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

McCullough Peaks HMA Bait Trap Gather Environmental Assessment

July 2023

BLM Wyoming –Cody Field Office

DOI-BLM-WY-R020-2023-0003-EA

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Environmental Assessment

Introduction

Identifying Information

Project Name: McCullough Peaks HMA Bait Trap Gather

NEPA Number: DOI-BLM-WY-R020-2023-0003-EA

Type of Project: Wild Horse gather and population control measures.

Location of Proposed Action: The McCullough Peaks Herd Management Area is located in Park County, Wyoming and Bighorn County, Wyoming; see Appendix G, Map 1

Name and Location of Preparing Office:

Cody Field Office

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Cody, WY 82414

Background

This Environmental Assessment (EA) has been prepared to analyze and disclose the environmental consequences of gathering and removal of wild horses and applying wild horse population control measures in the McCullough Peaks Herd Management Area (McCullough Peaks HMA), over a 10-year period, as proposed by the Bureau of Land Management (BLM) Cody Field Office.

The BLM protects, manages, and controls wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, as amended. The WFRHBA mandates that BLM manage wild horse populations that prevent deterioration of the rangelands and help maintain a "thriving natural ecological balance" (TNEB), while allowing multiple use within the McCullough Peaks HMA. BLM accomplishes this goal by identifying the "appropriate management level" (AML) for each herd management area. An AML is generally a population range that allows the rangelands to maintain TNEB.

The 2015 Cody Record of Decision and Approved Resource Management Plan (2015 Cody RMP) identified the appropriate management level (AML) for McCullough Peaks HMA as a population between 70 and 140 wild horses. Since 2011, the herd within the McCullough Peaks HMA has been treated with Porcine Zona Pellucida (PZP). However, population size has increased by an average of 2% per year due to several horses not responding to PZP treatments and because BLM allows mares to foal to provide genetic diversity to the herd. Additionally, the life expectancy is averaging 17 years with several mares currently over 20 years old. Within the McCullough Peaks HMA horses are reaching over 25 years old, 5 years longer than the average lifespan of a wild horse. The population size, as demonstrated in the table below, is based on direct counts completed in 2023. Projected, herd sizes for the years 2024-2034 are based on current management, which allows for a 2% growth rate per year. If BLM ceases managing wild horses through population control measures, wild horse herd population typically increase by 20% per year.

Table 1. Population of the wild horse herd in the McCullough Peaks HMA in 2022, and projected population sizes for 2023-2033 to grow by 2% per year based on current factors (Zonastat-H aka PZP non responders, allowing genetic diversity and long-life expectancy).

HMA	Low AML	High AML	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
McCullough Peaks	70	140	181	185	188	192	196	200	204	208	212	216	221

Purpose and Need

The BLM Cody Field Office has determined that wild horse numbers are above the AML in the McCullough Peaks HMA, and that action is necessary to remove excess animals. Wild horse numbers above the AML constitute excess wild horses as described in the WFRHBA. The 2015 Cody RMP identified the high AML as the highest number of horses that the rangeland can accommodate and still achieve a TNEB. The high AML for McCullough Peaks is 140 horses but current population numbers are well above high AML, at 181. Therefore, under the WFRHBA, BLM must take action to remove excess wild horses to achieve TNEB. In order to maintain TNEB, BLM also proposes to utilize population control measures to limit the growth of the McCullough Peaks HMA population.

The purpose for this action is to achieve and maintain a wild horse population within the AML for the McCullough Peaks HMA through removal and population control measures.

The need for the action is that the wild horse population in the McCullough Peaks HMA is currently in excess of the high AML. The BLM must maintain a thriving natural ecological balance and multiple-use relationship on public lands consistent with the provisions of Section 3 of the WFRHBA, 16 U.S.C. § 1333, and Section 102 of the Federal Land Policy and Management Act (FLPMA), 43 U.S.C. § 1701. BLM is responsible for preventing unnecessary or undue degradation of public lands. 43 U.S.C. § 1732.

The 2015 Cody RMP incorporated the need to manage the McCullough Peaks HMA for an appropriate management level of 70 to 140 wild horses, not counting foals (Record 4144); Manage BLM-administered land within the McCullough Peaks HMA to maintain or enhance conformance with the *Wyoming Standards for Healthy Rangelands* (BLM 1997) (Record 4146); and consider the use of natural and artificial population control measures as needed to maintain the wild horse populations within the established appropriate management level ranges (Record 4148).

Decision to be Made

The Authorized Officer (AO), the BLM Cody Field Manager, must determine whether to authorize the Proposed Action on the BLM-administered public lands and what mitigation would be applied.

Conformance with BLM Land Use Plans

The Proposed Action conforms to the Record of Decision (ROD) and Approved Resource Management Plan (ARMP) for the Cody Field Office (CYFO) dated September 21, 2015. The decisions in the CYFO ARMP provide general management direction and allocation of uses and resources on the public lands in the area.

This plan has been reviewed to determine if the proposed action conforms to the land use plan as required by 43 CFR 1610.5-3. The specific management records of the Cody RMP that apply are described below:

Record	Management Action Text
4144	Manage the McCullough Peaks HMA for an initial appropriate management level of 70 to 140 wild horses, not counting foals, in an attempt to maintain a population of 100 adult wild horses adjusted as necessary based upon monitoring.
4146	Manage BLM-administered land within the McCullough Peaks HMA to maintain or enhance conformance with the *Wyoming Standards for Healthy Rangelands* (BLM 1997).
4147	Employ selective removal criteria, in accordance with current national policies, during periodic gathers to increase desired genetic characteristics and avoid genetic depression.
4148	Consider the use of natural and artificial population control measures as needed to maintain the wild horse populations within the established appropriate management level ranges.
4154	Avoid wild horse gathers 6-weeks before or 6-weeks after peak foaling season. To the extent possible, conduct wild horse gathers in the fall, after peak foaling has occurred and when temperatures are lower to reduce stress on the animals.
5025	Protect vertebrate and scientifically significant paleontological resources on BLM-administered land from proposed surface-disturbing activities that could damage or destroy these resources.
5035	Implement the PFYC system (Map 3-19) as a standard part of review for all surface-disturbing activities in the planning area (see Glossary).
5037	Attach standard Paleontological Resources Protection Stipulations (see Glossary) to authorizations for surface-disturbing activities in all areas, regardless of PFYC (i.e., 1 through 5).

Relationship to Statutes, Regulations, Plans, or Other Environmental Analysis

The Proposed Action and all action alternatives have been designed to conform to Federal regulations, consultation requirements, and other authorities that direct and provide the framework and official guidance for management of BLM lands within the Cody Field Office.

- McCullough Peaks Wild Horse Herd Area Management Plan (September 1985)

- The Proposed Action is in conformance with the Wild Free-Roaming Horse and Burro Act (WFRHBA) of 1971 Public Law 92-195, as amended.

- Wild Free-Roaming Horse and Burro Management (43 CFR 4700). Applicable excerpts are as follows:
  4720.1 - Removal of excess animals from public lands. *"Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately…."*

- BLM Wild Horses and Burros Management Handbook, H-4700-1 (June 2010):

- Section 302 (a) and (b) of the Federal Land Policy and Management Act of 1976, the Public

Rangelands Improvement Act (PRIA) of 1978 (Pub. L. 95-514, Sec. 4).
PRIA directs the continued *"policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values*.

Identification of Issues and Scoping

Public Involvement

BLM notified the public of the National Environmental Policy Act (NEPA) process when the Environmental Assessment was listed on the ePlanning site in November 2022. Based on the size and routine nature of the proposed project, it was determined that external scoping was necessary. External scoping was conducted from January 9, 2023, to February 7, 2023. During the external scoping comment period 4,352 comments were submitted on the ePlanning site and although comments were not accepted via email a chain letter consisting of 11,193 chain letter type emails were submitted during external scoping were considered in the development of alternatives and issues. Substantive comments submitted.

Comments such as: eliminate grazing, raise the AML to accommodate the older horses to avoid gathers, horses dying natural from predation, were all considered in the alternative develop. However, they were ultimately determined as Alternatives Considered and Eliminated from Further Analysis (pg. 11). Rationale for dismissal for consideration is provided under each alternative.

Comments regarding not gathering older horses and gathering and not gathering to the high end of AML to retain genetic diversity were added to the Proposed Action.

Internal Scoping

The proposed action was reviewed by an interdisciplinary (ID) team. Preliminary issues were considered in order to aid in the development of the proposed action or design features. The ID-team then determined which issues warranted further consideration.

Issues Identified for Detailed Analysis

The proposed action was reviewed by an ID-team. The following issues were identified by the team:

Vegetation: How would the removal of wild horses from the McCullough Peaks HMA to reach established AML numbers impact native vegetation?

Range Management: How would the removal of wild horses from the McCullough Peaks HMA to reach established AML numbers impact range and grazing administration?

Wild Horses: How would the removal of excess horses and implementation of new fertility control methods affect the wild horses.

Proposed Action and Alternatives

No Action

Under the No Action Alternative, a gather to remove excess wild horses would not occur and would instead allow the older horses to naturally die off. The current active management to control population growth rates, utilizing Zonastat-H, aka PZP, would continue.

Proposed Action

The Proposed Action is to conduct a bait trap gather to remove excess horses within the McCullough Peaks HMA to achieve AML. The gather would allow older horses to remain within the McCullough Peaks HMA. The BLM would continue current use of PZP, however, the Proposed Action would implement additional population growth suppression treatments (i.e., Gonacon) on mares older than 13 years old and that have contributed to the genetic diversity of the herd. In subsequent years, the BLM would maintain the population within AML through maintenance gathers if the population continues to exceed AML.

Bait Trap Gather

Immediate trapping efforts will likely be conducted by BLM Staff. In subsequent years a contractor may be utilized. BLM staff familiar with the identification of the horses will help ensure that family bands will remain together, and the proper horses slated for removal are safely trapped.

Retain Older Horses

During the external scoping period, there was concern from the public that older horses within the McCullough Peaks HMA would be gathered and due to their age would immediately become sale authority horses without the possibility of adoption or end up living in a long-term care holding facility which is an enormous cost to support these horses. Therefore, the Cody Field Office will not remove the older population of horses living within the McCullough Peaks HMA.

Population Growth Suppression Treatments (PZP and Gonacon)

Fertility control vaccines (also known as immunocontraceptives) meet BLM requirements for safety to mares and the environment (EPA 2009a, 2012). Because they work by causing an immune response in treated animals, there is no risk of hormones or toxins releasing into the food chain when a treated mare dies. The Cody Field Office has used PZP since 2011 and would utilize GonaCon-Equine to assist in the continued efforts to manage the McCullough Peaks HMA.

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

Liquid emulsion vaccines can be injected by hand or remotely administered in the field using a pneumatic dart (Roelle and Ransom 2009, Rutberg et al. 2017, McCann et al. 2017) in cases where mares are relatively approachable. Use of remotely delivered (dart-delivered) vaccine is generally limited to populations where individual animals can be accurately identified and repeatedly approached within 50 m (BLM 2010). Booster doses can be safely administered by dart. Even with repeated booster treatments of the vaccines, it is expected that most mares would eventually return to fertility, though some individual mares treated repeatedly may remain infertile. Once the herd size in a project area is at AML and population growth seems to be stabilized, BLM can make adaptive determinations as to the required frequency of new and booster treatments.

Porcine Zona Pellucida (PZP) Vaccine

PZP has been utilized in the McCullough Peaks HMA since 2011. PZP vaccines meet most of the

criteria that the National Research Council (2013) used to identify promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced as the liquid PZP vaccine ZonaStat-H (or Native PZP), an EPA-registered commercial product (EPA 2012, SCC 2015).

In subsequent years, Native PZP (or currently most effective formulation) would be administered as a booster dose using the one-year liquid PZP vaccine by field or remote darting. The dart-delivered formulation produced injection-site reactions of varying intensity, though none of the observed reactions appeared debilitating to the animals (Roelle and Ransom 2009). Joonè et al. (2017a) found that injection site reactions had healed in most mares within 3 months after the booster dose, and that they did not affect movement or cause fever. Native PZP (or currently most effective formulation) would be administered by PZP certified and trained applicators in the one-year liquid dose inoculations by field darting the mares. Prior to darting, BLM will conduct an inventory of the wild horses. This would include a list of marked horses and / or a photo catalog with descriptions of the animals to assist in identifying which animals have been treated and which need to be treated. Application of fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix D).

The historically accepted hypothesis explaining PZP vaccine effectiveness posits that when injected as an antigen in vaccines, PZP causes the mare's immune system to produce antibodies that are specific to zona pellucida proteins on the surface of that mare's eggs. The antibodies bind to the mare's eggs surface proteins (Liu et al. 1989), and effectively block sperm binding and fertilization (Zoo Montana, 2000). Because treated mares do not become pregnant but other ovarian functions remain generally unchanged, PZP can cause a mare to continue having regular estrus cycles throughout the breeding season. Other research has shown, though, that there may be changes in ovarian structure and function due to PZP vaccine treatments (e.g., Joonè et al.2017b, 2017c). Research has demonstrated that contraceptive efficacy of an injected liquid PZP vaccine, such as ZonaStat-H, is approximately 90% or more for mares treated twice in one year (Turner and Kirkpatrick 2002, Turner et al. 2008).

GonaCon Vaccine

GonaCon may be applied to mares older than 13 years old that have contributed genetic diversity to the McCullough Peaks HMA. Taking into consideration available literature on the subject, the National Research Council concluded in their 2013 report that GonaCon-B (which is produced under the trade name GonaCon-Equine for use in feral horses and burros) was one of the most preferable methods available for contraception in wild horses and burros (NRC 2013), in terms of delivery method, availability, efficacy, and side effects. GonaCon-Equine is approved for use by authorized federal, state, tribal, public and private personnel, for application to wild and feral equids in the United States (EPA 2013, 2015).

GonaCon-Equine has been used on an increasing number of BLM-managed wild horses in over 15 HMAs throughout the west. GonaCon-Equine can be remotely administered in the field in cases where mares are relatively approachable, using a customized pneumatic dart (McCann et al. 2017). 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).

GonaCon is an immunecontraceptive vaccine that has been shown to provide multiple years of infertility in several wild ungulate species, including horses (Killian et al., 2008; Gray et al., 2010). GonaCon uses the gonadotropin-releasing hormone (GnRH), a small neuropeptide that performs an obligatory role in mammalian reproduction, as the vaccine antigen. When combined with an adjuvant, the GnRH vaccine

stimulates a persistent immune response resulting in prolonged antibody production against GnRH, the carrier protein, and the adjuvant (Miller et al., 2008). The most direct result of successful GnRH vaccination is that it has the effect of decreasing the level of GnRH signaling in the body, as evidenced by a drop in luteinizing hormone levels, and a cessation of ovulation. The lack of estrus cycling results from successful GonaCon vaccination is similar to the typical winter period of anoestrus in open mares. As anti-GnRH antibodies decline over time, concentrations of available endogenous GnRH increase and treated animals usually regain fertility (Power et al., 2011). Baker et al. (2017) observed horses treated with GonaCon return to fertility after they were treated with a singles primer dose: after four years, the fertility rate was indistinguishable between treated and control mares.

GonaCon-Equine vaccine is an EPA- approved treatment that is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced in a United States Department of Agriculture – Animal and Plant Health Inspection Service (USDA-APHIS) laboratory. As is the case with ZonaStat-H, its regulatory categorization as a 'pesticide' is consistent with regulatory framework for controlling overpopulated vertebrate animals, and in no way is meant to convey that the vaccine is lethal; the intended effect of the vaccine is only as a contraceptive. GonaCon-Equine is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine product (Miller et al. 2013). If stored at 4° C, the shelf life is 6 months (Miller et al 2013).

Miller et al. (2013) reviewed the vaccine environmental safety and toxicity. When advisories on the product label (EPA 2015) are followed, the product is safe for users and the environment (EPA 2009b). GonaCon was deemed to pose low risks to the environment, so long as the product label is followed (Wang-Cahill et al. in press 2017).

Injection site reactions associated with immune-contraceptive treatments are possible in treated mares (Roelle and Ransom 2009). Whether injection is by hand or via darting, GonaCon-Equine is associated with some degree of inflammation, swelling, and the potential for abscesses at the injection site (Baker et al. 2018). Detailed effects of GonaCon are located in Appendix D.

Under the Proposed Action, the BLM would continue to apply PZP and implement the use of GonaCon-Equine on mares that have contributed to the genetic diversity of the McCullough Peaks Herd. The BLM would initiate new treatments in order to maintain contraceptive effectiveness in controlling population growth rates. Booster dose effects may lead to increased effectiveness of contraception (Baker et al. 2018), which is generally the intent. GonaCon-Equine can safely be reapplied as necessary to control the population growth rate. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, mares would return to fertility at some point (based on results from Baker et al. 2018, 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. However, as is true for mares treated multiple times with the PZP vaccine ZonaStat-H (Nuñez et al. 2017), lifetime infertility (i.e., sterility) may result for some mares treated multiple times with GonaCon-Equine. Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM could use population planning software (i.e., PopEquus, developed by United States Geological Survey (USGS) Fort Collins Science Center, https://rconnect.usgs.gov/popequus/) to make a determination as to the required frequency of new mare treatments and mare re-treatments with GonaCon-Equine vaccine or other fertility control methods, to maintain the number of horses within AML. Because GonaCon vaccines contribute to a longer period of infertility as compared to PZP, BLM would utilize GonaCon vaccines on mares that have already contributed to the genetic diversity of the McCullough Peaks Herd through offspring. This would ensure that younger mares have the opportunity to contribute to genetic diversity when needed (by skipping PZP doses) and also save costs with respect to the older mares treated with GonaCon because BLM would not need to treat older mares as often.

PZP and GonaCon Indirect Effects

One expected long-term, indirect effect on wild horses treated with fertility control, such as PZP or GonaCon would be an improvement in their overall health (Turner and Kirkpatrick 2002).

Many treated mares would not experience the biological stress of reproduction, foaling, and lactation as frequently as untreated mares. The observable measure of improved health is higher body condition scores (Nuñez et al. 2010). After a treated mare returns to fertility, her future foals would be expected to be healthier overall and would benefit from improved nutritional quality in the mare's milk. This is particularly to be expected if there is an improvement in rangeland forage quality at the same time, due to reduced wild horse population size. Past application of fertility control has shown that mares' overall health and body condition remains improved even after fertility resumes. Fertility control vaccine treatment may increase mare survival rates, leading to longer potential lifespan (Turner and Kirkpatrick 2002, Ransom et al. 2014a). To the extent that this happens, changes in lifespan and decreased foaling rates could combine to cause changes in overall age structure in a treated herd (i.e., Turner and Kirkpatrick 2002, Roelle et al. 2010), with a greater prevalence of older mares in the herd (Gross 2000).

Design Features of the Proposed Action Alternative and Best Management Practices

Design features of this project are intended to maintain the health and safety of the horses, as well as to protect other natural resources found in the herd management area.

Bait Trap Design Features

Trapping involves setting up portable panels around an area previously used in the 2013 McCullough Peaks Bait Trap Gather and baited. The portable panels would be set up to allow wild horses to go freely in and out of the corral until they have adjusted to it. When the wild horses fully adapt to the corral, it is fitted with a gate system. The adaptation of the horses creates a 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 bait source. Traps would remain in place until the target numbers of animals are removed. The bait used would be weed free hay, protein tubs, and salt tubs. Implementation of management actions would begin in the fall of 2023 and would continue until environmental conditions or policy and management objective changes require new analysis of additional management actions. Additional design features are described in Appendix E (Wild Horse Gather Standard Operating Procedures (SOPs)).

Gather operations would be conducted by BLM personnel or by contractor. Genetic monitoring (following Instructional Memo (IM) 2009-062 or future updated policy guidance) would also continue following gathers. If future genetic monitoring indicates a loss of genetic diversity, the BLM would consider introduction of horses from HMAs in similar environments to maintain the projected genetic diversity. Fertility control monitoring would be conducted in accordance with the population-level fertility control treatment SOPs in Appendix E and IM 2009-090 Population Level Fertility Control Field Trials: Herd Management Area Selection, Vaccine Application, Monitoring.

A Doctor of Veterinary Medicine (DVM) would be on call for the duration of the bait trap 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 a 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.

BLM will collect data, including; sex and age distribution, condition class information (using the Henneke rating system), color, size and other information, along with the disposition of the animal

(removed or released).

The McCullough Peaks Herd was last gathered in 2013. The proposed gathers would occur between November 15 to March 15 for bait trapping when conditions are conducive to gather due to horses' responsiveness to hay. Approximately 40% of the McCullough Peaks HMA is accessible to BLM staff during winter months when conditions are conducive for conducting a bait gather. Bait gathers would conclude by March 15 in order to avoid disrupting sage grouse breeding season. Gathers would be conducted in accordance with the Wild Horse Gather Standard Operating Procedures located in Appendices E. Based on the current population inventory conducted on May 31, 2023, the Cody Field Office would remove excess horses from the population of 181 in 2023. The numbers may vary slightly after a direct population count that would be conducted prior to the bait trap gather.

If bait trap efforts are not successful in removing all excess horses during the first year, bait trap efforts will occur on subsequent years until AML has been reached. Prior to any gather activities beyond 2023, a Determination of NEPA Adequacy (DNA) Worksheet would be completed to determine if policy, the Affected Environment, or anticipated effects have changed significantly to warrant additional analysis. The public would be notified through the BLM Press Releases webpage.

Temporary Holding Facilities During Gathers

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

Herd health and characteristics data would be collected as part of continued monitoring of the wild horse herds. Genetic baseline data would be periodically collected to monitor the genetic diversity of the wild horse herds within the combined project area, as measured by observed heterozygosity (Ho)values based on hair follicle DNA samples (BLM 2010). Additional samples may be collected to analyze ancestry.

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

Transport, Short-Term Holding, and Adoption Preparation

All gathered excess wild horses would be removed and transported to BLM off range corrals (ORCs, formerly short-term holding facilities) where they would be inspected by facility staff (and if needed by a contract veterinarian) to observe health conditions and ensure that the animals are being humanely cared for. Wild horses removed from the range would be transported to the receiving ORC in goose-neck stock trailers 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 ten hours.

Upon arrival, recently captured wild horses are off-loaded by compartment and placed in holding pens

where they are provided good quality hay and water. Most wild horses begin to eat and drink immediately and adjust rapidly to their new situation. At the ORC, a veterinarian provides recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the AVMA. 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 or Sale with Limitations and Off-Range Pastures
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 becomes the property of the applicant. Adoptions are conducted in accordance with 43 CFR § Subpart 4750.

Wild Horses

The Cody Field Office will monitor mares that are treated with Gonacon for any side effect that would negatively affect their health. If it is noted that a mare treated with Gonacon is adversely affected by this treatment, the mare will no longer be treated with Gonacon.

Historic or Cultural Resources
The easternmost, proposed holding corral, Bones Trap, has not been subject to previous inventory. Effort shall be made to re-design the location to utilize proximate existing disturbance or previous valid inventory. If this is not feasible, the location would be surveyed at the Class III level for cultural resources prior to construction. If cultural resources are encountered at the temporary holding facility, the bait trap would not be utilized.

To mitigate potential affects to unknown historic or cultural resources from ground disturbing activities, and to inform the holder of their responsibilities under ARPA, NAGPRA, and the State Protocol, cultural protections apply.

Range Administration

A minimum of 4-weeks advance notice of the scheduled gather should be given to livestock operators holding grazing permits within the HMA. Timing and bait trap locations used for the gather should be included in the notice to allow time for BLM staff and livestock operators to collaborate on changing rotation schedules, if needed, and to ensure livestock are away from the bait trap locations at the time of the scheduled gather.

Alternatives Considered and Eliminated from Further Analysis

The following issues were considered for detailed analysis. Based on further review it was determined that these preliminary issues did not warrant analysis in this EA.

Raising the Appropriate Management Levels for Wild Horses

Delay of a gather until the AMLs can be reevaluated is not consistent with the WFRHBA, Public Rangelands Improvement Act or FLPMA or the existing 2015 Cody RMP. The rationale from the public for

raising the AML is to accommodate the horses that are living beyond the normal life expectancy and therefore stop the gather from happening all together. Severe range degradation would occur if an AML reevaluation process were initiated without gathering the excess animals and an even larger number of excess wild horses would ultimately need to be removed from the range in order to achieve the AMLs or under emergency conditions to prevent the death of individual animals due to insufficient water and forage resources for the current overpopulation of wild horses. This alternative was eliminated from further consideration because it is contrary to the WFRHBA which requires the BLM to manage the rangelands to prevent the range from deterioration associated with an overpopulation of wild horses. Raising the AML to eliminate a gather does not meet the Purpose and Need to Restore a TNEB or meet Rangeland Health Standards.

Remove or Reduce Livestock Within the McCullough Peaks HMA

This alternative would involve no removal of wild horses and would instead address excess wild horse numbers through removal or reduction of livestock within the complex. In essence, this alternative would simply exchange use by livestock for use by wild horses. This alternative was not brought forward for analysis because it is inconsistent with the 2015 Cody RMP, and the WFRHBA which directs the Secretary to immediately remove excess wild horses.

The proposal to reduce livestock would not meet the Purpose and Need to gather and remove excess wild horses from the McCullough Peaks. Eliminating or reducing grazing in order to shift forage use to wild horses would not be in conformance with the existing Land Use Plans and is contrary to the BLM's multiple-use mission as outlined in FLPMA and would be inconsistent with the WFRHBA and PRIA. It was Congress' intent to manage wild horses and burros as one of the many uses of the public lands, not a single use. Therefore, the BLM is required to manage wild horses and burros in a manner designed to achieve a TNEB between wild horse and burro populations, wildlife, domestic livestock, vegetation and other uses.

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

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

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

Wild Horse Numbers Controlled by Natural Means

This alternative was eliminated from further consideration because it is contrary to the WFRHBA which

requires the BLM to prevent range deterioration associated with an overpopulation of wild horses. None of the significant natural predators from native ranges of the wild equids in Europe, Asia, and Africa — wolves, brown bears, and African lions — exist at all, or in high numbers, on the wild horse ranges in the western United States. The McCullough Peaks HMA does not contain the suitable habitat to support the life cycle of natural predators such as mountain lions, grizzly bear, and wolves. Hence the reason for the long-life expectancy of the McCullough Peaks Herd.

Affected Environment and Environmental Effects

General Setting and Geographic Scope of the Project Area

The McCullough Peaks HMA encompasses 113,938 acres of land managed by the BLM, 5,809 acres of state lands and 789 acres of private lands. The HMA is bordered on the north by the portions of the Peaks 1064 allotment: Whistle Creek Allotment and East/West Allotment boundary, on the east by State Hwy 32, on the south by US HWY 14 and on the west by the allotment boundary the Red Point Allotment, Whistle Creek Allotment and a natural barrier in the Peaks 1064 Allotment.

The climate is typical of a cold desert with annual precipitation averaging five to nine inches. Topography is highly variable, ranging from mostly flat to rolling foothills carved by drainages, to colorful badlands and desert mountains featuring steep slopes and canyons.

The northern portion of the HMA is designated as Greater Sage Grouse General Habitat whereas the southern portion of the HMA is designated as Greater Sage Grouse Priority Habitat. Table 2 shows the existing vegetation type based on the current Landfire Existing Vegetation Type data set (https://landfire.gov/evt.php).

Table 2. Most prevalent vegetation type within the McCullough Peaks HMA.

Greater Sage Grouse General Habitat - McCullough Peaks HMA*

Landfire Existing Vegetation Type	Acres
Big Sagebrush Shrubland and Steppe	42,216
Salt Desert Scrub	36,529
Sparse Vegetation	9,768
Introduced Annual Grassland	1,282
Introduced Upland Vegetation-Shrub	916
Grassland	884
Introduced Annual and Biennial Forbland	530
Desert Scrub	502
Low Sagebrush Shrubland and Steppe	229
Limber Pine Woodland	171
Introduced Riparian Vegetation	141

*Shows the most prevalent vegetation type

Greater Sage Grouse Priority Habitat - McCullough Peaks HMA*

Landfire Existing Vegetation Type	Acres
Big Sagebrush Shrubland and Steppe	16,029
Salt Desert Scrub	4,530

Introduced Annual Grassland	2,110
Grassland	1,858
Sparse Vegetation	1,626
Introduced Riparian Vegetation	211
Introduced Upland Vegetation-Shrub	159
Introduced Annual and Biennial Forbland	157
Desert Scrub	132
Greasewood Shrubland	103

*Shows the most prevalent vegetation type

Population modeling (PopEquus) was completed for the proposed action and alternatives to analyze how the alternatives would affect the wild horse populations. Analysis included removal of excess wild horses with fertility control. The primary objective of the modeling was to identify if any of the alternatives "crash" the population or cause extremely low population numbers or growth rates. The results of population modeling show that minimum population levels and growth rates would be within reasonable levels and adverse impacts to the population would not be likely under The Proposed Action and No Action Alternatives. Graphic and tabular results are displayed in detail in Appendix F & G.

Resources Considered and Eliminated from Further Analysis

Resources and features not present and not discussed in this EA are listed in Appendix A.

Resources Brought Forward for Analysis

Vegetation (Native)

Issue(s) Identified

How would the removal of wild horses from the McCullough Peaks HMA to reach established AML numbers impact native vegetation?

Affected Environment

An ecological site inventory (ESI) has not been completed for the entire McCullough Peaks HMA, however, much of the HMA area has had ESI completed, which provides valuable information for which ecological sites are found in most of the HMA. Based on ESI, soils surveys, existing trend studies, vegetative cover, and the appropriate range site information, the majority of public land acres in the HMA are comprised of Clay and Silty clay loam badland soil sites. Approximately two-thirds of the herd area is badland-type soils with vegetation communities comprised of saltbush, sagebrush, and perennial grass. The remaining one-third is a sagebrush-grass mixture. Dominant grass species found within the HMA include bluebunch wheatgrass, western wheatgrass, Sandberg's bluegrass, needle and thread, bottlebrush squirreltail, Indian ricegrass, and blue grama. Dominant shrub species found within the HMA include Wyoming big sagebrush, Nuttall's saltbush, and greasewood, along with a variety of forbs and subshrubs.

The loamy, shallow loamy, and sandy sites should be, and are, dominated by mid-sized key cool season bunchgrasses such as bluebunch wheatgrass, needle-and-thread grass, Indian ricegrass, and sand dropseed. Shrubs consist mainly of Wyoming big sagebrush, rabbit brush, Gardner sage, spiny hop sage, and winterfat in the HMA. Generally, species such as blue grama, inland sedge, prairie June grass, red threeawn, and Sandberg's bluegrass should constitute a small part of these ecological sites, usually less than 5% individually and 15% of the production collectively. The vegetation in the HMA is

dominated by mid-sized cool season bunchgrasses as indicated by current monitoring studies. The exception to this is in some areas within the HMA that have converted to become dominated by blue grama from historic grazing use.

The saline upland and impervious clay sites are supporting perennial grasses such as bottlebrush squirrel tail, Indian ricegrass, and Sandberg's bluegrass. Some of the more common shrubs on these two sites are birds foot sagebrush, bud sagebrush, Gardner saltbush, and winterfat.

Effects

No Action
Under the No Action Alternative, the horse gather would not occur, and the wild horse population would continue to increase. Wild horse populations continuing above the target AML may reduce available native vegetation at rates that exceed carrying capacity of the area for wild horses, wildlife, and livestock use. Per the RMP, horse management planning documents call for the McCullough Peaks HMA to support 70 to 140 total head of wild horses (1,050 to 2,100 animal unit months [AUMs]), to maintain an average of 100 adult wild horses in the HMA (1,500 AUMs). An AUM is the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month; however, as determined in the 1985 McCullough Peaks Wild Horse Herd Area Management Plan (BLM 1985) and the NRCS National Range and Pasture Handbook (NRCS 2003) the BLM bases its appropriate management level calculations on 1.25 AUMs per horse per month. Excessive use and removal of available native vegetation would change the ecosystem dynamics of the area such that plant species that are less desirable to wildlife, wild horses, and livestock become the dominant species available, bare ground persists and/or invasive or non-native species begin to outcompete natives and grow in abundance.

Proposed Action
Under the Proposed Action Alternative, the wild horse bait trap gather would occur with the goal of reaching target AML numbers. Compared to the no action alternative, there would be decreased impacts on native vegetation as a whole, and rangeland health would be expected to improve. Some concentrated impacts to native vegetation would occur around temporary bait trap and holding locations by disturbing vegetation from gather operations such as trap setup and removal, vehicle use, captured horse hoof action, etc. However, these effects would be temporary and the vegetation on the trap locations would be expected to recover over time. Long-term effects of removing horses in excess of the target AML would be beneficial to native vegetation by reducing direct grazing pressure, as well as reducing indirect effects (such as benefit to livestock grazing or watershed function) caused by wild horse surface disturbance and vegetation removal.

Range Administration

Issue(s) Identified

How would the removal of wild horses from the McCullough Peaks HMA to reach established AML numbers impact range and grazing administration?

Affected Environment
The McCullough Peaks HMA encompasses six grazing allotments which provide seasonal grazing for cattle: Red Point (03067), Reclamation 15 (03088), Reclamation (00666), East/West (01060), Whistle Creek (01002) and Peaks (01064). Grazing permits/leases for these allotments are held by three different operators. Rotational grazing management strategies have been implemented on the allotments in the HMA, and livestock grazing is authorized within the HMA throughout the year,

depending on the allotment and terms of each permit/lease. Grazing authorizations allow for certain amounts of forage to be utilized by cattle based on carrying capacity estimates which incorporates additional use by wildlife and wild horse populations using the target AML ranges. The amount of forage utilized by livestock is quantified Animal Unit Months (AUM), which is defined as the amount of forage necessary for the sustenance of one cow, or its equivalent for a period of 1 month.

The following figure shows the active livestock grazing preference for the allotments within the HMA.

Allotment Name & Number	Active AUMs
Reclamation #00666	292
Whistle Creek #01002	718
East-West #01060	3885
Red Point #03067 (HMA)*	602*
Reclamation 15 #03088	275
Peaks #01064**	407**

*The Red Point allotment has one pasture which falls outside of the HMA. The noted 602 AUMs reflect the active preference for the North and Middle Pastures, which are located within the HMA, while excluding the South Pasture from the Active AUM total as it is not located in the HMA.

**The Peaks Allotment has one Pasture which is mostly within the HMA (Deer Creek Pasture), and approximately 1/3 of the Shoshone Pasture is in the HMA. The Willwood Dam Pasture, and the remaining 2/3 of the Shoshone Pasture are outside the HMA. The above active grazing preference indicates the Active AUMs within the Deer Creek and 1/3 of the Shoshone Pastures of Peaks Allotment.

Effects

No Action

Under the No Action Alternative, the wild horse population would continue to exceed AML, thereby reducing forage available for livestock grazing. Continued growth of the wild horse population may result in rangeland health degradation by excessive vegetation removal, surface disturbance, and soil compaction, which would cause the BLM to reassess permitted livestock stocking rates. Degradation in rangeland health and subsequent reduction in available forage for livestock utilization may cause the BLM to make changes to grazing permits that would reflect a reduction in allowed AUMs authorized to livestock operators; thereby impacting permittees/leases.

Proposed Action

Under the Proposed Action, the wild horse population within the McCullough Peaks HMA would be reduced using bait trap methods to remove excess horses until the upper level is reached within the AML range. Removal of horses within the HMA would allow for wildlife, wild horse, and livestock utilization to remain relatively consistent to levels determined appropriate when the wild horse population is within the target AML. However, per the Proposed Action, bait trapping would take place on the Red Point (03067), Reclamation (00666), East/West (01060), and Whistle Creek (01002) Allotments. Bait trapping operations would not be expected to adversely impact permitted livestock grazing; however, the use of a bait-trap capture method may temporarily interfere with livestock grazing rotation schedules and forage utilization during the time of the horse gather. Some coordination with

grazing permittees may be needed to modify grazing rotations for fall/winter seasons to avoid setting up bait traps in pastures where livestock are actively grazing.

Reduction of the wild horse population within the McCullough Peaks HMA to the AML would be expected to help maintain and possibly improve rangeland/vegetation community conditions within the previously mentioned allotments. Thus, providing positive impacts to vegetation resources which would benefit both livestock grazing in conjunction with wild horse grazing.

Wild Horses

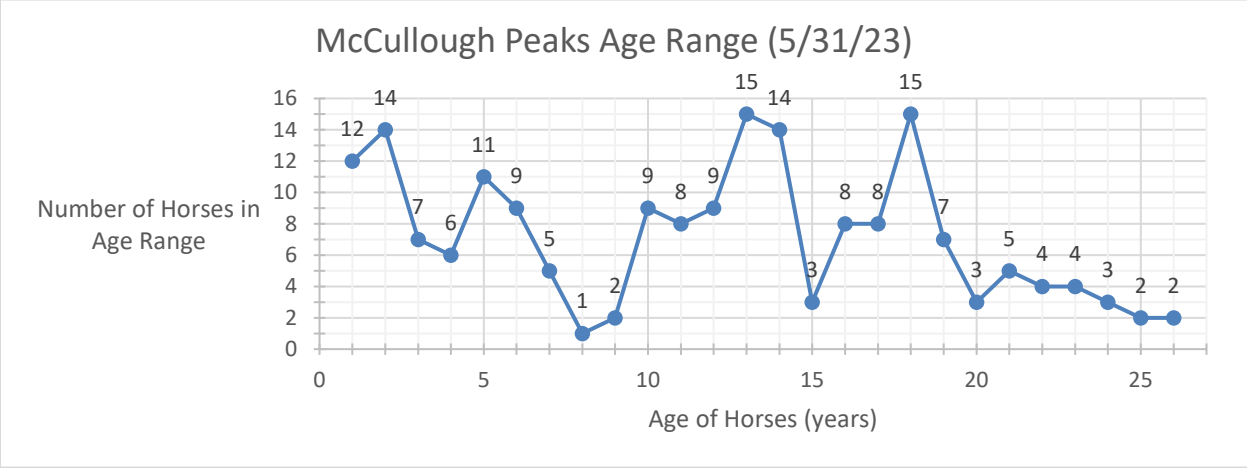
Issue(s) Identified

How would the removal of excess horses and implementation of new fertility control methods affect the wild horses.

Affected Environment

The current population of the McCullough Peaks HMA, based on a direct census count (May 31, 2023), is 181 horses. The sex ratio is 40:60 (stallions: mares). The AML of the McCullough Peaks HMA is 70-140 horses. Due to the lack of natural predators, the horses within the McCullough Peaks are living longer than horses in areas with natural predators. Other factors such as the availability of water sources within the HMA, sustainable forage and mild winters have contributed to the horses living longer. Figure 1 shows the age range of the horses within the McCullough Peaks.

Figure 1. Current Age Range of the horses within the McCullough Peaks HMA.



The McCullough Peaks Herd is unique in the fact that the herd is well documented by the BLM and the local public. This allows the BLM to know exactly how many horses are within the HMA, true age of each horse, location of bands within the HMA, genealogy, and any injuries the horses may have incurred due to natural behavior. This information is invaluable and allows for the effective management of the McCullough Peaks Herd.

Since 2011, the population has been managed by PZP to control the population growth to 2%. The BLM will continue to use PZP, however several mares have not responded to PZP treatments and continue to give birth every year. The BLM is considering and hoping other vaccine treatments will allow the mares that do not respond to PZP an opportunity to no longer be submitted to the stress of giving birth every year.

Table 4. Population growth of the McCullough Peaks herd since the population has been managed with PZP since 2011(note, a gather was conducted in 2009 and a bait trap gather in 2013).

Year	Population	Population Growth‡	Percent Growth
2009	207	-	-
2010	110	-97	-47%
2011	124	14	13%
2012	143	19	15%
2013	151	8	6%
2014	141	-10	-7%
2015	140	-1	-1%
2016	154	14	10%
2017	154	0	0%
2018	164	10	6%
2019	164	0	0%
2020	167	3	2%
2021	172	5	3%
2022	179	7	4%
2023	181	2	1%

‡ Population Growth is based on census counts in the Spring.

* Foals born that year are not included in the population counts.

Effects

No Action

Under this alternative, a bait trap gather would not be conducted and the herd would continue to be over the AML. Allowing the horses to naturally die off may take several years and although the McCullough Peaks has shown a 2% growth rate, the population would still be over the approved AML of 140 horses.

PZP would be the only fertility control treatment and would not allow the Cody Field Office to utilize current and newer treatments methods.

Proposed Action

The Proposed Action of bait trapping horses and retaining the older population of horses would allow the herd to be within AML. By reaching AML, this would ensure the Cody Field Office is in compliance with management record 4144 of the 2015 Cody RMP. This would put the herd at the upper level of AML. With an older population of horses that represent 13% of the current population and a 2% growth in population per year, this strategy would allow the BLM to manage this population at the upper end of AML. This would ensure that the McCullough Peaks HMA is within AML.

The Proposed Action to utilize additional forms of fertility control would allow the Cody Field Office additional means to control the population of the herd that is currently not available to be used. This would allow the Cody Field Office to treat mares that have not responded to PZP treatments with another alternative to ensure that the mares are not submitted to the stress of giving birth every year.

The mares that are not responding to PZP treatments represent 3% of the total mares currently on the range. By utilizing additional forms of fertility control it would allow the Cody Field Office to be current with new treatment opportunities to control the population as opposed to the No Action Alternative where we are only utilizing one method. Therefore, under the Proposed Action, this would allow the Cody Field Office to treat each mare with the best option to ensure the population is effectively managed.

List of Preparers

The following Cody Field Office personnel reviewed or have been contacted with regard to this EA.

Name	Title	Responsible for
Abel Guevara	Wildlife Biologist	Project Lead; Air Quality/Climate Change; Greenhouse Gas Emissions; Environmental Justice; Farmlands (Prime or Unique); Wildlife (including Sage-grouse, BLM Sensitive Species, Migratory Birds, Socioeconomics, Threatened, Endangered Candidate Animal Species, Wild Horses and Burros.
Cara Blank	Realty Specialist	Lands/Access
Steve Clark	Fisheries Biologist	Fisheries; Hydrologic Conditions; Water Resources/Quality (drinking/surface/ground)
Kierson Crume	Archaeologist	Historic or Cultural Resources
Sage Decker	Range Technician (Fire)	Invasive Species/Noxious Weeds
Jim Gates	Forester	Woodland/Forestry
Tim Haas	Fire Management Specialist (Fuels)	Fuels/Fire Management
Destin Harrell	Wildlife Biologist	Threatened, Endangered, Candidate or BLM Sensitive Plant Species
Brandi Hecker	Natural Resource Specialist	Fluid Mineral Resources (Surface); Public Health and Safety
Alison Howard	Petroleum Engineer	Energy Production (Subsurface)
Alicia Hummel	Rangeland Management Specialist	Floodplains; Soils; Wetlands/Riparian Zones
Gretchen Hurley	Geologist	Geology and Minerals, Paleontology, Hazardous Materials
Lindsay Mabee	Rangeland Management Specialist	Range Administration, Native Vegetation
Bryan McKenzie	Rangeland Management Specialist	Cave and Karst
Adam Stephens	Rangeland Management Specialist	Range Administration, Native Vegetation
Rick Tryder	Outdoor Recreation Planner	Areas of Critical Environmental Concern; BLM Natural Areas; Recreation; Wild and Scenic Rivers; Wilderness/WSA; Visual Resources' Areas with Wilderness Characteristics; Travel and Transportation.

Appendix A – Resources Considered and Eliminated From Further Analysis

The following resources and features were considered and eliminated from further analysis in this EA:

- Air Quality/Climate Change
- Areas of Critical Environmental Concern
- Areas with Wilderness Characteristics
- BLM Natural Areas
- Cave and Karst
- Energy Production (Subsurface)
- Environmental Justice
- Farmlands (Prime or Unique)
- Fisheries
- Fluid Mineral Resources (Surface)
- Fuels\Fire Management
- Geology and Minerals
- Greenhouse Gas Emissions
- Invasive Species/Noxious Weeds
- Lands/Access
- Native American Religious Concerns
- Migratory Birds
- Soils
- Threatened, Endangered, Candidate or BLM Sensitive Plant Species
- Threatened, Endangered, Candidate Animal Species
- Wastes (hazardous materials, hazardous wastes, and solid wastes)
- Water Resources/Quality (drinking/surface/ground)
- Wetlands/Riparian Zones
- Wild and Scenic Rivers
- Wilderness/WSA
- Woodland/Forestry

Resources and features present in the project area but not affected by the proposed action or alternatives include:

Resource/Feature Present	**Rationale for Determination**
Greater Sage Grouse and associated habitat	The bait trapping will occur during the winter months and trap locations are along roads, which contains little to no sage brush, to allow for easy access to transport gathered horses to off range facilities. This will not impact Greater Sage-Grouse due to the trapping locations and timing of the trapping operations.
Historic or Cultural Resources	Impacts occur to historic properties when a proposed project would alter any of the qualities of that property that qualify it for inclusion in the NRHP. Potential impacts from the Proposed Action and No Action include physical

Resource/Feature Present	Rationale for Determination
	destruction of or damage to all or part of a property or introduction of visual or atmospheric elements that diminish the integrity of a property's significant features. Unknown historic or cultural resources may be affected by surface disturbing activities. As no historic or cultural resources were identified within the APE, the current proposal received a No Historic Properties Affected assessment of effect as per the Wyoming State Protocol (WyoTrack#: DBU_WY_2023_580).
Paleontology	This project is situated in the Eocene Willwood Formation, with a Potential Fossil Yield Classification (PYFC) of 5 (a very high potential for the occurrence of vertebrate and scientifically significant paleontological resources), therefore, in the event of a potential discovery of such resources on the land surface within the project area, the three paleontological resources protection stipulations are required to be applied to this project. The stipulations are listed below. Paleontological Resources Protection Stipulations 1. Collecting: The project proponent/Operator is responsible for informing all persons associated with this project including employees, contractors, and subcontractors under their direction that they shall be subject to prosecution for damaging, altering, excavating, or removing any vertebrate fossils or other scientifically significant paleontological resources from the project area. Collection of vertebrate fossils (bones, teeth, turtle shells) or other scientifically significant paleontological resources is prohibited without a permit. Unlawful removal, damage, or vandalism of paleontological resources will be prosecuted by federal law enforcement personnel. 2. Discovery: If vertebrate or other scientifically significant paleontological resources (fossils) are discovered on BLM-administered land during operations, the Operator shall suspend

Resource/Feature Present	Rationale for Determination
	operations that could disturb the materials, stabilize, and protect the site, and immediately contact the BLM Cody Field Office Manager (Authorized Officer). The Authorized Officer would arrange for evaluation of the find within an agreed timeframe and determine the need for any mitigation actions that may be necessary. Any mitigation would be developed in consultation with the Operator, who may be responsible for the cost of site evaluation and mitigation of project effects to the site. If the operator can avoid disturbing a discovered site, there is no need to suspend operations; however, the discovery shall be immediately brought to the attention of the Authorized Officer. 3. Avoidance: All vertebrate or scientifically significant paleontological resources found as a result of the project/action will be avoided during operations. Avoidance in this case means "No action or disturbance within a distance of at least 100 feet of the outer edge of the paleontological locality."
Public Health and Safety	Opportunities for public viewing (i.e., media, interested public) of gather operations will be made available to the extent possible; however, the primary considerations will be to protect the health, safety and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representative. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel or contractors may enter the corrals or directly handle the animals. The general public may not enter the corrals or directly handle the animals at any time or for any reason during BLM operations.
Recreation	Recreation in the project would be temporarily impacted during bait trapping activities. However, this impact on recreation should be greatly reduced since bait trapping would occur during times with the least amount of recreation

Resource/Feature Present	Rationale for Determination
	use in the McCullough Peaks. The timing of November 1 to February 28 is also outside of the main commercial tourism window, thus reducing impacts to Special Recreation Permits (SRP's). The public will access a gravel road maintained by the natural gas companies to access their infrastructure when the road is plowed. BLM would plow the access roads to the traps, if there are horses within the traps that need to be shipped to off range corrals, law enforcement would need to ensure the public could not interfere with shipping horses. The traps would be moved to more remote locations within McCullough Peaks HMA after the target number of excess horses have been gathered so the traps would not be set the entire length Proposed Action timeframe. The slight reduction of wild horse numbers would affect public viewing opportunities.
Socioeconomics	The proposed action would retain horses at the upper limit of AML. This will still provide the public the opportunity to view the wild horses.
Terrestrial Wildlife	The McCullough Peaks HMA is within a migratory corridor for Pronghorn Antelope, the trapping efforts will not affect migratory pronghorn due to the trapping efforts will be conducted during the winter months after pronghorn have migrated through the HMA.
Travel and Transportation	No new user created roads will be established. Existing trails and roads will be utilized for the bait trap gather.
Visual Resources	The project area falls within Visual Resource Management (VRM) Class II: The objective of VRM Class II is to retain the existing character of the landscape. The level of change to the landscape should be low. Any changes should repeat the basic elements found in the natural features of the landscape- form, line, color, & texture. Management activities may be seen but should not attract attention of the observer.

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Appendix C – Acronyms and Abbreviations

AML- Appropriate Management Level
AO – Authorized Officer
APE – Area of Potential Effect
ARMP – Approved Resource Management Plan
AUM – Animal unit month
AVMA – American Veterinary Medical Association
BLM – Bureau of Land Management
CFR – Code of Federal Regulations
CYFO – Cody Field Office
DNA – Determination of NEPA Adequacy
DVM – Doctor of Veterinary Medicine
EA – Environmental Assessment
ESI – Ecological Site Inventory
FLPMA – Federal Land Policy and Management Act
FONSI – Finding of No Significant Impact
FSH – Follicle-stimulating hormone
GnRH – Gonadotropin-releasing hormone
HMA – Herd Management Area
HO – observed heterozygosity
ID – Interdisciplinary
IM – Instructional Memo
LH – Luteinizing Hormone
LUP – Land Use Plans
NEPA – National Environmental Policy Act
NRPH – National Register of Historic Places
ORC – Off Range Corrals
PRIA – Public Rangelands Improvement Act
PYFC – Potential Fossil Yield Classification
PZP – Porcine Zona Pellucida
ROD – Record of Decision
SHPO – State Historical Preservation Office
SOP – Standard Operating Procedures
SRP – Special Recreation Permit
TNEB – Thriving Natural Ecological Balance
USDA-APHIS – United States Department of Agriculture-Animal and Plant Health Inspection Service
USGS – United States Geological Survey
VRM – Visual Resource Management
WFRHBA – Wild Free- Roaming Horses and Burros Act
WHB – Wild Horse and Burro
WySHPO – Wyoming State Historical Preservation Office

Appendix D – Detailed Effects of Gonacon

GonaCon-Equine is one of several vaccines that have been engineered to create an immune response to the gonadotropin releasing hormone peptide (GnRH). GnRH is a small peptide that plays an important role in signaling the production of other hormones involved in reproduction in both sexes. When combined with an adjuvant, a GnRH vaccine stimulates a persistent immune response resulting in prolonged antibody production against GnRH, the carrier protein, and the adjuvant (Miller et al., 2008). The most direct result of successful GnRH vaccination is that it has the effect of decreasing the level of GnRH signaling in the body, as evidenced by a drop in luteinizing hormone levels, and a cessation of ovulation.

GnRH is highly conserved across mammalian taxa, so some inferences about the mechanism and effects of GonaCon-Equine in horses can be made from studies that used different anti-GnRH vaccines, in horses and other taxa. Other commercially available anti-GnRH vaccines include: Improvac (Imboden et al. 2006, Botha et al. 2008, Janett et al. 2009a, Janett et al. 2009b, Schulman et al. 2013, Dalmau et al. 2015, Nolan et al. 2018c), made in South Africa; Equity (Elhay et al. 2007), made in Australia; Improvest, for use in swine (Bohrer et al. 2014); Repro-BLOC (Boedeker et al. 2011); and Bopriva, for use in cows (Balet et al. 2014). Of these, GonaCon-Equine, Improvac, and Equity are specifically intended for horses. Other anti-GnRH vaccine formulations have also been tested, but did not become trademarked products (e.g., Goodloe 1991, Dalin et al 2002, Stout et al. 2003, Donovan et al. 2013, Schaut et al. 2018, Yao et al. 2018). The effective- ness and side-effects of these various anti-GnRH vaccines may not be the same as would be expected from GonaCon-Eq- uine use in horses. Results could differ as a result of differences in the preparation of the GnRH antigen, and the choice of adjuvant used to stimulate the immune response. For some formulations of anti-GnRH vaccines, a booster dose is required to elicit a contraceptive response, though GonaCon can cause short-term contraception in a fraction of treated animals from one dose (Powers et al. 2011, Gionfriddo et al. 2011a, Baker et al. 2013, Miller et al 2013). At the 2023 WHB Advisory Board meeting in Phoenix, Arizona, the BLM presented data showing that mares treated with a hand-injected booster dose of GonaCon 30 days after receiving a hand-injected primer dose had an approximate 85% contraceptive efficacy in the first year after treatment, which is more effective than the expected efficacy from a single dose of GonaCon-Equine (BLM 2022).

GonaCon can provide multiple years of infertility in several wild ungulate species, including horses (Killian et al., 2008; Gray et al., 2010). The lack of estrus cycling those results from successful GonaCon vaccination has been compared to typical winter period of anoestrus in open mares. As anti-GnRH antibodies decline over time, concentrations of available endogenous GnRH increase and treated animals usually regain fertility (Power et al., 2011).

Females that are successfully contracepted by GnRH vaccination enter a state similar to anestrus, have a lack of or incomplete follicle maturation, and no ovarian cycling (Botha et al. 2008, Nolan et al. 2018c). A leading hypothesis is that anti- GnRH antibodies bind GnRH in the hypothalamus – pituitary 'portal vessels,' preventing GnRH from binding to GnRH- specific binding sites on gonadotroph cells in the pituitary, thereby limiting the production of gonadotropin hormones, particularly luteinizing hormone (LH) and, to a lesser degree, follicle-stimulating hormone (FSH) (Powers et al. 2011, NAS 2013). This reduction in LH (and FSH), and a corresponding lack of ovulation, has been measured in response to treatment with anti-GnRH vaccines (Boedeker et al. 2011, Garza et al. 1986).

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

Antibody titer measurements are proximate measures of the antibody concentration in the blood specific to a given anti-gen. Anti-GnRH titers generally correlate with a suppressed reproduction system (Gionfriddo et al. 2011a, Powers et al. 2011). Various studies have attempted to identify a relationship between anti-GnRH titer levels and infertility, but that relationship has not been universally predictable or consistent. The time length that titer levels stay high appears to correlate with the length of suppressed reproduction (Dalin et al. 2002, Levy et al. 2011, Donovan et al. 2013, Powers et al. 2011). For example, Goodloe (1991) noted that mares did produce elevated titers and had suppressed follicular

development for 11-13 weeks after treatment, but that all treated mares ovulated after the titer levels declined. Similarly, Elhay (2007) found that high initial titers correlated with longer-lasting ovarian and behavioral anoestrus. However, Powers et al. (2011) did not identify a threshold level of titer that was consistently indicative of suppressed reproduction despite seeing a strong correlation between antibody concentration and infertility, nor did Schulman et al. (2013) find a clear relationship between titer levels and mare acyclicity.

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

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

Kirkpatrick et al. (2011) raised concerns that anti-GnRH vaccines could lead to adverse effects in other organ systems outside the reproductive system. GnRH receptors have been identified in tissues outside of the pituitary system, including in the testes and placenta (Khodr and Siler-Khodr 1980), ovary (Hsueh and Erickson 1979), bladder (Coit et al. 2009), heart (Dong et al. 2011), and central nervous system, so it is plausible that reductions in circulating GnRH levels could inhibit physiological processes in those organ systems. Kirkpatrick et al. (2011) noted elevated cardiological risks to human patients taking GnRH agonists (such as leuprolide), but the National Academy of Sciences (2013) concluded that the mechanism and results of GnRH agonists would be expected to be different from that of anti-GnRH antibodies; the former flood GnRH receptors, while the latter deprive receptors of GnRH.

Appendix E – Gather Operations Standard Operating Procedures

The McCullough Peaks Gather would be conducted via Bait Trap by utilizing BLM personnel. The following procedures for gathering and handling wild horses would apply whether contractor or BLM personnel conduct a gather.
Prior to the Bait Trap operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, snow depth, road conditions, and acceptable capture locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a licensed DVM during operations. If it is determined that a large number of animals may need to be euthanized or capture operations could be facilitated by a DVM, these services would be arranged before the capture would proceed. BLM personnel assisting with the bait trapping will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected. Capture sites and temporary sorting/holding facilities will be located to reduce the likelihood of injury and stress to the animals, and to minimize potential damage to the natural resources of the area. Wherever possible, capture sites would be located on or near existing roads to limit ground disturbance. All capture sites and sorting/holding facility locations must be approved by the Authorized Officer prior to construction. Capture sites would be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites would be located on or near existing roads. Additional capture sites may be required, as determined by the Authorized Officer, to relieve stress to the animals caused by specific conditions at the time of the gather (i.e., dust, rocky terrain, temperatures, etc.). The primary capture methods used in the performance of gather operations include Bait Trapping. This capture method involves utilizing bait (food/mineral) to lure wild horses into a temporary corral.

Capture Methods used in the McCullough Peaks Gather

1. The primary concern of the BLM personnel is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following: All capture sites and sorting/holding facilities locations must be approved by the Authorized Officer prior to construction.

2. All traps, wings, and sorting/holding facilities shall be constructed, maintained, and operated to handle the animals in a safe and humane manner and be in accordance with the following:

a. Captures sites and sorting/holding facilities shall be constructed of portable panels, the top of which shall not be less than 72 inches high for horses and 60 inches for burros, and the bottom rail of which shall not be more than 12 inches from ground level. All traps and sorting/holding facilities shall be oval or round in design.

b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes larger than 2"x4". C. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the Authorized Officer.

d. All crowding pens including the gates leading to the runways shall be covered with a material which prevents the animals from seeing out (plywood, burlap, plastic snow fence, etc.) and shall be covered a minimum of 1 foot to 5 feet above ground level for burros and 2 feet to 6 feet for horses.

e. All pens and runways used for the movement and handling of animals shall be connected with hinged self-locking or sliding gates.

4. No modification of existing fences would be made without authorization from the Authorized Officer. BLM personnel shall be responsible for restoration of any fence modification which he has made.

5. Alternate pens, within the sorting/holding facility shall be constructed by BLM Personnel to separate mares with small foals, sick and injured animals, estrays or other animals the BLM Personnel determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the sorting/holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government would require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. However, The Cody Field Office is familiar with all the horses within the McCullough Peaks herd, therefore the need to restrain the horses will not be necessary. Alternate pens shall be constructed by BLM personnel to hold animals if the specific gathering requires that animals be released back into the capture area(s).

6. BLM Personnel shall provide animals held in the traps and/or sorting/holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or sorting/holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of

estimated body weight per day. BLM Personnel would supply certified weed free hay if required by State, County, and Federal regulation.
7. It is the responsibility of the BLM to provide security to prevent loss, injury or death of captured animals until delivery to final destination.
8. The BLM Personnel will access sick or injured animals and determine if treatment is necessary. The Authorized Officer would determine if animals must be euthanized and provide for the destruction of such animals. BLM Personnel may be required to humanely euthanize animals in the field and to dispose of the carcasses.
9. Animals shall be transported to their final destination from temporary sorting/holding facilities as quickly as possible after capture unless prior approval is granted by the Authorized Officer for unusual circumstances. Animals to be released back into the McCullough Peaks HMA following gather operations may be held up to 21 days or as directed by the Authorized Officer. Animals shall not be held in traps and/or temporary sorting/holding facilities on days when there is no work being conducted except as specified by the Authorized Officer. BLM Personnel shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the Authorized Officer. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours in any 24-hour period. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination would be at the discretion of the Cody Field Office horse specialist.

Capture Methods That May Be Used in the Performance of a Gather

1. Gather attempts may be accomplished by utilizing bait (feed, water, mineral licks) to lure animals into a temporary trap, t h e following applies:

a. Finger gates shall not be constructed of materials such as "T" posts, sharpened willows, etc., that may be injurious to animals.

b. All trigger and/or trip gate devices must be approved by the COR/PI prior to capture of animals.

c. Traps shall be checked a minimum of once every 10 hours.

Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals.
2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury. Equipment will need to be washed to remove invasive species seed.
3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from capture site site(s) to temporary sorting/holding facilities, and from temporary sorting/holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5-foot-wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.
4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer, which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges, protrusions or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side.
5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.
6. Animals to be loaded and transported in any trailer shall be as directed by the Authorized Officer and may include limitations on numbers according to age, size, sex, temperament, and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

11 square feet per adult horse (1.4 linear foot in an 8-foot-wide trailer).
8 square feet per adult burro (1.0 linear foot in an 8-foot-wide trailer).
6 square feet per horse foal (.75 linear foot in an 8-foot-wide trailer).
4 square feet per burro foal (.50 linear feet in an 8-foot-wide trailer).

7. The Authorized Officer shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals.

8. If the Authorized Officer determines that dust conditions are such that the animals could be endangered during transportation, the Contractor will be instructed to adjust speed of transporting vehicles.

Treatment of Injured or Sick; Disposition of Terminal Animals

BLM Personnel would determine if treatment of sick or injured animals. A veterinarian may be called to make a diagnosis and final determination. Destruction would be done by the most humane method available. Authority for humane destruction of wild horses is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains and is in accordance with BLM policy as expressed in Instructional Memorandum No. 98-141.

The Authorized officer would determine if injured animals must be destroyed and provide for destruction of such animals. BLM Personnel will dispose of the carcasses as directed by the Authorized Officer.

The carcasses of the animals that die or must be destroyed as a result of any infectious, contagious, or parasitic disease would be disposed of by burial to a depth of at least 3 feet.

The carcasses of the animals that must be destroyed as a result of age, injury, lameness, or noncontagious disease or illness would be disposed of by removing them from the capture site or sorting/holding corral and placing them in an inconspicuous location to minimize visual impacts.

Carcasses would not be placed in drainages regardless of drainage size or downstream destination.

Site Clearances

Personnel working at gather sites will be advised of the illegality of collecting artifacts. Prior to setting up a capture site or temporary sorting/holding facility on a site not previously cleared or disturbed, BLM will conduct all necessary clearances (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist. Once archaeological clearance has been obtained, the capture site or temporary sorting/holding facility may be set up.

No personnel working at gather sites may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any archaeological resource located on public lands. New capture sites and temporary holding/sorting facilities would be constructed outside RHCA or weed infested areas.

Public Participation

Opportunities for public viewing (i.e., media, interested public) of gather operations will be made available to the extent possible; however, the primary considerations will be to protect the health, safety, and welfare of the animals being gathered and the personnel involved. The public must adhere to guidance from the on-site BLM representatives. It is BLM policy that the public will not be allowed to come into direct contact with wild horses or burros being held in BLM facilities. Only authorized BLM personnel may enter the corrals or directly handle the animals. The general public may not enter the corrals, climb on or lean through corrals, or directly handle the animals at any time or for any reason during BLM operations.

Responsibility and Lines of Communication

Incident Command

Authorized Officer: Cade Powell, Field Manager, Cody Field Office

Project Lead: Abel Guevara, Wildlife Biologist, Cody Field Office

Technical Advisor – June Wendlant, Wild Horse and Burro Specialist, BLM WY State Office

The Project Lead will have the direct responsibility to ensure the Bait Trap is in compliance with SOPs. The Project Lead will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM Sorting/holding Facility offices. All employees involved in the gather operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the BLM Wyoming State Office and the Wind River Bighorn Basin District Public Affairs Officer. These individuals will be the primary contact and will coordinate with the Project Lead on any inquiries.

The Project Lead would coordinate with the BLM Corrals to ensure animals are being transported from the sorting/holding facility in a safe and humane manner and are arriving in good condition.

The Bait Trap gather specifications require humane treatment and care of the animals during removal operations. These specifications are designed to minimize the risk of injury and death during and after capture of the animals. The specifications would be vigorously enforced.

Should the Project Lead show negligence and/or not perform according to bait trap gather stipulations, he would be issued verbal instructions to halt bait trap gather operations by the Authorized Officer.

Additional requirements for personnel conducting gather operations also include:

1. Electric prods (hotshots) would not be used routinely on horses. They can be used when animal or human safety is in jeopardy or as a last resort. Handlers do not constantly carry prods. Prods are picked up only when necessary and then put away. Electric prods are never applied to sensitive areas such as the eyes.
2. Electric prod use will not be disguised but used openly and transparently.
3. Handling aids, including electric prods and flags will not be used abusively.
4. Flagging will be used strategically, as excessive flagging desensitizes the animal and becomes useless if used too much.
5. Gates and doors will not be deliberately slammed or shut on horses passing through.
6. Excessive yelling and unnecessary noises will not be utilized in the loading and unloading process.
7. There will be no hitting, kicking, or striking a horse.
8. Loading or unloading of transport vehicles is performed during daylight hours, or supplemental light will be provided in the area to facilitate visibility.
9. Holes, gaps, or openings will be eliminated in the loading/unloading area to avoid injury.
10. Transport vehicles will be properly aligned with the loading/unloading ramps or docks. No gaps will exist between the unloading/loading docks or ramps and the bottom or floor of the trailer's exit. No gaps will exist between the trailer and the side walls of the unloading area, whereby a horse's limbs or head can become stuck or injured.

Fertility Control Treatment SOPs common to all vaccine types

Identification

Animals intended for treatment must be clearly, individually identifiable to allow for positive identification during subsequent management activities. Identification may be accomplished Such animals may be photographed using a telephoto lens and high-quality digital camera as a record of treated individuals.

Safety

Safety for both humans and animals is the primary consideration in all elements of fertility control vaccine use. Administration of any vaccine must follow all safety guidance and label guidelines on applicable EPA labeling.

Injection Site

For hand-injection, delivery of the vaccine should be by intramuscular injection, while the animal is standing still, into the left or right side, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone): this is the hip / upper gluteal area. For dart-based injection, delivery of the vaccine should be by intramuscular injection, while the animal is standing still, into the left or right thigh areas (lower gluteal / biceps femoralis).

Monitoring and Tracking of Treatments

1. Estimation of population size and growth rates (in most cases, using aerial surveys) should be conducted periodically after treatments.
2. Population growth rates of some herds selected for intensive monitoring may be estimated every year post-treatment using aerial surveys. If, during routine HMA field monitoring (on-the-ground), data describing adult to foal ratios can be collected, these data should also be shared with HQ-261.
3. Field applicators should record all pertinent data relating to identification of treated animals (including photographs if animals are not freeze-marked) and date of treatment, lot number(s) of the vaccine, quantity of vaccine issued, the quantity used, the date of vaccination, disposition of any unused vaccine, the date disposed, the number of treated mares by HMA, field office, and State along with the microchip numbers and freeze- mark(s) applied by HMA and date. A summary narrative and data sheets will be forwarded to HQ-261 annually (Reno, Nevada). A copy of the form and data sheets and any photos taken should be maintained at the field office.

HQ-261 will maintain records sent from field offices, on the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

PZP Vaccine SOPs

1. PZP vaccine would be administered by trained BLM personnel.

2. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using

an 18-gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14-gauge needle. These are loaded on the end of a trocar (dry syringe with a metal rod) which is loaded into the jab-stick which then pushes the pellets into the breeding mares being returned to the range. The pellets and liquid are designed to release the PZP over time similar to a time-release cold capsule.

3. Delivery of the vaccine would be as an intramuscular injection while the mares are restrained in a working chute. Half a cubic centimeter (cc) of the PZP vaccine would be emulsified with half a cc of adjuvant (a compound that stimulates antibody production) and loaded into the delivery system. The pellets would be loaded into the jab-stick for the second injection. With each injection, the liquid and pellets would be propelled into the left hindquarters of the mare, just below the imaginary line that connects the point of the hip and the point of the buttocks.

4. All treated mares would be freeze marked on the hip and / or chipped to enable researchers to positively identify the

Animals during the research project as part of the data collection phase.

5. At a minimum, monitoring of reproductive rates using helicopter flyovers will be conducted in years two through four by checking for the presence or absence of foals. The flight scheduled for year four will also assist in determining the percentage of mares that have returned to fertility. In addition, field monitoring will be routinely conducted as part of other regular ground-based monitoring activities.

6. A field data sheet will be used by the field applicators to record all the pertinent data relating to identification of the mare including a photograph when possible, date of treatment, type of treatment (1 or 2 year vaccine, adjuvant used) and HMA. The original form with the data sheets will be forwarded to the Authorized Officer at the National Program Office (NPO) in Reno, Nevada. A copy of the form and data sheets and any photos taken will be maintained at the district office.

7. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, and disposition of any unused PZP, the number of treated mares by HMA, district office, and state along with the freeze-mark and / or chip applied by HMA.

8. The field office will assure that treated mares do not enter the adoption market for 3 years following treatment. In the rare instance, due to unforeseen circumstances, that treated mare(s) are removed from an HMA before 3 years have lapsed, they will be maintained in either a BLM facility or BLM-contracted Long-Term Pastures (LTPs) until expiration of the 3-year holding period. In the event it is necessary to remove treated mares, their removal and disposition will be coordinated through NPO. After expiration of the 3-year holding period, the animal may be placed in the adoption program or sent to long-term pastures.

PZP Remote Darting SOPs

1. PZP vaccine would be administered through darting by trained BLM personnel or collaborating partners only. For any darting operation, the designated personnel must have successfully completed a nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.
2. All mares targeted for treatment will be clearly identifiable through photographs to enable darters and HMA managers to positively identify the animals during the project and at the time of removal during subsequent gathers.
3. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).
4. The liquid dose of PZP vaccine is administered using 1.0 cc Pneu-Darts with 1.25" or 1.5" barbless needles fired from either Dan Inject®, Pneu-Dart® X-Caliber or Palmer® Cap-Chur rifle.
5. Only designated darters would mix the vaccine/adjuvant and prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of an appropriate CO_2 powered or cartridge darting delivery system.
6. Delivery of the vaccine would be by intramuscular injection into the left or right hip/gluteal muscles while the mare is standing still.
7. Safety for both humans and the horse is the foremost consideration in deciding to dart a mare. Safe darting distances would depend on the skill and ability of the darter, and the particular model of dart gun being utilized. No attempt would be taken when other persons are within a 30-m radius of the target animal.
8. No attempts would be taken in high wind or when the horse is standing at an angle where the dart could miss the hip/gluteal region and hit the rib cage. The ideal is when the dart would strike the skin of the horse at a perfect 90° angle.

9. If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another horse. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day. Refrigerated darts would not be used in the field.

10. No more than two people should be present at the time of a darting. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the horse and keeping onlookers at a safe distance.

11. To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting.

12. Attempts will be made to recover all darts. To the extent possible, all darts which are discharged and drop from the horse at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine. Personnel conducting darting operations should be equipped with a two-way radio or cell phone to provide a communications link with the Project Veterinarian for advice and/or assistance. In the event of a veterinary emergency, darting personnel would immediately contact the Project Veterinarian, providing all available information concerning the nature and location of the incident.

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

GonaCon SOPs

GonaCon-Equine vaccine (USDA Pocatello Storage Depot, Pocatello, ID; Spay First!, Inc., Oklahoma City, OK) is distributed as preloaded doses (2 mL) in labeled syringes.

Delivering GonaCon by Hand-Injection of GonaCon

1. GonaCon-Equine vaccine is administered by hand-injection to mares that are appropriately immobilized or restrained. Important: label instructions must be followed for this product. Females identified for treatment application are hand-injected with an intramuscular injection of Gona-Equine vaccine (2 ml) in the lower gluteal musculature using a hand-held, luer-lock syringe (18-gauge, 3.8 cm needle). The syringe is made of transparent plastic with the barrel showing graduated marks indicating the volume of the vaccine in the syringe. This facilitates the visual assessment of the quantity of vaccine injected into the animal without the need to weigh the syringes. Pre-loaded syringes should be kept refrigerated overnight and then set out the morning of application at room temperature. They should not be allowed to get too warm or cold during the day.

2. The vaccine is distributed as preloaded doses (2 mL) in labeled syringes. Upon receipt, the vaccine should be kept refrigerated (4° C) until use. Do not freeze. The vaccine has a 6-month shelf-life from the time of production and the expiration date will be noted on each syringe that is provided.

3. Although infrequent, hand-injections to immobilized or restrained horses can result in partial delivery of the vaccine due to inexperienced personnel and/or unexpected movement of the horse. As a precaution, order extra doses of the vaccine. For hand-injection application, assume a 10% failure rate and increase the original quantity accordingly.

4. Examine each syringe before and after injection and visually determine approximately how much vaccine was injected. A full dose is considered 90% (1.8 ml) or greater of the original 2 ml dose. Ensure a full dose is administered.

5. It is recommended that all treated mares be photographed to facilitate identification by individual markings, RFID chip, and/or freeze-marked on the hip or neck to positively identify the animals as a GonaCon-Equine vaccinated mare during field observations or subsequent gathers.

Preparation of Darts for GonaCon Remote Delivery:

General practice guidelines for darting operations, as noted above for dart-delivery of ZonaStat-H, should be followed for dart-delivery of GonaCon-Equine.

1. The vaccine is distributed as preloaded doses (2 mL) in labeled syringes. Upon receipt, the vaccine should be kept refrigerated (4° C) until use. Do not freeze. The vaccine has a 6-month shelf-life from the time of production and the expiration date will be noted on each syringe that is provided. Important: label instructions must be followed for this product.

2. Although infrequent, dart injections can result in partial injections of the vaccine, and shots are missed. As a precaution, it is recommended that extra doses of the vaccine be ordered to accommodate failed delivery (~15 %). To determine the amount of vaccine delivered, the dart must be weighed before loading, and before and after delivery in the field.

3. For best results, darts with a gel barb should be used. (i.e. 2 cc Pneu-Dart brand darts configured with Slow-inject technology, 3.81 cm long 14 ga.tri-port needles, and gel collars positioned 1.27 cm ahead of the ferrule).

4. Wearing latex gloves, darts are numbered and filled with vaccine by attaching a loading needle (7.62 cm; provided by dart manufacturer) to the syringe containing vaccine and placing the needle into the cannula of the dart to the fullest depth possible. Slowly depress the syringe plunger and begin filling the dart. Periodically, tap the dart on a hard surface to dislodge air bubbles trapped within the vaccine. Due to the viscous nature of the fluid, air entrapment typically results in a maximum of approximately 1.8 ml of vaccine being loaded in the dart. The dart is filled to max once a small amount of the vaccine can be seen at the tri-ports.

5. Important! Do not load and refrigerate darts the night before application. When exposed to moisture and condensation, the edges of gel barbs soften, begin to dissolve, and will not hold the dart in the muscle tissue long enough for full injection of the vaccine. The dart needs to remain in the muscle tissue for a minimum of 1 minute to achieve dependable full injection. Sharp gel barbs are critical.

6. Darts (configured specifically as described above) can be loaded in the field and stored in a cooler prior to application. Darts loaded, but not used can be maintained in a cooler at about 4° C and used the next day, but do not store in a refrigerator or any other container likely to cause condensation.

Administering the GonaCon Vaccine Remotely (via Darting):

1- For initial and booster treatments, mares would ideally receive 2.0 ml of GonaCon-Equine. However, experience has demonstrated that only 1.8 ml of vaccine can typically be loaded into 2 cc darts, and this dose has proven successful. Calculations below reflect a 1.8 ml dose.

2- With each injection, the vaccine should be injected into the left or right hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).

3- Darts should be weighed to the nearest hundredth gram by electronic scale when empty, when loaded with vaccine, and after discharge, to ensure that 90% (1.62 ml) of the vaccine has been injected. Animals receiving <50% should be darted with another full dose; those receiving >50% but <90% should receive a half dose (1 ml). All darts should be weighed to verify a combination of ≥1.62 ml has been administered. Therefore, every effort should be made to recover darts after they have fallen from animals.

4- A booster vaccine may be administered after the first injection to improve efficacy of the product over subsequent years.

5- Free ranging animals may be photographed using a telephoto lens and high-quality digital receiver as a record of

treated individuals, and the injection site can be recorded on data sheets to facilitate identification by animal markings and potential injection scars.

Appendix F – PopEquus Results (Proposed Action Alternatives)

PopEquus (1.0.1) Basic Tool – Simulation Report

07 July 2023 09:38:48

Settings

You simulated 3 management alternatives using the *PopEquus* Basic Tool: GonaCon, Removals, ZonaStat-H. You assumed a starting population size of 181 horses, a mean annual population growth rate of 2, and a capture probability during management (e.g.,bait gather) of 0.23. You also assumed that the target population size range for the population (i.e., Appropriate Management Level) was 70-140 horses, and that removals aimed for a target population size of 140. You simulated populations over a 10-year projection interval, and you performed 10 replicate projections.

Results

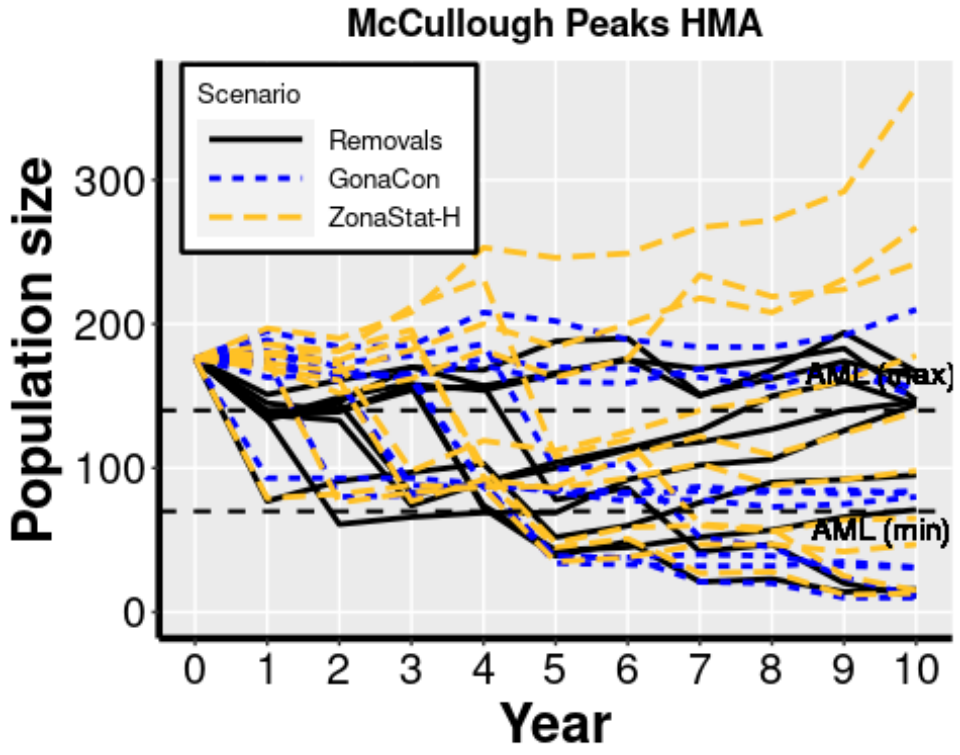
Simulation outcomes can be summarized with a table(s) describing mean values among replicates for relevant metrics. Metrics include: population size in the final year of the projection interval ('Final population size'), average population size across all years ('Mean population size'), proportion of replicates that ended within the AML (i.e., the likelihood that an alternative yielded AML in the final year; 'AML probability'), proportion of replicates that ended above the persistence threshold ('Persistence probability'), total number of horses gathered ('Number gathered'), total number of horses removed ('Number removed'), total number of horses treated ('Number treated'), cost of management in the Herd Management Area (HMA) in millions of USD ['On-range cost ($ million)'], and total cost of management, including costs incurred at the HMA and in holding facilities ['Total cost ($ million)']. Values in parentheses are 95% confidence intervals.

Alternative	Final population size	Overall mean population size	AML probability
Removals	110 (12-166)	121 (81-167)	0.20
GonaCon	84 (10-198)	119 (72-186)	0.30
ZonaStat-H	143 (13-343)	141 (75-237)	0.20

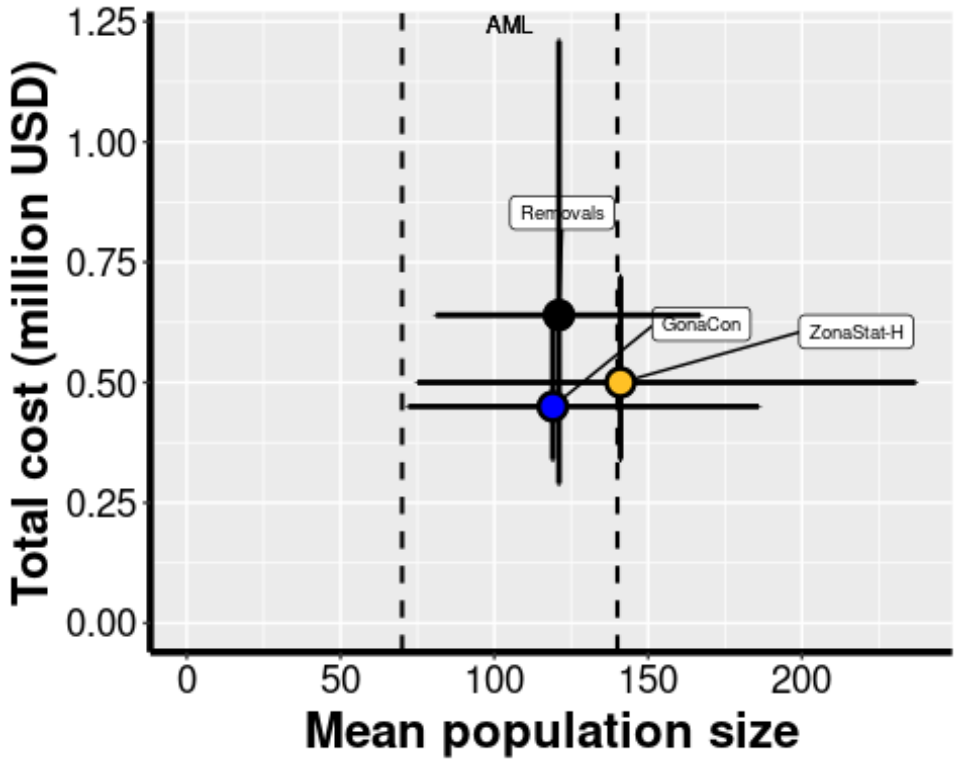
Alternative	Persistence probability	Number gathered	Number removed	Number treated
Removals	0.80	308 (137-543)	75 (38-144)	0 (0-0)
GonaCon	0.80	394 (288-565)	0 (0-0)	187 (133-270)
ZonaStat-H	0.80	453 (296-690)	0 (0-0)	199 (124-309)

Alternative	On-range cost ($ million)	Off-range cost ($ million)	Total cost ($ million)
Removals	0.32 (0.14-0.55)	0.32 (0.15-0.66)	0.64 (0.29-1.21)
GonaCon	0.45 (0.34-0.62)	0.00 (0.00-0.00)	0.45 (0.34-0.62)
ZonaStat-H	0.50 (0.34-0.72)	0.00 (0.00-0.00)	0.50 (0.34-0.72)

A graph of population size through time can be used to visualize effects of management alternatives on population size. Different colored lines indicate management alternatives simulated by the user; for each alternative, individual lines are different simulation replicates, that vary due to random chance. Dashed horizontal black lines indicate the minimum and maximum target population size range (i.e., AML).



Individuals might be interested in identifying a management alternative(s) that achieves the reduction or maintenance of a population within the target population size range (i.e., AML) while also incurring lower direct costs relative to other options. We can visualize the relationship between predicted population size and direct costs of management by graphing the overall mean population size (number of horses) on the x-axis and total cost of management (millions of USD) on the y-axis predicted by each alternative. Points are mean predictions among replicates and are colored by scenario (as in in the first graph); horizontal and vertical lines from points represent 95% confidence intervals in predicted population size and cost, respectively, for each scenario. While this graph does not account for all factors that might be important during management decisions, the graph provides a useful illustration of the trade-off between predicted population size and total direct cost of management resulting from the simulated alternatives.



Summary

The alternative that yielded the smallest average population size was:

```
## [1] "GonaCon"
```

The alternative that incurred the lowest direct costs ‘on range’ (other than ‘no management’) over the next 10 years was:

```
## [1] "Removals"
```

The alternative that incurred the lowest total direct costs across the sum of ‘on range’ and ‘off range’ (other than ‘no management’) over the next 35 years was:

```
## [1] "GonaCon"
```

Among the alternatives that achieved population size within Appropriate Management Levels, the alternative that incurred the lowest total direct costs across the sum of ‘on range’ and ‘off range’ was:

```
## [1] "Removals"
```

Note: results from the simulations may not be the sole basis for a management decision. The model does not explicitly account for or consider multiple uses on public lands, local land use planning considerations, ecological costs of horses on ecosystems, or other important values. The results presented here reflect considerations related to population size, amount of management, and fiscal costs of management that were estimated, given the input parameters and alternatives specified.

Appendix G – PopEquus Results (Removals and Zonastat) *

*PopEquus requires 2 management alternatives.

***PopEquus* (1.0.1) Basic Tool - Simulation Report**

07 July 2023 10:27:20

Settings

You simulated 2 management alternatives using the *PopEquus* Basic Tool: Removals, ZonaStat-H. You assumed a starting population size of 181 horses, a mean annual population growth rate of 2, and a capture probability during management (e.g., bait gather) of 0.23. You also assumed that the target population size range for the population (i.e., Appropriate Management Level) was 70-140 horses, and that removals aimed for a target population size of 140. You simulated populations over a 10-year projection interval, and you performed 10 replicate projections.

Results

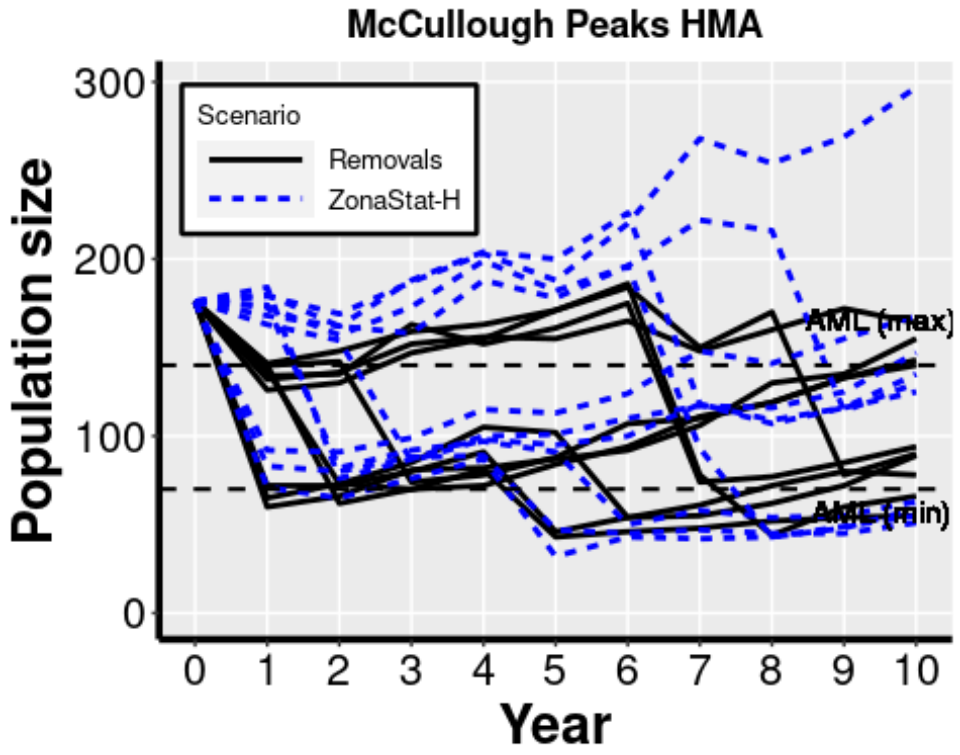
Simulation outcomes can be summarized with a table(s) describing mean values among replicates for relevant metrics. Metrics include: population size in the final year of the projection interval ('Final population size'), average population size across all years ('Mean population size'), proportion of replicates that ended within the AML (i.e., the likelihood that an alternative yielded AML in the final year; 'AML probability'), proportion of replicates that ended above the persistence threshold ('Persistence probability'), total number of horses gathered ('Number gathered'), total number of horses removed ('Number removed'), total number of horses treated ('Number treated'), cost of management in the Herd Management Area (HMA) in millions of USD ['On-range cost ($ million)'], and total cost of management, including costs incurred at the HMA and in holding facilities ['Total cost ($ million)']. Values in parentheses are 95% confidence intervals.

Alternative	Final population size	Overall mean population size	AML probability
Removals	107 (57-162)	113 (71-154)	0.40
ZonaStat-H	123 (52-268)	130 (68-209)	0.30

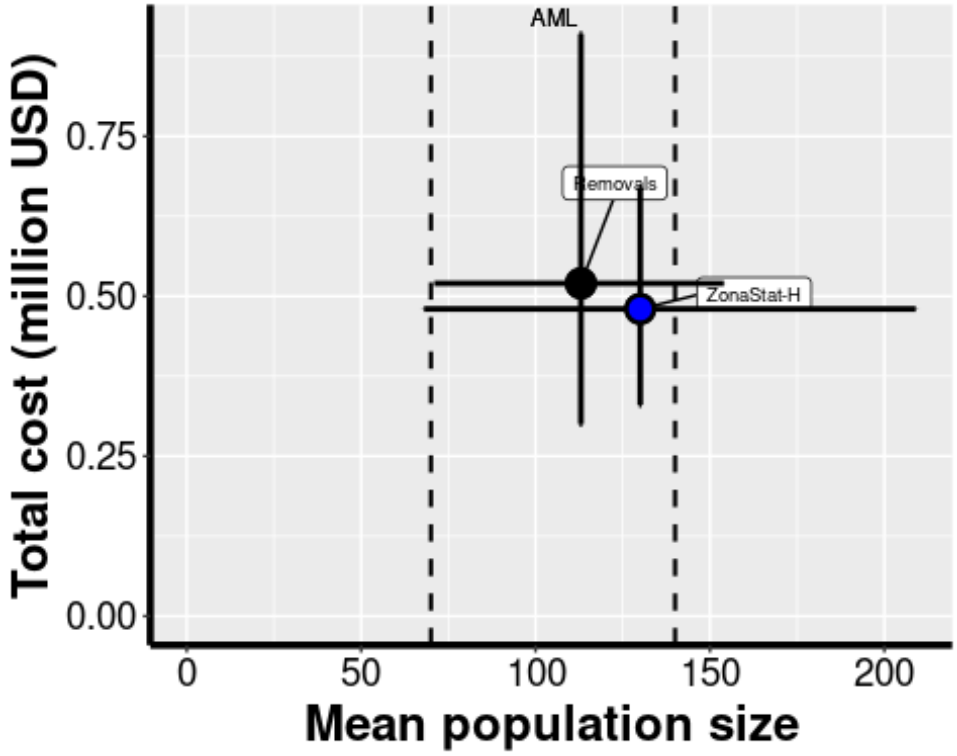
Alternative	Persistence probability	Number gathered	Number removed	Number treated
Removals	1.00	252 (137-485)	60 (38-98)	0 (0-0)
ZonaStat-H	1.00	429 (279-640)	0 (0-0)	193 (120-290)

Alternative	On-range cost ($ million)	Off-range cost ($ million)	Total cost ($ million)
Removals	0.26 (0.14-0.50)	0.26 (0.16-0.41)	0.52 (0.30-0.91)
ZonaStat-H	0.48 (0.33-0.67)	0.00 (0.00-0.00)	0.48 (0.33-0.67)

A graph of population size through time can be used to visualize effects of management alternatives on population size. Different colored lines indicate management alternatives simulated by the user; for each alternative, individual lines are different simulation replicates, that vary due to random chance. Dashed horizontal black lines indicate the minimum and maximum target population size range (i.e., AML).



Individuals might be interested in identifying a management alternative(s) that achieves the reduction or maintenance of a population within the target population size range (i.e., AML) while also incurring lower direct costs relative to other options. We can visualize the relationship between predicted population size and direct costs of management by graphing the overall mean population size (number of horses) on the x-axis and total cost of management (millions of USD) on the y-axis predicted by each alternative. Points are mean predictions among replicates and are colored by scenario (as in in the first graph); horizontal and vertical lines from points represent 95% confidence intervals in predicted population size and cost, respectively, for each scenario. While this graph does not account for all factors that might be important during management decisions, the graph provides a useful illustration of the trade-off between predicted population size and total direct cost of management resulting from the simulated alternatives.



Summary

The alternative that yielded the smallest average population size was:

```
## [1] "Removals"
```

The alternative that incurred the lowest direct costs ‘on range’ (other than ‘no management’) over the next 10 years was:

```
## [1] "Removals"
```

The alternative that incurred the lowest total direct costs across the sum of ‘on range’ and ‘off range’ (other than ‘no management’) over the next 35 years was:

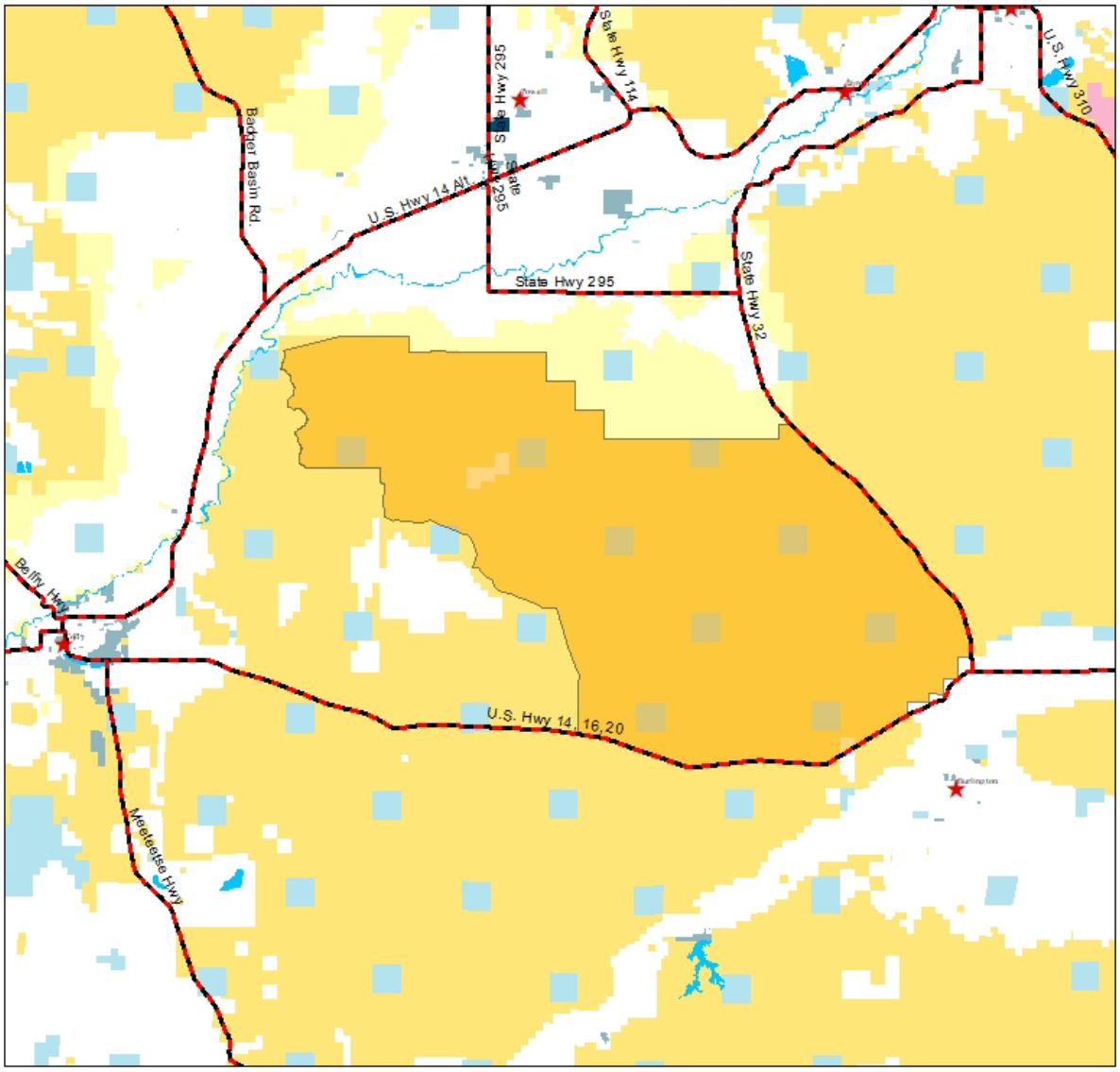
```
## [1] "ZonaStat-H"
```

Among the alternatives that achieved population size within Appropriate Management Levels, the alternative that incurred the lowest total direct costs across the sum of ‘on range’ and ‘off range’ was:

```
## [1] "Removals"
```

Note: results from the simulations may not be the sole basis for a management decision. The model does not explicitly account for or consider multiple uses on public lands, local land use planning considerations, ecological costs of horses on ecosystems, or other important values. The results presented here reflect considerations related to population size, amount of management, and fiscal costs of management that were estimated, given the input parameters and alternatives specified.

Appendix H – Map of McCullough Peaks Herd Management Area



No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.