter 4 Cumulative Impacts

The NEPA regulations define cumulative impacts as 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 (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Cumulative Assessment Area (CAA) for the purpose of this analysis is the Calico Complex. However, because some degree of wild horse movement is recognized between the Calico Complex and HMAs administered by the Surprise Field Office, the CAA is expanded to include five California administered HMAs for the analysis of cumulative impacts to wild horses. Refer to Map 4.

4.1 Past and Present Actions

Wild/Feral Horses

The Sonoma-Gerlach and Paradise-Denio Resource Area MFPs (Winnemucca District) designated the six HMAs within the Complex for the long-term management of wild horses. The HMAs established in 1982 for this Complex are nearly identical in size and shape to the original Herd Areas representing where wild horses were located in 1971. Currently, management of HMAs within the Complex and wild horse population is guided by the July 1982 *Sonoma-Gerlach and Paradise-Denio Resource Area MFPs* and RODs, the July 2004 ROD for the *Black Rock Desert High Rock Canyon Emigrant Trails NCA Resource Management Plan* and associated Final Multiple Use Decisions as identified in Table 1 (Section 1.1). The AML range for the Complex is 572-952 wild horses.

The 1979 Tuledad/Homecamp and 1981 Cowhead/Massacre MFPs (Northern California District) designated three California administered HMAs (Fox-Hog, High Rock, and Wall Canyon), which are adjacent to the Nevada's Calico Complex, for the long-term management of wild

horses. The HMAs as established are nearly identical in size and shape to the original Herd Areas representing where wild horses were located in 1971. The High Rock HMA and portions of the Fox Hog and Wall Canyon HMAs are in the Black Rock Desert High Rock Canyon Emigrant Trails NCA, and are contiguous to Warm Springs Canyon, Calico Mountains, and Granite Range (not in the NCA) HMAs. The AML range for the Surprise Field Office managed HMAs is 268-465 wild horses. Refer to Section 3.3.8 above.

Management of California HMAs within the CAA and wild horse population is guided by the 1979 *Tuledad/Homecamp* and 1981 *Cowhead/Massacre MFP/Final Grazing EIS* and ROD, as amended by the Rangeland (Land) Health Standards and Guidelines for California and Northwestern Nevada; the July 2004 ROD for the *Black Rock Desert High Rock Canyon Emigrant Trails NCA Resource Management Plan*; and the *2008 Surprise Resource Management Plan (RMP)*.

The actions which have influenced the wild horse populations in existence today are primarily wild horse gathers, which resulted in the capture of some 16,711 wild horses, the removal of 13,203 excess horses and release of 3,376 horses back into the Calico Complex. Refer to Section 3.3.8 above

The Tri-State MOU (BLM-MOU-NV930-2016-027) is an agreement that seeks to improve wild/feral horse and burro management between the BLM and United States Fish and Wildlife Service (FWS) on public lands in northwest Nevada, northeast California and south central Oregon. The goal is to closely coordinate and cooperate in the management of the wild/feral horse and burro population in this Tri-State area, recognizing different management mandates and land-use plan direction among the agencies. As part of that goal California BLM and Nevada BLM are working together to coordinate wild horse gathers and aerial population counts.

Vegetation, Riparian and Water Resources

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

Prior to the TGA, livestock grazing practices resulted in significant impacts to soil resources. The soil tolerance was exceeded and the soil medium for plant growth was not maintained. As a result, historic livestock grazing activities prior to the TGA had significant impacts on the vegetation resources within the impact assessment area by eliminating or greatly reducing the primary understory plants. Cheat grass was introduced into the area in the early 1900s.

Prior to the TGA, livestock grazing practices also significantly impacted wetland and riparian zones. Wetland and riparian zones declined, riparian vegetation was insufficient to dissipate energy or to filter sediments, thereby increasing erosion and destabilizing stream banks and meadows. Destabilization of streams and meadows led to incised channels and gullies resulting in lowered water table. In an effort to prevent adverse impacts to rangeland health and to support

and better distribute livestock on the public range, a variety of range improvement projects have been implemented through the years dating back to the 1930s.

A series of livestock grazing decisions since the TGA have resulted in reductions in livestock numbers and changes in seasons of use and in grazing management practices to promote rangeland health within grazing allotments. Through various grazing decisions, the current level of permitted livestock grazing use has been reduced to less than half (48%) of the level of grazing permitted in 1982. Refer to Table 5, Section 3.3.3 above. Other management decisions have implemented changes to location, duration, and seasonality of livestock grazing to minimize potential impacts to rangeland health.

While the present livestock grazing systems and efforts to manage the wild horse population within AML has helped reduce historic impacts to soils and improve current soil resource conditions; the current overpopulation of wild horses is resulting in an overall increase in vegetative utilization, trailing and trampling damage. This prevents BLM from appropriately managing the public lands within the Complex for rangeland health and to achieve a thriving natural ecological balance.

Californian Bighorn Sheep Gather

Nevada Department of Wildlife (NDOW) conducted bighorn sheep management actions, including disease surveillance, capture & collaring of bighorn sheep from within the Complex November 2019 through February 2020.

4.2 Reasonably Foreseeable Future Actions

Wild Horses

The Calico Complex proposed gather would ideally occur sequentially with the Surprise Field Office's Surprise Complex gather. The benefit of coordinating these wild horse gathers is that it allows for the gather of horses that may leave their HMAs and cross into adjacent areas due to the gather pressure which are subject to different administrative jurisdiction. In the past, horses that leave one gather area during the gather operations are not gathered because they are outside of the designated gather area. Coordinating the gathers to occur sequentially would increase the effective gather area, thereby improving gather success rates and ability to achieve AML within this broader area.

Some degree of wild horse movement from HMAs under BRFO jurisdiction to HMAs under SFO jurisdiction is possible, and vice-versa. As such, it is possible that a small number of fertility control treated mares from BRFO or SFO may move across jurisdictions. This is not expected to have large effects on population growth rates for either the Calico Complex or the Surprise Complex because the number of such animals would likely be small, and because the wild horse herd size at AML in both complexes is relatively large (low AML for wild horses in the Surprise complex is 283 - 496 animals).

Vegetation, Riparian and Water Resources

Livestock grazing is expected to continue at similar stocking rates. Under current livestock stocking rates, objective pertaining to rangeland health can continue to be met with proper

livestock management. Given then wild horse and burro population numbers will continue to grow, upland and riparian resource degradation can be anticipated. Degradation and resource impacts from excess wild horse and burros will negatively impact all users, such as wildlife, and prevent the BLM from maintaining or improving rangeland health.

4.3 Cumulative Impacts

Impacts from Action Alternatives 1-3

Cumulative effects expected when incrementally adding either of the action alternatives to the CAA would include continued improvement of upland and riparian vegetation conditions, which would in turn benefit permitted livestock, native wildlife, and wild horses populations as forage (habitat) quantity and quality is improved over the current level. Benefits from reduced wild horse and burro populations would include fewer animals competing for limited water quantity and at limited sites. Cumulatively there should be more stable wild horse and burro populations, healthier rangelands, healthier wild horses/burros, and fewer multiple use conflicts within the cumulative area over the short and long-term. Gathering and removing excess wild horses and burros from the Calico Complex would also likely benefit resources in the adjoining Surprise Field Office managed HMAs, as wild horses in the Calico Complex would not need to travel in search of additional forage, water and space due to over population.

Cumulatively over the next 10-20 year period, continuing to manage wild horses and burros within the established AML range would result in improved vegetation condition (i.e. forage availability and quantity), which in turn would result in improved vegetation diversity, density, cover, vigor, seed production, seedling establishment and forage production over current conditions. Managing wild horse and burro populations within the established AML would allow the primary forage plant species to return more rapidly and allow for improvements to riparian habitat, even though some vegetation conditions may never be able to return to their potential. Maintaining AML over a sustained period of time throughout the CAA would allow for the collection of scientific data to evaluate whether changes to AML levels are warranted or necessary.

Cumulatively over the next 10-20 years, achieving AML and lowering the population growth rate would result in fewer gathers and less disturbance to individual wild horses/burros and the herd's social structure. Individual and herd health would be maintained. Some movement of wild horses across HMA boundaries within the CAA would be expected but should not result in non-attainment of identified AML ranges and other management objectives if excess horses are removed from the Complex and adjoining HMAs.

By bringing the wild horse/burro populations to AML, it would be possible to gather a higher percentage of the total population in future gathers, which would allow the increased use of fertility control and sex ratio adjustments as methods to slow population growth. However, releasing gathered wild horses/burros back into the HMA (following application of population control methods) may lead to the decreased ability to gather horses/burros in the future as released horses/burros learn to evade the helicopter.

Coordinating the Calico Complex wild horse and burro gather and the Surprise Complex wild

horse gathers would allow for the gather of horses that may leave their HMAs and cross into adjacent areas due to the gather pressure which are subject to different administrative jurisdiction. In the past, horses that leave the gather area during the gather operations are not gathered because they are outside of the designated gather area. Coordinating the gathers to occur sequentially would increase the effective gather area, thereby improving gather success rates and ability to achieve AML within this broader area. The cumulative impacts would be the same as those disclosed in the Environmental Consequences (Chapter 4), just expanded to include the entire CAA.

Alternative 4. No Action: Defer Gather & Removal

Under the No Action alternative, AML would not be achieved within the Complex and excess wild horses/burros would not be removed from areas within or outside of the designated HMAs. There would be no active management to control the size of the population at this time. Wild horse populations would continue to increase at an average rate of 20-27% per year; wild burro populations, by 11% per year. Without a gather and removal now, the wild horse/burro population in the Complex would exceed 4,300 horses and 100 burros within 5 years and 12,000 horses and 300 burros within 10 years based on population annual reproduction rate estimates. These population levels would continue to exceed the carrying capacity of the range.

AML is the maximum population at which a thriving natural ecological balance would be maintained and that avoids deterioration of the rangeland. The increasing population of wild horses and burros even further in excess of AML under the No Action alternative would over-extend and deplete water and forage resources. Excessive utilization, trampling, and trailing by wild horses/burros would further degrade the vegetation, prevent improvement of range that is already in less than desirable or in degraded condition, would degrade currently healthy rangelands, and would not allow for sufficient availability of forage and water for either wild horses and burros or other ungulates, especially during drought years or severe winter conditions.

Throughout the HMAs administered by the Winnemucca District, few predators exist to control wild horse or burro populations. Some mountain lion predation occurs, but does not appear to be substantial. Coyote are not prone to prey on wild horses unless such horses are young or extremely weak. Other predators such as wolf or bear do not exist.

Wild horses are a long-lived species with documented foal survival rates exceeding 95%.

Survivability rates collected through research efforts are as follows:

- Pryor Mountain Wild Horse Range, Montana: >95%; 15 years and younger, except for foals, both sexes: 93%;
- Granite Range HMA, Nevada: >95%; 15 years and younger, except for male foals: 92%;
- Garfield Flat HMA, Nevada: > 95%; 24 years and younger, except both foals, both sexes: 92%.

Wild horses and burros are not a self-regulating species and would continue to reproduce until their habitat can no longer support them. Usually the habitat is severely, if not irreversibly, damaged before the wild horse and burro population is abruptly impacted and experiences substantial death loss. Once the vegetation and water resources are at these critically low levels

due to excessive utilization by an over population of wild horses, the weaker animals, generally the older animals and the mares and foals, are the first to be impacted. It is likely that a majority of these animals would die from starvation and dehydration. The resultant population would be heavily skewed towards the stronger stallions which would lead to substantial social disruption in the HMA. Fighting among stud horses would increase as they protect their position at scarce water sources, and injuries and death to all age classes of animals would be anticipated. Substantial loss of the wild horses in the HMAs due to starvation or lack of water would have obvious consequences to the long-term viability of the herd. By managing the public lands in this way, the vegetative and water resources would be impacted first and to the point that they have no potential for recovery. This degree of resource impact would lead to management of wild horses at a greatly reduced level if BLM is able to manage for wild horses at all on the HMA in the future.

Trampling and trailing damage by wild horses in/around riparian areas would also be expected to increase, resulting in larger, more extensive areas of bare ground. Continued decline of rangeland health and irreparable damage to vegetation, soil and riparian resources, would have obvious impacts to the future of the Complex and all other users of the range's resources. Competition for the available water and forage between wild horses, domestic livestock, and native wildlife would increase. Continued decline of rangeland health and irreparable damage to vegetation, soil and riparian resources, would have obvious impacts to the future of the HMAs and all other users of the resources, which depend upon them for survival. As a result, the No Action Alternative would not ensure healthy rangelands that would allow for the management of a healthy wild horse population, and would not promote a thriving natural ecological balance.

As populations increase beyond the capacity of the habitat to sustain them, more bands of horses would leave the boundaries of the HMAs in search of forage and water. This alternative would also result in increasing numbers of wild horses in areas not designated for their use, and would not achieve the stated objectives for wild horse herd management areas, to “prevent the range from deterioration associated with overpopulation”, and “preserve and maintain a thriving natural ecological balance and multiple use relationship in that area”.

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). Allowing excess wild horses to remain ungathered would be inconsistent with the mandates of the WFRHBA and implementing regulations.

5.0 Chapter 5 MONITORING and MITIGATION MEASURES

Monitoring

The BLM Contracting Officer Representative (COR) and Project Inspectors (PIs) assigned to the gather(s) would be responsible for ensuring contract personnel abide by contract specifications and SOPs. Ongoing rangeland, riparian, and wild horse monitoring would continue, including periodic aerial population counts.

Under Action Alternatives 1-3:

- ❑ Fertility control monitoring of treated mares would be conducted in accordance with the CAWP outlined in Appendix A;
- ❑ Genetic monitoring would take place through analysis of hair follicle samples for both species, in all HMAs where gather operations take place;
- ❑ Rangeland health monitoring would continue;
- ❑ Routine monitoring of wild horse and burro herd health would continue;
- ❑ Aerial surveys to estimate herd size would continue;
- ❑ Monitoring of fertility control treated wild horses and burros mares may be facilitated by GPS radio collars on mares or jennies, or GPS tail tags on either sex of horses.

Chapter 6 List of Preparers

Table 6.1 List of BLM Preparers

The following list identifies the interdisciplinary team member's areas of responsibility.

Garrett Swisher	Project Lead, Wild Horses and Burros, overall document preparation
Mark E. Hall	Cultural Resources, ACEC's, NCA, National Environmental Policy Act Compliance
Shannon Deep	Native American Religious Concerns
Kathy Torrence	General Wildlife, Threatened and Endangered Species, Special Status Species, Wilderness, Wilderness Study Areas
Brian McMillan	Fisheries, Wetlands and Riparian Zones, Vegetation, Soils
Angie Arbonies	Rangeland Management
Gabrielle Lukins	Recreation
Zwaantje Rorex	GIS