



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

Wild Horse Management for the BLM Rock Springs and Rawlins Field Offices

Proposed Resource Management Plan Amendment and Final Environmental
Impact Statement



Estimated Lead Agency
Total Costs Associated with
Developing and Producing this EIS
\$525,000 total

2022



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

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In Reply Refer To:

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DOI-BLM-WY-D040-2013-0001-RMP-EIS

MAR 03 2022

Dear Reader:

The Proposed Resource Management Plan (RMP) Amendment and Final Environmental Impact Statement (EIS) for Wild Horse Management in the Rock Springs and Rawlins Field Offices for the Bureau of Land Management (BLM) is available for your review. The BLM prepared this document in consultation with cooperating agencies and in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Federal Land Policy and Management Act (FLPMA) of 1976, as amended, implementing regulations, the BLM's Land Use Planning Handbook (H-1601-1), and all other applicable law and policy.

The Proposed RMP Amendment and Final EIS considers the management of four herd management areas (HMAs) that include checkerboard land and are addressed in the BLM's obligations under the 2013 Consent Decree and Joint Stipulation for Dismissal with the Rock Springs Grazing Association, encompassing approximately 2,811,401 acres in the Rock Springs and Rawlins field offices. The BLM manages approximately 1,920,314 acres of surface estate in the planning area. Private land in the planning area totals approximately 814,086 acres. The Final EIS and supporting information are available on the project website at <https://eplanning.blm.gov/eplanning-ui/project/2009946/510>.

The Proposed RMP Amendment and Final EIS are being released for a 30-day public availability and protest period beginning on the date the Environmental Protection Agency (EPA) publishes its Notice of Availability in the Federal Register. After the 30-day public availability and protest period, the BLM will release a Record of Decision (ROD) that will detail the BLM's final decision as well as any required mitigation. If approved, management actions analyzed in this Final EIS would amend the 1997 Green River RMP and the 2008 Rawlins RMP.

Pursuant to the BLM's planning regulations at 43 CFR 1610.5-2, any person who participated in the planning process for this Proposed RMP Amendment and has an interest that would or may be adversely affected by the planning decisions may protest the approval of the planning decision within 30 days from the date the EPA publishes the Notice of Availability of the Final EIS in the Federal Register. Only people or organizations who participated in the planning process leading to the Proposed RMP Amendment may protest. The protesting party may raise only the issues they submitted for the record during the planning process leading up to the publication of this Proposed RMP Amendment. These issues may have been raised by the protesting party or others. New issues may not be brought into the record at the protest stage.

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COLORADO, NEW MEXICO, UTAH, WYOMING

All protests on the Proposed RMP Amendment must be submitted in writing by any of the following methods:

Website: <https://eplanning.blm.gov/eplanning-ui/project/2009946/510>

Regular mail:
Director (210)
Attention: Protest Coordinator
P.O. Box 261117
Lakewood, CO 80226

Overnight delivery:
Director (210)
Attention: Protest Coordinator
2850 Youngfield Street
Lakewood, CO 80215

The BLM encourages submission of protests using the online ePlanning participation tools rather than by mail.

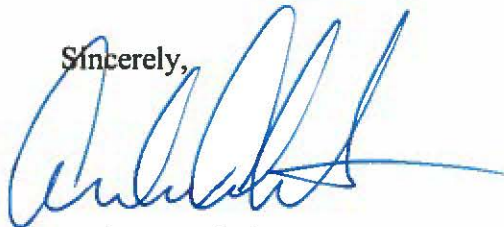
The Proposed RMP Amendment/Final EIS may be examined online at the ePlanning website at <https://eplanning.blm.gov/eplanning-ui/project/2009946/510>. Interested parties may also submit a protest at that site.

Electronic copies of the Proposed RMP Amendment and Final EIS have been sent to affected federal, Tribal, state, and local government agencies. A hard copy of the document is also available for public inspection at the BLM Rock Springs Field Office.

Thank you for your continued interest in the Wild Horse Proposed RMP Amendment and Final EIS. For additional information or clarification regarding this document or the planning process, please contact the Project Manager, Spencer Allred, at sallred@blm.gov or 307-352-0367.

Please note before including your address, phone number, email address, or other personal identifying information in your protest, you should be aware that your entire protest – including your personal identifying information – may be made publicly available at any time. While you may ask us in your protest to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Sincerely,



Andrew Archuleta
State Director

Executive Summary

Introduction

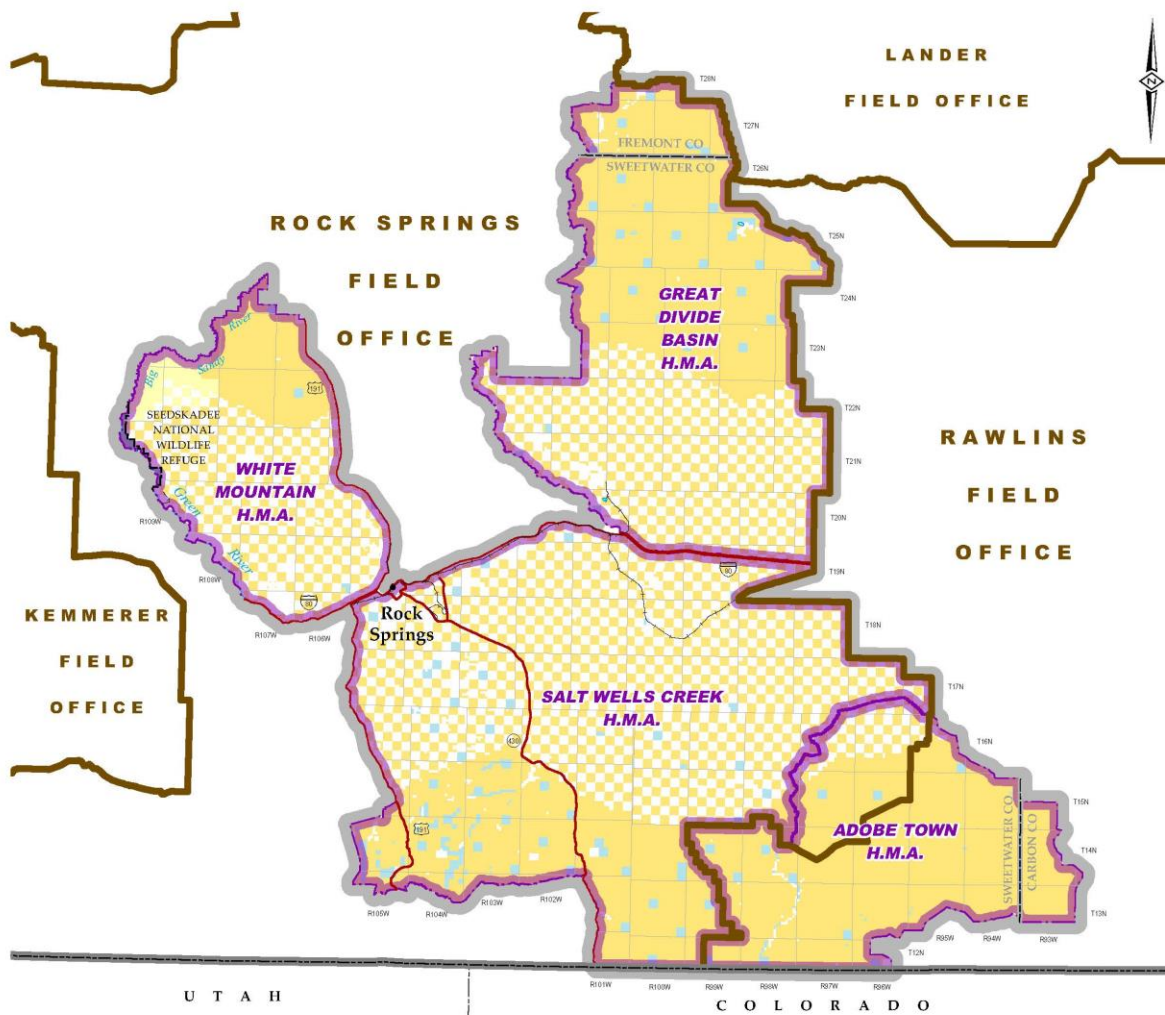
The Federal Land Policy and Management Act (FLPMA) of 1976 directs the Department of the Interior's (DOI) Bureau of Land Management (BLM) to develop and periodically revise or amend its resource management plans (RMPs), which guide management of BLM-administered lands. The BLM has initiated a planning effort to amend the Rock Springs and Rawlins Field Offices' RMPs for the management of wild horses. In June 2011, the Rock Springs Grazing Association (RSGA) filed a lawsuit (*Rock Springs Grazing Association v. Salazar*, No. 11-CV-00263-NDF) in the United States (U.S.) District Court for Wyoming contending, in part, that the BLM had violated Section 4 of the Wild Free Roaming Horses and Burros Act, 16 U.S.C. 1334, by failing to remove strayed animals from private lands controlled by the RSGA. Historically, the RSGA had consented to allow a specific number of wild horses to utilize some of their land within the planning area. However, on October 4, 2010 the RSGA withdrew their consent and requested that BLM remove all wild horses from their private land within the planning area. In April 2013, the court approved a Consent Decree and Joint Stipulation for Dismissal (Consent Decree) that provides, in part, that the BLM will consider the environmental effects of revising the RMPs for the Rock Springs and Rawlins Field Offices by considering proposed actions that would:

- Change the Salt Wells Creek Herd Management Area (HMA) to a Herd Area (HA), which would be managed for zero wild horses, and if the BLM determines there are more than 200 wild horses within the herd area, the area would be re-gathered to zero wild horses;
- Change the Great Divide Basin HMA to a HA, which would be managed for zero wild horses, and if BLM determines there are more than 100 wild horses within the Herd Area, the area will be re-gathered to zero wild horses;
- Change the Adobe Town HMA appropriate management level (AML) to 225-450 wild horses or lower, and that gathered wild horses will not be returned to the Salt Wells Creek area; and
- Manage the White Mountain HMA as a non-reproducing herd by utilizing fertility control and sterilization methods to maintain a population of 205 wild horses and to initiate gathers if the population exceeds 205 wild horses.

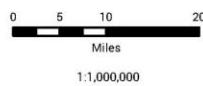
The BLM has developed this environmental impact statement (EIS) for the analysis of proposed wild horse management actions to address current conditions and the BLM's obligations under the 2013 Consent Decree. If approved, management actions analyzed in this EIS would amend the 1997 Green River RMP and the 2008 Rawlins RMP.

The planning area for this EIS/RMP Amendment includes the Rock Springs Field Office (RSFO) and a portion of the Rawlins Field Office (RFO) depicted on Map ES-1. The planning area encompasses approximately 2,811,401 acres. The BLM manages approximately 1,920,314 acres of surface estate in the planning area. Private land in the planning area totals approximately 814,086 acres.

Though the Council on Environmental Quality issued new NEPA rules (40 CFR § 1500 et seq.) effective September 14, 2020, the rule's effective date applies to new projects begun on or after September 14, 2020. For BLM-Wyoming's Proposed Resource Management Plan Amendment and Final Environmental Impact Statement for Wild Horse Management for the BLM Rock Springs and Rawlins Field Offices, the BLM is using the agency's previous NEPA procedures, in accordance with the regulations that were in place at the time the EIS Notice of Intent was published in the Federal Register.



**Map ES-1: Planning Area
Resource Management Plan
Amendment for Wild Horse Management**



- | | |
|-----------------------------------|--------------------------------------|
| Planning Area Boundary | Bureau of Land Management |
| BLM Herd Management Area (H.M.A.) | Bureau of Reclamation |
| BLM Field Office Boundary | US Fish & Wildlife Service |
| State Boundary | State Lands |
| County Boundary | Private Lands |
| Other Federal Designation | Interstate Highway |
| Railroad | Secondary Highway (Federal or State) |

No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use.

Purpose and Need for the RMP Amendment

The purpose of this planning effort is to identify and select, consistent with applicable law, a plan for wild horse management, including AML, on the current HMAs that include checkerboard land, in the Rock Springs Field Office and a portion of the Rawlins Field Office. The need for the plan amendment is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the Wild Free-Roaming Horses and Burros Act of 1971 (WFRHBA), RSGA's withdrawal of consent to maintain wild horses on privately-owned lands (2013 Consent Decree (see **Section 1.1**), 43 C.F.R. § 4710.1, and BLM Handbook H-4700-1 Section 2.1.4). The resulting decision will be a planning-level allocation decision regarding which lands within current HMAs should be managed as HMAs. Because this planning effort responds to this purpose and need, the analysis in this document does not focus on whether existing range conditions reflect a thriving natural ecological balance ("TNEB") as described in the WFRHBA, but instead considers the effects on wild horses, other resources, and resource uses that would result from different management configurations in consideration of the pattern of public and private land ownership in the planning area.

Public Participation

Scoping

The BLM initiated public scoping for the Rock Springs RMP Revision on February 1, 2011 with the publication of a Notice of Intent (NOI) in the *Federal Register*. Results of scoping for the RMP revision are available in the Rock Springs RMP Revision Scoping Report, available on the Rock Springs RMP ePlanning webpage. Issues identified for wild horse management during this scoping period focused on how the BLM would manage wild horse populations.

On August 16, 2013, the BLM published in the *Federal Register* a notice to extend the public scoping period for the Rock Springs RMP revision and to amend the 2008 Rawlins RMP to address management of wild horses and burros on checkerboard lands in the respective field offices. BLM allowed the public an additional 30 days to submit scoping comments on wild horse management. The results of that scoping effort are documented in the Wild Horse and Burro Consent Decree Scoping Report Addendum, available on the Rock Springs RMP ePlanning webpage. During the public scoping period, 15,013 individuals, agencies, and groups submitted comments on wild horse management. 734 substantive comments were identified; the bulk of commenters submitted identical form letters. Many of the comments expressed concern about wild horse reductions, over-population, conflict with other uses, the manner and method of gathers, and the viability of herds at Consent Decree AMLs. The BLM held two scoping meetings in September 2013 in Rock Springs and Rawlins, Wyoming. Identified issues included the following:

- Planning process and policy
- General comments
- Adoption/sales
- Appropriate management level (AML)
- Grazing
- Habitat management
- Herd Management Areas (HMAs)
- Population levels/population control
- Roundup/Removal

The issues to be resolved include the following:

- How will the BLM manage wild horses and meet its obligations under the 2013 Consent Decree?

- How will the BLM maintain AML in each HMA?
- How will the BLM provide for wild horse viewing opportunities for the public?

In early 2019, as a result of delays in the RMP Revision effort unrelated to wild horse management, the BLM initiated a separate RMP Amendment to address the pressing wild horse management issues on the checkerboard HMAs. The 2013 scoping notice specifically included management of wild horses on checkerboard lands. Therefore, the public input about wild horse management that was received during that scoping effort was considered in the preparation of this RMP Amendment.

On January 31, 2020, the BLM published a Notice of Availability (NOA) in the *Federal Register* announcing the availability of the Draft EIS for the RMP Amendment to address wild horse management on the checkerboard HMAs. The NOA initiated a 30-day public comment period. The BLM held public meetings in Rock Springs and Rawlins on March 5 and 11, 2020, respectively. The BLM received individual comments from 3,201 individuals/organizations. From these, the BLM identified 288 substantive comments. See **Appendix C** for a list of substantive comments and BLM's responses.

Cooperating Agency Involvement

Throughout this planning effort (including both the Rock Springs RMP revision and this wild horse component) the BLM has engaged with multiple federal, state, and local government agencies as well as Native American tribes. Consistent with the BLM Land Use Planning Handbook (H-1601-1) and FLPMA, cooperating agencies share knowledge and resources to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks. A total of 29 agencies agreed to participate as cooperating agencies. For more information, see Chapter 5: Consultation and Coordination.

Final EIS/RMP Amendment Alternatives

The BLM is analyzing four alternatives in this Final EIS, including the No Action (Alternative A) and the BLM's Proposed RMP Amendment (Alternative D). Summaries of the alternatives are presented below.

Alternative A (No Action)

Wild horses in the planning area are currently managed under the Green River RMP (1997) and Rawlins RMP (2008), as amended. Management under Alternative A (No Action Alternative) represents a continuation of this same management. The following HMAs are included within the planning area: Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain. Under this Alternative, the BLM would manage wild horses within these four HMAs at a total AML of 1,481 to 2,065. Water developments would be provided as necessary. Fencing would only be constructed when multiple-use values would be enhanced, and would be built to minimize restriction of wild horse movement. Fertility control would only be implemented when necessary, and opportunities for public enjoyment of wild horse herds would be provided by the development of interpretive signs, and sites, and access to herd areas.

Alternative B

Alternative B focuses on maintaining the same number of wild horses within the Great Divide Basin and Salt Wells Creek HMAs while adjusting these HMA boundaries to exclude the checkerboard lands. AML for the White Mountain HMA would be reduced to 99 – 205 (See **Section 1.1**). AML for the Adobe Town HMA would be reduced to 225 – 450 (see **Section 1.1**). Under this alternative, all checkerboard lands within the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs would revert to HA status and be managed for zero wild horses. Checkerboard land would remain within the White Mountain HMA. A total AML of 990 to 1,620 wild horses would be maintained among the four HMAs. Livestock grazing permits would be reduced within two of the HMAs (Great Divide Basin and Salt Wells Creek) by a total of 6,876 Animal Unit Months (AUMs) to accommodate wild horses being concentrated in a

smaller area. All wild horse herds would be managed as non-reproducing using various population growth suppression methods, including, but not limited to: gelding, spaying, or other mechanical, surgical, or chemical means. This would reduce the number of gathers required to maintain AML. This alternative responds, in part, to the Consent Decree's requirement that the BLM consider and analyze managing the White Mountain HMA herd as non-reproducing with an AML of no more than 205 wild horses. It also meets the Consent Decree's requirement that BLM consider and analyze an alternative that would change the AML for the Adobe Town HMA to 225 – 450 wild horses.

Alternative C

Under Alternative C, all wild horses would be removed from the planning area, and the HMAs would revert to HA status and be managed for zero wild horses. This alternative responds, in part, to requirements of the Consent Decree (i.e. analysis and consideration of reverting the Salt Wells Creek and Great Divide Basin HMAs to HAs and managing for zero wild horses in those HMAs).

Alternative D (Proposed RMP Amendment)

Under this alternative wild horses would be managed as follows:

- The RSFO portion of the Adobe Town HMA would revert to HA status and be managed for zero wild horses. For the RFO portion of the HMA, all checkerboard land and the portion of the HMA north of the existing Corson Springs southern allotment boundary fence (see Map 2-3) would revert to HA status and be managed for zero wild horses. The remainder of the HMA would be retained and managed with an AML of 259 – 536.
- The entire Great Divide Basin HMA would revert to HA status and be managed for zero wild horses.
- The entire Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses.
- The boundary of the White Mountain HMA would remain the same as Alternative A and would include checkerboard land. This HMA would be managed with an AML of 205 – 300. The White Mountain HMA would not be managed as a fully non-reproducing herd; however, population growth suppression strategies would be implemented to limit population growth rates for this herd.

Total AML under this alternative would be 464 to 836 wild horses. This alternative also would establish a process by which AML may be adjusted on the Adobe Town and White Mountain HMAs based on an in-depth evaluation of HMA conditions and monitoring data. In areas where wild horses are permanently removed, AUMs previously allocated to wild horse use may be reallocated to wildlife, livestock or other ecosystem functions, following an in-depth review of intensive monitoring data. Population management tools would be used to help manage wild horse populations and reduce the frequency of gathers. Population management tools could include gelding, spaying, sex ratio skewing or other population growth suppression methods. Wild horses may be relocated from other HMAs to the remaining HMAs to help maintain genetic diversity, as needed.

Environmental Impacts of the Proposed RMP Amendment

Impacts of the Proposed RMP Amendment on wild horses as well as other resources are described in detail in Chapter 4: Environmental Consequences, and are summarized in Table 2-2, Summary of Impacts. Impacts to wild horses include the direct and indirect impacts associated with gathers, transportation, and holding areas, as well as the effects associated with various methods of population growth suppression. Managing wild horses to AML on the remaining HMAs would result in improved

forage, water quality, and soil quality and would also result in fewer conflicts between wildlife and wild horses. Overall, under the Proposed RMP Amendment the number of wild horses within the planning area would be reduced by approximately 60%. Members of the public seeking wild horse viewing opportunities would still be able to view wild horses within the planning area; however, there would be fewer wild horses overall, and opportunities to view wild horses would be reduced. The lower number of wild horses in the planning area is expected to have positive impacts to wildlife, soils, vegetation, livestock, and water resources.

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Chapter 1 – Introduction

1.1 Introduction

The Bureau of Land Management (BLM) Rock Springs and Rawlins Field Offices have initiated a planning effort to prepare a targeted Resource Management Plan (RMP) amendment and associated environmental impact statement (EIS) for wild horse management on Herd Management Areas (HMAs) that contain checkerboard land within the planning area (see **Glossary** for a definition of the “checkerboard”). Once approved, this action will amend the 1997 Green River RMP (BLM 1997a) as well as the 2008 Rawlins RMP (BLM 2008).

This targeted amendment is separate from the ongoing Rock Springs RMP Revision process. If approved before the RMP revision is complete, management actions analyzed in this Final EIS would be carried forward as part of the No Action Alternative in the ongoing Rock Springs RMP revision. Because this is a targeted RMP amendment, the analysis focuses on the specific purpose and need for the amendment (see **Section 1.2**). Therefore, a discussion of all resources managed by the BLM is not included in this document. This document discusses only those resources potentially affected by the alternatives analyzed to meet the purpose and need.

The need for this plan amendment is the result of a change in consent for the use of private lands within the checkerboard portion of these HMAs. BLM’s wild horse handbook (H-4700-1) requires that BLM acquire written permission from private land owners before including their land in determining adequate habitat for wild horses within an HMA. Additionally, lack of private land owner permission can be a determining factor in not managing all or part of a Herd Area (HA) for wild horses (see H-4700-1 Section 2.1.4).

The Rock Springs Grazing Association (RSGA) owns a large portion of private land within the checkerboard portion of these HMAs. The RSGA owns 93% of the private land within the checkerboard on the Adobe Town HMA, 50% within the Great Divide Basin HMA, 40% within the Salt Wells Creek HMA, and 82% within the White Mountain HMA. From 1979 to 2010, RSGA consented to the presence of up to a total of 500 wild horses on the checkerboard portion of these HMAs, which includes RSGA’s private lands. No other private land owners within these HMAs have consented to allow wild horses to use their land.

In 2010 RSGA revoked its consent, citing concerns that BLM had not been successful in limiting the number of horses on the checkerboard, as per the original agreement. In addition to revoking consent, RSGA asked that wild horses be removed from its private land in these HMAs, as required by Section 4 of the WFRHBA. Because private land was included when establishing these HMAs and their associated AMLs, this change in consent for the use of private lands within the checkerboard portion of these HMAs has made it necessary for BLM to reevaluate the HAs on which these HMAs are based to determine if it is still appropriate to manage wild horses in these areas, and to establish a suitable AML.

Management of a wild horse herd in the checkerboard portion of the planning area has become more challenging due to this private land conflict. In the recent *American Wild Horse Preservation Campaign v Jewell*, 847 F.3d 1174 (10th Cir. 2016), the Tenth Circuit Court of Appeals noted the extreme difficulty for BLM to simultaneously meet its public lands herd management obligations under Section 3 and its removal obligations from private lands under Section 4 due to the transient nature of wild horse herds across public and private lands within the checkerboard. This tension arises because, under Section 3 of

the WFRHBA, BLM is directed to protect and manage wild horse populations in a manner that promotes a thriving natural ecological balance. BLM does not typically reduce wild horse populations below low AML levels except in emergency situations (such as extreme drought or fire). On the other hand, Section 4 of the WFRHBA requires BLM to remove wild horses from private land, when requested to do so. This dual mandate is difficult to implement in the checkerboard where every other section of land is private, and wild horses constantly drift between private and public land. Removing all wild horses that are on private land, or have the potential to stray onto private land, could cause the wild horse population to fall below low AML.

To resolve the issues associated with managing wild horses on checkerboard land without the permissive use of private land, the BLM is considering alternatives, consistent with *American Wild Horse Preservation Campaign v Jewell*, 847 F.3d 1174, 1189 n.8 (10th Cir. 2016), that include managing for zero wild horses within the checkerboard portions of the HMAs within the planning area by reducing the size of HMAs and reverting checkerboard portions to HAs. Under these alternatives, wild horses will be managed on “solid block” land, that is, areas where BLM-managed lands are concentrated in larger blocks, as opposed to the checkerboard where BLM only manages alternating parcels of land.

For this RMP Amendment, the planning area includes the land encompassed by the four existing wild horse HMAs that include checkerboard land: Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain (see Map ES-1). The planning area totals 2,811,401 acres. Within the Rock Springs Field Office area, an additional HMA, Little Colorado, is located immediately north of the White Mountain HMA. The Little Colorado HMA is not included in the planning area because it does not contain any checkerboard land. This analysis also does not address other HMAs located within the Rawlins Field Office area because they do not contain any checkerboard land.

History

In January 1979, RSGA entered an agreement with two wild horse advocacy groups, Wild Horses Yes and the International Society for the Protection of Mustangs and Burros. In this agreement, RSGA agreed that it would not object to the presence of up to 500 wild horses on the checkerboard portions of these HMAs. At that time the estimated number of wild horses in the area far exceeded 500. In September 1979, Mountain States Legal Foundation and RSGA filed a lawsuit in the U.S. District Court for Wyoming seeking to compel the BLM to remove all wild horses in excess of 500 from the checkerboard. In March 1981, the Wyoming District Court ordered BLM to remove all excess wild horses from the checkerboard within 2 years (*Mountain States Legal Foundation and Rock Springs Grazing Association v. Andrus*, D. Wyo. No. C79-275K).

The BLM established AML for these HMAs through the Big Sandy Management Framework Plan (BLM 1982) and the Record of Decision and Rangeland Program Summary for the Salt Wells-Pilot Butte Grazing Environmental Impact Statement (BLM 1984). The AML established in these plans corresponded to the numbers RSGA had agreed upon in 1979. The Record of Decision and Green River Resource Management Plan (BLM 1997) carried these AMLs forward with no changes.

By letter to BLM in October 2010, the RSGA revoked its consent to allow wild horses to utilize private land within the checkerboard. RSGA’s revocation cited concerns that BLM could not maintain wild horse populations within the limits RSGA had agreed upon when it gave consent for wild horses to utilize its private land in the checkerboard. RSGA also asked that BLM remove wild horses from its private land in the checkerboard, as provided for in Section 4 of the WFRHBA.

In June 2011, RSGA filed a lawsuit in the U.S. District Court for Wyoming (*Rock Springs Grazing Association v. Salazar*, No. 11-CV-00263-NDF). The RSGA contended, in part, that the BLM violated Section 4 of the WFRHBA, 16 U.S.C. 1334, by failing to remove strayed animals from private lands controlled by the RSGA within the checkerboard. The BLM and RSGA negotiated an agreement to settle the lawsuit and, in April 2013, the court approved a Consent Decree and Joint Stipulation for Dismissal (Consent Decree) resolving the case. The Consent Decree described specific conditions that would require the BLM to gather wild horses from the checkerboard. It also required BLM to initiate a federal register notice to amend the RMP for wild horse management (see **Consent Decree** section below for more information).

In November 2013, the BLM conducted a gather in the Adobe Town and Salt Wells Creek HMAs to remove wild horses on public and private lands within the HMAs to low AML. Once wild horses had been removed to low AML, the BLM concluded gather operations leaving some wild horses still within the checkerboard portions of the HMA.

Following this gather the RSGA notified the BLM that they believed this gather was not conducted in accordance with the Consent Decree, which they felt required that the BLM remove all wild horses from the checkerboard lands. In response to this notice, the BLM conducted a removal in September 2014, removing all wild horses from both private and public lands in the checkerboard. As a result of this 2014 removal, wild horse numbers fell below the minimum AML threshold for several HMAs.

Several organizations subsequently challenged BLM's 2014 removal of wild horses from the checkerboard, arguing that the removal violated the Federal Land Policy and Management Act of 1976 (FLPMA), NEPA, and the WFRHBA (*American Wild Horse Preservation Campaign v. Jewell*, No 14-cv-152-NDF (D. Wyo.)). On March 3, 2015, the U.S. District Court affirmed the BLM actions under the WFRHBA, but remanded the BLM actions under NEPA. The organizations then appealed the District Court decision to the U.S. Court of Appeals for the Tenth Circuit. On October 14, 2016, the Court of Appeals reversed the decision of the District Court and held that BLM had violated both the WFRHBA and FLPMA. While acknowledging that the statutory scheme of WFRHBA makes it practically impossible for BLM to satisfy both Section 3 and Section 4 of WFRHBA in managing wild horses in checkerboard lands, the court ultimately ruled that the BLM could not rely on its statutory mandate to remove wild horses from private lands under Section 4, to also remove animals from public lands within the checkerboard. The court of appeals also held that the BLM had violated FLPMA by failing to maintain AML within the HMAs. The court of appeals did, however, suggest that it may be possible to avoid the FLPMA and NEPA violations in the future, and eliminate conflict in the checkerboard, if BLM redrew the boundaries of the applicable HMAs or adjusted AMLs as part of an amendment to the applicable RMPs. *American Wild Horse Preservation Campaign v Jewell*, 847 F.3d 1174, 1189–90 n.8 (10th Cir. 2016)

Consent Decree

The 2013 Consent Decree is a court approved, negotiated agreement between the BLM and the RSGA that discusses how RSGA's concerns with BLM's management of wild horses in the checkerboard will be addressed until BLM completes an RMP amendment for wild horse management. The Consent Decree provides, in part, that the BLM will "consider the environmental effects of revising the respective [RMPs] for the Rock Springs and Rawlins Field Offices by considering proposed actions" that would:

- Change the Salt Wells Creek HMA to a Herd Area, which would be managed for zero wild horses, and if the BLM determines there are more than 200 wild horses within the herd area, the area will be re-gathered to zero wild horses;
- Change the Great Divide Basin HMA to a Herd Area, which would be managed for zero wild horses, and if BLM determines there are more than 100 wild horses within the Herd Area, the area will be re-gathered to zero wild horses;
- Change the Adobe Town HMA appropriate management level (AML) to 225-450 wild horses or lower, and that gathered wild horses will not be returned to the Salt Wells Creek area; and
- Manage the White Mountain HMA as a non-reproducing herd by utilizing fertility control and sterilization methods to maintain a population of 205 wild horses and to initiate gathers if the population exceeds 205 wild horses.

The Consent Decree requires that BLM consider these actions, but does not require that the BLM implement any specific action. The BLM has met the requirements of the Consent Decree by considering each of these actions as elements of various alternatives in this EIS, though no single alternative considers all of them together.

1.2 Purpose and Need for the Plan Amendment

The purpose of this planning effort is to identify and select, consistent with applicable law, a plan for wild horse management, including AML, on the current HMAs that include checkerboard land, in the Rock Springs Field Office and a portion of the Rawlins Field Office. The need for the plan amendment is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands (2013 Consent Decree (see **Section 1.1**), 43 C.F.R. § 4710.1, and BLM Handbook H-4700-1 Section 2.1.4). The resulting decision will be a planning-level allocation decision regarding which lands within current HMAs should be managed as HMAs. Because this planning effort responds to this purpose and need, the analysis in this document does not focus on whether existing range conditions reflect a thriving natural ecological balance ("TNEB") as described in the WFRHBA, but instead considers the effects on wild horses, other resources, and resource uses that would result from different management configurations in consideration of the pattern of public and private land ownership in the planning area.

1.3 Scoping and Issues

Planning issues (Issues) are disputes or controversies about existing and potential land and resource allocations, levels of resource use, production, and related management practices. Issues include resource use, development, and protection opportunities for consideration in the preparation of the RMP Amendment. Issues are generally identified during the public scoping period. The BLM initiated public scoping for the Rock Springs RMP Revision on February 1, 2011 with the publication of a Notice of Intent (NOI) in the *Federal Register* (76 FR 5607 (2011)). Results of scoping for the RMP revision are set out in the Rock Springs RMP Revision Scoping Report, which can be viewed at the Rock Springs RMP ePlanning webpage.

On August 16, 2013 (78 FR 50090 (2013)), the BLM published in the *Federal Register* a notice to extend the public scoping period for the Rock Springs RMP revision and to amend the 2008 Rawlins RMP to address wild horse management in the respective field offices. The BLM allowed the public an additional 30 days in which to submit scoping comments on wild horse management. The results of this scoping effort are documented in the Wild Horse and Burro Consent Decree Scoping Report Addendum, which can be viewed at the Rock Springs RMP ePlanning webpage.

During the public scoping period, 15,013 individuals, agencies, and groups submitted comments on wild horse management. The bulk of these commenters submitted identical form letters. The BLM identified 734 substantive comments. Many of the comments expressed concern about wild horse reductions, overpopulation, conflict with other uses, the manner and method of gathers, and the viability of herds at Consent Decree AMLs. The BLM held two scoping meetings in September 2013: one in Rock Springs and a second in Rawlins, Wyoming. Issues identified during all scoping efforts fell into the categories identified in Table 1-1.

Table 1-1. General scoping comment categories summary.

Comment Category	Number of Substantive Comments*
Planning Process and Policy	39
General Comments	119
Adoption/Sales	13
Appropriate Management Level (AML)	32
Grazing	68
Habitat Management	40
Herd Management Areas (HMAs)	19
Population Levels/Population Control	60
Roundup/Removal	344
Total Comments	734

*Identical comments in form letters were counted as a single comment.

1.3.1 Scoping Issues Addressed

BLM addresses the following issues identified during scoping in this Final EIS/RMP Amendment:

- How will rangelands and wild horses be managed?
- How will wild horse populations be managed?
- How will the BLM control HMA herd numbers?

These issues are addressed through each of the alternatives considered in this document, which are described in Chapter 2. Impacts of the alternatives are analyzed in Chapter 4 of this EIS, which is organized by resource values.

1.3.2 Scoping Issues Not Addressed

The CEQ regulations state: “NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail.” 40 C.F.R. § 1500.1. The CEQ regulations also state that the agency should “identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review.” 40 C.F.R. § 1500.7. BLM analyzes issues that are “necessary to make a reasoned choice between alternatives” or that are “significant (an issue associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of impacts).” (See Section 6.4.1. BLM Handbook H-1790-1.) Non-significant issues are identified as “non-significant” because they are: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, or other higher level decision; 3) unrelated to the decision to be made; or are 4) conjectural and not supported by scientific or factual evidence. Table 1-2 identifies the issues that have been eliminated, and explains why they were not considered further.

Table 1-2. Issues not carried forward for detailed analysis.

Issue Raised	Justification for Dismissal	Reason
BLM has illegally elevated the interests of livestock grazing over the interests of wild horses, in violation of FLPMA's multiple-use mandate and the Wild Free Roaming Horses and Burros Act.	The assertion is not an issue for land use planning analysis but is instead a legal conclusion.	To the extent the comment refers to the Consent Decree, that settlement is consistent with applicable law. The Consent Decree itself provides for compliance with applicable law. The U.S. District Court for the District of Wyoming found the settlement was 'fair, reasonable, equitable, and adequate'. Moreover, the planning criteria for this planning effort (Section 1.4) provide for compliance with both FLPMA and the WFRHBA as well as other applicable laws.
How will funding of wild horse removals be addressed?	The issue raised is not germane to the planning process because it involves a matter normally addressed in plan implementation.	Funding to implement decisions contained in the RMP is not part of the planning process but is managed through congressional budget decisions, followed by BLM state and local field office budget planning.
Can the BLM overrule or ignore the court's decision?	The issue raised is not germane because it is beyond the scope of this planning effort.	The Consent Decree is the result of settlement discussions between the RSGA and the BLM to dismiss the lawsuit brought by RSGA to remove all wild horses from private lands within the checkerboard pattern of mixed land ownership. RSGA may seek to enforce the Consent Decree in court. The U.S. District Court incorporated, approved, granted and expressly made the provisions of the Consent Decree an order of the Court, and retains jurisdiction consistent with the Consent Decree.
To what extent will wild horse removals be monitored after completion of Consent Decree actions?	The issue raised is addressed through law, regulation, or other policy or administrative action.	Monitoring will be in accordance with BLM policy for implementation actions associated with the decisions in the RMP.
Will the EIS address potential impacts to global climate change?	Analysis of this issue is not necessary to make a reasoned choice between alternatives.	Greenhouse gas emission from the analyzed alternatives would be very minor, and similar

		between all alternatives. This is due to the fact that all alternatives would require gather operations generating similar greenhouse gas emissions, and would not dramatically change the number of animals present on the Earth that could contribute greenhouse gases to the atmosphere.
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1.4 Planning Criteria

Planning criteria are constraints or ground rules developed to guide and direct the planning effort.

Planning criteria are based on laws and regulations; BLM guidance and policy; results of consultation and coordination with the public, agencies, and other stakeholders; and analysis of information pertinent to the planning area. Planning criteria for this RMP Amendment include:

- BLM will consider certain actions to amend or revise the Rock Springs and Rawlins RMPs in accordance with the terms of the Consent Decree.
- Compliance with FLPMA, the WFRHBA, NEPA, and all other applicable laws, regulations, and policies.
- Impacts from the management alternatives considered in the EIS will be analyzed in accordance with land use planning regulations at 43 C.F.R. §1610 and NEPA regulations at 40 C.F.R. §1500.
- This planning process applies to BLM-administered public surface estate within four Herd Management Areas: Great Divide Basin, Salt Wells Creek, Adobe Town and White Mountain.
- Broad-based public participation will be an integral part of the planning and NEPA processes.
- The planning document will be consistent with other Federal agency, state, and local plans, policies, and program to the extent they are consistent with Federal laws and policies (43 C.F.R. §1610.3-2).
- The BLM will work cooperatively and collaboratively with cooperating agencies and all other interested groups, agencies, and individuals.
- Geographic Information System (GIS) and metadata information will meet Federal Geographic Data Committee (FDGC) standards. All other applicable BLM data standards will also be followed.
- All proposed management actions will be based on current scientific information, research, technology, and existing inventory and monitoring information. Where practicable and timely for the planning effort, additional scientific information, research, and new technologies will be considered.

1.5 Planning Process

FLPMA directs the BLM to plan for and manage the public lands it administers. The process for developing, approving, maintaining, and amending or revising RMPs is authorized by FLMPA Section 202(a). 43 C.F.R. subpart 1610 sets forth the BLM's process for preparing a plan, in accordance with FLPMA and NEPA, so that the management decisions are based on appropriate information and public involvement. RMPs prescribe land use allocations and future management direction. Once finalized, this RMP Amendment will identify actions for management of wild horses in the Rock Springs Field Office and a portion of the Rawlins Field Office.

This planning process for wild horse management in the planning area began in 2011 (see **Section 1.3** for information about the public scoping process). The notice of publication of the Draft EIS/RMP Amendment occurred on January 31st, 2020 and initiated a 90-day public comment period. This Final EIS/Proposed RMP Amendment includes several changes from the Draft EIS/Proposed RMP Amendment in response to comments received on the Draft EIS/RMP Amendment and further internal review (see **Section 1.9**). Publication of this Final EIS/Proposed RMP Amendment will initiate a 30-day protest period and a 60-day Governor's Consistency Review period. Following the resolution of any protests and any identified inconsistencies, the BLM will publish a Record of Decision and Approved RMP Amendment.

1.6 Cooperating Agencies

Throughout this planning effort (including both the Rock Springs RMP revision and this wild horse component), the BLM has engaged with multiple federal, state, and local government agencies as well as Native American tribes. Consistent with the BLM Land Use Planning Handbook (H-1601-1) and FLPMA, cooperating agencies share knowledge and resources to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks. A total of 29 agencies agreed to participate as cooperating agencies. For more information, see Chapter 5: Consultation and Coordination.

1.7 Relevant Statutes, Regulations, and Policies

The FLPMA is the primary authority for BLM administration of public lands and provides the overarching policy by which the BLM administers public lands. FLPMA Sections 201 and 202 and 43 C.F.R. subpart 1600 establish BLM land use planning requirements. The BLM's Land Use Planning Handbook (H-1601-1) provides guidance for implementing these statutory and regulatory land use planning requirements.

NEPA, together with the Council on Environmental Quality's regulations (40 C.F.R. parts 1500-1508), the Department of the Interior's own NEPA Regulations (43 C.F.R. part 46), and the BLM's NEPA Handbook (H-1709-1), establish a public, interdisciplinary framework for Federal decision-making, ensure that agencies involve the public in decision-making and that agencies consider the environmental impacts of any federal actions.

The Public Rangelands Improvement Act of 1978 provides for the improvement of range conditions on public rangelands, research on wild horse and burro population dynamics, and other range management practices. The WFRHBA provides for the management, protection, and control of wild horses and burros on public lands and authorizes the adoption and sale of wild horses and burros by private individuals. Among other requirements, it directs the Secretary of the Interior, through the BLM, to consider wild horses as a component of the public lands, manage wild horses in a manner to be designed to achieve a thriving natural ecological balance on the public lands, and arrange for the removal of strayed wild horses on private lands upon written request of a private landowner. Regulations applicable to wild horse and burro management on BLM-administered lands are provided in 43 C.F.R. part 4700.

BLM's Wild Horses and Burros Management Handbook (H-4700-1) provides guidance on how the BLM is to administer the Wild Horse and Burro program. Chapter 2 of this handbook provides direction on wild horse management in Land Use Planning. This chapter discusses the difference between HAs and HMAs, and how BLM can change HA or HMA boundaries through proper amendment or creation of Land Use Plans (such as RMPs). It also states, in pertinent part, that a Land Use Plan can include decisions not to manage for wild horses in all or a part of an HA, such as when there is intermingled, unfenced private land within the HA and the landowners are unwilling to make them available for wild horse use.

In 2015, the BLM approved the Record of Decision that amended the Rock Springs and Rawlins RMP for management related to Greater sage-grouse (BLM 2015c). All management actions from that plan amendment were incorporated into the existing 1997 Green River RMP. None of those management actions will be changed by this RMP amendment.

1.8 Relationship to Other Plans

BLM land use plans shall be consistent with other Federal agency, state, and local plans to the extent consistent with the purposes, policies, and programs of Federal laws and regulations applicable to the public lands. The table below outlines the local, state, and federal management plans that may pertain to the planning area.

Table 1-3. List of Other Plans.

Plan Type	Plan Name
City Plans	Rock Springs Master Plan, 2012
	Green River Comprehensive Master Plan, 2012
County Plans	Fremont County Land Use Plan, 2004
	Lincoln County Comprehensive Plan, 2006
	Sublette County Federal and State Land Use Policy, 2009
	Sweetwater County Comprehensive Plan, 2002
	Uinta County Comprehensive Plan, 2011
County Conservation Districts	Lincoln Conservation District Land Use and Natural Resource Management Long Range Plan, 2010
	Popo Agie Conservation District Long Range Plan, 2013
	Sublette County Conservation District Land Use and Natural Resource Management Long Range Plan, 2010
	Sweetwater County Conservation District Land and Resource Use Plan, 2005
	Uinta County Conservation District Long Range Plan, 2010
State of Wyoming	Wyoming Department of Agriculture Strategic Plan, 2005
	Wyoming Department of Game and Fish Strategic Habitat Plan, 2015
	Wyoming Water Development Office, Green River Basin Water Plan, 2010

1.9 Changes Between Draft and Final

As a result of public comments, cooperating agency review, and internal review of the Draft EIS (DEIS), the BLM has made changes that are reflected in the Final EIS (FEIS), as described below. The BLM has determined that none of these changes substantially modifies the range of alternatives or the resulting impacts described in the DEIS.

- Under Alternative B, the AML for the White Mountain HMA was changed from 205 – 300 to 99 – 205, to better align with the requirements of the 2013 Consent Decree.

- Under Alternative B, the AML for the Adobe Town HMA was changed from 610 – 800 to 225 – 450, to better align with the requirements of the 2013 Consent Decree.
- Under Alternative D, changes were made to wild horse management on the White Mountain HMA. Under this alternative in the DEIS, this HMA reverted to HA status, managed for zero wild horses. This has been updated in the FEIS so that the White Mountain HMA is retained and managed for an AML of 205 – 300, similar to Alternative A. The herd would not be managed as a non-reproducing herd, but population growth suppression strategies would be implemented to reduce the overall population growth rate for this herd.
- The Introduction (**Section 1.1**) was revised to better explain the history associated with the current need for this plan amendment.
- Various sections of the EIS were revised to clarify the analysis of impacts associated with the alternatives.
- Appendix C was added. This appendix lists the substantive comments on the DEIS the BLM received during the public comment period, along with BLM's responses to those comments.

Chapter 2 – Alternatives

2.1 Introduction

This chapter describes the alternatives considered by the BLM for the management of wild horses in the Rock Springs Field Office and a portion of the Rawlins Field Office. These alternatives, which are analyzed in Chapter 4 of this EIS, were developed based on input from the public via scoping as well as discussions with cooperating agencies, and include the elements of the 2013 Consent Decree discussed in **Section 1.1**. These alternatives include actions that would amend both the Rock Springs and Rawlins RMPs for wild horse management.

2.2 Description of Alternatives

2.2.1 Alternative A (No Action)

Wild horses in the planning area are currently managed under the Green River RMP (1997) and Rawlins RMP (2008), as amended. The following HMAs are included within the planning area: Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain. Management under Alternative A (No Action Alternative) represents a continuation of the management of these HMAs under the current RMPs. Under this Alternative, the BLM would manage wild horses within these four HMAs at a total AML of 1,481 to 2,065. Water developments would be provided as necessary. Fencing would only be constructed when multiple-use values would be enhanced, and would be built to minimize restriction of wild horse movement. Fertility control would only be implemented when necessary, and opportunities for public enjoyment of wild horse herds would be provided by the development of interpretive signs, and sites, and access to herd areas. Current management of wild horses within checkerboard lands has presented significant challenges due to private land conflicts. Implementation of Alternative A would require resolution of these private land conflicts.

2.2.2 Alternative B

Alternative B focuses on maintaining the same number of wild horses within the Great Divide Basin and Salt Wells Creek HMAs while adjusting these HMA boundaries to exclude the checkerboard lands. AML for the White Mountain HMA would be reduced to 99 – 205, as referred to in the 2013 Consent Decree (see **Section 1.1**). AML for the Adobe Town HMA would be reduced to 225 to 450 (see **Section 1.1**). Under this alternative, all checkerboard lands within the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs would revert to HA status and be managed for zero wild horses. The White Mountain

HMA would continue to include checkerboard land. A total AML of 990 to 1,620 wild horses would be maintained among the four HMAs. Livestock grazing permits would be reduced within two of the HMAs (Great Divide Basin and Salt Wells Creek) by a total of 6,876 Animal Unit Months (AUMs) to accommodate the existing number of wild horses (1,620 at high AML) being concentrated in smaller HMAs (see **Appendix A** for how this AUM value was calculated). **Section 4.2.10** provides a breakdown of the reduction in livestock AUMs within each HMA under this alternative. All wild horse herds would be managed as non-reproducing, using various population growth suppression methods, including, but not limited to: gelding, spaying, or other mechanical, surgical, or chemical means. This would reduce the number of gathers required to maintain AML.

Under this alternative, AML may be adjusted as needed when site specific data demonstrates a change in AML is appropriate. To evaluate and potentially adjust AML, the BLM would conduct and document the multi-tiered analysis process outlined in the Wild Horses and Burros Management Handbook (H-4700-1, Appendix 3). This analysis would include an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use, and climate data. A site specific environmental analysis will be prepared, including opportunities for public comment. AML would not be evaluated each time a wild horse gather is proposed, but the AML may be evaluated if monitoring data demonstrates there is a substantial increase or decrease in available forage, or long term conditions within the HMA have changed as a result of prolonged drought, wildfires, noxious weed infestations, changes in livestock management, or other factors.

This alternative responds, in part, to the Consent Decree's requirement that the BLM consider and analyze managing the White Mountain HMA as non-reproducing, with a high AML of 205 or less. It also meets the Consent Decree's requirement that BLM consider and analyze an alternative that would change the AML for the Adobe Town HMA to 225 – 450 wild horses.

AUMs previously allocated to wild horse use on checkerboard lands could, in the future, be allocated to wildlife, livestock or other ecosystem functions. The BLM will determine how to allocate these AUMs through future decision-making, based on further NEPA analysis including an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use and climate data.

2.2.3 Alternative C

Under Alternative C all wild horses would be removed from the planning area, and the HMAs would revert to HA status and be managed for zero wild horses. This alternative responds, in part, to requirements of the Consent Decree (i.e., analysis and consideration of reverting the Salt Wells Creek and Great Divide Basin HMAs to HAs and managing them for zero wild horses).

AUMs previously allocated to wild horse use could, in the future, be allocated to wildlife, livestock or other ecosystem functions. The BLM will determine how to allocate these AUMs through future decision-making, based on further NEPA analysis including an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use and climate data.

2.2.4 Alternative D (Proposed RMP Amendment)

Under this alternative wild horses would be managed as follows:

- The RSFO portion of the Adobe Town HMA would revert to HA status and be managed for zero wild horses. In the RFO portion of the HMA, all checkerboard land and the portion of the HMA north of the existing Corson Springs southern allotment boundary fence (see Map 2-3) would

revert to HA status and be managed for zero wild horses. The remainder of the HMA (within the RFO) would be retained and managed with an AML of 259 – 536.

- The entire Great Divide Basin HMA would revert to HA status and be managed for zero wild horses.
- The entire Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses.
- The boundary of the White Mountain HMA would remain the same as Alternative A and would include checkerboard land. This HMA would be managed with an AML of 205 – 300. The White Mountain HMA would not be managed as a non-reproducing herd; however, population growth suppression strategies would be implemented to limit population growth rates for this herd.

The initial AML for the Adobe Town HMA (259 – 536) was calculated by proportionally adjusting the high AML based on the reduced size of the HMA (see **Appendix A**). The AML for the White Mountain HMA (205 – 300) is the same as current management, under Alternative A. The BLM considered other resource data, such as the current status of rangeland health in these areas (as compared with BLM's rangeland health standards), in determining that these AMLs were appropriate for these HMAs. These AMLs would be evaluated and adjusted in the future when detailed, site specific data are available (approximately 5 years after successfully implementing these Management Actions). Following that evaluation, AML may be adjusted as needed when site specific data demonstrates a change in AML is appropriate. To evaluate and potentially adjust AML, the BLM would conduct and document the multi-tiered analysis process outlined in the Wild Horses and Burros Management Handbook (H-4700-1, Appendix 3). This analysis would include an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use, and climate data. A site specific environmental analysis would be prepared, including opportunities for public comment. AML would not be evaluated each time a wild horse gather is proposed, but the AML may be evaluated if monitoring data demonstrates there is a substantial increase or decrease in available forage, or long term conditions within the HMAs have changed as a result of prolonged drought, wildfires, noxious weed infestations, changes in livestock management, or other factors.

In areas where wild horses are permanently removed, AUMs previously allocated to wild horse use could, in the future, be allocated to wildlife, livestock or other ecosystem functions. The BLM will determine how to allocate these AUMs through future decision-making, based on further NEPA analysis including an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use and climate data.

Under this alternative, population management tools would be used to help manage wild horse populations and reduce the frequency of gathers. Population management tools could include gelding, spaying, sex ratio skewing or other population growth control methods. Wild horses may be relocated from other HMAs to the remaining HMAs to help maintain genetic diversity, as needed. When relocating wild horses, care would be taken to ensure the health of the horses being introduced to the HMA. Potential animals for relocation would have a good body condition, absence of obvious defects or abnormalities and an absence of diseases. Typical relocation activities would involve introducing approximately 5 mares from an outside HMA into the subject HMA. BLM would ensure this introduction would not cause the wild horse population within the HMA to exceed AML.

2.3 Rationale for the Proposed RMP Amendment (Alternative D)

Overall, Alternative D represents the best option to meet the purpose and need, and address wild horse management issues in HMAs where the BLM no longer has the permissive use of private land for wild horses. Because BLM no longer has consent for wild horses to use private land in most of the checkerboard, Alternative A is no longer a feasible alternative. BLM has found it difficult to effectively manage wild horses in the checkerboard portion of the planning area in a manner consistent with both Section 3(b)(1) and Section 4 of the WFRHBA. The original determination to manage wild horses in these areas was based on the inclusion of the private land in wild horse management. Detailed Impacts for all alternatives are presented in Chapter 4 of this EIS.

Alternative D also represents the best way to maintain wild horses within the planning area, while addressing potential impacts to other resource values, such as wildlife. For example, implementation of Alternative B would likely entail large scale fencing, or the construction of some other type of barrier, which could impede big game migration and would fragment crucial winter range for big game species. These barriers would also negatively impact Greater Sage-grouse habitat. Alternative C would remove all wild horses from the planning area. Therefore, Alternative D represents the best approach to maintaining wild horses within the planning area, while addressing the purpose and need, and minimizing impacts to other resource values.

Following is a detailed description of the rationale for the Proposed RMP Amendment by HMA:

Adobe Town HMA

In the Proposed RMP Amendment the RSFO portion of the Adobe Town HMA would revert to HA status and be managed for zero wild horses. Currently, 42% of the RSFO portion of this HMA lies within the checkerboard land ownership pattern. The BLM considered the possibility of allowing continuation of wild horse use on the RSFO portion of the HMA outside of the checkerboard, but determined that a combination of topography, land ownership, and available resources made this unfeasible because wild horses would constantly stray onto private land within the checkerboard.

Under this alternative the HMA boundary would be adjusted to more closely align with existing natural or man-made boundaries. There are no other natural or man-made boundaries in the area that would prevent wild horses from drifting onto checkerboard lands, so this action of aligning the revised HMA boundary with the existing infrastructure would assist in keeping wild horses off private lands in the checkerboard. Because it includes this boundary adjustment to prevent wild horses from straying onto the private land in the checkerboard, this alternative would allow the BLM to manage more wild horses in this area than the number considered in Alternative B.

The RFO portion of the HMA would be reduced in area, so that it only encompasses solid block lands, and excludes checkerboard and lands north of the existing Corson Springs southern allotment boundary fence. The proposed AML for the remaining RFO portion of the Adobe Town HMA would be 259 – 536 wild horses. This AML was calculated by adjusting the historic AML of 610 – 800 in proportion to the reduced available area of the HMA under this alternative, taking into consideration climate, vegetation trend, livestock use, range suitability, wild horse genetics and populations, wildlife habitat and population objectives, carrying capacity, watershed values, disturbance and reclamation, recreation use, and dietary comparison for livestock, wildlife, and wild horses (see **Appendix A** for more details). The BLM reviewed AML (as per H-4700-1) and found that there would be adequate forage, water cover and space to sustain a wild horse herd, and maintain a TNEB within the reduced HMA area, at the proposed AML (see **Appendix A**). The reduced AML under this alternative provides slightly more space and a lower

overall stocking density than current management. Furthermore, all allotments within this portion of the HMA are currently meeting all land health standards. Since these allotments were able to meet these standards at current stocking densities, it is expected that a slightly reduced stocking density will continue to support rangeland health standards in this area, and ensure a TNEB. Based on these factors, and in particular the carrying capacity of the area (as represented by AUMs), the BLM determined that a reduced AML of 259 – 536 wild horses would be appropriate for the RFO portion of the Adobe Town HMA under this alternative, and would ensure a TNEB.

Great Divide Basin HMA

In the Proposed RMP Amendment, the entire Great Divide Basin HMA would revert to HA status and be managed for zero wild horses. Currently 48% of this HMA lies within the checkerboard pattern of land ownership, but the solid-block portion also would revert to HA status under the Proposed RMP Amendment because BLM has no reasonable possibility of creating an effective barrier between checkerboard and solid-block federal lands. The BLM conducted a review of AML (as per H-4700-1, Appendix 3) and found that there was adequate forage, water, cover and space to sustain a wild horse herd in the solid-block portion of this HMA (see **Appendix A**); however, to prevent wild horses who had historically utilized the checkerboard lands from drifting out of the solid-block portion of this HMA, a fence or another type of barrier would be required along the entire southern border. Currently there are no other fences or natural topography that this southern barrier could intersect on the western side for at least 30 miles. A southern barrier would also fully bisect the Sublette Mule Deer Migration Corridor, and would potentially interfere with big game migration. Therefore, even though the analysis in **Appendix A** demonstrated that there is adequate forage, water cover and space to support a wild horse herd in the solid-block portion of the area, it would be very difficult for BLM to prevent this herd from continually returning to private lands in the checkerboard. And even if BLM could erect a fence, doing so would adversely affect big game migration corridors. For this reason, in the Proposed RMP Amendment the entire Great Divide Basin HMA would revert to HA status and be managed for zero wild horses.

Salt Wells Creek HMA

In the Proposed RMP Amendment, the entire Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses. Currently 72% of this HMA lies within the checkerboard pattern of ownership but the solid-block portion also would revert to HA status under this alternative due to the infeasibility of creating an effective barrier between checkerboard and solid-block federal lands. The BLM conducted a review of AML (as per H-4700-1) and found that there would be adequate forage, water cover and space to sustain a wild horse herd and maintain a TNEB within the solid-block portion of the HMA (see **Appendix A**). However, to prevent wild horses who had historically utilized the checkerboard lands, from drifting out of the solid-block portion of this HMA a fence or another type of barrier would be required along the entire northern border. Currently there are no other fences or natural topography that this northern barrier could intersect on the eastern side for at least 30 miles. Good tie-in points are lacking on the western side as well. Furthermore, a barrier in this area would negatively impact migrating big game, crucial winter range for big game, and Greater Sage-grouse habitat. Therefore, even though the analysis in **Appendix A** demonstrated that there is adequate forage, water cover and space to support a wild horse herd in the solid-block portion of this area, it would be very difficult for BLM to prevent this herd from continually returning to private lands in the checkerboard, and a number of wildlife species would be negatively impacted. For these reasons, in the Proposed RMP Amendment the Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses.

White Mountain HMA

In the Proposed RMP Amendment, the boundary of the White Mountain HMA would remain the same as described in Alternative A, and would continue to include checkerboard land. The AML for this HMA would be set at 205 – 300 wild horses. The White Mountain herd would not be managed as a non-reproducing herd; however, the BLM would implement population growth suppression strategies to reduce the population growth rate for this herd.

The White Mountain HMA currently contains a Wild Horse Scenic Loop Byway. This portion of the HMA is a popular setting for locals, and tourists, to view wild horses near the cities of Green River and Rock Springs. Local governmental organizations expressed concerns that the removal of all wild horses from this HMA would negatively affect these communities, and the portion of their economy that receives a benefit from tourism related to wild horse viewing.

Because 72% of this HMA contains checkerboard land, management of wild horses in this area is reliant on consent from the private land owner, RSGA. By utilizing population growth suppression strategies on this herd, the Proposed RMP Amendment would reduce wild horse population growth rates thereby reducing the frequency of gathers needed to maintain wild horses within AML. This is designed to address concerns from the private landowner regarding the potential future overpopulation of wild horses in this area.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

The following alternatives were considered but eliminated from detailed analysis for wild horse management.

Maintain Public Land Portions of HMAs within the Checkerboard

Under this alternative the BLM would remove the private land portions of the checkerboard, and adjust the AML accordingly, but would maintain the public land portions of the HMAs. When wild horses moved onto private lands, the BLM would remove them as requested by the landowner. This alternative was eliminated from detailed analysis, because it is not technically feasible. In the checkerboard landownership pattern, where every other square mile alternates ownership, and very little fencing limits wild horse movement, wild horses constantly move on and off of private land. It would not be feasible to ensure that wild horses remain on only the BLM managed sections in this area. While courts have held that the BLM is not required to prevent wild horses from straying onto private lands (*Fallini v. Hodel*, 783 F.2d 1343 (9th Cir. 1986)), it would not be reasonable to maintain an HMA in a location where the constant straying of wild horses onto private land is expected, the owner of the private lands does not consent to wild horse presence on private land, and the owner of the private lands is expected to exercise its right to demand BLM remove wild horses from private lands pursuant to Section 4 of the WFRHBA. If BLM attempted to manage a wild horse herd on the public land portions of the checkerboard, the BLM would be overwhelmed by its mandatory removal obligations under Section 4 of the WFRHBA. In *American Wild Horse Preservation Campaign v. Jewell*, 847 F.3d 1174 (10th Cir. 2016), the Tenth Circuit Court of Appeals noted the tension between Sections 3 and 4 of the WFRHBA, and the extreme difficulty for BLM in simultaneously meeting its obligations under both statutory provisions in the checkerboard. For these reasons, the BLM has determined that this alternative is not technically feasible, and has eliminated it from detailed analysis in this document.

Maintain Only Wild Horses in the Solid Block and Only Livestock in the Checkerboard

Under this alternative, the BLM would remove all permitted livestock AUMs from the solid block portion of the planning area, and wild horse AMLs would be increased in those areas. Additionally, all wild

horses would be removed from the checkerboard portion of the planning area. This alternative is substantially similar to Alternative B with respect to wild horse management, in that it would remove wild horses from checkerboard and increase their numbers on solid block lands, while proportionately reducing permitted livestock use on solid block lands in two HMAs. Management actions associated with livestock grazing under this alternative differs in degree from Alternative B, in that it would go beyond a reduction in livestock AUMs, and eliminate all permitted livestock use on solid block land to allow for a higher wild horse AML. However, Alternative B already includes a method whereby BLM may adjust AML and livestock AUMs upward or downward in the future after collecting and reviewing multiple years of monitoring data and completing further NEPA analysis.

Manage the Solid-block portion of the White Mountain HMA in Conjunction with the Little Colorado HMA

Under this alternative, the BLM would retain the solid-block portion of the White Mountain HMA and manage it in conjunction with the Little Colorado HMA. This alternative was eliminated from detailed analysis, because it is not technically feasible. Wild horses within this HMA have historically moved back and forth between the checkerboard and solid-block portions of the HMA. In order to prevent wild horses from straying onto private land within the checkerboard, a fence, or some other type of barrier, would need to be constructed on the southern border. However, there is no existing fence or other natural barrier that would connect with such a barrier on the western side. Therefore, this alternative was determined to be infeasible.

Conduct a Land Exchange

Under this alternative, the BLM and private land owners would conduct a land exchange to extend the “solid block” portion of public land and remove the issues associated with the checkerboard land ownership pattern. BLM does not currently have a proposal from a willing party (or group of parties) to a land exchange involving checkerboard lands in the planning area. Even if a proposal existed, a land exchange would entail extensive surveys of millions of acres for mineral value, cultural resources, and potential hazardous materials, which would likely take years to complete and demand extensive agency resources. This alternative therefore would not respond to the purpose and need for the plan amendment, which is intended to resolve private land conflicts in the near term. Also, this alternative would involve multiple private land owners agreeing on the details of a land exchange with BLM. Together, these factors make this alternative infeasible for consideration in this plan amendment process. This plan amendment would not foreclose the possibility of consideration of a land exchange in the future, if a viable proposal is presented. If an exchange were completed, BLM would amend its land use plan to include newly acquired lands, and could consider changes in management for wild horses at that time.

Balanced Herbivore Reduction Alternative

Under this alternative, reductions in AUMs would be shared equally between wild horses and permitted livestock. This alternative would not meet the purpose and need of the plan amendment to address wild horse management on HMAs that include checkerboard land, where the BLM no longer has permissive use of that land for wild horse management. Alternative B is similar to this alternative, in that it proposes to reduce permitted livestock use to make additional forage available for wild horses on the solid block portions of these HMAs, but better responds to the purpose and need for the plan amendment because it would address the management challenges in the checkerboard portions of the HMAs in the absence of private landowner consent.

Native Predator Alternative

Under this alternative, wolves or other natural predators would be introduced to the area as a means of attempting to control wild horse populations in these HMAs. This alternative would not meet the purpose

and need of the plan amendment to address the management challenges in the checkerboard portions of the HMAs in the absence of private landowner consent.

2.5 Table of Alternatives, Maps and Summary of Impacts

Table 2-1.Detailed comparison of the alternatives.

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
	<p>Goals and Objectives:</p> <p>Wild Horse (WH) 1: Manage wild horses in the planning area at Appropriate Management Levels (AMLs) to support a TNEB.</p> <p>WH 2: Provide adequate habitat for free-roaming wild horses through management consistent with the principles of multiple use.</p> <p>WH 3: Provide opportunities for the public to view wild horses.</p> <p>WH 4: Monitor wild horse populations and rangeland conditions to inform wild horse management decisions.</p>				
Management Action (MA)001	WH 2	Manage wild horses adhering to all applicable laws, agreements, court orders, and decisions for each HMA and consider private property rights.			
MA002	WH 1, 4	Specific habitat objectives for HMAs would be established through the development and implementation of HMA plans for each HMA or Complex. Consideration will be given to desired plant communities, wildlife habitat, watershed, livestock grazing, and other resource needs.			
MA003	WH 2, 3	Wild horses would be managed within four wild horse HMAs. These are the White Mountain, Great Divide Basin, Adobe Town and Salt Wells Creek wild horse HMAs (Map 2-1). (Note the Little Colorado HMA is not included in the planning area for this document).	Same as Alternative A.	The Great Divide Basin, White Mountain, Salt Wells Creek, and Adobe Town HMAs would revert to HA status, and be managed for zero wild horses.	Wild horses would be managed within two wild horse HMAs. These are the Adobe Town and White Mountain HMAs (Map 2-3). Revert the Great Divide Basin and Salt Wells Creek HMAs to HA status and manage them for zero wild horses.
MA004	WH 1, 2	No similar action	Revert all checkerboard portions of the Salt Wells Creek HMA to HA status and manage for zero wild	Revert the entire Salt Wells Creek HMA to HA status	Same as Alternative C.

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
			horses. Manage AML on the adjusted HMA in accordance with MA009.	and manage for zero wild horses.	
MA005	WH 1, 2	No similar action	Retain the White Mountain HMA and manage AML in accordance with MA009.	Revert the entire White Mountain HMA to HA status and manage for zero wild horses.	Retain the White Mountain HMA and manage AML in accordance with MA009.
MA006	WH 1, 2	No similar action	Revert the checkerboard portion of the Adobe Town HMA within the RSFO to HA status and manage for zero wild horses. Retain the remainder of this HMA within the RSFO and manage AML in accordance with MA009.	Revert the entire RSFO portion of the Adobe Town HMA to HA status and manage for zero wild horses.	Same as Alternative C.
MA007	WH 1, 2	No similar action	Revert the checkerboard portion of the Adobe Town HMA within the RFO to HA status and manage for zero wild horses. Retain the remainder of this HMA within the RFO and manage AML in accordance with MA009.	Revert the entire RFO portion of the Adobe Town HMA to HA status and manage for zero wild horses.	Revert the checkerboard portion of the Adobe Town HMA within the RFO to HA status and manage for zero wild horses. Revert the portion of the HMA north of the existing Corson Springs southern allotment boundary fence to HA status and manage for zero wild horses. Retain the remainder of this HMA within the RFO and manage AML in accordance with MA009.

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
MA008	WH 1, 2, 3	In the Jack Morrow Hills (JMH) planning area, wild horse populations would be managed within the Great Divide Basin HMA at an AML of 415-600 horses. The Great Divide Basin HMA boundaries would remain unchanged from those identified in the Green River RMP (1997).	Revert the checkerboard portion of the Great Divide Basin HMA to HA status and manage for zero wild horses. Retain the remainder of this HMA and manage AML in accordance with MA009.	Revert the entire Great Divide Basin HMA to HA status and manage for zero wild horses.	Same as Alternative C.
MA009	WH 1	<p>Maintain an AML of 1,481 to 2,065 wild horses among the four checkerboard HMAs.</p> <p>Adobe Town (RSFO):</p> <ul style="list-style-type: none"> • Acres: 102,854 (BLM: 79,924) • AML: 165-235 • AUMs: 1,980-2,820 <p>Adobe Town (RFO):</p> <ul style="list-style-type: none"> • Acres: 374,132 (BLM: 362,504) • AML: 445-565 • AUMs: 5,340-6,780 <p>Great Divide Basin:</p> <ul style="list-style-type: none"> • Acres: 776,189 (BLM: 559,398) • AML: 415-600 • AUMs: 4,980-7,200 <p>Salt Wells Creek:</p>	<p>Maintain an AML of 990 to 1,620 wild horses among four HMAs. Allocate 19,440 AUMs to wild horses to support high AML.</p> <p>Adobe Town (RSFO):</p> <ul style="list-style-type: none"> • Acres: 66,285 (BLM: 59,007) • AML: 32-63 • AUMs: 384-756 <p>Adobe Town (RFO):</p> <ul style="list-style-type: none"> • Acres: 365,731 (BLM: 361,149) • AML: 193-387 • AUMs: 2,316-4,644 <p>Great Divide Basin:</p> <ul style="list-style-type: none"> • Acres: 397,936 (BLM: 374,697) • AML: 415-600 	<p>Manage the Great Divide Basin, White Mountain, Salt Wells Creek, and Adobe Town HMAs at an AML of zero. All wild horses would be permanently removed from the planning area.</p>	<p>Maintain an AML of 464 to 836 wild horses on two HMAs. Allocate 10,032 AUMs to wild horses to support high AML.</p> <p>Adobe Town (RFO):</p> <ul style="list-style-type: none"> • Acres: 355,094 (BLM: 345,277) • AML: 259-536 • AUMs: 3,108 -6,432 <p>White Mountain:</p> <ul style="list-style-type: none"> • Acres: 388,488 (BLM: 207,350) • AML: 205-300 • AUMs: 2,460-3,600

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
		<ul style="list-style-type: none"> Acres: 1,169,288 (BLM: 689,511) AML: 251-365 AUMs: 3,012-4,380 White Mountain: <ul style="list-style-type: none"> Acres: 388,488 (BLM: 207,350) AML: 205-300 AUMs: 2,460-3,600 	<ul style="list-style-type: none"> AUMs: 4,980-7,200 Salt Wells Creek: <ul style="list-style-type: none"> Acres: 319,556 (BLM: 287,203) AML: 251-365 AUMs: 3,012-4,380 White Mountain: <ul style="list-style-type: none"> Acres: 388,488 (BLM: 207,350) AML: 99-205 AUMs: 1,188-2,460 		
MA010	WH 1,2	No similar action.	<p>Reduce livestock grazing permits within two of the four HMAs by a total of 6,876 AUMs as follows:</p> <ul style="list-style-type: none"> Great Divide Basin: Reduce 3,612 AUMs Salt Wells Creek: Reduce 3,264 AUMs <p>Each grazing permit would be reduced in proportion to their relative contribution to the total livestock AUMs permitted within the HMAs.</p> <p>AUMs previously allocated to wild horse use may be allocated to wildlife, livestock or other ecosystem functions. Determine how to allocate</p>	<p>AUMs previously allocated to wild horse use may be allocated to wildlife, livestock or other ecosystem functions. Determine how to allocate these AUMs after conducting an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use and climate data.</p>	<p>AUMs previously allocated to wild horse use may be allocated to wildlife, livestock or other ecosystem functions. Determine how to allocate these AUMs after conducting an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use and climate data.</p>

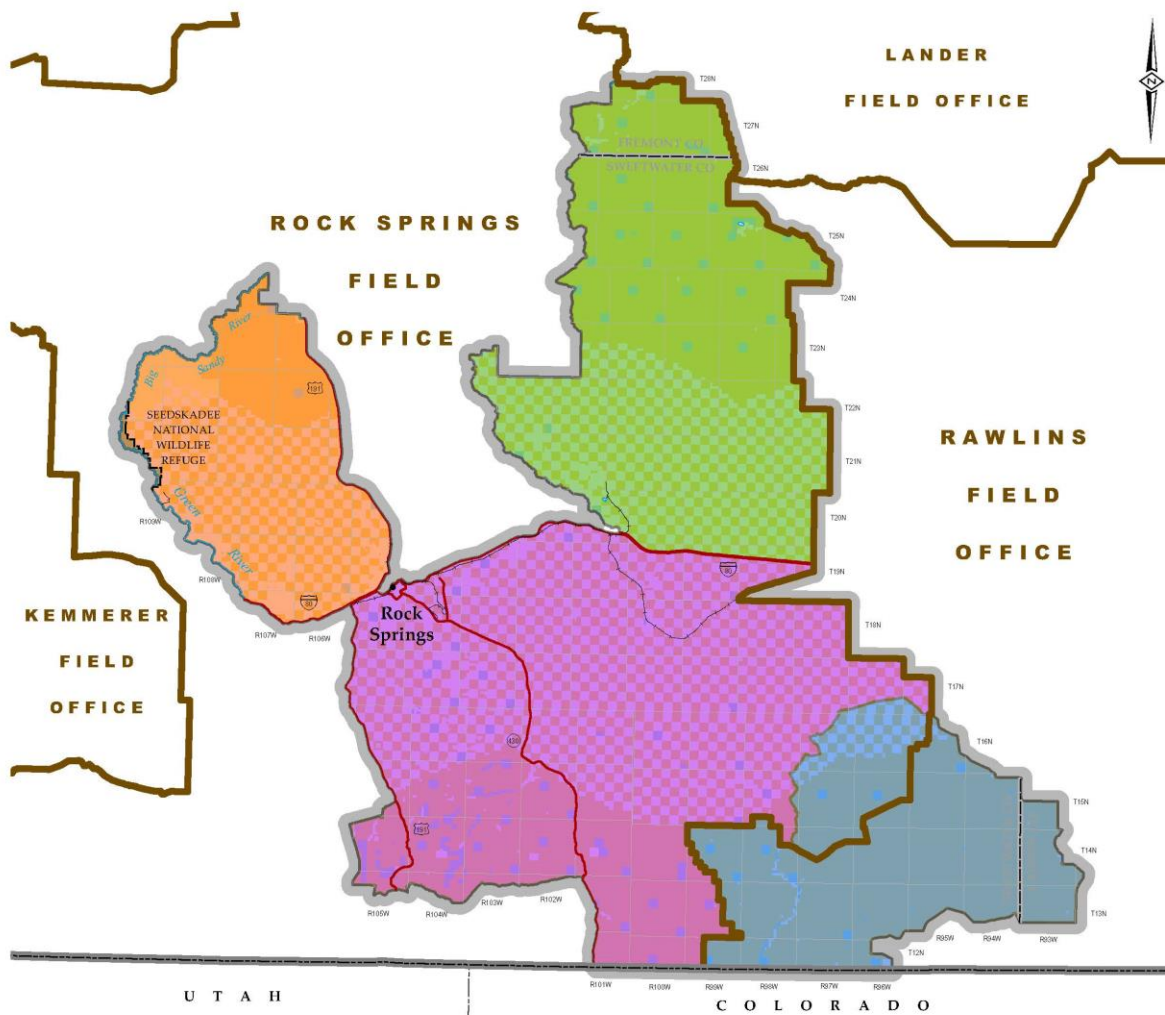
Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
			these AUMs after conducting an in-depth review of intensive monitoring data including: grazing utilization, use patterns, Standards for Healthy Rangelands, trend monitoring, actual use and climate data.		
MA011	WH 2	<p>In the JMH planning area, water developments would be provided as needed to improve wild horse herd distribution and manage forage utilization. Water developments within sensitive wildlife habitats would be considered only if wildlife habitat and resource conditions would be improved or maintained. Compatibility with special status plant species would be required.</p> <p>Water developments on crucial winter ranges could be allowed if they conform to wildlife objectives and do not result in adverse impacts to the crucial winter range.</p> <p>Water developments would be provided if necessary to improve herd</p>	<p>Provide water developments for wild horses where necessary to improve wild horse herd distribution and manage forage utilization.</p> <p>Allow water developments for wild horses on crucial winter ranges if they conform to wildlife objectives and do not result in adverse impacts to the crucial winter range.</p>	No similar action	Same as Alternative B.

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
		distribution and manage forage utilization. The feasibility of water development on the checkerboard land portion of the herd areas to better distribute wild horses would be determined. Any water developments proposed in the Rock Springs Allotment would primarily enhance management of wild horses.			
MA012	WH 1	Fertility control would be initiated only if necessary.	<p>Manage all HMAs as non-reproducing herds utilizing a variety of tools such as gelding, spaying, or other sterilization methods (mechanical, surgical, and chemical).</p> <p>Following natural attrition, sterilized wild horses from other HMAs would be introduced as needed to maintain the AML for the HMA. Gelded stallions, spayed mares, or other equivalent sterilized animals would make up the non-reproducing portion of the managed population within the HMAs.</p>	No similar action	<p>Utilize a variety of population growth suppression tools to help manage wild horse populations. These tools could include gelding, spaying, sex ratio skewing or other population growth control methods (mechanical, surgical, or chemical).</p> <p>Implementation of any of these population growth suppression tools would be through a site-specific activity plan.</p> <p>Periodically supplement any herds with potential</p>

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
			Implementation of any of these population growth suppression methods would be through a site-specific activity plan.		low genetic diversity with additional wild horses from other HMAs to maintain the genetic diversity of the herd.
MA013	WH 1	<p>Selective gathering programs would be implemented in each of the wild horse HMAs. Gathering plans would be prepared for removal of excess horses from inside and outside the wild horse HMAs. Gathering cycles would vary by plan objectives, resource conditions, and needs. These actions would aid in stabilizing populations, managing for conditions and special characteristics, and supply an adoptable population (young horses).</p> <p>In the JMH planning area, a gather plan incorporating the national selective removal policy would be developed and implemented to remove excess horses from inside and outside the HMA to maintain the existing AMLs. The scheduling of</p>	Prepare gather plans for removal of excess wild horses from inside and outside the wild horse HMAs.	Same as Alternative B.	Same as Alternative B.

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
		gathers would vary according to the HMA objectives, resource conditions, and need. Fertility control would be initiated only if deemed appropriate by a site-specific analysis.			
MA014	WH 2	Fencing in wild horse HMAs would be restricted to those situations where multiple-use values would be enhanced. All fences would be constructed to minimize restriction of wild horse movement.	Restrict new fencing in wild horse HMAs to opportunities that would directly benefit wild horses or other resource values.	No similar action.	Allow new fencing in wild horse HMAs on a case-by-case basis that does not impede or endanger wild horse management and supports other resource values.
MA015	WH 3	<p>Opportunity for public education and enjoyment of wild horse herds would be provided by placing interpretive signs, providing interpretive sites, and providing access to herd areas.</p> <p>In the JMH planning area, public education and enjoyment of wild horse herds is an important component of the National Wild Horse and Burro Program. Portions of this program would be implemented in the Great Divide Basin HMA by</p>	Provide opportunity for public education and enjoyment of wild horse herds by placing interpretive signs, providing interpretive sites, and providing viewing access to the herd management areas.	No similar action.	Same as Alternative B.

Management Action #	Goal/Objective	Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
		providing interpretive signs and access sites for viewing horses.			
MA016		Gathering cycles would vary by plan objectives, resource conditions, and needs. Fertility control would be initiated only if necessary. These actions would aid in stabilizing populations, managing for conditions and special characteristics, and supply and adoptable population (young horses).	No similar action.	No similar action.	No similar action.
MA016	WH 1, 2, 4	No similar action.	AML may be adjusted as needed through separate NEPA analysis when site specific data demonstrates a change in AML is appropriate. To adjust AML the BLM will conduct and document the multi-tiered analysis process outlined in the Wild Horses and Burros Management Handbook (H-4700-1, Appendix 3). This analysis will include an in-depth review of intensive monitoring data.	No similar action.	AML may be adjusted as needed through separate NEPA analysis when site specific data demonstrates a change in AML is appropriate. To adjust AML the BLM will conduct and document the multi-tiered analysis process outlined in the Wild Horses and Burros Management Handbook (H-4700-1, Appendix 3). This analysis will include an in-depth review of intensive monitoring data.



**Map 2-1: Alternative A (No Action)
Resource Management Plan
Amendment for Wild Horse Management**

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Miles

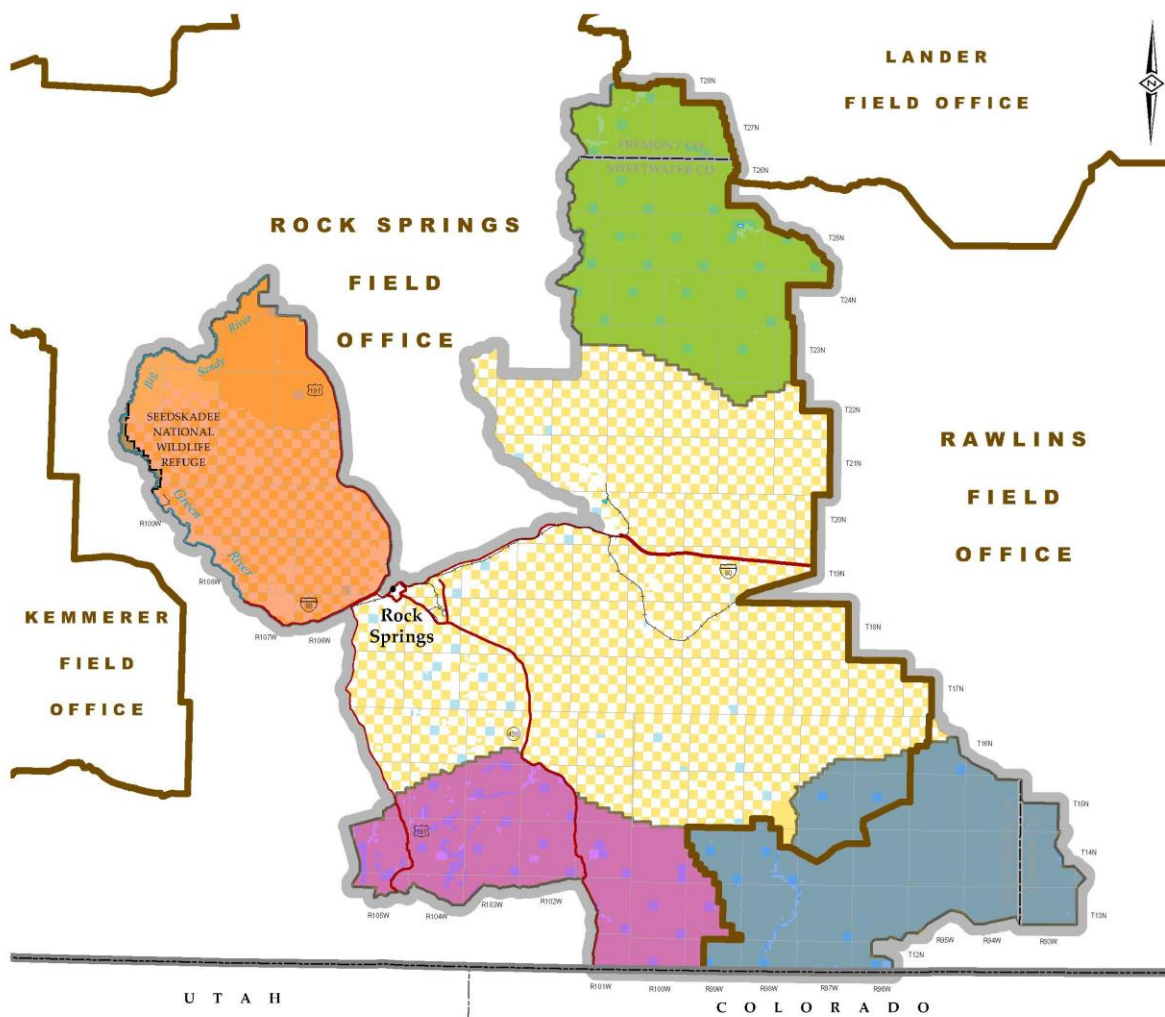
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BLM Wild Horse Herd Management Areas



No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use.



**Map 2-2: Alternative B
Resource Management Plan
Amendment for Wild Horse Management**



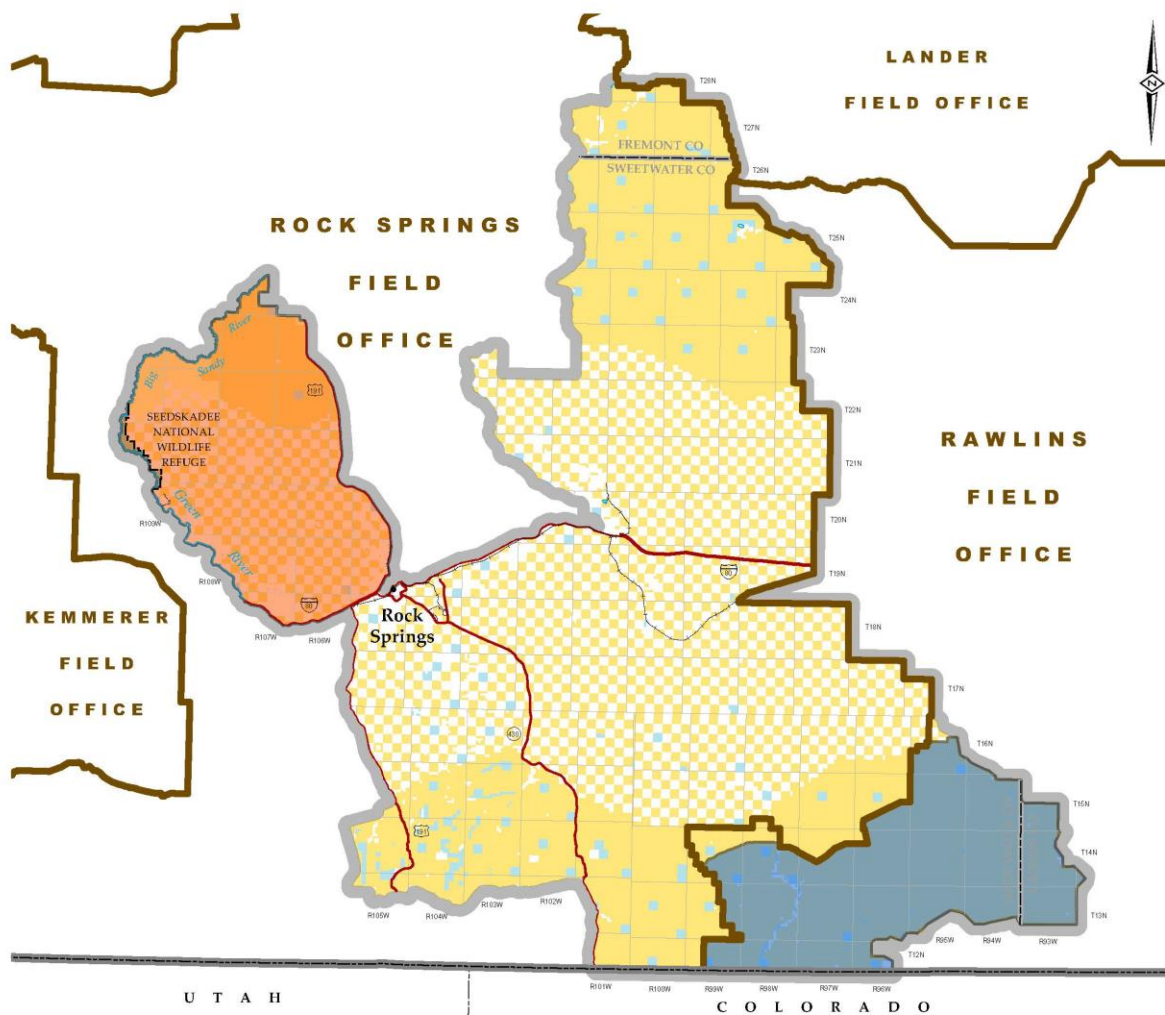
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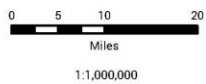
BLM Wild Horse Herd Management Areas



No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use.



**Map 2-3: Alternative D
Resource Management Plan
Amendment for Wild Horse Management**



No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use.

Table 2-2. Summary of Impacts

Alternative A (No Action)	Alternative B	Alternative C	Alternative D (Proposed RMP Amendment)
<i>Wild Horses</i>			
Management of wild horses would support the habitat and health of the wild horse populations within the HMAs in the planning area. Impacts from gathers and limited population control would continue to occur. Management challenges related to the checkerboard lands would remain unresolved.	Under this alternative there would be 95 fewer wild horses present in the White Mountain HMA and 350 fewer wild horses in the Adobe Town HMA, at high AML. The number of wild horses in the Great Divide Basin and Salt Wells Creek HMAs would remain the same as Alternative A. Conversion of some checkerboard lands from HMA to HA status would remove wild horse populations from these areas. Managing for non-reproducing herds would allow wild horses to remain in HMAs without the stress of periodic gathers. Reallocation of forage from livestock use to wild horse use would provide adequate forage for wild horses while maintaining a TNEB in the HMAs that are reduced in size. Impacts of population control would occur.	All wild horses would be removed from all HMAs. These wild horses would be transported to holding facilities and prepared for adoption, sale or long-term holding. A large, multi-step and likely multi-year effort to gather all the wild horses in the planning area would be required.	Two HMAs would be managed with an overall reduction in wild horse numbers and two HMAs would be reverted to HA status. Overall, there would be 1,229 fewer wild horses (at high AML) within the planning area under this alternative. Forage, habitat, and water resources would improve for those wild horses that remain on the range, as a result of reduced competition for these resources. Impacts from gathers and population control would continue to occur. Use of population management tools could reduce gather frequencies and thereby reduce the impacts to wild horses related to gathers.
<i>Soil Resources</i>			
Wild horses can cause soil compaction and erosion as a result of hoof action. Maintenance of AML would help	In areas where wild horses are more highly concentrated, there may be higher impacts to soil resources, primarily compaction	Removal of all wild horses would require a large gather which would directly affect soils at gather locations from vehicles	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would result in

mitigate potential impacts to soils especially in the vicinity of springs and other water sources. Impacts to soils as a result of gather operations include disturbance to soils from vehicles and hoof action; impacts from gathers would be localized and temporary.	from hoof action, and erosion from decreased vegetative cover. The potential for additional impacts to soils from the increased concentration of wild horses in these HMAs would be somewhat offset by the reduction of 6,876 permitted livestock AUMs. Some impacts to soil resources would occur as a result of gathering wild horses from the checkerboard lands, similar to those described in Alternative A. In areas where wild horses are less concentrated, impacts to soils resources would be reduced.	and hoof action. These impacts would be localized and temporary. The removal of all wild horses from the planning area would benefit soils in the long term as there would be reduced impacts from wild horse activities.	reduced soil impacts associated with wild horse activities within the planning area. Soil resources would be impacted by gather operations similar to those impacts described under Alternative C.
<i>Water Resources</i>			
Wild horses can impact water resources when they concentrate near them. Impacts may include localized erosion, sediment loading and reduced water quality. Springs are especially susceptible to wild horse activities. Additional water developments for wild horses could improve the distribution of wild horses in the planning area, and reduce concentrated use of sensitive springs and riparian areas.	In areas where wild horses are more highly concentrated, there may be higher impacts to water resources, primarily increased sedimentation from erosion and decreased water quality from fecal matter. The potential for additional impacts to water resources from the increased concentration of wild horses in these HMAs would be somewhat offset by the reduction of 6,876 permitted livestock AUMs. In areas where wild horses are less concentrated, impacts to water resources would be reduced.	Removal of all wild horses would provide greater localized protections to water resources by preventing surface disturbance and trampling of riparian areas caused by wild horses. In addition, sediment loads would be reduced under this alternative.	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would result in reduced impacts to water resources associated with wild horse activity within the planning area.
<i>Vegetation</i>			
Potential impacts to vegetation resources associated with wild	In areas where wild horses are more highly concentrated, there	Following some localized and temporary impacts to vegetation	Under this alternative there would be 1,229 fewer wild horses (at

horse activities include consumption of vegetation (grazing), trampling and the potential to spread invasive species. At high AML, wild horses would consume an estimated 24,780 AUMs of forage. Vegetation may also be impacted by vehicle traffic, and concentrated wild horse activities during a gather. Gather related impacts would be localized and temporary. Managing wild horses at AML helps prevent excessive impacts to vegetation resources. The construction of additional water developments for wild horses may also improve wild horse distribution and reduce overall impacts to vegetation resources.	may be higher impacts to vegetation resources, primarily through consumption and trampling. The potential for additional impacts to vegetation resources from the increased concentration of wild horses in these areas would be somewhat offset by the reduction of 6,876 permitted livestock AUMs. In areas where wild horses are less concentrated, impacts to vegetation resources would be reduced. Overall, there would be 5,340 fewer AUMs consumed by wild horses throughout the planning area under this alternative.	resources associated with gathering all wild horses from the planning area, there would be no impacts to vegetation from wild horse activities under this alternative. The impacts associated with wild horse activities as described under Alternative A would not occur.	high AML) within the planning area. This would reduce overall grazing pressure within the planning area by an estimated 14,748 AUMs. This would result in reduced impacts to vegetation resources associated with wild horse activities within the planning area.
<i>Wildlife and Fisheries</i>			
Wild horses can compete with wildlife (especially big game) for food and water resources. Managing wild horses at AML would limit impacts to wildlife and promote a TNEB. Water developments would support wildlife and wild horses but could also lead to increased competition at individual water sources. The HMAs also contain crucial winter range for big game species. Wild horses utilizing	In areas where wild horses are more highly concentrated, there may be higher impacts to wildlife and fisheries, primarily through increased competition for forage, water, cover and space. The potential for additional impacts to wildlife from the increased concentration of wild horses would be somewhat offset by the reduction of 6,876 permitted livestock AUMs. In areas where wild horses are less concentrated,	Since all wild horses would be removed from the planning area under this alternative, there would be no impacts to wildlife as a result of wild horse activities. Some localized and temporary impacts to wildlife may occur during gather operations while removing all wild horses from the planning area.	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would result in reduced impacts to wildlife associated with wild horse activity within the planning area.

these areas in the winter could compete with wildlife for scarce resources such as forage and water.	<p>impacts to wildlife and fisheries would be reduced.</p> <p>If any fences or other man-made barriers were needed to prevent wild horses from straying onto the private land within the checkerboard boundary, these would act as a barrier to big game movement. This can be of particular concern in designated migration corridors.</p>		
<i>Special Status Species</i>			
<p>Wild horses can compete with some Special Status Species for food and water resources. They can also impact some Special Status Species habitat. Managing wild horses at AML would limit impacts to these species and promote a TNEB. Upland water developments could reduce impacts to springs and streams which contain habitat for some Special Status Species.</p> <p>Managing for AML would help limit potential impacts to Special Status Species. Some Special Status Species may also be temporarily disturbed during gather activities.</p>	<p>In areas where wild horses are more highly concentrated, there may be higher impacts to special status species, primarily through increased competition for forage, water, cover and space (in the case of special status wildlife species) or grazing related impacts (in the case of special status plant species). The potential for additional impacts to Special Status Species from the higher concentration of wild horses would be somewhat offset by the reduction of 6,876 permitted livestock AUMs. In areas where wild horses are less concentrated, impacts to special status species would be reduced.</p> <p>If any fences or other man-made barriers were needed to prevent wild horses from straying onto</p>	<p>Since all wild horses would be removed from the planning area under this alternative, there would be no impacts to Special Status Species as a result of wild horse activities. Some localized and temporary impacts to Special Status Species may occur during gather operations while removing all wild horses from the planning area. Overall, habitat for Special Status Species is expected to improve under this alternative.</p>	<p>Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would result in reduced impacts to Special Status Species associated with wild horse activity within the planning area.</p>

	the private land within the checkerboard boundary, these could have a negative impact on Greater Sage-grouse habitat.		
<i>Wildland Fire</i>			
Grazing by wild horses serves as a vegetation treatment that could reduce fuels, especially since wild horses graze primarily on grasses which are easily ignited.	In areas where wild horses are more concentrated, vegetation height and density would be reduced leading to fewer and lower intensity fires. However, the increased concentration of wild horses would be somewhat offset by the removal of 6,876 permitted livestock AUMs. In all, impacts are expected to be similar to Alternative A. In areas where wild horses are removed, vegetation would likely increase in height and density, increasing the possibility of fire ignition and spread.	Under this alternative there is a potential for increased wildfire risk in grassy areas. This could increase the need for other fire/fuel treatments and suppression activities.	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would reduce overall grazing pressure within the planning area by an estimated 14,748 AUMs. This would increase the abundance of fine fuels and could increase the potential for fire ignition.
<i>Cultural Resources</i>			
Grazing and trampling of vegetation by wild horses can disturb the soil, which can accelerate erosion and weathering which can lead to exposure of artifacts and sites. However, the discovery of previously unknown cultural resources could occur.	In areas where wild horses are more highly concentrated, there may be higher impacts to cultural resources, primarily through increasing the potential exposure of cultural resources to the elements through hoof action. The potential for additional impacts to cultural resources from the increased concentration of wild horses would be somewhat offset by the reduction of 6,876 permitted livestock AUMs.	Grazing and trampling would not occur once all the wild horses are removed from the planning area. The intensity of the gathers required to achieve this could result in localized impacts to cultural resources. Locating gather sites in locations where cultural inventories have been completed would help mitigate this concern.	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would result in reduced impacts to cultural resources associated with wild horse activity within the planning area.

	If any fences or other man-made barriers were needed to prevent wild horses from straying onto the private land within the checkerboard boundary, these could impact cultural resources. This would be of particular concern near National Historic Trails (NHTs).		
<i>Paleontological Resources</i>			
Grazing and trampling of vegetation by wild horses can disturb the soil, which can accelerate erosion and weathering which can lead to exposure of paleontological sites. However, the discovery of previously unknown paleontological resources could occur.	In areas where wild horses are more highly concentrated, there may be higher impacts to paleontological resources, primarily through increasing the potential exposure of these resources to the elements through hoof action. The potential for additional impacts to paleontological resources from the increased concentration of wild horses would be somewhat offset by the reduction of 6,876 permitted livestock AUMs.	Grazing and trampling would not occur once all the wild horses are removed from the planning area. The intensity of the gathers required to achieve this could result in localized impacts to paleontological resources. Siting gather sites in locations where paleontological inventories have been completed will help mitigate this concern.	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would result in reduced impacts to paleontological resources associated with wild horse activity within the planning area.
<i>Livestock Grazing</i>			
Wild horses compete with livestock for forage and water. Managing wild horses at AML allows for adequate resources for wild horses as well as livestock. Managing for AML also ensures a TNEB and helps maintain rangeland health.	Because wild horses would be more concentrated in some areas, some grazing permits within the Great Divide Basin and Salt Wells Creek HMAs would be reduced by a total of 6,876 AUMs. Impacts due to competition between wild horses and livestock would continue to occur as described in Alternative	No potential for conflicts between wild horses and livestock would occur as a result of this alternative once all the wild horses are removed from the range in the planning area.	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. This would reduce overall grazing pressure within the planning area by an estimated 14,748 AUMs. This would result in reduced competition between livestock and wild horses within the planning area. These AUMs

	A. These impacts would be somewhat increased in areas where wild horses are concentrated, and decreased in areas where wild horses are less concentrated.		could become available for livestock use depending on the results of an in-depth review of intensive monitoring data.
<i>Recreation</i>			
Visitors would have the opportunity to view wild horses, visit the BLM corrals in Rock Springs, and tour along the Wild Horse Scenic Loop Byway.	Similar to Alternative A, except wild horses would be removed from checkerboard land within the Great Divide Basin, Adobe Town and Salt Wells Creek HMAs. The higher concentration of wild horses in the Great Divide Basin and Salt Wells Creek HMAs would make it more likely for recreationists to view wild horses when they visit these HMAs. Recreationists would potentially need to travel farther to view the herds. The Wild Horse Scenic Loop Byway would still provide opportunities for wild horse viewing.	The public would not have the opportunity to view wild horses in any of the HMAs in the planning area. The public could still view wild horses on the range on the Little Colorado, Lost Creek, and Antelope Hills HMAs, which are located in the same general area but are not part of this RMP Amendment. Wild horses could also be viewed at the BLM corrals as these corrals would continue to service other BLM offices and HMAs.	Similar to Alternative A, except the public would not have the opportunity to view wild horses in the Great Divide Basin and Salt Wells Creek HMAs. Viewing opportunities would be reduced on the Adobe Town HMA, as a result of fewer wild horses being managed within a smaller HMA. On the White Mountain HMA, wild horse viewing opportunities would remain the same as Alternative A.
<i>Socioeconomics</i>			
Wild horse populations would continue to support the direct and indirect social and economic values associated with wild horse herds. Other resource values that compete with wild horses would continue to be impacted by wild horse activity.	Under this alternative there would be 445 fewer wild horses compared to Alternative A. This would have a negative impact on those who derive a social or economic value from the existence and viewing of wild horses. Managing the herds as non-reproducing would adversely affect the values held by some	Compared to the other alternatives, this alternative would best support the economic and social values associated with other resources since competition for range habitat, and risk of deterioration from the exceedance of AML, would be eliminated. However, tourism related to wild horse viewing would likely be	Under this alternative there would be 1,229 fewer wild horses (at high AML) within the planning area. The remaining wild horses would continue to support the direct and indirect social and economic values individuals derive from the existence and viewing of wild horses; however, there would be fewer horses to

	<p>individuals. Reducing livestock grazing permits by 6,876 AUMs would have an economic and social impact on the livestock industry in this area.</p>	<p>reduced and may result in a small negative economic impact to that portion of the regional economy.</p>	<p>support these values. Local tourism associated with wild horse viewing could be reduced under this alternative. However, this alternative would better support the economic and social values associated with other activities that compete with wild horses for resources, such as livestock grazing.</p>
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Chapter 3 – Affected Environment

This chapter describes the environmental characteristics, conditions, and trends that influence the planning area or that would be affected by the management actions presented in Chapter 2. The following resources are those that would not be affected by the proposed management actions and therefore are not included in any further detail in this EIS:

- Lands with Wilderness Characteristics
- Visual Resources
- Travel Management
- Forests and Woodlands
- Energy and Minerals
- Lands and Realty
- Renewable Energy
- Special Designations
- Environmental Justice

The data presented in Chapter 3 is the most up-to-date information to describe the affected environment for this analysis. The BLM requested data and other pertinent information from cooperating agencies and the public early in the Rock Springs Field Office RMP Revision process (see **Section 1.3**). The BLM used all information and data available to prepare a Summary of the Analysis of Management Situation (AMS) (BLM 2012). The descriptions presented in this chapter are derived from the information available in the AMS (BLM2012).

The planning area includes the land encompassed by the four wild horse HMAs that include checkerboard land: Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain (see Map ES-1). The planning area totals 2,811,401 acres, of which 1,920,314 acres (68%) are managed by the BLM. Within the Rock Spring Field Office area there is an additional HMA, Little Colorado, that is not included in the planning area because it does not contain any checkerboard land. It is located immediately north of the White Mountain HMA. Other HMAs located within the Rawlins Field Office area are also not included in this analysis because they do not contain any checkerboard land. The planning area is located in portions of Sweetwater and Fremont counties in southwestern Wyoming. The area has predominantly high elevation plains varying from 6,000 feet to 8,000 feet.

3.1 Wild Horses

The BLM protects, manages, and controls wild horses (and burros, although BLM Wyoming does not manage any burro populations) under the authority of the WFRHBA. One of the BLM's key responsibilities for the management of wild horses and burros is to manage for a thriving natural ecological balance (TNEB). To achieve a TNEB, the BLM establishes AMLs and manages wild horses in a manner that assures significant progress is made toward achieving the Land Health Standards for upland vegetation and riparian communities, watershed function, and habitat quality for animal populations, as well as other site-specific or landscape-level objectives (please see the Wyoming Standards for Healthy Rangelands for more information, BLM 1997b). BLM strives to manage wild horses within the established AML range for each HMA. To accomplish this, BLM frequently monitors wild horse populations to determine when there are excess animals. Excess horses are then removed through gather operations. While BLM strives to promptly remove excess wild horses from the range, budget limitations

and available space within holding facilities sometimes delays gather operations. When this occurs, wild horse populations can exceed the established AML range.

Because of natural horse movements and a long history of human-facilitated movements between HMAs, the wild horses now living in these HMAs all belong to one metapopulation encompassing all BLM HMAs. These wild horse herds are self-sustaining in their ability to survive and thrive on the range, without the need to rely on resources constantly supplied by humans (such as forage, water, cover and space).

The area utilized by wild horses in the planning area includes large unfenced acreages of private, state, BLM, and Bureau of Reclamation (BOR) lands. In addition, areas utilized by wild horses include special designations such as Wilderness Study Areas (WSAs) and Areas of Critical Environmental Concern (ACECs) managed by the BLM.

All of the HMAs within the planning area contain checkerboard land, areas where every other square mile alternates between public land and private or state lands. The RSGA owns numerous private land sections within each of these HMAs. Historically, the RSGA gave BLM consent for a limited number of wild horses to utilize private land within the checkerboard. Because of this consent, the BLM included private lands in determining suitable habitat within these HMAs, and in establishing the associated AMLs. However, in 2010 the RSGA revoked its consent and requested that all wild horses be removed from private lands in this area. The removal of this consent has made it very difficult to manage wild horse herds within the checkerboard lands (see **Section 1.1** for more information). Also, since private land was included when the underlying HAs were evaluated as HMAs, and AML was established, this removal of consent required BLM to reassess if these HAs were still appropriate to manage as HMAs, and if so, what the corresponding AML should be. Addressing these issues is the primary purpose of this document (see **Section 1.1**).

Wild horses in these HMAs have utilized checkerboard lands for decades. Many bands frequently move back and forth between solid block land and checkerboard at various times of the year. Additionally, while on the checkerboard these animals constantly move back and forth between public and private land.

Wild horses in the planning area have a diverse background of many domestic horse breeds and are most closely related to North American gaited breeds such as Rocky Mountain Horse, American Saddlebred, Standardbred, and Morgan. These wild horses range from 14 to 16 hands and weigh up to 1,100 pounds at mature weight. In general, wild horses in the planning area are in good health. Existing AMLs for wild horses in the planning area were established by the 1997 Green River RMP (BLM 1997a) and the 2008 Rawlins RMP (BLM 2008) and are provided in Table 3-1. For the Great Divide Basin, Salt Wells Creek, Adobe Town, and White Mountain HMAs, the AMLs established in the 1997 RMP were based on a 1979 agreement between the RSGA and two wild horse advocacy groups.

Table 3-1. Herd Management Areas in the Planning Area and Associated AMLs

Herd Management Area	Acreage	% of HMA in Checkerboard	Current AML
<i>Adobe Town (Rock Springs portion)</i>	<i>102,854 (BLM: 79,924)</i>	<i>42%</i>	<i>165-235</i>
<i>Adobe Town (Rawlins portion)</i>	<i>374,132 (BLM: 362,504)</i>	<i><1%</i>	<i>445-565</i>
Adobe Town (Total)	476,986 (BLM: 442,428)	9%	610-800
Great Divide Basin	776,189 (BLM: 559,398)	48%	415-600
Salt Wells Creek	1,169,739 (BLM: 689,961)	72%	251-365
White Mountain	388,488 (BLM: 228,527)	72%	205-300

Total:	2,811,401 (BLM: 1,920,314)	-	1,481-2,065
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While the cumulative AML within the planning area is 1,481 – 2,065, actual wild horse numbers fluctuate each year based on reproductive rates, death rates, and time since the last gather/removal. Overall, wild horse populations typically increase by approximately 20% each year (though some herds exhibit higher growth rates, while others exhibit lower growth rates). When a gather is conducted, typically wild horses are removed so that the low AML number remains within the HMA. The population then grows until it exceeds the high AML. BLM regularly surveys the wild horse population within the planning area, and observes conditions on the range. When BLM determines there are excess wild horses within an HMA, it conducts a gather and excess wild horses are removed. Since BLM has limited resources nationwide to conduct gathers and place wild horses in holding facilities, not all HMAs are gathered to low AML immediately.

Adobe Town HMA

The Adobe Town HMA is located in south-central Wyoming between Interstate 80 and the Colorado/Wyoming border. It encompasses 476,986 acres, of which 442,428 acres are BLM-administered public lands. A small portion of private lands are intermingled with the BLM managed land in this area. The Adobe Town HMA is located partially within the Rock Springs Field Office and partially within the Rawlins Field Office; approximately 42% of the RSFO portion of this HMA is within the checkerboard, while less than 1% of the RFO portion of this HMA is within the checkerboard. Both offices participate in management of the HMA. The total AML for this HMA is 610-800 wild horses, with 165-235 for the Rock Springs portion and 445-565 for the Rawlins portion. A large portion of the boundary of this HMA is unfenced, particularly on the western side. As such, this HMA is managed as a complex with the Salt Wells Creek HMA. Some wild horses frequently move back and forth between these two HMAs.

The topography of the area is varied with everything from colorful eroded desert badlands to wooded buttes and escarpments. In between are extensive rolling to rough uplands interspersed with some desert playa and vegetated dune areas. Limited, sensitive desert riparian areas are important features of the landscape and winters are long and severe. Annual precipitation ranges from less than seven inches in the desert basins to more than 12 inches at some of the higher elevations. Elevation ranges from 6,600 feet to 7,800 feet along Kinney Rim, which forms the western boundary of the HMA. A portion of the HMA is in the Adobe Town Wilderness Study Area (WSA) and other features in the area include the Cherokee Trail, the Haystacks, and Powder Rim. The HMA is accessible to the public for opportunities for education and enjoyment along county roads and established two-track roads. Within the Rawlins portion of the HMA, the most abundant plant community is sagebrush/bunchgrass; other plant communities include desert shrub, grassland, mountain shrub, and a very few aspen woodlands.

Domestic cattle and sheep utilize the area during both summer and winter months. Vegetation in the HMA is dominated by sagebrush, salt desert shrubs and grass, with juniper and conifers interspersed. Wild horses typically use a high amount of grass species, the most favorable being needlegrass, Indian ricegrass, wheatgrass, and sedges. The area supports significant wildlife populations including elk, deer and pronghorn.

Great Divide Basin HMA

The Great Divide Basin HMA encompasses 776,189 acres, of which 559,398 acres are BLM-administered public lands. The AML for the existing HMA is 415-600 wild horses. The management

area is located 40 miles east of Rock Springs, to the Rawlins/Rock Springs field office boundary, west to the Continental Divide, and north of I-80 to just south of South Pass City. The northern portion of the HMA consists primarily of consolidated public lands with state school sections and small parcels of private land making up the remaining lands. The southern portion is in the checkerboard land ownership area. Approximately 48% of the HMA is within the checkerboard. Topography within the herd area is generally gently rolling hills and slopes with some streams and tall buttes. Elevations range roughly from 6,200 to 8,700 feet. Precipitation ranges 6-16 inches, predominately in the form of snow. It is common for snow in the northern portion of this HMA to reach depths of 3 to 6 ft. over the course of the winter. The HMA is accessible to the public for opportunities for education and enjoyment along county roads and established two-track roads.

Domestic cattle and sheep utilize the area lightly in summer and moderately in winter. Vegetation in the HMA is dominated by sagebrush and grass intermixed with greasewood and saltbrush. The area supports significant wildlife populations including elk, deer, and pronghorn. The Great Divide Basin is the only HMA in the RSFO that contains portions of the Sublette Mule Deer Migration Corridor. See **Section 3.5** for a more detailed description of Wildlife in the Great Divide Basin HMA.

Salt Wells Creek HMA

The Salt Wells Creek HMA encompasses 1,169,739 acres, of which 689,961 acres are BLM-administered public lands; the AML for the existing HMA is 251-365 wild horses. Approximately 72% of the HMA (the northern portion) lies within the checkerboard land ownership area. Consolidated public lands with state school sections and small parcels of private land make up the majority of lands in the southern section of the HMA. A large portion of the boundary of this HMA is unfenced, particularly on the eastern side. As such, this HMA is managed as a complex with the Adobe Town HMA. Some wild horses frequently move back and forth between these two HMAs.

Topography within the HMA is generally gently rolling hills. There are several small streams passing through the area, and some high ridges. Elevations range roughly from 6,300 to 7,900 feet. Precipitation ranges 7-10 inches in lower elevations and 15-17 inches at higher elevations, predominately in the form of snow. The area is unfenced other than portions of boundary fence and right-of-way boundaries along I-80. The HMA is accessible to the public for opportunities for education and enjoyment along county roads and established two-track roads.

Domestic cattle and sheep utilize the area lightly in the summer and moderately in the winter. Vegetation in the HMA is dominated by sagebrush and grass, with juniper, aspen, and conifers interspersed. Wild horses typically use a high amount of grass species, the most favorable being needlegrass, Indian ricegrass, wheatgrass, and sedges. The area supports significant wildlife populations including elk, deer, and pronghorn.

White Mountain HMA

The White Mountain HMA encompasses 388,488 acres, of which 228,527 acres are BLM-administered public lands (207,350 acres directly managed by the BLM, and 27,177 acres of BOR land on which BLM manages livestock grazing and wild horse use). The AML for this HMA is 205-300 wild horses. Approximately 72% of the HMA lies within the checkerboard land ownership. Consolidated public lands with state school sections and small parcels of private land make up the remaining lands, which are located in the northeast section of the HMA. The HMA is a high plateau that overlooks the city of Rock Springs. The 24-mile Wild Horse Scenic Loop Byway is located within this HMA and currently provides wild horse viewing opportunities near the cities of Rock Springs and Green River. While the southern

and eastern portions of this HMA are fenced, there is no fencing on the northern and western portions of the HMA. Because of this, the White Mountain HMA is managed as a complex with the Little Colorado HMA to the north. Some wild horses frequently move back and forth between these two HMAs.

Elevations range roughly from 6,300 to 7,900 feet. Precipitation ranges from 6-10 inches of water equivalent, predominately in the form of snow. The area is unfenced except for portions of boundary fence and right-of-way boundaries along I-80 and Highway 191 North. The HMA is accessible to the public for opportunities for education and enjoyment along county roads and established two-track roads.

Domestic cattle and sheep utilize the area lightly in the summer and moderately in the winter. Vegetation in the HMA is dominated by sagebrush and grass, with saltbrush, winterfat, and greasewood intermixed. Wild horses typically use a high amount of grass species, the most favorable being needlegrass, Indian ricegrass, wheatgrass, and sedges. The area supports significant wildlife populations including elk, deer, and pronghorn.

AML Evaluation Process

AML is expressed in a range and applies to the number of adult wild horses (or burros, as appropriate) to be managed within the HMA and does not include the current year's foals. The AML upper limit is the maximum number of wild horses that would result in a TNEB and avoid deterioration of the range. The AML lower limit is set to a number that would allow the population to grow to the upper limit over a 4-5 year period, with no interim gathers. When establishing or adjusting AML, a multi-tiered analysis is used:

- Tier 1: Determine whether the four essential habitat components (forage, water, cover, space) are present in sufficient amounts to sustain healthy wild horse (and burro) populations and healthy rangelands over the long term.
- Tier 2: Determine the amount of sustainable forage available for wild horse use.
- Tier 3: Determine whether or not the projected wild horse herd size is sufficient to maintain genetically diverse wild horse populations (avoid inbreeding).

If the Tier 1 analysis determines that one or more of the essential habitat components is not present in sufficient quantities to maintain a healthy wild horse population, the authorized officer should consider amending or revising the land use plan to remove the area's designation as an HMA. If sufficient forage, water, cover, and space are present in the area, and higher levels of wild horse use would not result in deterioration of the range, then an increase in AML may be appropriate. If the Tier 1 analysis demonstrates that there is not sufficient forage, water, cover, or space, then there is no need to proceed to the next analysis tier. The analysis to establish AML includes an interdisciplinary and site-specific environmental review and should be completed whenever review of resource monitoring and population inventory data indicates that the existing AML may no longer be appropriate.

When evaluating AML, the following should be considered (see Section 4.2.2.2 in BLM Handbook H-4700-1):

- Changes in environmental conditions that may have occurred since the AML was established. Changing environmental conditions could include drought, wildfires, noxious weed infestations, effect of varying numbers of wild horses on forage utilization or range ecological condition/trend, an increase or decrease in the available forage, changes in livestock management, etc.
- The presence of any newly listed Threatened, Endangered, or Sensitive Species.
- Any resource monitoring, population inventory or other relevant data collected since AML was established.

See **Appendix A** for a detailed discussion of the three-tier AML analysis for the HMAs within the planning area.

Social Structure of Wild Horses

Wild horses have three major social groups: harem groups, multiple male and female groups, and bachelor male groups.

Harems are stable groups consisting of one adult male and several adult females with their offspring and can range in size. The females in the group mate almost exclusively with the harem male and offspring leave the herd once sexual maturity is reached. Typically, harem groups are composed of an adult male with 1 to 3 adult females and their immature offspring (Feist and McCullough 1976, Berger 1986, Roelle et al. 2010). In many populations, subordinate ‘satellite’ stallions have been observed associating with the band, although the function of these males continues to be debated (see Feh 1999, and Linklater and Cameron 2000). Juvenile offspring of both sexes leave the band at sexual maturity (normally around two or three years of age (Berger 1986). Adult females may remain with the same band over a span of years. Group stability and cohesion is maintained through positive social interactions and agonistic behaviors among all members, and herding and reproductive behaviors from the stallion (Ransom and Cade 2009). Group movements and consortship of a stallion with mares is advertised to other males through the group stallion marking dung piles as they are encountered, and over-marking mare eliminations as they occur (King and Gurnell 2006).

Multiple male and female groups are characterized by multiple adult males and several adult females and offspring; these groups are typically not stable and differ from harems in mating behavior and dominance structure. One male tends to be more dominant over the others and prevents other males from interacting with the adult females.

Bachelor male groups are composed entirely of male wild horses and tend to be unstable; these horses are young males forced out of their family groups or older males who have lost membership in either their harem or multiple male/female groups.

In horses, males play a variety of roles during their lives (Deniston 1979): after dispersal from their natal band, they generally live as bachelors with other young males before associating with mares and developing their own breeding group as a harem stallion or satellite stallion. In any population of horses not all males will achieve harem stallion status, so all males do not have an equal chance of breeding (Asa 1999). Stallion behavior is thought to be related to androgen levels, with breeding stallions having higher androgen concentrations than bachelors (Angle et al. 1979, Chaudhuri and Ginsberg 1990, Khalil et al. 1998). One study observed that a bachelor with low libido had lower levels of androgens, and two-year-old bachelors had higher testosterone levels than two year olds with undescended testicles who remained with their natal band (Angle et al. 1979).

3.2 Soil Resources

Soils in the planning area are diverse and highly variable, are generally light colored, and textures and aggregate development vary. Some darker colored soils, with greater amounts of organic matter, are found in areas of increased moisture due to aspect, elevation, and drainage. Much of the soil within the planning area was derived from sediment that collected on the bottom of a shallow sea. The generally low rainfall in the area has resulted in a limited amount of leaching, resulting in high salinity soils that dominate the area. Soils in the planning area have formed from a wide variety of geologic material, ranging from in situ geologic parent material rock (residuum) to material transported by wind (aeolian deposits), water (alluvium), gravity (colluvium), and ice (glacial till). These parent materials, along with

variable climate, topography, biota, and management, produce soils with diverse characteristics. Soil characteristics can differ over relatively short distances, reflecting differences in parent material, position on the landscape, elevation, aspect, biota such as bacteria, fungi, biological crusts, vegetation, soil, animals and humans, and climatic variables, such as precipitation and temperature. Varying amounts of soluble salts occur in most of the soils in the planning area, which can affect management of soils due to toxicity, reduced infiltration rates, limits on nutrient availability, and reduction of water available to plants. A portion of the planning area is located within the Colorado River Basin, where salinity threatens municipal and industrial needs as well as irrigation within the watershed. Moderately saline soils are generally found along the major drainages, and over 50 percent of the total salt yield in the planning area is derived from slightly saline soils. Position on the landscape, slope length and gradient, chemical and physical properties, surface texture and structure, plant cover, and erosion control practices contribute to susceptibility of soils to wind and water erosion. Wind erosion is common in the planning area, as is water erosion; susceptibility to water erosion is typically a function of raindrop intensity and runoff rates, slope gradient and length, water infiltration rates, soil depth to bedrock, and vegetative cover.

While biological soil crusts are present within the planning area and play a role in protecting soils from erosion, most soils in the planning area are primarily dependent on vegetation cover for the prevention of erosion; vegetation also acts as a buffer between the soil surface and surroundings. The soils in the planning area possess several limitations that reduce the potential for establishing vegetation following a disturbance. Soils with limitations include highly erodible soils, saline, sodic, and sandy soils, soils with biological crusts, soils with slopes greater than 25%, frozen soil, 2:1 shrink-swell clays, badlands, and soils with potential archaeological or paleontological concerns.

Surface disturbing activities, such as mineral exploration and development, recreation, livestock grazing, wild horse use, and timber harvest have direct and indirect effects on soils as a result of loosening the topsoil and removing the vegetation and/or other ground cover. This type of disturbance can result in accelerated erosion. Soils particularly susceptible to surface disturbing activities include unstable, sandy, and erosive soils.

3.3 Water Resources

The majority of the planning area is located within the Colorado River Basin and the Great Divide Basin. A small portion of the planning area is located within the North Platte Drainage Basin. Within the Colorado River Basin, salinity is a concern (as discussed above in **Section 3.2, Soils.**) The Great Divide Basin is internally drained, with no surface water leaving the watershed. Stream flow in the area is dominated by high magnitude-low frequency flows due to thunderstorms and snowmelt. The occasional perennial or intermittent water sources tend to be dominated by riparian and wetland vegetation. Ephemeral channels tend to be dominated by upland vegetation. Channel stability in the area varies from good to poor depending on historic and existing impacts, substrate, and vegetative conditions.

Water bodies in Wyoming are classified for water quality regulation according to beneficial uses by the Wyoming Department of Environmental Quality (WDEQ). Class 1 waters are defined as “outstanding waters” and are those surface waters in which no further water quality degradation by point source discharges, other than from dams, will be allowed. There are no Class 1 waters within the planning area; however, Class 2, 3, and 4 waters are present. Class 2, and 3 waters are those with specific water quality standards that must be maintained for aquatic life. Class 4 waters do not have aquatic life criteria (WDEQ 2013).

The State of Wyoming manages water quality within its borders. Within the portion of the Colorado River Basin addressed in this document, Bitter Creek (which closely parallels the Northern border of the

Salt Wells Creek HMA) and Killpecker Creek (which closely parallels the eastern border of the White Mountain HMA) are listed as being impaired by fecal coliform. To address the levels of fecal bacteria in these waterbodies, WDEQ established Total Maximum Daily Loads (TMDLs) for these streams in 2018 in an effort to improve water quality. The same stretch of Bitter Creek is also impaired by high chloride concentrations. Additional information can be found in WDEQ's *Wyoming's 2016/2018 Integrated 305(b) and 303(d) Report* (WDEQ 2016/2018).

Roads, changes in climate, recreational use, bank alterations, industrial development, impacts associated with grazing activities, and other human caused disturbances may affect stream conditions and water quality in the planning area.

3.4 Vegetation

Vegetative resources within the planning area are diverse and unique as a result of the precipitation, elevation, and temperature extremes, combined with soil and geologic variability. The desert areas provide habitat for a variety of hardy plants tolerant of low precipitation, temperature extremes, and saline soils. High elevation areas support plants adapted to very low temperatures, an extremely short growing season, and high snow accumulation. Vegetation types are susceptible to fire occurrence as a result of fuel loading or as a natural condition of the environment. The high-elevation, cold-desert vegetation of the project area is composed predominately of Wyoming big sagebrush/grass and Gardner saltbush vegetation communities. Other plant communities present include desert shrub, grassland, mountain shrub, juniper woodlands, and a very few aspen woodlands. Needle-and-thread, Indian ricegrass, bluebunch wheatgrass, western wheatgrass, junegrass, basin wild rye, sandhill muhly, Canby and little bluegrass, and threadleaf sedge are the predominant grasses and grass-like species. Wyoming big sagebrush, black sagebrush, bud sage, birdsfoot sage, Gardner's saltbush, spiny hopsage, four-wing salt bush, greasewood, bitterbrush, winterfat, horsebrush, Douglas and rubber rabbitbrush, and true mountain mahogany are important shrub species for wildlife. Forbs are common and variable depending on the range site and precipitation zone.

The vegetative resources in the planning area are divided into three main areas: Rangelands/Uplands, Riparian, and Forests and Woodlands. Each of these main areas is made up of various vegetation communities or associations; more detail on rangelands and riparian areas are presented below. Forests and woodlands are not considered further in this document as they are not considered part of the affected environment regarding wild horse management (see the introduction to Chapter 3). Wild horses generally prefer perennial grass species as forage when available; shrubs are more important during the fall and winter and during drought years. Needle-and-thread and Indian ricegrass are the most important during the winter and spring; wheatgrasses are more important during the summer and fall.

Rangelands/Uplands

Rangeland/Uplands within the planning area mainly consist of grassland, salt desert shrub and sagebrush communities. Grasslands cover approximately 292,792 acres. Patches of grasslands are found scattered throughout low and high-density sagebrush communities. These grassland communities provide important habitat and forage for wildlife. Grass species dominate these communities, but shrubs, subshrubs, and cushion plants are also common.

Salt Desert Shrub communities cover approximately 259,140 acres. These communities include species that are highly resilient to salty soils and dry conditions. These vegetation communities play an important role in protecting soils from erosion and providing forage and habitat for wildlife.

Sagebrush communities are the most extensive plant cover type in the planning area as well as in the surrounding Wyoming Basin area and intermountain region. Sagebrush communities cover approximately 1,713,154 acres within the planning area. Adaptations to different habitat characteristics (e.g., soil type, climate, and elevation) have resulted in a variety of sagebrush species in the western United States (Monsen and Shaw 2000). Sagebrush communities in the planning area are dominated by two subspecies of big sagebrush (Wyoming big sagebrush and basin big sagebrush), with a well-established grass and forb component.

No widespread invasions involving exotic weedy species that dominate the native plant communities have been observed. Wildfires in sagebrush communities have increased in number and intensity compared with historical levels in some parts of the West, but that has not been a particular issue in the planning area. Many grasslands and rangelands in the planning area have been influenced by livestock grazing, fire, fire suppression, and surface-disturbing activities.

Riparian

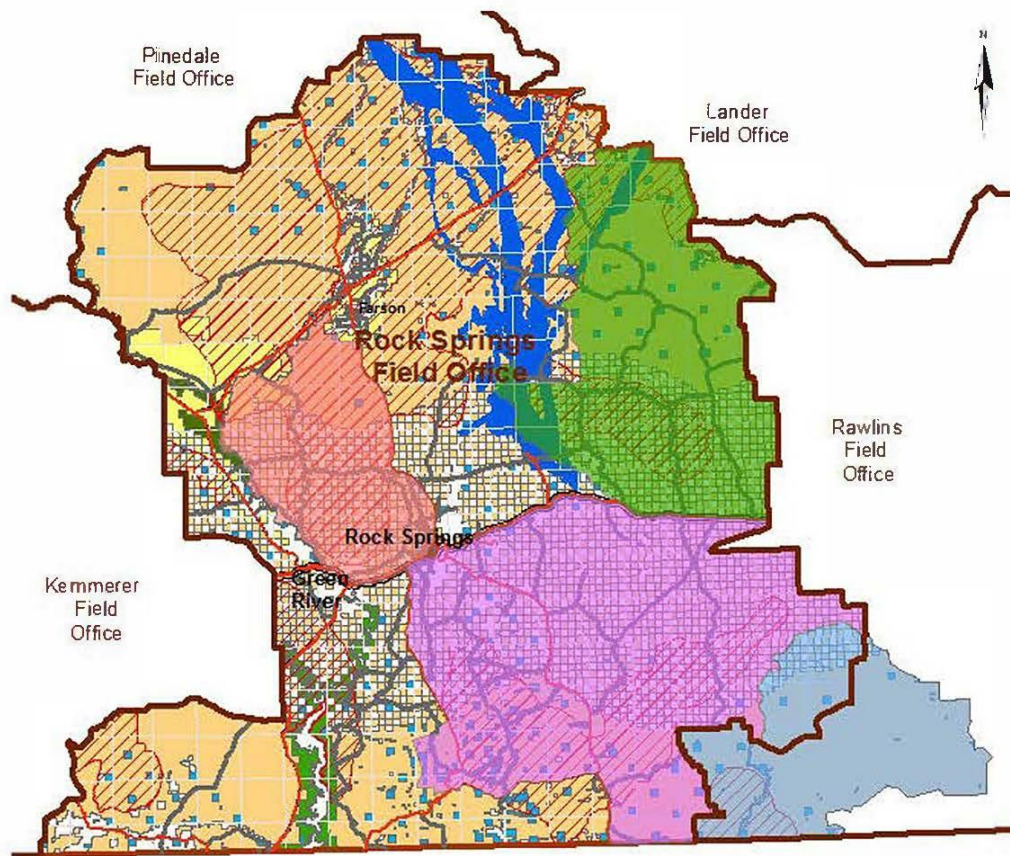
Wetlands and riparian areas occur throughout the planning area and are most frequently located on the lands adjacent to surface waters but may also be located in lands with a high water table that is not expressed on the surface. Wetlands occupy approximately 61,089 acres within the planning area and are dominated by vegetation that is adapted to a consistent water supply and can withstand soil saturation, and periodic flooding. Many plant and wildlife species are found only in riparian areas or use them as a preferred habitat. These small but important ecosystems serve as a biological oasis and represent a vegetation structure, soil, and hydrology that is unique relative to the vast expanses of sagebrush and prairie grass that dominate the landscape of the region. Wetlands comprise less than 2% of the land mass in the State of Wyoming, yet are prized for their fish and wildlife habitat, water supply, cultural, and historic and recreational values as well as for their economic values which stem from use in livestock production, forest management, and mineral extraction. Wild horses utilize riparian areas as water sources.

3.5 Wildlife and Fisheries

Over 350 species of wildlife are found on a variety of habitats in the planning area. Activities such as oil and gas, mining, recreation, and grazing may affect wildlife habitat. The distribution and abundance of wildlife in the planning area are primarily functions of habitat conditions, and habitat is best characterized by the various vegetation types found in the planning area. The predominant habitat in the planning area is sagebrush steppe, and various areas of mountain shrub, willow and cottonwood communities occur along rivers, and badlands, saltbush and cushion plant communities, grasslands, and pine, aspen or spruce/fir forests are present in the higher elevations. Varieties of migratory birds utilize the different habitats within the planning area for nesting, foraging and as stop-over areas during migration. Populations of big game in the area include moose, elk, mule deer, white-tailed deer, and pronghorn antelope. Over 55 percent of the planning area is considered crucial big game habitat. All of the HMAs in the planning area contain designated Crucial Winter Range (CWR) Habitat for big game species. The White Mountain HMA contains approximately 217,000 acres of pronghorn CWR, 35,500 acres of elk CWR and does not contain mule deer CWR. The Salt Wells HMA contains approximately 123,000 acres of pronghorn CWR, 8,800 acres of elk CWR and 122,000 acres of mule deer CWR. The Great Divide Basin HMA contains approximately 137,500 acres of pronghorn CWR, 91,800 acres of elk CWR and 254,000 acres of mule deer CWR. The Adobe Town HMA contains approximately 56,000 acres of pronghorn CWR, 2,400 acres of elk CWR and 59,000 acres of mule deer CWR. There is overlap of the different species crucial habitats within each HMA.

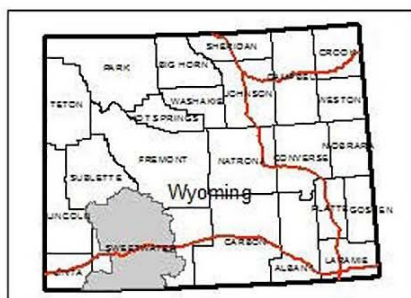
The Sublette Mule deer Migration Corridor, designated by the Wyoming Game and Fish Department in 2016, stretches approximately 150 miles from the Hoback River Drainage to Interstate 80, just east of Rock Springs (see Map 3-1). The lower approximately 70 miles lies within the Rock Springs Field Office, and accounts for approximately 275,800 acres of the overall Corridor. The Great Divide Basin HMA overlaps approximately 54,700 acres of the Corridor area. No other HMAs within the planning area overlap the Sublette Mule deer Migration Corridor.

There are approximately 600 miles of perennial or intermittent stream on public lands within the planning area. Inventories and studies indicate that fish inhabit many of the perennial streams. However, even those perennial streams that have very low flow, or flow intermittently, and may not contain fish populations, do contribute to the condition of inhabited streams. There are 25 species of fish known to occur in the waters of the planning area, eight of which are native to the area. The mountain sucker is the most common and widespread species, with flannelmouth sucker, speckled dace, mottled sculpin, and fathead minnow also being common. Colorado River cutthroat trout and mountain whitefish are the only native sport fish in the area and the other six native fish in the planning area are nongame species. Over time, seven non-native sport fish have been intentionally introduced to waters in southwest Wyoming to provide recreational sport fishing opportunities for anglers. These sport fish include five species of trout, kokanee salmon, channel catfish and smallmouth bass. In addition, burbot (ling) a sport fish on the east side of the Continental Divide, were illegally introduced to the drainage and now have established widespread reproducing populations throughout the planning area. The remaining eight fish species are non-native non-game fish that have, over time, been introduced either accidentally or intentionally by bait bucket or other vectors.



Map 3-1: Existing Herd Management Areas
Greater Sage-Grouse PHMA and
Migration Corridor
Resource Management Plan
Amendment For Wild Horse Management

10 5 0 5 10 MILES



Surface Management Agency

- Bureau of Land Management
- Bureau of Reclamation
- Fish & Wildlife Service
- Forest Service
- Private
- State
- Field Office Boundaries
- RSFO PHMA
- Sublette Mule Deer Migration Corridor

RSFO Herd Management Areas

- Adobe Town
- Divide Basin
- Salt Wells Creek
- White Mountain

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3.6 Special Status Species

Special Status Species are those listed as threatened or endangered, are proposed for listing, or are candidates for listing under the provisions of the Endangered Species Act (ESA); or those designated by the BLM State Director as sensitive. The BLM has developed a sensitive species list for public lands in Wyoming. The objective of the designation is to ensure that these species are considered when undertaking actions on public land and that those actions do not contribute to the need to list the species under the provisions of the ESA. The USFWS provides regulatory oversight for all plant, fish, and wildlife species listed as threatened or endangered, proposed for listing, or that are candidates for listing under the ESA. Section 7 of the ESA requires that federal agencies (such as the BLM) address impacts on species listed under the ESA through consultation with USFWS (BLM 2004b).

Federally listed wildlife in the planning area include the Yellow-billed cuckoo.

Wyoming BLM sensitive wildlife species in the planning area include:

- Fringed myotis
- Long-eared myotis
- Spotted bat
- Townsend's big-eared bat
- Wyoming pocket gopher
- Brewer's sparrow
- Ferruginous hawk
- Loggerhead shrike
- Mountain plover
- Peregrine falcon
- Sage thrasher
- White-faced ibis
- Colorado River cutthroat trout
- Roundtail chub
- Columbia spotted frog
- Northern leopard frog
- Idaho pocket gopher
- Pygmy rabbit
- Swift fox
- White-tailed prairie dog
- Bald eagle
- Burrowing owl
- Greater Sage-grouse
- Long-billed curlew
- Northern goshawk
- Sagebrush sparrow
- Trumpeter swan
- Bluehead sucker
- Flannelmouth sucker
- Boreal toad
- Great Basin spadefoot toad
- Midget-faded rattlesnake

Populations of Greater Sage-grouse are found throughout most of the planning area. 918,400 acres of the planning area are considered Priority Habitat Management Areas (PHMA) (see Map 3-1). Each of the HMAs in the planning area contains large expanses of PHMA habitat, which is managed in accordance with the 2015 GRSG ARMPA (BLM 2015b). The Adobe Town HMA has 59,100 acres of PHMA, the Great Divide Basin HMA has 254,600 acres of PHMA, the Salt Wells Creek HMA has 341,200 acres of PHMA and the White Mountain HMA contains 263,500 acres of PHMA. PHMA represents areas that provide the highest value for maintaining sustainable greater sage-grouse populations. These areas provide lekking, nesting and brood rearing habitat for sage-grouse. Important factors for this type of habitat for sage-grouse include vegetative cover, residual stubble height, and the presence of adequate forage. Table 2-2 of the 2015 GRSG ARMPA provides a summary of desirable habitat conditions for greater sage-grouse.

Federally listed plant species that may occur within the planning area include:

- Blowout penstemon
- Ute Ladies'-Tresses

While these plants may occur, there are no known populations present within the associated HMAs at this time and no new effects would be anticipated to occur as a result of the proposed Amendment.

BLM Wyoming sensitive plant species that may occur within the planning area include:

- Beaver Rim phlox
- Cedar Rim thistle
- Green River greenthread
- Limber pine
- Ownbey's thistle
- Small rockcress
- Trelease's racemose milkvetch
- Uinta greenthread
- Cedar Mountain Easter daisy
- Dune wildrye
- Large-fruited bladderpod
- Meadow pussytoes
- Precocious milkvetch
- Stemless beardtongue
- Tufted twinpod
- Wyoming tansymustard

3.7 Wildland Fire

Wildfires can occur from an act of nature (e.g. lightening) or can be human caused. Fire frequency and severity vary by plant community and extensive suppression activities has resulted in the accumulation of fire fuels in some portions of the planning area. This has changed the structure and composition of some vegetation communities. Drought also affects fire behavior, such as by reducing the amount of fine fuels and reducing fuel moisture content. Based on data collected between 1984 and 2010, in any given year the planning area is likely to experience between 34 and 50 unplanned ignitions, resulting in approximately 1,800 to 2,200 burned acres. An examination of the available historical record and experience indicate that the typical wildfire in the planning area is a natural caused single tree (juniper) fire of less than one acre. However, occasionally, larger unplanned events skew the average acreage per fire. Only five wildfires larger than 3,000 acres have occurred in the planning area since 1984; these include Wildhorse Basin 07/2000 (36,700 acres), Sheep Mountain 08/2000 (36,360 acres), Pepper 07/2002 (13,200 acres), Black Butte 07/2018 (3,558 acres) and Laney Rim 07/2018 (13,198 acres).

The majority of fires occur south of Rock Springs along a lightning belt extending from Utah (high Uintas) east along the state line. This occurrence pattern likely exists because the best opportunity for a sustained ignition is where lightning can strike standing trees. Prior to fire suppression activities and modern civilization, large fires occurred over cyclic periods (depending on fuel system, i.e., sagebrush/grass, juniper/sage, or conifer forest) involving entire drainages. In addition to natural occurrence, historic livestock operations often burned range lands in the fall. With increased grazing, the abundance of fine fire fuels has been reduced, thus causing a drop in annual fire occurrence. Studies of the transition zones indicate large fire occurrence to be common over the last 300 years. As a result of fire suppression over the last 100 years, brush and tree invasion is common on the edges of the basin area particularly in the sagebrush/juniper and aspen/conifer communities. When burned, sagebrush/grass system is generally reduced to perennial grasses.

A number of fire/fuels treatments have occurred, or are ongoing throughout the planning area. These include chemical treatment of cheatgrass, sagebrush thinning, removing juniper that is encroaching on sagebrush communities, treatment of conifer that is encroaching on aspen communities, and wildland urban interface fuels breaks. Since 1992 there have been approximately 70,000 acres treated for fuels reduction or habitat improvement.

The BLM has a comprehensive fire management plan for the planning area. This plan includes strategies for detecting and quickly suppressing wildland fire activities, while protecting wildland urban interface.

These plans are updated periodically as needed based on changes in conditions, or fire resource availability.

3.8 Cultural Resources

The planning area straddles a section of Wyoming with possibly the highest densities of archaeological sites and districts in the state. A Class I inventory was completed for the Rock Springs Field Office in 2013 and for the Rawlins Field Office in 2010. Known cultural resources number in the tens of thousands despite the low percentage of lands which have been inventoried to a Class III level. Historic sites, prehistoric sites, and traditional cultural properties (TCP) are widespread throughout the planning area. The area also contains National Historic Trails, National Historic Trail candidates, and historical wagon roads. Tribes have identified a host of important cultural sites and landscapes important to their cultures and life ways.

Cultural resources include prehistoric and historic archaeological and architectural structures, features and objects, as well as Native American traditional cultural and religious properties. Prehistoric properties include lithic scatters, temporary camp sites, occupation sites, hunting/kill/butchering sites, processing areas, rock shelters, rock art, cairns, trails, and corrals. Historic period properties include historic trails, stage stations, homesteads/farmsteads, roads, irrigation ditches, reservoirs, mining sites, corrals, cairns, campsites, rock art/inscriptions, and trash scatters. Together these properties represent human use of the area by Native American and Euro-American cultures, covering a time from the Paleo-Indian period (12,000 BP) through the present.

The BLM primarily consults with Native American tribes over impacts to sacred sites, TCPs, or other sites known to be of importance to tribes, although tribal concerns can go beyond site specific impacts. The BLM primarily initiates consultation in order to identify cultural and archeological resources that may be of importance to the tribes. Tribes have expressed that sacred sites are not necessarily archeological in nature and may be more properly associated with specific geographic features, plant communities, or locations associated with significant people or events in tribal history. Tribal concerns are documented and incorporated into decisions. The majority of cultural resources in the planning area are identified, evaluated, and managed as a result of compliance with the National Historic Preservation Act (NHPA), although there are numerous other authorities under which BLM manages cultural resources on the public lands (e.g. FLPMA, ARPA, and Wyoming State Protocol). NHPA and its implementing regulations proscribe a four-step process to identify “historic properties” in the area of potential effect (APE) for a given undertaking, assess effects, and to seek ways to avoid, minimize, or mitigate any adverse effects on historic properties through consultation among the agencies and other parties that may have interests in the affected properties (36 CFR 800). A “historic property” is defined as any cultural resource eligible for listing in the National Register of Historic Places (NRHP). The BLM evaluates the significance of historic properties in consultation with the Wyoming State Historic Preservation Officer (SHPO), and sometimes Native American tribes and consulting parties, to determine if the resources are eligible for inclusion in the NRHP. The NRHP specifies that a historic property must meet at least one of four criteria and some of the seven aspects of integrity to be deemed ‘eligible’ for listing in the NRHP (36 CFR 60.4).

3.9 Paleontological Resources

Fossils are defined as the remains, imprints, and traces of once living organisms that have been preserved in the Earth’s crust. Fossils can be remains of plants or animals (the body or imprints of remains), or their reflected actions (trace fossils). Fossils are typically preserved in sedimentary rocks, or in a few unique situations, in volcanic igneous and some meta-sedimentary rocks. They can range from microscopic in

size (radiolarians, foraminifera, bacteria and algae, vertebrates, and pollen) to macroscopic (flowers, leaves, petrified wood, shells of invertebrate animals, and the bones and teeth of vertebrate animals, as well as the tracks, feeding traces, coprolites, and burrows of invertebrate and vertebrates animals). The BLM manages paleontological resources on the public lands under the Paleontological Resources Protection Act.

In the planning area, there are fossils of numerous kinds of plants (e.g., leaves and tree trunks) and invertebrate animals, as well as vertebrate animal remains (e.g., fish, amphibians, reptiles, mammals and birds). Fossils are important for the information that they can provide about the development of life on Earth, the environments of deposition and the physical changes in the Earth itself.

Geologic units in the planning area are ranked according to the Potential Fossil Yield Classification (PFYC), usually at the formation or member level, according to the probability of yielding resources of concern to land managers, primarily all vertebrate fossils and significant plant and invertebrate fossils.

There are five Classes of PFYC with Class 1 being Very Low Potential, and Class 5 being Very High Potential for vertebrate and other scientifically significant paleontological resources. Those units without thorough previous documentation are assigned an additional PFYC of “U” for Unknown Potential. Although granite, lava beds, and other igneous or metamorphic rock types are usually considered to be void of any fossils, outcrops of these rocks may have fissure fillings, cave-like structures, sinkholes, and other features that may accumulate significant paleontological resources, so the potential for these units is not considered zero. Therefore Class 1 is applied to these rock types usually considered not to contain paleontological resources.

3.10 Livestock Grazing

There are 28 livestock grazing allotments that fully or partially overlap the planning area. Table 3-2 provides a summary of these allotments, by HMA.

Table 3-2. Grazing allotments within HMAs, their corresponding permitted AUM allocations and the estimated permitted active livestock AUMs located within the HMA.

HMA	Allotment	% of Allotment Within HMA	Permitted Active AUMs on Allotment	Estimated Active AUMs within HMA*
Adobe Town (RSFO)	Rock Springs	5%	107,991	8,071
	Total:		107,991	8,071
Adobe Town (RFO)	Adobe Town	100%	1,820	1,820
	Continental	100%	2,830	2,830
	Corson Springs	97%	1,189	1,189
	Cow Creek	100%	709	709
	Crooked Wash	67%	5,602	3,064
	Espitalier	100%	2,775	2,775
	Grindstone Springs	100%	413	413
	Little Powder Mountain	100%	1,534	1,534
	Powder Mountain	100%	1,304	1,304
	Red Creek	100%	2,612	2,612
	Rotten Springs	100%	1,423	1,423

HMA	Allotment	% of Allotment Within HMA	Permitted Active AUMs on Allotment	Estimated Active AUMs within HMA*
	Sand Creek	100%	2,839	2,839
	Willow Creek	100%	1,680	1,680
	Total:		26,730	24,183
Great Divide Basin	Bush Rim	55%	3,277	1,808
	Continental Peak	100%	5,769	5,712
	Red Desert	100%	9,758	9,744
	Rock Springs	17%	107,991	18,650
	Total:		126,795	35,914
Salt Wells Creek	Alkali Creek	100%	2,283	2,283
	Circle Springs	100%	946	946
	Crooked Wash	100%	5,602	2,351
	Horseshoe Wash	35%	3,103	1,089
	Mellor Mountain	99%	6,101	6,009
	Pine Mountain	5%	7,763	418
	Rife	100%	508	508
	Rock Springs	36%	107,991	38,068
	Salt Wells	99%	2,618	2,587
	Vermillion Creek	100%	5,298	5,298
	Total:		142,213	59,556
White Mountain	Highway-Gasson	95%	5,208	5,000
	Lombard	6%	6,643	378
	Rock Springs	13%	107,991	13,685
	Total:		119,842	19,063

*Estimated Active AUMs within HMA were calculated by estimating the average AUMs per acre within the allotment, then multiplying that by the number of public land acres within the HMA.

Annual fluctuations in the authorized AUMs are common and are the result of user demands, climatic conditions, and/or an effort to preserve or improve rangeland health. Some livestock users within the planning area have reduced their use levels in recent years as a result of wild horse populations exceeding AML, which can negatively impact livestock operations. Livestock grazing on specific allotments is authorized during established seasons of use. Most of the allotments in the planning area are operated under grazing strategies incorporating rest, seasonal rotations, deferment, and prescribed use levels that provide for adequate plant recovery time to enhance rangeland health. The majority of the allotments in the planning area are considered lower-elevation allotments, and livestock turnout in these allotments typically occurs from March to May. Some livestock operators (especially sheep operators) move their livestock to USFS-administered allotments from July to October. There are several BLM-administered allotments at higher elevations where grazing does not begin until June. Typically, the season of use for these allotments is four to six months.

Numerous range improvements (such as fences or water developments) have been installed within the planning area to help manage livestock distribution and season of use, while protecting sensitive riparian habitat. Many of these range improvements benefit multiple resource values, including wild horses and wildlife.

3.11 Recreation

Federal lands within the planning area provide a broad spectrum of outdoor opportunities. The BLM provides opportunities for outdoor recreation and nature-based tourism under the concept of multiple-use management. Recreational activities occurring on public lands are multi-faceted, generally considered as non-consumptive and typically requires minimal regulatory constraints.

Dispersed recreation consists of activities of an unstructured type that are not confined to specific locations or dependent on developed recreation sites. Dispersed recreation occurs throughout the planning area over a wide range of ecosystem types. Occurring in combination with other resource activities, dispersed recreation includes but is not limited to sight-seeing, touring, backpacking, horseback riding, geocaching, hiking, OHV use, photography, wildlife viewing, fishing, other water related activities, hunting, and camping. These recreational opportunities are offered to the public on all BLM-administered lands within the planning area where legal access is available.

The Rock Springs Field Office manages many developed recreation sites scattered throughout the Rock Springs Field Office, consisting of day use/picnic areas, campgrounds, interpretive sites, and historic site tourism. Developed recreation sites provide excellent opportunities and starting points for activities such as camping, hiking, backpacking, horseback riding, wildlife viewing, sightseeing, OHV touring, fishing, and hunting.

The most popular wild horse viewing activity in the planning area is the Wild Horse Scenic Loop Byway, located within the White Mountain HMA. This driving tour, located close to Rock Springs and Green River, allows members of the public easy access to wild horse viewing within the HMA. In addition, the wild horse holding facility in Rock Springs is open to the public to visit the corrals and view wild horses available for adoption or sale. Other opportunities for wild horse viewing include various areas within the HMAs that are accessible by motor vehicles.

3.12 Social and Economic Values

Public opinions about wild horse management generally arise from the economic and social values associated with these animals. Many of the individuals and groups expressing concern for the well-being of wild horses derive satisfaction from wild horse herds by actively watching and studying them, or using them as inspiration for their artwork—all of which stimulate economic activity in local economies. Others derive value indirectly from art and photography which depict free-roaming wild horses in western landscapes. Some individuals value the existence of wild horses without actually encountering them. This value represents a non-use or passive value commonly referred to as “existence value.” Existence values reflect one’s willingness to pay to simply know that herds of wild horses still roam free. Some of these individuals believe that any type of capturing and active management of wild horses, including the use of fertility control and sterilization, is inhumane and object to these management actions.

Conversely, a separate group of individuals may not support the existence of wild horses on public lands because of their concerns about wild horse numbers and the adverse impacts they can have on rangeland habitats and other resources. These “other resources” include, but are not limited to, negative economic impacts that could result from reduced livestock grazing opportunities, impacts on recreational activities influenced by overpopulation of wild horses, impacts to wildlife resources, and the resulting decline in hunting opportunities. Collectively, these economic and social values reflect the importance of wild horses to people.

As mentioned in **Section 3.11**, some individuals value wild horse viewing opportunities. The local communities promote wild horse viewing as a tourism opportunity. Specifically, the Wild Horse Scenic

Loop Byway provides a tourism opportunity close to both Green River and Rock Springs. Some local businesses may benefit from tourism associated with viewing wild horses in these HMAs, particularly on the Wild Horse Scenic Loop Byway.

Chapter 4 – Environmental Consequences

4.1 Assumptions for Analysis

Assumptions for analysis are made to assist in determining the potential environmental, social, and economics impacts of the alternatives described in Chapter 2 on the affected environment (Chapter 3). Assumptions are for the purpose of analysis only and are presumed accurate for the purpose of equitably comparing the alternatives. Assumptions do not constrain or define management; they are based on observations, historical trends, and professional judgement, and are generally made for the expected life of the RMP, unless otherwise stated.

The analysis is based on the following assumptions:

- The proposed management actions described in the alternatives apply only to BLM-administered lands, but may affect intermingled private lands.
- The planning criteria described in Chapter 1 (**Section 1.4**) apply to all alternatives.
- The alternatives would be implemented as described in Chapter 2.
- Implementation actions would comply with valid existing rights and all federal laws, regulations, and policies.
- Sufficient funding and personnel would be available to implement the final decisions.
- Appropriate maintenance would be carried out to maintain the functional capability of all developments (e.g. roads, fences, and other projects).
- Monitoring would be completed as indicated, along with any needed adjustments or revisions.
- Approximately five acres would be temporarily disturbed from the construction and use of wild horse traps (every three to five years when applicable).
- The number of wild horses would increase about 20% annually (except for herds proposed to be non-reproducing).
- Wild horse gathers would occur about every three to five years, when applicable.
- Maintenance of wild horse populations at AMLs within existing HMAs would be accomplished through removals and selected application of other population growth suppression methods, and supplemented with sterilized horses from other HMAs.
- BLM would be able to successfully manage wild horses within AML.
- For analysis purposes (for consideration of wild horse numbers and associated AUMs) the number of wild horses at high AML is used.
- Wild horse gathers would use existing trap locations for the most part. About 30 acres have been disturbed from the development of existing traps. Disturbance from trap locations is limited in scope and temporary.
- Wild horse management would comply with the WFRHBA, applicable implementing regulations, and BLM policies.
- Data used to determine the number of wild horses within an HMA, and to ensure wild horses are managed at AMLs, will be the best available science.

4.2 Impact Analysis

4.2.1 Wild Horses

Impacts Common to All Alternatives

Herd Health

Achieving and maintaining AML and implementing resource monitoring and gather plans would serve to limit wild horse population numbers and achieve a balance among forage resources and other resource uses. Maintaining wild horse population size within the AML would reduce competition for resources and allow wild horses to use their preferred habitat. This would improve forage quantity and quality, and promote healthy populations of wild horses in a thriving natural ecological balance. Deterioration of the range associated with wild horse overpopulation could be avoided, if gathers are implemented as necessary and AML is maintained. Managing wild horse populations in balance with the productive capacity of the habitat and other multiple uses would lessen the potential for individual animals or the herd to be affected by drought and would avoid or minimize the need for emergency gathers, which would reduce stress to the animals and increase the success of these herds over the long term.

Wild horses removed to maintain AML would be placed in short or long term holding facilities until they are adopted. Following a gather, the wild horses that remain on the HMAs would have more forage, water, and space available, which would likely improve the overall health of the herd.

Achieving AML for HMAs could help prevent or reduce excessive forage loss, introduction or spread of invasive, non-native plant species, soil compaction, erosion, sedimentation, and the influx of nutrients into riparian areas, wetlands, or streambeds, thereby protecting water quality for wild horses. Currently, wild horses are using habitat outside established HMA boundaries, and they could continue to do so. Removing or modifying fences within the HMA could allow free movement of wild horses and extend the amount of available forage. Habitat management plans could maintain or enhance vegetation (forage) for wild horses, and prevent habitat degradation from invasive, non-native plant species.

Gathers

Individual, direct effects to wild horses include the handling stress associated with the roundup, capture, sorting, handling, and transportation of the animals. The intensity of these effects varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. Individual, indirect effects can include miscarriages in mares, increased social displacement, and conflict in stallions, and are known to occur intermittently during gather operations.

The BLM has been gathering excess wild horses since the mid-1970s and has been using both helicopters and motorized vehicles for this purpose. Both of these methods are safe and effective means for gathering and removing excess wild horses from the range. Approximately 0.6% of the captured animals could potentially require euthanasia due to pre-existing conditions and in accordance with BLM policy (GAO 2008). The BLM has a moratorium on using helicopters to assist in the removal of wild horses, except in case of emergency, during the peak foaling period, which occurs March 1 through June 30. The BLM also uses water and/or trapping as a method of gathering wild horses. Both methods of gathering can be stressful, varying in intensity by individual horse.

Injuries sustained by wild horses during gathers can include nicks and scrapes to the body or face; rarely, horses may encounter barbed wire fences and receive wire cuts. Other injuries can include biting and kicking bruises; horses may strike or kick gates, panels, or the working chute while in corrals or traps which may cause injuries. These injuries are generally not fatal. Other injuries such as a broken leg are

extremely rare; injuries requiring euthanasia could be anticipated to occur in 1 per 100 animals captured. Spontaneous abortion events among pregnant mares following captures is rare, however, it has happened particularly among mares with poor body condition at the time of gather.

Dependent foals would be gathered with their mares, but a few foals may be orphaned during a gather; this can happen if the mare rejects the foal, the foal becomes separated from its mother and cannot be reunited, the mare dies or must be euthanized during the gather, the foal is ill or weak and needs immediate care and removal, or the mother does not produce enough milk to support the foal.

Summer gathers can result in an increased risk of heat stress on the wild horses, however this is rare and the BLM would conduct gathers in the early morning and stop earlier in the day as well as ensuring that wild horses are brought in at slow speeds. Dehydration is a risk during summer gathers when animals may be traveling long distances between forage and water. Winter gathers may occur in less steep terrain due to high snow depth in higher elevations. Snow cover can increase fatigue and stress during winter gathers. In this situation wild horses would be moved at a slow, easy pace to help reduce fatigue.

Temporary Holding Facilities and Handling

Gathered wild horses would be transported from the trap sites to a temporary holding corral. Most injuries are sustained once the wild horses have been captured and tend to occur as a result of kicks and bites, or from the animals contacting corral panels or gates. Injuries generally consist of superficial wounds to the rump, face, or legs. Rarely, horses may sustain a spinal injury or a fractured limb; however, serious injuries requiring euthanasia occur in less than 1 horse per every 100 captured.

Impacts on Herd Health from Gathers

In some circumstances (such as when using population growth suppression strategies), some gathered wild horses are returned to their respective HMAs. When this happens these animals typically exhibit more active behavior, covering more ground in a day, and generally moving away from the area where they were released. However, these impacts are generally temporary in nature and tend to disappear within several days of wild horses being released back to the range. No observable effects from the gather would be expected within one month of gather completion, except possibly for a heightened awareness of human presence. The primary effects to the wild horse population would be to herd population dynamics, age structure or sex ratio, and subsequently to the growth rates and population size over time.

Reducing excess wild horses would improve overall herd health for those horses left on the range. Decreased competition for forage and water resources reduces stress, promotes healthier animals, and fighting among stud horses would decrease as would injuries associated with this fighting. The reduction of excess animals as well as the reduced population growth (as a result of population growth suppression, discussed below) should result in improved health and condition of mares and foals. Reduced population growth rates would be expected to extend the time interval between gathers and reduce disturbance to individual animals as well as the herd social structure.

Increased social displacement and conflict in stallions has also been known to occur; brief skirmishes between older stallions is often the observable manifestation of this stress. Traumatic injuries are generally not a result of these conflicts and injuries normally are limited to bites and/or kicking with bruises which do not break the skin. Miscarriages of pregnant mares are also known to occur occasionally as a result of gather operations.

Impacts Common to Alternatives A, B, and D

Establishing viewing sites and providing interpretive information on wild horses would serve to educate the public on the importance of appropriately managing the wild horse program. Wild horse management actions would provide further benefits by allowing construction of water developments designed to improve herd distribution and manage forage utilization. Water developments could improve the distribution of resources across the range, could improve herd distribution, and increase available forage levels. Additional water sources would reduce impacts from wild horses congregating around water developments, which would reduce impacts from forage loss, soil compaction, erosion, and degradation of water resources.

Population Growth Suppression

Wild horse population growth suppression measures include treating with immuno-contraceptives, spaying, gelding, and other sterilization methods which may be mechanical, surgical, or chemical. The various methods used for population growth suppression are discussed in **Appendix B**. A National Research Council (NRC) Report (2013) noted that all fertility suppression methods may have effects on mare behavior, mostly as a result of lack of pregnancy and foaling. Any decrease in the number of breeding females in a population should lead to a direct decrease in the population's growth rate, so the implementation of any of the population growth suppression measures discussed in **Appendix B** would likely result in a decrease in the overall population growth rates, which would assist in the maintenance of AML. Controlling the population growth rates of wild horses through the use of population control strategies would provide for healthier herds by limiting the stress of continual pregnancy on mares; this would also be true for non-reproducing herds where geldings would not be exerting energy attempting to breed the mares. Gathers would also be scheduled further apart due to AML being met for a longer period of time, therefore resulting in less stress to the wild horses. One expected long-term, indirect effect on wild horses treated with fertility control would be an improvement in their overall health. Many treated mares would not experience the biological stress of reproduction, foaling and lactation as frequently as untreated mares, and their better health is expected to be reflected in higher body condition scores. 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 can remain improved even after fertility resumes. Anecdotal, subjective observations of mares treated with an immunocontraceptive (PZP; discussed in **Appendix B**) in past gathers showed that many of the treated mares were larger, maintained better body condition, and had larger healthy foals than untreated mares.

Following resumption of fertility, the proportion of mares that conceive and foal could be increased due to their increased fitness; this has been called by some a 'rebound effect.' Elevated fertility rates have been observed after wild horse gathers and removals (Kirkpatrick and Turner 1991). More research is needed to document and quantify these hypothesized effects. If repeated contraceptive treatment leads to a prolonged contraceptive effect, then that may minimize or delay the hypothesized rebound effect. Selectively applying contraception to older animals and returning them to the HMA could reduce long-term holding costs for such horses, which are difficult to adopt, and could negate the compensatory reproduction that can follow removals (Kirkpatrick and Turner 1991). Because successful fertility control would reduce foaling rates and population growth rates, another indirect effect would be to reduce the number of wild horses that must be removed over time to achieve and maintain the established AML. Contraception would be expected to lead to a relative increase in the fraction of older animals in the herd. Reducing the numbers of wild horses that would have to be removed in future gathers could allow for removal of younger, more easily adoptable excess wild horses, and thereby could eliminate the need to send additional excess wild horses from this area to off-range corrals or pastures. Among mares in the herd that remain fertile, a high level of physical health and future reproductive success would be expected because reduced population sizes should lead to more availability of water and forage resources per

capita. Reduced population growth rates and smaller population sizes could also allow for continued and increased environmental improvements to range conditions within the project area, which would have long-term benefits to wild horse habitat quality. As the local wild horse abundance nears or is maintained at the level necessary to achieve a thriving natural ecological balance, vegetation resources would be expected to recover, improving the forage available to wild horses and wildlife throughout the HMAs. With rangeland conditions more closely approaching a thriving natural ecological balance, and with a less concentrated distribution of wild horses across the HMAs, there should also be less trailing and concentrated use of water sources. Lower population density would be expected to lead to reduced competition among wild horses using the water sources, and less fighting among horses accessing water sources.

In contrast to transient stresses, Creel et al. (2013) highlight that variation in population density is one of the most well-established causal factors of chronic activation of the hypothalamic-pituitary-adrenal axis, which mediates stress hormones; high population densities and competition for resources can cause chronic stress.

Band fidelity is not an aspect of wild horse biology that is specifically protected by the WFRHBA of 1971. It is also notable that Ransom et al. (2014b) found higher group fidelity after a herd had been gathered and treated with a contraceptive vaccine; in that case, the researchers postulated that higher fidelity may have been facilitated by the decreased competition for forage after excess horses were removed.

Impacts Common to Alternatives B and D

Alternatives B and D propose to supplement herds with additional wild horses from other HMAs to help maintain AMLs following natural attrition or to help preserve adequate genetic diversity. Translocating horses from one HMA to another could facilitate the spread of pathogens; however, this risk would be minimized by advanced testing and monitoring so that the BLM is aware of potential pathogens prior to transfer. Since mares would be re-located without their stallions, the dissolution of the bonds between those mares once they are released into their new HMA would occur. These mares would need to be assimilated into existing harems or groups. Changes in the existing herd structure and dynamics can occur. However, because the BLM would not be translocating stallions this impact may be minor.

Impacts Unique to Alternative A

Alternative A represents the continuation of existing management as identified in the 1997 Green River RMP. Wild horses would be managed in four checkerboard HMAs at a cumulative AML of 1,481 to 2,065, and gather plans would be prepared for removal of excess wild horses both inside and outside the HMAs. Water developments would be constructed to improve herd distribution and manage forage utilization. Fertility control would be implemented only when necessary, and any fencing constructed in HMAs would be constructed to minimize restriction of wild horse movement.

Implementing population growth suppression only when necessary could result in the populations meeting and/or exceeding AML more quickly than they would if fertility control were to be implemented on a more regular basis. Managing these herds as reproducing would also result in the need for more frequent gathers as the population would grow more rapidly as compared to the other alternatives. As a result, the impacts described above under **Impacts Common to All Alternatives – Gathers** and **Impacts Common to All Alternatives – Impacts on Herd Health from Gathers** would occur more frequently compared to the other alternatives. Impacts associated with population growth suppression, when it would be implemented under this alternative, would be similar to those discussed under **Impacts Common to Alternatives A, B and D – Population Growth Suppression**.

Alternative A does not propose any components to address the BLM's obligations under the Consent Decree since it is the No Action alternative and represents the continuation of existing wild horse management within the planning area. The BLM has attempted to manage wild horse populations within the checkerboard portions of these HMAs under this alternative but has found this to be untenable as a result of the private land conflicts in this area. Furthermore, the AMLs established under this alternative assume the permissive use of private land, which is no longer available for wild horse use. For these reasons Alternative A is not likely to be viable in the future.

Impacts Unique to Alternative B

Under Alternative B, all checkerboard lands within the Great Divide Basin, Salt Wells Creek and Adobe Town HMAs would revert to HA status and be managed for zero wild horses. Approximately 100 miles of new HMA boundary would be created adjacent to the checkerboard land pattern. Future management tools such as man-made boundaries, capture and relocation, and/or active herding of wild horses would be needed to prevent constant movement of wild horses back into the checkerboard, particularly as wild horses in these herds have historically used the checkerboard for winter range. These management tools would have considerable impact to the landscape. For example, a boundary such as 100 miles of fencing could impact wildlife movement (see **Section 4.2.5**), Greater Sage-grouse habitat (see **Section 4.2.6**), cultural (see **Section 4.2.8**) and paleontological sites (see **Section 4.2.9**), and National Historic Trails (see **Section 4.2.8**). These types of impacts could prevent the BLM from implementing any such management tools and wild horses would be free to move back and forth into the private lands within the checkerboard. Under this alternative, all remaining lands within the HMAs would be managed for non-reproducing populations. Checkerboard lands within the White Mountain HMA would remain a part of the HMA.

Under this alternative, total AML in the planning area would be 990 – 1,620, as a result of reducing the White Mountain AML to 99 – 205 and the Adobe Town AML to 225 – 450 as described in the 2013 Consent Decree (see **Section 1.1**). Under this alternative, wild horses in the Great Divide Basin and Salt Wells Creek HMAs will be concentrated in a smaller area as a result of removing checkerboard lands from these HMAs while maintaining the same AML for these herds. Overall, HMAs would decrease in size by 1,276,852 acres, or 55%, while decreasing high AML by 445 animals (on the White Mountain and Adobe Town HMAs). To provide adequate forage, water, cover and space for this increased concentration of wild horses, permitted livestock AUMs would be reduced by 6,876 on the allotments within the Great Divide Basin and Salt Well Creek HMAs (see **Section 4.2.10**). Maintaining the AML and implementing monitoring and gather plans would limit wild horse population numbers and achieve a balance among forage resources, other resource values, and wild horses.

The BLM would manage all of the HMAs as non-reproducing herds utilizing a variety of tools, including gelding, spaying, or other population growth suppression tools. Managing the HMAs as non-reproducing herds would aim to maintain populations at appropriate levels to allow for ideal forage quantity and quality, habitat health, and water availability for wild horses. All population growth suppression methods are likely to alter the behavior or physiology of wild horses in some way (see **Appendix B**). According to the NAS Report (2013), the two important considerations are bonds between animals and the stability of the social groups. The absence of young horses would alter the age structure of the population, resulting in a larger component of older animals, and could thereby affect harem dynamics. In a non-reproducing herd, the mares would be likely to display improved overall fitness due to the lack of stress incurred as a result of pregnancy and lactation; in addition, without those stressors, mares may live longer (NAS Report 2013). If any of the changes described above occur, the wild horses would still retain their untamed, wild and feisty nature, and would still be free-roaming. While the individual herds in these HMAs would be

non-reproducing under this alternative, the overarching metapopulation of wild horses in this region would continue to be self-sustaining. The overall impact to the genetic diversity of the metapopulation is expected to be minimal, because it is unlikely that any of the herds in a single HMA discussed in this document contain significant genetic elements that are not also represented in other herds in the metapopulation.

Under this alternative fewer wild horses would have to be held in either short or long term holding facilities, in the long term. There would also be fewer wild horses from these HMAs available for adoption and sale. However, fertility treatments could impact behavior and cause varying levels of stress to the animals (see **Appendix B**). These impacts would be managed by implementing selection criteria to ensure that the animals that undergo these procedures would have a high probability of success with minimal side effects. Selection criteria would include a good body condition class, at least average size and stature, and good confirmation.

Under this alternative, once the BLM successfully establishes the herds as non-reproducing, the genetic makeup of the animals there would no longer contribute to future genetic diversity. This is because, while the animals present in the herd could represent a wide range of wild horse genotypes and phenotypes, no foals would be produced. The herds would be supplemented with additional non-reproducing animals from other HMAs within the larger metapopulation. This would change the range of phenotypes and genotypes present in these herds.

Managing for non-reproducing herds within the planning area would likely be difficult to implement because untreated wild and feral horses from outside the HMAs (or adjacent HMAs) may drift into these HMAs and introduce breeding opportunities. There is a high likelihood that this situation would occur on all of the HMAs, as there are adjacent HMA herds in the BLM Rawlins and Lander Field Offices, and in the BLM offices to the south in Colorado. There is also a known population of feral horses immediately west of the Green River, near the White Mountain HMA. Managing non-reproducing herds is more likely to be successful in areas where herds are small and isolated and interchange with other untreated animals is unlikely to occur. The size and topography of the White Mountain HMA would make it difficult to successfully ensure that all wild horses were non-reproducing. In order to manage for non-reproducing herds in these HMAs the BLM would need to frequently implement population growth suppression strategies to ensure all wild horses found within these HMAs are unable to reproduce. This would likely involve more frequent gathers and/or trapping so that population growth suppression strategies could be administered to any fertile horses in these HMAs. As a result, the impacts associated with these activities would be greater than those described under Alternative A.

Overall, the BLM's ability to manage wild horses populations would improve compared to Alternative A. However, in order to successfully manage wild horses under this scenario, it would be critical for the BLM to be able to implement management tools such as fencing along the border between checkerboard and solid-block BLM lands in the Salt Wells Creek, Great Divide Basin and Adobe Town HMAs. Otherwise, wild horses, which are accustomed to utilizing checkerboard lands, would be expected to drift onto these lands and establish a herd in that area. The BLM's ability to manage a tool such as fencing would be challenging, as any gates left open or any sections of the fence that were not well maintained would likely allow wild horses access to the checkerboard lands. Additionally, management tools such as fencing or other barriers could have a negative impact on cultural resources (see **Section 4.2.8**) and wildlife (see **Section 4.2.5** and **Section 4.2.6**).

This alternative meets the Consent Decree requirement that BLM consider a high AML of 205 or less on the White Mountain HMA and an AML of 225 – 450 on the Adobe Town HMA. This alternative also

meets the Consent Decree requirement to consider maintaining the White Mountain HMA as a non-reproducing herd, as all HMAs would be managed as non-reproducing under this alternative. However, as described in the above analysis, managing a non-reproducing herd on the White Mountain HMA would be difficult because of the possibility of interchange with untreated animals from outside the HMA. Additionally, the BLM would likely need to implement frequent management actions to ensure the herd remains non-reproducing. This would likely involve frequent gathers and/or trapping in order to conduct population growth suppression strategies on any untreated horses found within the White Mountain HMA.

Impacts Unique to Alternative C

Alternative C proposes to revert all HMAs in the planning area to HA status, managed for zero wild horses. An estimated 2,065 wild horses (the population at high AML) would be permanently removed from the planning area. Population growth suppression tools would not be implemented, fencing would not be constructed (for wild horse management), and the public would not have the opportunity to view and experience wild horses in the planning area.

Impacts to wild horses as a result of this alternative include the impacts associated with gathers and the associated potential for injury, stress, and mortality. Gather related impacts would be greater under this alternative than other alternatives since more gather efforts may be necessary to ensure all wild horses are removed from each HMA. This impact would be more intensive but would be short in duration. A large, multi-step and likely multi-year effort would be required in order to achieve complete removal of wild horses from the planning area. In addition, all the wild horses gathered would have to be transported to and held in either short or long term holding facilities. An increased number of horses would be available for adoption or sale as a result of eliminating the HMAs in the planning area. However, the number of wild horses gathered typically far exceeds the demands for adoption and sale, and the increased number of horses available for adoption or sale would be temporary.

This alternative meets the Consent Decree requirements to consider reverting the Great Divide Basin and Salt Wells Creek HMAs to HA status and managing them for zero wild horses.

Impacts Unique to Alternative D

Under this alternative all lands within the Great Divide Basin and Salt Wells Creek HMAs would be converted to HA status and managed for zero wild horses. Additionally, a portion of the Adobe Town HMA would be converted to HA status and managed for zero wild horses. Specifically, the entire RSFO portion of the Adobe Town HMA would revert to HA status, and in the RFO portion of the Adobe Town HMA, all checkerboard land and the portion of the HMA north of the existing Corson Springs fence (see Map 2-3) would revert to HA status and be managed for zero wild horses. The remainder of the Adobe Town HMA would be retained and managed at a proportionally smaller AML. In all, the RFO portion of the Adobe Town HMA would be reduced by approximately 5% and the total AML for the HMA would be reduced by approximately 33%. For the White Mountain HMA, there would be no reduction in the number of acres within the HMA or the number of wild horses managed within AML (205 – 300).

The impacts to wild horses on the HMA lands that are reverted to HA status would be the same as those described under Alternative C. In all, under this alternative an estimated 1,229 wild horses would be permanently removed from the four HMAs in the planning area. This represents a 60% reduction in the total wild horse population within the four HMAs. A total of approximately 2,067,820 acres would no longer be allocated for wild horse use. This represents a 74% reduction in total acreage allocated for wild horse use within the planning area. All of the gather related impacts listed under **Impacts Common to**

All Alternatives – Gathers and Impacts Common to All Alternatives – Impacts on Herd Health from Gathers could occur. These impacts would not be as intense as under Alternative C, but would exceed the impacts expected for Alternative A, because all wild horses would have to be removed from two of the HMAs and most checkerboard lands.

Forage condition for wild horses that remain on the range is expected to improve since there would be reduced competition as a result of permanently removing 1,229 wild horses from the range. This is expected to lead to improved health for the remaining wild horses.

This alternative would allow for AML in the Adobe Town and White Mountain HMAs to be adjusted without requiring a Land Use Plan amendment. This approach would allow for more timely adjustments to AML in response to changing conditions within these HMAs. By more rapidly responding to needed changes in AML, this alternative would help ensure the number of wild horses present on these HMAs are appropriate in relation to the forage, water, cover and space available, as these conditions change. More timely adjustments to AML would also help protect resource conditions within the HMA and ensure the long-term viability of the wild horse herd, while maintaining rangeland health.

Under this alternative, the BLM would utilize population growth suppression to help manage wild horse populations and reduce the frequency of gathers in the Adobe Town and White Mountain HMAs. Impacts associated with population growth suppression efforts are described in detail under Alternative B and in **Appendix B**. Impacts to wild horses related to population growth suppression are expected to be reduced in this alternative compared to Alternative B, because the BLM would not manage the Adobe Town and White Mountain herds as non-reproducing, but rather would utilize population growth suppression tools to reduce population growth rates. Overall, population growth suppression methods often cause some stress to the treated animals, but are likely to result in greater overall health since reproduction related energy costs are reduced. Under this alternative, the herd would benefit from the reduced frequency of gathers and any resulting stress and injuries.

Population growth suppression under this alternative is not expected to adversely affect genetic diversity in the Adobe Town and White Mountain herds. In HMAs where large numbers of wild horses have a recent and/or ongoing influx of breeding animals from other areas with wild or feral horses, contraception is not expected to cause an unacceptable loss of genetic diversity or an unacceptable increase in the inbreeding coefficient. In any diploid population, the loss of genetic diversity through inbreeding or drift can be prevented by large effective breeding population sizes (Wright 1931) or by introducing new potential breeding animals (Mills and Allendorf 1996). The size of the Adobe Town and White Mountain herds, and the likelihood of interactions with other wild or feral horses would help ensure adequate genetic diversity for these herds. If BLM determines that the genetic diversity of a particular herd is below a desired level, then alternate management actions may be taken, such as introducing a number of fertile wild horses from other HMAs (see Management Action MA012 in Table 2-1).

In the HMAs where the entire herd is removed (Great Divide Basin and Salt Wells Creek), these wild horses would no longer contribute to the genetic diversity of wild horses in this area. However, this is not expected to have impacts outside of these individual herds. The NRC (2013) recommended that managed herds of wild horses would be better viewed as components of interacting metapopulations, with the potential for interchange of individuals and genes taking place as a result of both natural and human-facilitated movements. Because these wild horses are part of a greater metapopulation it is unlikely that any of the herds in a single HMA discussed in this document contain significant genetic elements that are not also represented in other herds.

In the last 10 years, there has been a high realized growth rate of wild horses in most areas administered by the BLM, such that most alleles that are present in any given mare are likely to already be well represented in her siblings, cousins, and more distant relatives. As a result, in most HMAs, applying fertility control to a subset of mares is not expected to cause irreparable loss of genetic diversity. Improved longevity and an aging population are expected results of contraceptive treatment that can provide for lengthening generation time; this result would be expected to slow the rate of genetic diversity loss (Hailer et al., 2006). Based on a population model, Gross (2000) found that an effective way to retain genetic diversity in a population treated with fertility control is to preferentially treat young animals, such that the older animals (which contain all the existing genetic diversity available) continue to have offspring. Conversely, Gross (2000) found that preferentially treating older animals (preferentially allowing young animals to breed) leads to a more rapid expected loss of genetic diversity over time.

The BLM expects that wild horse family structures would continue to exist under this alternative because fertile mares, stallions, and their foals would continue to be a component of the Adobe Town and White Mountain herds. It is not expected that using population growth suppression tools on a subset of wild horses would significantly change the social structure or herd demographics (age and sex ratios) of fertile wild horses.

Cumulative Impact Analysis

The Cumulative Impact Analysis Area (CIAA) for Wild Horses is the state of Wyoming. Within this area there are a total of 16 HMAs, 4 of which occur within the planning area. Table 4-1 provides a summary of the Wyoming HMAs:

Table 4-1. Summary of Wyoming HMAs.

HMA	Field Office	Low AML	High AML	Acres
*Adobe Town	Rock Springs / Rawlins	610	800	476,986
Antelope Hills	Lander / Rawlins	60	82	158,569
Conant Creek	Lander	60	100	57,707
Crooks Mountain	Lander	65	85	58,416
Dishpan Butte	Lander	50	100	99,720
Fifteenmile	Worland	100	230	81,130
*Great Divide Basin	Rock Springs	415	600	776,188
Green Mountain	Lander	170	300	116,764
Little Colorado	Rock Springs	69	100	630,033
Lost Creek	Rawlins	60	82	251,338
McCullough Peaks	Cody	70	140	109,779
Muskrat Basin	Lander	160	250	193,328
Rock Creek	Lander	50	86	24,585
*Salt Wells Creek	Rock Springs	251	365	1,169,739
Stewart Creek	Rawlins	125	175	167,969
*White Mountain	Rock Springs	205	300	388,488
TOTALS:		2,520	3,795	4,760,739

* HMAs present within the planning area.

Alternative A

This alternative represents current management. Under this alternative the HMAs within the planning area would make up 59% of all Wyoming HMAs by acres, and 55% of all Wyoming HMAs by high AML.

Alternative B

Under this alternative there would be 1,272,954 fewer HMA acres within Wyoming, and 445 fewer wild horses, compared to Alternative A. This represents a 27% decrease in the acres available for wild horses within the CIAA, and a 12% decrease in the total number of wild horses (at high AML) within the CIAA. Overall, the HMAs within the planning area would constitute 44% of all Wyoming HMAs by acres, and 48% of all Wyoming HMAs by high AML.

Alternative C

Under this alternative all of the HMAs within the planning area would revert to HAs, managed for zero wild horses. Overall, there would be 2,811,401 fewer HMA acres within the CIAA. There would also be 2,065 fewer wild horses (at high AML) within the CIAA. This represents a 59% decrease in the acres available for wild horses within the CIAA and a 54% decrease in the total number of wild horses (at high AML) within the CIAA.

Alternative D

Under this alternative there would be 2,067,820 fewer HMA acres within Wyoming, compared to Alternative A. This represents a 43% decrease in the acres available for wild horses within the CIAA. There would also be 1,229 fewer wild horses within the CIAA (at high AML). This represents a 33% decrease in the number of wild horses (at high AML) within the CIAA. Overall, the remaining HMAs within the planning area would constitute 28% of all Wyoming HMAs by acres, and 33% of all Wyoming HMAs by high AML.

Mitigation Measures

In implementing the selected alternative, the BLM will follow all laws, policies, handbooks, standard operating procedures, and best management practices (such as those outlined in the BLM's Comprehensive Animal Welfare Program for Wild Horse and Burro Gathers (BLM 2020)). These measures will minimize impacts related to the management of wild horses, by maintaining appropriate conditions for wild horses on the range, and ensuring the use of proper gather procedures and appropriate removal and care practices for wild horses after they are removed from the range.

4.2.2 Soil Resources

Alternative A

While wild horse fecal matter can contribute some nutrients to the soils, concentrated wild horse use can negatively affect soil resources, especially in wet areas, around springs, and near salt blocks. Wild horses often use riparian and wetland areas for water and shade, and may congregate around water developments. This can result in compacted soil and trampled vegetation. A total of 24,780 AUMs would be used by wild horses (at high AML) under this alternative. Grazing from wild horses can lead to reduced vegetative cover, reduced water infiltration rates and nutrient cycling, decreased plant litter and water quality, and increased bare ground and soil erosion. Trampling from wild horse hoof activity can also impact biological soil crusts in areas where wild horses concentrate. However, managing at AML would limit potential impacts to soil resources. Some trampling of vegetation and subsequent erosion could still occur, but if the gather program is successful in maintaining wild horse population levels these impacts would be limited.

In areas where range improvements are constructed, surface disturbance from the construction of water developments would remove vegetation and increase erosion caused by wind and water in localized areas.

However, water developments would also improve the distribution of wild horses, reducing the magnitude of localized vegetation removal and subsequent soil erosion associated with the concentration of wild horses in these areas.

Direct impacts to soil resources associated with wild horse gathers include disturbance to soil surfaces immediately in and around temporary gather sites and holding facilities. Impacts would occur from vehicle traffic and hoof action as a result of concentrating the wild horses, and would be localized in the immediate vicinity of the gather sites and holding facilities. Generally, these sites would be small (less than one half acre in size, and any impacts would be localized and temporary. In general, gather sites are located near existing roads or other disturbances such as pullouts or water haul sites which would further serve to reduce impacts to soils from gathers.

Alternative B

Impacts to soil resources from wild horses would be similar to those described under Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated in a smaller area under this alternative due to the removal of checkerboard lands from the HMAs. Higher concentrations of wild horses could lead to greater impacts to soil resources. However, some of the potential impacts to soil resources from this alternative would be offset by the removal of 6,876 permitted livestock AUMs within those lands. Some impacts to soil resources would occur as a result of gathering all wild horses from the checkerboard lands. These impacts would be similar to those described under Alternative A related to gather operations. For areas that revert to HA status under this alternative, there would be no wild horse related impacts to soil resources. In these areas there would be less compaction and erosion as a result of grazing pressure from wild horses. However, these impacts may continue to occur, though to a lesser degree, from other grazing animals.

Alternative C

Because this alternative proposes to remove all wild horses and manage for zero wild horses, the long term impact of wild horses to soil resources would be minimal. Since all HMAs would revert to HA status under this alternative, there would be less compaction and erosion as a result of grazing pressure from wild horses. These impacts may continue to occur, though to a lesser degree, from other grazing animals. However, the efforts that would be undertaken to gather all of the wild horses in the planning area would likely result in short term disturbance to gather sites and other temporary gather facilities. Due to the large number of wild horses that would need to be gathered, it is likely that a greater number of facilities and vehicles would need to be used. In addition, the large amount of hoof action that would occur during these gather activities would also create localized, temporary impacts to soil resources.

Alternative D

Under Alternative D, wild horse populations would be reduced by approximately 60% within the planning area. In total, these HMAs would be reduced in size by approximately 74%. Overall, fewer wild horses would impact soils in fewer places within the planning area. This would reduce the overall level of impact on soil resources (e.g., vegetation trampling, soil compaction) from the presence of wild horses in comparison to Alternative A. However, impacts would occur to soil resources as a result of gathering all wild horses from two HMAs, and reducing the number of wild horses within the other two HMA. These impacts would be similar to those described in Alternative C. For areas that revert to HA status under this alternative, there would be no wild horse related impacts to soil resources. In these areas

there would be less compaction and erosion as a result of grazing pressure from wild horses. However, these impacts may continue to occur, though to a lesser degree, from other grazing animals.

By providing a means of adjusting AML for the Adobe Town and White Mountain HMAs based on up-to-date information about resource conditions, this alternative will allow for more timely adjustments to AML in response to changes in resource conditions. This is expected to benefit soil resources by ensuring the AML is appropriate to current conditions on these HMAs.

Cumulative Impact Analysis

The CIAA for soils is the planning area. Livestock grazing within this area can impact soils in a similar manner as wild horses (i.e. removal of protective vegetation causing potential increased erosion and soil compaction from grazing activities in areas where animals concentrate). However, livestock use is typically seasonal and actively managed to minimize these impacts, while wild horse use is typically year round, with little direct management of the herd; impacts from wild horses are primarily managed by limiting the herd size within AML.

Other activities that occur within the planning area can also impact soils, including fires, vegetation treatments, mining activities, oil and gas development, roads, structures and utility lines. The acres impacted by these activities are summarized in Table 4-2. These impacts represent approximately 3% of the planning area.

Table 4-2. Summary of acres of disturbance within the planning area.

Impact Category	Past	Present	Future	Total
Fires and Vegetation Treatments	24,910	0	0	24,910
Mining Activities	69	8,346	0	8,415
Oil and Gas	2,988	2,645	350	5,983
Transportation (roads and railways)	0	16,517	0	16,517
Structure Development (including cities)	0	12,803	0	12,803
Utilities	0	9,263	0	9,263
Totals:	27,967	49,574	350	77,891

The activities listed in Table 4-2 can lead to increased soil erosion, reduced infiltration rates and soil compaction. Impacts to soils associated with these activities are typically more pronounced than those associated with wild horse activities. All of the alternatives, except for Alternative C, allow for the construction of water developments or other range improvements to support wild horses within the HMAs. Impacts associated with these range improvements would be similar to those of the activities listed in Table 4-2, and therefore would compound those effects to varying degrees in Alternatives A, B, and D. The impacts of wild horse gather activities are temporary and limited in scope, and therefore would add little to the acreages listed in Table 4-2.

Alternative A

This alternative represents current management. There are a total of 28 grazing allotments that at least partially intersect the HMAs under this alternative. These allotments permit an estimated 146,787 livestock AUMs within these HMAs. Wild horses would utilize an estimated 24,780 AUMs (at high AML). The combined use by livestock and wild horses would be an estimated 171,567 AUMs. As described above, removal of vegetation and impacts associated with grazing activities can expose more soil to erosion, and impact infiltration rates and nutrient cycling.

Wild horse related range improvements could be developed within the 2,818,132 acres covered by the four checkerboard HMAs. Impacts to soils from these developments would be limited in scope, and would add little to the acreages listed in Table 4-2.

Alternative B

Under this alternative there would only be 26 grazing allotments that at least partially intersect these HMAs. These allotments would permit an estimated 78,360 livestock AUMs (after reducing permitted livestock AUMs by 6,876). Wild horses would continue to utilize an estimated 19,440 AUMs. The combined use by livestock and wild horses would be an estimated 97,800 AUMs. As described above, removal of vegetation and impacts associated with grazing activities can expose more soil to erosion, and impact infiltration rates and nutrient cycling.

Because wild horse use would be concentrated in a smaller area on some HMAs under this alternative, the cumulative impacts to soils on solid block land are expected to be greater, although some of these impacts would be offset by the reduction in permitted livestock AUMs noted above. Conversely, cumulative impacts on soils in the checkerboard lands would be reduced under this alternative as a result of removing wild horses from this area, though impacts to soils from livestock grazing would continue to occur.

Wild horse related range improvements would not be developed on checkerboard lands under this alternative, but could be developed on the 1,537,997 acres of solid block lands. As a result, cumulative impacts associated with the construction of range improvements would be less than Alternative A within checkerboard lands, but likely similar to Alternative A within the solid block lands.

Alternative C

Under this alternative all of the HMAs within the planning area would revert to HAs, managed for zero wild horses. Throughout the planning area there would be 24,780 fewer AUMs removed through grazing activities, and the impacts to soils associated with wild horse grazing activities would not occur. Because of this, cumulative impacts to soils throughout the current HMAs would be reduced under this alternative, relative to the other alternatives. Impacts to soils from other activities (such as those described in Table 4-1) would continue to occur. Impacts to soils from gather related activities would likely be initially greater under this alternative, but because these impacts would be temporary and limited in scope they would not add to the cumulative impacts to soils within the CIAA.

Alternative D

Since only the Adobe Town and White Mountain HMAs would remain under this alternative, there would only be 15 grazing allotments that at least partially intersect the HMAs under this alternative. These allotments permit an estimated 42,017 livestock AUMs within the HMAs. Wild horses would utilize an estimated 10,032 AUMs (at high AML). The combined use by livestock and wild horses would be an estimated 52,049 AUMs. As described above, removal of vegetation and impacts associated with grazing activities can expose more soil to erosion, and impact infiltration rates and nutrient cycling. Overall, cumulative impacts to soils under this alternative would be greater than under Alternative C, in which all wild horses would be removed, but reduced relative to Alternatives A and B, as the impacts associated with wild horse use would only occur on two of the HMAs. Impacts associated with wild horse use, in addition to impacts from livestock use and oil and gas development, would continue to occur within the Adobe Town and White Mountain HMAs, and the cumulative impacts in these areas would be similar to those for Alternative A. Other activities would continue to impact soils in areas where wild horses are removed; however, there would no longer be any additional wild horse related impacts in these areas.

Wild horse related range improvements would not be developed on any of the HMA lands that revert to HA status under this alternative, but could be developed on the 743,581 acres within the remaining Adobe Town and White Mountain HMAs. As a result, cumulative impacts from construction of range improvements together with other activities would be less than Alternative A within the HMA lands that revert to HA status, but likely similar to Alternative A within the Adobe Town and White Mountain HMAs.

4.2.3 Water Resources

Alternative A

Impacts to water resources from wild horses can occur when the animals congregate near surface waters, overgraze sensitive areas, spread invasive and noxious weeds, increase pathogen and nutrient loading to water bodies via surface water contact with manure, and compact or otherwise damage soil causing erosion and sediment loading. As movements of wild horses are not directly controlled, it is possible for them to over-use some watering areas, limiting opportunities for the resources in that area to recover from grazing activities.

Achieving and maintaining the AML for wild horses within the four wild horse HMAs would reduce potential impacts to water resources. Some trampling of riparian vegetation and subsequent erosion would still occur, but this could be held to an acceptable level if the selective gather program were successful in reducing and maintaining wild horse population levels. Concentration of wild horses near water sources and along fences could increase localized erosion and sediment loads caused by trampling and overgrazing of riparian vegetation.

Disturbances associated with the gathering and transport of the animals, as discussed in the soils portion of this document, could create localized areas of water quality degradation, but would likely be limited in time and scope.

Improvements to water availability, via water developments, would benefit all rangeland users, including wild horses. There would be some impacts associated with the construction of water developments, however these impacts would be localized and limited in scope. Water developments would improve animal distribution (for wild horses, livestock and other wildlife), reducing the magnitude of focused vegetation removal, soil erosion, and nutrient loading from wild horse concentrations around natural water sources.

Alternative B

The types of impacts to water resources from wild horse management would be similar to those discussed in Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated in a smaller area under this alternative due to the removal of checkerboard land. This could lead to increased impacts to surface waters in these areas. However, some of the impacts to water resources would be reduced by the removal of 6,876 permitted livestock AUMs. For areas that revert to HA status under this alternative, there would be no wild horse related impacts to water resources. In these areas there would be less pathogen and nutrient loading to water bodies and less sediment loading as a result of impacts from wild horses. However, these impacts may continue to occur, though to a lesser degree, from other grazing animals.

Alternative C

This alternative would provide greater protections to water resources, compared to all other Alternatives. Because wild horses would be entirely removed from the planning area, all of the impacts described under

Alternative A would not occur, except for those associated with gathers. The process of gathering all wild horses under this alternative could cause minor additions to sediment loading, but these impacts would be limited and temporary.

Alternative D

The types of impacts on water resources from wild horses described under Alternative A would not occur within the portions of the planning area where approximately 2,067,820 acres would no longer be allocated for wild horse use. This represents an 74% reduction in total acreage allocated for wild horse use. Overall, this would reduce the level and extent of impact on water resources (e.g., vegetation trampling, soil compaction, and subsequent surface runoff and sedimentation of water sources) from the presence of wild horses.

The types of impacts on water resources from managing wild horses in the Adobe Town and White Mountain HMAs would be similar to those presented under Alternative A. By providing a means of adjusting AML for these HMAs based on up-to-date information about resource conditions, this alternative will allow for more timely adjustments to AML in response to changes in resource conditions. This is expected to benefit water resources by ensuring the AML is appropriate to current conditions on the HMA.

Cumulative Impact Analysis

The CIAA for water resources is the planning area. The activities listed in Table 4-2 can impact water resources by increasing the amount of sediment that enters surface waters as a result of increased soil erosion and decreased water infiltration rates. Livestock grazing activities can also impact water resources similar to those described for wild horses above. Range improvements, such as water developments, can have a similar impact to those activities listed in Table 4-2; however, water developments can also protect water resources by reducing the amount of time grazing animals spend near natural surface waters.

Alternative A

This alternative represents current management. The 28 grazing allotments that at least partially intersect the HMAs under this alternative permit an estimated 146,787 livestock AUMs. Wild horses would utilize an estimated 24,780 AUMs (at high AML). The combined use by livestock and wild horses would be an estimated 171,567 AUMs. As described above, wild horses and livestock tend to congregate near water sources and can impact water resources in these areas. This can decrease water quality, and decrease bank stability in these areas. The development of offsite water can reduce these potential impacts to water resources by encouraging wild horses and livestock to congregate away from natural surface waters.

Alternative B

Only 26 grazing allotments would at least partially intersect the HMAs in this alternative. These allotments would permit an estimated 78,360 livestock AUMs (after reducing permitted livestock AUMs by 6,876). Wild horses would continue to utilize an estimated 19,440 AUMs. The combined use by livestock and wild horses would be an estimated 97,800 AUMs. Because wild horse use would be concentrated in a smaller area under this alternative, the cumulative impacts to water resources on solid block land are expected to be greater than under Alternative A. However, some of these impacts would be offset by the removal of 6,876 permitted livestock AUMs in this area. Conversely, cumulative impacts

on the checkerboard lands would be reduced under this alternative as a result of removing wild horses from this area, though impacts to water resources from livestock grazing would continue to occur.

As with Alternative A, developing offsite water for wild horses and livestock could reduce impacts to water resources. However, under this alternative, wild horse related water developments would only occur on solid block land, and not on checkerboard land. Water developments on checkerboard lands could continue to occur to support livestock grazing activities.

Alternative C

Under this alternative all of the HMAs within the planning area would revert to HAs, managed for zero wild horses. Throughout the planning area there would be 24,780 fewer AUMs removed, and the impacts to water resources associated with wild horse grazing activities would not occur. Cumulative impacts to water resources therefore would be reduced under this alternative, relative to the other alternatives, as no wild horse related impacts would occur. Impacts to water resources from other activities (such as those described in Table 4-2) would continue to occur. Impacts to water resources from gather related activities would likely be initially greater under this alternative, but because these impacts would be temporary and limited in scope they would not add to the cumulative impacts to water resources within the CIAA.

Alternative D

Since only the Adobe Town and White Mountain HMAs would remain under this alternative, there would be 15 grazing allotments that at least partially intersect the HMAs under this alternative. These allotments permit an estimated 42,017 livestock AUMs within this area. Wild horses would utilize an estimated 10,032 AUMs (at high AML). The combined use by livestock and wild horses would be an estimated 52,049 AUMs. As described above, livestock and wild horses tend to congregate near water sources and can impact water quality and bank stability. Overall, cumulative impacts to water resources would be reduced under this alternative as the impacts associated with wild horse use would only occur on two of the HMAs. Impacts from wild horse use, in addition to impacts from livestock use and oil and gas development, would continue to occur within the Adobe Town and White Mountain HMAs, and the cumulative impacts would be similar to those listed for Alternative A. Other activities would continue to impact water resources in areas where wild horses are removed; however, because there would no longer be any additional wild horse related impacts in these areas, the cumulative effects would be reduced.

Wild horse related range improvements would not be developed on any of the HMAs that revert to HA status under this alternative, but could be developed on the 743,581 acres within the remaining Adobe Town and White Mountain HMAs. As a result, cumulative impacts associated with the construction of range improvements would be less than Alternative A within the HMA lands that revert to HA status, but likely similar to Alternative A within the Adobe Town and White Mountain HMAs.

4.2.4 Vegetation

Alternative A

Wild horses can have both positive and negative impacts on vegetation communities. When managed at appropriate population levels wild horses can contribute nutrients to soils which can support plant growth activities. They can help spread seeds, which is beneficial when they spread desirable species, and detrimental when they spread invasive species. Negative impacts on vegetation from wild horse management includes browsing and trampling of vegetation, and compacting soil, which can alter the amount, condition, production, and vigor of vegetation in grazed areas. Riparian vegetation can be directly impacted through trampling and grazing, which reduces riparian species cover and diversity, and

may result in localized areas of invasive, non-native plant dominance. Under this alternative, wild horses would remove an estimated 24,780 AUMs of vegetation (at high AML).

Wild horse gathers can impact vegetation as well, through hoof action, vehicle traffic and concentration of wild horses at trap sites and holding facilities. Impacts to vegetation associated with wild horse gathers would likely be localized, predominantly occurring where temporary gather sites and other facilities are established. These impacts are expected to be limited and temporary.

Managing wild horses at AML and implementing monitoring and gather plans would serve to control wild horse population numbers and achieve a balance among forage resources, reducing impacts to existing plant communities. Managing for AML could help reduce or prevent vegetation loss, introduction, or spread of invasive, non-native plant species, soil compaction, erosion, sedimentation, and the influx of nutrients into riparian habitat. Water developments would benefit vegetative communities by reducing the congregation of wild horses around natural water sources, which could prevent over grazing or trampling of vegetation, supporting soil stability and overall habitat quality.

Alternative B

The types of impacts to vegetation from wild horse management under this alternative would be similar to those discussed in Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs. As a result, there would 5,340 fewer AUMs consumed under this alternative. These AUMs would be available for potential allocation to other resources and resource uses, such as wildlife, livestock or other ecosystem functions. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated within a smaller area, which could increase the impacts to vegetative resources in these areas. However, some of the impacts to vegetation would be reduced by the removal of 6,876 permitted livestock AUMs within the HMAs. It is important to note that the adjustment of permitted livestock AUMs will not entirely offset potential impacts to vegetation as a result of increasing wild horse concentration in this alternative. This is a result of differing foraging behaviors between the animals, and due to the fact that wild horse use would be year-long, where most livestock grazing use is managed within an appropriate season that minimizes potential impacts to vegetation during critical growing periods.

For areas that revert to HA status under this alternative, there would be no wild horse related impacts to vegetation resources. In these areas impacts to vegetation from wild horse foraging or trampling would not occur. However, these impacts may continue to occur, though to a lesser degree, from other grazing animals.

Alternative C

The removal of all wild horses from the planning area would prevent the impacts to vegetation described in Alternative A. The 24,780 AUMs required to sustain wild horses under Alternative A would be available for potential allocation to other resources and resource uses, such as wildlife, livestock or other ecosystem functions. Vegetative diversity and health could improve in areas where wild horses are removed. Perennial vegetation would experience reduced year-long grazing pressure, which would support plant health and vigor. Soil erosion and plant health could be improved around water locations with reduced year-long grazing by wild horses.

The process of removing all wild horses from the planning area would cause localized impacts to vegetation due to trampling, vehicle use and concentration of animals at trap sites and holding facilities. However, these impacts are expected to be limited and temporary.

Alternative D

Impacts in the portions of the planning area where approximately 2,067,820 acres would no longer be allocated for wild horse use would be similar to Alternative C, as wild horses would be removed. This represents an 74% reduction in total acreage allocated for wild horse use. AUMs required to sustain wild horse populations would be reduced by 14,748, compared to Alternative A, leaving that forage available for potential allocation to other resources and resource uses, such as wildlife, livestock or other ecosystem functions. Overall, this would reduce the level and extent of impact on vegetation resources from the presence of wild horses.

The types of impacts on vegetation resources from managing wild horses within the Adobe Town and White Mountain HMAs would be similar to those presented under Alternative A. By providing a means of adjusting AML for the Adobe Town and White Mountain HMAs based on up-to-date information about resource conditions, this alternative will allow for more timely adjustments to AML in response to changes in resource conditions. This is expected to benefit vegetation resources by ensuring the AML is appropriate to current conditions on these HMAs.

While AUMs previously allocated to wild horse use under Alternatives B, C, and D could, in the future, be allocated to wildlife, livestock or other ecosystem functions, such changes would be the subject of future analysis and decision-making after review of intensive monitoring data, as described in Chapter 2. That analysis would consider impacts to vegetation as well as other resources.

Cumulative Impact Analysis

The CIAA for vegetation is the planning area. Impacts associated with livestock grazing in this area would be similar to those described for wild horses. Other activities in this area have also impacted vegetation communities. See Table 4-2 for a list of these activities and the total acres of disturbance associated with them. Most of these activities directly impact vegetation by removing it, or altering plant communities. Some of these impacts (such as those associated with pipelines) are short term while others (such as those associated with mining activities) are long term. Some range improvements can impact vegetation in a similar fashion, namely by removing vegetation, or altering vegetation communities.

Alternative A

This alternative represents current management. A total of 28 grazing allotments at least partially intersect the HMAs under this alternative. These allotments permit an estimated 146,787 livestock AUMs within these HMAs. Wild horses would utilize an estimated 24,780 AUMs (at high AML). The combined use by livestock and wild horses would be an estimated 171,567 AUMs. As described above, livestock grazing can impact vegetation in a similar manner as wild horses.

Impacts from wild horse related range improvements would have a cumulative impact with the activities listed in Table 4-2. Water developments would concentrate both wild horses and livestock in the area around the development. This would increase the cumulative impacts to vegetation in these areas. However, increasing the total number of water developments available for wild horses and livestock within the HMAs would also lead to better animal distribution across the range which would decrease the overall cumulative impacts to vegetation.

Alternative B

Only 26 grazing allotments would at least partially intersect the HMAs under this alternative. These allotments would permit an estimated 78,360 AUMs (after reducing permitted livestock AUMs by 6,876).

Wild horses would continue to utilize an estimated 19,440 AUMs. The combined use by livestock and wild horses would be an estimated 97,800 AUMs. Because wild horse use would be concentrated in a smaller area under this alternative, the cumulative impacts to vegetation on solid block land are expected to be greater. However, some of these impacts would be offset by the removal of 6,876 permitted livestock AUMs in this area. Conversely, cumulative impacts on the checkerboard lands would be reduced under this alternative as a result of removing wild horses from this area, though impacts to vegetation from livestock grazing would continue to occur.

Wild horse related range improvements would not be developed on checkerboard lands under this alternative, but could be developed on the 1,537,997 acres of solid block lands. As a result, cumulative impacts associated with the construction of range improvements would be less than Alternative A within checkerboard lands, but likely similar to Alternative A within the solid block lands.

Alternative C

Under this alternative, all of the HMAs within the planning area would revert to HAs and be managed for zero wild horses. Throughout the planning area there would be 24,780 fewer AUMs consumed each year, and the impacts to vegetation associated with wild horse grazing activities would not occur. Cumulative impacts to vegetation therefore would be reduced under this alternative relative to all other alternatives, as no wild horse related impacts would occur. Impacts to vegetation from other activities (such as those described in Table 4-2) would continue to occur. Impacts to vegetation from gather related activities would likely be initially greater under this alternative, but because these impacts would be temporary and limited in scope they would not add to the cumulative impacts to vegetation within the CIAA.

Alternative D

Only the Adobe Town and White Mountain HMAs would remain under this alternative, and 15 grazing allotments would at least partially intersect the HMAs. These allotments permit an estimated 42,017 livestock AUMs within this area. Wild horses would utilize an estimated 10,032 AUMs (at high AML). The combined use by livestock and wild horses would be an estimated 52,049 AUMs. As described above, livestock grazing can impact vegetation similar to wild horse use. Overall, cumulative impacts to vegetation would be reduced under this alternative as the impacts associated with wild horse use would only occur on one of the HMAs. Impacts associated with wild horse use, in addition to impacts from livestock use and oil and gas development, would continue to occur within the Adobe Town and White Mountain HMAs, and the cumulative impacts would be similar to those listed for Alternative A. Other activities would continue to impact vegetation in areas where wild horses are removed; however, there would no longer be any additional wild horse related impacts in these areas.

Wild horse related range improvements would not be developed on any of the HMAs that revert to HA status under this alternative, but could be developed on the 743,581 acres within the Adobe Town and White Mountain HMAs. As a result, cumulative impacts associated with the construction of range improvements would be less than Alternative A within the HMAs that revert to HA status, but likely similar to Alternative A within the Adobe Town and White Mountain HMAs.

4.2.5 Wildlife and Fisheries

Alternative A

Wild horses compete with wildlife for forage, water, and cover. As large herbivores, wild horses can consume large quantities of vegetation and water and can impact riparian and wildlife habitat. The HMAs contain crucial winter range for big game species. Wild horses utilizing these areas in the winter

could compete with wildlife for scarce resources such as forage and water. Wild horses may attempt to defend water sources, preventing other wildlife from accessing these water sources. Managing wild horses at AML would reduce impacts to wildlife related to competition with wild horses. However, gathers can cause short-term stress and displacement of some species, resulting in the disruption of life-cycle behaviors. Winter gathers could impact big game and other wildlife by causing additional stress when food resources are scarce and weather conditions are poor. Properly timing gathers to reduce disruption of wildlife within the planned gather area can reduce those impacts on most species. If new fences were added to support wild horse management, they could create travel barriers, alter distribution patterns, increase stress and energy loss, and could cause injury or death from entanglement or collisions with fence wires. Water developments could support wildlife by providing additional sources of water, however, they may also lead to increased competition at the water development sites.

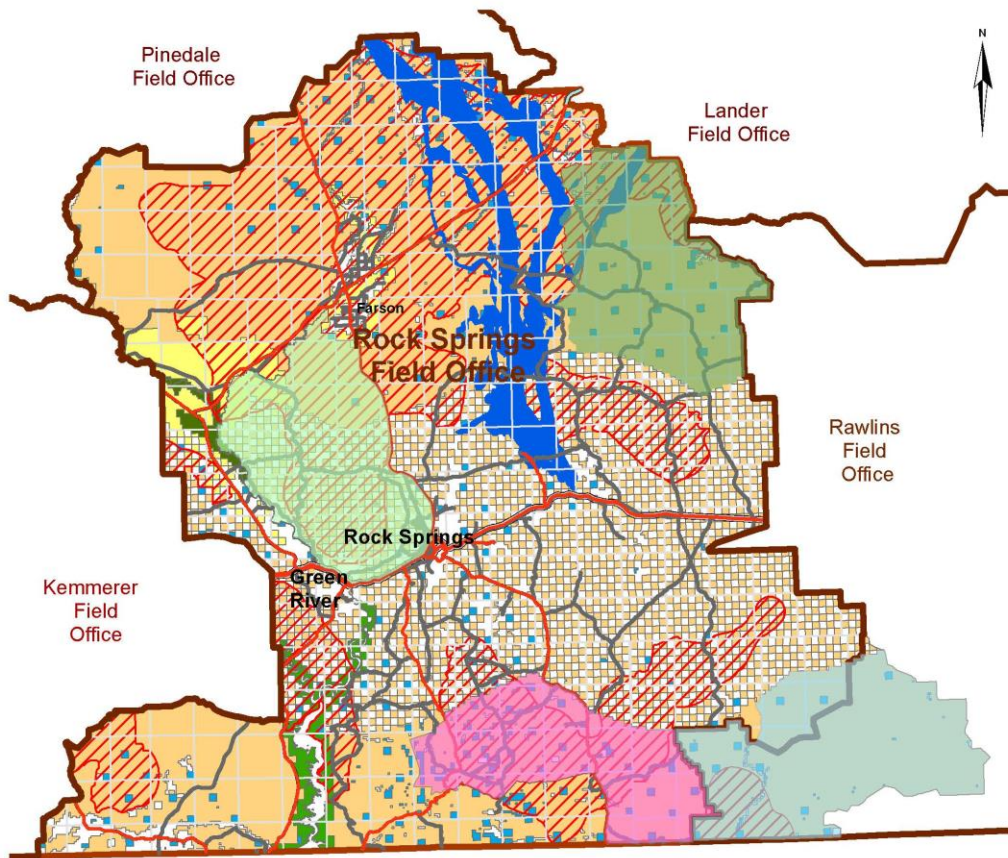
Wild horses can impact riparian areas, adding additional sediment, widening stream channels and adding bacteria to the water. Approximately 906 miles of stream would be present within HMAs under this alternative. These can impact the quality of habitat for fish species that inhabit some of the streams within the planning area. These impacts can be reduced by managing wild horses at AML and providing upland water developments to limit wild horse use of riparian areas.

Alternative B

The types of impacts to wildlife from wild horse management under this alternative would be similar to those discussed in Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs, and wild horses would occupy a slightly smaller area in the Adobe Town HMA. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated in a smaller area (see Map 4-1). Increased concentration and yearlong use by wild horses could lead to increased competition with wildlife especially during times when forage is limited (i.e. winter or drought). Depending on the level of competition, wildlife species could be forced to relocate to other habitats in search of adequate food or cover resources. Relocation, especially during critical life cycles, such as nesting, parturition, or in winter, could put undue stress on wildlife and lead to diminished health and/or increased mortality. However, some of the impacts to wildlife would be reduced by the removal of 6,876 permitted livestock AUMs within the HMAs.

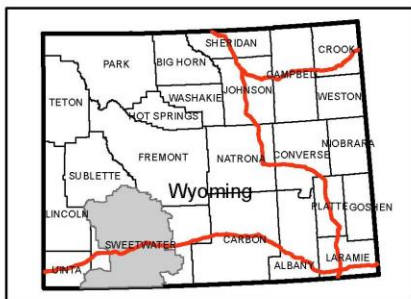
The amounts of crucial habitat for big game that may be impacted by conflicts with wild horses would be reduced under this alternative. The amount of CWR in the White Mountain HMA would remain the same, however the Salt Wells HMA would contain 96,900 acres (21% reduction in overlap) of pronghorn CWR, 835 acres (91% reduction in overlap) of elk CWR, and 24,600 acres (38% reduction in overlap) of mule deer CWR. The reduction of size for the HMAs in this alternative would increase the amount of CWR that is outside of existing HMAs, and reduce wild horse impacts to CWR in the checkerboard; however, having the same number of horses concentrated in the solid block area may impact crucial wildlife habitats within the remaining HMAs by increased disturbance to those habitats. Within the Great Divide Basin HMA under this alternative, only 19,600 acres (65% reduction in overlap) of the Sublette mule deer migration corridor would be within the HMA, which could reduce impacts to migrating wildlife from competition with horses (see Map 4-1). However, if new fences or other man-made barriers were needed to manage wild horses within these HMAs, then these would impact wildlife as described in Alternative A. Fences or other barriers would also further fragment big game CWR, causing an increased impact to these species, compared to Alternative A. Impacts to big game would be especially profound if the barriers bisect the Sublette mule deer migration corridor.

Impacts to fish species under this alternative would be similar to those described under Alternative A. However, impacts from wild horses would be more pronounced due to an increase in the concentration of wild horses in the areas they would occupy. Some of the potential impacts to fish species would be offset by the removal of 6,876 permitted livestock AUMs.



Map 4-1: Alternative B Herd Management Areas
Greater Sage-Grouse PHMA and
Migration Corridor
Resource Management Plan Amendment For
Wild Horse Management

10 5 0 10 Miles



Surface Management Agency

- Bureau of Land Management
- Bureau of Reclamation
- Fish & Wildlife Service
- Forest Service
- Private
- State

- Field Office Boundaries
- RSFO PHMA
- Sublette Mule Deer Migration Corridor

RSFO Herd Management Areas

- Adobe Town
- Divide Basin
- Salt Wells Creek
- White Mountain

No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use.

Alternative C

Under Alternative C, removing all wild horses from the planning area would eliminate competition between wildlife and wild horses for forage, rangeland, and water resources. This would improve habitat conditions and provide greater forage and cover for big game and other wildlife within the planning area. Removing wild horses would reduce impacts to wetland and riparian areas, which would decrease runoff, erosion, and cementation of substrates in stream channels. Reduced sediment runoff would provide preferential habitat conditions for aquatic species (such as fish) for feeding, cover, and reproduction. Less use of riparian areas and wetlands by wild horses would improve water quality, reduce the likelihood of stream bank erosion, stream channel alteration, and loss of wetland or riparian vegetation. Improvement of riparian habitat would improve habitat for many wildlife and fish species that rely on riparian areas for survival. Some impacts to wildlife would occur as a result of gather activities under this alternative, as described in Alternative A; however, these are expected to be localized and temporary.

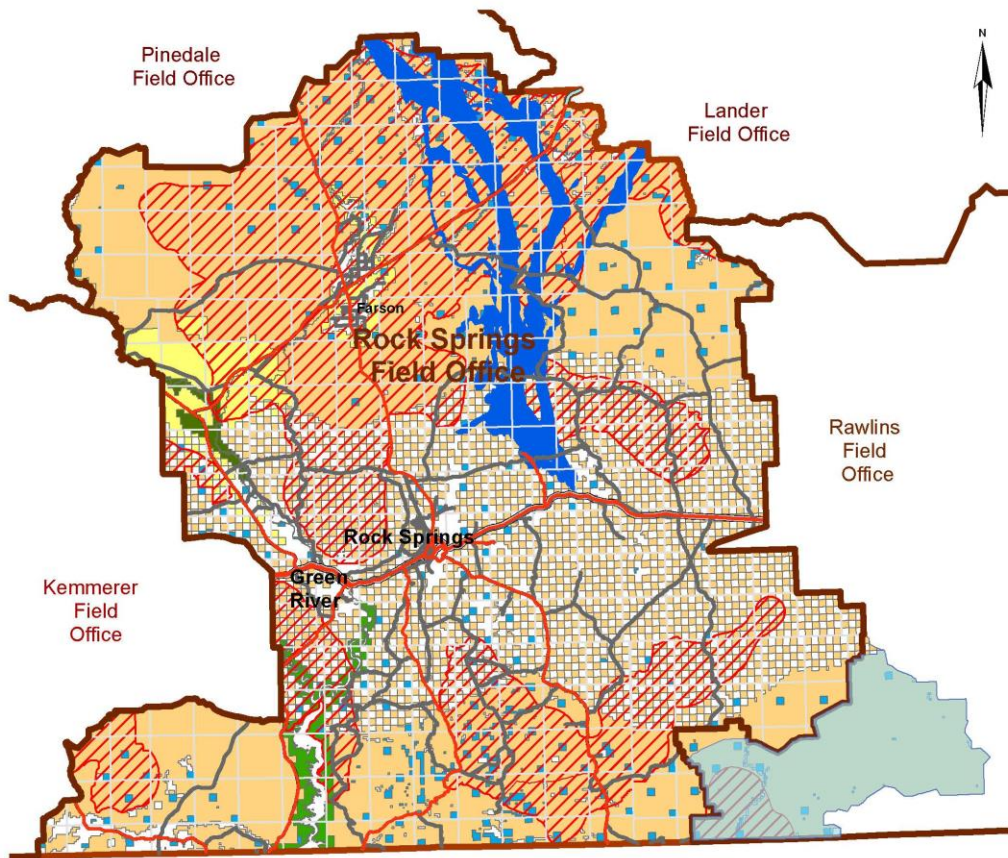
Alternative D

The types of impacts on wildlife and fish species from managing wild horses for the Adobe Town and White Mountain HMAs would be similar to those presented under Alternative A. These impacts would not occur in the portions of the planning area where approximately 2,067,820 acres would no longer be allocated for wild horse use (see Map 4-2). This represents a 74% reduction in total acreage allocated for wild horse use within the planning area. AUMs required to sustain wild horse populations (10,032) would be reduced by 14,748, compared to Alternative A, leaving that forage available for wildlife and other resource values. Under this alternative, only White Mountain and a portion of the existing Adobe Town HMA would continue to be managed as HMAs. These HMA would overlap with fewer acres of crucial big game habitats, reducing potential conflicts between wild horses and wildlife in those areas. The Adobe Town HMA would contain 48,298 acres (65% reduction in overlap) of pronghorn CWR (Map 4-2). The White Mountain HMA would contain the same amount of overlap with pronghorn CWR as Alternative A (217,000 acres). Overall, this alternative would reduce the level and extent of impact on wildlife and fish species from the presence of wild horses.

Reduced competition would improve habitat conditions, and provide greater forage and cover for big game and other wildlife within the HMAs. Removing or reducing the presence of wild horses would reduce damage to wetland and riparian areas, which would decrease runoff, erosion, and cementation of substrates in stream channels. Reduced sediment runoff would provide preferential habitat conditions for aquatic species for feeding, cover, and reproduction. Less use of riparian areas and wetlands by wild horses could improve water quality, reduce the likelihood of stream bank erosion, stream channel alteration, and loss of wetland or riparian vegetation. There would be approximately 90 miles of stream present within the remaining HMAs under this alternative.

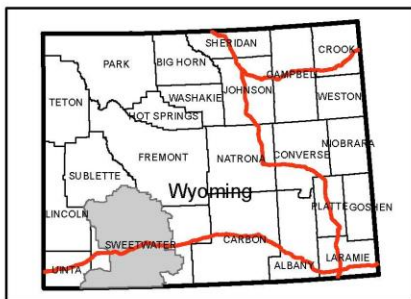
By providing a means of adjusting AML for the Adobe Town and White Mountain HMAs based on up-to-date information about resource conditions, this alternative will allow for more timely adjustments to AML in response to changes in resource conditions. This is expected to benefit wildlife and fish species by ensuring the AML is appropriate to current conditions on the HMAs.

While AUMs previously allocated to wild horse use under Alternatives B, C, and D could, in the future, be allocated to wildlife or related ecosystem functions, such changes would be the subject of future analysis and decision-making after review of intensive monitoring data, as described in Chapter 2. That analysis would consider impacts to wildlife and fisheries as well as other resources and resource uses.



Map 4-2: Alternative D Herd Management Areas
Greater Sage-Grouse PHMA and
Migration Corridor
Resource Management Plan Amendment For
Wild Horse Management

10 5 0 10 Miles



Surface Management Agency

- Bureau of Land Management
- Bureau of Reclamation
- Fish & Wildlife Service
- Forest Service
- Private
- State
- Field Office Boundaries
- RSFO PHMA
- Sublette Mule Deer Migration Corridor

Herd Management Areas

- Adobe Town

No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data.
The User assumes the entire risk associated with its use of these data and bears all responsibility in determining whether these data are fit for the User's intended use.

Cumulative Impact Analysis

The CIAA for wildlife and fisheries is the planning area, plus any part of a big game herd unit that extends outside of the planning area, an area that encompasses 7,464,699 acres. The primary impact identified that could have potential cumulative effects is competition for resources (such as water and forage) between wild horses, livestock and wildlife.

Other disruptive activities that occur within the CIAA for wildlife and fisheries include fires, vegetation treatments, mining activities, oil and gas development, roads, structures and utility lines. Overall, these disturbances represent approximately 5% of the CIAA. These activities can degrade wildlife habitat and inhibit migration. This decrease in overall habitat can increase the potential for competition with wild horses and livestock for resources.

Alternative A

This alternative represents current management. Approximately 86% of the CIAA for wildlife is available for use by livestock (i.e. encompassed within a designated grazing allotment), while 44% of the CIAA is available for use by wild horses (i.e. encompassed within a wild horse HMA). Livestock and wild horses tend to concentrate grazing in areas near water sources. These areas typically represent a small portion of the rangelands in terms of area, but play a disproportionate role in supporting livestock, wild horses and wildlife on the range. Therefore, while the total acreage available for wildlife, wild horses and livestock is rather large, most competition occurs in relatively small, but highly important areas.

Alternative B

Under this alternative, wild horses would be removed from approximately 6% of the CIAA. This would reduce potential competition with wildlife in the checkerboard portion of the CIAA. Livestock would continue to use this area, and would compete with wildlife for resources; however, since wild horses would be removed from this area overall competition for resources is expected to be less than Alternative A.

Under this alternative wild horse use would be concentrated in a smaller area, representing approximately 5% of the CIAA. While some livestock AUMs would be reduced to ensure adequate forage for wild horses, there would still be livestock grazing in these areas. Therefore, the combination of wild horse and livestock use would result in competition with wildlife for forage, water, cover and space. Overall, the intensity of competition in these areas is expected to be similar to that described under alternative A.

Alternative C

Under this alternative all wild horses would be removed from the planning area. However, there would still be 6 HMAs that at least partially intersect the CIAA. Overall, wild horse HMAs would still cover 9% of the CIAA (down from 44% under Alternative A). Livestock would continue to utilize 86% of the CIAA, and competition between wildlife and livestock would continue to occur. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

Alternative D

Under this alternative, wild horses would be removed from all HMAs within the planning area, except for White Mountain and the solid block portions of the Adobe Town HMA. Approximately 20% of the CIAA would still be designated for use by wild horses (down from 44% under Alternative A). Overall, competition with wildlife would be reduced under this alternative—similar to Alternative C—with the

exception of the Adobe Town and White Mountain HMA areas. Competition between wildlife, wild horses and livestock would be similar to Alternative A for the portions of these HMAs that remain under this alternative. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

4.2.6 Special Status Species

Alternative A

Wild horses can compete with some special status wildlife species for some resources, such as forage, water or space (similar to the impacts described in **Section 4.2.5**). For example, wild horses consume vegetation that provides forage and cover for Greater Sage-grouse. Wild horses could also impact some special status plant species through grazing activities or trampling.

If left unmanaged wild horses could cause detrimental impacts to habitat for special status species, such as Greater Sage-grouse. However, managing wild horses for AML would reduce potential impacts to special status wildlife by reducing potential impacts to forage, cover, and water resources. This would also help maintain habitat for special status fish and wildlife by reducing vegetation loss, reducing soil compaction, erosion and sedimentation, and could reduce the influx of nutrients into riparian areas, wetlands, or streambeds. Minimal impacts to sage-grouse and migratory bird species would be expected in this alternative. Management of wild horses for AML within the planning area would continue to minimize impacts to nesting, foraging and stopover habitats. Any wild horse removal activities would continue to be designed and conducted in a manner that would avoid or minimize impacts (direct and indirect) to sage-grouse and migratory bird habitats. Since the timing of gathers and the location of trap sites would be planned to avoid or minimize impacts to Special Status Species, the primary potential impact to these species would be short term disturbance and increased activity as animals move to avoid areas where gather activities are occurring. However, under this alternative wild horses would be removed fairly frequently (every 3 to 4 years) so any potential impacts to Special Status Species would occur somewhat regularly. Water developments could support special status wildlife by providing additional sources of water, and locating use by wild horses away from riparian areas. Locating water sources to reduce impacts from wild horses congregating around riparian areas would reduce impacts from habitat loss, soil compaction, erosion, sedimentation, soil loss, and damage or mortality of special status plants. Gathers could cause short-term stress and displacement of some species, resulting in the disruption of life-cycle behaviors. However, properly siting trap sites and planning the timing of gathers would reduce these impacts on most species. No impacts to Threatened or Endangered Species have been identified from current management practices, and none are expected if existing management actions continue. Although yellow-billed cuckoo are known to be present in portions of the planning area, they do not occur in the areas that have been impacted by current management, and impacts would not be expected under this alternative. Currently no known populations of Blowout penstemon or Ute Ladies'-Tresses occur within the planning area, and implementation of this alternative would have no effect on these species.

In 2015 the BLM amended the Rock Springs and Rawlins RMPs as part of a nationwide effort to update its management actions related to Greater sage-grouse management (BLM 2015c). The EIS associated with this RMP amendment analyzed the impacts wild horses can have on sage-grouse populations and habitat (BLM 2015b Section 4.14). The information provided in that document is incorporated by reference. The EIS described how wild horses can impact sage-grouse habitat through grazing and trampling cover forage, and by competing for forage, water, cover, and space.

Alternative B

The types of impacts to Special Status Species from wild horse management under this alternative would be similar to those discussed in Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated in a smaller area under this alternative, due to the removal of checkerboard lands from these HMAs. This could cause increased impacts to Special Status Species in areas where wild horses are more concentrated. However, some of the impacts to Special Status Species would be reduced by the removal of 6,876 permitted livestock AUMs within the HMAs.

Yearlong use by wild horses could lead to increased competition with sensitive wildlife species especially during times when forage is limited (i.e. winter or drought). Depending on the level of competition, sensitive wildlife species could be forced to relocate to other habitats in search of adequate food or cover resources. Relocation, especially during critical life cycles, such as nesting, parturition, or in winter, could put undue stress on these species and lead to diminished health and/or mortality. However, some of the impacts to sensitive plant and wildlife species would be reduced by the removal of 6,876 permitted livestock AUMs within the HMAs. Under this alternative, several of the HMAs would overlap with fewer acres of sage-grouse PHMA, which would reduce impacts from wild horses on sage-grouse. There would be no change to the amount of PHMA in the White Mountain HMA, the Salt Wells HMA would contain 190,052 acres of PHMA (45% reduction in overlap), the Great Divide Basin HMA would contain 101,634 acres (60% reduction in overlap), and the Adobe Town HMA would have no change in acreages of PHMA (Map 4-1). If new barriers, such as fences, were needed to manage wild horses within these HMAs, they would have to be located at least 0.6 miles from any active sage-grouse leks, to minimize the chances of sage-grouse colliding with the fence. Even with this restriction, barriers within 3 miles of a lek could negatively impact sage-grouse habitat by creating perch sites for predators, and presenting a potential collision hazard for sage-grouse. Potential impacts to Special Status Species associated with gather activities would be increased compared to Alternative A, since wild horse gathers and/or trapping would likely be needed more frequently to maintain the herd as non-reproducing, as described in **Section 4.2.1**.

No impacts to Threatened or Endangered Species are expected from this alternative. Although yellow-billed cuckoo are known to be present in portions of the planning area, they do not occur in the areas that would be impacted by this alternative. Currently no known populations of Blowout penstemon or Ute Ladies'-Tresses exist within the planning area, and implementation of this alternative would not impact these species.

Alternative C

Under Alternative C, removing all wild horses from the planning area would reduce competition between Special Status Species and wild horses for forage, rangeland, and water resources throughout the planning area. Reduced competition would improve habitat conditions and provide greater forage and cover for special status wildlife within the HMAs. Removing wild horses would reduce damage to wetland and riparian areas which would decrease runoff, erosion, and sedimentation of substrates in stream channels, which would provide preferential habitat conditions for aquatic species for feeding, cover, and reproduction. Minimal impacts to sage-grouse and migratory bird species would be expected in this alternative, primarily from the process of gathering wild horses. Reduction of wild horses within the planning area would reduce impacts to nesting, foraging and stopover habitats. Any wild horse removal activities would be designed and conducted in a manner that would avoid or minimize impacts (direct and indirect) to sage-grouse and migratory bird habitats. This would be accomplished by limiting the timing of gathers and the location of trap sites to avoid or minimize impacts to wildlife. While numerous gathers would be needed to implement this alternative, eventually no future gathers would be required once all

wild horses were removed from the planning area. Therefore, in the long-term, potential impacts to Special Status Species associated with gather activities would be reduced compared to Alternative A. Reduced use of riparian areas and wetlands by wild horses would improve water quality, reduce the likelihood of stream bank erosion, stream channel alteration, and loss of wetland or riparian vegetation. Removing wild horses would benefit special status plant species populations by reducing grazing pressure and the potential for trampling by wild horses. No impacts to Threatened or Endangered Species are expected from this alternative. Although yellow-billed cuckoo are known to be present in portions of the planning area, they do not occur in the areas that would be impacted by this alternative. Currently no known populations of Blowout penstemon or Ute Ladies'-Tresses exist within the planning area, and implementation of this alternative would not impact these species.

Alternative D

The types of impacts on Special Status Species from managing wild horses on the White Mountain HMA and the modified Adobe Town HMA would be similar to those presented under Alternative A. The impacts outlined in Alternative A would not occur within the portions of the planning area where approximately 2,067,820 acres would no longer be allocated for wild horse use. This represents a 74% reduction in total acreage allocated for wild horse use in the planning area. AUMs required to sustain wild horse populations under this alternative would be reduced by 14,748, compared to Alternative A, leaving that forage available for wildlife and other resource values. Minimal impacts to sage-grouse and migratory bird species would be expected in this alternative. Reduction of wild horses within the planning area would reduce impacts to nesting, foraging and stopover habitats. Any wild horse removal activities would be designed and conducted in a manner that would avoid or minimize impacts (direct and indirect) to sage-grouse and migratory bird habitats. For the Adobe Town HMA, under this alternative, only solid block portions would continue to be managed as an HMA and it would contain 57,700 acres of PHMA (2% reduction in overlap) (Map 4-2). The entire White Mountain HMA would continue to be managed as an HMA; therefore, impacts to Special Status Species would be the same as those described under Alternative A in this area.

This alternative would also reduce potential impacts to sensitive plant species from wild horse activities. No impacts to Threatened or Endangered Species are expected from this alternative. Although yellow-billed cuckoo are known to be present in portions of the planning area, they do not occur in the areas that would be impacted by this alternative. Currently no known populations of Blowout penstemon or Ute Ladies'-Tresses occur within the planning area, and implementation of this alternative would have no effect on these species. Overall, this alternative would reduce the level and extent of impact on Special Status Species from the presence of wild horses.

Reduced competition from wild horses would improve habitat conditions, and provide greater forage and cover for special status wildlife within the HMAs. Removing or reducing the presence of wild horses would reduce damage to wetland and riparian areas, which would decrease runoff, erosion, and cementation of substrates in stream channels. Reduced sediment runoff would provide preferential habitat conditions for aquatic species for feeding, cover, and reproduction. Less use of riparian areas and wetlands by wild horses could improve water quality, reduce the likelihood of stream bank erosion, stream channel alteration, and loss of wetland or riparian vegetation.

By providing a means of adjusting AML for the Adobe Town and White Mountain HMAs based on up-to-date information about resource conditions, this alternative will allow for more timely adjustments to AML in response to changes in resource conditions. This is expected to benefit Special Status Species by ensuring the AML is appropriate to current conditions on the HMAs.

Since population growth suppression strategies would be utilized under this alternative, it is expected that wild horse removals would be needed less frequently than in Alternative A. Therefore, potential impacts to Special Status Species from gather operations is expected to be reduced compared to Alternative A.

Cumulative Impact Analysis

The CIAA for Special Status Species is the planning area. The primary impacts identified that could have potential cumulative effects is competition for resources (for sensitive wildlife species) and potential grazing related impacts (for sensitive plant species). Livestock can impact sensitive species in a similar manner as wild horses. There are no anticipated cumulative impacts associated with wild horse gather activities because these impacts are limited in scope and duration. Other activities that occur within the CIAA (such as oil and gas developments, mining, roads, etc...) can also impact Special Status Species (see Table 4-2). These activities can reduce the amount of available habitat, and impact migration activities. This can magnify the impacts of competition for resources between sensitive species, livestock and wild horses. Total existing disturbance is estimated at ~3% within the CIAA.

Alternative A

This alternative represents current management. The entire CIAA for sensitive species is available for livestock use. The entire CIAA is also available for wild horse use. Wild horses and livestock can compete with sensitive wildlife species for forage and water. Grazing activities from wild horses and livestock can also negatively impact sensitive plant species, as described earlier in this section.

Alternative B

Under this alternative, wild horses would be removed from approximately 45% of the CIAA. This would reduce potential competition with special status wildlife species in the checkerboard portion of the CIAA. Livestock would continue to use this area, and would compete with sensitive wildlife species for resources; however, since wild horses would be removed from this area overall competition for resources is expected to be less than Alternative A.

Under this alternative, wild horses would be concentrated in a smaller area, representing approximately 41% of the CIAA. While some livestock AUMs would be reduced to ensure adequate forage for wild horses, there would still be livestock grazing in these areas. Therefore, the combination of wild horse and livestock use would result in competition with special status wildlife species for forage, water, cover and space. Overall, the intensity of competition in these areas is expected to be similar to that described under Alternative A.

Some special status plant species occur within the area where more wild horses would be concentrated. However, due to the reduction in permitted livestock AUMs, overall cumulative impacts to these species from the combination of wild horse and livestock grazing is expected to be similar to Alternative A. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

Alternative C

Under this alternative all wild horses would be removed from the planning area. As a result, there would be no impacts from wild horse activities under this alternative. Livestock would continue to graze throughout the CIAA under this alternative, and potential impacts associated with livestock grazing would continue to occur. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

Alternative D

Under this alternative, wild horses would be permanently removed from approximately 74% of the CIAA. In areas where wild horses are permanently removed there would be less competition with sensitive wildlife species, and potential impacts to sensitive plant species would be reduced. Livestock would continue to graze these areas, and would compete with sensitive wildlife species for resources, and could impact sensitive plant species through grazing. Potential cumulative impacts to these species within the White Mountain HMA and the modified Adobe Town HMA would be the same as those described under Alternative A. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

4.2.7 Wildland Fire

Alternative A

Grazing by wild horses reduces fine fuels that are easily ignited. Under this alternative, approximately 24,780 AUMs of vegetation would be removed each year by wild horses within the HMAs. Decreasing fuel loads could reduce the occurrence of wildfires, thereby reducing the need for other fuel treatments and/or suppression activities and resources in some portions of the planning area. Wild horses may also impact areas where fires have recently occurred by grazing these areas. This can reduce the likelihood of successful reclamation of the burned area. Under this alternative, wildfires would be mitigated by following the comprehensive fire management plan for the area.

Alternative B

The types of impacts to wildland fire ecology and management from wild horse activities under this alternative would be similar to those discussed in Alternative A. However, under this alternative wild horses would be concentrated in a smaller area within two of the HMAs. Concentrated wild horse use in these areas may remove additional forage and decrease the likelihood of a fire ignition. This reduced potential for wildfire may be somewhat offset by the removal of 6,876 permitted livestock AUMs within these HMAs. Because the checkerboard portions would no longer be included within the Great Divide Basin, Salt Wells Creek and Adobe Town HMAs, overall there would be 1,276,852 fewer acres within HMAs under this alternative. Areas excluded from wild horse grazing may be more susceptible to the ignition of wildfires, due to the presence of more fine fuels. Under this alternative, wildfires would be mitigated by following the comprehensive fire management plan for the area.

Alternative C

Removing wild horses from all HMAs and managing for zero wild horses could result in increased fuel loads that would potentially increase occurrences of wildfires. Under this alternative an estimated 24,780 AUMs that would have been consumed by wild horses would instead remain on the range, providing a potential ignition source for wildfires. This would increase the need for other fire fuel treatments and/or suppression activities and resources. However, the removal of wild horses would also improve the success of long-term fire rehabilitation treatments by reducing grazing and trampling in those areas. Under this alternative, wildfires would be mitigated by following the comprehensive fire management plan for the area.

Alternative D

Under this alternative the number of wild horses present within the planning area would be reduced by 60%, while there would be a 74% reduction in the area where wild horses would be managed. As a result some areas would have increased fuel loads that would potentially increase occurrences of wildfires.

However, these areas would experience better success of fuels treatments and post fire rehabilitation, similar to Alternative C. The Adobe Town and White Mountain HMAs would still have wild horse activities and the impacts to fire ecology and management would be similar to those described in Alternative A. Under this alternative, wildfires would be mitigated by following the comprehensive fire management plan for the area.

Cumulative Impact Analysis

The CIAA for Wildland Fire is the planning area. The primary impacts identified that could have potential cumulative effects is removal of possible ignition sources and impacts to vegetation communities within areas affected by wildland fires or vegetation treatments. Livestock have a similar impact as wild horses on these areas.

Alternative A

The entire CIAA for this resource is utilized by both wild horses and livestock. Grazing activities from both can reduce fine fuels, which can limit fire ignition and spread. However, grazing activities can also reduce the chance for successful regrowth of desirable plant communities in areas affected by wildland fires or vegetation treatments.

Alternative B

Under this alternative, wild horses would continue to occupy the White Mountain HMA and the solid block portion of the Adobe Town HMA in reduced numbers, relative to Alternative A. Wild horses would be more concentrated on the solid block portion of the Great Divide Basin and Salt Wells Creek HMAs. Livestock would also graze in this area, though at lower intensities as a result of removing some of the permitted livestock AUMs. Overall, removal of vegetation on solid block land is estimated to have a similar impact on fire potential and recovery as Alternative A. Livestock would continue to graze on the checkerboard land as well, but the reduced amount of overall grazing from removal of wild horses from these areas could lead to higher fine fuel loading, increasing the potential for fire ignition, while improving the likelihood that vegetation communities would successfully regenerate following a fire or vegetation treatment.

Alternative C

Under this alternative, all wild horses would be removed from the planning area. Livestock would continue to graze within the area; however, grazing intensity would be lower overall. This would lead to higher fine fuel loads, which could increase the potential for fire ignition. Lower grazing intensity would also promote better recovery of vegetation communities following a fire or vegetation treatment.

Alternative D

Under this alternative, wild horses would be permanently removed from approximately 2,067,820 acres. In areas where wild horses are permanently removed, potential cumulative impacts to fire potential and recovery would be the same as Alternative C. Within the Adobe Town and White Mountain HMAs potential cumulative impacts would be the same as described for Alternative A.

4.2.8 Cultural Resources

Alternative A

Grazing and trampling of vegetation by wild horses disturbs the soil, which can accelerate erosion and weathering, and as cultural resources are directly impacted by the modification, displacement, and loss of

artifacts in the soil, erosion and weathering can expose cultural resources. This can result in the loss of valuable cultural resource information such as site function, date of use, subsistence, and other research questions. Effects of trampling and grazing can be intensified when animals are concentrated near water sources where cultural resources are likely to be present. In addition, gathers may exacerbate impacts to cultural resources at gather sites as a result of increased vehicle and hoof action. However, these impacts would be reduced by locating trap sites and holding areas in places that have been inventoried for cultural resources and cleared for use.

However, the discovery of previously unknown cultural resources could occur in areas where water developments were to occur through surface disturbing activities. Allowing opportunities for the public to view wild horses that included interpretive and educational materials on the historic and archaeological evidence of the introduction of European and Asian horse breeds to the West could enhance the public's experience.

Alternative B

Impacts to cultural resources from the management of wild horses would be similar to those described under Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated in a smaller area. This could lead to slightly higher impacts than those described in alternative A. Some of these impacts may be reduced by the removal of 6,876 permitted livestock AUMs from these areas. If fences or other manmade barriers are required along the border between the HMAs and checkerboard land, construction of these barriers could impact cultural resources and National Historic Trails. This would be of particular concern if a barrier were constructed between the White Mountain and Little Colorado HMAs, as the California Trail, Oregon Trail, Mormon Pioneer Trail and Pony Express Trail all run roughly parallel along the boundary between these two HMAs.

Alternative C

The removal of wild horses from the planning area would eliminate potential impacts to cultural resources associated with wild horse activities. Some potential impacts may occur related to gather operations; however, these impacts could be reduced by locating trap sites and holding areas in places that have been inventoried for cultural resources and cleared for use. Overall, gather related impacts would be limited and temporary under this alternative.

Alternative D

The types of impacts for cultural resources from managing wild horses within the Adobe Town and White Mountain HMAs would be similar to those presented under Alternative A. Impacts in the portions of the planning area where approximately 2,067,820 acres would no longer be allocated for wild horse use would be similar to Alternative C, as wild horses would be removed.

Cumulative Impact Analysis

The CIAA for Cultural Resources is the planning area. The primary wild horse impact that could add to the effects of other activities is the potential exposure of cultural resources in areas with concentrated grazing activities. Livestock can have a similar impact to cultural resources, though often to a lesser degree as livestock use is seasonal and often actively managed, compared to wild horses use which is year-round with no active management. Surface disturbing activities can also have a potential impact on cultural resources, though this is typically mitigated by conducting an inventory of the area prior to those activities. A summary of disturbances within the planning area can be found in Table 4-2. Range

improvements could potentially impact cultural resources in a similar way as other surface disturbing activities. However, like these other activities, a cultural inventory would be conducted for any new improvements to ensure the protection of important cultural resources.

Alternative A

Under this alternative, the combination of livestock grazing and wild horse activities has the potential to impact soils and thereby expose cultural resources to a greater degree than either use alone. Other activities, such as road construction, oil and gas development and mining activities also have the potential to impact cultural resources within the CIAA. Standard stipulations related to the discovery of cultural properties help minimize the potential impacts these activities can have on cultural resources.

Alternative B

Under this alternative grazing pressure would be reduced on checkerboard land within the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs as a result of removing wild horses from these areas. This would reduce impacts to soils, and thereby reduce potential to expose and impact cultural resources. On solid block lands, wild horses would be present in higher concentrations, but permitted livestock use would be reduced. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA. Overall, potential impacts to cultural resources are expected to be the same as under Alternative A in this area.

Alternative C

Under this alternative, all wild horses would be permanently removed from the planning area. However, livestock would continue to graze throughout the CIAA. Overall, there would still be a potential impact to cultural resources as a result of livestock grazing, but overall grazing pressure would be reduced after removing all wild horses from the area. This would reduce the overall potential impact to soils and thereby reduce the overall possibility of exposing and impacting cultural resources. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

Alternative D

Under this alternative, wild horses would be permanently removed from approximately 2,067,820 acres. Livestock would continue to graze throughout the CIAA. Overall, in areas where wild horses are removed, potential cumulative impacts to cultural resources would be reduced as a result of lower grazing pressure, similar to that described under Alternative C. Within the White Mountain HMA and the portion of the Adobe Town HMA that remains under this alternative, continued grazing by wild horses and livestock would likely have the same cumulative impact as described under Alternative A. This alternative would not result in any additional long-term disturbance associated with wild horse use within the CIAA.

4.2.9 Paleontological Resources

Alternative A

Wild horses can trample paleontological resources exposed at the surface, as well as expose and damage paleontological resources in a manner similar to the discussion for Cultural Resources (Section 4.2.8). Managing wild horses within AML could indirectly provide some protections to soil health and stability by minimizing impacts to soils from hoof action in concentration areas. This would reduce potential damage to known and unknown paleontological resources. The discovery of previously unknown paleontological resources could occur in areas where water is developed. Managing wild horse

populations within AML could protect known and unknown paleontological resources by reducing the potential for direct damage or destruction by amplified erosion or direct contact of resources by horses.

Alternative B

Impacts to paleontological resources from the management of wild horses on solid block land would be similar to those described under Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs. Additionally, wild horses on the Great Divide Basin and Salt Wells Creek HMAs would be concentrated in a smaller area. This could lead to slightly higher impacts than those described in Alternative A. Some of these impacts may be reduced by the removal of 6,876 permitted livestock AUMs from these areas. If fences or other manmade barriers are required along the border between the HMAs and checkerboard land, construction of these barriers could impact paleontological resources.

Alternative C

The removal of wild horses from the planning area would eliminate potential impacts to paleontological resources associated with wild horse activity. Some potential impacts may occur related to gather operations; however, these impacts could be reduced by locating trap sites and holding areas in places that have been inventoried for paleontological resources and cleared for use. Overall, gather related impacts would be limited and temporary under this alternative.

Alternative D

The types of impacts for paleontological resources from managing wild horses within the Adobe Town and White Mountain HMAs would be similar to those presented under Alternative A. Impacts in the portions of the planning area where approximately 2,067,820 acres would no longer be allocated for wild horse use would be similar to Alternative C, as wild horses would be removed.

Cumulative Impact Analysis

The CIAA for paleontological resources is the planning area. Because potential impacts to paleontological resources is the same as those described for cultural resources, cumulative impacts under the four alternatives are identical to those described for cultural resources. See **Section 4.2.8** for a detailed analysis.

4.2.10 Livestock Grazing Management

Alternative A

Under this alternative approximately 24,780 AUMs would continue to be consumed by wild horses, and would not be available for livestock use. Wild horses and livestock can compete directly for resources, such as forage, water and space. Where wild horses utilize vegetation year-round, and livestock graze within a specified season of use, wild horses can potentially utilize forage before livestock can be turned out on the range. However, historically the BLM has allocated use to each resource to ensure that competition is limited, and a TNEB can be reached. By managing wild horses within AML and specifying the amount of use that can occur on a grazing permit the BLM balances use by wild horses and livestock, and limits opportunities for competition. There are also some differences in how wild horses and livestock typically graze. Wild horses tend to move further from water on a daily basis than cattle do. While horses and cattle have a similar diet, their anatomy and the ways they ingest and digest forage is very different. This causes a wild horse to typically consume more forage than a cow would. However, because wild horses roam farther from water, these potential impacts are typically more dispersed. Water

developments can benefit both livestock and wild horses, but lead to some competition near these sites, and can cause high levels of grazing use in these areas. Water developments help distribute animals and open more area to potential grazing use. Fences constructed to control movement of wild horses could also benefit livestock operations by allowing them more control over their livestock on the range.

Alternative B

This alternative would have a greater impact on livestock grazing than Alternative A. Under this alternative, wild horses would be concentrated in a smaller area due to the removal of checkerboard lands from the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs. These wild horses would require an additional 6,876 AUMs in the areas of the Great Divide Basin and Salt Wells Creek HMAs that they would continue to occupy under this alternative (see Appendix A for an explanation on how this AUM value was calculated). To provide this forage to wild horses, a total of 6,876 permitted livestock AUMs would be reallocated for wild horse use as follows:

- Great Divide Basin: Reduce 3,612 AUMs (10% of the permitted livestock AUMs within the HMA)
- Salt Wells Creek: Reduce 3,264 AUMs (5% of the permitted livestock AUMs within the HMA)

While this would help limit competition between livestock and wild horses, it would be detrimental to livestock operators who graze within these HMAs.

Alternative C

Under this alternative, 24,780 AUMs that had previously been consumed by wild horses would remain on the range. While the permitted number of AUMs allocated to livestock would not change, there would be benefits to livestock grazing under this alternative. Forage would be more abundant and potential competition with wild horses, especially near water sources, would be eliminated. The reduction in the overall number of animals foraging on the range would likely lead to improvements in rangeland health. More abundant forage and reduced competition would likely be demonstrated in the better body condition and health of livestock in these areas.

Alternative D

Under this alternative, 1,229 wild horses would be permanently removed from the planning area. This represents a 60% reduction in the total wild horse population within the four HMAs. The total area allocated for wild horse use would be reduced by 74%. The number of AUMs needed to sustain wild horses within the planning area would be reduced by an estimated 14,748 AUMs. The BLM would still allocate 10,032 AUMs to wild horse use in the remaining HMAs.

In areas where wild horses are removed, the benefits to livestock operations described in Alternative C would occur. Rangeland health would be expected to improve in these areas due to the reduced number of animals utilizing the range. In areas where wild horses remain, managing wild horses within AML would limit competition and allow livestock and wild horses to be managed together while promoting a TNEB.

By providing a means of adjusting AML for the Adobe Town and White Mountain HMAs based on up-to-date information about resource conditions, this alternative will allow for more timely adjustments to AML in response to changes in resource conditions. This is expected to benefit livestock grazing by ensuring the AML is appropriate to current conditions on the HMAs and wild horse use is balanced with livestock use in these areas.

While AUMs previously allocated to wild horse use under Alternatives B, C, and D could, in the future, be allocated to livestock grazing, such changes would be the subject of future analysis and decision-making after review of intensive monitoring data, as described in Chapter 2. That analysis would consider impacts to grazing operations as well as other resource uses such as recreation, and resources including soil, water, vegetation, and wildlife.

Cumulative Impact Analysis

The CIAA for livestock grazing is the planning area. The primary impact identified that could have potential cumulative effects is competition for resources (primarily water and forage). Livestock, wild horses and wildlife all compete for these resources. All of these species have the potential to utilize the entire CIAA. However, most competition occurs in areas near water, which represent a small percent of the landscape, but plays a disproportionally important role in providing habitat for wildlife, livestock and wild horses. Other activities that occur within the CIAA can also reduce the amount of available forage (see Table 4-2). This can magnify the impacts of competition for resources between wildlife, livestock and wild horses.

None of the alternatives would alter the number of wildlife present within the planning area. A discussion of impacts to livestock grazing as a result of changes in wild horse management is already described earlier in this section. Therefore, no additional cumulative impact analysis is needed for this resource.

4.2.11 Recreation

Alternative A

Management for wild horses would offer unique recreation experiences for visitors to the HMAs, allow for sightseeing by vehicle, and provide opportunities for wild horse and wildlife viewing. Management actions involving placing interpretive signage and providing interpretive sites would enhance recreational experiences related to wild horse viewing, increase public awareness and stewardship, and educate visitors about wild horse herds. Recreational experiences are highly subjective based on individual preferences. As such, some recreationists may find their experience enhanced by the presence of wild horses, while others may find their experience degraded by the presence of wild horses. Wild horses can impact wildlife habitat and fisheries (see **Section 4.2.5**), which can affect recreational experiences associated with these values. However, these impacts would be limited by maintaining wild horses within AML and managing for a TNEB.

Alternative B

Impacts to recreation from the management of wild horses would be the similar to those described under Alternative A, except there would be 445 fewer wild horses present on the Adobe Town and White Mountain HMAs and herds would no longer be found on checkerboard lands within the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs. As a result, many recreationists likely would have to travel farther to locate a wild horse herd. However, under this alternative, recreationists would have an increased likelihood of finding wild horses on the range due to the higher concentration of wild horses in a smaller area on the Great Divide Basin and Salt Wells Creek HMAs. Overall, those whose recreational experience would be enhanced by the presence of wild horses would be negatively impacted under this alternative due to the removal of wild horses from the checkerboard and the reduced AML in the Adobe Town and White Mountain HMAs. Those whose recreational experience would be degraded by the presence of wild horses would be positively impacted under this alternative in the checkerboard areas, and would be negatively impacted on the solid block portions of these HMAs.

Alternative C

Removing all wild horses from the planning area would remove recreation opportunities associated with sightseeing and viewing wild horses. The removal of wild horses from the planning area would be particularly impactful within the White Mountain HMA, as members of the public would no longer be able to view wild horses along the Wild Horse Scenic Loop Byway, which would impact visitor experience. This loop would still provide visitors with a scenic view including the high desert landscape, Pilot Butte and other wildlife, but opportunities to view wild horses in close proximity to Rock Springs and Green River would be eliminated. Recreationists could still view wild horses within the Little Colorado, Lost Creek and Antelope Hills HMAs which are in close proximity to the planning area, but they would have to drive further from larger population areas to do so. Conditions for those seeking to hunt or photograph wildlife other than wild horses, and those seeking fishing opportunities, would likely be improved under this alternative. Overall, those whose recreational experience would be enhanced by the presence of wild horses would be negatively impacted under this alternative, while those whose recreational experience would be degraded by the presence of wild horses would be positively impacted under this alternative.

Alternative D

Under this alternative, 1,229 wild horses would be permanently removed from the planning area. Recreationists would have reduced opportunities to view wild horses. In particular, wild horses would no longer be present on lands that currently make up two of the HMAs (Great Divide Basin and Salt Wells Creek), the RSFO portion of the Adobe Town HMA, or the lands removed from the RFO portion of the Adobe Town HMA (see Map 2-3). The removal of wild horses from some of the planning area would potentially improve conditions for those seeking to photograph or hunt wildlife and those seeking fishing opportunities. Overall, those whose recreational experience would be enhanced by the presence of wild horses would be negatively impacted under this alternative, while those whose recreational experience would be degraded by the presence of wild horses would be positively impacted under this alternative.

Cumulative Impact Analysis

The CIAA for recreation is the state of Wyoming. The primary impact identified with a potential cumulative impact is the lost experience to view wild horses. Within the CIAA there are a total of 16 HMAs, 4 of which are located within the planning area (see Table 4-1). Recreational experiences are highly subjective based on individual preferences. As such, some recreationists may find their experience enhanced by the presence of wild horses, while others may find their experience degraded by the presence of wild horses. Wild horses can impact wildlife habitat and fisheries (see **Section 4.2.5**), which can affect recreational experiences associated with these values. Overall, any alternative that removes wild horses from some of these areas would likely improve recreational opportunities for some individuals, while decreasing recreational opportunities for others. Livestock grazing is also present throughout most of the open rangeland within the CIAA. Livestock grazing activities can also negatively impact recreational experiences for some individuals. The activities listed in Table 4-2 represent disturbances that can negatively impact some recreational experiences as well. However, since the primary negative impact to recreational values under the action alternatives would involve wild horse viewing opportunities, the cumulative impact analysis in this section focuses on that impact.

Alternative A

This alternative represents current management. Wild horses would remain within all 16 of the HMAs within the CIAA, and the public would have opportunities to view wild horses in all of these locations.

See Table 4-1 for a summary of Wyoming's existing HMAs. Those whose recreational experiences would be enhanced by the presence of wild horses would continue to enjoy the presence of wild horses where they have historically occurred throughout the CIAA. Conversely, those whose recreational experiences are degraded by the presence of wild horses would continue to be impacted by the presence of wild horses throughout the CIAA.

Alternative B

Under this alternative, wild horses would no longer occupy checkerboard land within the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs. As described above, this would make it more difficult to view wild horses in some areas, requiring more travel time to reach many of the HMAs. Since there would be fewer wild horses in the Adobe Town and White Mountain HMAs, wild horse viewing opportunities would be reduced in these areas as well. Wild horse viewing experiences would be unchanged in the other 12 HMAs within the CIAA under this alternative. If recreationists decided to view wild horses in these areas, though, it may require more travel time to do so. Those whose recreational experiences would be enhanced by the presence of wild horses would be impacted in areas where wild horses would be removed. However, throughout the CIAA there would be ample opportunities for individuals to experience recreational opportunities in areas where wild horses are still present. For those whose recreational experiences would be degraded by the presence of wild horses, their recreational opportunities would be enhanced in areas where wild horses are removed, and degraded in areas where wild horses are more concentrated, but overall, there would be ample opportunities throughout the CIAA to enjoy recreational opportunities in areas that do not contain wild horses.

Alternative C

Under this alternative, all wild horses would be removed from the planning area. Wild horses could still be viewed at the 12 other HMAs in the CIAA, but this would likely require more travel than is needed to view the wild horses in the planning area, particularly given the relatively easy access afforded by I-80, which roughly bisects the planning area. This increased travel time might deter visitors from visiting a wild horse HMA. As discussed in **Section 4.2.1** there would be a 59% decrease in the acres available for wild horse viewing in the CIAA under this alternative, and a 55% decrease in the total number of wild horses present within the CIAA. See Table 4-1 for a summary of Wyoming's existing HMAs. Those whose recreational experiences would be enhanced by the presence of wild horses would be negatively impacted in areas where wild horses would be removed. While there would still be some areas throughout the CIAA where individuals could enjoy recreational opportunities where wild horses are present, those opportunities would be greatly reduced under this alternative. For those whose recreational experiences would be degraded by the presence of wild horses, their recreational opportunities would be enhanced in areas where wild horses are removed, and throughout the CIAA there would be greater opportunities to enjoy recreational experiences in areas that do not contain wild horses. Impacts to recreational opportunities associated with livestock grazing would be the same as described in Alternative A.

Alternative D

Under this alternative, all wild horses would be removed from the Great Divide Basin and Salt Wells Creek HMAs, as well as a portion of the Adobe Town HMA. Wild horses could still be viewed at the 14 remaining HMAs within the CIAA; however, the travel related challenges discussed under Alternative C may apply to this alternative as well. These travel related impacts would be somewhat reduced under this alternative, since the White Mountain HMA would be retained, and wild horses would still be present on the Wild Horse Scenic Loop Byway. Although the Adobe Town HMA is close to I-80, it is a long drive

from any nearby cities to reach the HMA. Other HMAs within the CIAA may be closer to population centers, but are farther from I-80, leading to a likely increase in travel time. This increased travel time might deter visitors from visiting a wild horse HMA. As discussed in **Section 4.2.1** there would be a 43% decrease in the acres available for wild horse viewing in the CIAA under this alternative, and a 33% decrease in the total number of wild horses present within the CIAA. See Table 4-1 for a summary of Wyoming's existing HMAs. Impacts to recreational opportunities associated with livestock grazing would be the same as described in Alternative A. Those whose recreational experiences would be enhanced by the presence of wild horses would be negatively impacted in areas where wild horses would be removed. While there would still be some areas throughout the CIAA where individuals could enjoy recreational opportunities where wild horses are present, those opportunities would be reduced under this alternative. For those whose recreational experiences would be degraded by the presence of wild horses, their recreational opportunities would be enhanced in areas where wild horses are removed, and throughout the CIAA, there would be greater opportunities to enjoy recreational experiences in areas that do not contain wild horses.

4.2.12 Socioeconomics

Alternative A

Management of wild horses under this alternative would continue to allow the free movement of wild horses within the four checkerboard HMAs, and maintain wild horse populations within these HMAs at an AML of 1,481 to 2,065. Though wild horse populations would continue to support the direct and indirect social and economic values associated with the existence and viewing of these herds, the removal of wild horses in excess of AML would adversely affect the values held by those who believe the gathering and removal of wild horses is inhumane. Since population growth suppression would only be utilized when necessary under this alternative, herds within the planning area would be more likely to exceed AML over time, resulting in more frequent gathers relative to the other alternatives. This would adversely affect social values held by many wild horse enthusiasts who strongly believe wild horses should remain free-roaming and not tamed or cared for in long-term holding. Managing wild horse populations in balance with the available habitat and other multiple uses would, however, lessen the deterioration of range conditions, which can adversely affect social and economic values associated with forage resources, rangeland habitats, and other recreational opportunities. At times, these other resource values may be adversely affected when herds are determined to exceed AMLs and gather plans must be developed and implemented. Tourism associated with wild horse viewing would be maintained under this alternative.

Alternative B

Since there would be 445 fewer wild horses on the range under Alternative B, this alternative would have a direct and indirect social and economic impact on individuals who derive values from the existence and viewing of wild horses, as described under Alternative A. Additionally, under this alternative, all four checkerboard HMAs would be actively managed as non-reproducing herds. Methods to achieve and maintain AML would include a variety of population growth suppression tools and removal of wild horses in excess of AML. These management actions would adversely affect the values held by some who believe any type of active management is inhumane. Relative to Alternative A, managing these HMAs as non-reproducing herds could more effectively maintain populations at AML and lessen the competition for, and deterioration of, range habitat. In doing so, this alternative would better support the economic and social values associated with other resources (such as livestock grazing), relative to Alternative A. However, the removal of 6,876 permitted livestock grazing AUMs from the HMAs would be detrimental to the affected livestock operators, and could have an impact on that portion of the local economy.

Tourism associated with wild horse viewing opportunities may be somewhat affected under this alternative as individuals would have to drive farther from a population base to view wild horses in the Great Divide Basin and Salt Wells Creek HMAs. However, there would still be wild horses present along the Wild Horse Scenic Loop Byway in the White Mountain HMA, which would continue to support tourism associated with wild horse viewing in an area in close proximity to the communities of Green River and Rock Springs.

Alternative C

Under Alternative C, the four checkerboard HMAs would be changed to HAs and BLM would no longer manage lands within the planning area for wild horses. Implementation of this alternative would result in the permanent removal of approximately 2,065 wild horses. Compared to the other alternatives, this alternative would be most detrimental to the direct and indirect social and economic values associated with wild horses. Since wild horses would no longer exist in the planning area, recreational opportunities to view wild horses in the area would be eliminated. This could reduce some tourism to the area and result in a small negative economic impact on that portion of the regional economy as some visitors choose to spend their money in other areas that still support wild horse viewing opportunities. Specifically, under this alternative, the Wild Horse Scenic Loop Byway would no longer allow opportunities to view wild horses in this area. However, the loop will still remain a designated scenic byway, providing visitors with opportunities to view scenic landscapes and wildlife. Compared to the other alternatives, this alternative would best support the economic and social values associated with other resources since competition for range habitat, and risk of deterioration from the exceedance of AML, would be eliminated.

Alternative D

Implementation of Alternative D would result in fewer HMAs and a reduction in AML across the checkerboard HMAs, relative to Alternatives A and B. Under this Alternative, a total of 1,229 fewer wild horses would be present within the planning area (at high AML), compared to Alternative A. Although wild horses that remain on the range would continue to support the direct and indirect social and economic values derived by individuals from the existence and viewing of wild horses, this alternative would provide less support for these values than Alternatives A and B because a greater number of wild horses would be removed to achieve AML, and opportunities to view wild horses would be more limited because two of these HMAs would be managed as HAs with zero wild horses. Methods to achieve and maintain fewer wild horses on the range would include the gathering and removal of wild horses in excess of AML, and the use of population growth suppression to help manage AML on the remaining HMAs. These management actions would adversely affect the values held by some individuals who believe any type of active management is inhumane. While the adverse impact on these values would be less than under Alternative C, it would be greater than Alternatives A and B since a greater number of wild horses would be removed from the area. Since wild horses would no longer exist on two of the HMAs within the planning area, recreational opportunities to view wild horses in the area would be reduced. This could reduce some tourism to the area and result in a small negative economic impact on that portion of the regional economy as some visitors choose to spend their money in other areas that support more wild horse viewing opportunities. Management of wild horses under this scenario would reduce competition for, and deterioration of, range habitat relative to Alternatives A and B. As a result, this alternative would support the economic and social values associated with other resources better than Alternatives A and B, but less than Alternative C.

Cumulative Impact Analysis

The CIAA for Socioeconomic resources is the state of Wyoming. The primary impact related to wild horses with the potential for cumulative effects is the permanent removal of wild horses from multiple HMAs.

Alternative A

Within the CIAA there are a total of 16 HMAs, 4 of which are located within the planning area (see Table 4-1). However, the HMAs within the planning area represent a large portion of HMAs within the CIAA when considering total wild horse population and acres. HMAs within the planning area currently make up 59% of all HMAs within the CIAA by acres, and 55% by population (at high AML).

Alternative B

Under this alternative, there would be a 27% decrease in the acres available for wild horses within the CIAA. AML would be reduced by 445 wild horses within the CIAA. Overall, the HMAs within the planning area would constitute 44% of all Wyoming HMAs by acres, and 43% of all Wyoming HMAs by high AML. The difference in cumulative effects under this alternative would be primarily related to the relocation of wild horses, as this alternative would continue to support many of the other wild horse related values throughout the CIAA.

This alternative would also have a socioeconomic impact on livestock operators who lose some of their permitted AUMs to make room for wild horses. The livestock industry is an important part of Wyoming's economy and social identity. The loss of 6,876 AUMs would represent less than 1% of Wyoming's agricultural industry; however, this type of change in permitted use is uncommon in Wyoming, and may be perceived as a larger impact to the social values many in the state hold.

Alternative C

Under this alternative, all of the HMAs within the planning area would revert to HAs, managed for zero wild horses. This represents a 59% decrease in the acres available for wild horses within the CIAA and a 55% decrease in the total number of wild horses (at high AML) within the CIAA. The impacts described earlier in this section would have a disproportionate cumulative impact within the CIAA relative to the number of HMAs involved. This alternative would have the greatest negative effect to those who value the presence of wild horses within the CIAA, while it would have the greatest positive effect to those who primarily value other resources that potentially conflict with wild horse use (such as livestock operations).

Alternative D

Under this alternative, wild horses would be permanently removed from approximately 2,067,820 acres. This represents a 43% decrease in the acres available for wild horses within the CIAA and a 33% decrease in the number of wild horses (at high AML) within the CIAA. This alternative would likely have a similar cumulative impact to Alternative C, except for the Adobe Town and White Mountain HMAs. It is likely that those who value wild horses on the range would see an effect on their values throughout the CIAA, due to the impact associated with the areas where wild horses would no longer be present. Conversely, those whose interests conflict with the presence of wild horses would likely see a benefit to their values throughout the CIAA as a result of this alternative.

4.3 Irreversible and Irretrievable Commitments of Resources

The NEPA requires a discussion of any irreversible or irretrievable commitments of resources associated with implementation of a proposal. An irreversible commitment of a resource is one that cannot be reversed (e.g., the disturbance to a protected cultural resource). An irretrievable commitment of a resource is one in which the resource or use is lost for a period of time (e.g. extraction of a fluid mineral). An irreversible and irretrievable commitment of resources is possible under both Alternatives C and D. Under these alternatives the BLM would permanently remove all wild horses from multiple HMAs within the planning area. These herds would cease to exist on the range, and their genetic contributions to the wild horse populations in this area would be lost. The public would not have the opportunity to view wild horses within any HMA that reverts to HA status and is managed for zero wild horses.

4.4 Unavoidable Adverse Impacts

The NEPA requires disclosure of any adverse environmental effects that cannot be avoided should the RMP Amendment be implemented. Unavoidable adverse impacts are those that remain following the implementation of mitigation measures or impacts for which there are no mitigation measures. Some unavoidable adverse impacts could occur as a result of implementing this RMP Amendment. The public would have less opportunity to view wild horses in the planning area if Alternatives C or D were implemented as compared to Alternatives A and B.

4.5 Relationship Between Local Short-Term Uses and Long-Term Productivity

The NEPA §102(C) requires discussion of the relationship between local, short-term uses of the human environment and the maintenance and enhancement of long-term productivity of resources. All of the alternatives would allow for the long-term productivity of rangeland resources. By managing wild horses at AML in combination with other permitted uses, the BLM would ensure a TNEB in Alternatives A, B, and D. Managing for a TNEB ensures the long-term productivity of the resources that may be impacted by management of wild horses. Under Alternative C, all wild horses would be permanently removed from the planning area.

Chapter 5 - Consultation and Coordination

The BLM's decision-making process for this planning effort follows the requirements of the NEPA, CEQ regulations implementing NEPA, and DOI and BLM regulations and policies implementing NEPA. NEPA and its implementing regulations require that federal agencies involve the interested public in their decision-making processes. Public involvement, consultation, and coordination have occurred through scoping for the Rock Springs RMP revision (ongoing), as well as public meetings, informal meetings, individual contacts, news releases, and *Federal Register* notices.

A Notice of Intent (NOI) for the Rock Springs RMP revision was published in the *Federal Register* on February 2, 2011 to formally announce that the Rock Springs Field Office was revising the existing Green River RMP and preparing an associated EIS. The notice invited the affected and interested agencies, organizations, and members of the public to participate in determining significant issues to be addressed in the planning alternatives and analyzed in this EIS. An additional NOI, published in the *Federal Register* on August 16, 2013, announced the start of the scoping period for the management of wild horses as a result of the settlement with Rock Springs Grazing Association, outlined in the Consent Decree. A NOA published in the *Federal Register* on January 31, 2020, announced the availability of the Draft EIS / RMP Amendment, and initiated a 90 day public comment period. This chapter describes the public involvement process as well as other key consultation and coordination activities undertaken for the preparation of the Final RMPA and EIS.

Date	Location	Type
February 23, 2011	Rock Springs, Wyoming	Cooperating agency training and workshop
February 28, 2011	Lander, Wyoming	Public scoping meeting
March 1, 2011	Rock Springs, Wyoming	Public scoping meeting
March 2, 2011	Farson, Wyoming	Public scoping meeting
March 3, 2011	Lyman, Wyoming	Public scoping meeting
September 14-16, 2011	Rock Springs, Wyoming	Cooperating agency meeting/Goals and Objectives workshop
November 2-4, 2011	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
January 9, 2012	Rock Springs, Wyoming	Public socioeconomic strategies workshop
January 9-13, 2012	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
February 21-23, 2012	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
March 20-23, 2012	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
April 16-19, 2012	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
November 13, 2012	Rock Springs, Wyoming	CTTMP cooperating agency meeting
November 13, 2012	Rock Springs, Wyoming	CTTMP public outreach meeting
November 14, 2012	Lyman, Wyoming	CTTMP public outreach meeting
November 15, 2012	Farson, Wyoming	CTTMP public outreach meeting
December 19-21, 2012	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
September 11, 2013	Rock Springs, Wyoming	Consent decree public outreach meeting
September 12, 2013	Rawlins, Wyoming	Consent decree public outreach meeting
August 24, 2016	Rock Springs, Wyoming	Public information meeting
October 18-20, 2016	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
November 8-10, 2016	Rock Springs, Wyoming	Cooperating agency meeting/Alternative development
April 19, 2017	Rock Springs, Wyoming	Cooperating agency meeting/Preliminary preferred alternative review
March 28, 2018	Rock Springs, Wyoming	Cooperating agency meeting/Review of comments on preliminary draft RMP/EIS
April 29 – May 10, 2019	Email invitation to comment	Cooperating agency review of a preliminary Draft EIS.
November 10, 2020	Virtual	Cooperating Agency Meeting Regarding the Final EIS.

5.1 Consultation and Coordination

This section documents the consultation and coordination efforts undertaken by the BLM while developing this RMPA and EIS. Because of jurisdictional responsibilities, the BLM is required to consult with certain entities during the NEPA and land use planning processes. These entities include other federal agencies, Native American tribes, and state and local governments. Consultation and coordination with these entities, as appropriate, in the development of this RMPA and EIS was accomplished through frequent communications, meetings, and cooperative efforts between the BLM's interdisciplinary team and other federal, state, and local agencies and organizations. These cooperating agencies are listed below. The U.S. Fish and Wildlife Service (USFWS) has been involved in the development of the alternatives as a cooperating agency and has been contacted for ESA Section 7 consultation.

5.1.1 Cooperating Agencies

The BLM extended cooperating agency status to government entities and agencies throughout the planning area:

- City of Rock Springs
- Coalition of Local Governments
- Eastern Shoshone Tribe of the Wind River Reservation
- Fremont County
- The Governor's Office
- Lincoln County
- Lincoln County Conservation District
- Northern Arapaho Tribe
- Shoshone-Bannock Tribes of the Fort Hall Reservation
- Sublette County
- Sublette County Conservation District
- Sweetwater County
- Sweetwater County Conservation District
- Uinta County
- Uinta County Conservation District
- The Ute Tribe of the Uintah and Ouray Reservation
- U.S. Bureau of Reclamation
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S. Department of Agriculture: Animal and Plant Health Inspection Service
- U.S. National Park Service
- Wyoming County Commissioners Association
- Wyoming Department of Agriculture
- Wyoming Department of Environmental Quality
- Wyoming Game and Fish Department
- Wyoming Geological Survey
- Wyoming Office of State Lands and Investments
- Wyoming State Historic Preservation Office.

5.1.2 Coordination and Consistency

Frequent communications and cooperative efforts between the BLM and federal, state, and local agencies allowed for coordination with these agencies and consistency with other agency, local, and state government plans, where consistent with federal public land laws and policies. The interdisciplinary team reviewed county land use plans to ensure consistency. BLM held meetings with the respective county

planners and commissioners to promote greater understanding of goals, objectives, and resources of the counties and the BLM.

5.1.3 Native American Interests

The BLM consulted with the following Native American tribes as part of the broader RSFO RMP revision process, which included the wild horse issues identified in this document: Eastern Shoshone, Northern Arapaho, Shoshone Bannock and the Ute Tribe of the Uintah and Ouray Reservation. These four tribes were invited to consult as part of this RMP Amendment effort. Tribes are interested in a wide variety of resources such as animals, plants, water, archeological resources, cultural resources and areas of spiritual significance, which are found throughout the planning area. The BLM has consulted with tribes throughout this RMP Amendment process. The tribes retain the right to consult with BLM at any point in this process.

5.2 Public Participation

5.2.1 Scoping Period

The public was provided a scoping period to identify potential issues and concerns associated with the RMP and EIS. Information obtained by the BLM during public scoping was integrated with issues identified by the agencies to form the scope of the EIS. See **Section 1.3** for more details related to public scoping.

5.2.2 Public Comment Period

The public was invited to comment on the Draft RMPA and EIS during a 90-day public comment period that started on January 31, 2020. This final EIS was prepared following the public comment period and responds to all substantive comments received on the DEIS.

5.2.3 Public Review of Final EIS and Proposed RMP Amendment

The BLM's issuance of the Final EIS and Proposed RMP Amendment will initiate a 30-day protest period. After review and consideration of protests, BLM will issue the Record of Decision and Approved RMPA. The Wyoming Governor will be provided an opportunity to review the Proposed RMPA for consistency with state and local land use plans before BLM issues a Record of Decision for this RMP Amendment.

5.3 List of Preparers

40 C.F.R. § 1502.17 requires the BLM to provide a list of the people primarily responsible for the development of this EIS.

Name	Education	Project Role
Kimberlee Foster	BS, Biochemistry	Rock Springs Field Office Manager, Planner
Spencer Allred	BS, Rangeland Management	Project Lead; Livestock Grazing
Jay D'Ewart	BS, Rangeland Management and Wildlife Resources	Wild Horses
Dennis Doncaster	BA, Physical Science MS, Natural Resources	Water Quality—Surface and Groundwater
Jennifer Fleuret	BS, Natural Resource Management MS, Forest Engineering and Hydrology	Planning and Environmental Coordinator

Georgia (Jo) Foster	BS, Applied Environmental Science BS, Anthropology	Recreation, Visual Resource Management, Special Designations, Travel Management
Jim Glennon	BS, Biology MS, Botany	Vegetation, Threatened and Endangered Plants
Gavin Lovell	BS, Range/Wildlife	Assistant Field Office Manager, Resources
Jenn Dobb	MS, Agricultural and Resource Economics	Social and Economics
Joanna Nara-Kloepper	BS, Mining Engineering	Assistant Field Office Manager, Minerals and Lands
Brian Roberts	BS, Natural Resources MS, Soils	Soil Resources
Gene Smith	BA, Anthropology	Paleontology
Mark Snyder	BS, Wildlife Resources	Wildlife and Fisheries, Special Status Species
Scott Stadler	BA and MA, Anthropology	Cultural Resources

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LIST OF ACRONYMS

AML	Appropriate Management Level
AO	Authorized Officer
ARPA	Archaeological Resources Protection Act
AUM	Animal Unit Months
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
BOR	Bureau of Reclamation
CAP	Coordinated Activity Plan
CEQ	Council on Environmental Quality
CIAA	Cumulative Impact Analysis Area
CFR	Code of Federal Regulation
CWR	Crucial Winter Range
DEIS	Draft Environmental Impact Statement
DOI	Department of the Interior
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act of 1976
FR	Federal Register
PFYC	Potential Fossil Yield Classification
GIS	Geographic Information System
GnRH	Gonadotropin Releasing Hormone
GRSG	Greater Sage-Grouse
HMA	Herd Management Area
HMAP	Herd Management Area Plans
HMP	Habitat Management Plan
IDT	Interdisciplinary Team
IM	Instruction Memorandum
JMH	Jack Morrow Hills

LUP	Land Use Plan
MA	Management Area
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NAS	National Academies of Science
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOI	Notice of Intent
NRHP	National Register of Historic Places
NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NWR	National Wildlife Refuge
OHV	Off Highway Vehicle
PFYC	Potential Fossil Yield Classification
PHMA	Priority Habitat Management Area
PRPA	Paleontological Resources Preservation Act
PSD	Prevention of Significant Deterioration
PZP	Porcine Zona Pellucida
RAATS	Reduced Agent-Area Treatments
RDF	Required Design Feature
RFO	Rawlins Field Office
RMP	Resource Management Plan
ROD	Record of Decision
RSFO	Rock Springs Field Office
RSGA	Rock Springs Grazing Association
SHPO	State Historic Preservation Office
T&C	Terms and Conditions
T&E	Threatened and Endangered
TCP	Traditional Cultural Property
TES	Threatened and Endangered Species
TNEB	Thriving Natural Ecological Balance

USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WARMS	Wyoming Air Resources Monitoring System
WDEQ	Wyoming Department of Environmental Quality
WDEQ-AQD	Wyoming Department of Environmental Quality-Air Quality Division
WFRHBA	Wild Free-Roaming Horses and Burros Act of 1971
WGFD	Wyoming Game and Fish Department
WGO	Wyoming Governor's Office
WGSGCP	Wyoming Greater Sage-Grouse Conservation Plan
WHT	Wild Horse Territories
WHTP	Wild Horse Territory Plans
WSA	Wilderness Study Area
WYDOT	Wyoming Department of Transportation
WYNDD	Wyoming Natural Diversity Database

GLOSSARY

Allotment: An area of land designated and managed for livestock grazing. Allotments generally consist of BLM-administered lands but may include other federally managed, state-owned, and private lands. An allotment may include one or more separate pastures. Livestock numbers and periods of use are specified for each allotment.

Amendment: The process for considering or making changes in the terms, conditions, and decisions of approved RMPs or Management Framework Plans using the prescribed provisions for resource management planning appropriate to the proposed action or circumstances. Usually only one or two issues are considered that involve only a portion of the planning area.

Animal Unit: Considered to be one mature cow of about 1,000 pounds (450 kg), either dry or with calf up to 6 months of age, or their equivalent, consuming about 26 pounds of forage/day on an oven dry basis.

Animal Unit Month (AUM): The amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month (43 CFR 4100.0-5). For the purpose of calculating grazing fees, an animal unit month is defined as a month's use and occupancy of range by one cow, bull, steer, heifer, horse, burro, mule, 5 sheep or 5 goats over the age of 6 months (43 CFR 4130.8-1(c)).

Appropriate Management Level: The number of adult horses or burros (expressed as a range with an upper and lower limit) to be managed within an HMA. Forage for WH&B (AUMs) is allocated based on the AML upper limit.

Authorized Officer: Any employee of the BLM to whom authority has been delegated to perform the duties described.

Best Management Practices (BMPs): A suite of techniques that guide or may be applied to management actions to aide in achieving desired outcomes. BMPs are often developed in conjunction with land use plans, but they are not considered a planning decision unless the plans and authorizations specify that they are mandatory. BMPs may be updated or modified without a plan amendment (BLM Manual Handbook H-1601-1).

Big Game: Large species of wildlife that are hunted, such as elk, deer, bighorn sheep, moose, and pronghorn.

Checkerboard: This term refers to a land ownership pattern of alternating sections of federal-owned lands with private or state-owned lands for 20 miles on either side of a land grant railroad (e.g. Union Pacific, Northern Pacific, etc.). On land status maps this alternating ownership is either delineated by color coding or alphabetic code resulting in a "checkerboard" visual pattern (see diagram below for a visual explanation of this land ownership pattern).

BLM	Private	BLM
Private	BLM	Private
BLM	State	BLM

Checkerboard HMAs: The Herd Management Areas (HMAs) that contain some checkerboard land. These include the Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain HMAs.

Code of Federal Regulations (CFR): The official, legal tabulation of regulations directing Federal Government activities.

Collaboration: Working together, sometimes with individuals or groups of opposing points a view, to reach a common agreement.

Conformance: That a proposed action shall be specifically provided for in the land use plan or, if not specifically mentioned, shall be clearly consistent with the goals, objectives, or standards of the approved land use plan.

Consent Decree: An agreement or settlement that resolves a dispute between two parties without admission liability or guilt. In this document “Consent Decree” refers to an April 2013 settlement agreement between the RSGA and the BLM. The purpose of this consent decree was to settle a dispute related to wild horse use of private land within the checkerboard.

Consistency: The requirement that a proposed land use plan be consistent with officially approved plans, programs, and policies of Native American tribes, other federal agencies, and state, and local governments consistent with the purposes, policies, and programs of Federal laws and regulations applicable to the public lands.

Council on Environmental Quality (CEQ): An advisory council to the President of the United States established by the National Environmental Policy Act of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Cultural Resource / Cultural Property: A definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit described in [the 8100] Manual series. They may be but are not necessarily eligible for the National Register.

Cultural Resource Inventory: A descriptive listing and documentation, including photographs and maps, of cultural resources. Processes involved are locating, identifying, and recording of sites, structures, buildings, objects, and districts through library and archival research; collecting information from persons knowledgeable about cultural resources; and conducting on-the-ground field surveys of varying levels of intensity. (See also Cultural Resource Inventory Classes.)

Cultural Resource Inventory Classes:

A class I inventory is a professionally prepared study that includes a compilation and analysis of all reasonably available cultural resource data and literature, and a management-focused, interpretive, narrative overview, and synthesis of the data. The overview also defines regional research questions and treatment options

A class II probabilistic field survey is a statistically based sample survey, designed to aid in characterizing the probable density, diversity, and distribution of cultural properties in an area, to develop and test predictive models, and to answer certain kinds of research questions. Within individual sample units, survey aims, methods, and intensity are the same as those applied in class III survey.

Class III intensive survey describes the distribution of properties in an area; determines the number, location and condition of properties; determines the types of properties actually present within the area; permits classification of individual properties; and records the physical extent of specific properties.

Cumulative Impact (Effect): The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Direct Impacts (Effects): Direct impacts are caused by the action and occur at the same time and place.

Disturbance: A discrete event, either natural or human induced, that causes a change in the existing condition of an ecological system.

Endangered Species: Any plant or animal species that is in danger of extinction throughout all or a significant portion of its range, as defined by the U.S. Fish and Wildlife Service under the authority of the Endangered Species Act of 1973.

Environmental Assessment (EA): Concise, analytical documents, authorized by the National Environmental Policy Act (NEPA) of 1969, that are prepared with public participation to determine whether an Environmental Impact Statement (EIS) is needed for a particular project or action. If an EA determines an EIS is not needed, the EA documents compliance with NEPA requirements.

Environmental Impact Statement (EIS): A document required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment." An EIS is a tool for decision making. It describes the positive and negative environmental effects of a proposed action, and it usually also lists one or more alternative actions that may be chosen instead of the proposed action.

Ephemeral Channels/Streams: A defined channel formed in response to ephemeral surface flow conditions. Defined channels typically can be identified by an abrupt bank along a water flow path with evidence of scouring, sorting, and/or vegetation removal during flood events. These channels generally form in concave erosional features such as gullies, ravines, swales, etc. These channels are above the water table at all times, and lose water to the groundwater system.

Ephemeral Surface Waters: Streams, lakes, or other surface water bodies that have open water *only* during or immediately after periods of rainfall or snowmelt. These water bodies are above the water table at all times, and lose water to the groundwater system.

Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents.

Federal Lands: As used in this document, lands owned by the United States, without reference to how the lands were acquired or what federal agency administers the lands. The term includes mineral estates or coal estates underlying private surface but excludes lands held by the United States in trust for Indians, Aleuts, or Eskimos. (See also Public Land.)

Federal Land Policy and Management Act of 1976 (FLPMA) as amended: Public Law 94-579.

October 21, 1976, often referred to as the BLM's "Organic Act," which provides the majority of the BLM's legislated authority, direction, policy, and basic management guidance.

Federal Register (FR): A daily publication that reports Presidential and federal agency activities.

Forage: All browse and herbaceous foods available to grazing animals that may be grazed or harvested for feeding.

Fossil: The physical remains or traces of plants and animals preserved in soils and sedimentary rock formations.

General Habitat Management Areas: Occupied (seasonal or year-round) habitat outside of priority habitat. These areas have been identified by the BLM in coordination with respective state wildlife agencies.

Genetic Diversity: The variation in genetic information available among a population, such as a wild horse herd. For purposes of this document adequate genetic diversity means adequate levels of genetic heterozygosity.

Goal: A broad statement of a desired outcome. Goals are usually not quantifiable and may not have established time frames for achievement.

Habitat: An environment that meets a specific set of physical, biological, temporal, or spatial characteristics that satisfy the requirements of a plant or animal species or group of species for part or all of their life cycle. In wildlife management, the major components of habitat are food, water, cover and the adequate juxtaposition of the three.

Herd Area: The geographic area identified as having been used by a herd of wild horses or burros as its habitat in 1971.

Herd Management Area (HMA): Areas established by the Authorized Officer for the maintenance of wild horse and burro herds. Herd management areas are established in consideration of the appropriate management level for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained in 43 CFR 4710.4.

Impacts (or Effects): Consequences (the scientific and analytical basis for comparison of alternatives) as a result of a proposed action. Effects may be either direct, which are caused by the action and occur at the same time and place, or indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, or cumulative.

Implementation Plan: A site-specific plan written to implement decisions made in a land use plan. An implementation plan usually selects and applies best management practices to meet land use plan objectives. Implementation plans are synonymous with "activity" plans. Examples of implementation plans include interdisciplinary management plans, habitat management plans, and allotment management plans.

Indirect Impacts (Effects): Indirect impacts are caused by the action and occur later in time or further removed in distance.

Interdisciplinary Team: A group of individuals with different training, representing the physical sciences, social sciences, and environmental design arts, assembled to solve a problem or perform a task. The members of the team proceed to a solution with frequent interaction so that each discipline may provide insights on any stage of the problem, and disciplines may combine to provide new solutions. The number and disciplines of the members preparing the plan vary with circumstances. A member may represent one or more discipline or program interest.

Intermittent Surface Waters: Streams, lakes, or other surface water bodies that generally flow or contain during a portion of the year when they receive water from springs or during runoff from rain or snow. In the case of streams, this term can also refer to spatially noncontinuous flow because of groundwater interaction (i.e., portions of the stream are generally dry and portions are generally wet in most years).

Irreversible and Irretrievable Commitment of Resources: An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time. An irreversible commitment of a resource is one that cannot be reversed. NEPA §102(2)C requires a discussion of any irreversible or irretrievable commitments of resources that would be involved in a proposal should it be implemented.

Land Health Standard: A description of the physical and biological conditions or degree of function required for healthy, sustainable lands (e.g., land health standards).

Land Use Plan: A set of decisions that establish management direction for land within an administrative area, as prescribed under the planning provisions of FLPMA; an assimilation of land-use-plan-level decisions developed through the planning process, regardless of the scale at which the decisions were developed.

Management Decision: A decision made by the BLM about how to manage public lands. Management decisions include both land use plan decisions and implementation decisions.

Monitoring: The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives. This process must be conducted over time in order to determine whether or not management objectives are being met. Monitoring also includes observations to evaluate baseline (i.e., pre-activity) conditions, evaluation of whether activities met desired goals and permit requirements (implementation monitoring), and evaluation of how well mitigation measures protected resource conditions (effectiveness monitoring).

Multiple Use: Management of the public lands and their various resource values so that they are used in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output, as provided in the Multiple Use Sustained Yield Act and FLPMA.

National Environmental Policy Act of 1969 (NEPA): The National Environmental Policy Act (NEPA) [42 U.S.C. 4321 et seq.] was signed into law on January 1, 1970. The Act establishes national

environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. The Act also establishes the Council on Environmental Quality (CEQ).

National Historic Preservation Act (NHPA): The National Historic Preservation Act (Public law 113-287; 54 U.S.C. 300101 et seq.) is legislation intended to preserve historical and archaeological sites in the United States of America. The act created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices.

Non-reproducing Herd: A wild horse herd composed of sterilized wild horses (either stallions or mares) to aid in controlling on the range population numbers. Such herds are maintained by periodically introducing sterilized wild horses from other HMAs to compensate for mortality.

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

Paleontological Resources (Fossils): Any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest, and that provide information about the history of life on earth. The term does not include: (1) Any materials associated with an archaeological resource (as defined in section 3(1) of the Archaeological Resources Protection Act of 1979 (16 U.S.C. 480bb(1)); or (2) Any cultural item (as defined in section 2 of the Native American Graves Protection and Repatriation Act [25 U.S.C. 3001]).

Partners: An association of individuals or groups with like interests due to the scope or location of a project on federal lands or in regard to a federal permitting process.

Perennial Surface Waters: Streams, lakes, or other surface water bodies that flow or contain water year-round in most years. These water bodies are primarily fed by groundwater during the low-flow season. These systems would generally *only* dry up during drought conditions. In the case of streams, this term can refer to the persistence of surface waters along a channel (i.e., few reaches where the infiltration into the stream aquifer exceeds the flow).

Permittee: A person or company authorized to use or occupy BLM-administered land.

Plan: A document that contains a set of comprehensive, long-range decisions concerning the use and management of BLM-administered resources in a specific geographic area.

Planning Area: A geographical area for which land use and resource management plans are developed and maintained.

Planning Criteria: The standards, rules, and other factors developed by managers and interdisciplinary teams for their use in forming judgments about decision making, analysis, and data collection during planning. Planning criteria streamline and simplify the resource management planning actions.

Planning Base: Law, regulation, policy, land use plan decisions (e.g., RMPs, Resource Management Plan Amendments, and Management Framework Plan Amendments), NEPA documents (e.g., EISs Administrative Determinations, EAs, and Categorical Exclusion Reviews), and supporting data (e.g., automated databases, research, and evaluations).

Policy: This is a statement of guiding principles, or procedures, designed and intended to influence planning decisions, operating actions, or other affairs of the BLM. Policies are established interpretations of legislation, executive orders, regulations, or other presidential, secretarial, or management directives.

Population: A group of organisms, all the same species, which occupies a particular area. The term is used to refer to the number of individuals of a species within an ecosystem or of any group of like individuals.

Priority Habitat Management Area: Sage-grouse priority habitats are areas that have the highest conservation value to maintaining or increasing Sage-grouse populations. These areas would include breeding, late brood-rearing, winter concentration areas, and where known, migration or connectivity corridors. Sage-grouse Priority Habitat Management Area includes core plus connectivity habitat.

Proposed Species: Species that have been officially proposed for listing as threatened or endangered by the Secretary of the Interior as determined by the US Fish and Wildlife Service. A proposed rule has been published in the *Federal Register*.

Public Lands: As used in this document, federally owned surface or mineral estate specifically administered by the BLM.

Range Improvement: The term range improvement means any activity, structure or program on or relating to rangelands which is designed to improve production of forage, change vegetative composition, control patterns of use, provide water, stabilize soil and water conditions, and provide habitat for livestock and wildlife. The term includes, but is not limited to, structures, treatment projects, and use of mechanical means to accomplish the desired results.

Reclamation: The suite of actions taken within an area affected by human disturbance, the outcome of which is intended to change the condition of the disturbed area to meet pre-determined objectives and/or make it acceptable for certain defined resources (e.g., wildlife habitat, grazing, ecosystem function, etc.).

Residual Impacts: Impacts from an authorized land use or implementation-level decision that remain after applying avoidance and minimization mitigation; also referred to as unavoidable impacts.

Resource Damage: Damage to any natural or cultural resources that results in impacts such as erosion, water pollution, degradation of vegetation, loss of archeological resources, or the spread of weeds.

Resource Management Plan (RMP): A land use plan as prescribed by the Federal Land Policy and Management Act that establishes, for a given area of land, land-use allocations, coordination guidelines for multiple-use, objectives, and actions to be achieved.

Right-of-Way Corridor: A parcel of land (often linear in character) that has been identified through the land use planning process as being a preferred location for existing and future utility rights-of-way and that is suitable to accommodate one or more rights-of-way that are similar, identical, or compatible. Corridors may accommodate multiple pipelines (such as for oil and gas), electricity transmission **lines**, and related infrastructure, such as access and maintenance roads, compressors, pumping stations, and other structures.

Riparian: Referring to or relating to areas adjacent to water or influenced by free water associated with streams or rivers on geologic surfaces occupying the lowest position in the watershed. (See also Wetlands.)

Riparian Area: A form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas (See BLM Manual 1737). Included are ephemeral streams that have vegetation dependent upon free water in the soil. All other ephemeral streams are excluded.

Riparian Communities: Communities of vegetation associated with either open water or wetlands. Examples are cottonwood and willow communities, meadows, aspens near water sources, and other trees, grasses, forbs, and shrubs associated with water.

Road: A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use (H-8342-1, Travel and Transportation Management Handbook).

Rock Springs Grazing Association (RSGA): A private organization that owns and/or leases a large amount of private land within the checkerboard.

Runoff: The total stream discharge of water, including both surface and subsurface flow, usually expressed in acre-feet of water yield.

Scoping: The process of identifying the range of issues, management concerns, preliminary alternatives, and other components of an environmental impact statement or land-use planning document. It involves both internal and public viewpoints.

Sensitive Species: Those species designated by a State Director, usually in cooperation with the State agency responsible for managing the species and state natural heritage programs. They are those species that: (1) could easily become endangered or extinct in a state; (2) are under status review by the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service; (3) are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution; (4) are undergoing significant current or predicted downward trends in population or density such that federal listing, proposal, or candidate status may become necessary; (5) typically have small and widely dispersed populations, or (6) inhabit ecological refugia or other specialized or unique habitats.

Shrub: A plant that has persistent woody stems and a relatively low growth habit, and that generally produces several basal shoots instead of a single bole.

Solid-block: Areas where BLM managed lands are more concentrated in larger blocks of land. This is in contrast to checkerboard lands where land ownership alternates every square mile (see Checkerboard in Glossary). See the diagram below for a visual explanation of this land ownership pattern, as compared with checkerboard.

SOLID-BLOCK											
C	H	E	C	K	E	R	B	O	A	R	D

Special Status Species: Proposed species, listed species, and candidate species under the Endangered Species Act; state-listed species; and BLM State Director-designated sensitive species (see BLM Manual 6840—Special Status Species Policy).

Stakeholders: Individuals or groups who are involved in or affected by a course of action that is being proposed in a project plan affecting federal lands or a federal permitting process.

State Listed Species: Species proposed for listing or listed by a state in a category implying but not limited to potential endangerment or extinction. Listing is either by legislation or regulation.

Surface Disturbance: Any disturbance that causes the destruction or alteration of vegetation and the disturbance of the soil surface, and that will cause a lasting impact to the affected area.

1. Long-term removal occurs when vegetation is physically removed through activities that replace the vegetation community, such as a road, power line, well pad or active mine. Long-term removal may also result from any activities that cause soil mixing, soil removal, and exposure of the soil to erosive processes.
2. Short-term removal occurs when vegetation is removed in small areas, but is restored to desirable vegetation communities within a few years (<5) of disturbance, such as a successfully reclaimed pipeline, or successfully reclaimed drill hole or pit.
3. Habitat rendered unusable due to numerous anthropogenic disturbances.
4. Anthropogenic surface disturbances are surface disturbances meeting the above definitions which result from human activities.

Surface Disturbing Activity: An action that alters vegetation, surface/near surface soil resources, and/or surface geologic features, beyond natural site conditions and on a scale that affects other Public Land values. Examples of surface disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits and reservoirs; installation of pipelines and power lines; and conducting several types of vegetation treatments (e.g. prescribed fire, etc.). Surface disturbing activities may be either authorized or prohibited (WY-IB-2007-029).

Threatened Species: Any plant or animal species defined under the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range; listings are published in the *Federal Register* as determined by the US Fish and Wildlife Service and the Secretary of Interior.

Watershed: The area of land, bounded by a divide, that drains water, sediment, and dissolved materials to a common outlet at some point along a stream channel (Dunne and Leopold, 1978), or to a lake, reservoir, or other body of water. Also called drainage basin or catchment.

Wetlands: Those areas that are inundated by surface water or groundwater with a frequency sufficient to support, and under normal circumstances do or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds.

Appendix A

Wild Horse AML Analysis by HMA and Alternative

Introduction

The Bureau of Land Management (BLM) Rock Springs Field Office (RSFO) and Rawlins Field Office (RFO) are amending their Resource Management Plans (RMPs) to address challenges associated with managing wild horses on checkerboard land (see EIS **Section 1.1** for more information). As part of that process, the BLM is evaluating the Appropriate Management Level (AML) of each wild horse Herd Management Area (HMA). The purpose of this document is to analyze the proposed AML for each HMA under each alternative. Under Alternative C all HMAs would revert to HA status and be managed at an AML of zero, so no detailed analysis will be included for Alternative C in this appendix.

AML establishes the number of wild horses to be managed within an HMA. AML is expressed as a population range with an upper and lower limit. The AML upper limit is the number of wild horses which results in a Thriving Natural Ecological Balance (TNEB) and avoids a deterioration of the range. The AML lower limit is normally set at a number that allows the population to grow to the upper limit over a 4-5 year period, without any interim gathers to remove excess wild horses. A summary of the proposed AML by alternative is presented in Table 1.

Table 1. AML Summary by HMA.

HMA	AML Alt A (No Action)	AML Alt B	AML Alt C	AML Alt D
<i>Adobe Town (RSFO)</i>	165 – 235	32 – 63	0	0
<i>Adobe Town (RFO)</i>	445 – 565	193 – 387	0	259 – 536
Adobe Town Combined	610 – 800	225 – 450	0	259 – 536
Great Divide Basin	415 – 600	415 – 600	0	0
Salt Wells Creek	251 – 365	251 – 365	0	0
White Mountain	205 – 300	99 – 205	0	205 – 300
Total AML (All HMAs):	1,481 – 2,065	990 – 1,620	0	464 – 836

A detailed description of each alternative and the changes that occur in each HMA can be found in **Chapter 2** of this EIS.

How AML was Determined for Each Alternative

Alternative A

Alternative A represents current management. The existing AML for the Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain HMAs was established through agreement with wild horse advocacy groups and the Rock Springs Grazing Association (RSGA). The AML under this alternative reflected the permissive use of private land.

Alternative B

For Alternative B the BLM would reduce the area of the Adobe Town, Great Divide Basin and Salt Wells Creek HMAs to include only solid-block BLM land. AML would remain the same as Alternative A on the Great Divide Basin and Salt Wells Creek HMAs. The AML for the Adobe Town HMA would be reduced to 225 – 450. The boundary of the White Mountain HMA would not be adjusted, but AML would decrease to 99 – 205. The high end of AML for the White Mountain HMA and the AML range for the Adobe Town HMA under this alternative were established based on the terms of the 2013 Consent Decree (see **Section 1.1**). Low AML for the White Mountain HMA was calculated, as directed in Handbook H-4700-1, by determining the number that would allow for this herd to grow to high AML over a 4 to 5 year period. However, since this would be a non-reproducing herd under this alternative, this range represents a range within which the non-reproducing herd could be managed. This would allow for some flexibility in management based on mortality rates and the potential for some unintended population growth.

Under this alternative the BLM would reduce permitted livestock AUMs within the Great Divide Basin and Salt Wells Creek HMAs to provide adequate forage for concentrating the same number of wild horses in a smaller area. No permitted livestock AUMs would be reduced within the Adobe Town or White Mountain HMAs because the overall concentration of wild horses would be lower under this alternative than under Alternative A.

For the Great Divide Basin and Salt Wells Creek HMAs, the BLM determined the number of additional AUMs needed to provide adequate forage for wild horses under this alternative by calculating what the high AML would be if it was reduced in proportion to the reduced number of acres in each HMA. This reduced AML was then compared to the existing AML (from Alternative A) to determine how much additional forage would be needed to sustain the wild horse herd under this alternative. These calculations are provided in Table 2. The Adobe Town and White Mountain HMAs were not included in the table since total concentration of wild horses within these HMAs decreased under this alternative, making a decrease in permitted livestock AUMs unnecessary. The proportional adjustment in acres accounted for the fact that private land acres were included in the AML calculation for Alternative A, but were not included in the acres for Alternative B.

Table 2. Alternative B AML/AUM Calculation

HMA	Proportion of Original Acres (%)	High AML (Alt A)	High AML (Proportional to Alt B acres)	Difference in AML (A vs B)	AUMs Needed to Support AML Difference in Alt B
Great Divide Basin	50%	600	299	301	3,612
Salt Wells Creek	26%	365	93	272	3,264
Totals:				573	6,876

Alternative C

Under this alternative all four HMAs would revert to HA status with an AML of zero wild horses. As such, no AML calculation was required under this alternative.

Alternative D

Under this alternative the Great Divide Basin and Salt Wells Creek HMAs would revert to HA status and be managed for zero wild horses. The RSFO portion of the Adobe Town HMA would also revert to HA status, managed for zero wild horses. The RFO portion of the Adobe Town HMA would be reduced slightly to remove any checkerboard lands, and to align it with an existing fence on the northwest boundary. Due to these actions, only the White Mountain HMA and the portion of the Adobe Town HMA within the RFO would remain.

Under this Alternative AML for the Adobe Town HMA was calculated by reducing the existing high AML (from Alternative A) in proportion to the reduction in acres within the Adobe Town HMA. This proportional adjustment in acres accounted for the fact that private land acres were included in the AML calculation for Alternative A, but were not included in the acres for Alternative D. The RFO portion of the Adobe Town HMA was reduced by approximately 5% under this alternative. A proportional adjustment of the Alternative A high AML (565) results in a high AML of 536 for Adobe Town under Alternative D. Low AML (259) was calculated by determining the lower range that would allow the herd to grow to high AML over a 5 year period (assuming an annual growth rate of 20%).

AML for the White Mountain HMA under this alternative was left the same as current management (Alternative A). Current land health conditions in this area, and historical gather frequencies on this HMA have demonstrated that 205 – 300 is an appropriate AML for this HMA at this time. Although the Rock Springs grazing allotment does not currently meet land health standards for riparian areas (see Table 7), and wild horses are a contributing factor, none of the streams within the allotment that are failing these standards are located within this HMA. The Lombard allotment is also not currently meeting the land health standards for riparian areas; however, wild horses were not considered a potential causal factor. The Highway-Gasson allotment is currently meeting all land health standards. Wild horses were gathered from this HMA in 2011. Following this gather, the HMA remained within AML until 2019. This demonstrates that this HMA can successfully be managed within an AML of 205 – 300 for an extended period of time. All these factors demonstrate that an AML of 205 – 300 is appropriate for this HMA.

Three Tier Analysis

BLM's Wild Horses and Burros Management Handbook (H-4700-1) outlines a three-tiered analysis for establishing and adjusting the AML for an HMA. Each tier is briefly described below:

- The Tier 1 analysis determines whether the four essential habitat components (forage, water, cover and space) are present in sufficient amounts to sustain healthy wild horse populations and healthy rangelands over the long-term.
- The Tier 2 analysis determines the amount of sustainable forage available for wild horse use.
- The Tier 3 analysis determines whether or not the projected wild horse herd size is sufficient to maintain genetically diverse wild horse populations (i.e., avoid inbreeding depression).

This document follows this three-tiered analysis approach for assessing AML for each HMA within the planning area. This analysis is organized first by HMA, then by Alternative.

A Note on Forage Production Data

The BLM is involved in a variety of vegetation monitoring projects throughout the planning area. This includes random sample monitoring such as Assessment, Inventory and Monitoring (AIM), as well as monitoring on key areas. Most of the data collected provides information on forage composition, percent cover, vegetation gaps, bare ground, and key species frequency. These types of data are useful for helping answer a wide variety of management questions, including habitat conditions for wildlife, and in determining the overall trend of a vegetation community.

However, these types of data do not provide information on how much forage is produced by the range and is therefore available for consumption by grazing animals (i.e. how many AUMs are available). The amount of forage production can typically be estimated in one of two ways: 1) through an ecological site inventory, correlated to a soil map, and 2) through a comprehensive utilization study conducted on key management areas and correlated to actual use and climate conditions.

The Natural Resource Conservation Service (NRCS) is the agency primarily tasked with completing ecological site inventory and soil mapping. While the NRCS is actively working on these tasks within the planning area, at this time only a portion of the area has a completed soils map. Data on forage production cannot be extrapolated to other areas without an associated soils map. It will likely take many years before ecological site inventory and soil mapping is completed for the entire planning area. For this reason, forage production cannot be estimated within the planning area using this method.

The other option for estimating forage production is by analyzing utilization data, collected at key management areas, and correlating that information to actual use and climate data. The BLM has been involved in collecting utilization data on some of the grazing allotments within the planning area. However, there are large areas where no such data has been collected. Forage production estimates based on utilization data are only applicable to the pasture where the data was collected, and cannot be extrapolated to a larger area. For this reason, forage production cannot be estimated within the planning area using this method, until all data gaps are filled in.

The BLM has forage production data collected in the 1960's based on the old range sites (the precursors to ecological sites). The BLM determined not to use this data to estimate forage production within the planning area because of the age of the data (over 50 years old), and known changes in range condition since the time the data was collected.

The BLM requested relevant data from cooperating agencies and the public as part of this planning effort. One study which cooperating agencies submitted and have referred to was a scientific article that discussed dietary composition for various animals on the range (Scasta 2014). While this article provided valuable information about the dietary composition for wild horses, versus other grazing animals, it did not provide any information on how much forage was available for grazing use within the associated Herd Management Area.

For the reasons stated above, the BLM has determined that it lacks adequate forage production data, to make an accurate estimate of forage production throughout the planning area. Therefore, the analysis in this appendix will focus on forage needs as proposed in each alternative, and the anticipated stocking rates relative to other nearby grazing allotments within these field offices that contain similar vegetation communities.

Adobe Town HMA

The Adobe Town HMA is located partially within the RSFO and partially within the RFO. While AML is broken out by field office in the table above, it is managed as a single HMA. Therefore, the analysis in this section will focus on the combined (or total) AML for this HMA, except in Alternative D where only the RFO portion remains as an HMA.

Tier 1 Analysis

This analysis determines if there is adequate forage, water cover and space to sustain the wild horse herd.

Alternative A (No Action)

Under this alternative AML would be 610 – 800 wild horses. The HMA would encompass 476,986 acres, of which 442,428 acres are public land.

Forage

Under this alternative an estimated 9,600 Animal Unit Months (AUMs) would be required to sustain the wild horse herd at high AML. Permitted livestock would utilize an estimated 32,254 Active Permitted AUMs within this HMA. Combined wild horse and permitted livestock use is estimated at 41,854 AUMs, which is 11 acres per AUM (on public land). This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 8,000 gallons per day. There are approximately 191 reservoirs, 39 springs and 27 water wells present within the HMA. There is also approximately 60 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 442,428 acres of public land within the Adobe Town HMA under this alternative. At high AML this equates to 553 acres per wild horse, on average. While this is a higher concentration of wild horses than is present on some other HMAs within the planning area, it still provides adequate space for the needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Opportunities for cover from trees are limited within this HMA, as few stands exist within the area. However, brush and topography provide adequate cover in this area, as thermal cover needs and

shade are not typically limiting factors for wild horses in this area, due to short summers and relatively cooler temperatures in the hot season. While there is some movement of wild horses between the Adobe Town and Salt Wells Creek HMAs, this movement is bidirectional. This demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative B

Under this alternative AML would be 225 – 450 wild horses. The HMA would encompass 432,016 acres, of which 420,156 acres are public land.

Forage

Under this alternative an estimated 5,400 AUMs would be required to sustain the wild horse herd at high AML. Permitted livestock would utilize an estimated 28,887 AUMs within this HMA. Combined wild horse and livestock use is estimated at 34,287 AUMs, which is 12 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 4,500 gallons per day. There are approximately 191 reservoirs, 29 springs and 27 water wells present within the HMA. There is also approximately 60 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 420,156 acres of public land within the Adobe Town HMA under this alternative. At high AML this equates to 934 acres per wild horse, on average. This will provide adequate space for the needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Opportunities for cover from trees are limited within this HMA, as few stands exist within the area. However, brush and topography provide adequate cover in this area, as thermal cover needs and shade are not typically limiting factors for wild horses in this area, due to short summers and relatively cooler temperatures in the hot season. While there is some movement of wild horses between the Adobe Town and Salt Wells Creek HMAs, this movement is bidirectional. This demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative D

Under this alternative AML would be 259 – 536 wild horses. The HMA would encompass 355,094 acres, of which 345,227 acres are public land.

Forage

Under this alternative an estimated 6,432 AUMs would be required to sustain the wild horse herd at high AML. Permitted livestock would utilize an estimated 22,955 Active Permitted AUMs within this

HMA. Combined wild horse and permitted livestock use is estimated at 29,387 AUMs, which is 12 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities, and represents a slightly lighter stocking rate than Alternative A. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 5,360 gallons per day. There are approximately 175 reservoirs, 21 springs and 22 water wells present within the HMA. There is also approximately 60 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 345,227 acres of public land within the Adobe Town HMA under this alternative. At high AML this equates to 644 acres per wild horse, on average. This would provide adequate space for the needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Opportunities for cover from trees are limited within this HMA, as few stands exist within the area. However, brush and topography provide adequate cover in this area, as thermal cover needs and shade are not typically limiting factors for wild horses in this area, due to short summers and relatively cooler temperatures in the hot season. While there is some movement of wild horses between the Adobe Town and Salt Wells Creek HMAs, this movement is bidirectional. This demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Tier 2 Analysis

This analysis determines the amount of sustainable forage available for wild horse use. The current AML for this HMA was established by agreement, and was not based on analysis of utilization data and use pattern mapping. The BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area. Therefore, the analysis in this appendix will focus on forage needs as proposed in each alternative, and their anticipated stocking rate relative to other nearby grazing allotments within these field offices that contain similar vegetation communities.

Alternative A (No Action)

Under this alternative AML would be 610 – 800 wild horses. The HMA would encompass 442,428 acres of public land. Under this alternative the herd would require 9,600 AUMs, and combined use with livestock would place total AUM use at 11 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 14 livestock grazing allotments within the HMA under this alternative. Table 3 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any of the standards for rangeland health.

Table 3. Summary of Rangeland Health Assessments for the Adobe Town HMA.

Allotment	Wyoming Rangeland Health Standards Not Met						Wild Horses Potential Causal Factor?
	1	2	3	4	5	6	
Adobe Town							
Continental							
Corson Springs							
Cow Creek							
Crooked Wash (Hiawatha Tridistrict)							
Espitalier							
Grindstone Springs							
Little Powder Mountain							
Powder Mountain							
Red Creek							
Rock Springs		X					Yes
Rotten Springs							
Sand Creek							
Willow Creek							

Standard 1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard 2: Riparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Standard 3: Upland vegetation on each ecological site consists of plant communities appropriate for the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard 4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard 5: Water quality meets State standards.

Standard 6: Air quality meets State standards.

The only allotment within this HMA not currently meeting all of the standards for healthy rangelands is the Rock Springs allotment. While wild horse use is considered a contributing factor to not meeting Standard #2 on the Rock Springs allotment, the areas not meeting this standard are not located within the Adobe Town HMA.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 610 – 800 wild horses under this alternative is appropriate for this HMA.

Alternative B

Under this alternative AML would be 225 – 450 wild horses. The HMA would encompass 420,156 acres of public land. Under this alternative the herd would require 5,400 AUMs, and combined use with livestock would place total AUM use at 12 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 14 livestock grazing allotments within the HMA under this alternative, the same as described under Alternative A. Table 3 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any

of the standards for rangeland health. Conclusions associated with these assessments are discussed under Alternative A.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 225 – 450 wild horses under this alternative is appropriate for this HMA.

Alternative D

Under this alternative AML would be 259 – 536 wild horses. The HMA would encompass 345,227 acres of public land. Under this alternative the herd would require 6,432 AUMs, and combined use with livestock would place total AUM use at 12 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 13 livestock grazing allotments within the HMA under this alternative, the same as described under Alternative A, minus the Rock Springs allotment. Table 3 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any of the standards for rangeland health. Conclusions associated with these assessments are discussed under Alternative A.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 259 – 536 wild horses under this alternative is appropriate for this HMA.

Tier 3

This analysis determines if the herd size proposed for this HMA is adequate to maintain the genetic diversity of the herd. A genetic report was prepared for the Adobe Town HMA in 2011. The report described genetic diversity as follows:

“Genetic variability of this herd is quite high probably due to mixed ancestry and a large population size. There is a somewhat high percentage of variation that is at risk but this is unlikely to be a problem unless there is a drastic reduction in population size. Genetic variation levels have remained high in comparison to 2003. Genetic similarity results suggest a herd with mixed ancestry but a high probability of Spanish blood...

RECOMMENDATIONS

Current variability levels are high enough that no action is needed as long as there is no serious reduction in population size.” (Cothran 2011a).

Based on the results of the 2011 genetic analysis current genetic diversity is good. Following is an analysis of the anticipated genetic diversity for each alternative. The Wild Horses and Burros Management Handbook (H-4700-1) states that “to avoid inbreeding depression in wild horse populations, a minimum herd size of 50 effective breeding animals (a total population size of about 150 – 200 animals) is recommended.” The following analysis will be based on this presumption.

Alternative A (No Action)

Under this alternative AML would be 610 – 800 wild horses. This AML would ensure that low AML would be 460 animals over the recommended 150 to maintain adequate genetic diversity. This AML is anticipated to provide for adequate genetic diversity.

Alternative B

Under this alternative AML would be 225 – 450 wild horses. This AML would ensure that low AML would be 75 animals over the recommended 150 to maintain adequate genetic diversity. This AML is anticipated to provide for adequate genetic diversity.

Alternative D

Under this alternative AML would be 259 – 536 wild horses. This AML would ensure that low AML would be 109 animals over the recommended 150 to maintain adequate genetic diversity. This AML is anticipated to provide for adequate genetic diversity.

Great Divide Basin HMA

Tier 1 Analysis

This analysis determines if there is adequate forage, water cover and space to sustain the wild horse herd.

Alternative A (No Action)

Under this alternative AML would be 415 – 600 wild horses. The HMA would encompass 776,189 acres, of which 559,398 acres are public land.

Forage

Under this alternative an estimated 7,200 Animal Unit Months (AUMs) would be required to sustain the wild horse herd at high AML. Permitted livestock would utilize an estimated 35,914 Active Permitted AUMs within this HMA. Combined wild horse and permitted livestock use is estimated at 43,114 AUMs, which is 13 acres per AUM (on public land). This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 6,000 gallons per day. There are approximately 58 reservoirs, 31 springs and 33 water wells present within the HMA. There is also approximately 20 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 559,398 acres of public land within the Great Divide Basin HMA under this alternative. At high AML this equates to 932 acres per wild horse, on average. This will provide adequate space for the

needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Scattered cover from trees is present throughout the HMA. Brush and topography provide additional cover in this area. There is no evidence that wild horses are leaving the HMA to find adequate cover and space. Overall, this analysis demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative B

Under this alternative AML would be 415 – 600 wild horses. The HMA would encompass 397,936 acres of which 374,697 acres are public land.

Forage

Under this alternative an estimated 7,200 AUMs would be required to sustain the wild horse herd at high AML. Permitted livestock would utilize an estimated 13,652 Active Permitted AUMs within this HMA (after 3,612 AUMs are removed from permitted livestock use and allocated to wild horse use). Combined wild horse and permitted livestock use is estimated at 20,852 AUMs, which is 18 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 6,000 gallons per day. There are approximately 47 reservoirs, 30 springs and 19 water wells present within the HMA. There is also approximately 11 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 374,697 acres of public land within the Great Divide Basin HMA under this alternative. At high AML this equates to 624 acres per wild horse, on average. While the northern portion of the HMA receives high snow loads during the winter (3 – 6 feet deep), there is still adequate space in the southern portion of the HMA to meet the needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Scattered cover from trees is present throughout the HMA. Brush and topography provide additional cover in this area. There is no evidence that wild horses would leave the HMA area to find adequate cover and space. Overall, this analysis demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative D

Under this alternative the Great Divide Basin HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative.

Tier 2 Analysis

This analysis determines the amount of sustainable forage available for wild horse use. The current AML for this HMA was established by agreement, and was not based on analysis of utilization data and use pattern mapping. The BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area. Therefore, the analysis in this appendix will focus on forage needs as proposed in each alternative, and their anticipated stocking rate relative to other nearby grazing allotments within these field offices that contain similar vegetation communities.

Alternative A (No Action)

Under this alternative AML would be 415 – 600 wild horses. The HMA would encompass 559,398 acres of public land. Under this alternative the herd would require 7,200 AUMs, and combined use with livestock would place total AUM use at 13 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 4 livestock grazing allotments within the HMA under this alternative. Table 4 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any of the standards for rangeland health.

Table 4. Summary of Rangeland Health Assessments for the Great Divide Basin HMA, Alternative A.

Allotment	Wyoming Rangeland Health Standards <u>Not Met</u>						Wild Horses Potential Causal Factor?
	1	2	3	4	5	6	
Bush Rim		X					No
Continental Peak							
Red Desert							
Rock Springs		X					Yes

Standard 1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard 2: Riparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Standard 3: Upland vegetation on each ecological site consists of plant communities appropriate for the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard 4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard 5: Water quality meets State standards.

Standard 6: Air quality meets State standards.

Both the Bush Rim and Rock Springs allotments are currently not meeting Standard #2. Wild horses were considered a potential contributing factor for the Rock Springs allotment, along with livestock grazing, roads, mining activities, man-made adjustments to stream channels, and a number of other impacts. Considering all of the activities impacting streams within this allotment, wild horses are likely a minor contributing factor. Wild horse impacts were not listed as a contributing factor for the Bush Rim allotment.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 415 – 600 wild horses under this alternative is appropriate for this HMA.

Alternative B

Under this alternative AML would be 415 – 600 wild horses. The HMA would encompass 374,697 acres of public land. Under this alternative the herd would require 7,200 AUMs, and combined use with livestock would place total AUM use at 18 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 3 livestock grazing allotments within the HMA under this alternative. Table 5 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any of the standards for rangeland health.

Table 5. Summary of Rangeland Health Assessments for the Great Divide Basin HMA, Alternative B.

Allotment	Wyoming Rangeland Health Standards Not Met						Wild Horses Potential Causal Factor?
	1	2	3	4	5	6	
Bush Rim		X					No
Continental Peak							
Red Desert							

Standard 1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard 2: Riparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Standard 3: Upland vegetation on each ecological site consists of plant communities appropriate for the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard 4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard 5: Water quality meets State standards.

Standard 6: Air quality meets State standards.

The Bush Rim allotment is currently not meeting Standard #2. Wild horse impacts were not listed as a contributing factor for not meeting this standard.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 415 – 600 wild horses under this alternative is appropriate for this HMA.

Alternative D

Under this alternative the Great Divide Basin HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative.

Tier 3

This analysis determines if the herd size proposed for this HMA is adequate to maintain the genetic diversity of the herd. A genetic report was prepared for the Great Divide Basin HMA in 2012. The report described genetic diversity as follows:

“Genetic variability of this herd in general is high but understanding the diversity of this herd is somewhat complicated. This herd was previously sampled in 2003. At that time the sample consisted of two subdivisions of the herd area labeled North and South. Genetic variability levels of both groups were relatively high but not quite as high as seen here. Much of the high variability was attributed to mixing of the two groups and that

would fit the herd now. However, the herds did not appear to be a single population but maintained some independence. This may not be the case now... The high percentage of variation that is at risk also is consistent with a formally subdivided population now interbreeding. Genetic similarity results suggest a herd with mixed ancestry...

RECOMMENDATIONS

Current variability levels are high enough that no action is needed, however, if population size drops below 150 breeding age animals, diversity levels can change quickly." (Cothran 2012a).

Based on the results of the 2012 genetic analysis current genetic diversity is good. Following is an analysis of the anticipated genetic diversity for each alternative. The Wild Horses and Burros Management Handbook (H-4700-1) states that "to avoid inbreeding depression in wild horse populations, a minimum herd size of 50 effective breeding animals (a total population size of about 150 – 200 animals) is recommended." The following analysis will be based on this presumption.

Alternative A (No Action)

Under this alternative AML would be 415 – 600 wild horses. This AML would ensure that low AML would be 265 animals over the recommended 150 to maintain adequate genetic diversity. This AML is anticipated to provide for adequate genetic diversity.

Alternative B

Since AML is the same as Alternative A, the discussion on genetic diversity in that section applies to Alternative B as well.

Alternative D

Under this alternative the Great Divide Basin HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative, therefore there is no need to assess if the size of the herd would maintain adequate genetic diversity.

Salt Wells Creek HMA

Tier 1 Analysis

This analysis determines if there is adequate forage, water cover and space to sustain the wild horse herd.

Alternative A (No Action)

Under this alternative AML would be 251 – 365 wild horses. The HMA would encompass 1,169,288 acres, of which 689,511 are public lands.

Forage

Under this alternative an estimated 4,380 Animal Unit Months (AUMs) would be required to sustain the wild horse herd at high AML. Livestock would utilize an estimated 59,556 AUMs within this HMA. Combined wild horse and livestock use is estimated at 63,936 AUMs, which is 11 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar

vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 3,650 gallons per day. There are approximately 88 reservoirs, 31 springs and 14 water wells present within the HMA. There is also approximately 191 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 689,511 acres of public land within the Salt Wells Creek HMA under this alternative. At high AML this equates to 1,889 acres per wild horse, on average. This will provide adequate space for the needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Scattered cover from trees is present throughout the HMA. Brush and topography provide additional cover in this area. While there is some movement of wild horses between the Adobe Town and Salt Wells Creek HMAs, this movement is bidirectional. This demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative B

Under this alternative AML would be 251 – 365 wild horses. The HMA would encompass 319,556 acres, of which 287,203 are public lands.

Forage

Under this alternative an estimated 4,380 AUMs would be required to sustain the wild horse herd at high AML. Livestock would utilize an estimated 16,759 AUMs within this HMA (after 3,264 AUMs are removed from permitted livestock use and allocated to wild horse use). Combined wild horse and livestock use is estimated at 21,139 AUMs, which is 14 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 3,650 gallons per day. There are approximately 71 reservoirs, 10 springs and 5 water wells present within the HMA under this alternative. There is also approximately 100 miles of stream on public land within this HMA. Each of these water sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd.

Cover and Space

There are 287,203 acres of public land within the Salt Wells Creek HMA under this alternative. At high AML this equates to 787 acres per wild horse, on average. This will provide adequate space for the needs of the herd. Water distribution in the area provides for good distribution of animals throughout the HMA. Scattered cover from trees is present throughout the HMA. Brush and topography provide additional cover in this area. While there is some movement of wild horses between the Adobe Town and Salt Wells Creek HMAs, this movement is bidirectional. This demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative D

Under this alternative the Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative.

Tier 2 Analysis

This analysis determines the amount of sustainable forage available for wild horse use. The current AML for this HMA was established by agreement, and was not based on analysis of utilization data and use pattern mapping. The BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area. Therefore, the analysis in this appendix will focus on forage needs as proposed in each alternative, and their anticipated stocking rate relative to other nearby grazing allotments within these field offices that contain similar vegetation communities.

Alternative A (No Action)

Under this alternative AML would be 251 – 365 wild horses. The HMA would encompass 689,511 acres of public land. Under this alternative the herd would require 4,380 AUMs, and combined use with livestock would place total AUM use at 11 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 9 livestock grazing allotments within the HMA under this alternative. Table 6 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any of the standards for rangeland health.

Table 6. Summary of Rangeland Health Assessments for the Salt Wells Creek HMA, Alternative A.

Allotment	Wyoming Rangeland Health Standards <u>Not</u> Met						Wild Horses Potential Causal Factor?
	1	2	3	4	5	6	
Alkali Creek							
Circle Springs							
Crooked Wash (Hiawatha Tridistrict)							
Horseshoe Wash							
Mellor Mountain		X					No
Rife							
Rock Springs		X					Yes
Salt Wells		X					No
Vermillion Creek		X					Yes

Standard 1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard 2: Riparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Standard 3: Upland vegetation on each ecological site consists of plant communities appropriate for the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard 4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard 5: Water quality meets State standards.

Standard 6: Air quality meets State standards.

The Mellor Mountain, Rock Springs, Salt Wells and Vermillion Creek allotments are not currently meeting Standard #2. Wild horse use was identified as a contributing factor for the Rock Springs and Vermillion Creek allotments, along with a number of other factors including: livestock grazing, roads, mining activities and man-made adjustments to stream channels.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 251 – 365 wild horses under this alternative is appropriate for this HMA. However, improved management of wild horses may be needed to make better progress toward meeting Standard #2 in the Rock Springs and Vermillion Creek allotments. Management actions such as development of additional upland water, or the addition of riparian fences could help improve riparian conditions by reducing impacts from wild horse use.

Alternative B

Under this alternative AML would be 251 – 365 wild horses. The HMA would encompass 287,203 acres of public lands. Under this alternative the herd would require 4,380 AUMs, and combined use with livestock would place total AUM use at 14 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

The same grazing allotments would be present in this alternative as described in Alternative A, except for the Rock Springs, Rife and Circle Springs allotments. Information regarding rangeland health assessments associated with the allotments within this HMA under this alternative are provided in the discussion for Alternative A.

Alternative D

Under this alternative the Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative.

Tier 3

This analysis determines if the herd size proposed for this HMA is adequate to maintain the genetic diversity of the herd. Two genetic reports were prepared for the Salt Wells Creek HMA in 2011, one for the Miller Mountain area and one for the Manual Gap area. The reports described genetic diversity as follows:

“Genetic variability of this herd in general is high... Genetic similarity results suggest a herd with mixed ancestry...”

RECOMMENDATIONS

Current variability levels are high enough that no action is needed at this point but the herd should be monitored closely if it is known that the herd size has seen a recent

decline. If there has been a recent population decline, variability levels could drop quickly over the next 5-10 years.” (Cothran 2011b).

Genetic variability of this herd in general is on the high side but some of the diversity may be related to unrecognized population subdivision. Even if this is true, the... values indicated good levels of genetic variation. Genetic similarity results suggest a herd with mixed ancestry.

RECOMMENDATIONS

Current variability levels are high enough that no action is needed at this point.” (Cothran 2011c).

Based on the results of the 2011 genetic analysis current genetic diversity is good. Following is an analysis of the anticipated genetic diversity for each alternative. The Wild Horses and Burros Management Handbook (H-4700-1) states that “to avoid inbreeding depression in wild horse populations, a minimum herd size of 50 effective breeding animals (a total population size of about 150 – 200 animals) is recommended.” The following analysis will be based on this presumption.

Alternative A (No Action)

Under this alternative AML would be 251 – 365 wild horses. This AML would ensure that low AML would be 101 animals over the recommended 150 to maintain adequate genetic diversity. This AML is anticipated to provide for adequate genetic diversity.

Alternative B

Since AML is the same as Alternative A, the discussion on genetic diversity in that section applies to Alternative B as well.

Alternative D

Under this alternative the Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative, therefore there is no need to assess if the size of the herd would maintain adequate genetic diversity.

White Mountain HMA

Tier 1 Analysis

This analysis determines if there is adequate forage, water cover and space to sustain the wild horse herd.

Alternative A (No Action)

Under this alternative AML would be 205 – 300 wild horses. The HMA would encompass 388,488 acres, of which 207,350 acres are public land.

Forage

Under this alternative an estimated 3,600 Animal Unit Months (AUMs) would be required to sustain the wild horse herd at high AML. Livestock would utilize an estimated 19,063 AUMs within this HMA. Combined wild horse and livestock use is estimated at 22,663 AUMs, which is 10 acres per AUM. This

stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 3,000 gallons per day. There are approximately 31 reservoirs, zero springs and 34 water wells present within the HMA. There is also approximately 36 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. The majority of these water sources are located in the northern portion of the HMA, leaving limited water sources in the southern portion of the HMA. However, wild horses are frequently observed in the southern portion of the HMA, utilizing the water sources available in that area. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd, though there is less water available for this HMA than the others within the planning area.

Cover and Space

There are 207,350 acres of public land within the White Mountain HMA under this alternative. At high AML this equates to 782 acres per wild horse, on average. This will provide adequate space for the needs of the herd. Water distribution in the area provides for adequate distribution of animals throughout the HMA. Scattered cover from trees is present throughout the HMA. Brush and topography provide additional cover in this area. There is no evidence that wild horses are leaving the HMA area to find adequate cover and space. Overall, this analysis demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative B

Under this alternative AML would be 99 – 205 wild horses. The HMA would encompass 388,488 acres, of which 207,350 acres are public land.

Forage

Under this alternative an estimated 2,460 Animal Unit Months (AUMs) would be required to sustain the wild horse herd at high AML. Livestock would utilize an estimated 19,063 AUMs within this HMA. Combined wild horse and livestock use is estimated at 21,523 AUMs, which is 11 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities. Based on this analysis there is adequate forage to sustain a wild horse herd within the HMA under this alternative.

Water

Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 2,050 gallons per day. There are approximately 31 reservoirs, zero springs and 34 water wells present within the HMA. There are also approximately 36 miles of stream on public land within this HMA. Each of these sources provides various quantities of water at various times of the year. Most of these water sources are located in the northern portion of the HMA, leaving limited water sources in the southern portion of the HMA. However, wild horses are frequently observed in the southern portion of the HMA, utilizing the water sources available in that area. Overall, there is

adequate water within the HMA to meet the needs of the wild horse herd, though there is less water available for this HMA than the others within the planning area.

Cover and Space

There are 207,350 acres of public land within the White Mountain HMA under this alternative. At high AML this equates to 1,011 acres per wild horse, on average. This will provide adequate space for the needs of the herd. Water distribution in the area provides for adequate distribution of animals throughout the HMA. Scattered cover from trees is present throughout the HMA. Brush and topography provide additional cover in this area. There is no evidence that wild horses are leaving the HMA area to find adequate cover and space. Overall, this analysis demonstrates that there is adequate cover and space within this HMA to meet the needs of the wild horse herd in this area.

Alternative D

Under this alternative AML for the White Mountain HMA would remain the same as Alternative A (205 – 300). Therefore, the AML analysis provided for Alternative A would apply to this alternative as well.

Tier 2 Analysis

This analysis determines the amount of sustainable forage available for wild horse use. The current AML for this HMA was established by agreement, and was not based on analysis of utilization data and use pattern mapping. The BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area. Therefore, the analysis in this appendix will focus on forage needs as proposed in each alternative, and their anticipated stocking rate relative to other nearby grazing allotments within these field offices that contain similar vegetation communities.

Alternative A (No Action)

Under this alternative AML would be 205 – 300 wild horses. The HMA would encompass 207,350 acres of public land. Under this alternative the herd would require 3,600 AUMs, and combined use with livestock would place total AUM use at 10 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

There are 3 livestock grazing allotments within the HMA under this alternative. Table 7 summarizes the results of current rangeland health condition assessments for these allotments, and indicates whether wild horses are potential causal factors for not meeting any of the standards for rangeland health.

Table 7. Summary of Rangeland Health Assessments for the White Mountain HMA.

Allotment	Wyoming Rangeland Health Standards <u>Not</u> Met						Wild Horses Potential Causal Factor?
	1	2	3	4	5	6	
Highway-Gasson							
Lombard		X					No
Rock Springs		X					Yes

Standard 1: Within the potential of the ecological site (soil type, landform, climate, and geology), soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff.

Standard 2: Riparian and wetland vegetation has structural, age, and species diversity characteristics of the stage of channel succession and is resilient and capable of recovering from natural and human disturbance in order to provide forage and cover, capture sediment, dissipate energy, and provide for ground water recharge.

Standard 3: Upland vegetation on each ecological site consists of plant communities appropriate for the site which are resilient, diverse, and able to recover from natural and human disturbance.

Standard 4: Rangelands are capable of sustaining viable populations and a diversity of native plant and animal species appropriate to the habitat. Habitats that support or could support threatened species, endangered species, species of special concern, or sensitive species will be maintained or enhanced.

Standard 5: Water quality meets State standards.

Standard 6: Air quality meets State standards.

Both the Lombard and Rock Springs allotments are currently not meeting Standard #2. Wild horses were considered a potential contributing factor for the Rock Springs allotment, along with livestock grazing, roads, mining activities, man-made adjustments to stream channels, and a number of other impacts. Considering all of the activities impacting streams within this allotment, wild horses are likely a minor contributing factor. Wild horse impacts were not listed as a contributing factor for the Lombard allotment. Furthermore, only a small portion of this allotment is within the White Mountain HMA.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 205 – 300 wild horses under this alternative is appropriate for this HMA.

Alternative B

Under this alternative AML would be 99 – 205 wild horses. The HMA would encompass 207,350 acres of public land. Under this alternative the herd would require 2,460 AUMs, and combined use with livestock would place total AUM use at 18 acres per AUM. This stocking rate is similar to other nearby grazing allotments within these field offices that contain similar vegetation communities.

The livestock grazing allotments present within this HMA under this alternative, and the results of their most recent rangeland health assessment, are the same as those described in Alternative A.

Considering all factors (including the condition of the rangeland, forage needs at the proposed AML and estimated available forage) the AML of 99 – 205 wild horses under this alternative is appropriate for this HMA.

Alternative D

Under this alternative AML for the White Mountain HMA would remain the same as Alternative A (205 – 300). Therefore, the AML analysis provided for Alternative A would apply to this alternative as well.

Tier 3

This analysis determines if the herd size proposed for this HMA is adequate to maintain the genetic diversity of the herd. A genetic report was prepared for the White Mountain HMA in 2012. The report described genetic diversity as follows:

“Genetic variability of this herd in general is on the high side but there is a high percentage of variation that is at risk and individual heterozygosity is below average by a small amount. The patterns seen here are very similar to what was seen in 2000 based upon blood typing. It was suggested then that there may be some gene flow into the population and that is consistent with the current data. The very high allelic diversity but high proportion of alleles at low frequency is just what would be expected if there was a small influx of horses into the herd at different times. It is possible there is introgression from the two neighboring HMAs with Salt Wells being the more probable based upon level of differentiation. Genetic similarity results suggest a herd with mixed ancestry.

RECOMMENDATIONS

Current variability levels are high enough that no action is needed at this point but the herd should be monitored closely due to the high proportion of rare alleles. This is especially true if it is known that the herd size has seen a recent decline.” (Cothran 2012b).

Based on the results of the 2012 genetic analysis current genetic diversity is adequate. Following is an analysis of the anticipated genetic diversity for each alternative. The Wild Horses and Burros Management Handbook (H-4700-1) states that “to avoid inbreeding depression in wild horse populations, a minimum herd size of 50 effective breeding animals (a total population size of about 150 – 200 animals) is recommended.” The following analysis will be based on this presumption.

Alternative A (No Action)

Under this alternative AML would be 205 – 300 wild horses. This AML would ensure that low AML would be 55 animals over the recommended 150 to maintain adequate genetic diversity. This AML is anticipated to provide for adequate genetic diversity.

Alternative B

Under this alternative AML would be 99 – 205 wild horses. This AML would place low AML 51 animals below the recommended 150 to maintain adequate genetic diversity. However, under this alternative this herd would be managed as nonreproducing, so the genetic diversity of the herd would not be relevant to their management. Management efforts, such as introducing sterile wild horses from other HMAs, will be needed to maintain a herd in this area under this alternative. Therefore, the AML is appropriate for this HMA.

Alternative D

Under this alternative AML for the White Mountain HMA would remain the same as Alternative A (205 – 300). Therefore, the AML analysis provided for Alternative A would apply to this alternative as well.

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Appendix B

Impacts of Fertility Control Methods on Wild Horses

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Immuno-contraception

Porcine Zone Pellucida (PZP) Vaccine

PZP vaccines have been used on dozens of horse herds by the National Park Service, US Forest Service, Bureau of Land Management, and Native American tribes and its use is approved for free-ranging wild horse herds. The National Research Council concluded in their 2013 report that PZP was one of the preferable available methods for contraception in wild horses and burros (NRC 2013). PZP use can reduce or eliminate the need for gathers and removals (Turner et al. 1997). PZP vaccines meet most of the criteria that the National Research Council (2013) used to identify promising fertility control methods, in terms of delivery method, availability, efficacy, and side effects. It has been used extensively in wild horses (NRC 2013), and in feral burros on Caribbean islands (Turner et al. 1996, French et al. 2017). PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced as ZonaStat-H, an EPA-registered commercial product (EPA 2012, SCC 2015), or as PZP-22, which is a formulation of PZP in polymer pellets that can lead to a longer immune response (Turner et al. 2002, Rutberg et al. 2017). ‘Native’ PZP proteins can be purified from pig ovaries (Liu et al. 1989). Native PZP produced at different times or in different laboratories may vary in the strength of immune response they elicit (Turner 2018). Recombinant ZP proteins may be produced with molecular techniques (Gupta and Minhas 2017, Joonè et al. 2017a, Nolan et al. 2018). It can easily be remotely administered in the field 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).

The BLM currently uses two PZP formulations for fertility control of wild horse mares, ZonaStat-H (PZP Native) and PZP-22. As other formulations are approved for use by BLM, they may be applied through future gathers or darting activities. For the purpose of this management plan, field or remote darting refers to applying the vaccine using a dart. Darting can be implemented when animals are gathered into corrals or opportunistically by applicators near water sources or along main WH&B trails out on the range. Blinds may be used to camouflage applicators to allow efficient treatment of as many mares as possible. PZP can also be applied via hand injections using plastic syringes when animals are gathered into corrals and chutes. 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.

When applying native PZP (i.e., ZonaStat-H), first the primer with modified Freund’s Complete adjuvant is given and then the booster with Freund’s Incomplete adjuvant is given 2-6 weeks later. Preferably, the timing of the booster dose is at least 1-2 weeks prior to the onset of breeding activity. Following the initial 2 inoculations, only annual boosters are required. For maximum effectiveness, PZP would be administered within the December to February timeframe. For the PZP-22 formulation administered during gathers, each released mare would receive a single dose of the two-year PZP contraceptive vaccine at the same time as a dose of the liquid PZP vaccine with modified Freund’s Complete adjuvant. The pellets are applied to the mare with a large gauge needle and jab-stick into the hip. Although PZP-22 pellets have been delivered via darting in trial studies (Rutberg et al 2017), BLM does not plan to use darting for PZP-22 delivery until there is more demonstration that PZP-22 can be reliably delivered via dart. Therefore, the wild horses must be gathered for each application of this formulation.

PZP Direct Effects

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. More

recent observations support a complementary hypothesis, which posits that PZP vaccination causes reductions in ovary size and function (Mask et al. 2015, Joonè et al. 2017b, Joonè et al. 2017c, Nolan et al. 2018b). Antibodies specific to PZP protein do not crossreact with tissues outside of the reproductive system (Barber and Fayrer-Hosken 2000).

Research has demonstrated that contraceptive efficacy of an injected liquid PZP vaccine, such as ZonaStat-H, is approximately 90% or more for mares treated twice in one year (Turner and Kirkpatrick 2002, Turner et al. 2008). The highest success for fertility control has been reported when the vaccine has been applied November through February. High contraceptive rates of 90% or more can be maintained in horses that are boosted annually (Kirkpatrick et al. 1992). Approximately 60% to 85% of mares are successfully contracepted for one year when treated simultaneously with a liquid primer and PZP-22 pellets (Rutberg et al. 2017). Application of PZP for fertility control would reduce fertility in a large percentage of mares for at least one year (Ransom et al. 2011).

The contraceptive result for a single application of the liquid PZP vaccine primer dose along with PZP vaccine pellets (PZP-22), based on winter applications, can be expected to fall in the approximate efficacy ranges as follows (based on figure 2 in Rutberg et al. 2017). Below, the approximate efficacy is measured as the relative decrease in foaling rate for treated mares, compared to control mares:

Year 1	Year 2	Year 3
0 (developing fetuses come to term)	~30-75%	~20-50%

If mares that have been treated with PZP-22 vaccine pellets subsequently receive a booster dose of either the liquid PZP vaccine or the PZP-22 vaccine pellets, the subsequent contraceptive effect is apparently more pronounced and long-lasting. The approximate efficacy following a booster dose can be expected to be in the following ranges (based on figure 3 in Rutberg et al. 2017).

Year 1	Year 2	Year 3	Year 4
0 (developing fetuses come to term)	~50-90%	~55-75%	~40-75%

The fraction of mares treated in a herd can have a large effect on the realized change in growth rate due to PZP contraception, with an extremely high portion of mares required to be treated to prevent population-level growth (e.g., Turner and Kirkpatrick 2002). Gather efficiency would likely not exceed 85% via helicopter, and may be less with bait and water trapping, so there could be a portion of the female population uncaptured that is not treated in any given year. Additionally, some mares may not respond to the fertility control vaccine, but instead would continue to foal normally (in those herds managed as reproducing), unless other sterilization techniques were also used.

Reversibility and Effects on Ovaries

In most cases, PZP contraception appears to be temporary and reversible, with most treated mares returning to fertility over time (Kirkpatrick and Turner 2002). The ZonaStat-H formulation of the vaccine tends to confer only one year of efficacy per dose. Some studies have found that a PZP vaccine in long-lasting pellets (PZP-22) can confer multiple years of contraception (Turner et al. 2007), particularly when boosted with subsequent PZP vaccination (Rutberg et al. 2017). Other trial data indicate that the pelleted vaccine may only be effective for one year (J. Turner, University of Toledo, Personal Communication).

The purposes of applying PZP treatment is to prevent mares from conceiving foals, but BLM acknowledges that long-term infertility or permanent sterility could be a result for some number of wild horses receiving PZP vaccinations. The rate of long-term or permanent sterility following vaccinations with PZP is hard to predict for individual horses, but that outcome appears to increase in likelihood as the number of doses increases (Kirkpatrick and Turner 2002). Permanent sterility for mares treated consecutively 5-7 years was observed by Nuñez et al. (2010, 2017). In a graduate thesis, Knight (2014) suggested that repeated treatment with as few as three to four years of PZP treatment may lead to longer-term sterility, and that sterility may result from PZP treatment before puberty. Repeated treatment with PZP led to long-term infertility in Przewalski's horses receiving as few as one PZP booster dose (Feh 2012). However, even if some number of mares become sterile as a result of PZP treatment, that potential result would be consistent with the contraceptive purpose that motivates the BLM's use of the vaccine.

In some mares, PZP vaccination may cause direct effects on ovaries (Gray and Cameron 2010, Joonè et al. 2017b, Joonè et al. 2017c, Joonè et al. 2017d). Joonè et al. (2017a) noted reversible effects on ovaries in mares treated with one primer dose and booster dose. Joonè et al. (2017c) documented decreased anti-Mullerian hormone (AMH) levels in mares treated with native or recombinant PZP vaccines; AMH levels are thought to be an indicator of ovarian function. Bechert et al. (2013) found that ovarian function was affected by the SpayVac PZP vaccination, but that there were no effects on other organ systems. Mask et al. (2015) demonstrated that equine antibodies that resulted from SpayVac immunization could bind to oocytes, ZP proteins, follicular tissues, and ovarian tissues. It is possible that result is specific to the immune response to SpayVac, which may have lower PZP purity than ZonaStat or PZP-22 (Hall et al. 2016). However, in studies with native ZP proteins and recombinant ZP proteins, Joonè et al. (2017a) found transient effects on ovaries after PZP vaccination in some treated mares; normal estrus cycling had resumed 10 months after the last treatment. SpayVac is a patented formulation of PZP in liposomes that led to multiple years of infertility in some breeding trials (Killian et al. 2008, Roelle et al. 2017, Bechert and Fraker 2018), but unacceptably poor efficacy in a subsequent trial (Kane 2018). Kirkpatrick et al. (1992) noted effects on horse ovaries after three years of treatment with PZP. Observations at Assateague Island National Seashore indicate that the more times a mare is consecutively treated, the longer the time lag before fertility returns, but that even mares treated 7 consecutive years did eventually return to ovulation (Kirkpatrick and Turner 2002). Other studies have reported that continued applications of PZP may result in decreased estrogen levels (Kirkpatrick et al. 1992) but that decrease was not biologically significant, as ovulation remained similar between treated and untreated mares (Powell and Monfort 2001).

Effects on Existing Pregnancies, Foals, and Birth Phenology

If a mare is already pregnant, the PZP vaccine has not been shown to affect normal development of the fetus or foal, or the hormonal health of the mare with relation to pregnancy (Kirkpatrick and Turner 2003). It is possible that there may be transitory effects on foals born to mares treated with PZP. In mice, Sacco et al. (1981) found that antibodies specific to PZP can pass from mother mouse to pup via the placenta or colostrum, but that did not apparently cause any innate immune response in the offspring: the level of those antibodies were undetectable by 116 days after birth. There was no indication in that study that the fertility or ovarian function of those mouse pups was compromised, nor is BLM aware of any such results in horses or burros. Unsubstantiated speculative connections between PZP treatment and 'foal stealing' has not been published in a peer-reviewed study and thus cannot be verified. 'Foal stealing,' where a near-term pregnant mare steals a neonate foal from a weaker mare, is unlikely to be a common behavioral result of including spayed mares in a wild horse herd. McDonnell (2012) noted that "foal stealing is rarely observed in horses, except under crowded conditions and synchronization of foaling," such as in horse feed lots. Those conditions are not likely in the wild, where pregnant mares will be widely distributed across the landscape, and where the expectation is that parturition dates would be distributed across the normal foaling season. Similarly, although Nettles (1997) noted reported stillbirths

after PZP treatments in cynomolgus monkeys, those results have not been observed in equids despite extensive use in horses and burros.

On-range observations from 20 years of application to wild horses indicate that PZP application in wild mares does not generally cause mares to give birth to foals out of season or late in the year (Kirkpatrick and Turner 2003). Nuñez's (2010) research showed that a small number of mares that had previously been treated with PZP foaled later than untreated mares and expressed the concern that this late foaling "may" impact foal survivorship and decrease band stability, or that higher levels of attention from stallions on PZP-treated mares might harm those mares. However, that paper provided no evidence that such impacts on foal survival or mare well-being actually occurred. Rubenstein (1981) called attention to a number of unique ecological features of horse herds on Atlantic barrier islands, which calls into question whether inferences drawn from island herds can be applied to western wild horse herds. Ransom et al. (2013), though, identified a potential shift in reproductive timing as a possible drawback to prolonged treatment with PZP, stating that treated mares foaled on average 31 days later than non-treated mares. Results from Ransom et al. (2013), however, showed that over 81% of the documented births in this study were between March 1 and June 21, i.e., within the normal, peak, spring foaling season. Moreover, an effect of shifting birth phenology was not observed uniformly: in two of three PZP-treated wild horse populations studied by Ransom et al. (2013), foaling season of treated mares extended three weeks and 3.5 months, respectively, beyond that of untreated mares. In the other population, the treated mares foaled within the same time period as the untreated mares. Furthermore, Ransom et al. (2013) found no negative impacts on foal survival even with an extended birthing season. If there are shifts in birth phenology, though, it is reasonable to assume that some negative effects on foal survival might result from particularly severe weather events (Nuñez et al. 2018).

Effects of Marking and Injection

Standard practices for PZP treatment require that immunocontraceptive-treated animals be readily identifiable, either via brand marks or unique coloration (BLM 2010). Some level of transient stress is likely to result in newly captured mares that do not have markings associated with previous fertility control treatments. Handling may include freeze-marking, for the purpose of identifying that mare and identifying her PZP vaccine treatment history. Under past management practices, captured mares experienced increased stress levels from handling (Ashley and Holcombe 2001). Markings may also be used into the future to determine the approximate fraction of mares in a herd that have been previously treated, and could provide additional insight regarding gather efficiency.

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

Indirect Effects

PZP treatment may increase mare survival rates, leading to longer potential lifespan (Turner and

Kirkpatrick 2002, Ransom et al. 2014a) that may be by as much as 5-10 years (NPS 2008). 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, NPS 2008). Observations of mares treated in past gathers showed that many of the treated mares were larger than, maintained higher body condition than, and had larger healthy foals than untreated mares. Should PZP booster treatment continue into the future, the chronic cycle of overpopulation and large gathers and removals would no longer occur, but instead a consistent cycle of balance and stability would ensue, resulting in continued improvement of overall habitat conditions and animal health. While it is conceivable that widespread and continued treatment with PZP could reduce the birth rates of the population to such a point that birth is consistently below mortality, that outcome is not likely unless a very high fraction of the mares present are all treated in almost every year.

Behavioral Effects

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

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

Ransom et al. (2010) found that control mares were herded by stallions more frequently than PZP-treated mares, and Nuñez et al. (2009, 2014, 2017, 2018) found that PZP-treated mares exhibited higher infidelity to their band stallion during the non-breeding season than control mares. Madosky et al. (2010) and Knight (2014) found this infidelity was also evident during the breeding season in the same population that Nuñez et al. (2009, 2010, 2014, 2017, 2018) studied. Nuñez et al. (2014, 2017, 2018) concluded that PZP-treated mares changing bands more frequently than control mares could lead to band instability. Nuñez et al. (2009), though, cautioned against generalizing from that island population to other herds. Nuñez et al. (2014) found elevated levels of fecal cortisol, a marker of physiological stress, in mares that changed bands. The research is inconclusive as to whether all the mares' movements between bands were related to the PZP treatments themselves or the fact that the mares were not nursing a foal, and did not demonstrate any long-term negative consequence of the transiently elevated cortisol levels. Nuñez et al. 2014 wrote that these effects "...may be of limited concern when population reduction is an urgent priority." Nuñez (2018) noted (based on unpublished results) that band stallions of mares that have received PZP treatment can exhibit changes in behavior and physiology. Nuñez (2018) cautioned that PZP use may limit the ability of mares to return to fertility, but also noted that, "such aggressive treatments may be necessary when rapid reductions in animal numbers are of paramount importance...If

the primary management goal is to reduce population size, it is unlikely (and perhaps less important) that managers achieve a balance between population control and the maintenance of more typical feral horse behavior and physiology.” At the population level, available research does not provide evidence of the loss of harem structure among any herds treated with PZP. Long-term implications of these changes in social behavior are currently unknown, but no negative impacts on the overall animals or populations overall, long-term welfare or well-being have been established in these studies.

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

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

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

Gonadotropin Releasing Hormone (GnRH) Vaccine

The National Research Council concluded in their 2013 report that GonaCon-B (which is produced under the trade name GonaCon-Equine for use in feral horses and burros) was one of the most preferable available methods for contraception in wild horses and burros (NRC 2013), in terms of delivery method, availability, efficacy, and side effects. GonaCon-Equine is approved for use in free-ranging wild horse herds 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 feral horses in Theodore Roosevelt National Park and on wild horses by BLM (BLM 2015). GonaCon-Equine can be remotely administered in the field in cases where mares are relatively approachable, using a customized pneumatic dart (McCann et al. 2017). Use of remotely delivered (dart-delivered) vaccine is generally limited to populations where individual animals can be accurately identified and repeatedly approached within 50 m (BLM 2010).

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

The long-term goal of GonaCon-Equine use is to reduce or eliminate the need for gathers and removals (NRC 2013). The intended effect of the vaccine is as a contraceptive. GonaCon is produced as a pharmaceutical-grade vaccine, including aseptic manufacturing technique to deliver a sterile vaccine

product (Miller et al. 2013).

GonaCon-Equine vaccine is an EPA-approved pesticide (EPA, 2009a) that is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and is produced in a USDA-APHIS laboratory. Miller et al. (2013) reviewed the vaccine environmental safety and toxicity. When advisories on the product label (EPA 2015) are followed, the product is safe for users and the environment (EPA 2009b). EPA waived a number of tests prior to registering the vaccine, because GonaCon was deemed to pose low risks to the environment, so long as the product label is followed (Wang-Cahill et al., *in press*).

GonaCon-Equine can safely be reapplied as necessary to control the population growth rate; booster dose effects may lead to increased effectiveness of contraception, which is generally the intent. Even with one booster treatment of GonaCon-Equine, it is expected that most, if not all, mares would return to fertility at some point, although the average duration of effect after booster doses has not yet been quantified. Although it is unknown what would be the expected rate for the return to fertility rate in mares boosted more than once with GonaCon-Equine, a prolonged return to fertility would be consistent with the desired effect of using GonaCon (e.g., effective contraception). Once the herd size in the project area is at AML and population growth seems to be stabilized, BLM could make a determination as to the required frequency of new mare treatments and mare re-treatments with GonaCon, to maintain the number of horses within AML.

Direct Effects of GnRH Vaccine

GonaCon-Equine is one of several vaccines that have been engineered to create an immune response to the gonadotropin releasing hormone peptide (GnRH). GnRH is a small peptide that plays an important role in signaling the production of other hormones involved in reproduction in both sexes. GnRH is highly conserved across mammalian taxa, so some inferences about the mechanism and effects of GonaCon-Equine in horses can be made from studies that used different anti-GnRH vaccines, in horses and other taxa. Other 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), 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 effectiveness and side-effects of these various anti-GnRH vaccines may not be the same as would be expected from GonaCon-Equine use in horses. Results could differ as a result of differences in the preparation of the GnRH antigen, and the choice of adjuvant used to stimulate the immune response. While GonaCon-Equine can be administered as a single dose, most other anti-GnRH vaccines require a primer dose and at least one booster dose to be effective.

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

Adjuvants are included in vaccines to elevate the level of immune response, inciting recruitment of lymphocytes and other immune cells which foster a long-lasting immune response that is specific to the

antigen. For some formulations of anti-GnRH vaccines, a booster dose is required to elicit 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). The adjuvant used in GonaCon, Adjuvac, generally leads to a milder reaction than Freund's Complete Adjuvant (Powers et al. 2011). Adjuvac contains a small number of killed *Mycobacterium avium* cells (Miller et al. 2008, Miller et al. 2013). The antigen and adjuvant are emulsified in mineral oil, such that they are not all presented to the immune system right after injection. It is thought that the mineral oil emulsion leads to a 'depot effect' that is associated with slow or sustained release of the antigen, and a resulting longer-lasting immune response (Miller et al. 2013). Miller et al. (2008, 2013) have speculated that, in cases where memory-B leukocytes are protected in immune complexes in the lymphatic system, it can lead to years of immune response. Increased doses of vaccine may lead to stronger immune reactions, but only to a certain point; when Yoder and Miller (2010) tested varying doses of GonaCon in prairie dogs, antibody responses to the 200µg and 400µg doses were equal to each other but were both higher than in response to a 100µg dose.

The most direct result of successful GnRH vaccination is that it has the effect of decreasing the level of GnRH signaling in the body, as evidenced by a drop in luteinizing hormone levels, and a cessation of ovulation. Antibody titer measurements are proximate measures of the antibody concentration in the blood specific to a given antigen. Anti-GnRH titers generally correlate with a suppressed reproduction system (Gionfriddo et al. 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.

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

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

Contraceptive Effects of GnRH

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

GonaCon and other anti-GnRH vaccines can be injected while a female is pregnant (Miller et al. 2000, Powers et al. 2011, Baker et al. 2013) – in such a case, a successfully contracepted mare will be expected to give birth during the following foaling season, but to be infertile during the same year's breeding season. Thus, a mare injected in November of 2018 would not show the contraceptive effect (i.e., no new foal) until spring of 2020.

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

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

In studies where mares were not exposed to stallions, the duration of effectiveness also varied. A primer and booster dose of Equity led to anoestrus for at least 3 months (Elhay et al. 2007). A primer and booster dose of Improvac also led to loss of ovarian cycling for all mares in the short term (Imboden et al. 2006). It is worth repeating that those vaccines do not have the same formulation as GonaCon. Results from horses (Baker et al. 2017) and other species (Curtis et al. 2001) suggest that providing a booster dose of GonaCon-Equine will increase the fraction of temporarily infertile animals to higher levels than would a single vaccine dose alone.

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

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

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

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

Other anti-GnRH vaccines also have had reversible effects in mares. Elhay (2007) noted a return to ovary functioning over the course of 34 weeks for 10 of 16 mares treated with Equity. That study ended at 34 weeks, so it is not clear when the other six mares would have returned to fertility. Donovan et al. (2013) found that half of mares treated with an anti-GnRH vaccine intended for dogs had returned to fertility after 40 weeks, at which point the study ended. In a study of mares treated with a primer and booster dose of Improvac, 47 of 51 treated mares had returned to ovarian cyclicity within 2 years; younger mares appeared to have longer-lasting effects than older mares (Schulman et al. 2013). Joonè et al. (2017) analyzed samples from the Schulman et al. (2013) study, and found no significant decrease in anti-Müllerian hormone (AMH) levels in mares treated with GnRH vaccine. AMH levels are thought to be an indicator of ovarian function, so results from Joonè et al. (2017) support the general view that the anoestrus resulting from GnRH vaccination is physiologically similar to typical winter anoestrus. In a small study with a non-commercial anti-GnRH vaccine (Stout et al. 2003), three of seven treated mares

had returned to cyclicity within 8 weeks after delivery of the primer dose, while four others were still suppressed for 12 or more weeks. In elk, Powers et al. (2011) noted that contraception after one dose of GonaCon was reversible. In white-tailed deer, single doses of GonaCon appeared to confer two years of contraception (Miller et al. 2000). Ten of 30 domestic cows treated became pregnant within 30 weeks after the first dose of Bopriva (Balet et al. 2014).

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

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

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

Effects of GnRH Vaccine on Other Organ Systems

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

Injection site reactions associated with immunocontraceptive treatments are possible in treated mares (Roelle and Ransom 2009). Whether injection is by hand or via darting, GonaCon-Equine is associated with some degree of inflammation, swelling, and the potential for abscesses at the injection site (Baker et al. 2013). Swelling or local reactions at the injection site are generally expected to be minor in nature, but some may develop into draining abscesses. When PZP vaccine was delivered via dart it led to more severe swelling and injection site reactions (Roelle and Ransom 2009), but that was not observed with dart-delivered GonaCon (McCann et al. 2017). Mares treated with one formulation of GnRH-KHL vaccine developed pyogenic abscesses (Goodloe 1991). Miller et al. (2008) noted that the water and oil

emulsion in GonaCon will often cause cysts, granulomas, or sterile abscesses at injection sites; in some cases, a sterile abscess may develop into a draining abscess. In elk treated with GonaCon, Powers et al. (2011) noted up to 35% of treated elk had an abscess form, despite the injection sites first being clipped and swabbed with alcohol. Even in studies where swelling and visible abscesses followed GonaCon immunization, the longer term nodules observed did not appear to change any animal's range of movement or locomotor patterns (Powers et al. 2013, Baker et al. 2017).

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

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

GnRH Vaccine Effects on Fetus and Foal

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

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

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

There is little empirical information available to evaluate the effects of GnRH vaccination on foaling phenology. Curtis et al. (2001) did observe a slightly later fawning date for GonaCon treated deer in the second year after treatment, when some does regained fertility late in the breeding season. In anti-GnRH vaccine trials in free-roaming horses, there were no published differences in mean date of foal production (Goodloe 1991, Gray et al. 2010). Unpublished results from an ongoing study of GonaCon treated free-roaming mares indicate that some degree of aseasonal foaling is possible (D. Baker, Colorado State University, personal communication to Paul Griffin, BLM WH&B Research Coordinator).

Indirect Effects of GnRH Vaccination

Body condition of anti-GnRH-treated females was equal to or better than that of control females in published studies. Ransom et al. (2014b) observed no difference in mean body condition between GonaCon-B treated mares and controls. Goodloe (1991) found that GnRH-KHL treated mares had higher survival rates than untreated controls. In other species, treated deer had better body condition than controls (Gionfriddo et al. 2011b), treated cats gained more weight than controls (Levy et al. 2011), as did treated young female pigs (Bohrer et al. 2014). Should GonaCon-Equine treatment, including booster doses, continue into the future, with treatments given on a schedule to maintain a lowered level of fertility in the herd, the chronic cycle of overpopulation and large gathers and removals might no longer occur, but instead a consistent abundance of wild horses could be maintained, resulting in continued improvement of overall habitat conditions and animal health. While it is conceivable that widespread and continued treatment with GonaCon-Equine could reduce the birth rates of the population to such a point that birth is consistently below mortality, that outcome is not likely unless a very high fraction of the mares present are all treated with primer and booster doses, and perhaps repeated booster doses.

Behavioral Effects of GnRH Vaccination

Behavioral differences should be considered as potential consequences of contraception with GonaCon. The NRC (2013) noted that all successful fertility suppression has effects on mare behavior, mostly as a result of the lack of pregnancy and foaling, and concluded that GonaCon was a good choice for use in the program. The result that GonaCon treated mares may have suppressed estrous cycles throughout the breeding season can lead treated mares to behave in ways that are functionally similar to pregnant mares.

While successful in mares, GonaCon and other anti-GnRH vaccines are expected to induce fewer estrous cycles when compared to non-pregnant control mares. This has been observed in many studies (Garza et al. 1986, Curtis et al. 2001, Dalin et al. 2002, Killian et al. 2006, Dalmau et al. 2015). In contrast, PZP

vaccine is generally expected to lead mares to have more estrous cycles per breeding season, as they continue to be receptive to mating while not pregnant. Females treated with GonaCon had fewer estrous cycles than control or PZP-treated mares (Killian et al. 2006) or deer (Curtis et al. 2001). Thus, concerns about PZP treated mares receiving more courting and breeding behaviors from stallions (Nuñez et al. 2009, Ransom et al. 2010) are not generally expected to be a concern for mares treated with anti-GnRH vaccines (Botha et al. 2008).

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

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

With respect to treatment with GonaCon or other anti-GnRH vaccines, it is probably less likely that treated mares will switch harems at higher rates than untreated animals, because treated mares are similar to pregnant mares in their behaviors (Ransom et al. 2014b). Indeed, Gray et al. (2009) found no difference in band fidelity in a free-roaming population of horses with GonaCon treated mares, despite differences in foal production between treated and untreated mares. Ransom et al. (2014b) actually found increased levels of band fidelity after treatment, though this may have been partially a result of changes in overall horse density and forage availability.

Even in cases where there may be changes in band fidelity, the National Research Council (2013) found that harem changing was not likely to result in serious adverse effects for treated mares:

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

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

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

“... in no case can the committee conclude from the published research that the behavior

differences observed are due to a particular compound rather than to the fact that treated animals had no offspring during the study. That must be borne in mind particularly in interpreting long-term impacts of contraception (e.g., repeated years of reproductive “failure” due to contraception).”

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

Genetic Effects of Immunocontraception

Even if it is the case that booster treatment with either PZP or GonaCon may lead to prolonged infertility, or even sterility in some mares, most HMAs have only a low risk of loss of genetic diversity if logistically realistic rates of contraception are applied to mares. Wild horses in most herd management areas are descendants of a diverse range of ancestors coming from many breeds of domestic horses. As such, the existing genetic diversity in the majority of HMAs does not contain genetic markers that have been identified as unique or historically unusual (NRC 2013). Past interchange between HMAs, either through natural dispersal or through assisted migration (i.e. human movement of horses) means that many HMAs are effectively indistinguishable and interchangeable in terms of their genetic composition. Roelle and Oyler-McCance (2015) used the VORTEX population model to simulate how different rates of mare sterility would influence population persistence and genetic diversity, in populations with high or low starting levels of genetic diversity, various starting population sizes, and various annual population growth rates. Their results show that the risk of the loss of genetic heterozygosity is extremely low except in cases where all four of the following conditions are met: starting levels of genetic diversity are low, initial population size is 100 or less, intrinsic population growth rate is low (5% per year), and very large fractions of the female population are permanently sterilized.

Many factors influence the strength of a vaccinated individual’s immune response, potentially including genetics, but also nutrition, body condition, and prior immune responses to pathogens or other antigens (Powers et al 2013). One concern that has been raised with regards to genetic diversity is that treatment with immunocontraceptives could possibly lead to an evolutionary increase in the frequency of individuals whose genetic composition fosters weak immune responses (Cooper and Larson 2006, Ransom et al. 2014a). This premise is based on a hypothesis that lack of response to immunocontraceptives could be a heritable trait, and that the frequency of that trait will increase over time in a population of treated animals. Cooper and Herbert (2001) reviewed the topic, in the context of concerns about the long-term effectiveness of immunocontraceptives as a control agent for exotic species in Australia. They argue that immunocontraception could be a strong selective pressure, and that selecting for reproduction in individuals with poor immune response could lead to a general decline in immune function in populations where such evolution takes place. Other authors have also speculated that differences in antibody titer responses could be partially due to genetic differences between animals (Curtis et al. 2001, Herbert and Trigg 2005).

BLM is not aware of any studies that have quantified the heritability of a lack of response to immunocontraception such as PZP vaccine or GonaCon-Equine in horses. At this point there are no studies available from which one could make conclusions about the long-term effects of sustained and widespread immunocontraception treatments on population-wide immune function. Although a few, generally isolated, feral horse populations have been treated with high fractions of mares receiving PZP immunocontraception for long-term population control (e.g., Assateague Island and Pryor Mountains), no

studies have tested for changes in immune competence in those areas. Relative to the large number of free-roaming feral horses in the western United States, immunocontraception has not been used in the type of widespread or prolonged manner that might be required to cause a detectable evolutionary response at a large scale.

Magiafolou et al. (2013) clarify that if the variation in immune response is due to environmental factors (i.e., body condition, social rank) and not due to genetic factors, then there will be no expected effect of the immune phenotype on future generations. Correlations between immune response and physical factors such as age and body condition have been documented; it remains untested whether or not those factors play a larger role in determining immune response to immunocontraceptives than heritable traits. Several studies discussed above noted a relationship between the strength of individuals' immune responses after treatment with GonaCon or other anti-GnRH vaccines, and factors related to body condition. For example, age at immunization was a primary factor associated with different measures of immune response, with young animals tending to have stronger and longer-lasting responses (Stout et al. 2003, Schulman et al. 2013). It is also possible that general health, as measured by body condition, can have a causal role in determining immune response, with animals in poor condition demonstrating poor immune reactions (Gray 2009, NRC 2013). Miller et al. (2013) speculated that animals with high parasite loads also may have weaker immune reactions to GonaCon.

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

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

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

Surgical Sterilization Techniques

Surgical sterilization techniques, while not reversible, may control horse reproduction without the kind of additional handling or darting that can be needed to administer contraceptive vaccines. In this sense, sterilization surgeries can be used to achieve herd management objectives with a relative minimum level of animal handling and management over the long term. In the Wild Horse Act, Congress specified that sterilization is an acceptable management action (16 USC §1333.b.1). Sterilization is not one of the clearly defined events that cause an animal to lose its status as a wild free-roaming horse (16 USC §1333.2.C.d). Several academics have offered their opinions about whether gelding a given stallion would lead to that individual effectively losing its status as a wild horse (Rutberg 2011, Kirkpatrick 2012, Nock 2017). Those opinions are based on a semantic and subjective definition of ‘wild,’ and not any definition

or criteria provided in the Wild Horse Act or implementing regulations. In addition, no studies have been conducted to analyze whether gelding wild stallions would cause them to become docile.

Ovariectomy via Colpotomy Procedure

Colpotomy is a surgical technique in which there is no external incision, reducing susceptibility to infection. For this reason, ovariectomy via colpotomy has been identified as a good choice for feral or wild horses (Rowland et al. 2018). Ovariectomy via colpotomy is a relatively short surgery, with a relatively quick expected recovery time. The ovariectomy via colpotomy procedure has been conducted for over 100 years, normally on non-pregnant, domestic mares. Removal of the ovaries is permanent and 100 percent effective, however the procedure is not without risk.

Ovariectomy via Flank Laparoscopy Procedure

Flank laparoscopy (Lee and Hendrickson 2008) is commonly used in domestic horses for application in mares due to its minimal invasiveness and full observation of the operative field. Ovariectomy via flank laparoscopy was seen as the lowest risk method considered by a panel of expert reviewers convened by USGS (Bowen 2015). In a review of unilateral and bilateral laparoscopic ovariectomy on 157 mares, Röcken et al. (2011) found that 10.8% of mares had minor post-surgical complications, and recorded no mortality. Mortality due to this type of surgery, or post-surgical complications, is not expected, but is a possibility. In two studies, ovariectomy by laparoscopy or endoscope-assisted colpotomy did not cause mares to lose weight, and there was no need for rescue analgesia following surgery (Pader et al. 2011, Bertin et al. 2013). This surgical approach entails three small incisions on the animal's flank, through which three cannulae (tubes) allow entry of narrow devices to enter the body cavity: these are the insufflator, endoscope, and surgical instrument. The surgical procedure involves the use of narrow instruments introduced into the abdomen via cannulas for the purpose of transecting the ovarian pedicle, but the insufflation should allow the veterinarian to navigate inside the abdomen without damaging other internal organs. The insufflator blows air into the cavity to increase the operating space between organs, and the endoscope provides a video feed to visualize the operation of the surgical instrument. This procedure can require a relatively long duration of surgery, but tends to lead to the lowest post-operative rates of complications. Flank laparoscopy may leave three small (<5 cm) visible scars on one side of the horse's flank, but even in performance horses these scars are considered minimal. It is expected that the tissues and musculature under the skin at the site of the incisions in the flank will heal quickly, leaving no long-lasting effects on horse health. Monitoring for up to two weeks at the facility where surgeries take place will allow for veterinary inspection of wound healing. The ovaries may be dropped into the abdomen, but this is not expected to cause any health problem; it is usually done in ovariectomies in cattle (e.g., the Willis Dropped Ovary Technique) and Shoemaker et al. (2014) found no problems with revascularization or necrosis in a study of young horses using this method.

Anticipated Effects of Surgery on a Pregnancy

The average mare gestation period ranges from 335 to 340 days (Evans et al. 1977, p. 373). There are few peer reviewed studies documenting the effects of ovariectomy on the success of pregnancy in a mare. A National Research Council (NRC) committee that reviewed research proposals in 2015 explained, "The mare's ovaries and their production of progesterone are required during the first 70 days of pregnancy to maintain the pregnancy" (NRC 2015). In female mammals, less progesterone is produced when ovaries are removed, but production does not cease (Webley and Johnson 1982). In 1977, Evans et al. stated that by 200 days, the secretion of progesterone by the corpora lutea is insignificant because removal of the ovaries does not result in abortion (p. 376). "If this procedure were performed in the first 120 days of pregnancy, the fetus would be resorbed or aborted by the mother. If performed after 120 days, the pregnancy should be maintained. The effect of ovary removal on a pregnancy at 90–120 days of gestation is unpredictable because it is during this stage of gestation that the transition from corpus luteum to placental support typically occurs" (NRC Proposal Review 2015). In 1979, Holtan et al. evaluated the

effects of bilateral ovariectomy at selected times between 25 and 210 days of gestation on 50 mature pony mares. Their results show that abortion (resorption) of the conceptus (fetus) occurred in all 14 mares ovariectomized before day 50 of gestation, that pregnancy was maintained in 11 of 20 mares after ovariectomy between days 50 and 70, and that pregnancy was not interrupted in any of 12 mares ovariectomized on days 140 to 210. Those results are similar to the suggestions of the NRC committee (2015).

For those pregnancies that are maintained following the procedure, likely those past approximately 120 days, the development of the foal is not expected to be affected. However, because this procedure is not commonly conducted on pregnant mares the rate of complications to the fetus has not yet been quantified. There is the possibility that entry to the abdominal cavity could cause premature births related to inflammation. However, after five months the placenta should hormonally support the pregnancy regardless of the presence or absence of ovaries. Gestation length was similar between ovariectomized and control mares (Holtan et al. 1979).

Anticipated Complications and Mortality Rates Associated with Ovariectomy via Colpotomy

Between 2009 and 2011, the Sheldon NWR in Nevada conducted ovariectomy via colpotomy surgeries (August through October) on 114 feral mares and released them back to the range with a mixture of sterilized stallions and untreated mares and stallions (Collins and Kasbohm 2016). Gestational stage was not recorded, but a majority of the mares were pregnant (Gail Collins, US Fish and Wildlife Service (USFWS), pers. comm.). Only a small number of mares were very close to full term. Those mares with late term pregnancies did not receive surgery as the veterinarian could not get good access to the ovaries due to the position of the foal (Gail Collins, USFWS, pers. comm.). After holding the mares for an average of 8 days after surgery for observation, they were returned to the range with other treated and untreated mares and stallions (Collins and Kasbohm 2016). During holding the only complications were observed within 2 days of surgery. The observed mortality rate for ovariectomized mares following the procedure was less than 2 percent (Collins and Kasbohm 2016, Pielstick pers. comm.).

During the Sheldon NWR ovariectomy study, mares generally walked out of the chute and started to eat; some would raise their tail and act as if they were defecating; however, in most mares one could not notice signs of discomfort (Bowen 2015). In their discussion of ovariectomy via colpotomy, McKinnon and Vasey (2007) considered the procedure safe and efficacious in many instances, able to be performed expediently by personnel experienced with examination of the female reproductive tract, and associated with a complication rate that is similar to or less than male castration. Nevertheless, all surgery is associated with some risk. Loesch et al. (2003) lists that following potential risks with colpotomy: pain and discomfort; injuries to the cervix, bladder, or a segment of bowel; delayed vaginal healing; eventration of the bowel; incisional site hematoma; intraabdominal adhesions to the vagina; and chronic lumbar or bilateral hind limb pain. Most horses, however, tolerate ovariectomy via colpotomy with very few complications, including feral horses (Collins and Kasbohm 2016). Evisceration is also a possibility, but these complications are considered rare (Prado and Schumacher, 2017). Mortality due to surgery or post-surgical complications is not anticipated, but it is a possibility and therefore every effort would be made to mitigate risks.

In September 2015, the BLM solicited the USGS to convene a panel of veterinary experts to assess the relative merits and drawbacks of several surgical ovariectomy techniques that are commonly used in domestic horses for potential application in wild horses. A table summarizing the various methods was sent to the BLM (Bowen 2015) and provides a concise comparison of several methods. Of these, ovariectomy via colpotomy was found to be relatively safe when practiced by an experienced surgeon and was associated with the shortest duration of potential complications after the operation. The panel discussed the potential for evisceration through the vaginal incision with this procedure. In marked contrast to a suggestion by the NRC Review (2013), this panel of veterinarians identified evisceration as

not being a probable risk associated with ovariectomy via colpotomy and “none of the panel participants had had this occur nor had heard of it actually occurring” (Bowen 2015).

Most spay surgeries on mares have low morbidity¹ and with the help of medications, pain and discomfort can be mitigated. Pain management is an important aspect of any ovariectomy (Rowland et al. 2018); according to surgical protocols that would be used, a long-lasting direct anesthetic would be applied to the ovarian pedicle, and systemic analgesics in the form of butorphanol and flunixin meglumine would be administered, as is compatible with accepted animal husbandry practices. In a study of the effects of bilateral ovariectomy via colpotomy on 23 mares, Hooper and others (1993) reported that post-operative problems were minimal (1 in 23, or 4%). Hooper et al. (1993) noted that four other mares were reported by owners as having some problems after surgery, but that evidence as to the role the surgery played in those subsequent problems was inconclusive. In contrast Röcken et al. (2011) noted a morbidity of 10.8% for mares that were ovariectomized via a flank laparoscopy. “Although 5 mares in our study had problems (repeated colic in 2 mares, signs of lumbar pain in 1 mare, signs of bilateral hind limb pain in 1 mare, and clinical signs of peritonitis in 1 mare) after surgery, evidence is inconclusive in each as to the role played by surgery” (Hooper et al. 1993). A recent study showed a 2.5% complication rate where one mare of 39 showed signs of moderate colic after laparoscopic ovariectomy (Devick 2018 personal communication).

Anticipated Effects on Mare Health and Behavior on the Range

Horses are anovulatory (do not ovulate/express estrous behavior) during the short days of late fall and early winter, beginning to ovulate as days lengthen and then cycling roughly every 21 days during the warmer months, with about 5 days of estrus (Asa et al. 1979, Crowell-Davis 2007). Estrus in mares is shown by increased frequency of proceptive behaviors: approaching and following the stallion, urinating, presenting the rear end, clitoral winking, and raising the tail towards the stallion (Asa et al. 1979, Crowell-Davis 2007). In most mammal species other than primates estrus behavior is not shown during the anovulatory period, and reproductive behavior is considered extinguished following spaying (Hart and Eckstein 1997). However mares may continue to demonstrate estrus behavior during the anovulatory period (Asa et al. 1980). Similarly, ovariectomized mares may also continue to exhibit estrous behavior (Scott and Kunze 1977, Kamm and Hendrickson 2007, Crabtree 2016), with one study finding that 30% of mares showed estrus signs at least once after surgery (Roessner et al 2015) and only 60 percent of ovariectomized mares cease estrous behavior following surgery (Loesch and Rodgerson 2003). Mares continue to show reproductive behavior following ovariectomy due to non-endocrine support of estrus behavior, specifically steroids from the adrenal cortex. Continuation of this behavior during the non-breeding season has the function of maintaining social cohesion within a horse group (Asa et al. 1980, Asa et al. 1984, NRC Review 2013). This may be a unique response of the horse (Bertin et al. 2013), as spaying usually greatly reduces female sexual behavior in companion animals (Hart and Eckstein 1997). In six ponies, mean monthly plasma luteinizing hormone² levels in ovariectomized mares were similar to intact mares during the anestrus season, and during the breeding season were similar to levels in intact mares at mid-estrus (Garcia and Ginther 1976).

The likely effects of spaying on mares’ social interactions and group membership can be inferred from available literature, even though wild horses have rarely been spayed and released back into the wild, resulting in few studies that have investigated their behavior in free-roaming populations. Wild horses are instinctually herd-bound and this behavior is expected to continue. However, no study has documented the rate at which spayed mares will continue to remain with the stallion and band from which the mare

was most recently attached. Overall the BLM anticipates that some spayed mares may continue to exhibit estrus behavior which could foster band cohesion. If free-ranging ovariectomized mares show estrous behavior and occasionally allow copulation, interest of the stallion may be maintained, which could foster band cohesion (NRC Review 2013). This last statement could be validated by the observations of group associations on the Sheldon NWR where feral mares were ovariectomized via colpotomy and released back on to the range with untreated horses of both sexes (Collins and Kasbohm 2016). No data were collected on inter- or intra-band behavior (e.g. estrous display, increased tending by stallions, etc.), during multiple aerial surveys in years following treatment, all treated individuals appeared to maintain group associations, and there were no groups consisting only of treated males or only of treated females (Collins and Kasbohm 2016). In addition, of solitary animals documented during surveys, there were no observations of solitary treated females (Collins and Kasbohm 2016). These data help support the expectation that ovariectomized mares would not lose interest in or be cast out of the social dynamics of a wild horse herd. As noted by the NRC Review (2013), the ideal fertility control method would not eliminate sexual behavior or change social structure substantially.

A study conducted for 15 days in January 1978 (Asa et al. 1980), compared the sexual behavior in ovariectomized and seasonally anovulatory (intact) pony mares and found that there were no statistical differences between the two conditions for any measure of proceptivity or copulatory behavior, or days in estrous. This may explain why treated mares at Sheldon NWR continued to be accepted into harem bands; they may have been acting the same as a non-pregnant mare. Five to ten percent of pregnant mares exhibit estrous behavior (Crowell-Davis 2007). Although the physiological cause of this phenomenon is not fully understood (Crowell-Davis 2007), it is thought to be a bonding mechanism that assists in the maintenance of stable social groups of horses year round (Ransom et al. 2014b). The complexity of social behaviors among free-roaming horses is not entirely centered on reproductive receptivity, and fertility control treatments that suppress the reproductive system and reproductive behaviors should contribute to minimal changes to social behavior (Ransom et al. 2014b, Collins and Kasbohm 2016).

‘Foal stealing,’ where a near-term pregnant mare steals a neonate foal from a weaker mare, is unlikely to be a common behavioral result of including spayed mares in a wild horse herd. McDonnell (2012) noted that “foal stealing is rarely observed in horses, except under crowded conditions and synchronization of foaling,” such as in horse feed lots. Those conditions are not likely in the wild, where pregnant mares will be widely distributed across the landscape, and where the expectation is that parturition dates would be distributed across the normal foaling season.

[Movement, Body Condition and Survival of Ovariectomized Mares](#)

In domestic animals spaying is often associated with weight gain and associated increase in body fat (Fettman et al 1997, Becket et al 2002, Jeusette et al. 2006, Belsito et al 2009, Reichler 2009, Camara et al. 2014). In wild horses, contracepted mares tend to be in better body condition than mares that are pregnant or that are nursing foals (Nuñez et al. 2010); the same improvement in body condition is likely to take place in spayed mares. In horses spaying has the potential to increase risk of equine metabolic syndrome (leading to obesity and laminitis), but both blood glucose and insulin levels were similar in mares before and after ovariectomy over the short-term (Bertin et al. 2013). In wild horses the quality and quantity of forage is unlikely to be sufficient to promote over-eating and obesity.

The likely effects of spaying on mares’ home range and habitat use can also be surmised from available literature. Bands of horses tend to have distinct home ranges, varying in size depending on the habitat and varying by season, but always including a water source, forage, and places where horses can shelter from inclement weather or insects (King and Gurnell 2005). It is unlikely that spayed mares will change their spatial ecology, but being emancipated from constraints of lactation may mean they can spend more time

away from water sources and increase their home range size. Lactating mares need to drink every day, but during the winter when snow can fulfill water needs or when not lactating, horses can traverse a wider area (Feist & McCullough 1976, Salter 1979). During multiple aerial surveys in years following the mare ovariectomy study at the Sheldon NWR, it was documented that all treated individuals appeared to maintain group associations, no groups consisted only of treated females, and none of the solitary animals observed were treated females (Collins and Kasbohm 2016). Since treated females maintained group associations, this indicates that their movement patterns and distances may be unchanged.

Spaying wild horses does not change their status as wild horses under the Wild Horse Act. In terms of whether spayed mares would continue to exhibit the free-roaming behavior that defines wild horses, the BLM expects that spayed mares would continue to roam unhindered in their respective HMAs. Wild horse movements may be motivated by a number of biological impulses, including the search for forage, water, and social companionship that is not of a sexual nature. As such, a spayed animal would still be expected to have a number of internal reasons for moving across a landscape and, therefore, exhibiting 'free-roaming' behavior. Despite marginal uncertainty about subtle aspects of potential changes in habitat preference, there is no expectation that spaying wild horses will cause them to lose their free-roaming nature.

Spaying is not expected to reduce mare survival rates. Individuals receiving fertility control often have reduced mortality and increased longevity due to being released from the costs of reproduction (Kirkpatrick and Turner 2008). Similar to contraception studies, in other wildlife species a common trend has been higher survival of sterilized females (Twigg et al. 2000, Saunders et al. 2002, Ramsey 2005, Jacob et al. 2008, Seidler and Gese 2012). Observations from the Sheldon NWR provide some insight into long-term effects of ovariectomy on feral horse survival rates. The Sheldon NWR ovariectomized mares were returned to the range along with untreated mares. Between 2007 and 2014, mares were captured, a portion treated, and then recaptured. There was a minimum of 1 year between treatment and recapture; some mares were recaptured a year later and some were recaptured several years later. The long-term survival rate of treated wild mares appears to be the same as that of untreated mares (Collins and Kasbohm 2016). Recapture rates for released mares were similar for treated mares and untreated mares.

Bone Histology

The BLM knows of no scientific, peer-reviewed literature that documents bone density loss in mares following ovariectomy. A concern has been raised in an opinion article (Nock 2013) that ovary removal in mares could lead to bone density loss. That paper was neither peer reviewed nor was it based on research in wild or domestic horses. (Kitchell et al. 2015). Hypotheses forwarded in Nock (2013) appear to be based on analogies from modern humans leading sedentary lives. Post-menopausal women have a greater chance of osteoporosis (Scholz-Ahrens et al. 1996), but the BLM is not aware of any research examining bone loss in horses following ovariectomy. Bone loss in humans has been linked to reduced circulating estrogen. There have been conflicting results when researchers have attempted to test for an effect of reduced estrogen on animal bone loss rates in animal models; all experiments have been on laboratory animals, rather than free-ranging wild animals. While some studies found changes in bone cell activity after ovariectomy leading to decreased bone strength (Jerome et al. 1997, Baldock et al. 1998, Huang et al. 2002, Sigrist et al. 2007), others found that changes were moderate and transient or minimal (Scholz-Ahrens et al. 1996, Lundon et al. 1994, Zhang et al. 2007), and even returned to normal after 4 months (Sigrist et al. 2007).

Consistent and strenuous use of bones, for instance using jaw bones by eating hard feed, or using leg bones by travelling large distances, may limit the negative effects of estrogen deficiency on micro-architecture (Mavropoulos et al. 2014). The effect of exercise on bone strength in animals has been known for many years and has been shown experimentally (Rubin et al. 2001). Dr. Simon Turner, Professor Emeritus of the Small Ruminant Comparative Orthopaedic Laboratory at Colorado State

University, conducted extensive bone density studies on ovariectomized sheep, as a model for human osteoporosis. During these studies, he did observe bone density loss on ovariectomized sheep, but those sheep were confined in captive conditions, fed twice a day, had shelter from inclement weather, and had very little distance to travel to get food and water (Simon Turner, Colorado State University Emeritus, written comm., 2015). Dr. Turner indicated that an estrogen deficiency (no ovaries) could potentially affect a horse's bone metabolism, just as it does in sheep and human females when they lead a sedentary lifestyle, but indicated that the constant weight bearing exercise, coupled with high exposure to sunlight ensuring high vitamin D levels, are expected to prevent bone density loss (Simon Turner, Colorado State University Emeritus, written comm., 2015).

Home range size of horses in the wild has been described as 4.2 to 30.2 square miles (Green and Green 1977) and 28.1 to 117 square miles (Miller 1983). A study of distances travelled by feral horses in "outback" Australia shows horses travelling between 5 and 17.5 miles per 24 hour period (Hampson et al. 2010a), travelling about 11 miles a day even in a very large paddock (Hampson et al. 2010b). Thus extensive movement patterns of wild horses are expected to help prevent bone loss. The expected daily movement distance would be far greater in the context of larger pastures typical of BLM long-term holding facilities in off-range pastures. A horse would have to stay on stall rest for years after removal of the ovaries in order to develop osteoporosis (Simon Turner, Colorado State University Emeritus, written comm., 2015) and that condition does not apply to any wild horses turned back to the range or any wild horses that go into off-range pastures.

Tubal Ligation

Tubal ligation has not been commonly performed on mares and the impacts of this procedure are not well known. It is a type of permanent birth control where the oviducts are cut or blocked to permanently prevent pregnancy. The only long term effects to the overall health of mares would be sterility. Pregnancy and the development of the foal would not be expected to be affected; however, as this procedure is relatively new, the outcome is not completely known. The BLM is currently planning to study the impacts of tubal ligation on wild horses.

Hysteroscopically-Guided Laser Ablation

This procedure is conducted to ablate the each oviduct opening and papilla. There is no risk of bleeding, sutures, or prolonged discomfort as the procedure does not involve incisions; however, there is the potential for mild, transient colic. The mares would continue to have an estrous cycle but would be unable to become pregnant, as the oviduct opening would have been ablated, essentially blocking the passage of the sperm. Because this procedure (on wild horses) is new, the effects are not completely known. The BLM is currently planning to study the impacts of this procedure on wild horses.

Gelding

Castration (the surgical removal of the testicles, also called gelding or neutering) is a surgical procedure for the horse sterilization that has been used for millenia. The procedure is fairly straight forward, and has a relatively low complication rate. Few studies have been conducted on techniques for reducing male fertility. Nelson (1980) and Garrott and Siniff (1992) modeled potential efficacy of male-oriented contraception as a population management tool, and both studies agreed that while slowing growth, sterilizing only dominant males (i.e., harem-holding stallions) would result in only marginal reduction in female fertility rates. Eagle et al. (1993) and Asa (1999) tested this hypothesis on herd management areas (HMAs) where dominant males were vasectomized. Their findings agreed with modeling results from previous studies, and they also concluded that sterilizing only dominant males would not provide the desired reduction in female fertility and overall population growth rate, assuming that the numbers of fertile females is not changed. While bands with vasectomized harem stallions tended to have fewer foals, breeding by bachelors and subordinate stallions meant that population growth still occurred – female

fertility was not dramatically reduced. Garrott and Siniff (1992) concluded from their modeling that male sterilization would effectively cause there to be zero population growth (the point where births roughly equal deaths) only if a large proportion of males (i.e., >85%) could be sterilized. In cases where the goal of harem stallion sterilization is to reduce population growth rates, success appears to be dependent on a stable group structure, as strong bonds between a stallion and mares reduce the probability of a mare mating an extra-group stallion (Nelson 1980, Garrott and Siniff 1992, Eagle et al. 1993, Asa 1999). Collins and Kasbohm (2016) demonstrated that there was a reduced fertility rate in a feral horse herd with both spayed and vasectomized horses – some geldings were also present in that herd.

Direct Effects of Gelding

Although gelding is a common surgical procedure, some level of minor complications after surgery may be expected (Getman 2009), and it is not always possible to predict when postoperative complications would occur. Fortunately, the most common complications are almost always self-limiting, resolving with time and exercise. Individual impacts to the stallions during and following the gelding process should be minimal and would mostly involve localized swelling and bleeding. Complications may include, but are not limited to: minor bleeding, swelling, inflammation, edema, infection, peritonitis, hydrocele, penile damage, excessive hemorrhage, and eventration (Schumacher 1996, Searle et al. 1999, Getman 2009). A small amount of bleeding is normal and generally subsides quickly, within 2-4 hours following the procedure. Some degree of swelling is normal, including swelling of the prepuce and scrotum, usually peaking between 3-6 days after surgery (Searle et al. 1999). Swelling should be minimized through the daily movements (exercise) of the horse during travel to and from foraging and watering areas. Most cases of minor swelling should be back to normal within 5-7 days, more serious cases of moderate to severe swelling are also self-limiting and are expected to resolve with exercise after one to 2 weeks. Older horses are reported to be at greater risk of post-operative edema, but daily exercise can prevent premature closure of the incision, and prevent fluid buildup (Getman 2009). In some cases, a hydrocele (accumulation of sterile fluid) may develop over months or years (Searle et al. 1999). Serious complications (eventration, anesthetic reaction, injuries during handling, etc.) that result in euthanasia or mortality during and following surgery are rare (e.g., eventration rate of 0.2% to 2.6% noted in Getman 2009, but eventration rate of 4.8% noted in Shoemaker et al. 2004) and vary according to the population of horses being treated (Getman 2009). Normally one would expect serious complications in less than 5% of horses operated under general anesthesia, but in some populations these rates have been as high as 12% (Shoemaker 2004). Serious complications are generally noted within 3 or 4 hours of surgery but may occur any time within the first week following surgery (Searle et al. 1999). If they occur, they would be treated with surgical intervention when possible, or with euthanasia when there is a poor prognosis for recovery. For intact stallions, testosterone levels appear to vary as a function of age, season, and harem size (Khalil et al 1998). It is expected that testosterone levels will decline over time after castration. Domestic geldings had a significant prolactin response to sexual stimulation, but lacked the cortisol response present in stallions (Colborn et al. 1991). Although libido and the ability to ejaculate tends to be gradually lost after castration (Thompson et al. 1980), some geldings continue to intromit (Rios and Houpt 1995, Schumacher 2006).

Indirect Effects of Gelding

Castration is not expected to reduce geldings' survival rates; rather, the procedure is thought to increase survival as males are released from the cost of reproduction (Jewell 1997). In Soay sheep castrates survived longer than rams in the same cohort (Jewell 1997), and Misaki horse geldings lived longer than intact males (Kaseda et al. 1997, Khalil and Murakami 1999). Moreover, it is unlikely that a reduced testosterone level would compromise gelding survival in the wild, considering that wild mares survive with low levels of testosterone. Consistent with geldings not expending as much energy toward in attempts to obtain or defend a harem, it is expected that wild geldings may have a better body condition than wild, fertile stallions.

For fertility control strategies where gelding is intended to reduce growth rates by virtue of sterile males defending harems, the National Academies of Sciences (NRC 2013) suggested that the effectiveness of gelding on overall reproductive rates may depend on the pre-castration social roles of those animals. Having a post-gather herd with some geldings and a lower fraction of fertile mares necessarily reduces the absolute number of foals born per year, compared to a herd that includes more fertile mares. An additional benefit is that geldings that would otherwise be permanently removed from the range (for adoption, sale or other disposition) may be released back onto the range where they can engage in free-roaming behaviors.

Behavioral Effects of Gelding

Gelding adult male horses is expected to result in reduced testosterone production, which is expected to directly influence reproductive behaviors (NRC 2013). However, testosterone levels alone are not a predictor of masculine behavior (Line et al. 1985, Schumacher 2006). In domestic geldings, 20-30% continued to show stallion-like behavior, whether castrated pre- or post-puberty (Line et al. 1985). Gelding of domestic horses most commonly takes place before or shortly after sexual maturity, and age-at-gelding can affect the degree to which stallion-like behavior is expressed later in life. In intact stallions, testosterone levels peak increase up to an age of ~4-6 years, and can be higher in harem stallions than bachelors (Khalil et al 1998). It is assumed that free roaming wild horse geldings would generally exhibit reduced aggression toward other horses, and reduced reproductive behaviors (NRC 2013). The behavior of wild horse geldings in the presence of intact stallions has not been well documented.

Despite livestock being managed by castrating males for millennia, there is relatively little published research on castrates' behaviors (Hart and Jones 1975). Stallion behaviors in wild or pasture settings are better documented than gelding behaviors, but inferences about how the behaviors of geldings will change, how quickly any change will occur after surgery, or what effect gelding an adult stallion and releasing him back in to a wild horse population will have on his behavior and that of the wider population must be surmised from the existing literature. There is an ongoing BLM study in Utah focused on the individual and population-level effects of including some geldings in a free-roaming horse population (BLM 2016), but results from that study are not yet available. However, inferences about likely behavioral outcomes of gelding can be made based on available literature.

The effect of castration on aggression in horses has not often been quantified. One report has noted that high levels of aggression continued to be observed in domestic horse geldings who also exhibited sexual behaviors (Rios and Houpt 1995). Stallion-like behavior in domestic horse geldings is relatively common (Smith 1974, Schumacher 1996), being shown in 20-33% of cases whether the horse was castrated pre- or post-puberty (Line et al. 1985, Rios and Houpt 1995, Schumacher 2006). While some of these cases may be due to cryptorchidism or incomplete surgery, it appears that horses are less dependent on hormones than other mechanisms for the maintenance of sexual behaviors (Smith 1974). Domestic geldings exhibiting masculine behavior had no difference in testosterone concentrations than other geldings (Line et al. 1985, Schumacher 2006), and in some instances the behavior appeared context dependent (Borsberry 1980, Pearce 1980).

The likely effects of castration on geldings' social interactions and group membership can be inferred from available literature, even though wild horses are rarely gelded and released back into the wild, resulting in few studies that have investigated their behavior in free-roaming populations. In the western US – where ranges are much larger, intact stallions are present year-round, and population density varies – free-roaming gelding behaviors may differ somewhat from those noted below. In a pasture study of domestic horses, Van Dierendonk et al. (1995) found that social rank among geldings was directly correlated to the age at which the horse was castrated, suggesting that social experiences prior to sterilization may influence behavior afterward. Of the two geldings present in a study of semi-feral horses in England, one was dominant over the mares whereas a younger gelding was subordinate to older mares;

stallions were only present in this population during a short breeding season (Tyler 1972). A study of domestic geldings in Iceland held in a large pasture with mares and sub-adults of both sexes, but no mature stallions, found that geldings and sub-adults formed associations amongst each other that included interactions such as allo-grooming and play, and were defined by close proximity (Sigurjónsdóttir et al. 2003). These geldings and sub-adults tended to remain in a separate group from mares with foals, similar to castrated Soay sheep rams (*Ovis aries*) behaving like bachelors and grouping together, or remaining in their mother's group (Jewell 1997). In Japan, Kaseda et al. (1997) reported that young males dispersing from their natal harem and geldings moved to a different area than stallions and mares during the non-breeding season. Although the situation in Japan may be the equivalent of a bachelor group in natural populations, in Iceland this division between mares and the rest of the horses in the herd contradicts the dynamics typically observed in a population containing mature stallions. Sigurjónsdóttir et al. (2003) also noted that in the absence of a stallion, allo-grooming between adult females increased drastically. Other findings included increased social interaction among yearlings, display of stallion-like behaviors such as mounting by the adult females, and decreased association between females and their yearling offspring (Sigurjónsdóttir et al. 2003). In the same population in Iceland Van Dierendonck et al. (2004) concluded that the presence of geldings did not appear to affect the social behavior of mares or negatively influence parturition, mare-foal bonding, or subsequent maternal activities. Additionally, the welfare of broodmares and their foals was not affected by the presence of geldings in the herd (Van Dierendonck et al. 2004). These findings are important because treated geldings will be returned to the range in the presence of pregnant mares and mares with foals of the year.

The likely effects of castration on geldings' home range and habitat use can also be surmised from available literature. Bands of horses tend to have distinct home ranges, varying in size depending on the habitat and varying by season, but always including a water source, forage, and places where horses can shelter from inclement weather or insects (King and Gurnell 2005). By comparison, bachelor groups tend to be more transient, and can potentially use areas of good forage further from water sources, as they are not constrained by the needs of lactating mares in a group. The number of observations of gelded wild stallion behavior are still too few to make general predictions about whether a particular gelded stallion individuals will behave like a harem stallion, a bachelor, or form a group with geldings that may forage and water differently from fertile wild horses.

The BLM does expect that geldings would continue to roam unhindered in the HMAs where gelding may take place. Wild horse movements may be motivated by a number of biological impulses, including the search for forage, water, and social companionship that is not of a sexual nature. As such, a gelded animal would still be expected to have a number of internal reasons for moving across a landscape and, therefore, exhibiting 'free-roaming' behavior. Despite marginal uncertainty about subtle aspects of potential changes in habitat preference, there is no expectation that gelding wild horses would cause them to lose their free-roaming nature. BLM acknowledges that geldings may exhibit some behavioral differences after surgery, compared to intact stallions, but those differences would not be expected to remove the geldings' rebellious and feisty nature. While it may be that a gelded horse could have a different set of behavioral priorities than an intact stallion, the expectation is that geldings would choose to act upon their behavioral priorities in an unhindered way, just as is the case for an intact stallion. In this sense, a gelded male would be just as much 'wild' as defined by the Wild Horse Act as any intact stallion, even if his patterns of movement differ from those of an intact stallion.

Appendix C

Draft EIS Public Comments and BLM Responses

Comment #	Comment Text	BLM Response
1	<p>From my research, the AML for Salt Wells was arbitrarily decided upon by the RSGA and the BLM in 1979, after the first lawsuit filed by the RSGA. It is imperative the BLM conduct Environmental Assessments (EA), Environmental Impact Studies (EIS) and NEPA studies, in accordance with their own policies when making any and all decisions. If it is suggested that the wild horses are over AML and the land is suffering, as well as, other multi-use entities, then I suggest lowering the AML, but still maintaining a genetically viable herd. The BLM should be held to the standard of conducting Environmental Assessments (EA), Environmental Impact Studies (EIS) and NEPA studies in order to determine a lower AML. None of these options have been explored, just the drastic measure of managing the current HMA's as HA's, and eventually zeroing out the wild horses in these areas. This is not acceptable! [...]I would suggest gathering the Salt Wells, Adobe Town, White Mountain and Divide Basin HMA's down to low AML, administer PZP or other contraceptive methods to help control population, then restructure the fencing within the HMA's. For example, change the fencing in Salt Wells to only include the southern portion where it is more vastly BLM lands. Option A is the only desirable option to continue the easy viewing of the wild horses in family bands along the Pilot Butte Scenic Loop. This scenic loop has attracted visitors to the area for generations.</p>	<p>The alternatives proposed in this comment are similar to one or more alternatives already considered for analysis in the EIS.</p>
2	<p>Appendix A is incredibly informative, but it often lacks the in-text citations for the data provided [...]There is also a lack of explanation on how the data provided has been calculated, especially Appropriate Management Level (AML) and Animal Unit Months (AUM).</p>	<p>The data used for analysis in Appendix A is unique to this document, so no in-text citation is needed. More detailed information on this data is available as part of the administrative record.</p>

Comment #	Comment Text	BLM Response
3	<p>Current conditions and management I am dismayed that there is no detailed discussion in the draft EIS that details the BLM's current wild horse management efforts, nor is there discussion of historic, current and projected wild horse populations. Wild horse population data are readily available via the BLM's National Wild Horse and Burro Program, yet it is impossible to tell in the draft EIS what the AML trends have been over time relative to the four HMAs in the planning area.</p> <p>For example, 2019 Wild Horse and Burro Program population statistics on Wyoming HMAs indicate that all four HMAs considered under this EIS are above AML, ranging in excess of 124 percent to 210 percent above AML as determined by the 1997 Green River RMP. Understandably, these population dynamics fluctuate over time and are dependent upon the BLM's resources and ability to conduct management measures. However, none of this context is provided in the draft EIS as it currently reads. I recommend that the BLM conduct further consideration for the current status and historic wild horse population trends for further context.</p> <p>Moreover, it is completely unclear how the BLM has, and has not, complied with the terms of the original 2013 Consent Decree. Management and population data are important to convey the scale to which population exceedances have, or could continue to exist, throughout the planning area to-date. The BLM should also acknowledge past AML maintenance within the HMAs and incorporate consideration for these conditions in its analysis throughout the EIS in order to further guide informed discussion of existing conditions and potential impacts.</p>	<p>A history of how AML was set for each HMA is discussed in Section 3.1 of the EIS. A detailed discussion of wild horse population counts and gather operations is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>
4	<p>Given the BLM's history of being unable to consistently keep HMAs at AML, we recommend setting a lower AML than proposed to ensure the BLM meets its responsibility to manage for a "thriving natural ecological balance". The BLM should conduct further analysis to determine, with scientific basis, the appropriate AML for the Adobe Town HMA. Because lack of water may be a factor affecting pronghorn and mule deer populations in this area, we also recommend the</p>	<p>The BLM followed the guidance provided in H-4700-1 which recommends setting the low AML so that the herd will grow to high AML over a 4-5 year period. An evaluation of these AMLs is provided in Appendix A.</p>

Comment #	Comment Text	BLM Response
	BLM ensures there are sufficient water sources for wildlife, livestock, and horses in this area	
5	WSGA has serious concerns with the proposed action regarding the Adobe Town horse population. While the analysis presented in Appendix A would appear to support the proposed upper AML of 536 horses, there is no discussion regarding the ability to confine these horses within the designated public land areas when the number of horses reaches or exceeds the high AML. In addition, should the impact of this wild horse population result in a failure of the area to meet Wyoming Rangeland Health Standards, there is no assurance that the BLM's response would not be to reduce permitted livestock grazing.	Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Implementation-level management actions to accomplish this, or to respond to problems in management of wild horses within the HMA, are beyond the scope of this EIS. Similarly, potential future responses to the results of future rangeland health assessments is beyond the scope of this EIS.
6	Table 2-2 Summary of Impacts assumes for analysis purposes that under the No Action Alternative and those areas that under other alternatives that would remain within HMA's, resource impacts, including those to soils, vegetation, water and wildlife would be limited to levels that may occur under AML management. Table 2-2 should include an analysis of each of these impacts at the maximum levels that horse numbers have reached over the past 20 years of failed management.	Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Considering possible management actions if this is not accomplished is beyond the scope of this EIS. In Section 2.2.1, BLM explained that implementation of Alternative A would require resolution of ongoing private land conflicts in the checkerboard. In Section 3.2, 3.3, 3.4 and Appendix A BLM discussed current range conditions. In Section 3.1, BLM explained that private landowner permission for wild horses to use private lands in most of the checkerboard no longer exists.

Comment #	Comment Text	BLM Response
7	<p>WWF questions using historical stocking rates as a target population level in the Adobe Town HMA. This stocking rate was apparently made using historical numbers and geographic area calculations. Given the impacts of historical habitat damage created by herd being above this target, the habitat likely cannot support historical stocking levels, if those levels were appropriate in the past. This herd segment should be managed conservatively for habitat recovery and increased stated as study and modelling of range conditions shows increases in productivity and recovery of non-forage species. The initial target should be the minimum number of animals needed for genetic diversity (approximately 150 animals) and the stated target of 255-450 horses should be a population ceiling based on routine annual on-the-ground habitat monitoring and forage assessment across the HMA. WWF emphasizes the importance of continual assessment of productivity and habitat quality and reevaluation of carrying capacity as described in NRC (2013).[...]</p> <p>As target population levels have been stated, it is important to verify that the population on the landscape matches the post-gather target. Including a post-gather census as a standard practice would ensure this is the case.</p>	<p>An evaluation of the AMLs for each alternative is provided in Appendix A.</p>
8	<p>* Page 37, Livestock Grazing, Alternative A: Managing for AML also ensures a TNEB and helps maintain rangeland health." Comment: WDA urges BLM to change Alternative A to reflect actual wild horse numbers, which consistently exceeds AML, In order to analyze actual impacts. As written, the alternative conveys AML is always within range and rangeland health standards are met.[...]</p> <p>* Page 41: Table 3-1: Comment: The table Includes the Current AML range for the HMAs, but we urge the BLM utilize actual numbers, including those HMAs well above AML</p>	<p>Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Implementation-level management actions to accomplish this, or to respond to problems in management of wild horses within the HMAs, are the beyond scope of this EIS. Information on the existing conditions for wild horse management are discussed in Section 3.1 of the EIS.</p>

Comment #	Comment Text	BLM Response
9	<p>Table 4.1 indicates the high and low AML for Adobe Town HMA, which are based on BLM aerial surveys. However, these aerial surveys may inaccurately reflect herd population numbers. Recent GPS data on the Adobe Town HMA indicates that a singular horse herd may occupy two separate HMAs. As a result, aerial surveys may inaccurately assign a herd a singular HMA when the herd spends more of its time in another HMA (Hennig et al. 2018).[...]</p> <p>Section 2.2.4 In Section 2.2.4, the proposed reduction in ALM for Adobe Town HMA was based on the historic AML of 610-800 horses described in Table 4.1. Given the work of Hennig and colleagues on the permeability of HMA boundaries, these aerial estimates may be faulty. GPS data is needed to corroborate the planned reductions in ATHMA. IR surveys, coupled with distance sampling analysis, may also be helpful in establishing accurate counts (Schoenecker et al. 2018). ? In Section 2.2.4, a justification for excluding the RFSO portion of the Adobe Town ANTM in Alternative D is that wild horses currently stray onto checkerboard lands. However, recent GPS data shows that 44.9% of Adobe Town feral horses' movements were outside their HMA with 10.8% on private lands (Hennigs et al. 2018). This indicates the Adobe Town herd has a propensity to drift off of allocated HMA.</p>	<p>AMLs are not established by aerial surveys. For more information on how AML was established for each HMA see Section 3.1 of the EIS.</p>
10	<p>Due to an inability to maintain wild horses within the AML across the project area, the 2013 Consent Decree and Joint Stipulation for Dismissal (Consent Decree) were negotiated. We believe the Draft EIS is misleading the reader to provide input on the range of alternatives with a false assumption that the wild horse population is, within AML. WDA urges BLM to include more information in Chapter 1, Introduction to provide a more comprehensive understanding of the long standing issue of non-compliance with the original agreement. The BLM should include the actual wild horse populations in comparison to AML through the range of alternatives which should ensure a more accurate analysis.</p>	<p>Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Implementation-level management actions to accomplish this, or to respond to problems in management of wild horses within the HMA, are beyond the scope of this EIS..</p>

Comment #	Comment Text	BLM Response
11	<p>Page 29, MA016, Alternative D: "AML may be adjusted as needed when site specific data demonstrates a change In AML is appropriate." Comment: We recommend changing the statement to the following: 0 AML will be decreased as needed when site specific data demonstrates a change in AML is appropriate." We do not support an Increase in any AML</p>	<p>BLM policy (see Section 2.5.1 in H-4700-1) allows for the adjustment of AML either up or down depending on site specific monitoring data and the results of an environmental assessment.</p>
12	<p>* Page 33, Soil Resources, Alternative A: "Maintenance of AML would help mitigate potential Impacts to soils.*." Comment: The maintenance of AML does not occur consistently and is based on aspiration. It's imperative to provide the history of lack of maintenance of AML throughout the document and ensure the EIS analyzes above high AML across the resources.</p>	<p>Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Implementation-level management actions to accomplish this, or to respond to problems in management of wild horses within the HMA, are beyond the scope of this EIS.</p>
13	<p>Appropriate Management Level (AML)</p> <p>No data has been provided to account for or support the current AMLs of the 4 HMAs addressed in the EIS. The following questions must be addressed, and data produced:</p> <ul style="list-style-type: none"> * When was AML first calculated for these HMAs and upon what rangeland data analysis was it based? This data and the AML calculation formula must be produced to support BLM's claim that the range can only support this number of horses. * Upon what data was livestock AUM allocation originally based? * In what year were AUMs originally set? * Have AUMs been recalculated since? As mentioned previously, modern cattle are significantly larger, thus if AUMs/forage allocation have not been recalculated since the origin of these HMAs, they must now be recalculated. This data must be produced. * Where is the on-going current monitoring data that supports AML and AUM allocation? This data must be produced. * If the EIS solutions are carried out, who will the horse AUMs be reallocated to? This information must be disclosed. <p>Where the horse AUMs are going to be reallocated and why (what purpose does conversion serve) is a public concern and we have a First Amendment right to know.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment.</p>

Comment #	Comment Text	BLM Response
	<p>The BLM may not resort to the extreme and drastic measure of zeroing out all horses from their dedicated habitat without producing hard data and analysis to support it. Where is this data? We suspect it does not exist.</p> <p>A detailed forage allocation and usage analysis must also be included for each proposed alternative, as it is essential information for the interested and affected parties to have in order to understand the context in which these decisions are being made.</p>	

Comment #	Comment Text	BLM Response
14	<p>Appendix A admits that BLM has no utilization data or pattern mapping and therefore it cannot calculate the carrying capacity for wild horses. DEIS, Appendix A at 6. The DEIS instead estimates forage needs under each alternative. Id. However, what a wild horse needs is not the same as whether the land can support that need. As is clear throughout the west, wild horses are starving due to lack of forage and water, especially in drought, which should clearly demonstrate the problem of assuming the range has enough forage and water to support a certain number of horses without actual data to verify that conclusion.</p> <p>If BLM intends to defend its analysis, BLM could have, and should have, used actual monitoring data to plot vegetation. Hells Canyon Pres. Council v. Connaughton, 2012 WL 13047991, at *5 (D. Or. Aug. 10, 2012) ("[W]here the Forest Service fails to 'provide the underlying data upon which its experts relied' in reaching its ultimate conclusions, those conclusions are arbitrary and capricious."); see also W. Watersheds v. U.S. Forest Serv., 2012 WL 1094356, at *1 (N.D. Cal. Mar. 30, 2012) (deferring to Forest Service's use of annual forage utilization measures to monitor riparian objectives where Forest Service submitted "empirical studies and analysis to that effect," but refusing to defer to Forest Service's reliance on residual dry matter measurement as a surrogate for condition and trend studies required by Forest Plan in part because the Forest Service did not provide empirical research supporting that substitution). Several RSGA permittees and other operations in the RSFO and RFO, including local conservation districts (Sweetwater County Conservation District and Little Snake River Conservation District) have developed extensive data for areas with wild horses in coordination with BLM range staff to determine what and how much they consume. Other permittees have developed monitoring and rangeland health assessments that document the forage found in the RSFO. The DEIS does not mention the fecal studies or other nor does it disclose whether BLM considered trend data developed throughout the field offices. RSGA knows, to a 100% certainty, that BLM renewed the RSGA and Vermillion Creek</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations.</p> <p>Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p> <p>Overall, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment.</p>

Comment #	Comment Text	BLM Response
	<p>permits with rangeland health assessments. RSFO participates in monitoring programs for Vermillion Creek, Salt Wells, and Pine Mountain Allotments. BLM prepared an Analysis of the Management Situation for the Rock Springs RMP revision and used data for the administrative drafts of the RMP. How is this data not discussed at length in the DEIS?</p> <p>Appendix A also cites to the anticipated stocking rate relative to vegetation communities in the HMA. The DEIS uses the term "vegetation communities" without any information regarding soils, elevation, precipitation, or existing data that would define the vegetation communities found in an area exceeding two million acres. Again, this information can be obtained from RSFO range staff, WGFD, and livestock permittees but the DEIS failed to use this information without offering a rational explanation.</p> <p>The lack of forage and water information is fatal to any decision regarding AML or HMA boundaries. BLM does not have the discretion to unilaterally adopt new criteria not found in the rules or Handbook.</p>	

Comment #	Comment Text	BLM Response
15	<p>P. 44 The DEIS states that "[w]hen establishing AML, the analysis includes an interdisciplinary and site- specific environmental review and should be completed whenever review of resource monitoring and population inventory data indicates that the existing AML may no longer be appropriate."</p> <p>It appears by this statement that although "[t]he BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area" (App A) the BLM did perform a "site-specific" review of "resource monitoring and population inventory data" to conclude that the existing AML is no longer appropriate. These two statements are incongruent, and the BLM must clarify what forage data has been used to determine AMLs. As admitted in DEIS, Appendix A, BLM does not have "in-depth monitoring data" or data on available forage. The Coalition asked for this data by FOIA and the RSFO failure to even respond constitutes an admission that no such data exists and corroborates the admissions in the DEIS. The lack of such data requires BLM at a minimum to explain how it calculated the AML and how it complies with H-4700-1, Appendix 3.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment.</p>

Comment #	Comment Text	BLM Response
16	<p>P. 18 The DEIS states that for the RFO portion of Adobe Town "[t]he reduced AML under this alternative provides slightly more space and a lower overall stocking density than current management." The DEIS must describe, preferably in tabular format, the following:</p> <ul style="list-style-type: none"> * What is the carrying capacity for this HMA? * What is the carrying capacity for this HMA as modified? * How was the carrying capacity determined? * What forage are wildlife using? * What amounts of forage are wildlife using? * What forage are livestock using? * What amounts of forage are the livestock using? * The location and amount of water available. <p>The DEIS Appendix A assumes ample water citing 191 reservoirs, tanks and springs. The artesian wells that supported wild horse growth are located on the Checkerboard and BLM has not authorized a lot of new wells or springs over the past 20 years, thus it is not clear if the Appendix is using range improvement inventory for the whole field office or just the proposed HMAs.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment.</p>
17	<p>"The AML for Adobe Town under this alternative would be 259 to 536 wild horses. This initial AML was calculated by proportionally adjusting the high AML based on the reduced size of the HMA..." (EIS, p. 16). The EIS justifies this method for determining AML (proportional) by explaining that adjustments to AML could later be made by following the protocol for scientific establishment of AML, as described by the Wild Horses and Burros Management Handbook, and by site specific analysis of rangeland health standards. A proportional adjustment has no ecological analysis, which the BLM is responsible for in making decisions about land use, and thus throws the legality of the determination into question.</p> <ul style="list-style-type: none"> • "AUMs previously allocated to wild horse use may be allocated to wildlife, livestock or other ecosystem functions." (EIS, p. 17) AUM determinations are to be made under a non-biased, ecologically based system of analysis, including monitoring and assessments of land 	<p>The alternatives considered in this EIS are designed to meet the purpose and need, not to determine allocation of AUMs. In this RMP Amendment, BLM is making a planning decision about which lands should be designated for wild horse use, and at what initial AMLs. BLM is not making livestock AUM allocation decisions in this RMP Amendment.</p>

Comment #	Comment Text	BLM Response
	<p>health standards (BLM Wild Horses and Burros Management Handbook). This removes use biases and local pressures for how public lands are managed – in other words, no use valued higher than another. Reallocating wild horse AUMs without making an equal number of AUMs available to wild horses elsewhere demonstrates explicit bias.</p>	

Comment #	Comment Text	BLM Response
18	<p>P. 18, 19</p> <p>The DEIS states, throughout the document, but relevant to the Salt Wells HMA that "[t]he BLM conducted a review of AML (as per H-4700-1) and found that there would be adequate forage, water cover and space to sustain a wild horse herd, and maintain a TNEB within the reduced HMA area, at the proposed AML (see Appendix A)". The DEIS and Appendix A, however, have not been revised since the administrative draft to state the available forage, water, cover and space on the various HMAs considered in Alternatives A, B, and C. Instead Appendix 3 states that "[t]he BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area. Therefore, the analysis in this appendix will focus on forage needs as proposed in each alternative, and their anticipated stocking rate relative to the types of vegetation communities found within the HMA." App A (explaining Tier 2 analysis for each alternative). The DEIS expresses the capacity of entire RFO and RFSO to estimated AUMs based on some unknown sources or metric. The Coalition identified this material failure in its previous comments and requested the data and calculations used in this Appendix by FOIA. The RSFO failed to provide a single document to support its conclusions in the DEIS and Appendix A in clear violation of FOIA. The almost 600 pages of documents provided from the RFO consisted of range surveys taken from 1963 and 1965 listing vegetation by location and some photographs of the sites. Many if not most of the sites were not located in the public land areas covered by this DEIS.</p> <p>There is moreover no document explaining why data collected for a one-time survey would enable BLM to calculate the forage available in 2020. Even assuming the Appendix A calculations used the Range Survey, there is no additional documentation of how BLM calculated available forage committed to grazing permits, big game habitat, or Greater sage grouse habitat. It is significant that Appendix A does not explain this either, suggesting there was no calculation other than to estimate what wild horses need.</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p> <p>A description of how AML was established for each alternative is provided in Appendix A. Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and how the existing data does not provide a comprehensive estimate of forage production throughout the planning area.</p> <p>The basis for the reduction of livestock AUMs in Alternative B was explained in Section 4.2.10 and Appendix A.</p> <p>These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). The BLM does not typically collect data on private lands. However, the BLM is using the best available data (including the most recent Standards for Healthy Rangelands assessments) as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment, particularly given that the proposed alternative would establish a process for future modification of AML based on longer-term data about range conditions. This process is described in BLM handbook H-4700-1, Appendix 3.</p> <p>In this RMP Amendment, BLM is making a planning decision about which lands should be designated for wild horse use, and at what initial AMLs. The number of active grazing AUMs</p>

Comment #	Comment Text	BLM Response
	<p>The BLM has utterly failed to perform an adequate Tier 1 or Tier 2 analysis under Handbook 4700-1 at App. 3-69-70. As a result, neither the Coalition nor the public will have any knowledge as to how much available forage or water is on the ground. Even more remarkable, BLM expects the public to accept the resulting AML, even though BLM admits it lacks the required "in-depth monitoring data." The BLM has had adequate time to fill this gap - since 2011 to be precise - and the Coalition's comments have never wavered. The BLM has been on notice that the Coalition believes a forage analysis should be done (e.g. AMLs should be adjusted) since 2011 and the Coalition has reminded that this analysis must be done to update the AMLS in light of new regulatory demands in the comments for every single wild horse environmental assessment since 2011.</p> <p>The BLM could have clipped and weighed forage across a timeline (nearly a decade) that would have provided an adequate representation that the lands in question could, or could not, to determine and document the available forage and water. The term "available" must also consider habitat elements for big game and Greater sage grouse, vegetation necessary to meet or maintain or make progress meeting Healthy Rangeland Standards, and grazing committed to livestock permittees. Certainly, there is no evidence that the RSFO did the necessary research to support the decisions.</p> <p>Alternatively, BLM could have but apparently did not institute a monitoring program, as promised in the 1997 Green River RMP Record of Decision at 6. Instead, the DEIS Appendix appears to assume that the landscape is producing sufficient forage using some unidentified metric (What source did BLM use?) and has provided no rational explanation for why that metric is reasonable. This is a significant aspect of the problem and renders any decision neither durable nor defensible. Because the Coalition raised this issue with the RSFO almost a year ago, it is difficult to understand the deliberate efforts of the RSFO to not follow the BLM's own guidelines.</p>	<p>currently available for livestock is presented in Section 3.10 of the EIS. A discussion on the number of suspended AUMs associated with these grazing permits is beyond the scope of this EIS, as those AUMs are not currently available for use, nor are they eligible for reinstatement.</p>

Comment #	Comment Text	BLM Response
	<p>Alternatively, BLM could have, and should have, used actual monitoring data to plot vegetation. Hells Canyon Pres. Council v. Connaughton, 2012 WL 13047991, at *5 (D. Or. Aug. 10, 2012) ("[W]here the Forest Service fails to "provide the underlying data upon which its experts relied" in reaching its ultimate conclusions, those conclusions are arbitrary and capricious."); see also W. Watersheds v. U.S. Forest Serv., 2012 WL 1094356, at *1 (N.D. Cal. Mar. 30, 2012) (deferring to Forest Service's use of annual forage utilization measures to monitor riparian objectives where Forest Service submitted "empirical studies and analysis to that effect," but refusing to defer to Forest Service's reliance on residual dry matter measurement as a surrogate for condition and trend studies required by Forest Plan in part because the Forest Service did not provide empirical research supporting that substitution).</p> <p>Several ranches in the two field offices and conservation districts have developed extensive rangeland health or monitoring data. It would appear that BLM chose not to use actual data, another vulnerability that threatens any decision made in the DEIS.</p> <p>Moreover, the DEIS does not identify any suspended AUMs or AUMs in non-use in each of the allotments within the existing and proposed HMAs. Historically, the permits in the RSFO were for sheep but these permits are being converted to cattle, either under subleasing agreements or permit transfers. But BLM cannot use the wild horses as a pretext to reduce livestock grazing without an in- depth analysis. The analysis in the DEIS for Alternative B falls far short.</p>	

Comment #	Comment Text	BLM Response
19	<p>Regarding the BLM's designations of AMLs more generally - which play such a central role in the agency's decision-making - the National Academy of Sciences (NAS) has raised concerns that the limits imposed by AMLs inadequately reflect the reality of wild horse populations on the range, and that the process for making these determinations is largely opaque, as discussed in its comprehensive 2013 report (commissioned by the BLM) on wild horse and burro management:1</p> <p>How AMLs are established, monitored, and adjusted is not transparent to stakeholders, supported by scientific information, or amenable to adaptation with new information and environmental and social change. (pg. 11)</p> <p>At best, AMLs appear to be set arbitrarily; at worst, the opacity that NAS identified hinders sound management decisions that can be scrutinized and understood by the public - something evident from the BLM's statement that AMLs could be adjusted without requiring a Land Use Plan amendment under its preferred alternative (pg. 63).[...]</p> <p>The same problem is evident in the BLM's analysis of the amount of sustainable forage available for wild horse use. Here again, the AML appears to be pre-determined based on how many horses the BLM wants to allow in conjunction with livestock grazing (with the supposed rationale shaped accordingly to fit the desired number). The BLM concedes it lacks current data and information to make accurate AML determinations: "The BLM currently lacks adequate utilization and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area" (Appendix A). Statements elsewhere in the EIS suggest the carrying capacity of the land is more than sufficient for the wild horse populations that currently exist.</p>	See response to comment #18.

Comment #	Comment Text	BLM Response
20	<p>How Appropriate Management Levels (AMLs) are established, monitored, and adjusted is not transparent to stakeholders, supported by scientific information, or amenable to adaptation with new information and environmental and social change....standards for transparency, quality and equity [are needed in] establishment , adjustment, and monitoring [of AMLs].</p> <p>(Attachment 3, p. 11). The BLM should adhere to NAS recommendations for "transparency, quality and equity" in setting and implementing AML. This must include basing decisions on sound environmental monitoring data, a complex understanding of herd dynamics and genetic viability needs, as well as equity in resource distribution in the territory-all of which is lacking in the draft EIS. As such, it is clear that the BLM cannot move forward with the proposed AMLs as set in this draft EIS unless and until the agency is able to compile all of the proper scientific motoring information required for making transparent and accurate AMLs for the HMAs in the project area and the legal inefficiencies explained above are remedied.</p>	See response to comment #18.
21	<p>Finally, the final EIS must disclose a list of groups that the BLM consulted with when setting the AMLs for the four HMAs and the current census data indicating the wild horse populations not only on the Checkerboard lands , but also those found in the solid public land blocks within each of the HMAs, including the Little Colorado HMA. Even though the RMP is meant to convey wild horse management for the next ten to twenty years , and actual population numbers will vary over that time, setting the population limits in these HMAs requires an in-depth analysis and scientific review of all available information, including current population, in order to be set AML accurately. Thus, the BLM must also include current and accurate population survey information in the final EIS as part of the AML calculations.</p>	<p>Chapter 5 of the EIS provides information on which groups the BLM included as cooperating agencies in the development of the EIS. In this RMP Amendment, BLM is making a planning decision about which lands should be designated for wild horse use, and at what initial AMLs. Detailed information on wild horse populations within these HMAs is not needed to make these RMP level decisions. In Alternatives B and D of the EIS the BLM establishes a process for updating AML in future management decisions, based on monitoring data and conditions on the range, consistent with BLM handbook H-4700-1, Appendix 3.</p>

Comment #	Comment Text	BLM Response
22	<p>b. Document with Data the Availability of Forage and Water in Conformance with Handbook 4700-1, Appendix 3.</p> <p>RSGA understands BLM used the 1963-1965 Range Survey data to estimate forage and water in the RSFO and RFO. If BLM did in fact use the historical Range Survey data, the DEIS fails to disclose how and to what purpose. Elsewhere in Appendix A, the DEIS states BLM lacks data on forage and water availability. This statement lacks credibility since BLM has been working on revising the Rock Springs RMP and Greater Sage-Grouse management since 2011. BLM cannot, moreover, complete wild horse management decisions to revise AML or HMA boundaries without such information. See Wild Horses and Burros Management Handbook, H- 4700-1, Appendix 3 at 69-70 (2010).</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p> <p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment, particularly given that the proposed alternative would establish a process for future modification of AML based on longer-term data about range conditions. This process is described in BLM handbook H-4700-1, Appendix 3.</p>

Comment #	Comment Text	BLM Response
23	<p>We are confident that the proposed AML numbers are reasonable given the extensive area knowledge. However, in the Tier 2 Analysis, it is stated that the amount of sustainable forage available for wild horse use is not known because "the BLM currently lacks adequate utilization data and use pattern mapping data to calculate an updated proposed carrying capacity for wild horses in this area." The DEIS instead uses forage needs and anticipated stocking rates in each HMA to complete this analysis. We feel as though the basis for AML numbers in this plan and all alternatives should be strictly scientifically based. We hope that in the final EIS, the BLM is able to conduct the necessary production and utilization measurements to give a sound estimate for what the actual AML numbers should be in the preferred alternative. Without these data, damage could be caused to the landscape. Additionally, the plan indicates that the remaining AUM's in the allotments can be allocated to either livestock use or wildlife functions.</p> <p>This again is an area where knowing the exact state of the forage capacity would be vital knowledge to set appropriate stocking levels for the horses as well as the remainder allocated to the livestock.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. The data available is adequate to support the decisions being made for this RMP Amendment, particularly given that the proposed alternative would establish a process for future modification of AML based on longer-term data about range conditions. This process is described in BLM handbook H-4700-1, Appendix 3.</p>

Comment #	Comment Text	BLM Response
24	<p>The EIS provides any information regarding forage allocation, not current calculated consumption, within each of the HMAs, in Appendix A. This information is also critical to understand the percent forage allocated to livestock, wild horses, wildlife and resource protection. The EIS states, of the proposed action, that "AUMs previously allocated to wild horse use may be reallocated to wildlife, livestock or other ecosystem functions" (EIS at 5). In Appendix A, 9,600 AUMs would be allocated to wild horses at high AML under the No Action alternative, which is 23% of the 41,854 AUMs allocated (domestic livestock are allocated 29,412 AUMs, or 77%). For the Great Basin HMA, 7,200 AUMs would be allocated to wild horses at high AML of a total of 43,114 AUMs under the No Action alternative, which is 17% of the AUMs allocated (domestic livestock are allocated 59,592 AUMs, or 83%). For the Salt Wells HMA, 4,380 AUMs would be allocated to wild horses at high AML under the No Action alternative, which is less than 7% of the 63,972 total AUMs allocated (domestic livestock are allocated 59,592 AUMs, more than 93%). For the White Mountain HMA, 3,600 AUMs would be allocated to wild horses at high AML under the No Action alternative, which is less than 10% of the 38,188 AUMs allocated (domestic livestock are allocated 34,588 AUMs, or 90.6%).</p> <p>We provide graphic tables showing gross numbers of livestock and wild horses using each HMA for each two-week period of the year as Appendix A to these comments. To convert to a comparison of forage consumption, the sheep numbers would be divided by five to reflect one AUM. Raw data are provided as Attachment 13.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment.</p>

Comment #	Comment Text	BLM Response
25	<p>Equally as shocking is the fact that the DEIS admits it is lacking basic information regarding utilization and forage amounts on the ground. The BLM has had nearly a decade to develop sufficient data to support adjusting Appropriate Management Levels and Herd Management Areas and yet the DEIS doesn't even describe how much forage is in which pastures or allotments and how many horses have (or can) utilize those areas. The Coalition is aware that multiple livestock permittees and conservation districts have data that could assist the BLM but BLM has apparently not taken the initiative to initiate Cooperating Agencies or permittees. The lack of data violates BLM's wild horse guidelines forth in the 2010 Wild Horses and Burros Management Handbook, H-4700-1, Appendix 3. The Coalition highlighted this failing in its Administrative DEIS comments and yet the DEIS fails to correct this deficiency.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment.</p> <p>The BLM requested data from Cooperating Agencies and the general public as part of the process to develop the Analysis of Management Situation (AMS) for the RMP Revision. That information applies to this RMP Amendment as well. Language has been added to Chapter 3 of the EIS to reference the AMS.</p>
26	<p>However, BLM has not undertaken the required analysis of wild horse impacts: When establishing AML, the analysis shall include an in-depth evaluation of intensive monitoring data or land health assessment. Intensive monitoring data shall include studies of grazing utilization, range ecological condition and trend, actual use, and climate (weather) data. Population inventory, use patterns and animal distribution should also be considered. A minimum of three to five years of data is preferred. Progress toward attainment of other site-specific and landscape-level management objectives should also be considered.</p> <p>BLM Handbook H-4700-1 § 4.2.2.1. Nowhere in the DEIS do we find this level of detailed analysis.</p>	<p>A description of how AML was established for each alternative is provided in Appendix A. These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. The BLM is using the best available data as required by NEPA (including the most recent Standards for Healthy Rangelands assessments). The data available is adequate to support the decisions being made for this RMP Amendment. In Alternative D of the EIS the BLM establishes a process for updating AML in future management decisions, based on monitoring data and conditions on the range.</p>

Comment #	Comment Text	BLM Response
27	<p>P. 4 Since the Coalition submitted its Cooperating Agency comments on May 10, 2019 and as supplemented in July 2019, the RSFO has not (1) fulfilled the Coalition's wild horse FOIA request; and (2) has not contacted any livestock grazing permittees or local government agencies to generate utilization data and other monitoring information of wild horse use in the HMAs. Thus, it is incredibly disingenuous to state that BLM has "share[d] knowledge and resources to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks."</p> <p>The DEIS and the ADEIS share the exact same gaps in information and data identified by the cooperating agencies despite a year to locate and analyze information identified by the Coalition.</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook.</p> <p>These HMAs contain a large amount of private land. Historically these private lands were included in determining AML for wild horses (see Section 3.1). Appendix A has been updated to better explain the monitoring data that BLM has available, including information provided by cooperating agencies, and its limitations. However, the BLM is using the best available data (including the most recent Standards for Healthy Rangelands assessments) as required by NEPA. The data available is adequate to support the decisions being made for this RMP Amendment, particularly given that the proposed alternative would establish a process for future modification of AML based on longer-term data about range conditions. This process is described in BLM handbook H-4700-1, Appendix 3.</p> <p>The BLM requested data from Cooperating Agencies and the general public as part of the process to develop the Analysis of Management Situation (AMS) for the RMP Revision. That information applies to this RMP Amendment as well. Language has been added to Chapter 3 of the EIS to reference the AMS.</p>
28	<p>The BLM is proposing to remove all checkerboard lands from the HMAs and designate the area to Herd Areas (HA). While we support components of the alternative, we do not support BLM's incorporated clause to add an in-depth review of intensive monitoring data to re-evaluate the AML following the EIS. The Standards for Healthy Rangelands (Standards), including existing Assessment Inventory Monitoring (AIM), and range monitoring data already clearly indicates where wild horses were contributing factors for not meeting Standards.</p>	<p>Standards for Healthy Rangelands and other existing rangeland data (such as AIM) would be utilized in any future AML evaluation. This is in accordance with guidance provided in H-4700-1.</p>

Comment #	Comment Text	BLM Response
29	<p>Over the decade or more since the last rangeland health assessments, we have seen and felt the inexorable forces of climate change. The effects of climate change - and of ALL users - must be analyzed and incorporated into any final RMP. The following must be disclosed:</p> <ul style="list-style-type: none"> * Which allotments would show a change of status (pass/fail) since their last rangeland health assessment? * What does current data show the effect of private livestock on the range to be? * What does monitoring data show as the current actual livestock forage consumption vs. what the AUM concept says they are supposed to be consuming? * What do current monitoring studies show the effect of climate change to be on these specific rangelands? This data must be produced. 	<p>Section 1.3.2 of the EIS has been updated to clarify why potential impacts to climate change have not been analyzed in this EIS.</p> <p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>
30	<p>On April 17, 2020 the BLM released the Draft Resource Management Plan Amendments/Environmental Impact Statement Wyoming Pipeline Corridor Initiative (DOI BLM-WY-0000-2020-0001-RMP-EIS). This project proposes to allow for pipeline corridors through 15 HMAs within the state of Wyoming, including HMAs within the project area of this RMP Amendment. However, the BLM made no mention of this proposed project in the RMP Amendment itself. AWHC requests that the BLM add additional consideration in the proposed Wild Horse Amendment that will discuss and disclose the effects that any pipeline activity will have on wild horse management in the project area and within the four HMAs affected by the Amendment.</p> <p>In sum, AWHC requests that the BLM include the additional analysis in the final EIS as explained above and completely analyze how these future actions will impact wild horse management in the project area.</p>	<p>The Wyoming Pipeline Corridor Initiative is a Land Use Plan amendment and does not include any actual proposed disturbance activities. Therefore, there's no cumulative impact related to wild horses associated with the initiative.</p>

Comment #	Comment Text	BLM Response
31	<p>The BLM also failed to examine the cumulative impacts on public recreation of wild horse removal together with the impacts of other BLM actions to be approved in the Rock Springs RMP revision. Leasing public lands for oil and gas extraction leads directly to the development of exploratory wells and full-field development, which impact the recreating public in the following ways: (1) roading otherwise roadless lands, and industrializing otherwise natural landscapes; (2) driving off or directly diminishing populations of birds and mammals otherwise enjoyed by the recreating public for wildlife viewing, or pursued as hunted species; (3) fouling surface waters (an extremely limited resource in the RSFO) which in some cases might be usable as emergency water supplies by recreationists; (4) creating the single most important source of air pollution in the Plan Amendment area through diesel emissions from rigs and trucks, methane leaks from gathering networks, volatile organic compounds wafting off of condensate tanks and creating ozone issues, and particulate pollution from heavy wellfield truck traffic; (5) pipeline networks spread unsightly noxious weeds and create visual scars across otherwise natural landscapes; and (6) driving off populations of remaining wild horses that would otherwise be available for viewing by wild horse enthusiasts.</p> <p>Similarly, the BLM makes no cumulative analysis of the effect of coal leasing and suitability decisions, expected to be analyzed in the Rock Springs RMP EIS, with the impact of wild horse removal, on recreation experiences on the RSFA. Coal mining has heavy impacts on air quality through dust and emission from mine sites as well as air pollution from coal combustion at the Jim Bridger coal-fired power plant. Strip mining for coal directly destroys every aspect of the land and its ability to support native plants and wildlife, for the long term, and creates eyesore open pits that void the recreational value of scenery on affected lands. Yet nowhere does BLM consider Visual Resource Management impacts of coal mining, oil and gas development, or other uses together with wild horse removal on the overall recreational experience available to visitors.</p>	<p>Language was added to Section 1.1 to help readers understand that this is a targeted RMP amendment, focused on resolving conflicts between wild horse management and private lands on the checkerboard. Language was added to Section 4.2.11 of the EIS to clarify the cumulative impact analysis.</p>

Comment #	Comment Text	BLM Response
32	<p>Renewable energy and powerline rights-of-way result in developments that detract from the natural appearance of the landscape and therefore impact the recreation experience of visitors. These allocations are typically made in RMP revisions, and fully expect that BLM will analyze the direct impact of unnatural powerline, wind farm, and perhaps even utility-scale solar farms on historic settings and natural landscapes, key to recreation values.</p> <p>Renewable energy developments are known to have negative impacts on ungulate migrations (see Attachment 11) and sage grouse (LeBeau et al. 2014, Attachment 12) as well. Where will the cumulative impacts on wildlife habitat use and abundance for wild horse removal on wildlife population sizes and viewability for the public be analyzed?</p>	<p>This is a targeted RMP Amendment, specifically related to the management of wild horses on HMAs that contain checkerboard land. Language has been added to Section 1.1 to clarify this point. Language was added to Section 4.2.11 of the EIS to clarify the cumulative impact analysis.</p>
33	<p>* Page 70, Cumulative Impact Analysis: Comment: We don't believe BLM's Cumulative Impacts Analysis is accurate, and is simply duplicating the direct and indirect Impacts. We recommend reviewing the Cumulative Impact Analysis in its entirety through all resources. Cumulative Impact Analysis should consider other projects such as oil and gas, solar, new fences for HMAs, water developments for wild horses, etc.</p>	<p>This is a targeted RMP Amendment, specifically related to the management of wild horses on HMAs that contain checkerboard land. Language has been added to Section 1.1 to clarify this point. Language was added to Section 4.2.11 of the EIS to clarify the cumulative impact analysis.</p>

Comment #	Comment Text	BLM Response
34	<p>I. Cumulative Impacts</p> <p>The EIS fails to consider the cumulative impact of the Proposed Action in relation to BLM Wyoming's elimination of wild horses from other public lands in the state. Fifty percent (50%) of the original Congressionally designated wild horse habitat in the state of Wyoming has been zeroed out or taken away from wild horses for their use. Yet, the BLM continues to permit livestock grazing in these same areas.</p> <p>The Preferred Alternative proposes to reduce by another 43% the public lands available to wild horses in the state. The cumulative impact of the Preferred Alternative results in the BLM eliminating 71% of all public lands originally designated by Congress for wild horse use in the state of Wyoming. The proposed removal of wild horses from 1,554,282 acres of public lands represents removing wild horses from 6% of all public lands where BLM currently manages wild horses and burros.</p> <p>Currently, BLM manages wild horses and burros on only 64% of the original public lands identified by Congress for wild horse and burro habitat. That means, since 1971, the BLM has cumulatively reduced wild horse and burro habitat by 37%. BLM eliminated wild horses and burros from more than 1 of every 3 acres of public lands which Congress designated "principally" for wild horse and burro use. (Attachment 7) The EIS fails to consider the cumulative impacts of the Preferred Alternative on the wild horses throughout the state and nationally.</p>	<p>The cumulative effects portion of Section 4.2.1 of the EIS analyzes the cumulative impacts associated with each of the various alternatives, together with other activities in the CIAA, which is the State of Wyoming. No other HMAs in Wyoming have reverted to HA status. The analysis describes the relative changes in wild horse habitat, as acres of HMA, across the state under each of the alternatives.</p>
35	<p>Allocating non-BLM lands for horses</p> <p>The Cumulative Impact Analysis (pages 64-65), and elsewhere in the DEIS, indicate these 4 HMAs total over 2.8 million acres. The DEIS compares impacts based on acreages of all lands. However, less than 2 million acres of these HMAs are BLM lands. By including private and State lands, the analysis over estimates potential impacts to wild horses. Because the BLM cannot establish HMAs on private or state lands, or allocate these lands for wild horse use, we recommend basing the analyses of different alternatives only on acreages of BLM lands</p>	<p>Because, under Alternative A, BLM historically had permissive use of private land in these HMAs the private land was included in the cumulative effect analysis. Then to ensure alternatives could be compared in a like manner, all acres within the HMAs were included in the analysis.</p>

Comment #	Comment Text	BLM Response
	whose management would change under the different alternatives.	
36	<p>Page 64: Cumulative Impact Analysis: Comment: The EIS states the Cumulative Impact Analysis Area for wild horses is the state of Wyoming. WDA disagrees with this, as the EIS should only consider the impacts across the project area. All other resources are within the project area boundary for analysis. Furthermore on page 65, the EIS analyzes the reduction of wild horses and decrease in acres. However, the decrease in acres also includes state and private lands, which are outside of BLM jurisdiction. We believe the EIS must state the decrease in BLM managed lands, and only convey the impacts based in the project area boundary, not across the entire state.</p>	<p>Section 6.8.3.2 of the BLM NEPA Handbook (H-1790) states that "[t]he geographic scope [of the Cumulative Effects Analysis Area] is generally based on the natural boundaries of the resource affected, rather than jurisdictional boundaries. The geographic scope will often be different for each cumulative effects issue. The geographic scope of cumulative effects will often extend beyond the scope of the direct effects..."</p> <p>Because, under Alternative A, BLM historically had permissive use of private land in these HMAs the private land was included in the cumulative effect analysis. Then to ensure alternatives could be compared in a like manner, all acres within the HMAs were included in the analysis.</p>
37	<p>Nowhere in the cumulative effects analyses is there any mention of the elimination of most of Wyoming's wild horses or how that elimination relates to HMA's as a whole.</p>	<p>The information requested is presented in Section 4.2.1 of the EIS. This section of the document discusses both the reduction in acres available for wild horses within the CIAA and the reduction in total number of wild horses within the CIAA.</p>

Comment #	Comment Text	BLM Response
38	<p>I am an equine attorney and wild Mustang advocate who has read your entire 170-page PDF report. That report complies with the Consent Decree and as such, I would advocate that you choose Alternative A. While I could make arguments that there is, in fact, no legal or other need to remove the wild Mustangs from their historic range and that to do so will hurt Wyoming economically, I believe we have an even more important argument that requires you to choose Alternative A. We are in the throes of a global pandemic right now. COVID19 has turned our world upside down, and we still don't know where we will end up. This report was created in January before cases and deaths were growing like wildfire throughout the country. As I write this, more than 1 million Americans have been infected and almost 60,000 have died (that we know of). There is no crucial need or legal requirement to round up the Mustangs in the checkerboard area right now. Having gathers increases the likelihood of exposure of people to COVID19 who might not otherwise have that exposure. There is no way to keep people socially distanced or to wear appropriate masks. We are seeing non-essential businesses being closed and people being cautioned to remain socially distanced, sometimes even being ordered to stay at home, so that we can flatten the curve of this dangerous virus. Gathering these Mustangs is not essential. The BLM created the report and considered the alternatives as required under the Consent Decree. It has met its legal obligation under that Decree. Therefore, it should defer any gather until at least 2021, when more information will be known about the virus and hopefully, the curve will have flattened or a vaccine may even be available. The one thing that the wild Mustang advocates, the BLM, and the RSGA should agree on is that human lives should not be placed in jeopardy simply to round up these Mustangs. Choosing Alternative A is the only reasonable option right now because the Mustangs are not in any immediate danger that requires a roundup, and the RSGA will not suffer any irreparable harm if the Mustangs remain on the range right now while we address this global pandemic.</p>	<p>This RMP Amendment process is not yet complete, and implementation of the resulting planning decision, whether through gathers or other management actions, will require further decision-making, and likely will not occur until future years. As such, the current COVID-19 pandemic does not affect the analysis of alternatives in this FEIS or the selection of the Proposed RMP Amendment.</p> <p>Additionally, NEPA is a procedural statute that requires BLM to consider alternatives to the proposed action in order to make an informed decision. NEPA does not require a particular outcome.</p>

Comment #	Comment Text	BLM Response
39	Since wild horses only exist on about less than 5% of public lands, why don't we just leave them alone? They don't appear to be starving, they don't appear to be overpopulated. I see no scientific evidence they are overpopulated or destroying the range.	Alternative A represents the No Action Alternative (see Section 2.2.1 of the EIS). See Section 1.2 for a description of why the BLM is considering changes in wild horse management at this time.
40	<p>PLEASE do not Change the Salt Wells Creek Herd Management Area (HMA) to a Herd Area (HA), which would be managed for zero wild horses</p> <p>PLEASE do not Change the Great Divide Basin HMA to a HA, which would be managed for zero wild horses.</p> <p>PLEASE do not Change the Adobe Town HMA appropriate management level (AML) to 225-450 wild horses or lower,</p> <p>You would be decimating a critical wild resource that is keeping the risks of range fires and encroachment by other non-eco-system-friendly smaller pre-animals that will not balance regeneration of range vegetation. These horses are an ESSENTIAL part of our wild eco-system and should NOT be eliminated to make way for cattle that should be grazing on PRIVATE LANDS.</p>	Potential impacts to the various resource values mentioned are discussed in Chapter 4 of the EIS.
41	I am totally opposed to this amendment I feel this is a sham to promote the wild horse loop to tourists and the Wyoming people and now wanting to remove all the horses There will be a lot of angry people who come here to see the horses and there won't be any to see	The purpose and need for the plan amendment is discussed in Section 1.2 of the EIS. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS.

Comment #	Comment Text	BLM Response
42	<p>The Wyoming Farm Bureau Federation is commenting on behalf of over 2,500 agricultural producer members in the state of Wyoming. Our members have consistently expressed great concern over the lack of meaningful management actions taken towards maintaining Allotment Management Levels (AML) of wild horses. We support Alternative C (conversion to herd areas). We cannot and do not support Alternative A (current management) or Alternative B (livestock grazing reduction). Alternative D, the preferred alternative does not go far enough to prevent foray on to private lands.</p> <p>Our support for Alternative C comes largely from its ability to meet the provisions of the consent decree by wholly eliminating incursion on to private lands by converting Salt Wells Creek, Great Divide Basin, White Mountain and Adobe Town HMAs to Herd Areas (HAs) and managing them for zero wild horses. In addition, as stated in the EIS, this alternative would best support the economic and social values while reducing competition for range habitat, and deterioration of range resources from the exceedance of AML.</p> <p>For far too long the BLM has demonstrated an inability to meet their legal obligations to manage these horses in accordance with multiple provisions of the Wild Horse and Burro Act. Furthermore, they have knowingly and willfully allowed these horses to graze unauthorized on private lands, cause damage to said lands and cause financial harm to the landowners. All of this has continued for decades with no recompense to the landowners. The BLM must take immediate action to provide both short- term and long-term relief.</p> <p>Section 4 of the Wild Horse and Bureau Act requires the Bureau of Land Management (BLM) to remove horses that stray on to private lands. To date BLM has failed to meet this obligation. We feel Alternative C is the only alternative that guarantees both immediate and long-term remedy.</p> <p>We look forward to continuing to be engaged in</p>	<p>The purpose and need for the plan amendment is discussed in Section 1.2 of the EIS. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS.</p> <p>The Act does not require BLM to prevent wild horses from straying into private lands.</p>

Comment #	Comment Text	BLM Response
	<p>the rule making process. Thank you for the opportunity to comment.</p>	
<p>43</p>	<p>BLM does not have Congressional authority to manage a “non-reproducing” HMA, essentially an on range holding pasture. BLM can not turn an HMA into an on range holding facility. A Consent decree does not create the legal authority for the action. Entering into a decree is within BLMs discretion, carrying out the action is not.[...]</p> <p>The wild horses BLM intends to eradicate within these areas are wild horses enjoyed by the American public throughout the 50 years BLM Wyoming has managed them and beyond. They must be preserved for future generations. This action proposed in this EIS is far too extreme to be used to appease a solitary interest that already uses over 96% of BLM Wyoming lands. Cutting wild horse acreage to this extent is not acceptable.</p> <p>Zeroing out Salt Wells Creek, Great Divide Basin,</p>	<p>The purpose and need for the plan amendment is discussed in Section 1.2 of the EIS. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS. The Consent Decree informed the development of the alternatives, but is not part of the rationale for the Proposed RMP Amendment.</p>

Comment #	Comment Text	BLM Response
	<p>dropping the AML in Adobe Town and turning the White Mountain HMA into essentially an “on range holding facility of non-reproducing animals” does not reflect balanced public interest or preservation of historic multiple use.</p>	
44	<p>My comments focus on Chapter 1, 1.2 Purpose and Need for the Plan Amendment The BLM claims that the "purpose of this planning effort is the identification and incorporation of actions for wild horse management on HMAs that encompass "checkerboard" land (alternating sections of federal and private land ownership), including establishment of AML, consistent with applicable law .. . "</p> <p>However, with this EIS, the BLM seems to violate the Federal Land Policy and Management Act of 1976 (FLPMA) by favoring some "uses" (livestock grazing) over other "uses" (wild horses).</p> <p>FLPMA mandates that the BLM take into account the "coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output. "</p>	<p>The purpose and need for the plan amendment is discussed in Section 1.2 of the EIS. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS.</p>
45	<p>Hello, I am simply asking for your consideration to let these wild horses stay. They are a true historical figure to Wyoming. I believe you will loose a lot of tourism if you remove the herd.</p>	<p>A No Action Alternative is analyzed in Alternative A of the EIS.</p>

Comment #	Comment Text	BLM Response
46	<p>I am writing to voice my strong approval of the proposed amendment. As a Wyoming resident that spends time in the area I feel that the proposed management amendment is the right thing to do with the feral horse problem we face. Many letter writing campaigns are floating around the internet and I feel that nonresidents voicing their opinion on our land is not right, Please listen to residents and science rather than those who do not have a stake in it.</p>	<p>The purpose and need for the plan amendment is discussed in Section 1.2 of the EIS. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS.</p>
47	<p>P.5 The DEIS states that "Wild horses may be relocated from other HMAs to these HMAs to help maintain genetic diversity, as needed." Despite the Coalitions' previous comment on this issue, the DEIS does not identify what conditions must occur to trigger a relocation of wild horses. The research on the issue of genetic diversity does not support the need for relocating wild horses into the RSFO. The Rawlins Field Office addressed the question in the 2007 RMP FEIS, Appendix 12-1-3. The AMLs in Alternatives A, B, and C do not reach the 165 wild horse threshold. Even the AML for White Mountain exceeds the threshold and horses move freely between Little Colorado and White Mountain. As to Alternative A, wild horses move freely between Salt Wells and Adobe Town and the Divide Basin HMA shares unfenced boundaries with Stewart Creek and Antelope Hills HMAs. If BLM has other evidence supporting the need for genetic diversity, it needs to include it in the DEIS.</p> <p>Relocating wild horses into the RFO needs to address issues relating to horse diseases. The Utah wild horse gathers were canceled due to an outbreak of strangles in the holding facilities. If BLM thinks it can relocate gathered wild horses from such facilities and put them on public lands, any such decision needs to deal with the real risk of infectious diseases.</p> <p>According to the Wild Horse and Burro Act, any horse above AML or outside of an HMA is "excess." <i>Habitat for Horses v. Salazar</i>, 745 F. Supp. 2d 438, 451 (S.D.N.Y. 2010). Those horses must be removed. <i>Colorado Wild Horse & Burro Coalition v. Salazar</i>, 639 F.Supp.2d 87, 96 (D.D.C.2009). Once identified as excess horses</p>	<p>Possible relocation of wild horses to help maintain adequate genetic diversity is discussed in Section 2.2.4 of the EIS. Details on when relocation efforts would be necessary and how they would be implemented are beyond the scope of this planning-scale EIS. A separate implementation-level NEPA analysis and associated decision would be prepared prior to conducting any relocation efforts.</p>

Comment #	Comment Text	BLM Response
	<p>that must be removed from the HMA, the WHA does not provide a mechanism to also identify those horses as non- excess that may be reintroduced. In other words, there is no statutory basis for relocating horses.</p> <p>* Does the BLM anticipate performing separate environmental assessments to relocate horses or would only horses that have been removed as excess be relocated?</p>	
48	<p>We make a living from ranching and prefer to adopt wild horses, more specifically the wild horses from Salt Wells and White Mountain, as our working partners due to their strong survival skills, solid confirmation, sound bodies and minds and their trainability. I can with full confidence, state that we would no longer adopt Wyoming wild horses if the wild horses in these HMA's were no longer available for adoption. The wild horses in Wyoming's other HMA's don't compare to the superior genetics of Salt Wells and White Mountain. The wild horses in these two HMA's exhibit traits refined for many years that make them highly desirable working partners, the absolute best in our opinion. The high concentration of Curlie horses within the Salt Wells and White Mountain HMA's, have a unique history and unique genetic content. These particular horses are highly sought-after during adoption events.</p>	<p>The BLM does not have any guidance or regulations on preserving specific genetic traits in a herd. Potential impacts related to the loss of the unique genetic traits associated with these herds are discussed in Section 4.2.1 of the EIS.</p>

Comment #	Comment Text	BLM Response
49	In addition, BLM must recognize the distinct curly wild horses and propose a plan to preserve this unique genetic component. This action proposed in this EIS is far too extreme to be used to appease a solitary interest that already uses over 96% of BLM Wyoming lands.	The BLM does not have any guidance or regulations on preserving specific genetic traits in a herd. Potential impacts related to the loss of the unique genetic traits associated with these herds are discussed in Section 4.2.1 of the EIS.
50	BLM needs to recognize the curly wild horse and keep its unique genetics on the range for future generations to enjoy.	The BLM does not have any guidance or regulations on preserving specific genetic traits in a herd. Potential impacts related to the loss of the unique genetic traits associated with these herds are discussed in Section 4.2.1 of the EIS.
51	In addition, the Salt Wells Creek herd carries unique genetics in the Curlies. This proposed plan demonstrates absolutely no protection for one of the rarest horses in the world. The plan must propose a strategy to protect them.	The BLM does not have any guidance or regulations on preserving specific genetic traits in a herd. Potential impacts related to the loss of the unique genetic traits associated with these herds are discussed in Section 4.2.1 of the EIS.
52	One more point I bring up for your consideration is that the Salt Wells Creek HMA horses have unique genetics in the curly horses which are one of the rarest horses in the world, not found in any other wild horse herds we have here in our country.[...]Any plan you make regarding this HMA must address this and contain a plan to protect and preserve these unique, rare, and beloved curly horses, at numbers that will ensure their genetic viability forever.	The BLM does not have any guidance or regulations on preserving specific genetic traits in a herd. Potential impacts related to the loss of the unique genetic traits associated with these herds are discussed in Section 4.2.1 of the EIS.
53	Genetic tests link the Adobe Town herd to horses re-introduced to the America's by the Spanish in the 1500s and the Great Divide Basin wild horses are descended from Calvary remounts. To lose the wild horses in this vast landscape known by local residents as the 'Big Empty' would be to lose touch with our western history, heritage, and the untamed spirit of the West. Due to the value of these wild horses as a historic resource the BLM should identify and evaluate the impacts to such resources and determine the agency's obligations under Section 106 of the National Historic Preservation Act (54 U.S.C. 306108).	Section 106 of the National Historic Preservation Act applies to district, sites, buildings, structures, or objects. It does not apply to living organisms.

Comment #	Comment Text	BLM Response
54	<p>With this proposal, the agency would further balloon the population of warehoused wild horses despite the exorbitant costs associated with continuing this trajectory. The proportionally smaller AMLs and adjustments made under Alternative D simply shift wild horses from the range to short and long-term holding facilities. The EIS fails to consider the costs of removing such a large number of horses - information that needs to be explained in a future NEPA action before any roundups can occur.</p> <p>Moreover, the preferred alternative proposes to "supplement herds with additional wild horses from other HMAs to help maintain AMLs following natural attrition or to help preserve adequate genetic diversity" [emphasis added] (pg. 59). The goal should not be to arrive at a point where the BLM has to bring in outside horses to prevent the myriad problems associated with inbreeding. The "zeroing out" of several HMAs renders the question of genetic diversity moot only insofar as whole herds are being eliminated.[...]</p> <p>The BLM is putting the cart before the horse in its "analysis" of maintaining genetic diversity, essentially making its decision before any analysis has been conducted. Statements in the EIS such as the following do not constitute satisfactory analysis under the BLM's own tiered approach for adjusting AMLs, which includes assessing genetic viability (rather such "findings" offer little more than circular reasoning): "Under this alternative, the Salt Wells Creek HMA would revert to HA status and be managed for zero wild horses. As a result, there is no AML analysis associated with this alternative" (Appendix A).</p>	<p>Potential impacts to genetic diversity are discussed in Section 4.2.1 of the EIS. While the RMP would allow for the relocation of wild horses to help maintain the adequate genetic diversity of a herd, a site specific NEPA document would be prepared prior to conducting this implementation activity on any HMA.</p>

Comment #	Comment Text	BLM Response
55	<p>According to the research completed, there are slight concerns with maintaining genetic diversity among the herd that will exist in preferred Alternative D. The current plan states that AML herd sizes should not dip below the 150 head required to maintain appropriate genetic diversity, however, there is still a possibility of this occurring. A study completed by Gross showed that allelic diversity is reduced by 30% after 200 years by populations with similar AML herd sizes with similar contraceptive measures (Gross, 2000). We ask that the BLM provide a more concrete and stable plan for recovery of populations that become too low as the current plan states "active management actions would need to be implemented to address any potential concerns." This statement is vague, so we request a more strict set of guidelines and procedures on handling this situation should it occur.</p>	<p>If BLM determines that the genetic diversity of a herd is too low, then a site specific environmental analysis would be prepared to determine an appropriate course of action. This would be an implementation decision, not a planning-scale decision.</p>
56	<p>We ask that the BLM explain how the wild horses will be evaluated thoroughly to determine if they are suitable for relocation. We ask that the explanation includes if the horses will be done from a distance and details on how they will determine body condition.</p> <p>* Often animals, especially prey, will hide any injuries or diseases in order to not appear weak. Include a plan on how people will get close enough to the wild horses to determine their condition and not stress them out further.</p>	<p>More detailed information regarding the relocation of wild horses would be discussed in a site specific NEPA analysis prior to taking this implementation action.</p>
57	<p>We agree and support that wild horses will be relocated when needed.</p> <p>* Wild horses have social structures that change throughout the year depending on if it is breeding season or not. We think the part the EIS should include when the horses will be relocated and why that is the best time of the year.</p> <p>* We want to make sure the relocation will not interrupt the wild horses natural behaviors.</p>	<p>More detailed information regarding the relocation of wild horses would be discussed in a site specific NEPA analysis prior to taking this implementation action.</p>
58	<p>If this action goes forth, most of Wyoming's horses with Spanish bloodlines will be lost.</p>	<p>Potential impacts to wild horses as a result of the alternatives is discussed in Section 4.2.1 of the EIS. This includes potential impacts to the genetic diversity of these herds, and the potential loss of the unique genetics found within these herds.</p>

Comment #	Comment Text	BLM Response
59	In Appendix A, it states there is bidirectional travel between the Adobe Town and Salt Wells Creek HMAs. However, there is no quantification of the travel, and is not further discussed. This is problematic since a recent study of the Adobe Town HMA indicates that of the 12,024 locations visited by nine Adobe Town feral horses, 13.8% were in Salt Wells Creek HMA (Hennig et al. 2018). If preferred Alternative D is undertaken, management for zero wild horses will occur in Salt Wells Creek. The BLM must consider the impact of this change on the genetic diversity of feral horses from Adobe Town that regularly travel to Salt Wells Creek.	Potential impacts to genetic diversity are discussed in Section 4.2.1 of the EIS.
60	At 63, we see that the proposed action bypasses an RMP amendment for any future elimination of HMAs: "This alternative would allow for AML to be adjusted without requiring a Land Use Plan amendment." But neither the WFRHBA nor H-4700-1 nor H-4710.42 would allow zeroing out HMA's or the adjustment of AML without site-specific NEPA.1 In addition, BLM policy appears to preclude setting the AML at zero in an HMA: "The AML lower limit shall normally be established at a number that allows the population to grow (at the annual population growth rate) to the upper limit over a 4-5 year period, without any interim gathers to remove excess WH&B. Handbook H-4700-1 § 4.2.1. How exactly will horse populations grow to any upper AML if there are no breeding horses present? Then there the issue of scale, the EIS admits that the proposed action would eliminate 60% of Wyoming's wild horses. EIS at 65. The WFRHBA does not contemplate such actions.	Section 2.5.1 of BLM Handbook H-4700-1 specifies that an RMP amendment is not needed to adjust AML, if the RMP specifies a process by which AML will be adjusted in the future. Section 2.2.4 of the EIS specifies the process that will be followed to adjust AML in the future. This process includes evaluation of site specific data, and the preparation of an environmental analysis (i.e. an EA or an EIS). Language was added to Section 1.7 of the EIS to clarify the laws, policies and guidance that allow BLM to make changes like those proposed in the various alternatives.
61	The DEIS does not disclose that the White Mountain HMA has been well managed and perhaps one of only a few in Wyoming that have remained within AML. Because the White Mountain HMA has been within AML in recent years, it is extremely unlikely that BLM will be able to explain how retaining White Mountain HMA would "not be feasible." The White Mountain HMA is adjacent to the Little Colorado HMA, which is not slated for change in the DEIS. Wild horses cannot move south easily due to I-80. Wild horses are documented as moving north into Little Colorado. In other words, the DEIS lacks any factual basis to eliminate White Mountain HMA. As written the DEIS will join	Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS.

Comment #	Comment Text	BLM Response
	<p>other federal court decisions setting aside the wild horse management NEPA documents. Eliminating the White Mountain HMA based on the very weak rationale stated in the DEIS will likely lead to another lawsuit and another judgment against BLM.</p>	
62	<p>In reference to the entire Great Divide Basin, Salt Wells, and White Mountain HMAs, pages 18 and 19 of the EIS states that they “would revert to HA status and be managed for zero wild horses. BLM has found it increasingly difficult to effectively manage wild horses in the checkerboard portion of the planning area in a manner consistent with both Section 3(b)(1) and Section 4 of the WFRHBA.” Currently 48% of this HMA (Great Divide Basin) and 72% (Salt Wells and White Mountain) lie within the checkerboard pattern of land ownership, “but the solid-block portion also would revert to HA status under this alternative due to the infeasibility of creating an effective barrier between checkerboard and solid-block federal lands.” While the complexity of the situation is appreciated, reversion of HMAs to HAs with objectives to zero out wild horses from these areas while providing no alternative lands for those horses results in a net loss of resources for wild horses overall, and a disproportionate gain for other uses. Further, analysis shows that in the block portions of these patchwork lands, there is sufficient quantity of forage for wild horses and that the range is in within acceptable standards of health. (“The BLM reviewed AML (as per H-4700-1) and found that there would be adequate forage, water cover and space to sustain a wild horse herd, and maintain a TNEB [Thriving Natural Ecological Balance] within the reduced HMA area, at the proposed AML (see Appendix A)”.) (EIS, p. 17-18) The only reason for reverting to HAs is to remove the challenge of horses easily straying onto private lands. We</p>	<p>A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis Section of the EIS (Section 2.4). Moving wild horses to other HMAs outside the planning area is beyond the scope of this EIS, and is an implementation level decision. The irreversible and irretrievable loss of wild horses from these HMAs is discussed in Section 4.3 of the EIS.</p>

Comment #	Comment Text	BLM Response
	<p>recommend that BLM and RSGA work out land swaps and other solutions (see fertility control suggestions below) that consider the history and federally protected status of the wild horses there.</p>	

Comment #	Comment Text	BLM Response
63	<p>The proposed alternative asserts "wild horses will be managed on "solid block" land, that is, areas where BLM managed lands are concentrated in larger blocks" but then eliminates wild horses even from the "solid block" areas using the bogus excuse that there is no fencing to eliminate the chance of wild horses will ever stray onto private. Most other HMA don't have such restrictions, and the WFRHBA Section 4 only allows removal based on site-specific complaints by the land owner, not the lessee.[...]</p> <p>The false assertion that BLM must ensure that no wild horses are allowed to ever stray onto any private lands violates the assumptions and analyses throughout the EIS. Statements such as "BLM has found it increasingly difficult to effectively manage wild horses in the checkerboard portion of the planning area in a manner consistent with both Section 3(b)(1) and Section 4 of the WFRHBA. Currently 48% of this HMA lies within the checkerboard pattern of land ownership, but the solid-block portion also would revert to HA status under this alternative due to the infeasibility of creating an effective barrier between checkerboard and solid-block federal lands.... it would be very difficult for BLM to prevent this herd from continually returning to private lands in the checkerboard" (EIS at 18) indicate the effort the BLM is going to disregard its legal duties to please the RSGA. This renders the process arbitrary and unsupportable.</p> <p>This false assertion also renders the rejection of other alternatives arbitrary. In Table 2-1 we see an RMP requirement:</p> <p>MA002 WH 1 Specific habitat objectives for HMAs would be established through the development and implementation of HMA plans for each HMA or Complex.</p> <p>Consideration will be given to desired plant communities, wildlife habitat, watershed, livestock grazing, and other resource needs.</p> <p>Unfortunately, the EIS is silent on these plans and their habitat objectives. These plans, in comparison to current conditions is a critical</p>	<p>Language was added to Section 2.3 of the EIS to clarify the rationale for the Proposed RMP Amendment. HMA plans are an implementation level action, that involve a separate decision and NEPA process beyond the scope of this EIS.</p>

Comment #	Comment Text	BLM Response
	issue to examine under NEPA's 'hard look' mandate.	

Comment #	Comment Text	BLM Response
64	<p>Nowhere in this document was there any estimate of the current population of wild horses in the Adobe Town, Divide Basin, and White Mountain horse herds. This was a particularly interesting oversight, seeing as the intentions to zero out three herds and greatly reduce the fourth seems contingent on the idea that the BLM is not able to manage the horses within the current AML standards. To this end, I would state that it is not reasonable for the BLM to conclude that an entire eradication is necessary while not providing any supporting evidence that the herds are currently outside the limits of the Consent Decree.</p> <p>I note this primarily because it is feasible and indeed likely that the Adobe Town, Divide Basin, and Salt Wells are close to or within the high end of their AML at this time, due to the consistent successive roundups of each area. Therefore, it is not reasonable to dismiss Alternative A which should be the preferred alternative and the direction the BLM should go.</p> <p>White Mountain has approximately 370-400 horses primarily due to a large increase in foaling rates from 2018 to the present. This is particularly impressive given the fact that the BLM has not conducted any type of roundup since 2011 nor has any fertility control been utilized. While some of the low population may be due to the 62% male to 38% female ratio following the sex ratio adjustment, that cannot be deemed the sole reason for such a low population count. Approximately 57% of adult and senior mares in that herd have had a total of 0-2 foals in the past 9 years and the primary cause for the recent increase is the younger mares coming of age for more consistent reproduction. Under normal circumstances that would not be considered so far above AML to justify a large scale roundup, let alone to completely remove all the horses from the HMA.[...]</p> <p>I would similarly use White Mountain as an example of why Alternative B is incorrect in stating that it is not feasible to exclude checkerboard lands. There is a clear split between the northern horses and the central &</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. A detailed discussion of wild horse population counts and gather operations is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
	<p>southern horses. In 2.4 the BLM states the that wild horses have historically moved back and forth between the solid block and checkerboard portions. Where is the proof of this? In the past 9 years there has only been one occurrence of solid black horses travelling down to the checkerboard. To be more specific: in 2019 a 2010 palomino stallion brought down a band with 3 mares, a 2-year old, and a yearling. That stallion was raised in the checkerboard area and was already familiar with the territory. So in the past 10 years, it has happened only once and resulted in a grand total of 5 new horses in checkerboard.[...]</p> <p>If it is posisble to alter an RMP for zero horses it is just as possible to ammend one to have fewer horses in a smaller area of land. While I acknowledge that White Mountain already has the benefit of a massive, well kept fence that stretches east to west and splits the areas, horses will naturally keep to the areas where they are familiar with the terrain, water sources available, and the like.</p>	
65	<p>Specifically, AWHC asks that the mass roundup and removal of more than 3,000 wild horses from the Checkerboard, and the zeroing out of three HMAs and elimination of wild horse habitat, be eliminated from consideration in this EIS. However, if the BLM moves forward with its analysis of a roundup and removal action, the agency must note that the WHA requires the[...]</p> <p>BLM to manage wild horses and burros at the minimum feasible level. Such a large roundup and removal operation will fail to meet that standard. Instead, the proposed action will continue the BLM's business as usual approach to "management" by helicopter drive trapping and stockpiling more wild horses in off-range holding facilities.</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Chapter 2 of the EIS provides a detailed description of each alternative, and Section 2.3 of the EIS provides the BLM's rationale for the Proposed RMP Amendment.</p>

Comment #	Comment Text	BLM Response
66	<p>White Mountain HMA</p> <p>The 2013 Consent Decree directs BLM to analyze management of wild horses in the White Mountain HMA at a cap of 205 AML, which is at the lower range of AML for the HMA set by the 1997 Green River RMP. This measure was agreed upon by all parties to the decree, including the Rock Springs Grazing Association, Department of Interior/ELM and American Wild Horse Preservation Campaign. Most notably, this measure retains the checkerboard portion of White Mountain HMA and would not change the HMA boundaries or reduce AML any further below RMP allocations.</p> <p>Additionally, the most popular wild horse viewing activity in the planning area is the Pilot Butte Wild Horse Scenic Loop, located within the checkerboard lands of the White Mountain HMA. The loop attracts wild horse and wildlife viewing enthusiasts from all around to Sweetwater County each year and it is an important tourism resource for the local economy.</p> <p>While I support all other aspects of Alternative D, for these reasons I do not support removal of the checkerboard in the White Mountain HMA. I also question the rationale concerning why the draft EIS splits up possible management options for the White Mountain HMA between Alternatives B and D. Alternative B proposes to retain the checkerboard in the HMA using an AML target range pursuant to the RMP (between 205-300 AML), yet Alternative D proposes to remove the checkerboard entirely (managing to zero AML). Neither alternative explores management at a maximum target AML for 205 as required by the 2013 Consent Decree, and the possible HMA adjustments are illogically split between the two alternatives.</p> <p>To remedy these concerns, the BLM should adjust the White Mountain HMA option in Alternative D to retain checkerboard lands and manage to a total of 205 AML, as required by the 2013 Consent Decree. This would improve consistency and clarity for the analysis, especially since Alternative D contains all other</p>	<p>Alternative B has been updated to analyze a high AML of 205 on the White Mountain HMA (see Chapter 2 of the EIS).</p> <p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p>

Comment #	Comment Text	BLM Response
	parameters as required under the 2013 Consent Decree.	

Comment #	Comment Text	BLM Response
67	<p>The Secretary shall manage wild free-roaming horses and burros in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands. He shall consider the recommendations of qualified scientists in the field of biology and ecology, some of whom shall be independent of both Federal and State agencies and may include members of the Advisory Board established in section 1337 of this Act. All management activities shall be at the minimal feasible level and shall be carried out in consultation with the wildlife agency of the State wherein such lands are located in order to protect the natural ecological balance of all wildlife species which inhabit such lands, particularly endangered wildlife species.</p> <p>PL 92-195 § 1333(a). The Secretary is directed to "maintain a current inventory" of wild horses, and "make determinations as to whether and where an overpopulation exists and whether action should be taken to remove excess animals; determine appropriate management levels of wild free-roaming horses and burros on these areas of the public lands; and determine whether appropriate management levels should be achieved by the removal or destruction of excess animals, or other options (such as sterilization, or natural controls on population levels)." Id. § 1333(b)(1). In making such determinations, BLM "shall consult" with the U.S. Fish and Wildlife Service as well as other experts. Id.</p> <p>WWP supports maintaining the "thriving natural ecological balance" required under the WFRHBA, in the context of wild horse management and also in the context of all other multiple-use activities on federal public land. In the case of this plan amendment area, BLM has failed to make a finding that any of the public lands involved are not meeting the "thriving natural ecological balance" threshold at present, under current wild horse numbers together with livestock and wildlife. For the Adobe Town HMA, "these allotments were [already] able to meet these standards at current stocking densities, it is expected that a slightly reduced stocking density will continue to support rangeland</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

Comment #	Comment Text	BLM Response
	<p>health standards in this area, and ensure a TNEB." DEIS at 1. For the Salt Wells HMA, "The BLM conducted a review of AML (as per H-4700-1) and found that there would be adequate forage, water cover and space to sustain a wild horse herd, and maintain a TNEB within the solid-block portion of the HMA (see Appendix A)." Id. For all alternatives, "By managing wild horses at AML in combination with other permitted uses, the BLM would ensure a TNEB in Alternatives A, B, and D. ... Under Alternative C, all wild horses would be permanently removed from the planning area." DEIS at 94. Under Alternatives A and B, BLM generated AMLs for each HMA that were virtually identical, and more importantly, non-zero. DEIS Appendix A at unnumbered 2. (This AML analysis failed to consider the number of wild horses that could be accommodated under the "thriving natural ecological balance" threshold if domestic livestock were completely removed). Thus, all alternatives, including the No Action alternative, would meet the "thriving natural ecological balance" requirement of the WFRHBA.[...]</p> <p>Under the WFRHBA, when the Secretary determines that an overpopulation exists on a given area of the public lands and that action is necessary to remove excess animals, he shall immediately remove excess animals from the range so as to achieve appropriate management levels. Such action shall be taken, in the following order and priority, until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation. PL 92-195 § 1333(b)(2)(iv). This gives the Secretary a limited discretion to remove wild horses from their habitats when (s)he determines them to be "excess animals" that are incompatible with maintaining a "thriving natural ecological balance." See also Handbook H- 4700-1 § 4.1.5. It does not grant the Secretary to remove wild horses from public land for any other reason.</p> <p>Specifically, BLM policy implementing the WFRHBA requires a Determination of Excess before wild horses can be removed:</p> <p>Before issuing a decision to gather and remove</p>	

Comment #	Comment Text	BLM Response
	<p>animals, the authorized officer shall first determine whether excess WH&B are present and require immediate removal. In making this determination, the authorized officer shall analyze grazing utilization and distribution, trend in range ecological condition, actual use, climate (weather) data, current population inventory, wild horses and burros located outside the HMA in areas not designated for their long-term maintenance and other factors such as the results of land health assessments which demonstrate removal is needed to restore or maintain the range in a TNEB.</p> <p>The term "excess animals" is defined as those animals which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area (16 USC § 1332(f)(2)).</p> <p>Handbook H-4700-1 § 19. Such a determination cannot be made for any wild horse in the Great Divide, Salt Wells, Adobe Town, or White Mountain HMAs, because BLM has rendered a determination that a "thriving natural ecological balance" currently is maintained under present wild horse populations in these HMAs.[...]</p> <p>It is unclear to us how re-setting the AMLs for entire HMAs to zero is consistent with the WFRHBA. BLM policy states, "WH&B shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat." BLM Handbook H-4700-1 § 4.1.1. A wild horse population of zero is, by definition, not self-sustaining. Please explain how eliminating wild horses by either re-setting AMLs to zero, or by managing them to zero as "non-reproducing populations" through preventing reproduction, is consistent with the Congressional mandate to "protect[] from capture" and "consider[] in areas where presently found [as of enactment of the WFRHBA], as an integral part of the natural system of the public lands." PL 92-195 §1331. Under Alternatives A and B, wild horse numbers would remain essentially unchanged. Under Alternatives C and D, wild horse HMA numbers would be re-set to zero, and wild horses would be eliminated from their original herd areas as</p>	

Comment #	Comment Text	BLM Response
	<p>designated pursuant to the WFRHBA. DEIS at 16. Under "Constraints on Management," BLM's Wild Horse Handbook states, "Consistent with 43 CFR 4710.3-1, herd management areas (HMAs) shall be established for the maintenance of WH&B herds." Handbook H-4700-1 § 4.1.3. Therefore, BLM's proposed decision to remove all wild horses from the Great Divide and Salt Wells HMAs, to remove all wild horses from the Rock Springs portion of the Adobe Town HMA, and to manage the White Mountain Herd to extirpation through preventing reproduction, as in the Preferred Alternative, all appear to violate federal law and policy.</p> <p>While it is our understanding that BLM may consider alternatives that are beyond the scope of its authority to implement during a NEPA process such as this one, it may not approve an alternative that is not fully compliant with applicable laws and regulations.[...]</p> <p>The EIS continues, "This dual mandate is difficult to implement in the checkerboard where every other section of land is private, and wild horses constantly drift between private and public land." Again, the language contained in the WFRHBA requires site-specific information of "stray" wild horses in order to inform any removal of those "stray" animals. BLM policy states, "Under the 1971 WFRHBA, WH&B are to be managed in a manner designed to achieve and maintain a thriving natural ecological balance and protect the range from the deterioration associated with WH&B overpopulation." BLM Handbook H-4700-1 § 4. Nowhere in the WFRHBA does it contemplate or authorize the wholesale removal of wild horses from public lands to ensure that no wild horses ever stray onto private lands. What the BLM is proposing is far outside its authority under the law and regulation.[...]</p> <p>43 CFR 4710.3-1, likewise, does not authorize the broad elimination of wild horse as the BLM is proposing. In fact, the only authority in the regulations regarding removal of wild horses from public lands is for "excess" wild horses as laid out under 43 CFR 4720.1. The EIS and its Appendix A clearly demonstrate that these are not "excess" wild horses. Further, the Act, under</p>	

Comment #	Comment Text	BLM Response
	<p>Section 4, only allows removing a "stray" animal(s) from off of private lands owned by the requester, not the wholesale removal of wild horses from public lands. The BLM's reading of the Act bear no relation to the Act itself.</p>	

Comment #	Comment Text	BLM Response
68	<p>with respect to large solid blocks of public land, BLM's position that it can zero out wild horse herds in these areas merely because some wild horses might in the future stray on to private lands outside these large blocks of public land is arbitrary, capricious, and completely ignores the statutory mechanism set forth in Section 4 of the Wild Horse Act to address any legitimate stray horse issues that might arise in the future.[...]</p> <p>In stark contrast to the explicit purposes of the Wild Horse Act- i.e., to protect wild horses on public lands where they have long resided (such as the HMAs at issue)- BLM' s refusal even to allow continued wild horse use of solid public land blocks in the Great Divide Basin, Salt Wells Creek, and White Mountain HMAs violates the plain terms of the Act, its regulations, and BLM' s Handbook. As the Draft RMP and Draft EIS concludes after undertaking the four-factor analysis, all four habitat components (forage, water, space, and cover) are satisfied under current conditions- i.e., under the no-action alternative that would allow far more wild horses in these HMAs than BLM is proposing to implement through this decision-for all four HMAs (i.e., the Adobe Town HMA, Great Divide Basin HMA, Salt Wells Creek HMA, and White Mountain HMA). Accordingly, where these four HMAs all contain suitable forage, water, cover, and space to sustain the current numbers of wild horses-or any lower number of horses as contemplated in Alternative B (or other feasible alternatives not considered in detail by BLM)-it is patently arbitrary , capricious, and contrary to law to instead remove all wild horses from three of these HMAs and drastically curtail the few remaining horses in the Adobe Town HMA. Simply put, because Congress required BLM to manage and protect wild horses on public lands where they were found in 1971-absent a compelling justification based on the lack of suitable habitat components-the adoption of Alternative D in the face of BLM's own findings that adequate forage, water, space , and cover exist to sustain wild horse herds on these public lands would be the antithesis of the policies embodied in the Wild Horse Act, as well as BLM' s own regulations and Handbook</p>	<p>BLM does not assert that this RMP amendment is mandated by Section 4 of the WFRHBA. Rather, Section 4 of the WFRHBA has made management of HMAs within the checkerboard or in close proximity to the checkerboard impractical.</p> <p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

Comment #	Comment Text	BLM Response
69	<p>The Intent of Congress Is Clear: Designated "Range" is "Devoted Principally" for Wild Horse Use</p> <p>Congress clearly stated in the Act that wild horses have a special, protected status. The Act specifically defines the "range" where wild horses were "presently found" (in 1971) as "the land necessary to sustain an existing herd or herds of wild free-roaming horses." The Act also specifically states that this wild horse habitat "is devoted principally but not necessarily exclusively to their [wild horses and burros] welfare..." [Public Law 92-195 § 1332]</p> <p>The BLM does not hold any discretion or authority to diverge from the clear, stated intent of the United States Congress. Congress told the BLM those lands are (must be) devoted principally to these federally protected animals. Had Congress wanted to provide BLM with discretion, the word "may" would have been used rather than "is". Wild horse habitat "is devoted principally but not necessarily exclusively to their [wild horses and burros] welfare..." [Public Law 92-195 § 1332]</p> <p>Again, the language of the Act leaves no possible ambiguity for Congress' intent, that wild horses "are to be considered in the area where presently found, as an integral part of the natural system of the public lands."</p> <p>"If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, 467 U.S. 837, 842-43 (1984).</p> <p>BLM's regulations state that "wild horses and burros shall be considered comparably with other resource values in the formulation of land use plans." [43 CFR 4700.0-6] Yet, the EIS fails to render a comparable evaluation of wild horse use of the public Checkerboard lands with that of the privately-owned livestock. BLM has thus failed to live up to its own published requirements.</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

Comment #	Comment Text	BLM Response
	<p>As a result of BLM failing to do a comparable analysis, these Wyoming wild horses stand to lose everything under this EIS, while the private livestock interests stand only to gain. This is directly counter to Congress's intent and mandate for the protection of wild horses under the 1971 Act and therefore is not a viable or legal solution.</p> <p>When Congress designated wild horses as the principal user of their designated wild horse habitat, they also effectively stated that the wishes or interests of private livestock groups cannot be the determining factor or driver behind decisions about how to manage that habitat.</p> <p>The Wyoming Checkerboard existed at the time the Act was unanimously passed by Congress. The Act clearly outlines that if there is a conflict between livestock and wild horse usage, livestock must be the first "user" to be reduced or eliminated from these public lands. The RSGA may either fence their private land so as to disallow the horses access (as noted in section II of these comments) or they may accept that the wild horses of Wyoming are the principal user of the public lands in the Checkerboard and that RSGA's grazing permits are a privilege, not a right, which can be revoked at any time.</p> <p>Congress also required in the Act that "All management activities shall be at the minimal feasible level..." (emphasis added) Eliminating all wild horses and implementing sterilization that will destroy natural behaviors are not "minimal" management actions. Nothing could be more extreme than eliminating all wild horses or destroying the very essence of their wildness.</p> <p>BLM has a responsibility to manage and protect wild horses. It does not have a mandate or the authority to remove them entirely from their land where not warranted by extreme environmental circumstances. And BLM certainly does not have the authority or right to do so as a capitulation to private livestock interests.</p> <p>The creators of this EIS clearly fall into the latter of the two categories of BLM personnel noted in</p>	

Comment #	Comment Text	BLM Response
	<p>the 1982 National Resource Council's report on the BLM Wild Horse Program: "Indeed, we have met many [BLM] employees who are sincerely committed to wild horse and burro management in the spirit of the 1971 Act. But our experience also suggests that the Bureau must be sensitive to considerable pockets of resistance to the program within its own ranks and to the pressures which many district and area personnel feel to depict range, population, and other conditions in an antihorse and antiburro context." (emphasis added) We will discuss this in further detail below.</p>	

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70	<p>VIII. 43 CFR 4700.0-6 Policy</p> <p>The BLM statute 43 CFR 4700.0-6 clearly establishes the policies for the agency's management of wild horses. The EIS fails to adhere to these policies by proposing to sterilize an entire population of wild horses while also zeroing out, or eliminating, all wild horses from three HMAs and a portion of the Adobe Town HMA.[...]</p> <p>43 CFR 4700.0-6 states:</p> <p>"(a) Wild horses and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat.</p> <p>(b) Wild horses and burros shall be considered comparably with other resource values in the formulation of land use plans.</p> <p>(c) Management activities affecting wild horses and burros shall be undertaken with the goal of maintaining free-roaming behavior."</p> <p>The EIS fails to adhere to 43 CFR 4700.06(a) since a sterilized population will no longer be "managed as self-sustaining populations of healthy animals..." The statute specifically refers to "populations" because it is understood there are many populations of wild horses managed by the BLM - all wild horses do not and cannot be considered to constitute one metapopulation.</p> <p>The EIS Fails to adhere to 43 CFR 4700.06(c) since the management activity to sterilize the White Mountain wild horse population will no longer "maintaining free-roaming behavior."</p> <p>The EIS fails to adhere to 43 CFR 4700.06(b) given the proposal to zero-out all wild horses while allowing livestock grazing to continue and possibly increase after all horses are removed. The statute specifically states horses "shall be considered comparable with other resource values in the formulation of land use plans."</p> <p>The BLM is not currently treating the wild horses</p>	<p>Potential impacts to the genetic diversity of these herds are discussed in Section 4.2.1 of the EIS. The larger metapopulation of wild horses is discussed in Sections 3.1. The rationale for the proposed alternative is discussed in Section 2.3. None of the alternatives in the EIS propose increasing livestock use. Any adjustment of livestock AUM allocations would be addressed through future decisions following further analysis of range conditions.</p>

Comment #	Comment Text	BLM Response
	<p>in Great Divide Basin, Salt Wells, and Adobe Town HMAs in a "comparable" manner as the agency treats livestock that graze in the same areas. This is demonstrated in the proposed removal of horses while no consideration has apparently been given to removal of livestock.</p> <p>Given the disparity of allocation of AUMs (Attachments 9 and 10) within the above-mentioned HMAs, the BLM is already in violation of this statute.</p>	

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71	<p>the Handbook provides a detailed process for analyzing whether to adjust AML-including through the conversion of an HMA to an HA (i.e., reducing the AML to zero)-and makes clear that that only factors relevant to this decision are: "whether the four essential habitat components (forage, water, cover and space) are present in sufficient amounts to sustain healthy WH&B populations and healthy rangelands over the long-term. " Id. at 67. Only if this "analysis determine[s] that one or more of the essential habitat components is insufficient to maintain a healthy [wild horse] population and healthy rangelands" may "the authorized officer ... consider amending or revising the [RMP] to remove the area's designation as an HMA." Id.; see also id. at 67-75 (documenting thorough analysis process for reducing AML to zero and justifying HMA conversion to HA).[...]</p> <p>Likewise, BLM cannot convert these HMAs to HAs or reduce the AML to zero in these areas of public lands because the agency has not based its justification for this decision on any purported damage to the range caused exclusively (or even primarily) by wild horses that is causing long term failure to achieve a thriving natural ecological balance. To the contrary, BLM's own analysis and findings in the Draft RMP and Draft EIS indicate that most of these public lands are actually meeting rangeland health standards, and that in the rare events that such standards are not satisfied wild horses are ordinarily not " causal factors." Thus, to the extent that BLM had authority to convert an HMA to an HA and thereby reduce its AML to zero even where there exists adequate forage, water, cover, and space, under these facts there is no legal or logical basis for eliminating all wild horse use from these HMAs because these public lands are mostly achieving rangeland health standards and wild horses are rarely contributing to any deviation from those standards, strongly suggesting that these public lands are maintaining a thriving natural ecological balance at present with an AML of 1,481-2,065.</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

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72	<p>For many of the same reasons, BLM may not lawfully remove horses from these HMAs, in this or any future action, so long as the populations remain within the current AMLs. Section 3 of the Wild Horse Act grants BLM the authority to manage and protect wild horses by permanently removing "excess" horses from public lands, but only after BLM specifically determines that: (1) "an overpopulation [of wild horses] exists on a given area of the public lands," and (2) "action is necessary to remove excess animals." 16 U.S.C. § 1333(b)(2). An "excess" wild horse is one that "must be removed from an area in order to preserve and maintain a thriving natural ecological balance . . . in that area." 16 U.S.C. § 1332(t).</p> <p>Here, as explained, BLM has certainly not determined that there is an overpopulation of horses, nor has the agency determined that action is necessary to remove every single wild horse (or any wild horse for that matter) slated for removal under Alternative D. Indeed, further underscoring the fact that removal of these horses would be unlawful, is Congress' s instruction that cannot be reconciled with BLM's explicit findings here that most of these public lands are meeting rangeland health standards and further, where the lands may not, wild horses are rarely a causal factor to such failure. In other words, BLM has made no argument-nor can it on this record that these public lands are not maintaining a thriving natural ecological balance, and as a result the horses currently located on these public lands are not "excess animals" that "must be removed to preserve and maintain and thriving natural ecological balance." 16 U.S.C. § 1332(t). In short, BLM's preferred alternative would permanently remove non-excess horses from the range and thereby violate the Wild Horse Act, its implementing regulations, and the APA.</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

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73	<p>As a logical matter, BLM' s position in the Draft RMP and Draft EIS would completely undermine the letter and spirit of the Wild Horse Act. Nearly every single wild horse HMA in the American West is surrounded by private lands, and straying is a recurring problem in many (if not all) of those HMAs. Under BLM' s rationale in Alternative D, the agency could apply this reasoning to essentially every single HMA throughout the country and it would decimate wild horses on public lands in exactly the opposite manner Congress intended. Accordingly , BLM' s position that the mere existence of private lands adjacent to public lands is a basis for eliminating all wild horse use from large solid blocks of public lands flouts Congress's explicit policies in the Wild Horse Act and would set a dangerous precedent that would drastically reduce wild horse populations throughout the American West.</p>	<p>As described in Section 1.2 of the EIS the purpose and need for this action is based on the unique checkerboard pattern of ownership, where every other square mile is public land, and the alternating sections are private land. In this unique situation it is impossible for a wild horse herd to make use of the public lands, without also making use of the private lands. As discussed in Section 1.1 of the EIS the private landowner in this area had historically given consent for wild horses to utilize their land in this area, and these HMAs were established under the premise of that consent. When the private landowner withdrew consent it triggered a need to reevaluate these HMAs and the associated AMLs. Due to the land ownership pattern this is a different situation than when wild horses stray out of the boundary of an HMA onto private land outside the HMA.</p>
74	<p>Under the proposed Alternative D, BLM would transition all Herd Management Areas (HMA) which are located within checkerboard land, into Herd Areas (HA). We agree that it is logical and feasible to not keep wild horses in areas deemed not suitable. We disagree, however, on the idea of total abandonment in management efforts of the areas that are being transitioned into HAs. Although BLM would not be responsible for wild horses in HA areas, the issues will still persist. Total abandonment of wild horse management in HA areas will leave private landowners with the same problems but now with less help. Wild horses would likely still exist in private property areas and without management prerogative, the BLM may not be able to assist property owners in managing those herds. We suggest that the BLM allow for adaptive management approaches in these areas and maintain them as HMAs instead of just HAs, while keeping the zero horse appropriate management level (AML).</p>	<p>Conversion of HMAs to HA status would not preclude BLM from taking any action regarding wild horses in these areas. The BLM could still remove wild horses from these areas, as appropriate. This often occurs in current wild horse management actions, when wild horses are found outside an HMA.</p>

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75	<p>I would like to suggest a wildlife-friendly fence be placed between the checkerboard and non-checkerboard portions of the current HMA's; that would provide a barrier to horses, without being a barrier to deer, antelope, or other wildlife.</p> <p>Gates could be placed (where appropriate) to move livestock when they have permitted grazing. The fence would also help keep people from crossing onto private property inadvertently while hunting, recreating, and/or looking for horses to document/photograph. Currently there is no such boundary, and there have been problems with inadvertent trespass. As long as the bottom rail is high enough for Pronghorn and young deer to go under, and low enough for adult deer to jump over, it shouldn't be a problem. It would also help provide a snow-fence to catch winter drifts.</p> <p>This proposed fencing project would reduce the Great Divide Basin HMA by approximately 60%, White Mountain HMA by approximately 75%, Salt Wells Creek HMA by approximately 75% and Adobe Town HMA by approximately 10%. (These are just rough estimates based on visual mapping, and do not reflect actual percentages.)</p>	<p>Managing these HMAs without the use of checkerboard land is considered in Alternative B of the EIS.</p>

Comment #	Comment Text	BLM Response
76	<p>BLM Alternatives May Violate the WFRHBA</p> <p>The Wild Free-Roaming Horses and Burros Act (WFRHBA) provides "that wild free- roaming horses and burros shall be protected from capture, branding, harassment, or death;</p> <p>and to accomplish this they are to be considered in the area where presently found, as an integral part of the natural system of the public lands." PL 92-195 § 1331. Under this law, "excess animals" are defined as wild free-roaming horses or burros which "must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area" or which have already been removed "pursuant to application law." Id., § 1332.</p> <p>Under the WFRHBA,</p> <p>The Secretary is authorized and directed to protect and manage wild free- roaming horses and burros as components of the public lands, and he may designate and maintain specific ranges on public lands as sanctuaries for their protection and preservation, where the Secretary after consultation with the wildlife agency of the State wherein any such range is proposed and with the Advisory Board established in section 1337 of this Act deems such action desirable.</p> <p>PL 92-195 § 1333(a), emphasis added. Importantly, "range" is defined under the WFRHBA as "the amount of land necessary to sustain an existing herd or herds of wild free-roaming horses and burros, which does not exceed their known territorial limits, and which is devoted principally but not necessarily exclusively to their welfare in keeping with the multiple-use management concept for the public lands." PL 92-195 § 1332(c), emphasis added. In designating the White Mountain, Adobe Town, Salt Wells, and Great Divide HMAs, the Secretary triggered a specific set of legal requirements. Congress made no provision under the WFRHBA for these requirements to be revocable.</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

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77	<p>There is no authorization for removal of wild horses from public lands in the case of wild horses wandering onto private lands. The WHBA specifies the measures to be taken when wild horses or burros stray onto private land, as follows:</p> <p>If wild free-roaming horses or burros stray from public lands onto privately owned land, the owners of such land may inform the nearest Federal marshal or agent of the Secretary, who shall arrange to have the animals removed.</p> <p>PL 92-195 § 1334. This provision does not apply to wild horses or burros occupying public lands. Indeed, there is no provision in the WHBA for removing wild horses from public lands in response to an incident or incidents where they stray onto private lands.[...]</p> <p>At page 60, we see "the AMLs established under this alternative assume the permissive use of private land, which has since been revoked." But again BLM's anti-wild horse bias to please the RSGA is on full display. As stated earlier, the BLM withheld the basic fact that RSGA only owns ~1/3 of the checkerboard private, so they only have authority to cancel any agreement on their own private, not the other 2/3's of the checkerboard private.</p> <p>Further, the EIS states that current AML was not based on any on-the-ground determination as required under BLM policy, so there is no support that current AML's are based on private RSGA forage.</p>	<p>This RMP amendment is not required by Section 4 of the WFRHBA. As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook.</p> <p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p> <p>Language has been added to Section 1.1 of the EIS to clarify RSGA's ownership interest in each HMA. Language has also been added to clarify that no other private land owners within the checkerboard have consented to the presence of wild horses on their land.</p>

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78	<p>The WHBA mandates that the Secretary maintain a current inventory of wild free-roaming horses and burros on given areas of public lands to determine Appropriate Management Levels (AMLs); make determinations as to whether and where an overpopulation exist and whether action should be taken to remove excess animals; and determine whether AMLS should be achieved by the removal or destruction of excess animals, or if there are other options.¹⁵</p> <p>The WHBA does authorize BLM to remove "excess" wild horses.¹⁶ However, before BLM can remove wild horses it must first make a determination that (1) "an overpopulation [of wild horses] exists on a given area of the public lands," and (2) "action is necessary to remove excess animals."¹⁷</p> <p>Here, BLM has not made a proper determination that there are excess horses or that action is necessary to remove them as required by the WHBA at its own guidance documents. To the contrary, there is adequate forage, water cover, and space to support wild horses in the Adobe Town, Great Divide Basin, Salt Wells Creek, and White Mountain HMAs. Thus, BLM has a duty to protect these wild horses.</p> <p>Although BLM may remove wild horses that stray onto private land if requested by the landowner, it cannot use that authority to remove wild horses in protected HMAs merely to prevent wild horses from going on private lands. More importantly, BLM cannot treat public lands as private lands. Nothing about the checkerboard pattern of landownership in the proposed project area relieves BLM of its duty to protect wild horses on public lands. Nor can private agreements with interest groups override federal law protecting wild horses on public lands.</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

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79	<p>I am also very concerned about BLM's agreement with RSGA to permanently zero out the Salt Wells HMA and the Divide Basin HMA, leaving no wild horses in those areas that have long contained wild horses. I have been to fifteen of the sixteen HMAs in Wyoming, and to my knowledge none has ever been zeroed out by BLM. It is my view, based on everything I know about these areas and the way these public lands are used by wild horses and livestock, that BLM has no biological or ecological basis for zeroing out a herd of wild horses in an HMA that existed at the time the wild horse statute was passed in 1971, as is the case with both the Salt Wells and Divide Basin HMAs. And, again, because the wild horses have a statutory right to be there, whereas livestock only have a privilege that can be revoked at any time by BLM, there also is no authority or precedent, to my knowledge, for the agency to zero out these two longstanding wild horse herds simply to appease private livestock grazers.</p>	<p>The Consent Decree did not contain an agreement to convert HMAs to HAs managed for zero wild horses. Instead, it reflects BLM's agreement to consider such actions for certain HMAs.</p> <p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

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80	<p>You say that you can decide not to protect and manage our wild horses, horses that belong to the American public on land that belongs to the American public, by simply writing that decision into a "land use plan". However, the same law that set up the land use plan, the FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976, FLPMA, also states:</p> <p>"Sec. 302 [43 U.S.C. 1732]. (a) Multiple use and sustained yield requirements applicable; exception The Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by [the Secretary] under section 202 of this Act when they are available, except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law."</p> <p>The Wild Free-Roaming Horses and Burros Act of 1971 (the ACT) is such a law.</p> <p>The land where wild horses and burros are to be protected belongs, not to the Bureau of Land Management, but to the American PUBLIC. They are OUR horses and burros, not yours. You are charged with management of our land in accordance with the Law, and you are doing a very poor job.</p> <p>Nowhere in the Act does it say that the BLM can choose which land "where [wild horses and burros were] presently found" at the time the Act was passed, can be managed for those animals. Nowhere does it give the BLM the power to decide which of those areas will be designated as Herd Management Areas (HMAs), where wild horses and/or burros will be managed, and which will be called Herd Areas (HAs) where they may be zeroed out. All areas identified as HAs were to be managed for wild horses, as those were the areas "where they [were] presently found", often referred to as "Herd Use Areas".</p>	<p>Section 2.1.4 of H-4700-1 explains that a "...LUP may include decisions not to manage WH&B in all or a part of an HA. An example is intermingled and unfenced private lands within HAs where the landowners are unwilling to make them available for WH&B use..." Because the predominant private landowner within the Checkerboard HMAs no longer consents to wild horse use of its private land in this area, the BLM had to reevaluate the underlying Herd Areas on which these HMAs are based, to determine if they can still function as HMAs. Therefore, the Purpose and Need (see Section 1.2) for this action is based on the need to consider change in management due to the removal of private landowner consent, and is not based on current resource conditions on these HMAs.</p>

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81	<p>Table 2-1 MA002</p> <p>Table 2-1 does not include any management action for gathering horses in a coordinated fashion across HMAs or distinct areas. BLM cannot segment the action to minimize or distort the impacts of the gather. Moreover, it is likely that several gathers will be needed to attain the AMLs in the alternatives and those gathers must be scoped together.</p>	<p>Reasonably foreseeable potential impacts to wild horses associated with gather operations are discussed in Section 4.2.1 of the EIS. The BLM has established best management practices and standard operating procedures that are designed to ensure gather operations are as safe and humane as possible. This RMP Amendment does not include decisions regarding gather operations. Specific details regarding how gather operations would occur is beyond the scope of this analysis. A decision to conduct gathers is an implementation level decision subject to future NEPA analysis.</p>
82	<p>Should the agency round up and remove wild horses from any of these HMAs, we would urge the BLM to rely on water and bait trap gathers to avoid the stresses, injuries, and fatalities associated with helicopter roundups. As agency officials noted during the BLM's National Wild Horse & Burro Advisory Board meeting in October 2019, the bait and water method does not cost more than using helicopters, so expense would likely not be a relevant justification for choosing helicopter roundups over more humane water and bait trap methods. Any subsequent NEPA actions should include an evaluation of the costs of this method compared to the use of helicopters or motorized vehicles.</p> <p>It is disappointing that the BLM appears to have already decided to use the helicopter chase approach without regard for public concern (noting, for example, the need to bring animals in at a speed that avoids heat stress and fatigue, among other harmful effects). In Appendix B, the BLM states that gather efficiency "may be less with bait and water trapping" but this pronouncement is purely speculative and no evidence is provided to support the claim (pg. 4) The BLM should analyze the use of bait and water trapping for any proposed removals as part of its plan in the checkerboard.</p> <p>The EIS emphasizes that using helicopters and motorized vehicles to round up horses is both "safe and effective" (pg. 57) despite acknowledging the numerous types of injuries that can and do occur directly as a result of these gather methods - from spontaneous abortions to broken limbs and even fatalities.</p>	<p>See response to comment #81.</p>

Comment #	Comment Text	BLM Response
	<p>The EIS notes that the BLM regards these as rare occurrences, but observers of recent roundups have identified and/or documented many such troubling instances - e.g., horses suffering broken necks during recent operations in Nevada², helicopters running horses into barbed wire in Utah³, foals dying from "capture myopathy" (i.e., being run to death) during an Oregon roundup⁴, a wild mare either giving birth or miscarrying while being run in Nevada.⁵ We would be remiss not to observe that the 2014 checkerboard roundup resulted in several "acute" deaths - i.e., fatalities caused as a result of the gather and removal process - including multiple instances where horses broke their necks after running into panels.⁶</p> <p>Regarding the proposed gather component, the BLM must take a hard look and fully analyze the deaths and injuries resulting from removals during roundup activities, and integrate specific data from such operations in recent years (while also analyzing the injuries and deaths resulting from transport to initial holding facilities, in short-term holding facilities, and in long-term holding facilities). The BLM must also consider how proposed gathers may disrupt other wildlife species, and harm sensitive sagebrush, grasslands, and riparian habitat areas. Should the BLM proceed with roundups, we request that real-time cameras be installed on all helicopters used in these operations and that video be live streamed online. Real-time cameras should also be installed in the trap, corral, and temporary holding pens so that BLM personnel, the public, and the media can monitor the entire roundup operation. Such technology would vastly improve the transparency of roundup operations and ensure that any welfare violations can be properly documented and addressed.</p>	
83	the DEIS should include as a mandatory management action in Table 2-1 a survey program including post gather surveys and annual surveys to determine the location and number of horse on the Checkerboard.	See response to comment #81.

Comment #	Comment Text	BLM Response
84	<p>IV. Animal Welfare</p> <p>The EIS fails to adequately address the protection of wild horses during the proposed roundup. The BLM's "Comprehensive Animal Welfare Program (CAWP)" is woefully inadequate in establishing humane standards for the treatment of wild horses and burros during a roundup. It must go further in its protection of these animals.</p> <p>If helicopters are to be used as a part of management, the plan must consider, analyze and implement humane standards as outlined in the recommendations below. These recommendations are necessary to reduce potential stress and harm to the wild horses during a roundup.</p> <ol style="list-style-type: none"> 1. Limit the distance wild horses may be chased by a helicopter to no more than five (5) miles. 2. Require that the helicopter not chase/move wild horses at a pace that exceeds the natural rate of movement of that specific animal. Every effort should be made to keep older, sick and young foals together with their companions or mothers as they are moved to the trap. The helicopter should not move or capture compromised, old, weak or young animals. 3. Establish strict requirements for suspending helicopter roundup operations in temperatures below 32 degrees F (freezing) or over 90 degrees F. Roundups outside of this temperature range would be blatantly inhumane. <p>The EIS must consider and implement the following with regards to CAWP:</p> <ul style="list-style-type: none"> * Improved public observation of all agency actions. There is significant public interest in the agency's management of wild horses and burros. The NAS specifically recommended to the BLM to improve the transparency of its management of the Wild Horse and Burro Program (Attachment 1). The treatment of the wild horses and agency transparency are paramount. * All removal operations must be located on public lands to allow public observation of all activities. No government operations should be located on private lands for which the owners will not give permission for public observation of activities. * Real-time cameras with GPS should be installed on all aircraft and/or helicopters used in operations and video should be live streamed 	See response to comment #81.

Comment #	Comment Text	BLM Response
	<p>on the Internet. This will improve the transparency and accountability of roundup operations and enable the BLM and public to monitor the direct impact that motorized vehicle usage has on wild horses and the environment.</p> <p>* Real-time cameras should be installed on any traps, corrals and temporary holding pens, again, so that BLM personnel, public and media can monitor the entire roundup operation and treatment of the horses.</p> <p>The recommendation of real-time cameras is also supported by a report commissioned by Cattoor Livestock Roundup, a long-time roundup contractor hired by the BLM which states: "Video monitoring of animal operations is a good way to ensure humane handling is taking place on a daily basis. Video cameras mounted in helicopters and in the capture and holding pens can also render the activists' videos as simply nothing more than proof that your business 'walks the walk' when it comes to upholding animal welfare standards." The report was prepared by Mark J. Deesing, Animal Behavior & Facilities Design consultant for Grandin Livestock Handling System. Deesing was an assistant to the highly regarded livestock industry consultant Dr. Temple Grandin. (Attachment 8)</p> <p>Video cameras will improve the transparency of the operations and enable the BLM and public to monitor the direct impact motorized vehicle usage has on wild horses and the environment. TCF would be happy to provide technical assistance and financial assistance to establish these real-time cameras as described above.</p>	
85	<p>Vegetation</p> <p>Plans to reclaim temporary round-up facilities and other heavily impacted areas should be in place, and include site-specific native seed mixes and follow up maintenance (e.g., weed management, re-seeding, etc.), as necessary.</p>	<p>This RMP Amendment does not include decisions regarding gather operations. Specific details regarding how reclamation for gather operations would occur is beyond the scope of this analysis. A decision to conduct gathers is an implementation level decision subject to future NEPA analysis.</p>
86	<p>Table 2-1</p> <p>Nowhere in the DEIS are post-gather aerial surveys or other critical components of a comprehensive monitoring program. Table 2-1 should, at a minimum, provide some basic parameters for a monitoring program. RSGA has belabored this point in comments, letters, and in litigation and yet the DEIS completely fails to</p>	<p>Specific details regarding how wild horse survey operations would occur is beyond the scope of this analysis. A monitoring goal has been added to Table 2-1 to clarify BLM's intent to monitor the wild horse population and conditions on the range.</p>

Comment #	Comment Text	BLM Response
	analyze a reasonable monitoring program as part of any alternative.	
87	On pages 54-55 of the EIS, BLM provides "Table 3-2. Grazing allotments within HMAs and their corresponding permitted AUM allocations." A discrepancy was noticed: Every one of the HMAs lists an allotment named "Rock Springs." In each instance, the allotment is said to hold exactly "107,991" AUMs, with varying percentages of those grazing slots located within the respective HMAs. Even if it appeared only once, the figure-at-issue makes up the greatest number of AUMs by-far of any of the allotments. The holder of the Rock Springs allotment would be the principal beneficiary of the windfall of wild-horse AUMs per Alternative D. The EIS must reveal the identity of the permittee that holds the "Rock Springs" allotment.	Table 3-2 has been updated to help clarify the relevant information provided. None of the alternatives propose increasing permitted livestock AUMs as a result of removing wild horses. Any adjustment of livestock AUM allocations would be addressed through future decisions following further NEPA analysis.
88	The proposed livestock reductions for Alternative B are equally flawed. Alternative B would place 1,481 to 2065 wild horses on the public land blocks of the existing HMAs, White Mountain, Adobe Town, Salt Wells, and Divide Basin. DEIS at 4, 15. BLM would reduce livestock grazing by 8,100 AUMs to accommodate the 2,065 wild horses on the public land allotments. Id. BLM cannot adopt these reductions without five-years monitoring data, coordination, cooperation, and consultation with grazing permittees and other interested parties. 43 C.F.R. §§4110.3, 4110.3-3. If BLM proposes to cancel the permits for wild horse use alone, it needs to do substantially more analysis than the DEIS provides and provide permittees with at least two years notice. 43 U.S.C. §1752(g).	If Alternative B were selected, site specific NEPA would be conducted, and individual grazing decisions would be issued to implement this action. These represent implementation level actions that are beyond the scope of this EIS.

Comment #	Comment Text	BLM Response
89	<p>Page 24, MA010, Alt. B: "Reduce livestock grazing permits within four HMAs by a total of 8,100 AUMs as follows:" Comment: WDA believes the reduction of livestock AUMs does not meet the Purpose and Need of the EIS. We do not support reducing the livestock grazing AUMs to accommodate an Increase In wild horses. Additionally, the reduction of Salt Wells AUMs would theoretically occur only on solid-block federal lands, but the BLM neglects to appropriate the checkerboard wild horse AUMs back to livestock and wildlife.</p> <p>* Page 24, MA010, Alternative D: "AUMs previously allocated to wild horse use may be allocated to wildlife, livestock..." Comment: BLM must consider the checkerboard land ownership pattern and incorporate this allocation of AUMs back to livestock and wildlife as part of the EIS, not after conducting an in-depth review. There's no standard or timeline for BLM to adhere to, and leaves the AUMs vulnerable and lost to future use. We ask BLM to work closely with WDA and WGFD to adjust these allocated AUMs to livestock and wildlife.[...]</p> <p>* Page 26, MA012 Alternative B: 0 Manage all HMAs as non-reproducing herds utilizing a variety of tools..." Comment: If all HMAs are managed as non-reproducing, the herds will naturally decrease, and reducing livestock grazing AUMs becomes unnecessary. Additionally, WDA is concerned that BLM cannot implement this as all previous efforts to implement fertility control have not been implemented as proposed.[...]</p> <p>* Page 37, Livestock Grazing, Alternative B: 0 Because of the concentration of wild horses In these areas, grazing permits within these HMAs would be reduced by a total of 8,100.R Comment: The analysis should Include the benefit of reducing wild horses from the checkerboard and include the ability to appropriate those wild horse AUMs to livestock and wildlife. Additionally, the analysis lacks any of the negative Impacts to livestock grazing permittees by the reduction of 81100 AUMs from the solid-block federal land allotments.</p>	<p>The rationale for reducing permitted livestock use under Alternative B is discussed in Section 2.2.2 of the EIS. Section 2.2.4 of the EIS explains that AUMs previously allocated to wild horses could be allocated to livestock use, wildlife or other ecosystem functions in subsequent implementation-level decisions, based on NEPA analysis of future monitoring data and other information. "Nonreproducing Herd" was added to the glossary to help clarify what this term means, and how such a herd is sustained in the long term. Potential impacts to livestock operators under Alternative B are discussed in Section 4.2.10 of the EIS.</p>

Comment #	Comment Text	BLM Response
90	<p>The EIS Must Disclose Actual Livestock Use and Numbers</p> <p>The checkerboard pattern of landownership in the planning area has led to repeated conflicts between ranchers and the vastly larger number of Americans with an interest in conserving wildlife, including wild horses. In order for the public to meaningfully provide public comment on the proposed RMP Amendment, the BLM must disclose the actual livestock use and numbers for the planning area. This includes, but is not limited to, such information as:</p> <ul style="list-style-type: none"> * A complete breakdown of livestock grazing in each of the HMAs, including active and actual Animal Unit Month ("AUM") allocations for each of the past five years; * All rangeland health assessments for grazing allotments in each of the HMAs. All monitoring data for each area should also be included and the BLM should clearly describe the data delineating the separate impacts of livestock use versus wild horse use; and * A detailed map of all water sources and fencing within each of the HMAs, and disclosure of water allocations for all uses in the HMAs, as well as an explanation of how fencing and engineering of wells and springs for livestock grazing has affected water availability for wild horses and other wildlife species. <p>The most efficient way for the BLM to completely disclose this information would be by attaching the Actual Use Grazing Report Formss for all allotments within or overlapping the HMAs as an appendix to the EIS. These forms contain the name of the BLM Field Office that authorizes the grazing use, the Allotment name and number, the pasture name and number, the kind or class of livestock, the dates and number of head (animals) turned into pasture and the dates and number of head (animals) taken off the pasture, the name of the Permittee/Lessee and the date of the report, and the BLM's calculations of the percentage of PL (public land), and the AUM 's (the forage used, known as Animal Units per Month). The second page of</p>	<p>This is a targeted RMP amendment specific to wild horse management on HMAs that include checkerboard land (see Section 1.1 for more information).</p> <p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about existing range conditions, stocking rates, and water availability is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
	<p>the report includes a record of livestock losses , including reasons for loss, number and kind or class of livestock , and the date.⁹ Further, in the interest of transparency and clarity, the BLM should also compile and disclose charts that directly compare livestock use and wild horse use in the HMAs.¹⁰ Such transparency is necessary for the public to fully understand the users of public lands in the project area.</p> <p>Thus, AWHC requests that the BLM disclose this information that is required for the public to provide meaningful comment on the proposed action.</p>	

Comment #	Comment Text	BLM Response
91	<p>As we have pointed out before – when comparing how cattle and equine eat, one must also take into account how they eat. Horses clip the grass with their upper and lower teeth. Cattle wrap their tongue around taller grass – which then cuts and rips it out of the ground. So horses may use more grass, but cause less damage. Another point left out of the study is the number of horses in an environment vs the number of cattle. It is certainly not one on one. There are often many many more cattle per horse population in a grazing area. The comment after the article by “whecologist” (who is the ecologist Craig Downer) is on the mark with a more in depth reason why horses are better to have in an environment than cattle. ~ HfH</p> <p>From: Casper Star Tribune By: Trevor Graff</p> <p>University of Wyoming research is contributing to a better understanding of how wild horses affect the state’s rangelands.</p> <p>Derek Scasta, a rangeland specialist with UW’s extension office, released a report from 33 studies of livestock and wildlife conflicts on ranges in 12 Western states and the Canadian province of Alberta to provide what he says is a quantitative look at what wild horses eat. The data show a significant conflict in forage selection between cattle and wild horses over the course of a year. Scasta said his study provides a baseline for future, more sophisticated research.</p> <p>“The data is pretty clear on what wild horses select for,” he said. “Because the data is so clear, I think we need more research that goes beyond what forage wild horses select to how they move across a landscape.”</p> <p>Data show wild horses eat a primarily grass diet with 82 percent of their forage coming in the form of grasses, 10 percent forbs and 8 percent shrubs.</p> <p>Cattle data showed a 74 percent grass diet and diets of 14 percent shrubs and 12 percent forbs. The study profiles the ecology of western grasslands, accounting for elk, domestic sheep, mule deer and pronghorn in addition to horses and cattle.</p> <p>Data was collected from sampling stool samples of the animals through the range of the study.</p>	<p>The information provided is beyond the scope of this EIS. This is a targeted RMP amendment specific to wild horse management on HMAs that include checkerboard land (see Section 1.1 for more information). Any adjustment of livestock AUM allocations would be addressed through future decisions following further NEPA analysis.</p>

Comment #	Comment Text	BLM Response
	<p>Continue Reading and View Comments https://www.habitatforhorses.org/university-of-wyoming-research-provides-data-on-wild-horse-diets/</p>	
92	<p>BLM cannot simply avoid its duty to adequately, scientifically, and continually analyze the impacts of all users, particularly when livestock grazing by private parties is a privilege and not a right. Why does the EIS fail to include an alternative that cuts livestock AUMs, when livestock, as the primary user (majority of animals) must bear the majority of responsibility for range and riparian degradation?</p> <p>The EIS fails to adequately consider sufficient reasonable alternatives. An alternative that analyzes and addresses the welfare of wild horses (as the lawful primary user), all wildlife, riparian area improvements, and livestock allocations - including the impact of livestock on rangeland health and the impact of reducing livestock in these HMAs - must also be included.</p>	<p>A reduction in the number of livestock permitted within the HMAs is analyzed in Alternative B of the DEIS.</p> <p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
93	Maintaining the current wild horse population by increasing the Appropriate Management Levels and reducing livestock grazing. Such an alternative would protect the Pilot Butte Wild Horse Viewing Loop, which is important for ecotourism. Grazing retirements and buyouts should be considered as part of this option.	Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses within solid block lands (see Section 2.2.2). The BLM does not currently have a grazing permit buyout program.
94	<p>The WSGB comments that we read NO justification for the proposal from the BLM for reductions in livestock AUM's because BLM has recently said in public documents that there is adequate forage and water available to sustain the number of horses on BLM lands that will remain in Herd Management Areas, HMA's, when this removal of BLM horses is completed per the Consent Decree.</p> <p>After the completion of this Amendment and EIS process, should the BLM persist in proposing reductions in livestock AUM's , the WSGB comments that these reductions be offered to any affected permittees as separate Grazing Decisions, and NOT as LUP/RMP Decisions. BLM permittees adversely impacted by a BLM proposal to reduce livestock AUM's must be afforded an opportunity to Appeal Grazing Decisions thru the process as per Section 9 of the Taylor Grazing Act.</p>	Rationale for reductions in livestock AUMs under Alternative B is discussed in Section 2.2.2 of the EIS. The type of actions discussed would be addressed in subsequent implementation decisions subject to further NEPA analysis.
95	<p>BLM cannot simply avoid its duty to adequately, scientifically, and continually analyze the impacts of all users, particularly when livestock grazing by private parties is a privilege and not a right. Why does the EIS fail to include an alternative that cuts livestock AUMs, when livestock, as the primary user (majority of animals) must bear the majority of responsibility for range and riparian degradation?</p> <p>The EIS fails to adequately consider sufficient reasonable alternatives. An alternative that analyzes and addresses the welfare of wild horses (as the lawful primary user), all wildlife, riparian area improvements, and livestock allocations - including the impact of livestock on rangeland health and the impact of reducing livestock in these HMAs - must also be included.</p>	See response to comment #92.

Comment #	Comment Text	BLM Response
96	<p>The BLM has failed to take the legally required 'hard look' at impacts of wild horses on other environmental factors under the DEIS. Under the Preferred Alternative, BLM states, "The lower number of wild horses in the planning area is expected to have positive impacts to wildlife, soils, vegetation, livestock and water resources." DEIS at 5. This would only be the case if livestock numbers were not increased to compensate for the reduction in wild horse herbivory. BLM admits, "AUMs previously allocated to wild horse use may be allocated to wildlife, livestock or other ecosystem functions." DEIS at 17. Furthermore, under the Preferred Alternative, This [removal of wild horses] would reduce overall grazing pressure within the planning area by an estimated 18,348 AUMs. ... These AUMs could become available for livestock use depending on the results of an in-depth review of intensive monitoring data.</p> <p>DEIS at 37. Because livestock forage allocation decisions as well as detailed impacts analysis for the impacts of livestock grazing and trampling have been excluded from this EIS, and instead are being considered under the parallel Rock Springs RMP revision, BLM cannot reach this conclusion due to the absence of information provided.[...]</p> <p>The Preferred Alternatives would result in a net reduction of 1,529 wild horses, and 18,348 AUMs of wild horse use. DEIS at 36. BLM asserts that this would result in reductions in impacts to soils, water resources, vegetation, wildlife, special status species "associated with wild horse activity." DEIS at Table 2-2. While BLM does argue that "Forage, habitat, and water resources would improve for those wild horses that remain on the range, as a result of reduced competition for these resources" with elimination of wild horses from large tracts of the RSFO (DEIS at 33), this is an arbitrary and capricious conclusion because BLM has failed to account for a possible compensatory increase in impacts from other ungulates.</p>	<p>None of the alternatives within the EIS propose increasing the number of permitted AUMs to livestock use. Any adjustment of livestock AUM allocations would be addressed through future decisions following further NEPA analysis, using detailed, site specific data. See Section 2.2 of the EIS.</p>

Comment #	Comment Text	BLM Response
97	<p>Under the preferred alternative, BLM claims that the 18,348 AUMs no longer utilized by wild horses could be reallocated to livestock use. In fact, BLM did not even wait until it heard from the public and finished the RMP amendment before it started giving more to ranchers. For example, it recently issued 578 more AUMs in the Salt Wells Creek grazing allotment. A year ago, it issued 2,040 AUMs there, bringing the current total to 2,618.27</p> <p>BLM failed to disclose or analyze the impact of removing wild horses and potentially reallocating their forage to cattle and sheep. Cattle and sheep can destroy native vegetation, damage soils and riparian areas, and contaminate waterways with fecal waste. One report explained the following:</p> <p>"Livestock grazing threatens native species, reduces water quality, spreads noxious weeds, alters natural fire regimes and accelerates soil erosion, destroying streamside and upland ecosystems. About 80 percent of all streams and riparian ecosystems in the arid West are severely degraded by livestock grazing. In its Global 2000 report, the Council on Environmental Quality noted that 'improvident grazing . . . has been the most potent desertification force, in terms of total acreage, within the United States.'²⁸"</p> <p>In addition to the direct damage caused by cattle and sheep, ranchers also seek to eliminate wildlife to make room for their private operations. Ranchers utilizing public lands not only call for the removal of wild horses, but also keystone predator species. In 2017, the U.S. Department of Agriculture's killing machine division, Wildlife Services, destroyed more than one million animals, including wolves, coyotes and bobcats, all of whom would be natural predators of wild horses, to "protect" cattle and sheep. BLM fails to consider these impacts in its Environmental Impact Statement (EIS).</p> <p>BLM also fails to consider how increased cattle or sheep would impact the few remaining wild horses under the preferred alternative. For example, the EIS claims that forage conditions</p>	<p>Current livestock AUM allocations are consistent with the existing RMP, and have not increased for any allotments within these HMAs.</p> <p>Also, see response to comment #96.</p>

Comment #	Comment Text	BLM Response
	<p>for wild horses that remain on the range is expected to improve since there would be reduced competition as a result of permanently removing the vast majority of wild horses. Again, this fails to take into account that BLM may increase cattle and sheep grazing. Because cattle and sheep cause significantly more damage to the range, forage condition and health of the few remaining horses, as well as other wildlife, could deteriorate.</p>	

Comment #	Comment Text	BLM Response
98	<p>As an American tax-payer and as a life-long visitor to the state of Wyoming and an experienced environmental researcher, I thank you for the opportunity to share with you my ideas about the future of my Wyoming lands and resources and the upcoming Resource Management Plan (RMP) Amendment. I give you these thoughts with all seriousness and I hope I can be assured the BLM will read them with the same respect, thought and concern. I encourage the Rock Springs Field and Rawlins Field Offices of the Bureau of Land Management (BLM) to adopt a responsible Range Management Plan Amendment. This can certainly be accomplished but after reading the proposed RMP amendment options, it is more than obvious that none of the alternatives are acceptable without additional considerations and changes. The BLM's stated mission is to "Sustain the health, diversity and productivity of the public lands for the use and enjoyment of the present and future generation". None of the proposed alternatives that have been outlined in the current RMP follow this "mission" of the BLM. Therefore I require the BLM to activate a no action alternative at least until all issues have been resolved within procedures that would give the American people and their lands and resources valid and ecological methods that will sustain the health and diversity of the public lands for the use and enjoyment of the present and future generations and which strives to promote a "thriving ecological balance" on our American public lands.</p> <p>Our United States of America society relies heavily on the ability to produce and exchange legitimate and trustworthy documents. As shown and explained within my public comment letter, it clearly appears that the BLM has refused to include or even acknowledge factual scientifically defensible relevant data which by law must be provided to the public in the RMP. Instead of scientifically supported information, the BLM agency has included multitudes of false and omitted information as I will demonstrate here within my public statement.</p> <p>First, may I suggest you read, understand and be aware of this important legal explanation of Title</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses. Management options for livestock grazing allotments within the Rock Springs Field Office are being considered as part of the separate RMP Revision effort. BLM's national policies and practices in livestock grazing management are beyond the scope of this EIS. The cumulative impact analyses provided in Chapter 4 of the EIS describe the impact of the various alternatives combined with other past, present and reasonably foreseeable future actions in the CIAA for each resource.</p> <p>BLM has analyzed certain actions in accordance with the Consent Decree; however, the Consent Decree does not direct the outcome of BLM's decision-making.</p>

Comment #	Comment Text	BLM Response
	<p>18 of the United States Code regarding falsification of legal documents: Making false statements (18 U.S.C. § 1001) is the common name for the United States federal crime laid out in Section 1001 of Title 18 of the United States Code, which generally prohibits knowingly and willfully making false or fraudulent statements, or concealing information, in "any matter within the jurisdiction" of the federal government of the United States, even by mere denial. 18 U.S. Code § 1519 - Destruction, alteration, or falsification of records in Federal investigations Current through Pub. L. 114-38. (See Public Laws for the current Congress.) US Code Whoever knowingly alters, destroys, mutilates, conceals, covers up, falsifies, or makes a false entry in any record, document, or tangible object with the intent to impede, obstruct, or influence the investigation or proper administration of any matter within the jurisdiction of any department or agency of the United States or any case filed under title 11, or in relation to or contemplation of any such matter or case, shall be fined under this title, imprisoned not more than 20 years, or both. (Added Pub. L. 107–204, title VIII, §802(a), July 30, 2002, 116 Stat. 800.) https://www.law.cornell.edu/uscode/text/18/1519</p> <p>These are not “state lands” and not “federal lands” and not even “government lands”. They are public lands. The American people own the public lands in the West and they are to be administered on our behalf by the national government under laws and regulations. This land belongs to all citizens of the United States, not the federal government.</p> <p>To prove legal opposition to the proposal to zero out and/or manage as non-reproducing wild horse herds on designated wild horse and burro acreage, let me refresh your memory of the law with some background on the protections for wild horses and burros. In 1971 the Wild Free Roaming Horses and Burros Act (WFRHBA) was passed to provide broad protections for wild horses and burros on public lands. To ignore the laws of the United States is treasonous.</p>	

Comment #	Comment Text	BLM Response
	<p>The law states that "wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West...[T]hey contribute to the diversity of life forms within the Nation and enrich the lives of the American people". 16 U.S.C. §1331 et seq</p> <p>Congress recognized the wild horses and burros are "fast disappearing from the American scene". 16 U.S.C. §1331 et seq</p> <p>Wild horses and burros are to be treated as "components of the public lands". 16 U.S.C. § 1333(a) The law is clear that "wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death" and entitled to roam free on public lands where they were living at the time the Act was passed in 1971. 16 U.S.C. § 1331 These legally protected areas are known as "herd areas," and are defined as "the geographic area identified as having been used by a herd as its habitat in 1971." 43 C.F.R. § 4700.0-5(d).</p> <p>Section 2 (c) of the WFHBA defines a wild horse / burro range (meaning its original year-round 1971 area) as “the amount of land necessary to sustain an existing herd or herds of wild free-roaming horses and burros ... and which is devoted principally but not necessarily exclusively to their welfare in keeping with the multiple use management concept for the public lands.”</p> <p>What will we do when the wild horses are no more? And what impact might that have on all the interdependent species and ecosystems?</p> <p>Four Wild Horse Herd Management Areas (HMAs) are at issue in this RMP amendment proposal: Adobe Town, Salt Wells Creek, Great Divide Basin and the White Mountain. All four fall partly within the Checkerboard. The four are comprised of approximately 70% federally administered public lands and approximately 30% private lands. The private lands are owned or leased by Rock Springs Grazing Association (RSGA). The non-checkerboard lands within these four HMAs (i.e., the portions falling outside the Checkerboard) comprise over half of the total land area in these HMAs and primarily consist of large contiguous blocks of public land.</p>	

Comment #	Comment Text	BLM Response
	<p>In addition to expanding the current Herd Management Areas (HMAs) back to include the viable and legal wild horse habitat in the surrounding original Herd Areas (HAs), a complete or at least substantial reduction of the amount of forage allocated to private ranchers for grazing their domestic livestock within the HMA/HA must be seriously considered per the law § 4710.5 Closure to livestock grazing. This alternative: Remove or Reduce Livestock in the HMA should most definitely be adopted. The BLM cannot say that allocating only several percent of available forage to the wild horses but allocating the rest almost entirely to livestock is in any way honoring the law. This wise and fair and legal removal/reduction of domestic livestock alternative would be the true fulfillment of the Multiple Use Act as it would permit a greater, more truly viable population of wild horses, one that could have the habitat space and time in which to more harmoniously adapt to the ecosystem, thus disproving many false claims against them.</p> <p>The law clearly states The United States of America Code of Federal Regulations states: § 4710.5 Closure to livestock grazing. If necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury, the authorized officer may close appropriate areas of the public lands to grazing use by all or a particular kind of livestock.</p> <p>If the BLM were truly striving for a thriving natural ecological balance, this would be the very first and foremost alternative in the RMP amendment proposal and the logical, legal and fair decision to promote a thriving natural ecological balance on these public lands.</p> <p>Although livestock owners in these HMAs have been permitted by the provisions of the Taylor Grazing Act of 1934, 43 U.S.C. § 315 et seq. the EIS failed to promote and follow the law that clearly states livestock can be removed. Wild horses and burros are legally DESIGNATED on</p>	

Comment #	Comment Text	BLM Response
	<p>the Herd Management Area (HMA) and livestock are only PERMITTED. Definition of the word “designated” is to “set aside for” or “assign” or “authorize”. Definition of “permit” is to “allow” or “let” or “tolerate”. The Wild Horse and Burro lands and resources are set aside for, and assigned and authorized for, the use of wild horses and burros whereas the livestock is only allowed and tolerated and let to use the public range resources. While commercial livestock grazing is permitted on some public lands, it is not a requirement under the agency’s multiple use mandate as outlined in the Federal Land Policy and Management Act of 1976 (FLPMA). Public land grazing clearly is a privilege not a right, while the BLM is mandated by law to protect wild horses and burros. Livestock grazing negatively impacts all wildlife habitat including sage-grouse habitat, wild horse and burro habitat, the water resources, the forage resources and the air and the soil itself.</p> <p>The BLM is responsible for the stewardship of these publicly owned lands and resources in trust for the people of the United States. The acts which govern the terms of the stewardship spell out they are required to treat them in manner sensitive to the existing ecosystems. One of the pieces of legislation which applies to these territories is the Wild Free-Roaming Horse And Burro Act passed in 1971 that was designed to preserve existing populations, as of 1971 when the congressional law was passed, of wild horses and burros on all government owned lands.</p> <p>Unfortunately, the BLM has an awfully prejudice interpretation of the terms of their responsibility and have done everything in their power to reduce the numbers of horses in the wild and find as many ways as possible to contravene not only the spirit of the law, but the letter of the law as well. The BLM has become the biggest co-conspirator in this effort to defraud the American public.</p> <p>In addition, it has become increasingly obvious that the Rock Springs Grazing Association (RSGA) and associates have an enormous amount of influence within the BLM, and have actively pushed many proceedings to remove the wild</p>	

Comment #	Comment Text	BLM Response
	<p>horses from their legal herd areas in Wyoming. This is commonly referred to as “regulatory capture”. “Regulatory Capture” is a form of political corruption that occurs when a regulatory agency, created to act in the public interest, instead advances the commercial or special concerns of interest groups that dominate the industry or sector it is charged with regulating. Regulatory capture is a corruption of authority that occurs when a political entity, policymaker, or regulatory agency such as BLM is co-opted to serve the commercial, ideological, or political interests of a minor constituency, such as a particular industry such as the livestock industry and in the case of this Wyoming RMP, specifically the RSGA and associates. When regulatory capture occurs, a special interest is prioritized over the general interests of the public, leading to a net loss for society. Regulatory capture is a form of government failure; it creates an opening for firms to behave in ways injurious to the public. The agencies are called "captured agencies". There is no doubt what so ever that the Wyoming BLM has been “captured” by the RSGA and associates.</p> <p>The “private domestic livestock for private/corporate profit” mentality is illegal when used in conjunction with legally designated wild horse and burro publicly owned land and resources and it must be stopped. Short or long-term sustainability and reducing “the likelihood of adjustments to current active livestock permits attributable to overuse of resources” of privately-owned livestock for private profit domestic livestock management is an inappropriate and insignificant part of the BLM’s mission to protect the American public’s land and resources. BLM is not in the cattle and sheep business and is not authorized to be promoting private/corporate for-profit ranchers.</p> <p>As required by NEPA to bring federal action in line with Congress' goals and to foster environmentally informed decision-making by federal agencies, NEPA “establishes ‘action-forcing’ procedures that require agencies to take a ‘hard look’ at environmental consequences.” Metcalf v. Daley, 214 F.3d 1135, 1141 (9th</p>	

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	<p>Cir.2000) (quoting Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 348, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989)).</p> <p>Therefore, I hereby require that the following information be included in the BLM's "hard look" and included in the BLM administrative record. Names of credentialed experts in this field are included in the book, including but not limited to: Dr. Thomas L. Fleischner, Dr. J. Boone Kaufman, Dr. Carl E. Bock, Dr. Brian L. Horejsi, Dr. Brian J. Miller and Dr. Thomas A. Power.</p> <p>"Welfare Ranching: The Subsidized Destruction of the American West"</p> <p>The majority of the American public does not know that livestock grazing in the arid West has caused more damage than the chainsaw and bulldozer combined. Welfare Ranching: The Subsidized Destruction of the American West is a seven-pound book featuring 346 pages of articles and photographs by expert authors and photographers on the severe negative impacts of livestock grazing on western public lands. http://www.publiclandsranching.org/book.htm</p> <p>Excerpts:</p> <p>"The public lands of the United States are a hallmark of our democracy and harbor some of the greatest resources of our nation. Federally managed lands - owned by all Americans - total 623 million acres; more than 25 percent of the U.S. land base. There are four major federal land agencies-the Bureau of Land Management (BLM), the U.S. Forest Service (USFS), the National Park Service (NPS), and the U.S. Fish and Wildlife Service (USFWS). State agencies and other government departments oversee millions of acres of additional public land."</p> <p>"The vast majority of the federal public lands are in the western United States, where they serve as sources of clean water, recreation, scenic beauty, and inspiration. The public lands are wildlife habitat and, in many cases, provide the only remaining suitable environments for jeopardized species."</p> <p>"One of the most problematic obstacles for those advocating an end to public lands livestock grazing is the subtle nature of livestock abuse. Unlike the clearly visible damage to the land in a clearcut forest, the effects of livestock</p>	

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	<p>production on rangelands are far less obvious to the untrained eye. While someone with no ecological background can be moved to tears by the destruction of centuries-old trees and the loss of a forest ecosystem, the equivalent devastation of a grassland or shrub ecosystem engenders no remorse, no sad commentary, no outrage. "Overgrazing" to most people may conjure up images of a Saharan wasteland. Yet only in the very worst situations does livestock grazing create a barren landscape, devoid of all vegetation.</p> <p>Rather, most changes wrought by livestock are gradual, with the effect on plants being the replacement, over time, of more desirable species (for wildlife habitat and food as well as, often, for livestock consumption) with less desirable plant species. But the alteration of plant communities is only the beginning of what livestock grazing does to the land. Other, even more subtle effects include compaction of soils, leading to lower water infiltration and greater runoff; loss of hiding cover for small mammals and birds; and removal of flowers, seeds, and leafy vegetation that are food for such species as butterflies, birds, and herbivorous mammals.</p> <p>Other problems caused by livestock production are fencing that hinders wildlife movement; disturbance of plant communities that favors weed invasion; dewatering of streams that reduces the width of riparian areas; draining of wetlands to create hay fields; trampling of stream banks and degradation of fish habitat; development of springs and removal of water on which frogs, birds, and other native species depend; and other effects that are not apparent to the uneducated observer."</p> <p>"Unfortunately, resource exploitation of various kinds has driven public lands management for many decades. Mining, logging, oil and gas drilling, and even farming have occurred and continue to occur on public lands. But the most widespread commercial use of western public lands is livestock production. Nearly all public lands that have any forage potential for livestock are leased for grazing. This includes 90 percent of BLM lands, 69 percent of USFS lands, and a surprising number of wildlife refuges and national parks. This land - your public land - is frequently managed as if it were a private</p>	

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	<p>feedlot rather than the common heritage of all Americans.” Domestic Livestock Destruction of Public Lands – Photo Essay</p> <p>(Above Photo) Many hundreds of domestic livestock “camped out” in a lake bed on Public Land. I personally witnessed this.</p> <p>(Above Photo) Private domestic livestock standing inside and fouling the water and destroying this water trough on Public Land. I personally witnessed this.</p> <p>The United States of America Cod of Federal Regulations states: § 4710.5 Closure to livestock grazing. If necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment or injury, the authorized officer may close appropriate areas of the public lands to grazing use by all or a particular kind of livestock.</p> <p>The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Thus, the public and the decision makers must resist the urgings of agencies that low-probability risks of very serious harms be dismissed from consideration or that the risk is evaluated only under the agency’s favored theoretical model without taking into account the possibility that other credible models might be correct. ~</p> <p>The current proposed actions will turn the majority of the public lands portion of resources of the checkerboard area over to RSGA members who enjoy taxpayer subsidized grazing, thus illegally elevating the interests of private/corporate landowners and livestock</p>	

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	<p>grazers over the mandatory duty to protect wild horses in this area, and over the interests of those American citizens who attach importance to the opportunity to observe, photograph, study and otherwise enjoy what Congress has declared a “national esthetic treasure” when it enacted the Wild Horse Act. American wild horses are legally designated to roam on the 2.3 million acres under the Free Roaming Wild Horse & Burro Act of 1971. The BLM government agency is required to uphold the law. Are you not?</p> <p>The wild horses of the Wyoming checkerboard must be protected for future generations, not destroyed at the command of ranchers who receive tax subsidies and bank loans and government grants to graze their private livestock on our public lands. Public lands livestock grazing is a privilege not a right, while protection of wild horses is mandated by federal law. The Taylor Grazing Act provides that the Secretary “is authorized, in his discretion, to classify any lands within a grazing district, which are . . . more valuable or suitable for any other use” than grazing, including use by wild horses or burros.</p> <p>In addition, livestock grazing has at least the following major negative ecological impacts:</p> <p>Significantly Alters Plant and Animal Communities (Wagner 1978, Jones 1981, Mosconi & Hutto 1982, Szaro et al. 1985, Quinn & Wal-Genbach 1990, as cited in Fleischner, 1994) (Belsky, Matzke, Uselman, 1999) (Donahue, 1999) (Wuerthner, Matteson, 2002)</p> <p>Decreases Biodiversity (Fleischner, 1994) (Wilcove, Rothstein, Dubow, Phillips, Losos, 1998) (Belsky, Matzke, Uselman, 1999) (Wuerthner, Matteson, 2002)</p> <p>Elimination of Native Predators (Donahue, 1999) (Wuerthner, Matteson, 2002) (GAO, 2005)</p> <p>Introduction of Invasive Plants and Diseases (Mackie 1978, Longhurst et al. 1983, Menke, Bradford 1992, as cited in Fleischner, 1994)</p>	

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	<p>(Wilcove, Rothstein, Dubow, Phillips, Losos, 1998) (Donahue, 1999)</p> <p>Soil Compaction and Accelerated Erosion (Fleischner, 1994) (Belsky, Matzke, Uselman, 1999) (Donahue, 1999) (Wuerthner, Matteson, 2002)</p> <p>Hydrologic Disruption and Contamination (Fleischner, 1994) (Belsky, Matzke, Uselman, 1999) (Wuerthner, Matteson, 2002)</p> <p>Habitat Destruction (Fleischner, 1994) (Wilcove, Rothstein, Dubow, Phillips, Losos, 1998) (Belsky, Matzke, Uselman, 1999) (Donahue, 1999) (Wuerthner, Matteson, 2002)</p> <p>The negative impacts of livestock grazing are well documented and most scientists have indeed recommended the removal of livestock from public lands in order to improve the ecological conditions and protect the native flora, fauna, and other public resources (Fleischner, 1994) (Donahue, 1999) (Belsky, Matzke, Uselman, 1999) (Wuerthner, Matteson, 2002).</p> <p>The NEPA law requires that all relevant scientific information be provided to the American public and that that information be taken a “hard look” at by the decision makers. The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements (EIS/EA) reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet.</p> <p>The RMP EIS failed to inform the public about the virtually give away access to valuable grazing grounds for pennies on the dollar. As the gap between market rates and the federal rate has gotten worse over time, taxpayers have been losing out on increasingly more revenue. The Federal grazing fee for 2020 is \$1.35 per animal unit month (AUM) for public lands administered by the Bureau of Land Management (generally \$1.35 per head month).</p> <p>For your convenience, here is the current data: What is the average paid per month per Animal</p>	

Comment #	Comment Text	BLM Response
	<p>Unit (AUM) in 2018 in the REAL world?Lowest is \$9.50 (Nevada) to highest \$46.00 (Nebraska)BLM charges \$1.35 (2020) !!!Per the Oregon Annual Stats Bulletin page 15https://www.nass.usda.gov/.../Annual.../2019/OR_ANN_2019.pdf What is the average paid per month per Animal Unit (AUM) in 2018 in the REAL world?Lowest is \$9.50 (Nevada) to highest \$46.00 (Nebraska)BLM charges \$1.35 (2020) !!!Per the Oregon Annual Stats Bulletin page 15https://www.nass.usda.gov/.../Annual.../2019/OR_ANN_2019.pdf</p> <p>What is the average paid per month per Animal Unit (AUM) in 2018 in the REAL world?Lowest is \$9.50 (Nevada) to highest \$46.00 (Nebraska)BLM charges \$1.35 (2020) !!!Per the Oregon Annual Stats Bulletin page 15https://www.nass.usda.gov/.../Annual.../2019/OR_ANN_2019.pdf</p> <p>What is the average paid per month per Animal Unit (AUM) in 2018 in the REAL world? Lowest is \$9.50 (Nevada) to highest \$46.00 (Nebraska) BLM charges \$1.35 (2020) !!!Per the Oregon Annual Stats Bulletin page 15https://www.nass.usda.gov/.../Annual.../2019/OR_ANN_2019.pdf</p> <p>Here we are again with the giant spidering tentacles of the cattle and sheep associations trying to bully, strongarm, coerce, and purge public lands from all of us for their own greed.</p> <p>It is obvious that the real problem is the fact the BLM has been hard at work selling off and leasing some of the last of America's wild lands to oil, gas and mining companies in addition to private/corporate livestock companies. These private/corporate conglomerates with the regulatorily captured BLM agency completely ignore nature and instead unmistakably try to tell the American public owners that nothing says public wild lands quite like uranium tailings, polluted water, radioactive waste, pools of sulphuric acid, strip mining, oil wells and a night sky lit up by the flames from natural gas stand pipes and domestic livestock overgrazing. Yet while everyone's backs are turned that's what is happening all across the American West. From Colorado through Montana, Utah down through</p>	

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	<p>to Nevada and New Mexico the land is being doled out to irresponsible intimidators like BP (remember the Gulf oil spill?) and their friends in the Oil and Gas business. Disappointment Valley in Colorado has a new crop - survey spikes staking out claims for uranium mines. The EIS fails to prioritize the science-based ecosystem function of the lands and not be driven primarily by political considerations instead of the needs of the land and the laws of the United States.</p> <p>These wild horses come under the jurisdiction of the Wild Free-Roaming Horse and Burro ACT (WFHBA) which was unanimously passed by congress. The law states: "It is the policy of Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this they are to be considered in the area where presently found [in 1971 when the law went into effect], as an integral part of the natural system of the public lands." To ignore the laws of the United States is treasonous.</p> <p>The BLM policies are plans and statements that have been made by the agencies and associates and are only self-monitoring regulations and often do not follow the United States congressional law. Any and all policies established must be within the outline of the umbrella of the law that it is required to follow. A policy plan is nothing more than a strategy and is illegal if it does not follow the law of the United States of America.</p> <p>FAILURE TO INVESTIGATE CONFLICT OF INTEREST – ETHICS</p> <p>The EIS failed to include an investigation regarding the illegal decision to continue the removals of the wild horses. Federal law cannot be violated under a consent decree. Although the BLM is positioning this devastating plan as the implementation of a court-approved settlement of a lawsuit filed by the Rock Springs Grazing Association (RSGA), a court settlement cannot trump federal law. The Supremacy Clause of the United States Constitution (Article VI, Clause 2) establishes that the Constitution, federal laws made pursuant to it, and treaties</p>	

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	<p>made under its authority, constitute the supreme law of the land. The constitutional principle derived from the Supremacy Clause is Federal preemption. Preemption applies regardless of whether the conflicting laws come from legislatures, courts, administrative agencies, or constitutions. Cornell University Law School. "Supremacy Clause". law.cornell.edu</p> <p>The Constitution, and the laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby. Regardless if the District Court of Wyoming stated that the BLM was to capture and remove the wild horses, I repeat here for you, a court settlement cannot trump federal law and the federal law clearly states the wild horses are to be protected from capture, branding, harassment, or death. Therefore, the current RMP amendment proposal as currently written is illegal.</p> <p>The NEPA law requires that all relevant scientific information be provided to the American public and that that information be taken a "hard look" at by the decision makers. The National Environmental Policy Act (NEPA) requires that to ensure that environmental assessment statements reflect a careful consideration of the available science, and that areas of disagreement or uncertainty are flagged rather than being swept under the carpet. Therefore, I am including relevant information, declarations and options that must be considered, including these below.</p> <p>Public Lands Ranching - The Ecological Costs of Public Lands Ranching https://www.westernwatersheds.org/public-lands-ranching/ Public lands ranching is the most widespread commercial use of public lands in the United States. Ranching is one of the primary causes of native species endangerment in the American West; it is also the most significant cause of non-point source water pollution and desertification.</p>	

Comment #	Comment Text	BLM Response
	<p>Public lands ranching significantly contributes to climate change by emissions of the global warming gases nitrous oxide and methane; it causes loss of soil carbon reserves by causing erosion and by substantially reducing the landscape's potential to sequester carbon.</p> <p>The Fiscal Irresponsibility of Public Lands Ranching</p> <p>The cost of public lands ranching to American taxpayers is enormous. The current public land grazing fee of \$1.35 per month for one cow and her calf is woefully below market value. Direct government expenditures to administer public land grazing constitute an annual net loss to the taxpayers of at least \$123 million and more than \$500 million when indirect costs are accounted for. As much as 96% of these public dollars are spent to enhance livestock production in direct conflict with legal mandates to restore the health of public lands.</p> <p>For all of this public expense, public lands ranching fails to demonstrate any significant economic contributions to rural economies. Hobby ranchers and corporate-entities hold the lion's share of grazing permits on hundreds of millions of acres of public lands. Most of the rest of public land ranchers rely on service jobs in small towns as their primary source of income. Rural communities support public land ranchers not the other way around.</p> <p>Read more about the Federal Public Lands Grazing Fee ...</p> <p>Public Lands Ranching and Politics</p> <p>Despite the extensive scientific literature describing the destructive impacts of public lands ranching, public land managers fail to enforce existing environmental laws usually because of political interference.</p> <p>Public land managers are routinely subject to political interference. Bureau of Land Management and Forest Service scientists and other staff work in a professional atmosphere of coercion. Land managers have lost their jobs and avoid scientific inquiry for fear that the results of such inquiry will undermine their careers. BLM and Forest Service staff and conservationists continue to be subjected to psychological and physical intimidation in the field.</p> <p>Western Watersheds Project works to bring needed change to western public lands that will</p>	

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	<p>end this destructive history. The time has come to end the serious impacts caused by public lands ranching.</p> <p>~</p> <p>Legal declaration from someone who KNOWS what has</p>	
99	<p>Livestock grazing in these four Herd Management areas must be greatly reduced or eliminated altogether. You have a statutory mandate to protect wild horses. You do not have a statutory mandate to cater to cattle ranchers. Livestock grazing is a privilege which is permitted at the discretion of the Department of the Interior. Livestock grazing does not need to be allowed in order to fit the BLM's guidelines of "multiple use." It would be far more cost effective to remove the livestock from public lands since the BLM loses money on the grazing leases, than it would to remove and warehouse the 4000 wild horses you plan to roundup.</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses.</p> <p>Consideration of eliminating livestock grazing from public lands is beyond the scope of this EIS. Management options for livestock grazing allotments within the Rock Springs Field Office are being considered as part of the separate RMP Revision effort.</p>

Comment #	Comment Text	BLM Response
100	<p>As proposed, the WSGB supports converting Rock Springs BLM area HMA's into Herd Areas, HA's, and we support that these HA's will be managed for no BLM horses. The WSGB supports that the AUM's now used by these horses should be re-allocated to qualified existing Section 3 livestock permittees on the basis of a science-based assessment of the livestock forage available on a sustained, long term, basis. The year-round needs of resident wildlife, including sage grouse per the Governor's Executive Order, should be considered and assessed in this document. Additional range improvements, if necessary, to accomplish this agenda should be proposed in this document, after consultation, cooperation, and coordination with qualified permittees in these respective allotments, and these rangeland improvements should be authorized under a categorical exclusion, CX, or an Administrative Determination, AD, NEPA process when appropriate.</p>	<p>MA010 in the EIS provides an opportunity for AUMs previously allocated to wild horse use to be allocated to wildlife, livestock or other ecosystem functions in subsequent implementation decisions based on further analysis.</p>

Comment #	Comment Text	BLM Response
101	<p>C. Livestock Use</p> <p>Reducing livestock grazing permits within these HMAs should be prioritized as this would help improve rangeland health. Under the agency's preferred alternative, AUMs "previously allocated to wild horse use" may be allocated to livestock (exact allocations to be determined by BLM at a future date) (pg. 17). The lack of transparency and specificity on this point is troubling.</p> <p>That said, reducing livestock grazing is not presented as a viable option in the EIS even though such a course of action should be considered as an alternative - specifically, maintaining the wild horse population as free-roaming and natural (as opposed to non-reproducing through permanent sterilization) by implementing reductions in livestock grazing. 43 CFR § 4710.5 authorizes the BLM to "close appropriate areas of the public lands to grazing use by all or a particular kind of livestock...[i]f necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros from disease, harassment, or injury." Livestock grazing is not required to fulfill the agency's "multiple use" mandate. Furthermore, it is far more cost effective to curtail taxpayer-subsidized commercial livestock grazing in this area than it is to permanently remove wild horses from the range. The recent Tenth Circuit ruling in <i>Wyoming v. United States</i>, 839 F.3d 938 (10th Cir. 2016) affirms the BLM's discretion to implement this alternative.</p> <p>There is a considerable amount of livestock grazing occurring in these HMAs - in the vast majority of allotments within the planning area, 100% or slightly under 100% of the allotments are actively being used for livestock grazing (pg. 53). It is not surprising that tensions might arise due to the mere presence of wild horses given the rather stark prioritization of livestock interests.</p> <p>The EIS fails to adequately consider alternative viewpoints on this matter, instead emphasizing how "some livestock users within the planning</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses.</p> <p>Consideration of reducing or eliminating livestock grazing from public lands is beyond the scope of this EIS. Management options for livestock grazing allotments within the Rock Springs Field Office are being considered as part of the separate RMP Revision effort.</p>

Comment #	Comment Text	BLM Response
	<p>area have reduced their use levels in recent years as a result of wild horse populations exceeding AML, which can negatively impact livestock operations" (pg. 54). Again, such statements present a tacit recognition that private livestock operations take precedence regarding the use of public lands and habitats that were specifically designated for wild horses.</p> <p>As noted, approximately 2,466,118 acres would no longer be allocated for wild horse use, presenting an 87% reduction in the total acreage allocated for wild horse use (pg. 63). Essentially the BLM is proposing to nullify HMAs and zero out herds not because of factors such as a lack of forage or other resources, but simply because of an ongoing conflict with certain livestock interests. The agency's preferred course of action is extreme and particularly inappropriate considering the imbalance that exists even in the "no action" (Alternative A) proposal. Under Alternative A, wild horses utilize an estimated 24,780 AUMs at high AML while livestock use an estimated 146,787 AUMs (pg. 67). As the EIS recognizes, there is sufficient water, forage, space, and cover to sustain the wild horse herds under the no action alternative even with the amount of livestock grazing that is allowed.</p>	

Comment #	Comment Text	BLM Response
102	<p>We have spent the past 30 some years ranching in Sweetwater County. The high mountain desert is a haven for most domestic and wild animals, We have tried to improve grazing conditions for the benefit of both domestic livestock and the various herds of both large and small game animals. The wild horse herds that dominate the landscape are both unmanageable and self destructive.</p> <p>Most days this past winter we observed 2 herds of horses totaling around 500 head of horses in addition to several smaller herds of 50 to 90 head on about 15,000 acres of mostly deeded land. Much of this land will continue to have to support the horse herds as well as wildlife that will return. The growing season is just beginning without a rest and the prolific herds are delivering a new crop of foals.</p> <p>Much of the state is enjoying record snow pack as we are approaching an end to one of the driest winters of recent years. The water sources are damaged regularly by the horses and the grassland is not looking its best.. Our allotments are being destroyed if the current misuse continues. We have taken non use of at least 75% of our allotted AUMs. The water sources for all the animals is mostly on deeded acreage.</p> <p>The number of horses legal in the aforementioned herd is 38 head. We hope these "comments" do not slow the process. We have voiced our opinions before. It appears that when you get to our area 'the money runs out'. We respectfully request a rotation in the gathers. The areas not gathered in past gathers would become the first priority. We also request that future gathers be conducted on a rotation system. Or better yet condense the herds to a manageable area that will support HML.</p> <p>We look forward to more success with this problem in the future. Our beautiful lands both public and private need to be maintained for all to enjoy. It is possible but not with so many people in the 'cheap seats' trying to control even the decision handed down by the courts.</p> <p>Thank you for the opportunity to voice our</p>	<p>Section 3.10 of the EIS describes that some livestock operators in the area have reduced their grazing levels in recent years as a result of wild horse populations exceeding AML. Specific decisions related to which areas of an HMA would be gathered first are implementation level decisions that are beyond the scope of this EIS. Gather decisions would be analyzed in separate NEPA documents.</p>

Comment #	Comment Text	BLM Response
	<p>opinion.</p> <p>Yours Truly,</p> <p>Peggy Vercimak</p>	
103	<p>In addition, because livestock tend to eat somewhat different forage than wild horses (horses tend to eat coarser vegetation such as Canadian wild rye and other bunch grasses, whereas cattle and sheep mostly eat softer grasses), there is no justification to remove wild horses on the basis that insufficient forage exists to support the current population of wild horses. Also, because cattle and sheep have no front teeth on the front part of their upper jaws, they tend to pull and tear grasses or other forage out by the root causing some long-term damage to vegetation, whereas wild horses, which have front teeth on both their front upper and lower jaws, act more like a lawnmower and just clip the grass or forage (leaving the root uninjured), allowing the vegetation to quickly grow back. These differences are extremely significant because if there were a need to reduce the use of these BLM lands by animals to preserve these</p>	<p>See Section 1.2 for the purpose and need for the proposed action. Consideration of changes in wild horse management in this instance are not triggered by detrimental resource conditions, but rather due to a change in the approval for permissive wild horse use of private land in these HMAs.</p>

Comment #	Comment Text	BLM Response
	<p>public lands, it might be cattle and sheep – not wild horses – that should be reduced to gain the most benefit for the lands, and which is why BLM, during my time as an agency official, focused on reducing livestock grazing.</p>	
104	<p>* Page 87 /88 Livestock Grazing: We believe the BLM neglects to analyze the negative Impacts of exceeding AML on livestock grazing permittees, thus causing those permittees to reduce their stocking rates from permitted to actual use to offset excessive forage utilization by wild horses grazing year-long. The EA should convey how livestock grazing permittees are reducing their forage use by reducing AUMs annually due to exceedance of AML throughout the project area. Additionally, as we mentioned in the previous comments, it's Imperative to reallocate AUMs from wild horses back to livestock grazing permittees In checkerboard In the Preferred Alternative.</p>	<p>Section 3.10 of the EIS describes that some livestock operators in the area have reduced their grazing levels in recent years as a result of wild horse populations exceeding AML.</p> <p>Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Implementation-level management actions to accomplish this, or to respond to problems in management of wild horses within the HMA, are beyond the scope of this EIS. Similarly, any adjustment of livestock AUM allocations would be addressed through future decisions following further NEPA analysis.</p>

Comment #	Comment Text	BLM Response
105	<p>VI. 43 C.F.R. 4710 Management Considerations</p> <p>The EIS fails to consider the BLM authority to temporarily or permanently reduce or eliminate livestock grazing from the public lands in the HMAs pursuant to 43 C.F.R. 4710.5(a). This regulation allows the BLM to temporarily or permanently close a public land area to livestock grazing, "If necessary, to provide habitat for wild horses or burros..." The BLM has the discretion to implement this either temporarily or permanently and this action is available whether or not there is an emergency.</p> <p>The EIS fails to consider utilizing the agency's Adaptive Management mandate and its discretion under 43 C.F.R. 4710.3-2 and 43 C.F.R. 4710.5(a), which allows for the reduction or elimination of grazing for privately held animals in order to improve conditions and forage availability for wild horses or burros.</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses</p>
106	<p>If the Wyoming range is suffering, livestock must be reduced or eliminated before wild horses. BLM regulation 43 C.F.R. 4710.5, states that livestock can be temporarily or permanently removed from public lands, "If necessary to provide habitat for wild horses or burros, to implement herd management actions, or to protect wild horses or burros ..." I fully support livestock grazing reduction or elimination in Wyoming's Checkerboard.</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses.</p> <p>See Section 1.2 for the purpose and need for the proposed action. Consideration of changes in wild horse management in this instance are not triggered by detrimental resource conditions, but rather due to a change in the approval for permissive wild horse use of private land in these HMAs.</p>
107	<p>BLM regulation 43 C.F.R. 4710.5, states the livestock must be moved first to accommodate habitat for wild horses or burros. I believe livestock grazing must be reduced to comply with this regulation in Wyoming.</p>	<p>See Section 1.2 for the purpose and need for the proposed action. Consideration of changes in wild horse management in this instance are not triggered by detrimental resource conditions, but rather due to a change in the approval for permissive wild horse use of private land in these HMAs.</p>

Comment #	Comment Text	BLM Response
108	<p>And by very probably interfering with their natural reproductive & social system, you would be domesticating these "national heritage" animals & violating Section 3 (a) of the WFHBA that mandates BLM & US Forest Service manage wild horses & burros so as "to achieve and maintain a thriving natural ecological balance on the public lands" & "at the minimum feasible level." [...] Furthermore, I remind you that Section 2 (c) of the WFHBA defines a wild horse / burro range (meaning its original year-round 1971 area, not the present reduced concept of "range" as a minor & rarely designated portion of original areas) as "the amount of land necessary to sustain an existing herd or herds of wild free-roaming horses and burros ... and which is devoted principally but not necessarily exclusively to their welfare in keeping with the multiple use management concept for the public lands." (Emphasis added.) The problem with the alternatives you have presented is that you are ignoring the "land ... devoted principally" provision of the WFHBA - a crucial part of this law's core intent. [...] From Table 3-2 in Section 3.10, Livestock Grazing, you list the name of all the livestock grazing permittees in all the four HMAs & the quantity of Animal Unit Months (AUMs) each are permitted & the percentage of these AUM allotments that occur within the legal HMAs. To me this is very telling! The great majority of these have 100% or nearly 100% of their livestock grazing occurring within the wild horses' legal HMAs. - So much for the "land ... devoted principally" provision of the WFHBA! And as you clearly state on page 54, "the majority of the allotments in the planning area are considered lower-elevation allotments, and livestock turnout in these allotments typically occurs from March to May." March to May are early to mid-Spring months that would seem to produce the most nutritious vegetation for the livestock to consume. This leaves what remains for the wildlife including wild horses to survive on during the rest of the year & puts them at a distinct disadvantage. Clearly, the legal wild horse habitats in these four HMAs are not being "devoted principally" to the wild horses' benefit, but rather to that of the ranchers & their livestock - animals, I hasten to add, who are not allowed to naturally adapt to the ecosystems in</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses.</p>

Comment #	Comment Text	BLM Response
	<p>question, but are fattened up, allowed to calve or lamb, then removed to be further fattened up for slaughter & consumption by humans. Also on page 54, it is stated that "[s]ome livestock operators (especially sheep operators) move their livestock to the USFS-administered allotments from July to October" & that "there are several BLM-administered allotments at higher elevations where grazing doesn't begin until June. Typically, the season-of-use for these allotments is four to six months." Again, this proves that ranchers' livestock are being primarily catered to within the legal wild horse HMAs & elsewhere, not the wild horses themselves, since the livestock get to consume the principal portion of the forage & at the most nutrition-providing seasons, leaving what is left for the Great Rest of Life to try to survive on year-round! I also would like to remind you that the most nutritional forage at higher elevations is produced more during the summer months. So, livestock are favored throughout the year then removed for consumption by modern society. Clearly they are not allowed to naturally adapt on a year-found basis to the ecosystems they occupy, which is what the wildlife including wild horses should be allowed to do.[...]</p> <p>The mere token numbers & forage allocations that are proposed for the wild horses in their four legal HMAs here would be a travesty of justice! The Proposed Alternative D would allow an Appropriate Management level of only 259 to 536 wild horses in a reduced portion of the Adobe Town HMA that eliminates all wild horses from acreages within Adobe Town's Rock Springs F.O. jurisdiction & allows only those in the Rawlins F.O. jurisdiction. The other three HMAs: Great Divide Basin, Salt Wells Creek & White Mountain would all be "zeroed out" of their wild horses, ironically converting these HMAs to Herd Areas (HAs), which was, along with "range," an original term for a legal wild horse/burro area where they were to receive the principal resources & where they were found in 1971.</p> <p>So we see that at the mean AML of 398 horses, BLM proposes to allow only one individual horses per 7,064 acres of legal Herd Management Area land! Given that 640 acres equals one square mile, the BLM is planning on</p>	

Comment #	Comment Text	BLM Response
	<p>only allowing one individual wild horse per eleven square miles of its original legal areas. Such treatment of the wild horses would be outrageous! It would reveal the extent to which established interests conspire to "do in" the wild horses & their thousands, even millions of human supporters among the General Public.[...]</p> <p>Considering just the acreage in the reduced-by-102,854-acres Adobe Town HMA where wild horses will still be allowed to remain in the Rawlins F.O. jurisdiction: 355,094 acres (see pages 23-24), at the mean AML of 398, only one individual wild horse would remain per 892 acres / 1.39 square miles, & the majority of forage & water, etc., would be given to ranchers & their livestock to profit from at the wild horses' expense & contrary to the true intent of the WFHBA & the will of the American people.</p>	
109	<p>Maintaining the current wild horse population by increasing the Appropriate Management Levels and reducing livestock grazing. Such an alternative would protect the Pilot Butte Wild Horse Viewing Loop, which is important for ecotourism. Grazing retirements and buyouts should be considered as part of this option.</p>	<p>Alternative B analyzes a reduction in permitted livestock use to provide additional forage and habitat for wild horses.</p>
110	<p>Please accept my attached comments to the BLM's EIS/RMP Amendment for Wyoming wild horse herds. I would appreciate your keeping me listed as an interested party.</p>	<p>No Response Needed</p>
111	<p>Our comments are specific to our mission: dedication to the promotion and enhancement of Wyoming's agriculture, natural resources and quality of life. As the proposed project could affect our industry, citizens, and natural resources it is important that you continue to Inform us of proposed actions and decisions and continue to provide the opportunity to communicate pertinent issues and concerns.</p>	<p>No Response Needed</p>

Comment #	Comment Text	BLM Response
112	please do not include our last names and the city and zip code we are from. We don't mind if you use our first name and the state of Oregon	No Response Needed
113	<p>DEIS at 71</p> <p>First, throughout the DEIS, a monitoring program is discussed as a current component of the no-action alternative (status quo). See e.g. DEIS at 71. However, RSGA has repeatedly urged BLM to monitor the on-the-ground conditions, survey horse numbers and location, and develop a comprehensive picture of wild horse growth, impacts, migration, etc. The DEIS even admits that current utilization data and use patterns is "lacking". The BLM does not have a monitoring program. And the DEIS does not provide any discrete parameters of what a new monitoring program would entail. A monitoring program should include both the components of wild horse habitat (vegetation, soil, riparian function) as well as monitoring of the horses themselves (number, health, distribution). In fact, the only mention of a monitoring program in Table 2-1 is in reference to "site specific data" that may be used to adjust AML. However, as is apparent by Appendix A, BLM is purporting to adopt a major land use plan revision without the required utilization data or other important monitoring data points. Specific to AML adjustment in the future, RSGA believes that AMLs should not be adjusted upward without 10 years of consistent in-depth monitoring data demonstrating (1) that the rangeland resources can support a sum-certain number of horses; (2) that BLM has demonstrated that it has managed horses within existing AMLs and will continue to do so; and 3) the wild horse use will meet or maintain rangeland health and standards for Greater sage grouse habitat.</p>	The BLM has existing monitoring protocols and handbooks in place. Future AML adjustments would be done through site specific NEPA analysis using the best available data.

Comment #	Comment Text	BLM Response
114	<p>Consultation</p> <p>Wyoming has long contended that science-based monitoring is crucial to determine if resource objectives common to multiple-use interests, including wildlife habitat and livestock grazing, are being achieved relative to wild horse and burro management. Section 1333 of the Wild Free Roaming Horses and Burros Act of 1971 directs the Department of Interior to conduct consultation with State agencies, which would include the Wyoming Game and Fish Department and Wyoming Department of Agriculture, when maintaining its inventory of wild free roaming horses and burros. I encourage BLM to heavily leverage this collaborative opportunity to work with the State of Wyoming by identifying additional opportunities to engage with State agencies. These efforts would make important strides toward improving our collective knowledge of on the-ground range conditions, wildlife, and wild horse populations within the planning area.</p>	<p>Wyoming Department of Agriculture and other State Agencies participated as Cooperating Agencies in this EIS process.</p>

Comment #	Comment Text	BLM Response
115	<p>Overall, the Bureau of Land Management's (BLM's) decision to pursue a wild horse plan amendment during the pendency of a current Rock Springs RMP revision, for which a Draft EIS is expected soon (see Attachment 1), represents a segmentation of the NEPA process and prevents the agency from adequately examining direct and cumulative impacts related to this proposal[...]</p> <p>The impact of wild horse herbivory and herbivory by livestock (both cattle and sheep) are cumulative on the health of rangelands within the Project Area. Under the initial proposal, BLM must disclose the degree to which domestic livestock AUMs will be increased in the wake of wild horse removals, partially or entirely compensating for any progress toward "thriving natural ecological balance" that would result from removal of horses from the range. BLM must also examine the combined impact of wild horses and domestic livestock on soils, surface waters, vegetation, and wildlife, in the context of multiple alternatives reducing the numbers of both, neither, or one or the other. This was not done. The cumulative effects of livestock and wild horse grazing on elk and pronghorn has not been analyzed in detail. The cumulative effects of livestock, wild horse, and other ungulate grazing on sage grouse (which need 7 inches of grass height to maximize nest success) was not performed. The Rock Springs RMP revision will presumably set forage allocations throughout the Field Office for domestic sheep and cattle. This decision is intertwined with the outcome of wild horse population regulation decisions decided under this EIS, and thus the Wild Horse amendment is more appropriately analyzed as part of the Rock Springs RMP revision.</p>	<p>This is a targeted RMP amendment specific to addressing wild horse management on HMAs that contain checkerboard land. Potential impacts to big game species are discussed in Section 4.2.5 of the EIS.</p> <p>As explained in Section 1.1 of the EIS, the selected alternative from this RMP Amendment will be incorporated within the current management (no-action) alternative in the Rock Springs RMP revision EIS, and will be considered along with alternatives for management of all resources in the planning area in that document.</p>

Comment #	Comment Text	BLM Response
116	<p>The BLM's decision to pursue Land Use Plan amendments to implement the sweeping changes under the proposed action instead of as part of the overall RMP revision process underway for the Green River (Rock Springs) RMP is a violation of law.</p> <p>The vast majority of land within the EIS planning area falls within the BLM Rock Springs Field Office (RSFO) and uses therein are guided by the Green River RMP.</p> <p>The current Green River RMP sets the following objectives for the management of five HMAs (Little Colorado, White Mountain, Divide Basin, Salt Wells Creek and a portion of Adobe Town):</p> <ol style="list-style-type: none"> 1. Protect, maintain and control viable, healthy herds of wild horses while maintaining their free-roaming behavior; 2. Provide adequate habitat for wild horses consistent with principles of multiple use and environmental protection; 3. Provide opportunity for the public to view wild horses. <p>These objectives are inconsistent with the Proposed Action, which will eliminate 70 percent of the currently designated habitat within the EIS planning area, including eradicating all wild horses from four of the five HMAs under the BLM Rock Springs ' jurisdiction and permanently closing these areas to wild horse use. This includes the elimination of the highly accessible Pilot Butte Wild Horse Viewing loop and limiting wild horse viewing opportunities to more remote areas.</p> <p>The land use plan amendments proposed in the EIS, which would eradicate wild horses from four of five HMAs within the RSFO and permanently close these areas as habitat for federally protected wild horses, cannot be considered in isolation outside the overall Rock Springs RMP revision process, since the RMP revision is the planning vehicle for evaluating livestock grazing, wild horse use , available AUMs and overall goals for multiple uses, including recreational uses of the public lands within the RSFO.</p>	<p>This RMP amendment would amend the 1997 Green River RMP. See section 1.2 for the specific purpose and need for this plan amendment.</p> <p>This is a targeted RMP amendment specific to addressing wild horse management on HMAs that contain checkerboard land. As explained in Section 1.1 of the EIS, the selected alternative from this RMP Amendment will be incorporated within the current management (no-action) alternative in the Rock Springs RMP revision EIS, and will be considered along with alternatives for management of all resources in the planning area in that document.</p>
117	<p>At the introduction of special status species in 3.6, the text identifies federally listed plants as "blowout penstemon" and "Ute ladies'-tresses." However, in other portions of the document, namely section 4.2.6, blowout is spelled as "blow-out" and Ute ladies'-tresses is spelled as</p>	<p>The document has been updated to ensure these species are identified in a consistent manner.</p>

Comment #	Comment Text	BLM Response
	Ute ladies tress. We recommend consistency in how these species are identified throughout the document.	
118	It is also arbitrary and capricious that BLM is not considering wild horse use in the Little Colorado HMA in this RMP Amendment process, because according to BLM " it does not contain any checkerboard land." But the Little Colorado HMA is located immediately north of	The purpose and need described in Section 1.2 of the EIS specifically addresses concerns related to wild horse management within the checkerboard pattern of ownership. Since the Little Colorado HMA does not have any checkerboard lands, it is not included in this analysis.
119	* Page 66: Second paragraph: Comment: The paragraph discusses range improvements and the potential impacts from their development, as well as how the range Improvements might Improve wild horse distribution. The range improvement construction Is a cumulative impact under this EA, not a direct Impact.	MA011 and MA014 allow for the construction of fences and water developments for the purpose of wild horse management. Therefore, the construction of range improvements is an implementation activity that can have direct or indirect impacts.
120	I recognise that this would not resolve the complaints from the RSGA and other special interest groups, which have prompted this proposal. I believe there are other alternatives that might help with this issue. In particular, I do not understand why no option has been included to undertake land swaps from the private land holders so that public lands on the checkerboard could be consolidated. The wild horses could be allotted to the public lands areas of the four Herd Management Areas, leaving them wild and free and in their homes with enough room on the public lands where they belong. It would allow the private lands to be fenced off, preventing not only the movement of horses onto private lands, but also the incursion of livestock onto public lands (another feature that has been neglected in the document). Furthermore, by consolidating land, it would be possible to increase the AMLs for the herds, to reflect the fact that more land would be readily available to the horses, thereby both supporting ongoing herd diversity and reducing the potential requirement for roundups of excess horses while fertility control measures were being rolled out.	A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4). An alternative to maintain the public land portions of these HMAs within the checkerboard is also discussed in the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4).

Comment #	Comment Text	BLM Response
121	BLM can use “land exchanges with other landowners to improve land management, consolidate ownership...the BLM can acquire other lands with important recreation, conservation, scenic, cultural and other resource uses. Land exchanges also allow the BLM to reposition or consolidate lands into more manageable units...” (BLM Lands Exchange Handbook). This EIS does not adequately explore land exchanges as a viable alternative, and it must do so to conform with NEPA.	A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4).
122	I also suggest requiring land swaps from private landholders so that public lands on the checkerboard could be consolidated. Then wild horses could be relegated to the public land areas of the 4 herd management areas, leaving them wild and free (as they deserve to be) and in their homes with their families with enough room on public lands.	A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4).
123	<p>WWP recommended a number of reasonable alternatives for detailed analysis and consideration in our scoping comments. Some of these alternatives may also require BLM to re-set AMLs for wild horse HMAs, which can be readily accomplished through an RMP amendment as part of this NEPA process, if necessary. Most of these alternatives were completely ignored by BLM, and not carried forward for detailed consideration without justification. See, e.g., DEIS at 19.</p> <p>WWP pointed out that the BLM must consider in detail at least one Balanced Herbivore Reduction Alternative in which reductions in herbivore AUMs are shared equally between wild horse populations and domestic livestock leases in order to attain the "thriving natural ecological balance" envisioned under the WHA. The BLM must consider in detail at least one Checkerboard Land Exchange Alternative in the forthcoming NEPA process. This solution would consolidate the current checkerboard land ownership patterns. With resulting RSGA lands consolidated into large blocks, the RSGA could then fence its property in accordance with state law (Wyoming is a "fence-out" state) and prevent wild horses from federal lands from "straying" onto RSGA property. The BLM must consider at least one Native Predator Alternative that involves the restoration of wolves to all of</p>	The alternatives proposed in this comment were added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4).

Comment #	Comment Text	BLM Response
	<p>the HMAs under consideration, as a means of natural population control that would supplant roundups as a means of wild horse population limitation. These alternatives, though certainly reasonable, were not given any consideration. Because the BLM concedes that the "thriving natural ecological balance" threshold will be met for each alternative, and because Alternative B entails some reductions in livestock on public lands to compensate for shifting wild horse numbers away from checkerboard lands (DEIS at 4), the other two alternatives that WWP brought forward appear to be represented within the range considered.</p>	
124	<p>In these HMAs, wild horses are considered "an integral part of the natural system of the public lands," by law, and BLM is directed to protect them. It would therefore be a reasonable alternative for BLM to determine what the AML should be if all domestic livestock were removed from these HMAs (see BLM Handbook H-4700-1 § 2.2), and still maintain the legally required "thriving natural ecological balance." Of what would be the ecological and recreational benefits of removing all livestock and leaving wild horse populations the same. BLM has failed to provide this analysis, and has failed to consider these eminently reasonable alternatives.</p>	<p>This is a targeted RMP amendment. The removal of livestock would not meet the purpose and need of the plan amendment (see Section 1.2). Management options for livestock grazing allotments within the Rock Springs Field Office are being considered as part of the separate RMP Revision effort.</p>

Comment #	Comment Text	BLM Response
125	<p>Proposed alternative 1 (possibly an extension of Alternative A): Work with the private land owners, providing monetary incentive, to swap out checkerboard lands so that there is one solid block of BLM land and the other remaining section is private land, essentially reassigning the square-mile plots. Total land size owned by all remains the same and access to water remains the same, although now in different areas. Fence the borderline between the BLM-owned land and the remaining private land. For example, working off of the solid block portion of the Salt Wells HMA, disperse adjacent checkerboard land so that adjacent land become part of the HMA and is equivalent to the total size of the BLM land within that HMA.</p> <p>Gather the herds within each HMA and before relocating to the concentrated area, administer PZP to the mares. Release the number of mares and stallions that is within AML to the new HMA areas. Develop volunteer teams and work in conjunction with The American Wild Horse Campaign and other agencies who have successfully implemented programs in other HMAs. With a more concentrated HMA, volunteer teams can regularly monitor the horses and administer PZP. Evidence of success can be seen in the Virginia Range wild horse herd. In the first year of the partnership between The American Wild Horse Campaign and the Nevada Department of Agriculture 950 mares, about 80% of the reproductive aged mares, have been treated with PZP.</p> <p>Proposed alternative 2: Sell the BLM land in the checkerboard region, remove the wild horses and buy land of equivalent size or bigger, with similar environment to relocate the herds. Look at neighboring states, if this land cannot be found in WY. Administer PZP and then release the wild horses onto the new land. Develop volunteer teams and work in conjunction with The American Wild Horse Campaign and other agencies who have successfully implemented programs in other HMAs. With a more concentrated HMA, volunteer teams can regularly monitor the horses and administer PZP. Evidence of success can be seen in the</p>	<p>A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4). The second alternative proposed is similar to the first.</p>

Comment #	Comment Text	BLM Response
	<p>Virginia Range wild horse herd. In the first year of the partnership between The American Wild Horse Campaign and the Nevada Department of Agriculture 950 mares, about 80% of the reproductive aged mares, have been treated with PZP.</p>	
<p>126</p>	<p>AWHC reminds the BLM that under the requirements of NEPA, the agency must consider reasonable alternatives to the proposed action. The following alternatives focus on maintaining, and potentially increasing, the wild horse AML in the project area. The BLM should:</p> <ul style="list-style-type: none"> * Eliminate livestock grazing and increase wild horse AMLs in the public land block portions of the HMAs pursuant to 43 CFR § 4710.56; * Eliminate wild horse use and maintain livestock grazing leases on the Checkerboard portions of the HMAs; * Evaluate fencing and other range management measures to keep wild horses on the public land block portions of the HMAs; and 	<p>Language was added to Section 2.4, Alternatives Considered but Eliminated from Detailed Analysis, to explain why this alternative was not analyzed in detail.</p>

Comment #	Comment Text	BLM Response
	<p>* Work with RSGA to execute a series of land swaps within the White Mountain HMA in order to preserve the Pilot Butte Wild Horse Viewing Loop and support the local Wyoming ecotourism interests.</p>	
127	<p>2.2.5 Alternative E</p> <p>All efforts will be made to negotiate a land swap between RSGA and BLM to create a solid block of private RSGA owned land along the I-80 corridor, with BLM wild horse areas being maintained on public lands further to the north and south of I-80 and the RSGA private lands. While all HMAs would become somewhat smaller, they would ALL be managed for wild horses at an AML determined, not by an agreement with the National Cattleman's Beef Association, but by scientific monitoring and environmental and ecological health issued considered. ALL permits for private livestock grazing within HMAs or HAs would be temporarily suspended. Livestock grazing within these areas would be by invitation only to enhance rangeland health.</p> <p>Require, under Wyoming State Law, that this private land be fenced along it's border with the Herd Areas (or HMAs, as you wish to call them) to keep wild horses fenced out of their private land.</p> <p>Control of wild horse population growth would be achieved primarily by natural methods such as apex predator protection and even reintroduction, where needed. Mountain lion predation is quite effective, as has been proven</p>	<p>A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4). Wyoming's "fence-out" laws do not negate the requirements of Section 4 of the WFRHBA. A natural predator alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4).</p>

Comment #	Comment Text	BLM Response
	<p>in other wild horse areas, primarily Montgomery Pass and the Pryor Mountains. Secondary birth control methods, such as PZP, Spay Vac and other humane chemical contraceptives, may be used when necessary only. If there are excess wild horses available for adoption after these methods are used, then a limited number of horses may be gathered by passive methods such as water and/or bait trapping for placement in pre-approved homes.</p> <p>Explore the possibility of the Public, in conjunction with non-profit organizations negotiating with Occidental Petroleum for purchase of private land they might have for sale within the current HMA boundaries, that could be added to the HMAs (HAs), to offset land taken out of them by the private/public land swap with the RSGA, and managed for and dedicated to the wild horses and other wildlife for viewing and enjoyment by the general public.</p> <p>All parts of this alternative would be in accordance with the Law, unlike the four alternatives proposed by BLM.</p>	
128	<p>BLM can use “land exchanges with other landowners to improve land management, consolidate ownership...the BLM can acquire other lands with important recreation, conservation, scenic, cultural and other resource uses. Land exchanges also allow the BLM to reposition or consolidate lands into more manageable units...” (BLM Lands Exchange Handbook). This EIS does not adequately explore land exchanges as a viable alternative, and it must do so to conform with NEPA.</p>	<p>A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis section of the EIS (Section 2.4).</p>

Comment #	Comment Text	BLM Response
129	<p>II. EIS Fails to Address that Wyoming Is a Fence-Out State</p> <p>The EIS claims, "The need for the plan amendment is driven by the checkerboard pattern of public and private land ownership within the HMAs...and RSGA's withdrawal of consent to maintain wild horses on its privately-controlled lands, as embodied in the 2013 Consent Decree."</p> <p>Wyoming is a fence-out state for livestock (except sheep), wildlife and other animals. Landowners who prefer not to have wildlife and other animals on their property are responsible for fencing them out. [WY Stat § 11:28:101-108 (2019)] The statute makes no exception for wild horses, despite WY Stat § 11-30-115 (2019),¹ which outlines the state criminal code for killing a wild horse. Wyoming's fence-out state mandate is a matter of public interest. (See Attachment 1) The EIS fails to address this issue.</p> <p>After receiving a written request for removal of wild horses from a private landowner, there is no mandate for (a) when horses shall be removed, (b) where horses shall be removed to, or (c) that horses should not be permitted to continue to live on the public lands adjacent to the unfenced private properties. In fact, there is no legal basis for the removal of wild horses from public lands merely because private property owners refuse to fence-out their private property as required by state law. The EIS ignores these legal facts.</p>	<p>Wyoming's "fence-out" laws do not negate the requirements of Section 4 of the WFRHBA. Requiring all private land in the checkerboard to be fenced is not feasible, and would not meet the purpose and need of the plan amendment (see Section 1.2).</p>
130	<p>but I want to make clear at the onset that the alternatives you have presented are inadequate & ignore some brilliant possibilities that should be carefully considered & even adopted as the proposed alternative. One that I most favor is the Reserve Design approach to achieving truly wild, free-roaming & naturally adapted, genetically viable herds within a naturally defined & complete wild horse habitat that provides for all the herd's needs & allows for the natural self-stabilization of its numbers. For details I urge you to consider my Reserve Design proposal at https://www.gofundme.com/mstngreservedesign. I hope you will give this some serious thought</p>	<p>Inadequate information is provided in this comment to describe how this proposed alternative would meet the purpose and need of the proposed action.</p>

Comment #	Comment Text	BLM Response
	<p>& would welcome the opportunity to collaborate with you on the Reserve Design approach. It would adhere to the true spirit & intent of the WFHBA.</p>	
131	<p>The WSGB comments that the Rock Springs and Rawlins BLM should not propose in this document, narratives that will be "deal killers" to the Section 3 permittees. The WSGB is aware that radical horse protection groups and individuals will object to any proposal to actually manage BLM horses according to current Federal and State Laws, but the WSGB comments that the general public will support a BLM document that promotes viable and balanced multiple use management of BLM lands. The WSGB comments that this DRAFT does not now contain these viable options and requests the BLM develop viable alternatives that will accomplish the intent of congress, the Statutes, the positions of the State of Wyoming, and the Consent Decree between the RSGA and the BLM. Please ignore the radical elements that do not support multiple use of BLM lands.</p>	<p>This comment does not provide any specific requests for additional alternatives to be considered for analysis.</p>

Comment #	Comment Text	BLM Response
132	<p>Our first comment is that there are a lot of Wyoming Section 3 BLM permittees, including the office of the WSGB, who do not desire to, or cannot due to technical reasons, offer comments to the BLM if we need to first go thru the BLM WEBSITE. On behalf of the WSGB Central Committee, and many of our Wyoming Section 3 BLM permittees, we request that BLM make available hard copies and mail them by request, to those permittees including the WSGB, of any BLM documents on which the BLM desires to receive written comments from Section 3 permittees in Wyoming, and/or the WSGB. The WSGB also request that the BLM continue to accept from us, and include our comments in the public comment record, any written comments we send to the originating BLM office by U.S. Mail or by regular mail.[...]</p> <p>Our livestock industry is an aging industry and unless the BLM will continue to make hard copies of BLM documents available, by request, to Section 3 BLM permittees and the WSGB, and continue to receive written comments from us by traditional ways, the BLM will, effectively, disenfranchise a major segment of the multiple use community from the public comment process.</p>	<p>The BLM accepted written comments as part of the public comment process. The BLM also provided paper copies of the EIS to members of the public upon request.</p>
133	<p>The Final EIS must provide a full and accurate accounting of public comments submitted on the draft EIS.</p> <p>This accounting must include what positions and/or recommendations were presented in them, including how many comments were received in opposition to and in favor of the Proposed Action and alternatives as the agency is legally required to do under the National Environmental[...]</p> <p>Policy Act. The BLM cannot dismiss form comments as they represent the opinions of the individual citizens submitting them, and both NEPA and the National Academy of Sciences affirm the importance of social preference in BLM policymaking. Since this is an amendment to an RMP as opposed to a "gather" decision, social preference is clearly relevant and the final EIS must fully detail the social preferences expressed in the comments.</p>	<p>The BLM has included information regarding the public comments received in the Final EIS and this appendix.</p>

Comment #	Comment Text	BLM Response
134	<p>The 2013 DEIS fails to explain the basis for its conclusion that the HMAs identified in Alternatives B and C' would support the proposed number of wild horses. The DEIS did not use the data and information that Vermillion has developed for the past 20 years in this area. The DEIS reference to vegetation communities without more data is not credible. The soils vary from alkaline to loam and this means there are very different vegetation communities within the same are or allotment. The DEIS does not distinguish as to soils or productivity, nor does it address juniper encroachment and invasive non-native species, such as halogeton and cheat grass.</p> <p>* Vermillion vigorously objects to Alternative B that would put the same number of wild horses on only public lands and remove livestock grazing. The DEIS, Alternative B does not explain the basis for assuming a cut of more than 8000 AUMs is required or where the reductions would occur. There is no data on available forage and water to support the changes in the AML, let alone removing livestock grazing for some or all affected permittees. More importantly there is no indication that the Alternative B accounts for year-round use by wild horses, while livestock graze for a much shorter season and are rotated through the allotment.</p>	<p>Information regarding the variety of soils and vegetation within the project area is discussed in Section 3.2 and 2.4 of the EIS. Rationale for the livestock AUM reduction in Alternative B is discussed in Section 2.2.2 of the EIS.</p>

Comment #	Comment Text	BLM Response
135	<p>Nevertheless, BLM's Alternative D explains that there is no fence or other barrier that would separate solid public lands blocks in the Great Divide Basin HMA or the Salt Wells Creek HMA from private lands outside those blocks. BLM supplied a similar explanation as to why it could not manage the solid public land block of the White Mountain HMA with the adjoining solid public land block of the Little Colorado HMA. But for all of these HMAs, assuming BLM legitimately believes that fencing would reduce conflicts under Section 4 of the Wild Horse Act, it would be far more harmonious with the Act's language to examine in detail the construction of fences or similar barriers, rather than merely stating that a fence would be needed without explaining why the routine matter of constructing a fence is not feasible under the circumstances. In fact, in other places in the Draft RMP Amendment and Draft EIS, BLM explicitly notes that there have been "[n]umerous range improvements (such as fences or water developments)" making clear that fence construction is a regular occurrence in these areas.²[...] the White Mountain HMA (which is at issue here), and it is subject to the same Green River RMP that BLM seeks to revise here. The omission of the Little Colorado HMA as part of this RMP Amendment process makes clear that BLM's goal in this decisionmaking is not to objectively address wild horse issues in the region and to reach a reasoned outcome about wild horse management, but instead to cater to the desires of RSGA as a major owner/lessee in the Checkerboard by permanently eliminating as many wild horses as possible from the areas that RSGA covets for grazing its domesticated livestock.[...]. As noted above, the Little Colorado HMA is governed by the Green River RMP, proposed amendments to which the BLM has analyzed in this EIS. As such, the Little Colorado HMA should be analyzed as part of this NEPA action as well. The BLM cannot exclude the HMA from analysis simply because it is comprised entirely of public land and does not hold any Checkerboard lands which are driving this action. Instead, the public lands of the Little Colorado HMA, and all surrounding HMAs, should be analyzed in conjunction with the other four HMAs in the current EIS so that the BLM</p>	<p>Alternative B analyzes the possibility of managing these HMAs on the Solid Block portions of these HMAs (see Section 2.2.2). This alternative would include the installation of fences or other barriers to manage wild horse movement in these areas. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS. The purpose and need for the proposed action is related to private land conflicts on checkerboard lands. Since the Little Colorado HMA does not have any checkerboard land, no management changes are proposed in this RMP Amendment. Little Colorado, and other nearby HMAs are considered in the Cumulative Effects Analysis for Wild Horses (see Section 4.2.1). Management actions for the Little Colorado HMA will also be considered as part of the separate RMP Revision effort.</p>

Comment #	Comment Text	BLM Response
	can create a truly sustainable management plan for the region	
136	this draft eis does not consider a no action as a viable option.	Alternative A represents the No Action Alternative (see Section 2.2.1 of the EIS).
137	Wild horse numbers have steadily increased as the Coalition commented in its Administrative Draft Comments - many of which have gone unaddressed. The Coalition finds it unfathomable that the BLM has initiated a resource management plan amendment to manage wild horses and the DEIS provides literally no discussion or data on the number of horses or the location of the horses when the heart of the alternatives is adjusting the number of horses and their location in the Rock Springs Field Office and Rawlins Field Office.	As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. A detailed discussion of wild horse population counts is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use..

Comment #	Comment Text	BLM Response
138	<p>RSGA's comment on the Multi-Year Gather Plan also illustrates the irreducible problem with the DEIS regardless of the HMA configuration or AML level - if the BLM cannot complete thorough and defensible Environmental Assessments for gathers, sterilization projects or otherwise, the problem of wild horses exceeding the carrying capacity of the range will persist. First, Appendix B should be significantly expanded to provide the BLM with a deep impact analysis to tier from in subsequent EAs regarding fertility treatments. Second, Appendix A must be significantly improved to ensure that AMLs can be explained. This includes, but is not limited to, developing data on (1) vegetation utilization levels; (2) wild horse fecal analysis; (3) condition of riparian areas used by wild horses (not just the number of water sources); and (4) number of horses gathered that were malnourished.</p>	<p>The information provided in Appendix A and Appendix B is the best information available, and is appropriate to the scale of this RMP level EIS.</p>
139	<p>BLM's presentation of the data in this regard is misleading. The repetition of the same Rock Springs allotment data four times implies that there are four allotments and 431,964 permitted active AUMs associated with them. The roll-up figure of all permitted-active AUMs in the HMAs is thus portrayed as 323,973 more than actual, giving the false impression of a densely-stocked range.</p>	<p>Table 3-2 has been updated to clarify the relevant information provided.</p>
140	<p>? The subsection on Gathers discusses the general means that the BLM utilizes for horse gathering in general. However, relocation methods specifically for this area are not discussed at length, which horse advocates can later call into question. Additionally, poor relocation methods can present a risk to both humans and horses.</p> <p>? The Gathers section mentions that only 1 in 100 horses are anticipated to require euthanasia because of the methods utilized during capture. We suggest citing this figure and stating which horse herds it applies to.</p> <p>? The Gathers and Temporary Holding Facilities and Handling subsections that discuss handling and capturing practices contain alarming injuries with minimal detail to explain how they occur. After volunteering and working with the BLM in Arizona, we are aware of how frequently these injuries may occur. Groups and individuals reading the document might be inclined to</p>	<p>Section 4.2.1 of the EIS discusses potential impacts to wild horses related to each alternative. In the "Mitigation Measures" portion of this section it states that BLM will follow best management practices and standard operating procedures such as those provided in the BLM's Comprehensive Animal Welfare Program for Wild Horse and Burro Gathers. Other documents provide more detail on how wild horse gathers are conducted in the most humane way possible. Gathers are implementation actions, subject to further NEPA analysis that would contain greater detail about specific gather practices.</p>

Comment #	Comment Text	BLM Response
	<p>accuse the BLM of inhumane practices if it is not disclosed how these injuries may occur.</p> <p>? The Temporary Holding Facilities and Handling subsection mentions increased stress within the animals but lacks detail for how the BLM plans to mitigate this stress. A detailed protocol to minimize animal stress would enhance all alternatives.</p>	
141	<p>? We support the management action #MA012 with the preferred Alternative D. However, in the proposed “periodically supplement” summary, we request that it is made clear how often the agency will check on the herds to determine low genetic diversity and what qualifies as “low genetic diversity”.</p>	<p>Section 4.4.6.1 of Handbook H-4700-1 provides guidance on how frequently the BLM should test genetic diversity in wild horse herds.</p>
142	<p>DEIS at 41-43</p> <p>Nowhere does the DEIS estimate and disclose the current number of horses. See e.g. DEIS at 10 (Purpose and Need); DEIS at Section 1.3.1 (Scoping Issues); DEIS Table 3-1 (AMLs); DEIS 41-43 (description of current HMAs). According to the 2019 Census Memorandum dated September 18, 2019, the BLM estimated a total of 2,476 horses in the Adobe Town-Salt Wells Creek Complex and the White Mountain-Little Mountain Complex. Great Divide Basin was estimated to have about 1,069 horses. The report estimated there were at least 1,099 horses on the Checkerboard inside and outside HMA boundaries at that time. The DEIS could, but doesn't, use this census (or any other census - or chart, or table, or graph) to disclose and analyze what the current number of horses may be and, equally as important, what the growth patterns of the horses have been and what these conclusions mean in terms of the</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA’s withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. A detailed discussion of wild horse population counts is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
	resources. The BLM has prepared census reports since 2012 and gather reports before that. The DEIS, however, omits any discussion of those numbers and how they may be a relevant aspect of the impact analysis in the current DEIS.	
143	DEIS at 41-43 Nowhere in the DEIS is the current number of horses disclosed. See e.g. DEIS at 10 (Purpose and Need); DEIS at Section 1.3.1 (Scoping Issues); DEIS Table 3-1 (AMLs); DEIS 41-43 (description of current HMAs). The DEIS continues BLM's pattern of desk- top calculations based on undisclosed assumptions. As discussed previously, the DEIS does not identify population numbers, trends, or resource conditions documented by monitoring data. The DEIS is so bereft of any ground-based longitudinal data that it appears to RSGA that the RSFO intends for the DEIS to be.	As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. A detailed discussion of wild horse population counts is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.
144	Page 33, Soil Resources, Alternative B: Under this alternative the same number of wild horses would be concentrated in a smaller..." Comment: We recommend including the actual numbers for the comparison between alternatives.	The EIS has been updated to clarify this information.
145	* Page 34, Vegetation, Alternative A: "At high AML, wild horses would consume an estimated 24,780 AUMs off range.11 Comment: Alternatives B, C, and D, neglect to compare consumption of forage, but rather switches to population changes. We recommend including forage consumption across all alternatives.	The information requested is provided in Table 2-2 of the EIS. Alternatives that do not discuss an AUM value difference do so because the AUMs are either the same as Alternative A or because there would be no AUM consumption by wild horses under those alternatives.

Comment #	Comment Text	BLM Response
146	<p>It is well proven that horse droppings build healthy, nutrient-rich & moisture-retaining soils to a greater degree than do most ruminant herbivores such as cattle, sheep & deer. This is due to the fact that horses' feces are less decomposed, i.e. less thoroughly digested. (The same applies to other Perissodactylas such as rhinos & tapirs) This major positive factor concerning wild, naturally living horses should not be ignored. This would constitute dishonesty - which never pays in the long run! We should recognize that by building healthy soils & contributing more intact germinable seeds of a greater variety, naturally living horses increase the water-retaining capacity of the land they inhabit, including aquifers, water tables, streams, lakes, etc.</p> <p>For your convenience, I have compiled a list of references that substantiate points in my input on your plan for these very important legal wild horse HMAs in Wyoming. Here are the links: https://www.researchgate.net/publication/239848265_Facilitation_between_Bovids_and_Equids_in_an_African_Savanna https://www.princeton.edu/news/2012/02/20/wildlife-and-cows-can-be-partners-not-enemies... (Above found zebras esp. removed rough upper dead stem grasses permitting more delicate and nutritious grasses to spring up thus benefiting many ruminant herbivores.) https://www.researchgate.net/publication/318163234_Pleistocene_megafaunal_extinctions_and_the_functional_loss_of_long_distance_seed_dispersal_services https://www.thesprucepets.com/horse-manure-facts-1887394 https://www.horsetalk.co.nz/2017/09/25/evolution-wild-horses-cattle-effect-range-damage/ https://www.researchgate.net/publication/267285340_Reintroduced_species_as_vectors_for_seeded_dispersal https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781800 https://www.researchgate.net/publication/223716446_Endozoochory_by_free-ranging_large_herbivores_Ecological_correlates_and_perspectives_for_restoration https://exmoor4all.com/news/ https://www.researchgate.net/publication/2230</p>	<p>Section 4.2.2 of the EIS discusses potential impacts to soil resources. Language has been added to this section to explain some of the potentially positive impacts wild horses may have on soil resources.</p>

Comment #	Comment Text	BLM Response
	<p>07520_Horse_dung_germinable_seed_content_in_relation_to_plant_species_abundance... https://esc.rutgers.edu/fact_sheet/horses-and-manure/ https://wildequus.org/2015/07/29/namibia-desert-horses-we/ https://www.cbc.ca/news/canada/edmonton/fort-mcmurray-wildfire... https://www.horsetalk.co.nz/2018/01/08/fire-grazing-wild-horses-better-cattle/ http://advances.sciencemag.org/content/1/4/e1400103.full/ https://www.horsetalk.co.nz/2017/11/20/wild-horse-wildfire-wildlife-ecological-imbalance/ https://www.researchgate.net/publication/270167386_Combustion_of_Cattle_Fecal_Pats_Ignited_by_Prescribed_Fire http://www.myoutdoorbuddy.com/article/133925/what-is-the-value-of-an-american-wild-horse?.php https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4503665/figure/pone.0132359.g005 https://www.researchgate.net/publication/281822984_A_Geographic_Assessment_of_the_Global_Scope_for_Rewilding_with_Wild_Living_Horses_Equus_ferus http://www.pleistocenepark.ru/en/ https://awionline.org/content/wild-horses-native-north-american-wildlife https://www.livescience.com/9589-surprising-history-america-wild-horses.html</p>	
147	<p>it seems a rough population count is in order with a moratorium on round ups. Your own commissioned report from National Academy of Science said your approach is flawed and not backed by science back in 2013, yet nothing has changed.</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. A detailed discussion of wild horse population counts is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
148	<p>Soils analyses</p> <p>The majority of soils in the planning area likely rely more on biological soil crusts rather than vegetation to prevent both wind and water erosion. Most of these native desert vegetation communities naturally occur with high percentages of bare ground in conjunction with biological soil crusts. Since they usually have deep taproots, the native vegetation frequently does not have the root systems necessary to hold soil together outside the plant canopy. We recommend the Final Environmental Impact Statement (FEIS) better discuss and analyze the importance of bare ground and biological soil crusts in preventing erosion.</p>	<p>Language was added to the Sections 3.2 and 4.2.2 of the EIS to clarify the role biological soil crusts play in these systems, and to better describe the potential impact wild horses can have on them.</p>
149	<p>We think a basic study on if a high population of wild horses affects the amount of vegetation available for the big game, such as elk and white-tailed deer should be done before a decision is made.[...]Use the study to figure out if reducing the population of wild horses would allow these populations of wildlife to increase.</p> <p>* The reduction in grazing would lead to increased habitat essential for migratory birds in riparian areas and would reduce degradation of stream banks and increased water quality.</p> <p>Alternative D would be beneficial to the crucial big game habitat as well as increase the water quality for the area's eight native fish species.</p> <p>* The area is habitat for significant populations of the Greater Sage-grouse. Removal of wild horses and reduced grazing would increase the quality of habitat for this species as well as for dozens of other sensitive species in the area.</p> <p>* The ecological benefits of removal of wild horses in this area far outweighs the possible socio-economic impacts as not all horses would be removed and tourism could continue.</p> <p>Protection of sensitive species is essential to the integrity of the ecosystem and maintaining ecosystem function will benefit the area.</p>	<p>Potential impacts to wildlife associated with each alternative are discussed in Sections 4.2.5 and 4.2.6 of the EIS.</p>

Comment #	Comment Text	BLM Response
150	<p>P. 80-83 This discussion remains profoundly flawed across all of the alternatives but in particular for Alternative A. The DEIS does not:</p> <ul style="list-style-type: none"> * Use the 2013 COT Report to accurately describe the impacts wild horses have on sage-grouse habitat. * Describe impacts wild horses have on sage-grouse lek use. * Describe the impacts on 906 miles of fishing streams. * Describe any impacts on sensitive fisheries and fish species. <p>Nor does the DEIS include any of the range assessments that measure grass species before and after wild horse use as requested by the Coalition. The question is what are the site-specific impacts of wild horse grazing on sage-grouse habitat and achievement of those objectives. Because it appears that BLM does not have this data, it must describe the analysis and assumptions made to fill the gap.</p> <p>The BLM has, again, provided no discussion of the impacts that wild horses have on these species and provides no analysis whatsoever of the finer details including how the particular level of AMLs selected in each alternative will or will not impact sage- grouse, fisheries, and other sensitive species attributes.</p> <p>The 2015 GrSG ARMPA adopted 7" stubble height objectives for sage brush habitat. As of now, this plan remains in effect and the DEIS fails to address how wild horse numbers will affect sage brush habitat. The University of Wyoming took fecal samples in 2015 to determine the percent of grasses and forbs versus brush in wild horse data. This study in the Salt Wells area found that 83% of the diet was grasses and forbs, the understory for sage brush habitat and the key measurement. The DEIS failure to address this likely conflict for Alternatives A, B, and C omits a major issue.</p>	<p>Language was added to the EIS to incorporate the analysis in the 2015 Sage-grouse RMP amendment EIS by reference (see Sections 1.7 and 4.2.6). Potential impacts to fisheries, water quality and recreational activities are discussed in Sections 4.2.3, 4.2.5 and 4.2.11 of the EIS.</p>

Comment #	Comment Text	BLM Response
151	<p>* Page 69, Alternative A: "Impacts to water resources from wild horses can occur when the animals congregate near surface waters, overgraze sensitive areas, spread plant pests, Increase pathogen and nutrient loading to water bodies via surface contact with manure..."</p> <p>Comment: Suggest using Invasive and noxious weeds Instead of plant pests.</p>	<p>The EIS has been updated to clarify this information.</p>
152	<p>The Consent Decree and Joint Stipulation for Dismissal (Consent Decree) provides that the BLM will consider the environmental effects of revising the resource management plans (RMPs) for the Rock Springs and Rawlins Field Offices. The environmental effects of revising the resource management plans should include a comparison of the current proposed plans and other plans which would evaluate the effects of severely limiting the livestock grazing on public lands (not including any voluntary improvements as those should be a given cost in leasing public land for private use, and not including water use improvements which can be a detriment to the land as used by wildlife and wild horses). I see no provisions for estimating or predicting those effects. In fact, there are very few facts/numbers available on the BLM website which give information about rangeland conditions anywhere on the public lands administered by the BLM.</p>	<p>Alternative A of the EIS represents current plans, and provides a baseline to compare impacts from the other alternatives. Alternative B analyzes an alternative that reduces livestock use on public lands to provide adequate forage and habitat for wild horses. Management options for livestock grazing allotments within the Rock Springs Field Office are being considered as part of the separate RMP Revision effort.</p>
153	<p>this document would benefit local groups, the public, and other agencies by providing sufficient and accurate information about the negative impacts of each alternative. This could also include population growth suppression and the depletion of genetic diversity in the planning area, Adobe Town Herding Management Area (HMA), once the horses are transported[...]it fails to provide all impacts and only addresses the positive effects that will occur from the revision.</p>	<p>Potential impacts, including potential negative impacts, are described for each resource in Chapter 4 of the EIS.</p>
154	<p>1,529 wild horses are a lot to gather and remove from HMA areas. Therefore, we ask that there be more information on how this action will affect the land, even if it will be temporarily impacted. When gathering horses that will be removed there should be more description of the areas in which these gathers will take place and their impact on vegetation and soil resources.</p>	<p>Potential impacts to soils and vegetation associated with gather activities is described in Sections 4.2.2 and 4.2.4, respectively. More detailed information on the implementation of gather activities is beyond the scope of this EIS and would be included in implementation-stage NEPA analyses.</p>

Comment #	Comment Text	BLM Response
155	<p>With respect to the current Alternative "D", the WSGB agrees that all BLM horses must be removed from the checkerboard land pattern. The WSGB comments that the BLM must provide, in this DRAFT document in order to be transparent to the WSGB and the public, the complete justification for this proposed action. This justification must include a narrative that Section 4 of the 1971 Horse & Burro Act clearly says that BLM MUST remove all horses from private lands when requested to do so by the owner(s) of the land. The WSGB also comments that the BLM should accept that this mandate to completely remove all BLM horses should also apply to State lands when the State requests removal of all BLM horses from State lands</p>	<p>Rationale for Alternative D is discussed in Section 2.3 of the EIS. Section 1.1. of the EIS discusses the requirements of Section 4 of the WFRHBA.</p>
156	<p>There are also a few points we believe need to be further addressed and explained, including concerns for what will be done with wild horses that are removed from other areas; while the EIS state the benefits of wild horse removal (Section 4.2.1) and references the Comprehensive Animal Welfare Program for Wild Horse and Burro Gathers (BLM, 2015), there is no plan listed for where gathered wild horses will go in the selected alternative. The preferred alternative also notes that the recreational viewing point where people can decide whether or not to adopt a wild horse will be removed. Regarding this, we believe the EIS should address how the remaining horses will be removed, and how many fewer horses will be sold or adopted from lack of public viewing up close here. As having the horses adopted or sold is the goal in order to lower the number of wild horses in this area, it seems as though maintaining this scenic loop would help achieve that goal, instead of moving all of the horses to holding facilities that the quality and location of which is unspecified</p>	<p>Detailed information on the implementation of gather activities is beyond the scope of this EIS and would be included in implementation-stage NEPA analyses.</p> <p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p>
157	<p>* Page 37, General Comment: BLM should Include In the analysis across all alternatives and affected resources the actual reduction In negative Impacts and the need to gather following effective fertility control treatments.</p>	<p>Impacts to affected resources from all alternatives are discussed in Chapter 4 of the EIS.</p>

Comment #	Comment Text	BLM Response
158	<p>DEIS at 71 DEIS at 65-66 DEIS at 74-75 DEIS at 87 Similar to RSGA's comments on the 2013 EA (WY- 040-EA13-82), the DEIS does not adequately disclose the impacts wild horses have had on the vegetation in the impact analysis area. See DEIS at 71. Alternative A would continue the status quo and the DEIS states that AMLs would control use of vegetation. Id. The DEIS, however, does not disclose that the HMAs have not been at AML for any significant period of time since the Wild Horse and Burro Act was passed. See DEIS at 41. Significantly, the DEIS does not disclose what percent of time since the AMLs were established in 1982 that the HMAs have exceeded those AMLs. Id. Thus, the DEIS does not disclose what use levels could be expected and the public is left to believe that the impacts discussed in Chapter 4 reflect the number of horses on the ground. Put simply, the DEIS does not discuss impacts to vegetation, soil (DEIS at 65-66), wildlife habitat (DEIS at 74-75), or livestock grazing (DEIS at 87-88).</p>	<p>Section 4.1 of the EIS describes assumptions necessary for analysis of the proposed RMP Amendment. One of these assumptions is that the BLM will be able to successfully manage wild horse herds within the described AML range. Implementation-level management actions to accomplish this, or to respond to problems in management of wild horses within the HMA, are beyond the scope of this EIS.</p> <p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. A detailed discussion of wild horse population counts and gather operations is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>
159	<p>Though Section 2.2.4 describes the need for HMA barriers, the specifics of these barriers, and how they prevent the movement of horses described by Hennigs et al. is not described.</p>	<p>If BLM determines that barriers are needed to prevent movement of wild horses outside of an HMA, the details of such an implementation project would be described and analyzed in a separate site-specific NEPA analysis.</p>

Comment #	Comment Text	BLM Response
160	<p>P. 17</p> <p>The DEIS states that the HMAs have experienced "prolonged drought." DEIS at 17. Prolonged drought occurred in the late 1990s and early 2000s. Recent years 2016-2017 saw unprecedented moisture and then returned to a more "normal" precipitation. It is more accurate to say the area experiences periods of drought that affect forage for livestock and wild horses and habitat conditions for wildlife. If the DEIS characterizes the drought as prolonged, then the implication is that in non-drought conditions, the vegetation will improve. The BLM must disclose the conditions used to determine when the HMAs are in "prolonged" drought and how that affects vegetation, wild horse nutrition and health. The Wyoming and Colorado State Directors wrote the BLM Director in January 2003 that the most recent drought stressed vegetation which was over-utilized. The memo documented permittee voluntary nonuse and cuts and the failure to gather wild horses would lead to "continued degradation." RSGA v. Salazar, Administrative Record, 03665.pdf. These admissions show that any AML needs to take into account such drought periods.</p>	<p>The statement in question does not assert that there has been a prolonged drought on these HMAs but rather that AML could be adjusted in the future if changes to the landscape have occurred such as through prolonged drought, wildfire, noxious weed infestation etc.</p>
161	<p>If the number of wild horses is reduced, are there soils present that would benefit from this? As stated, livestock grazing can make certain soils experience accelerated erosion.</p> <p>* Are there currently areas where the soil exhibits erosion?</p>	<p>Current soil conditions within the planning area are described in Section 3.2 of the EIS.</p>

Comment #	Comment Text	BLM Response
162	<p>The DEIS introduces population management tools to reduce the frequency of gathers. Population management tools could include gelding, spaying, sex ratio skewing or other population growth control methods. DEIS at 17, 58. The DEIS does not, however, go into adequate detail to respond to court decisions have previously invalidated BLM decisions regarding sterilization, spaying, or gelding. BLM likely believes that the impacts of spaying or gelding action will be tiered to this DEIS. However, Appendix B must cover all of the impacts discussed in those court cases to ensure that any proposed fertility controls conform.</p> <p>a. Ginger Kathrens, et al. v. Zinke, 3:18-cv-01691-MO (D. Or. 2018)</p> <p>In Ginger Kathrens, et al. v. Zinke, 3:18-cv-01691-MO (D. Or. 2018), the American Wild Horse Campaign et al. wrote in its Memorandum in Support of Their Motion for Preliminary Injunction, that the BLM's decision would "severely limit the ability of the public to observe, record, and otherwise document extremely controversial sterilization experiments the agency plans to perform on female wild horses to decide whether to use these procedures on mares on the public lands in the future as a means of population control." Ginger Kathrens, et al. v. Zinke, 3:18-cv-01691-MO (D. Or. 2018), ECF No. 24. The Court agreed.</p> <p>The Kathrens decision provides valuable insight into how the DEIS must analyze and disclose the alternatives in order to prepare a defensible and durable decision. The DEIS must discuss the following issues excerpted from Judge Mosman's Preliminary Injunction Order to ensure that subsequent implementation actions can tier to a thorough analysis:</p> <p>* DEIS must, but does not, discuss ability for members of the public to observe the procedure;</p> <p>o ECF No. 24 at 1 - "Plaintiffs have demonstrated a likelihood of success on the merits regarding their claim that the restrictions imposed by the Bureau of Land Management (BLM) on Plaintiffs' ability to observe the wild mare sterilization</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
	<p>procedure at issue in this case violate Plaintiffs' constitutional rights under the First Amendment;. . ."</p> <p>* DEIS must, but does not, discuss ability for members to view the horse after the procedure;</p> <p>o ECF No. 24 at 1 - "Plaintiffs have demonstrated a likelihood of success on the merits regarding their claim that the restrictions imposed by the Bureau of Land Management (BLM) on Plaintiffs' ability to observe the wild mare sterilization procedure at issue in this case violate Plaintiffs' constitutional rights under the First Amendment;. . ."</p> <p>* DEIS must, but does not, discuss whether space will be provided for small camera or other devices to record procedures;</p> <p>o ECF No. 24 at 1 - "Plaintiffs have demonstrated a likelihood of success on the merits regarding their claim that the restrictions imposed by the Bureau of Land Management (BLM) on Plaintiffs' ability to observe the wild mare sterilization procedure at issue in this case violate Plaintiffs' constitutional rights under the First Amendment;. . ."</p> <p>o ECF 7 at 19: Quoting Plaintiffs' expert testimony: "There is absolutely no additional risk to the veterinarian, the bystanders, or the horse if quiet bystanders are present during the surgery, much less if a small camera is mounted in the operation area."</p> <p>b. Am. Wild Horse Pres. Campaign v. Zinke, 1:16-CV-00001-EJL, 2017 WL 4349012 (D. Idaho Sept. 29, 2017)</p> <p>In Am. Wild Horse Pres. Campaign v. Zinke, the plaintiffs claimed that BLM violated NEPA by "failing to consider the significant direct, indirect, and cumulative impacts that sterilizing the entire herd will have on the behavior and physiology of wild horses and herd dynamics, the Saylor Creek HMA environment, and members of the public who have a strong interest in recreational observation of the natural behaviors of wild horses." Id. at *7. Plaintiffs argued, and the court found, that BLM</p>	

Comment #	Comment Text	BLM Response
	<p>failed to consider the 2013 National Academy of Sciences Report Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward (2013 NAS Report). The BLM argued that the "toolbox" in the 2013 NAS Report allowed BLM to tier subsequent implementation level decisions to the broad EIS. Id. at *9, n. 5. The Court disagreed and found that an EIS was flawed because it failed to disclose several impacts to wild horse herds at the EIS level.</p> <p>* Appendix B must provide a deep well of data, science and discussion of the impacts of sterilization, fertility treatments and other control methods that correspond to the "toolbox" identified in the NAS report.</p> <p>o "The Court notes that the FEIS contains a 'toolbox' and 'population criteria' for managing a non-reproducing, free-roaming herd evidencing that at least some site-specific management decisions have been made at the FEIS stage with regard to the decision to maintain the herd as non-reproducing. The NAS Report likewise uses the 'toolbox' language in its recommendation of how the BLM could manage the Wild Horse and Burro Program successfully in the future making it possible that the BLM considered the NAS Report. The shortcomings here are the FEIS's failure to show that some consideration was given to the NAS Report and to include an explanation of the reasoning underlying the decision to manage the herd as non-reproducing." Id. at *9 (emphasis added).</p> <p>* Appendix B must discuss the varying social structures in wild horse herds under Alternative A, B and C that could be disrupted or altered by sterilization techniques and the impact on a horse's free-roaming behavior:</p> <p>o Horses are "'highly social animals' with varying social structures impacted in part by the geography the herd occupies as well as the horses' mating and reproductive practices and the presence of offspring. Harems or bands of horses consist of a dominant stallion with subordinate adult males and females and offspring." Id. at *9.</p>	

Comment #	Comment Text	BLM Response
	<p>* Appendix B should discuss how the introduction of horses that have been sterilized will impact horse herds under Alternative A, B and C.</p> <p>o ". . .how the introduction of horses from other HMAs, herds, or holding pens would impact the Saylor Creek herd's behaviors and structure. The BLM has not considered nor explained how the herd will maintain its wild horse instincts, behaviors, and social structure if it is entirely non-reproducing." Id. at *10.</p> <p>These two cases generally provide that the BLM should develop a thorough discussion of the proposed impacts of various sterilization and population control measures to defend against a likely challenge by the same groups that have successfully challenged similar measures in Oregon and gathers in Wyoming. Appendix B falls short of the criteria set out in these decisions.[...]</p> <p>DEIS at 58</p> <p>The DEIS introduces population management tools to reduce the frequency of gathers. Population management tools could include gelding, spaying, sex ratio skewing or other population growth control methods. DEIS at 17, 58. The DEIS does not, however, go into adequate detail regarding the impacts that federal decisions have found will invalidate a subsequent EA and decision to authorize sterilization, spaying, or gelding. BLM likely believes that the impacts of spaying or gelding action will be tiered to this DEIS. However, Appendix B must cover all of the impacts discussed in those court cases to give subsequent EA's a greater chance of being successful. The Oregon District Court disapproved sterilization of mares on the grounds that it did not provide wild horse advocates access to the procedures and this violated their First Amendment rights to participate. See <i>Infra</i> at Section V (discussing <i>Ginger Kathrens, et al. v. Zinke</i>, 3:18-cv-01691-MO (D. Or. 2018)). <i>Am. Wild Horse Preservation Campaign v. Salazar</i>, 800 F.Supp.2d 270 (D. D.C. 2011) was dismissed as moot after Wyoming BLM withdrew sterilization option from White Mountain/ Little Colorado HMA</p>	

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	<p>gather. In Am. Wild Horse Preservation Campaign v. Salazar, 115 F. Supp.3d 1 (D. D.C. 2012), BLM's decision was remanded for consideration of expert opinions on impacts of sterilization.</p> <p>The DEIS also refers to adjustments in sex ratios or "other methods" without explaining the basis for assuming they will be effective. RSGA has not seen any BLM program succeed.[...]</p> <p>Appendix B</p> <p>As RSGA has commented above, the DEIS does not adequately discuss the impacts that federal courts have found will invalidate efforts future decisions to approve sterilization, spaying, or gelding. Appendix B must cover all of the impacts discussed in those court cases to give subsequent EA's a greater chance of being successful. Among other things, Appendix B must address the following:</p> <ul style="list-style-type: none"> * What spaying procedure BLM may use? * How the procedure will be completed in the field? * What opportunities the public will have to observe? * What facilities the BLM will use for the procedure? * How BLM will capture the wild horses? * Whether BLM will use any tranquilizers and sedatives. * The time and process it will use to aide in the mares recovery post-procedure, including the administration of sedatives and pain medicine, and weaning the mares off the medications. 	

Comment #	Comment Text	BLM Response
163	<p>In particular, BLM has already initiated studies on the impact of gelding wild horses and GonaCon. Without disclosing and analyzing the results of these studies in a publicly available NEPA document, BLM cannot make an informed decision among alternatives.[...]</p> <p>Moreover, fertility controls likely violate the WHBA because they disrupt the wild free-roaming nature of wild horses. The 2013 National Academy of Sciences report on BLM's wild horse program specifically noted the social and behavioral impacts of castration as a form of fertility control: A potential disadvantage of both surgical and chemical castration is loss of testosterone and consequent reduction in or complete loss of male-type behaviors necessary for maintenance of social organization, band integrity, and expression of a natural behavior repertoire.³⁶</p> <p>BLM's analysis of the impacts of the proposed population control methods is woefully deficient. These methods likely violate the WHBA and should be avoided. However, at minimum, BLM must wait until results of existing studies are completed so that those can be considered and made available for public comment.</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>
164	<p>Commit to the aggressive and uniform application of proven, non-surgical fertility control methods, especially the use of PZP.</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4).</p>

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165	<p>Moreover, an economic model published in a peer-reviewed article predicted that the BLM could attain its population goals and save \$8 million in one HMA by using PZP fertility control and reducing and eventually eliminating removals.⁷ With the influx of funding for Fiscal Year 2020, pursuing PZP on a broad scale is clearly viable and the long-term cost-savings would almost certainly be significant.</p> <p>Unfortunately, the EIS indicates that once again, the agency is failing to prioritize PZP use: "Population management tools could include gelding, spaying, sex ratio skewing, or other population growth suppression methods" (pg. 5, pg. 17). PZP is not listed as a priority option or tool, instead being lumped into the "other" category. It is unclear why the BLM seems bent on pursuing options that would disrupt social bands or otherwise undermine natural behaviors (while also threatening the very viability and existence of these herds) when its own discussion of PZP in the appendix outlines the numerous advantages to its use (e.g., PZP can be administered safely to pregnant mares, its use preserves herd genetics) - benefits that an endless cycle of roundups or sterilization methods simply cannot provide (Appendix B pgs. 3-8).</p> <p>In terms of fertility control, the BLM should be focusing exclusively on PZP for its management of wild horses in the checkerboard. While we understand that the BLM has ongoing concerns about administering PZP due to variables such as terrain and the approachability of some herds, the BLM acknowledges that darting can be implemented when animals are gathered into corrals (as in bait and water trapping) or opportunistically by applicators near water sources or along main wild horse and burro trails (Appendix B pg. 3)</p> <p>Ultimately, the use of PZP within these HMAs is the most economical and humane option for the BLM. It will preserve the natural behaviors that distinguish wild and free-roaming horses from domestic horses and stabilize populations within the HMA. We support the BLM's consideration of PZP to manage these horses and request that</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p>

Comment #	Comment Text	BLM Response
	<p>the BLM implement a vigorous PZP program at current population levels utilizing Catch Treat and Release methods for the vaccination of all mares over 1 year of age with the PZP-22 or native PZP fertility control vaccine.</p>	

Comment #	Comment Text	BLM Response
166	<p>Sex Ratio Skewing</p> <p>Sex ratio skewing comes up at several points in the EIS so we want to include some of our concerns with this controversial approach. The use of sex ratio skewing - i.e., artificially manipulating the number of males and females in a population - to suppress population growth has no scientific basis and therefore will not serve to accomplish the agency's goals. Indeed sex ratio skewing undermines the complex social structure of herds and has deleterious effects on natural wild horse behaviors. Moreover, it creates aggression among males competing for an unnaturally low number[...] of females. In addition to increased competition and aggression among males for limited females, sex ratio adjustments favoring stallions could lead to mares breeding an earlier age, thereby increasing reproductive rates.⁸ Sex ratio skewing also fails to manage population growth given that effective wildlife population control must be female-directed. The agency fails to take a hard look at the direct, indirect, and cumulative impacts that use of this method will have on the behavior and physiology of wild horses and herd dynamics and the environment of the HMAs at issue.</p> <p>The BLM should reject sex ratio skewing, but to the extent that sex ratio adjustment is contemplated as part of any management plan, the EIS must provide scientific documentation that the practice does not cause increased aggression among stallions, cause mares to reproduce at younger ages, create undue stress on females, and actually reduces population growth.</p> <p>As it stands, the EIS myopically assumes and asserts that the sweeping reduction in horses from roundups would result in decreased "fighting among stud horses" - and accordingly, "injuries associated with [such] fighting" would decrease - without any evidence to support such a claim and while ignoring the obvious problems that sex ratio skewing could engender (pg. 58).[...]The BLM itself has acknowledged the adverse effects of sex ratio skewing - see, for example, "The following affects would be</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

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	<p>expected from successive removals causing shifts in sex ratios away from normal ranges are. If selection criteria leave more studs than mares, band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase" (EA# DOI-BLM-OR-L050-2009-0066-EA). Also: "Skewing the sex ratio of stallions v. mares would result in a destabilization of the band (stallion, mare and foal)... Social band structure will be lost resulting in combative turmoil as surplus stallions attack a band stallion trying to capture his mare. This could result in the foal being either killed or lost. The mare and foal will not be allowed to feed or water naturally as the stallion tries to keep them away from the bachelor bands of stallions, resulting in stress to the mare during her lactation condition" (DOI-BLM-OR-B060-2010-0005-EA). Additionally, "Wild horse populations will produce roughly equal numbers of males and females over time (H-4700-1, 4.4.1). Garrott (1991b) found that for a 12-year period 65 of 74 (88 percent) herds sampled in Nevada, Oregon, and Wyoming had a foal sex ratio that did not differ from 50:50 (Roelle and Oyler-McCance 2015). Re-establishing a 50/50 male to female sex ratio is also expected to avoid consequences found to be caused by skewing the ratio in either direction. In the Pryor Mountain Wild Horse Range, Singer and Schoeneker (2000) found that increases in the number of males on this HMA lowered the breeding male age but did not alter the birth rate. In addition, bachelor males will likely continue to seek matings, thus increasing the overall level of male-male aggression (Rubenstein 1986)" (DOI-BLM-ORWA-B050-2017-0002-EA).</p>	

Comment #	Comment Text	BLM Response
167	<p>In the draft EIS, BLM also proposes the implementation of controversial surgical sterilization techniques as management tools for use on wild horses in the project area. There is robust scientific and professional dispute regarding surgical sterilization procedures' impacts and applicability to wild horses. Many scientists and veterinarians have repeatedly opposed BLM' s various attempts to implement surgical sterilization practices as management tools. In 2013, even the NAS responded to a commission by the BLM to study important scientific issues related to the agency' s wild horse program, including fertility control by concluding that "[t]he most promising fertility-control methods for application to free-roaming horses and burros are porcine zona pellucida (PZP) vaccines, GonaCon vaccine, and chemical vasectomy." (Attachment 3, at 6).</p> <p>BLM' s proposed implementation of surgical sterilization techniques is a serious violation of the WHA. As described above, one of Congress' s primary goals in enacting the WHA was to protect wild horses from various types of adverse impacts , including those that harm their wild and free roaming behaviors. 16 U.S.C. § 1331. There can be no legitimate dispute that surgical sterilization risks serious adverse impacts to the wild and free-roaming behaviors of individual horses and the herds to which they belong. Additionally, the WHA mandates that "[a]ll management activities shall be at the minimal feasible level." 16 U.S.C. § 1333(a). Surgical sterilization techniques are far more invasive , inhumane, and risky than other non-surgical methods of fertility control such as PZP. Because surgical techniques are far more invasive and inhumane than other methods of fertility control, it cannot be said to constitute the minimal feasible level of management in accordance with a statute that aims to protect wild horses. Thus, the consideration of such tools is inherently inconsistent with the fundamental Congressional intent in the WHA to "protect" wild horses. See 16 U.S.C. § 1333(a). Accordingly, for various reasons, this experiment threatens a violation of the WHA.[...] In order to best illustrate our concerns with BLM' s implementation of these techniques, we attach</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

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	<p>and incorporate by reference previous comments submitted to other BLM offices that cover our concerns on the same techniques BLM is proposing to adopt in this EIS. (Attachments 4 and 5).[...]</p> <p>AWHC asks that the BLM eliminate surgical sterilization of mares and stallions, sex skewing and GonaCon from consideration in the EIS. However, if the BLM moves forward with its analysis of this method, the agency must note that the WHA requires the BLM to manage wild horses and burros in a manner that protects their wild and free roaming behavior. While Section 3(b)(1) as modified by the Public Rangelands Improvement Act of 1978 does specify options for population management that include sterilization, it states that such determinations must be made in conjunction with other wildlife agencies and experts independent of government, such as those recommended by the NAS. AWHC, and our coalition partners, have detailed the substantial health and behavioral concerns of spaying mares in its comments (and attachments) on the BLM's multiple EAs for the Mare Sterilization Research Project, which was supposed to take place at the Hines Corrals in Oregon. We incorporate those comments and relevant attachments by reference here and are including those comments at Attachment 4.[...]</p> <p>Additionally, AWHC includes its comments on the proposed gelding of wild stallions as a management tool for use in the Antelope and Triple B Complexes in Nevada here at Attachment 5.</p>	
168	<p>e. DEIS Must Be Revised to Address Proposed Fertility Management</p> <p>The DEIS incorporates fertility management into Alternatives B and C without disclosing the proposed methods, analyzing past failings of Porcine Pellucida ("PZP"), and addressing the controversies relating to spaying or gelding wild horses. The BLM must discuss the issues that several federal district court cases have identified as relevant to NEPA consideration of fertility treatments in horses ranging from constitutional law issues to basic NEPA "hard look" considerations.</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific</p>

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		NEPA document will be prepared which will discuss the associated impacts in detail.
169	<p>Feasibility: a spay procedure on a fractious mare in a chute needs to be conducted by board certified equine veterinarians with adequate experience managing unhandleable horses in chutes. There are few veterinarians who can do this procedure relative to the high number of mares that would need to be treated to have any substantive impact on population growth rates. This is then an untenable method for managing wild horses on public lands, even in very limited instances, as it relies on a high degree of technical expertise.</p> <p>There are no substantive studies to evaluate long term health of ovariectomized mares. Anecdotal evidence from equine veterinarian researchers at the Center for Equine Health (UC Davis) where a herd of 20 older ovariectomized mares were housed, showed advanced musculoskeletal deterioration in eighteen of the mares, which led veterinarians on-site to speculate that this may be due to a negative effect of removing estrogen from the system, as an ovariectomy does.</p> <p>Every time the BLM has proposed to research surgical spays the projects have been delayed due to litigation. One can assume that the same would happen if BLM pursued surgical spays in this context and thus, it would not be a feasible management tool for years. The BLM has an opportunity here to set this management strategy aside because other forms of proven, safe, humane fertility control vaccines exist.</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
170	<p>Gonacon</p> <p>It appears from the limited studies of the application of Gonacon to wild mares (Theodore Roosevelt National Park) that social behaviors were defined as "herding, reproduction, agonism, harem-tending, and harem-social behavior" and "harem-social (e.g., allogrooming, pair-bonding, female-female urine marking), harem-tending (e.g. stallion defense of a band female or recruitment of a new female into the band), herding (e.g., driving or snaking behavior by the stallion), interaction-with- humans" (Attachments 7-8) These identified social behavior categories are inadequate to determining the behavioral impacts that relate to inter-horse bonds, individual bonds with the band, social status within the band, survivability behaviors necessary to thrive during inclement weather, etc. These studies did not identify lead mares, distinguish whether individual horse behaviors or personalities were altered due to the treatment. Behavioral observation for studies conducted in the Theodore Roosevelt National Park were conducted for three to four months (April-July/August, 2009 and 2010) and five months (March-July, 2014). Roundups occurred in 2009 and 2013. If human studies on behavior changes were done with a similar behavioral protocol - peoples suffering from mental illness may never be identified as long as they continued to groom, interact with other people, had sex, slept, etc. Clearly behavioral changes which could negatively impact a mare's standing with the herd or her bonds with other members of the herd would not be captured through this methodology.</p> <p>Gonacon shuts down estrus cycle in mares and impacts various natural hormone production. Gonadotropin-releasing hormone (GnRH) suppression, whether by agonist, antagonist or vaccine has been based on the disruption of regulatory feedback between gonads and the pituitary, which, in turn, disrupts reproductive function (Dawson et al. 2006). The hypothalamus secretes GnRH, which, in turn, stimulates the release of the gonadotropin follicle stimulating hormone (FSH) and luteinizing hormone (LH) from the anterior</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
	<p>pituitary. FSH causes follicular growth and elevated estrogen secretion from the ovary, and LH causes ovulation, luteinization and elevated progesterone levels. Both estrogen and progesterone have far-reaching biological actions not only for successful reproduction but also provide feedback upon behavioral platforms in the brain, causing important reproductive behaviors to occur. In most mammals, the pituitary gland secretes factors into the blood that act on the endocrine glands to either increase or decrease hormone production. This is referred to as a feedback loop, and it involves communication from the brain to the pituitary to an endocrine gland and back to the brain. This system is very important for the activation and control of basic behavioral activities, such as sex; emotion; responses to stress; and eating, drinking, and the regulation of body functions, including growth, reproduction, energy use, and metabolism. [Society for Neuroscience, Hormones: Communication between the Brain and the Body, 2012].</p> <p>Commercial vaccines that have been tested in mares include Equity (CSL, West Ryde, NSW, Australia), Improvac (Pfizer Animal Health, Sandton, South Africa), and GonaCon (USDA). The inhibition of GnRH will cause an absence of FSH and failure of follicular development (Checura et al. 2009), and ovulation failure. (Attachment 9)</p> <p>Unfortunately, the Baker, DL (2018) study (Attachment 7) which is heavily relied upon to implement Gonacon in wild horses is not forthcoming with, at minimum, questionable safety issues for treatment in pregnant mares. In one instance Baker, DL (2018) claims, "We found this vaccine to be safe for pregnant females and neonates." Yet, it is documented that Gonacon use in pregnant mares the first trimester (which may extend further) may cause abortion. Baker, DL (2018) also states, "inoculation with GonaCon-Equine vaccine, during approximately the second trimester of pregnancy, does not affect the existing pregnancy of treated females or neonatal health and survival" and "revaccination could be applied to pregnant</p>	

Comment #	Comment Text	BLM Response
	<p>mares, during mid-gestation, without risk to the existing pregnancy." However, the key is during mid-gestation, supporting other data that Gonacon causes abortions if administered prior to "mid-gestation." Again, Baker (2018) can only summarize its data on neonate safety "when applied at approximately mid-gestation."</p> <p>The reversibility of Gonacon, after multiple treatments, continues to remain highly uncertain based on current data available. In fact, the Baker, DL (2018) study only claims that some</p> <p>mares recovered to fertility after a single dose of Gonacon, "demonstrating reversibility of the primary vaccine treatment."</p> <p>Based on Baker, DL (2018) data, mares treated with one application of Gonacon experienced a 30% reduction in foaling in the first year of results; 22% reduction in the second year and no reduction in the third year. "Gonacon is one of the rare exceptions among animal vaccines in that the formulation initiates high antibody titers that remain elevated in some individuals after a single-injection; however, little research has been conducted to evaluate booster doses of this vaccine in any free-ranging wild ungulate [17, 24] or domestic species." The second treatment in 2013 resulted in no foals for all treated mares, 4 foals for treated mares in 2016 and 1 foal for treated mares in 2017. This highlights the high uncertainty of permanent or long-term sterilization impacts and efficacy with more than one application and multiple use of Gonacon.</p> <p>Clearly, additional years of observation are needed to ascertain what percentage of these mares can return to fertility. The data to date remains incomplete with highly uncertain short- and long-term effects.</p> <p>The side effects of Gonacon on wild mares are equally uncertain; the Baker, DL (2018) references two unpublished citations which were also authored by Dr. Baker, "Evaluation of biological side effects has been reported for numerous wild ungulate species including white-</p>	

Comment #	Comment Text	BLM Response
	<p>tailed deer [13, 34], elk [15, 16, 35], feral pigs [36], bison [21], and free-ranging horses [17, 24]." Baker, DK (2018) claim that Gonacon "does not significantly change social behaviors [37]" relies on Ransom, J (2014) which narrowly defined social behaviors as "associated with herding, harem-tending, reproduction, and agonism from stallions toward females." So Baker, DL (2018) claims that, "A summary of results from these investigations indicate that GonaCon is reversible, safe for use in pregnant females, does not significantly change social behaviors [37]" are highly questionable because reversibility after more than one application has not been established, safety during first trimester and possibly later has not been established and changes to social behaviors have not been adequately studied due to the narrow identification of social behaviors.</p> <p>Gonacon remains an experimental drug that should not be used outside a tightly controlled study and as Baker (2018) states, "additional research is needed to complete the objectives of this study including: 1) to define the duration of effective contraception postrevaccination, 2) to determine if long-term or permanent infertility is a possible outcome, and 3) to assess if return to fertility (if it occurs) results in altered birth phenology of treated mares."</p> <p>Other findings have revealed that Gonacon "altered reproductive behaviours that are integral to the maintenance of the complex social structure of herd animals such as horses." (Attachment 9)</p>	

Comment #	Comment Text	BLM Response
171	<p>As noted in the proposed alternatives raised by AWHC, we support consideration of PZP to manage wild horses in these HMAs. The BLM must consider the possibility of implementing this option at current population levels utilizing Catch Treat and Release ("CTR") methods for the vaccination of all mares over 1 year of age with the PZP-22 or native PZP fertility control vaccine. The use of PZP fertility control is scientifically established, cost-effective and widely accepted in the mainstream wild horse advocacy and scientific communities. (Attachment 3, p. 99-112). Ultimately, the use of PZP within the four HMAs is the most economical and humane option for the BLM. It will preserve the natural behaviors that distinguish wild-free roaming horses from domestic horses and are protected under federal law and stabilize populations within the HMAs. Therefore, AWHC strongly urges the BLM to analyze the implementation of a comprehensive PZP fertility control program as an alternative in the analysis for the four HMAs.</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p>
172	<p>BLM should be gathering, performing vasectomies on a portion of the males, tagging with GPS (noting gender, description, and fertile or sterile), and returning them to the life they know. Those that are too old or unhealthy should be humanely euthanized, and their remains donated or utilized in a meaningful and contributory way.</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4).</p>

Comment #	Comment Text	BLM Response
173	<p>In an effort to relieve conflict between user groups, the BLM, and the land, an option that was not analyzed should be for a compromise management paradigm, which aligns with the Congressional Request included in the FY20 Appropriations Bill:</p> <p>A slower and multi-faceted approach to wild horse management would include some removals, some on-range fertility control (via remote darting), and some gather-administer-release fertility control. This is more effective at creating and maintaining sustainable wild horse management (with less dependence on transportation and short-term holding, where a majority of the program budget is spent). To reduce stress on holding facilities, contractor availability, and budget, the application of immuno-contraceptive vaccine alongside gather-removals allows for stabilization and then reduction, where necessary, of wild horse numbers, and is more economically and logistically viable: population growth rates on the range are reduced, and time between gathers can be extended. At the time of another gather, fertility control vaccines can be reapplied to mares who had received initial doses, new mares can receive treatment, and some animals can be gathered and removed, in effect scaling up fertility control at each opportunity. Though AML may not be achieved immediately and all stray horses are not immediately removed from private lands within the checkerboard, progress towards AML is made, population growth rates will decline at each gather, and holding facilities will not be burdened. Recently published data (Rutberg 2017) shows that horses treated initially with PZP-22, and boosted with a single ZonaStat-H (or native PZP) injection (hand or remote delivery) 2-4 years later, extends contraception for at least three years, with fertility in treated animals reduced by an average of 70% so long as 80% of the mares were treated. Applying this formula to gather-treat-release strategies can further help to increase time between gathers and reduce population growth rates.</p> <p>The above is a more comprehensive approach, as desired by Congress, towards sustainable wild</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p>

Comment #	Comment Text	BLM Response
	<p>horse management on-range. The consent decree did not mandate that the BLM include alternatives beyond what was analyzed in the EIS, however, these alternatives will likely end up in litigation, delaying management progress and increasing animosity between stakeholders at considerable cost to taxpayers.</p>	
174	<p>In addition, the proposed surgical sterilization, ovariectomy via colpotomy, is especially dangerous and not appropriate for the horses. Both federal lawmakers and veterinarians have spoken out against this surgery, and a federal court has enjoined the BLM from even experimenting on wild mares using this procedure. Instead of using this procedure, the BLM should invest the additional \$21 million it received through the Fiscal Year 2020 appropriations process in implementing humane and scientifically proven fertility control methods, such as the PZP immunocontraceptive vaccine, which enjoys broad support and has been used effectively for decades.</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p>

Comment #	Comment Text	BLM Response
175	Ovariectomy via colpotomy, one of the surgical sterilization methods the BLM would likely employ on some of these horses, is especially dangerous. The procedure involves inserting a metal tool through an incision in the vagina and then severing and removing the ovaries. The wild mares remain conscious during the invasive procedure and would receive minimal post-operative care. Numerous federal lawmakers and veterinarians have spoken out against this risky surgery, and a federal court enjoined the BLM from experimenting on wild mares using this procedure.	The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.
176	The BLM is considering controlling horse populations by artificially manipulating the ratio of males to females. This suspect, unscientific approach could significantly affect herd dynamics and trigger aggression among stallions.	The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.

Comment #	Comment Text	BLM Response
177	<p>I am writing to express concerns with the Bureau of Land Management's proposed mass surgical sterilization experiments on wild horses using a controversial and outdated procedure known as "ovariectomy via colpotomy." (see "Spay Feasibility and On-Range Outcomes Environmental Assessment" DOI-B LM-ORWA-B 050-2019-0013-EA).</p> <p>The BLM is required under federal law to manage our nation's wild horse herds humanely, as well as to protect these animals from harassment and death. Even so, the BLM is proposing to perform a risky surgery that carries risks of trauma, infection, and death. The BLM is acutely aware of these risks, since part of the experimental design is to quantify the rate of mortality and morbidity among wild horses subjected to this procedure. The surgery itself involves the blind insertion of a metal rod with a chain to manually twist and sever a mare's ovaries.</p> <p>It is particularly troubling that the BLM is pursuing this "research" project after the National Academy of Sciences explicitly warned that the ovariectomy via colpotomy procedure should not be performed on wild horses. Indeed, veterinarians have called the procedure unscientific, inhumane, and dangerous, noting that it results in pain, suffering, and potentially life-threatening complications for wild mares. Under the BLM's plan, these surgeries would be conducted on conscious animals in nonsterile conditions, and the wild horses involved would receive minimal if any post-operative care.</p> <p>This is now the BLM's fourth attempt to ovariectomize wild mares after two major research institutions--Oregon State University and Colorado State University--withdrew their support from the project amid significant public outcry, and a court ruling against the agency last fall. The court cited, among other problems, the lack of independent observation and the BLM's failure to adequately consider the social acceptability of pursuing this "management" strategy.</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p>

Comment #	Comment Text	BLM Response
178	<p>A. Castration/Gelding</p> <p>The 2013 National Academy of Sciences conducted a BLM-commissioned scientific review of the agency's Wild Horse and Burro Program. The NAS stated that maintaining natural behaviors in free-ranging horses is in the public interest and that BLM should be more responsive to public sentiment.</p> <p>"Individual males vary in their behavioral response to castration-for example, in the loss of male- type behavior, such as aggression and sexual interest, depending on the age and sexual experience of the male. However, some or total loss of sex drive would be likely in castrated stallions, and this is counter to the often-stated public interest in maintaining natural behaviors in free-ranging horses." p123</p> <p>"A potential disadvantage of both surgical and chemical castration is loss of testosterone and consequent reduction in or complete loss of male-type behaviors necessary for maintenance of social organization, band integrity, and expression of a natural behavior repertoire." p142</p> <p>"The very essence of the wild horse, that is, what makes it a wild horse, is the social organization and social behaviors. Geldings (castrated male horses) no longer exhibit the natural behaviors of non-castrated stallions. We know this to be true from hundreds of years of experience with gelded domestic horses. Furthermore, gelded stallions will not keep their bands together, which is an integral part of a viable herd. These social dynamics were molded by millions of years of evolution, and will be destroyed if the BLM returns castrated horses to the HMAs ... Castrating horses will effectively remove the biological and physiological controls that prompt these stallions to behave like wild horses. This will negatively impact the place of the horse in the social order of the band and the herd." (emphasis added) - Dr. Jay Kirkpatrick, wildlife reproductive biologist, Science and Conservation Center, Zoo Montana. Dr. Kirkpatrick explains that altering natural hormone production through castration</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
	<p>essentially changes how that animal feels and behaves.</p> <p>BLM has claimed that castration does not alter the natural behaviors of stallions. This is patently false, as explained by renowned biologist Dr, Kirkpatrick above. Further, BLM refutes its own claim by citing "anecdotal" information regarding returning castrated stallions to the range stating, "Once released, anecdotal information indicates geldings would be expected to form bachelor bands." A true stallion has the biological imperative to claim mares and reproduce. If geldings are expected to only "form bachelor bands," this is an enormous departure from the natural social behavior of a wild stallion. Thus, BLM contradicts itself.</p> <p>Deciding which males will become permanent bachelors and not contribute to the gene pool of the herd is indeed altering natural behaviors. To draw a parallel, while a human male may choose to stay single and/or not have children, this is very different from forcibly castrating him. A castrated male, like a gelding, loses all sexual hormone production, which intrinsically and definitively changes his behavior for the rest of his life.</p> <p>Castration is performed in domestic settings largely to alter the horse's natural behaviors and to make him more docile and manageable - to make him a lifelong bachelor without stallion behaviors. Gelding destroys natural stallion drives -- not just breeding behaviors but other ritualistic social behaviors as well. These behaviors are essential for the social hierarchy of the herd and each family band to remain intact. Most stallions do not naturally remain in bachelor bands for life.</p> <p>Bruce Nock, Ph.D., of Washington University School of Medicine, an expert in the physiological effects of stress, states that gelding may compromise a horse's ability to survive in the rugged and extreme natural environment:</p> <p>Gelding (removing a horse's testes) will have irreversible effects on both the individual horse</p>	

Comment #	Comment Text	BLM Response
	<p>and the herd. A gelded horse does not behave as a "wild" or "free-roaming" horse. . . It decreases muscle mass and strength, reduces bone density, and increases frailty. These deficits put the horse at a significant disadvantage on the range in terms of survival. A gelding will still have to compete with intact stallions for resources. His smaller size and strength, however, will not only put him at a competitive disadvantage, it increases the likelihood that agonistic encounters with intact stallions will result in severe injuries.</p> <p>The compromised physical capacities that accompany gelding are likely to endanger castrated horses in a number of ways. In addition to undermining their ability to compete with intact stallions, it may diminish their ability to traverse the harsh terrain and great distances normally travelled to acquire food and water. This would jeopardize their survival particularly during challenging weather conditions, like droughts or heavy snow storms. A limited geographical home range is also likely to deplete local resources and negatively impact the ecological system as a whole. To survive in the wild, a horse must be able to achieve a certain fitness level that may be impossible to attain once the animal is castrated. In my professional opinion, releasing a castrated horse into a wild herd is an inhumane management approach that certainly does not "protect" or "help preserve" wild horses in any sense of the word.</p>	

Comment #	Comment Text	BLM Response
179	<p>. Gonacon and Other Drugs that Shutdown Natural Hormone Production</p> <p>The NAS stated in its 2016 Report, "Thus, to the extent that GonaCon preserves natural behavior patterns while effectively preventing reproduction, it is a promising candidate as a female- directed fertility-control method. However, further studies of its behavioral effects are needed." p. 149 (emphasis added)</p> <p>We now know that GonaCon does not preserve natural behaviors because it explicitly shuts down a mare's estrus cycle.</p> <p>The Cloud Foundation cannot support any management strategy [Castration (gelding), ovariectomy (spaying), and drugs or vaccines (e.g. Gonacon)] that shuts down the natural production of wild horse hormones. The changes to wild horses' natural behaviors, which include the following, could be catastrophic to the health of the herd:</p> <ul style="list-style-type: none"> * Behavioral disruption of social structure and band integrity. * Physiological disruption of hormones that play a vital role in the survival ability in the harsh and rugged wild environments. * Environmental impacts caused by sterilization procedures which may alter the way horses utilize the land. <p>The EIS fails to address that the Act requires BLM to manage wild horses and burros in a manner that protects their wild and free-roaming behavior. While Section 3(b)(1) as modified by the Public Rangelands Improvement Act of 1978, outlines options for population management that include sterilization, it is to be read in conjunction with and not in substitute for the overarching intent of the Act: to protect wild horses.</p> <p>In addition, the 1971 Act directs BLM to work with independent experts, such as the NAS, which has clearly stated the importance of preserving natural wild behaviors in all management actions:</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
	<p>"A potential disadvantage of both surgical and chemical castration is loss of testosterone and consequent reduction in or complete loss of male-type behaviors necessary for maintenance of social organization, band integrity, and expression of a natural behavior repertoire."</p> <p>The EIS fails to provide material scientific evidence when considering the impacts of converting a viable wild horse population to non-reproducing.</p>	

Comment #	Comment Text	BLM Response
180	<p>Sex Ratio Skewing</p> <p>The EIS fails to provide any scientific information or data to support the artificial skewing of the sex ratio in these herds. The EIS also does not specify the proposed equation for the skewed ratios.</p> <p>The natural sex ratios of adult wild horse herds are nearly always skewed toward females. The main reasons for this: differential survival of adult males and females and foal sex ratios (Garrott and Taylor 1990). Higher mortality in male horses may be due to injuries acquired during fights for mates or under conditions of food shortage and being unable to obtain sufficient nutrients since male horses naturally need more nutrients than females (D. Siniff, J. Tester, and G. McMahon 1986).</p> <p>Creating unnatural sex ratios increases aggression among males and causes stress and social disruption. It can create dangerous situations for females, who may be subject to being repeatedly raped by stallions. I have footage of a burro jenny being repeatedly raped by jacks specifically as a result of this inhumane management practice.</p> <p>Sex ratio skewing could also have a devastating impact on individual horses and family bands, as band stallions must remain ever vigilant and ready to fight bachelors who aim to steal their mares and break up the family unit. Far from being an acceptable management strategy, sex-ratio skewing is, in fact, mismanagement. This dangerous strategy endangers the health of the animals in BLM's care and is a clear abdication of BLM's responsibility to preserve and protect them.</p> <p>The BLM Beatys Butte EA DR FONSI 20094 (Attachment 5) states, "If selection criteria leave more studs than mares, band size would be expected to decrease, competition for mares would be expected to increase, recruitment age for reproduction among mares would be expected to decline, and size and number of bachelor bands would be expected to increase. . . ."</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
	<p>The BLM EA for the South Steens Wild Horse Gather5 (Attachment 6) states, "Skewing the sex ratio of stallions v. mares would result in a destabilization of the band (stallion, mare and foal) structure moving it from five to six animals to three animals. Social band structure will be lost resulting in combative turmoil as surplus stallions attack a band stallion trying to capture his mare. This could result in the foal being either killed or lost. The mare and foal will not be allowed to feed or water naturally as the stallion tries to keep them away from the bachelor bands of stallions, resulting in stress to the mare during her lactation condition."</p>	
<p>181</p>	<p>DEIS at 58 Table 2-1 The impact analysis common to all alternatives in the DEIS provides that BLM will return gathered horses to public lands but this management action is not identified in Table 2-1 or Table 2-2. Compare DEIS at 58 with DEIS at Table 2-1. First, is it the BLM's interpretation that a horse identified as "excess" can be returned to the range? Second, under what conditions will the BLM contemplate returning a horse to an HMA? Table 2-1 is drafted in such generalities that RSGA is unable to determine the major parameters of the proposed wild horse management.</p>	<p>The section described on page 58 is related to the use of population growth suppression strategies. In these cases, treated animals would be returned to the HMA as a means of controlling wild horse population growth. Animals treated in this way would not be those considered "excess". Excess wild horses would still be permanently removed from the HMAs.</p>

Comment #	Comment Text	BLM Response
182	Page 26, MA012, Alternative D: "Implementation of any of these population growth suppression tools would be through a site-specific activity plan.11 Comment: WDA requests BLM provide a percentage of wild horse populations treated in this analysis to ensure this will occur.	The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.
183	BLM must also evaluate how utilizing PZP fertility control in this area as a means of controlling wild horse population numbers without perpetual roundups, which are costly to American taxpayers and the horses themselves, will decrease unnecessary and wasteful spending of taxpayer funds. The cost savings of comprehensive PZP use is substantial. For example, an economic model published in a peer review article predicted that BLM could attain its population goals and save \$8 million in one HMA by using PZP fertility control and reducing and eventually eliminating removals. (Attachment 7). As such, the use of PZP to manage these HMAs is clearly a viable and economically responsible management choice.	The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.

Comment #	Comment Text	BLM Response
184	<p>While we agree with the need to remove the current wild horse herds from the Great Divide Basin, Salt Wells Creek, and White Mountain herd management areas and the herd reduction in the Adobe Town area, we feel that the methods for population growth control may be more effective in both cost and safety of the horses if a singular method of male surgical sterilization is implemented.</p> <p>In Chapter 4, subsection 2.1, the use of multiple methods of sterilization is discussed in the alternatives B, C, and D; however, we would like to suggest that your organization consider the use of surgical sterilization on male horses as the only solution. The high number of fatal incidents of female horses during and after surgery, reported by the National Research Council in 2013, would be reduced should our proposed alternative be used. According to Ginger Katherines², the executive director of The Cloud Foundation, if the mares live through the surgery, they will appear permanently in heat, and constantly endure sexual advances from male horses (female sterilization). Additionally, the removal of immunocontraceptives as a sterilization option would reduce overall costs^{1.1-1.2} by eliminating the need for annual booster injections. Typically, vaccines will cost overall more than one-time surgery according to Jay Kirkpatrick³.</p> <p>We support the increased management of the Great Divide Basin and the reduction of herds, but we truly feel that there are more ethical and cost-effective ways to control the population growth of the herds.</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p>

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185	<p>The 2013 Consent Decree requires that the BLM consider managing the White Mountain HMA as a non-reproducing herd. Consent Decree at ¶ 6(d). Adopting this "management" approach, however, would be of questionable legality because it would eliminate the ability of these federally protected wild horses to exhibit natural behaviors and thrive in their natural habitats.</p> <p>In American Wild Horse Preservation Campaign v. Zinke, the court struck down the approach of creating sterile herds of wild horses in part because the agency failed to consider and analyze "the significant impacts of the chosen action alternative on the wild horse herd as discussed in the NAS Report[,]" which the court found to be relevant to BLM's decision-making process. No. 1:16-cv- 00001-EJL, at *17-18 (D. Idaho Sept. 29, 2017). Among other issues, the court found that sterilization removes an animal's ability to be wild:[...]</p> <p>'absence of young horses itself would alter the age structure of the population and could thereby affect harem dynamics.' Id. at *20.</p> <p>The BLM failed to consider the impacts of maintaining the herd as non-reproducing and whether those impacts were consistent with the requirement that the herd maintains its free-roaming behavior. Id. at *40.</p> <p>To its credit, the BLM does note in the EIS that it has rejected the possibility of managing the Adobe Town HMA as entirely non-reproducing, although the sole justification appears to be predicated purely on expected interchange (i.e., wild horses entering from other areas) (pg. 19). Even so, throughout the EIS, the BLM is weighing options heavily skewed towards sterilization as the primary means of managing remaining horses under the preferred alternative.</p> <p>The WFRHBA's implementing regulations require that "wild horses and burros shall be managed as self-sustaining populations of healthy animals in balance with other uses and the productive capacity of their habitat" (43 C.F.R. § 4700.0-6(a)). Additionally, "activities affecting wild horses and burros shall be undertaken with the</p>	<p>The use of population growth suppression strategies is discussed in Alternatives B and D of the EIS (see Sections 2.2.2 and 2.2.4). PZP could be utilized as part of these actions. Decisions on which specific population growth suppression strategies are utilized in a specific scenario are beyond the scope of this EIS, and potential impacts would be discussed in detail in a site specific NEPA analysis.</p> <p>The larger metapopulation of wild horses is discussed in Sections 3.1.</p>

Comment #	Comment Text	BLM Response
	<p>goal of maintaining free-roaming behavior" (Id. at § 4700.0-6(c)). Sterilization destroys those aspects of wild horse behavior, developed over millions of years of evolutionary history in North America, and as such does not meet the bar set forth by these implementing regulations.</p>	

Comment #	Comment Text	BLM Response
186	<p>Ovariectomy ("Spaying" Mares)</p> <p>AWI asks that spaying mares be eliminated from consideration in this proposal. The agency fails to take a hard look at the direct, indirect, and cumulative impacts that use of this method will have on the behavior and physiology of wild horses and herd dynamics and the environment of the HMAs at issue. As written, the EIS does not adequately consider the risks and detrimental effects that many of the proposed procedures could have on wild horses, particularly the use of ovariectomy via colpotomy. We incorporate by reference previous comments submitted to the BLM on past proposals that included surgical sterilizations (e.g., the proposed spay experiments in Oregon) and which detail numerous animal welfare concerns that are currently absent from the EIS.[...]We incorporate by reference comments that AWI submitted in response to the Swasey HMA Horse Gather EA (DOI-BLM-UT-W020-2020-0002-EA), Warm Springs HMA Spay Feasibility and On-Range Outcomes EA (DOI-</p> <p>The WFRHBA requires the BLM to manage wild horses and burros in a manner that protects their wild and free-roaming behavior. While Section 3(b)(1) as modified by the Public Rangelands Improvement Act of 1978 does specify options for population management that include sterilization, it states that such determinations must be made in conjunction with other wildlife agencies and experts independent of government, such as those recommended by the NAS.</p> <p>Additionally, the WFRHBA mandates that "[a]ll management activities shall be at the minimal feasible level" 16 U.S.C. § 1333(a). Surgical sterilization, including ovariectomy via colpotomy, falls far short of this legal requirement. Such procedures are far more invasive, inhumane, and risky than other non-surgical methods of fertility control such as PZP.</p> <p>The BLM cannot simply assert, as it does in the EIS, that surgical sterilizations can be achieved "with a relative minimum level of animal</p>	<p>Potential impacts to wild horses associated with population growth suppression strategies are discussed in Section 4.2.1 of the EIS. More information is also provided in Appendix B. Analyzing detailed impacts associated with specific methods of population growth suppression techniques in specific herds is beyond the scope of this analysis. This document describes and analyzes effects of these types of strategies that are reasonably foreseeable at the planning scale. If/when any specific population growth suppression techniques are proposed for use, a site specific NEPA document will be prepared which will discuss the associated impacts in detail.</p>

Comment #	Comment Text	BLM Response
	<p>handling" (Appendix B pg. 18) - with the erroneous implication that this assumption (if accurate) would satisfy the legal threshold for what constitutes proper management at the "minimal feasible level." The EIS does not explain how the agency weighs a presumed one-time gather for invasive surgeries that necessitate ample recovery time and post-operative care versus non-invasive and well-tested options like PZP that can be administered remotely.</p> <p>The BLM has made clear through a series of EAs for the experimentation on wild mares in Oregon that the agency would prefer to utilize the method ovariectomy via colpotomy. The NAS directly advised the BLM not to employ this procedure due to the risk of trauma and infection. In its 2013 report on wild horse management, the NAS concluded:</p> <p>The possibility that ovariectomy may be followed by prolonged bleeding or peritoneal infection makes it inadvisable for field application. (pg. 130)</p> <p>and Surgical ovariectomy and ovari hysterectomy are commonly used in domestic species, such as cats and dogs (including feral cats and dogs), but seldom applied to other free-ranging species. (pg. 98)</p> <p>In addition, a 2015 National Research Council Review, also commissioned by the BLM, found:</p> <p>Domestic mares are typically cross-tied (after ovariectomy via colpotomy) to keep them standing for 48 hours post-surgery to prevent evisceration through the unclosed incision in the anterior vagina. That protocol would not be possible in free-roaming mares because they cannot be held still for so long. Therefore, there is some concern that the investigator may see more fatalities after surgery than the 1% quoted in the protocol, based on domestic mares.[...]</p> <p>Despite the scientific recommendation from the NAS against ovariectomy as a method to control population growth, despite the public urging the BLM not to pursue spaying mares, despite</p>	

Comment #	Comment Text	BLM Response
	<p>litigation, and despite the overwhelming scientific controversy and public opposition, the BLM is nevertheless continuing to pursue a dangerous, precedent-setting, and extreme plan to sterilize wild mares.</p> <p>As the BLM is aware, two major academic institutions (Oregon State University and Colorado State University) terminated partnerships with the BLM to oversee research experiments to assess the safety, efficacy, and complications, including mortality rates, from ovariectomizing wild mares. It is unclear what has changed in the agency's opinion if it is now seeking to bypass the research/study route altogether (originally intended to gauge the efficacy of utilizing these surgeries on mares in the wild) and instead start integrating spaying directly into its management plans.</p> <p>Regarding past litigation on this subject, in November of 2018, a federal court enjoined the BLM from proceeding with its proposal to spay mares. <i>Kathrens v. Bernhardt</i>, Case No. 18-cv-1691 (D. Or. 2018). When issuing the preliminary injunction halting the spay experiments for the Warm Springs HMA, the court held that Plaintiffs were likely to succeed in proving that: (1) the agency's restrictions on public observation of the surgeries violated the plaintiffs' First Amendment rights; and (2) the BLM's lack of inquiry into whether the sterilization procedure was "socially acceptable" was arbitrary and capricious. <i>Id.</i> at *1-2. The ruling also noted that plaintiffs raised valid concerns regarding the BLM's abandonment of experimental protocols for monitoring the welfare of the horses. The Interior Board of Land Appeals formally vacated the Decision Record later that month. A similar 2016 BLM proposal to spay mares in the Warm Springs HMA (DOI- BLM-OR-B000-2015-0055-EA) also faced legal action and significant public opposition, leading the agency to vacate that Decision Record as well. <i>Cloud Foundation v. Jewell</i>, Case No. 16-cv- 01650 (D. Or. 2016).</p> <p>Use of ovariectomy via colpotomy has raised particular alarm among Members of Congress. Lawmakers in both the House and Senate have expressly criticized the BLM for pursuing this</p>	

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	<p>method, noting that the agency appears to recognize "the risky nature of the procedure, but is nevertheless aiming to quantify precisely how dangerous it is using federally protected animals," and that the BLM should instead "pursue humane and scientifically supported fertility control projects, such as the [PZP] vaccine" (Attachments 2 and 3). To that end, the Senate Appropriations Committee approved language in the Fiscal Year 2020 Interior report specifically delineating that "any population growth suppression strategies" employed by the BLM "must be proven, safe, and humane" (S. Rept. 116-123). Spaying mares would almost certainly fail to meet that bar.</p> <p>Furthermore, an October 2019 letter to the Department of Interior, as well as a November 2019 letter to House and Senate lawmakers, signed by dozens of veterinarians from across the country, also expressed strong concerns about the BLM's proposed use of ovariectomy via colpotomy (Attachments 4 and 5). As the veterinarians noted in the former document, ovariectomy via colpotomy "is a painful surgical procedure" that "can be dangerous when performed on domestic horses, let alone [on] wild horses whose response to sedatives and analgesics is much less predictable." The letter also stated that "even in a controlled setting, this procedure can be accompanied by a high rate of complications...including risks of infection, trauma, post-operative pain, hemorrhage, abdominal adhesions, evisceration, abscess formation, abortion, neuropathies, and even death."</p> <p>BLM's wholesale failure to consider the social acceptability of surgically sterilizing wild mares, which was at issue in both the 2016 and 2018 lawsuits described above, or to collect data on mares' post-surgical welfare, or to guarantee meaningful independent public observation, threaten a significant violation of the WHA. Congress enacted the WFRHBA precisely because of the social and cultural importance of wild horses. See 16 U.S.C. § 1331.</p> <p>BLM has twice commissioned the NAS to issue comprehensive reports on the BLM's program of</p>	

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	<p>wild horse management, and both times the NAS has affirmed the critical importance of considering the social acceptability of the agency's methods for managing wild horse populations. "In 1982, the National Research Council noted that public opinion was the 'major motivation behind the wild horse and burro protection program and a primary criterion of management success'" (pg. 239). In the 2013 report, the NAS reiterated its 1982 finding and noted that this "suggest[s] that control strategies must be responsive to public attitudes and preferences" (Ibid.).</p> <p>The EIS does not adequately factor in social acceptability for any of the population control methods under consideration - from rounding up large numbers of horses (including in areas of particular interest to the public) to relying on surgical procedures that an overwhelming majority of Americans oppose. An October 2019 national survey conducted by The Harris Poll found that 77% of Americans opposed the BLM's proposed use of ovariectomy via colpotomy to spay wild mares.¹⁰ Likewise, a separate October 2019 survey, conducted by Public Policy Polling, found that 79% of respondents opposed the surgical sterilization of wild mares. Not surprisingly, the agency has received thousands of comments to date objecting to its various proposals to ovariectomize wild horses. As mentioned above, the failure to account for social acceptability formed part of the court's judgment when granting a PI against the BLM from proceeding with ovariectomies in the Warm Springs HMA.</p> <p>As AWI was a plaintiff in the Warm Springs spay experiment litigation, this issue is of particular importance to the organization and our efforts to ensure that wild equines are managed humanely. AWI has detailed the health and behavioral concerns of spaying mares in past comments on the BLM's EAs for the Mare Sterilization Research Project, which was supposed to take place at the Hines Corrals in Oregon (as well as more recently in comments responding to the EA for the Swasey HMA in Utah). We include some of the comments from veterinary professionals experienced with</p>	

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	<p>spaying procedures here again for reference as the agency considers whether to employ this method in Wyoming and in other parts of the country.[...]</p> <p>Dr. Robin Kelly, whose northern California-based equine veterinary practice includes the care of 245 wild horses and burros at the Montgomery Creek Ranch sanctuary in Elk Creek, reviewed the BLM's past research proposal and provided a statement with her concerns about the BLM's inability to provide post-operative care to ovariectomized wild mares (Attachment 6):</p> <p>The postoperative management proposed for these [BLM] mares is minimal compared to significant postoperative recommendations for domesticated mares. These recommendations include keeping mares tied in a tie stall/tie line to prevent them from laying down/rolling to reduce risk of postoperative hemorrhage or herniation of bowel thru that must be left open to second intention healing. These measures are advised since extensive post-operative hemorrhage or herniation of bowel through incisions would not be survivable.</p> <p>Domesticated mares would be treated with a more aggressive antibiotic choice for 7-10 days post operatively (monitoring daily for complications). Insufficient anti- microbials could result in peritonitis (also likely not survivable)...The wild mares will not be provided with post-surgical pain relief, according to the study description, and presumably [will be] turned out in a communal paddock with no restraint.</p> <p>Dr. Kelly also wrote in a statement her concerns regarding the surgical procedures the BLM has proposed (Attachment 6):</p> <p>Some of the other surgical ovariectomy procedures raise similar concerns regarding ability to adequately sedate wild horses and the abdominal compression of squeeze chutes that will be always necessary when working with wild horses.</p> <p>Standing Laparotomy procedures through the</p>	

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	<p>flank to ovariectomize would still require complete draping of the wild horse's back end and the obvious issues of potential contamination of the surgical site would be easy to imagine since all hydraulic chute are in outside dusty BLM gather yards or outside facilities at ranches...The presumption that these wild horses could be led into a sterile veterinary clinic and be brought to stand in a stock is also an impossibility when they have never been handled.</p> <p>Surgical procedures such as flank incisions also raise questions about the ability to provide sterile surgical fields, as do procedures that utilize general anesthesia to lay down horses to perform very invasive abdominal surgeries or flank incisions that would attempt to remove both ovaries from horses laying down on one side.</p> <p>My concern with performing flank or abdominal incisions on wild horses in the open environment is that avoiding contamination of the surgical site would be quite difficult to prevent.</p> <p>All of these surgical procedures are time consuming, expensive and carry high risks of contamination complications in wild horses. They are impractical and inadvisable for use in wild horses, particularly when non-surgical safer alternatives such as immunocontraception, are available.</p> <p>The BLM must adequately analyze the feasibility of invasive surgical procedures for use on wild mares in the wild (and specifically in non-sterile conditions, as the agency admitted would be the case with the Warm Springs HMA proposal). The required confinement for safe recovery from this invasive surgical procedure is not possible in free-roaming mares, raising the risk of fatality. The BLM must analyze and consider how the agency plans to provide the mares with any of the required follow-up care after this procedure, including stall confinement, a period on crossties to prevent lying down or rolling, careful monitoring for hemorrhage, pain relief, and antibiotic treatment. The BLM must also be fully</p>	

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	<p>transparent about costs associated with carrying out these surgeries and whether it has enough veterinarians skilled in this relatively rare procedure to perform ovariectomies on wild horses en masse.</p> <p>The proposed analysis must also analyze the current body of research available on the effects of spaying horses and the impacts they have on horse behaviors. The primary reason domestic mares are spayed is specifically to alter behaviors. Such alteration of behaviors would be in direct violation of the WFRHBA, which aims to protect wild, free-roaming horses. The BLM analysis must include available research on this subject that outlines how ovariectomies, or spaying, may result in problems pertaining to estrus-associated behaviors.</p> <p>While reactions depend on the individual, this procedure will likely result in one of three behavioral changes: the mare will not experience estrus at all; she will continue to experience estrus irregularly; or she will "appear to be permanently in estrus."¹² Any one of these changes are sure to change the dynamics of the herd, since the success of the stallion's invitation to breed is dictated by the estrus-pattern of mares. If a mare shows no sign of estrus behavior, she will likely not be receptive to the stallion's breeding invitation, possibly resulting in frustration of both the stallion and the mare. On the other hand, mares that end up sterilized, but in permanent estrus tend to be bred continuously by stallions. Repetitive breeding can lead to physical damage, re-opening the vaginal incision, and introducing infection, hemorrhage and/or evisceration - risks that would be exacerbated if mares are released back into the wild within a relatively short period after surgery.</p> <p>To our knowledge the BLM has never intended to refrain from using ovariectomies on pregnant wild mares even though the agency admits ovariectomy via colpotomy has normally been limited to non-pregnant domestic mares (Appendix B pg. 19). In a particularly gruesome component of previous BLM proposals, the agency sought to quantify the number of</p>	

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	<p>aborted fetuses from testing the procedure on pregnant mares. Unfortunately, the risks to the welfare of pregnant mares and mares nursing foals has not been adequately considered in this EIS.[...]</p> <p>Ultimately, the BLM should drop plans to surgically sterilize federally protected wild mares and focus instead on non-surgical methods of fertility control that preserve the natural behaviors that distinguish wild-free roaming horses from domestic horses. Should the BLM move forward with any surgical sterilization procedures, AWI requests that an independent veterinary observer be allowed to attend and observe the procedures. This individual should be able to document the procedures and provide timely reports to the public. As with roundups, we also request that small unobtrusive cameras be positioned to record the surgeries and the mares in recovery. Small unobtrusive cameras would help the public and veterinary professionals to better understand the procedures and assess whether such methods are appropriate for use on wild horses</p>	
187	<p>BLM must analyze reasonably foreseeable actions to the proposed action in the EIS because a "viable but unexamined alternative renders [the] environmental impact statement inadequate." Muckleshoot Indian Tribe v. US Forest Serv., 177 F.3d 800, 814 (9th Cir. 1999) quoting Citizens for a Better Henderson v. Hodel, 768 F.2d 1051, 1057 (9th Cir.1985). A significant portion of land within the planning area is owned by the Anadarko Land Corporation, which was purchased last year by Occidental Petroleum. Occidental has since placed the land up for sale and the State of Wyoming is considering its purchase.s It is clear that any future sale by Occidental to the State of Wyoming or BLM will impact the planning area and BLM's claim that private landowners in the Checkerboard demand the removal of the horses. The pending sale of this land could change the landscape of the Checkerboard and</p>	<p>A potential land sale by Occidental is too speculative to be considered a reasonably foreseeable future action. Additionally, a change in ownership of private land would not change the purpose and need, or the analysis contained in this EIS. A land exchange alternative was added to the Alternatives Considered but Eliminated from Detailed Analysis Section of the EIS (Section 2.4).</p>

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	<p>alter the fundamental justification for the BLM's proposed elimination of wild horses from this area. Therefore the pending land sale must be analyzed as part of the EIS as a reasonably foreseeable action and applied to the proposed alternatives in the EIS.</p>	
188	<p>VII. 43 C.F.R. 4720.2 Removal of Excess Horses from Private Lands</p> <p>"Upon written request from the private landowner to any representative of the Bureau of Land Management, the authorized officer shall remove stray wild horses and burros from private lands as soon as practicable. ... The request shall indicate the numbers of wild horses or burros, the date(s) the animals were on the land, legal description of the private land, and any special conditions that should be considered in the gathering plan."</p> <p>The EIS fails to disclose if BLM has received any written requests from private landowners for the removal of wild horses from their land. The Consent Decree with the RSGA, and RSGA-instigated litigation against the BLM, is the only reference to private landowners. Yet, the RSGA-owned lands represent only a portion of all privately-owned lands in the checkerboard.</p> <p>The EIS must disclose if the primary private-property owner has, in fact, submitted a request, as required by statute, to remove wild horses from private lands. The EIS fails to adhere to 43 CFR 4720. All written requests must be disclosed and included in the appendix should a final EIS be issued.</p>	<p>This planning action does not implement Section 4 of the WFRHBA, but the purpose and need for the action is based, in part, on BLM's responsibilities under Section 4 of the Act. Section 1.1 has been updated to more clearly explain the background for this plan amendment, and to clarify that no other land owners within these HMAs have given consent for wild horses to utilize their private land, and that BLM must receive written consent from a land owner before the private land can be included in determining if an HA can be managed as an HMA and used in calculating an AML.</p>

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189	<p>The Plan Amendment is predicated on a 2011 Consent decree between the BLM and the Rock Springs Grazing Association (RSGA) regarding assertions by RSGA that BLM failed to remove wild horses from private checkerboard lands. DEIS at 9, 10. This Consent Decree is a private agreement that is legal to the extent to which it complies with governing federal law and regulation; it does not supersede them. It also cannot, by itself, represent a legally sufficient justification for zeroing out wild horse populations on non-checkerboard lands</p>	<p>See Chapter 1 of the EIS for a detailed discussion on the circumstances driving a need to amend the land use plan. All alternatives analyzed are in compliance with federal law.</p> <p>The Consent Decree informed the development of the alternatives, but is not part of the rationale for the Proposed RMP Amendment, and does not direct the outcome of this planning process.</p>
190	<p>Although RSGA owns some private lands in the Wyoming Checkerboard, much of the land as to which it asserts surface rights are owned by other entities. Because Congress explicitly limited redress under Section 4 to "the owners of such land" who inform BLM of any straying activity, 16 U.S.C. § 1334, RSGA cannot seek removal of any horses from leased land in the absence of the landowner itself requesting that BLM remove any horses. This discussion highlights that RSGA is not the only interested party even with respect to the private Checkerboard lands, and thus underscores the arbitrary nature of BLM doing everything in its power to accede to RSGA's demands above those of other interested parties.</p> <p>the applicable federal law and regulations." However, the fact that BLM is hiding behind the Consent Decree-and using that agreement and RSGA's desire to never see a stray horse on private land-to justify eliminating longstanding wild horse HMAs even on large solid public land blocks means that BLM views its hands as tied by the Consent Decree. As to the large public land blocks in these HMAs, BLM has not provided any coherent, non-arbitrary explanation as to why it cannot manage these public land blocks in the same manner that BLM manages every single wild horse HMA surrounded by public land throughout the American West. As a result, BLM clearly views its discretion as restricted by the Consent Decree, further reinforcing that unlawful nature of that agreement.</p>	<p>This planning action does not implement Section 4 of the WFRHBA, but the purpose and need for the action is based, in part, on BLM's responsibilities under Section 4 of the Act. Section 1.1 has been updated to more clearly explain the background for this plan amendment, and to clarify that no other land owners within these HMAs have given consent for wild horses to utilize their private land, and that BLM must receive written consent from a land owner before the private land can be included in determining if an HA can be managed as an HMA and used in calculating an AML.</p> <p>The Consent Decree informed the development of the alternatives, but is not part of the rationale for the Proposed RMP Amendment, and does not direct the outcome of this planning process.</p>

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191	<p>With respect to the DRAFT document, the WSGB is very disappointed in the current DRAFT document. In our opinion, and we comment, it is our opinion that most of the narratives in the alternatives are not viable and we comment that at present, we cannot support ANY of the alternatives, as now written. It is our comment that this document appears to have been written in order to fail.</p> <p>The BLM conveys that alternative "D" is the BLM's preferred alternative. The WSGB comments that the most recent consent Decree between the Rock Springs BLM and the Rock Springs Grazing Association, RSGA, should be the BLM's preferred alternative. BLM has signed, and agreed to the terms and conditions in the most recent Consent Decree and the WSGB comments that BLM should adopt it as the Preferred Alternative.</p>	<p>Section 1.1 of the EIS discusses how the 2013 Consent Decree is addressed in this amendment. In Chapter 2 of the EIS, each alternative that analyzes a component of the Consent Decree explains how that alternative meets the requirements of the Consent Decree.</p>
192	<p>At a minimum, the BLM should consider an alternative that allows wild horses to exist on solid block portions of public lands - for instance, as the BLM notes, over half of the portion of the Adobe Town HMA that would revert to HA status and be managed for zero wild horses exists outside of the checkerboard land pattern, meaning a solid block could be designated (pg. 17, pg. 41). Similarly, over half of the Great Divide Basin lies outside of the checkerboard land pattern, but here again the BLM has opted not to pursue creating contiguous portions to allow horses to reside in these HMAs. Moreover, the BLM could look to areas excluded from analysis in the EIS, namely the adjoining Little Colorado HMA, which consists wholly of public land; we urge the BLM to return to the drawing board to create contiguous areas of public lands for wild horses to inhabit rather than pursue costly, irresponsible, and potentially illegal mass removals.</p> <p>Regarding the difficulties of ensuring that horses stay only on public lands, courts have held that the BLM is not required to prevent wild horses from straying onto private lands. <i>Fallini v. Hodel</i>, 783 F.2d 1343, 1345 (9th Cir. 1986) (cited with approval by <i>American Wild Horse Preservation Campaign v. Jewell</i>, 847 F.3d 1174, 1189 (10th Cir. 2016)). Indeed, the Tenth Circuit ruling in</p>	<p>Alternative B analyzes an alternative that would manage wild horses on the solid block portions of these HMAs. Section 1.1 has been updated to more clearly explain the background behind the need to amend this plan. Language was also added to clarify that no other land owners within these HMAs have given consent for wild horses to utilize their private land. Language was added to clarify that BLM must receive written consent from a land owner before their land can be included in determining if an HA can be managed as an HMA and used in calculating an AML.</p> <p>A potential land sale by Occidental is too speculative to be considered a reasonably foreseeable future action. Additionally, a change in ownership of private land would not change the purpose and need, or the analysis contained in this EIS.</p> <p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p>

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	<p>American Wild Horse Preservation Campaign v. Jewell regarding checkboard roundups emphasized that the practical realities of the unusual land ownership pattern "do not provide BLM with the authority to construe the [WFRHBA] in a manner contrary to its plain and unambiguous terms" by responding to a "removal request by treating public lands as private lands" 847 F.3d at 1188.</p> <p>It is worth noting that RSGA, which revoked its consent to allow wild horses on private land that it manages, owns only 14% of the checkerboard lands in the HMAs. Given the land pattern, RSGA "manages its private lands in concert with the unfenced public lands" such that RSGA's own livestock "roam freely on property owned by [RSGA] and on the alternate sections of land owned by the federal government." Id. at 1180 (quotation omitted). The BLM fails to adequately address this point in the current EIS and fails to fully disclose the exact amount of land at issue given that the majority private landowner in the checkerboard is Anadarko Petroleum, owned by Occidental. The EIS simply notes that "RSGA owns numerous private land sections within each of these HMAs" without getting into specifics or the implications of prioritizing RSGA's livestock grazing interests over the interests of the federally protected horses in the planning area (pg. 40).</p> <p>This is especially troubling since, as has been widely reported in the media, the state of Wyoming is seeking to purchase Occidental's lands in the checkerboard, meaning the supposed rationale of needing to prevent wild horses from venturing into private lands seems even less tenable. The EIS fails to disclose that the majority private landowner is considering selling lands within the checkerboard. The potential sale and purchase of these lands must be analyzed in the final EIS, including possibilities such as whether the BLM can work with the state to preserve habitat for wild horses, including in and around the Wild Horse Scenic Loop, which is vital to Wyoming tourism.</p>	

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193	<p>Analyze and Adopt an Alternative that Contains All of the Terms of the 2013 Consent Decree</p> <p>The Purpose and Need of the DEIS is to consider the terms of the 2013 Consent Decree in Rock Springs Grazing Assn. v. Salazar, Civ. No. 2011-00263 NDF. DEIS 1.1, 1.2, at 9-10. The DEIS tries to evade analyzing and implementing the 2013 Consent Decree by dividing the individual components of the settlement among three alternatives and, thus, never considering the settlement in its entirety, as was intended and as would be intended in any out-of-court settlement. Aside from violating the terms and spirit of a Consent Decree, which was reviewed and approved by the highest levels of the Interior Department and the Wyoming federal district court, the DEIS remains vulnerable for not considering this viable alternative. BLM never discussed such a change with RSGA and the DEIS offers no rationale that would support changes in the Consent Decree.[...]</p> <p>The BLM's inability to successfully implement the Consent Decree is unconscionable. The Consent Decree called for revision to HMAs and AML but BLM has repeatedly delayed the RMP revision process. In 2014 when the RSFO suspended work on the Rock Springs plan revision, RSGA asked that the wild horse amendment be added to the sage grouse plan revision given the habitat overlap and BLM declined. In 2016, RSGA again asked that BLM initiate a separate plan revision since many of the initiatives in the pending draft RMP were slated to change after the presidential election. Again, RSFO declined to change course. The RSFO has still not released a draft of the Rock Springs plan revision. A year ago, BLM finally severed the wild horse issue with assurances a draft EIS would be released in summer of 2019. This did not occur. The BLM has taken six years to prepare a draft plan revision, leading a cynic to wonder if this has been deliberate. Census counts between 2011 and 2019 demonstrate a steady increase in horse numbers across all of the HMAs and outside of HMAs. Compare Attach. 26 with Attach. 37. The plain language of the Decree and the intent of the parties have been completely ignored and it appears to RSGA that BLM has</p>	<p>The purpose and need for this planning action is described in Section 1.2 of the EIS. The Consent Decree does not direct the outcome of this planning process. Section 1.1 of the EIS discusses how the 2013 Consent Decree is addressed in this amendment. In Chapter 2 of the EIS, each alternative that analyzes a component of the Consent Decree explains how that alternative meets the requirements of the Consent Decree.</p> <p>The Consent Decree does not require that BLM consider all the identified actions in a single alternative, or that BLM select any of the identified actions in its final planning decision. BLM has the discretion to select any alternative, or elements of different alternatives, in its ROD, based on its analysis of information in its records. That information includes input from cooperators and comments received from the public during the planning process.</p> <p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p>

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	<p>made little if any attempt to comply. BLM issued a notice of scoping for a multi-year gather using the current AMLs and HMAs, which again is at odds with the 2013 Consent Decree.</p> <p>a. 2013 Consent Decree is a Court-Approved Binding Contract that BLM Must Honor The 2013 Consent Decree, like any Consent Decree, "is an agreement that the parties desire and expect will be reflected in and be enforceable as a judicial decree that is subject to the rules generally applicable to other judgments and decrees." <i>Rufo v. Inmates of Suffolk Cty. Jail</i>, 502 U.S. 367, 378 (1992). The 2013 Consent Decree "is to be construed ... basically as a contract." <i>United States v. ITT Continental Baking Co.</i>, 420 U.S. 223, 238 (1975). Discerning the bargain struck by the parties is the relevant inquiry in evaluating a Consent Decree, <i>United States v. Microsoft Corp.</i>, 147 F.3d 935, 946 (D.C.Cir.1998), and the provisions of the contract must be read together to avoid repugnant interpretations. <i>State of Alabama v. King & Boozer</i>, 314 U.S. 1, 11 (1941); <i>Cruise Connections Charter Mgmt. 1, LP v. Attorney Gen. of Canada</i>, 967 F. Supp. 2d 115, 222 (D.D.C. 2013) ("Still, the parties to a contract must be presumed to have attributed a meaning and purpose to its several parts which, when read together, constitute a complete consistent contract and, therefore, repugnancy should be, if reasonably possible, avoided." (quotes omitted)).</p> <p>Paragraph 6 of the Consent Decree, therefore, must be read together to avoid a repugnant interpretation and ensure that agreement between RSGA and the Department of the Interior is honored. Paragraphs 6(a) through 6(d) each identify a Herd Management Area that BLM agreed to consider managing as a herd area with zero horses. See <i>Rock Springs Grazing Ass'n v. Salazar</i>, 935 F. Supp. 2d at 1193 (approving 2013 Consent Decree). The parties also stipulated to the fact that "wild horses utilize all of the land within the Checkerboard without regard to land ownership", <i>id.</i>, and the Court found that wild horses "move freely throughout the area." <i>Id.</i> at 1182. Horses have scattered throughout all of the HMAs (e.g. Adobe-Town and Salt Wells are managed as a single complex</p>	

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	<p>for this reason) and requiring BLM to consider changing one HMA to a herd area would inevitably result in horses quickly reestablishing and BLM unable to comply with Section 4 removal requests by RSGA. The only way that Paragraph 6 of the Consent Decree makes sense is if each HMA is considered as a herd area together in a single alternative - otherwise horses will return to the Checkerboard which is exactly what the 2013 Consent Decree was intended to prevent.</p> <p>The DEIS relies on a single sentence in the 2013 Consent Decree to conclude that: "The BLM has met the requirements of the Consent Decree by considering each of these actions as elements of various alternatives in this EIS, though no single alternative considers all of them together." DEIS at 9. The 2013 Consent Decree is not a McDonald's menu but a serious settlement of a long-running dispute. BLM cannot unilaterally claim the authority to pick and choose which portions of the settlement it will include in each alternative.</p> <p>The DEIS cites the Tenth Circuit decision but notably omits the fact that the Court endorsed the 2013 Consent Decree as a solution.</p> <p>"American Wild Horse Preservation Campaign, 847 F.3d at 1188, n. 8. The DEIS claimed tension between private and public lands also misstates the decision. The Court actually wrote: "Sections 3 and 4 appear to rest on two related assumptions that are not, in fact, true in this case: that the areas of public land managed by BLM, as well as the areas of private land adjacent to such public land, will be large enough and distinct enough that there will be little or no tension between the management responsibilities outlined in the two sections." Id. at 1187, n. 6.</p> <p>Retaining the White Mountain HMA is entirely consistent with the 2013 Consent Decree and the Tenth Circuit decision. White Mountain is an integral component of this management system. As explained infra, wild horses in the White Mountain HMA have not produced significant conflict with private lands and RSGA and the Department of the Interior recognized that White Mountain provided an opportunity to allow wild horses to continue in a sustainable management situation with readily available</p>	

Comment #	Comment Text	BLM Response
	<p>public viewing opportunities. The RSFO, however, has excised Paragraph 6(d) from the rest of the contract, in an effort to unilaterally revise the 2013 Consent Decree, without complying with the revision procedures or consulting with RSGA. RSGA would have never signed the 2013 Consent Decree if any provision under Paragraph 6(a) - (c) was struck and BLM would not have agreed to lose the White Mountain HMA after the work done to establish points of interest. The DEIS Preferred Alternative must be revised to conform to the 2013 Consent Decree, as approved, not what the RSFO now wishes it provided.[...]</p> <p>DEIS at 9 The DEIS states that "[t]he Consent Decree requires that BLM consider these actions, but does not require that the BLM implement any specific action. The BLM has met the requirements of the Consent Decree by considering each of these actions as elements of various alternatives in this EIS, though no single alternative considers all of them together." The DEIS misreads the Consent Decree. It is an out-court settlement approved by the Wyoming District Court and it is the sum of all parts not just those a new Field Manager agrees with.</p> <p>The Preferred Alternative eliminates the White Mountain HMA when RSGA agreed to up to 205 horses on that HMA. No alternative specifies that wild horses may not be returned to the Salt Wells area when that was provided in the 2013 Consent Decree. As RSGA, WGFD, and others stated in 2018, the 2013 Consent Decree is a fully workable and sustainable solution if implemented appropriately.</p>	

Comment #	Comment Text	BLM Response
194	<p>The DEIS incorrectly states that the Tenth Circuit identified all Checkerboard lands in Wyoming as an inherently unworkable management situation. The Tenth Circuit, however, endorsed the 2013 Consent Decree and did not hold that continuing the White Mountain HMA under the conditions identified by RSGA was unlawful or problematic. See <i>Am. Wild Horse Pres. Campaign v. Jewell</i>, 847 F.3d 1174, 1189, n. 8 (10th Cir. 2016). In reality, the Tenth Circuit said, Perhaps the solution can come in the form of amendments to the areas designated as HMAs, and/or to the AMLs applicable to the HMAs at issue. As noted in the background section, the 2013 consent decree stated that BLM would consider changing the Salt Wells and Great Divide Basin HMAs to "Herd Areas," which would be managed for zero wild horses, and lowering the Adobe Town AML.</p> <p>Id. (citations omitted) (emphasis added). The Tenth Circuit never mentioned White Mountain HMA because it was not part of the 2014 gather and thus was not at issue in that case and it is improper for the DEIS to extrapolate that the Court recommended the conversion of all Checkerboard lands from HMAs to HAs. This is why RSGA and the 2013 Consent Decree provide for the continued existence of horses on White Mountain for viewing, recreation, and tourism purposes; BLM asked RSGA to retain its consent for the White Mountain HMA. Why else would BLM coordinate with the Rock Springs Chamber of Commerce, to install viewing areas and point of interest signs for the public to see the wild horses in this HMA if it had not intended to retain the HMA? The Department of the Interior and RSGA never intended for the provisions of the 2013 Consent Decree to be considered independently and the DEIS justification for eliminating White Mountain HMA frustrates the intent of the Department of Interior and RSGA in fashioning that agreement. The 2013 Consent Decree was premised on, and drafted as, a comprehensive settlement of the litigation that would resolve the wild horse management problem on the Checkerboard. Failing to retain White Mountain HMA removes 388,488 acres of an existing HMA that could be used to provide viewing for wild horse advocates with little, if any, conflict with private lands. The reason the</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Language was added to Section 2.3 of the EIS to clarify BLM's rationale for the Proposed RMP Amendment. Section 4.2.1 of the EIS describes the difficulties in managing a nonreproducing herd in these HMAs. Language was added to Section 3.1 to clarify the location of boundary fences for the White Mountain HMA.</p> <p>Also, see response to comment 193.</p>

Comment #	Comment Text	BLM Response
	<p>Tenth Circuit did not identify the Checkerboard on White Mountain is because it was not part of that case and, thus, the DEIS is wrong to posit such a conflict to justify its removal. As RSGA, WGFD, and others stated in 2018, the 2013 Consent Decree is a fully workable and sustainable solution if implemented appropriately which includes retention of the White Mountain HMA. The DEIS alternatives ensure this never occurs.</p> <p>Removing White Mountain HMA, especially when it is a focal point for wild horse viewing, further dooms the DEIS to challenge by wild horse advocates.</p> <p>https://www.keepwywyld.com/our-mission. The DEIS must explain, not just conclude, that "[w]ild horses within this HMA have historically moved back and forth between the checkerboard and solid-block portions of the HMA. In order to prevent wild horses from straying onto private land within the checkerboard, a fence, or some other type of barrier, would need to be constructed on the southern border." Id. at 19. The DEIS provides no data to support this conclusion nor does it explain why a fence is needed on the southern border or elsewhere. Notably absent is any aerial inventory of the White Mountain HMA and surrounding area, or historic data that demonstrates migration of wild horses south of I-80. The HMA is bounded on all sides by highways and these are fenced. BLM has not gathered White Mountain HMA since 2011 and BLM previously denied requests for a gather claiming the HMA is at or only slightly above AML.[...]</p> <p>DEIS at 18-19</p> <p>The BLM states in the DEIS that managing a non-reproducing population in White Mountain is not technically feasible because fertile [?]horses from outside of White Mountain would migrate into the White Mountain non-reproductive herd. DEIS at 18-19. The DEIS provides no data to demonstrate what horses have, or will, migrate into the White Mountain herd and thus it appears that the BLM expects the public to assume as true the conclusion in the DEIS without any supporting evidence.</p>	

Comment #	Comment Text	BLM Response
	<p>The Consent Decree anticipated that wild horses would drift in so this potential is not a valid reason to cancel the White Mountain HMA.</p>	

Comment #	Comment Text	BLM Response
195	<p>The Wyoming Stock Growers Association (WSGA) represents the ranching industry in Wyoming. Our membership includes several ranching operations that are dependent on grazing public, state and private lands located within the area encompassed by this Draft RMP and EIS. Throughout much of the past forty years our members are significantly impacted by the excess numbers of horses in this area. WSGA has been directly involved in issues related to the management of wild horses within these HMAs, including litigation, over the past twenty years.</p> <p>Anyone reviewing the above draft document who is unfamiliar with the history of wild horse management would be led to believe that the need for action was being driven exclusively by the 2013 Consent Decree entered into by BLM and the Rock Springs Grazing Association (RSGA). The document fails to acknowledge that the history of litigation brought by RSGA in 1979 and 2010, as well as the Consent Decree, were all driven by BLM's failure to manage wild horses with AML levels originally agreed to by BLM and RSGA. The need for the dramatic actions proposed in Alternative D (Preferred Alternative) , is driven by this failure to honor previous agreements. BLM's "Purpose and Need for the Plan Amendment" relies heavily on "RSGA's withdrawal of consent to maintain wild horses on privately owned-lands as embodied in the 2013 Consent Decree" without acknowledging that this withdrawal was driven by BLM's failure to manage according to the terms of the Consent Decree[...]</p> <p>In summary, while WSGA supports BLM's efforts in the AMP to develop a plan to move forward with wild horse management, we are very concerned that the effort to base it on the Consent Decree rather than on the history of wild horse management in these HMA's and a thorough analysis of the true resource impact of excess horse numbers will result in a weakened final RMP. We urge BLM to take the time to complete the additional impact analysis that will sustain a final decision.</p>	<p>Section 1.1 of the EIS has been updated to clarify the history and circumstances driving the need for this plan amendment.</p>

Comment #	Comment Text	BLM Response
196	<p>The EIS is fatally flawed because its proposed action and analyses are based on the false assumption that the RSGA owns the checkerboard within the analysis area. The EA makes statements such as "However, on October 4, 2010 the RSGA withdrew their consent and demanded BLM remove all wild horses from their private land within the planning area." But the fact is that less than 1/3 of the checkerboard is owned by RSGA. Much is owned by Occidental Petroleum. We provide the current ownership map as Attachment 2; squares marked "Anadarko" are now owned by Occidental Petroleum. The fact that the RSGA only owns approximately 1/3 of the private checkerboard was entirely undisclosed in the EIS.</p> <p>While the RSGA may currently lease the grass on the Occidental-owned private checkerboard, the EIS is entirely silent on what rights, if any, that lease may grant to RSGA regarding decision-making on that leased private. The failure to disclose these facts fails NEPA's 'hard look' test and renders the analyses flawed and meaningless. Neither the public nor the decision-maker can adequately assess the NEPA document without examining any lease agreements and without providing accurate information on ownership.</p> <p>The EIS misleadingly states "The RSGA owns private sections of the checkerboard land within the Adobe Town, Salt Wells Creek, Great Divide Basin, and White Mountain HMAs." But as discussed above only owns approximately 1/3 of the private checkerboard. This misleading assumption vitiates the entire EIS as it is based on the assumption that RSGA owns all of the checkerboard, which it does not.[...]</p> <p>The EIS misleadingly states "In 2010 the RSGA revoked consent to allow wild horses to utilize private land within the checkerboard. Management of a wild horse herd in the checkerboard portion of the planning area has become more challenging due to the private land conflict." EIS at 10. But RSGA only owns approximately 1/3 of the checkerboard. Any issues RSGA may have with wild horses on their private need to be addressed based on WFRHBA</p>	<p>Section 1.1 has been updated to more clearly explain the background for this plan amendment, and to clarify that no other land owners within these HMAs have given consent for wild horses to utilize their private land, and that BLM must receive written consent from a land owner before the private land can be included in determining if an HA can be managed as an HMA and used in calculating an AML.</p>

Comment #	Comment Text	BLM Response
	<p>1334 and 43 CFR 4720.2-1. Their authority to request removals when wild horse "stray" onto their private lands is restricted only to the lands they own.</p> <p>Further, the only recourse they have under the law and implementing regulations for any "stray" wild horses on their private lands is providing the BLM with written notice indicating the numbers of wild horses or burros, the date(s) the animals were on the land, legal description of the private land. The law and regulation provides no further recourse. The EIS entirely ignores this fact.[...]</p> <p>Setting aside issues of the consent decree's compliance with the WFRHBA, even the consent decree limits itself to "Pursuant to 16 U.S.C. §1334, BLM agrees to remove all wild horses located on RSGA's private lands, including Wyoming checkerboard lands, with the exception of those wild horses found within the White Mountain Herd Management Area (HMA), in accordance with the schedule set forth in paragraph 5." Emphasis added.[...]</p> <p>Despite the fact that Occidental Petroleum holds, by far, the majority of the private checkerboard within the project area, the EIS is entirely silent on what that landowner's position is. As we have stated earlier, RSGA can only speak for its own private lands. Manual 4710 at .31 has a process for this. Likely, the BLM ignored this process in its haste to satisfy the RSGA. The EIS fails to provide any evidence that .31 was implemented. This same subsection provides a process to adjust AML based on public resources. Given that Appendix A clearly demonstrates essential habitat components are sufficient on public lands the proposed actions are plainly arbitrary</p>	

Comment #	Comment Text	BLM Response
197	<p>The EIS Must Disclose the Ownership and Exact Acreage of Private Lands in the Checkerboard</p> <p>As mentioned above, the impetus behind the BLM's sweeping plan to eliminate 2.5 million acres of designated habitat and remove 40 percent of Wyoming's current wild horse population is a demand by the RSGA, which is actually only a minority landowner in the project area. (See Attachment 1). However, the EIS fails to provide any breakdown of ownership of the private land blocks in the planning area which would disclose this fact. It is crucial that the final EIS fully describe the land ownership within each HMA, the percent of private land owned by each owner, and analyze any future actions such as potential land sales in order to portray a full and accurate picture of the land users in the project area.</p>	<p>Section 1.1 has been updated to more clearly explain the background for this plan amendment, and to clarify that no other land owners within these HMAs have given consent for wild horses to utilize their private land, and that BLM must receive written consent from a land owner before the private land can be included in determining if an HA can be managed as an HMA and used in calculating an AML.</p>
198	<p>DEIS Must Be Revised to Accurately Reflect the History of Wild Horse Management</p> <p>The DEIS reduces 41 years of wild horse management on the Wyoming Checkerboard down to RSGA's revocation of consent to tolerate horses in 2010, which preceded the 2013 Consent Decree resolving the case of RSGA v. Salazar. The DEIS omits four decades of critical historical context that include agreements between RSGA and wild horse groups, BLM's suspension of the wild horse program, decades of census counts, post-gather flights, litigation and other events that prove RSGA is not the causal factor for the resource management plan amendment. The purpose and need statement for the plan amendment is created by the BLM's inability to manage wild horses on the Checkerboard at AMLs - not the 2013 Consent Decree.[...]</p> <p>The DEIS correctly states, that "[h]istorically, the RSGA had agreed to allow up to 500 wild horses on the checkerboard portion of the planning area as a result of a 1979 agreement with wild horse advocacy groups (Borzea 1979, Hay 1979)." DEIS at 9. Then, skipping 40 years, the DEIS states "[i]n 2010 the RSGA revoked consent to allow wild horses to utilize private land within the checkerboard. Management of a wild horse herd in the checkerboard portion of the planning</p>	<p>Section 1.1 has been updated to more clearly explain the background for this plan amendment, and to clarify that no other land owners within these HMAs have given consent for wild horses to utilize their private land, and that BLM must receive written consent from a land owner before the private land can be included in determining if an HA can be managed as an HMA and used in calculating an AML.</p>

Comment #	Comment Text	BLM Response
	<p>area has become more challenging due to the private land conflict." Id. at 10 (emphasis added). The DEIS then describes the "tension" articulated by the court in American Wild Horse Preservation Campaign v Jewell, 847 F.3d 1174, and ends the discussion with the conclusion that "[r]emoving all wild horses that are on private land, or have the potential to stray onto private land, could cause the wild horse population to fall below low AML." Id.</p> <p>The first two sentences quoted from the DEIS are true. The rest of the discussion in Section 1.1 must be revised to correct inaccuracies. The omission of material facts in the DEIS imply that but for the 2010 RSGA revocation of consent to use the private lands, there would be no conflict between private lands and wild horse management on public lands. Essentially, the narrative in the DEIS is that the conflict has nothing to do with BLM's proven failure to manage wild horse populations under an agreement incorporated into land use plans or continuous litigation spurred by wild horse advocates. Instead, the DEIS identifies RSGA as the but for cause of the conflict, and therefore, the reason (e.g. "need") for the current RMP amendment. This historical narrative is simply not true.</p> <p>The need to amend the RMP is not because RSGA revoked its consent to have wild horses on its private lands. The need to amend the RMP arose because for more than 41 years BLM has proven itself incapable of managing wild horses according to the historic agreement between RSGA and International Society for the Protection of Mustangs and Burros ("ISPMB") and Wild Horses Yes ("WHY"). On January 3, 1979, RSGA, ISPMB WHY agreed that there would be 1,500 wild horses within the entire Rock Springs District, "provided the [BLM] can reduce herd numbers as outlined and at a time when this reduction is achieved." See Attach. 1, WHY Letter to BLM; Attach 2, ISPMB Letter to BLM; Attach. 3, RSGA Letter to BLM. RSGA agreed "to allow 300 wild horses on checkerboard lands North of I-80 between the Green River and the East boundry [sic] of the R.S. district." Similar language was used with respect to 200 wild horses South of I-80. Id. RSGA agreed to tolerate 500 on the</p>	

Comment #	Comment Text	BLM Response
	<p>Checkerboard and the parties agreed there would be no more than 1,000 wild horses on the public land (often called "solid blocks") to the north and south of the Checkerboard subject to the proviso that "the BLM has proven that they are capable of managing the wild horses with respect to numbers of horses to be allowed in the Rock Spring District." Thus, RSGA fully agreed to "tolerate" horses on its private lands and only because BLM consistently and repeatedly proved that it was not capable of managing wild horse populations did RSGA "revoke" its consent in 2010.</p> <p>Importantly, the numbers agreed to by RSGA, WHY and ISPMB were not just privately agreed-to numbers independent of BLM's management duties. In fact, the numbers agreed to by RSGA, WHY and ISPMB were the sole basis for the Appropriate Management Levels ("AML") adopted by the Wyoming federal court through a series of judgments in 1981 and 1982 after BLM failed to manage wild horses to the numbers agreed to in the 1979 agreement. The AMLs and HMAs were later incorporated into the 1997 Green River RMP.</p> <p>Within six months of the 1979 agreement, BLM shut down the wild horse gather program citing lack of funding. Attach. 4, 1979 Shut Down Letter. In the Rock Springs District, 1 wild horse numbers had tripled to 6,000 between 1972 and 1979. With BLM's failure to manage horses, RSGA and the Mountain States Legal Foundation filed suit to compel the removal of wild horses from the Checkerboard. Attach. 5, MSLF Complaint. On March 13, 1981, Judge Kerr ruled as follows:</p> <p>. . . the wild horse population has dramatically increased and the excess demand on grazing lands has created severe problems for ranchers in the Rock Springs area and for the ecological balance of the range.</p> <p>After passage of the Act, the first [BLM] inventory revealed 2,364 wild horses in the Rock Springs area in February, 1972, with 1,116 of these horses located on the lands of the [RSGA]. As of March, 1979, 6,129 wild horses were in the Rock Springs District, with 3,413 of these on the lands of [RSGA].</p> <p>The BLM has not removed a significant number of horses from the area from January 1, 1972</p>	

Comment #	Comment Text	BLM Response
	<p>through September 1, 1976. . . .</p> <p>FURTHER ORDERED that the [BLM] shall within one year from the date of this Order remove all wild horses from the Checkerboard grazing lands in the Rock Springs District except that number which the [RSGA] voluntarily agrees to leave in said area; it is FURTHER ORDERED that the [BLM] shall within two years of the date of this Order remove all excess horses from within the Rock Springs District; it is</p> <p>FURTHER ORDERED that excess as defined in this Order and the Act means that the wild horse population exceeds the number deemed appropriate by a final environmental impact statement. In absence of such a statement excess means that the number of horses exceeds the number present in the same area at the time the Act was passed. . . .</p> <p>Attach. 6, Judge Kerr 1981 Order (emphasis added). The 1981 Order did not distinguish between private and public lands on the Checkerboard. Id. The parties stipulated to an amendment in 1982 following completion of the environmental statements referenced in the 1981 Order. Id. at 235-237. The 1982 amendment replaced the definition of excess with the following:</p> <p>. . . that the [BLM] has determined that the [AML] for the horse herds on the Salt Wells/Pilot Butte checkerboard lands is that level agreed to by the landowners in that area. All horses on the checkerboard above such levels are 'excess' within the meaning of 16 U.S.C. 1332(f) (1976 and Supp. III).</p> <p>Attach. 7, 1982 Amended Order (emphasis added).</p> <p>The BLM prepared the Big Sandy Grazing and Pilot Butte-Salt Wells Environmental Statement in 1981 to address the environmental effects of livestock grazing, and designated the Divide Basin and Salt Wells HMAs, as well as the respective AMLs. The 1982 Order adopted the HMAs and AMLs established by the Big Sandy Grazing and Pilot Butte-Salt Wells ES - the same numbers found in the RSGA and the wild horse group agreement. Attach. 8, Big Sandy ES; Attach. 9, Pilot Butte Final ES. Both the 1981 and 1982 Orders were premised on the legal right of RSGA to consent to tolerate horses on the Checkerboard. See Animal Prot. Inst. of Am., 118</p>	

Comment #	Comment Text	BLM Response
	<p>IBLA 63, 69 (Feb. 22, 1991) ("The BLM decision to gather wild horses from the White Mountain, Great Divide Basin, and Salt Wells Creek [HMAs] . . . is designed to implement the United States District Court's March 13, 1981 'Order Granting Partial Summary Judgement' and February 19, 1982 'Order Amending Judgment Nunc Pro Tunc' in Mountain States Legal Foundation v. Watt, C79-275k (D. Wyo.)."). The AML for the Salt Wells Checkerboard was 500, the Big Sandy Solid Block was 600, and Pinedale was 75. See Attach. 10, BLM Letter to RSGA. The total number of wild horses in the Rock Springs District was 1,525. Id.</p> <p>The 1997 Green River RMP respected the Court orders and did not alter either the HMA boundaries or the AMLs. See Green River RMP at 23. The Rawlins RMP adopted in 2008 also did not alter either the Adobe Town HMA boundary or numbers and recognized the significance of RSGA's consent and the 2003 Consent Decree with the State of Wyoming. 2008 Rawlins RMP at 2-51. The Wyoming BLM continued to not gather wild horses to maintain AML. Thus, and this is the single most important takeaway from RSGA's comment, RSGA revoked its consent to any horses on its private lands because BLM for 40 years has demonstrated that it was not capable of managing wild horses on the Checkerboard. The purpose and need of the planning amendment is not solely driven by RSGA's revocation of its consent to any horses on the private lands; it is due to the documented failure of BLM to show that it was capable of administering the wild horse program and RSGA's statutory rights to require removal under the Wild Horse and Burro Act. 16 U.S.C. §1334. RSGA willingly tolerated horses on its private lands for 31 years. RSGA was unwilling to continue to tolerate BLM's failure to respect and manage wild horses according to AMLs established between RSGA and wild horse groups and the only solution was to revoke its consent.</p> <p>The DEIS also incorrectly portrays RSGA's efforts to control the number of wild horses as purely a private land issue. See e.g. DEIS at 10 ("In 2010 the RSGA revoked consent to allow wild horses to utilize private land within the checkerboard. Management of a wild horse herd in the</p>	

Comment #	Comment Text	BLM Response
	<p>checkerboard portion of the planning area has become more challenging due to the private land conflict."). As RSGA has documented on many occasions, RSGA was formed to conserve high desert rangeland resources on both private and public sections of the Checkerboard. The incorporation of RSGA in 1908 which preceded the Taylor Grazing Act led directly to the reduction of sheep from 800,000 to 310,000 by 1919. The RSGA plan of allowing only winter grazing provides for dormant season grazing that has much less impact on rangeland resources. Former District Manager Neil Morck testified to the good condition of the rangelands, noting the extent of great sagebrush and understory which was the product of RSGA management. Attach. 11, Oral History Transcript, BLM Wild Horse Program in SW Wyoming, by Mike Brown, Interview with Neil Morck, Nov. 24, 1995 at 10-11 ('this range really prospered under the management of Rock Springs Grazing Association'). RSGA's rangeland program benefits both private and public sections and the DEIS incorrectly characterizes RSGA's interest and efforts as antagonistic to the interests of public land management when the private sections and public sections must be managed in concert together. Am. Wild Horse Preservation Campaign v. Jewell, 847 F.3 at 1180 citing Mtn. States Legal Fndn. v. Hodel, 799 F.2d, 1423, 1424 (10th Cir. 1986).</p> <p>This grossly inaccurate history of wild horses on the Checkerboard is a serious and disingenuous failure of the DEIS. It is not until Appendix A that BLM states "[t]he existing AML for the Adobe Town, Great Divide Basin, Salt Wells Creek and White Mountain HMAs was established through agreement with wild horse advocacy groups and the Rock Springs Grazing Association (RSGA). The AML under this alternative reflected the permissive use of private land." DEIS App. A at 2. The DEIS mischaracterizes the historic events to cast RSGA as the villain on the Checkerboard that further perpetuates the false narrative that BLM is working "on behalf" of RSGA and that RSGA is attempting to gain control of public lands. https://www.keepwywyld.com/our-mission. Nothing is further from the truth. Unless BLM revises the DEIS it will be set aside</p>	

Comment #	Comment Text	BLM Response
	<p>for failure to conform to the 2013 Consent Decree and the wild horse management handbook governing the setting of AMLs and designation of HMAs.</p>	
<p>199</p>	<p>The Coalition is disappointed to see that BLM has cast the Rock Springs Grazing Association ("RSGA") as the arch enemy to wild horses on the Checkerboard. RSGA, however, is the landowner on the Checkerboard with statutory rights under Section 4 of the Wild Free-Roaming Horses and Burros Act (WHA), 16 U.S.C. § 1334. RSGA's history on the Checkerboard plainly refutes the false narrative that BLM has put forth in the DEIS and the BLM should significantly amend the discussion to reflect the fact that BM's inability to manage wild horses under the WHA and the 2013 Consent Decree generated the need to revise the plan - not RSGA's statutory right under federal law to request the removal of horses from its private land.[...]</p> <p>ES-1-5 The Coalition is struck by the blatant attempt by</p>	<p>Section 1.1 has been updated to more clearly explain the background for the need to amend this plan.</p>

Comment #	Comment Text	BLM Response
	<p>BLM to blame the Rock Springs Grazing Association ("RSGA") for the current state of affairs on the Checkerboard.</p>	
<p>200</p>	<p>It is unfortunate that RSGA's withdrawal of consent to allow wild horses on privately-owned portions of the "checkerboard" terrain has put the BLM in a more challenging position. As the EIS notes, historically the RSGA had given consent to the BLM for wild horses to utilize its parcels within the checkerboard. But pursuing aggressive removals within the checkerboard in response to RSGA's actions is not a viable solution as a federal court has made clear. In 2016, the Tenth Circuit Court of Appeals ruled that the BLM's 2014 roundup of wild horses in the checkerboard region was illegal, finding that the agency violated both the Wild Free-Roaming Horses and Burros Act (WFRHBA), 16 U.S.C. §§ 1331-1340, and the Federal Land Policy and Management Act, 43 U.S.C. §§ 1701-1787. <i>American Wild Horse Preservation Campaign v. Jewell</i>, 847 F.3d 1174, 1188 (10th Cir. 2016). The Court held that the BLM may only remove wild horses from public lands after it determines that overpopulations exist, and that action is necessary to remove excess animals to achieve appropriate management levels. <i>Id.</i> at 1187-1188. The BLM may not, in effect, treat public land as private land by conducting a "Section 4 gather on the public land sections of the Checkerboard" in order to "attempt[] to stop wild horses from straying from the public land sections of the Checkerboard to the private lands sections of the Checkerboard." <i>Id.</i> at 1189. Should the BLM pursue the aggressive actions outlined in</p>	<p>Section 1.1 has been updated to more clearly explain the background behind the need to amend this plan.</p> <p>Section 4 of the WFRHBA does not require this plan amendment. The amendment is needed as a result of BLM's obligations under both Section 3 and 4 of the WFRHBA (see Section 1.2 of the EIS), as well as RSGA's withdrawal of consent for wild horse use on their private land.</p> <p>To resolve the issues associated with managing wild horses on checkerboard land without the permissive use of private land, the BLM is considering alternatives, consistent with <i>American Wild Horse Preservation Campaign v Jewell</i>, 847 F.3d 1174, 1189 n.8 (10th Cir. 2016), that include managing for zero wild horses within the checkerboard portions of the HMAs within the planning area by reducing the size of HMAs and converting checkerboard portions to HAs (see Section 1.1 of the EIS).</p>

Comment #	Comment Text	BLM Response
	<p>Alternative D of the draft RMP amendment and EIS - as further outlined and described in these comments (e.g., mass removals of wild horses, elimination of HMAs) - the agency may risk violating federal law.[...]</p> <p>While Section 4 of the WFRHBA grants a narrow and limited authority for the agency to remove wild horses at the request of private landowners, the scope of the preferred action far exceeds the law's purpose. The BLM's plan would set a dangerous precedent since the agency would be removing wild horses due to the mere assumption and expectation that these animals may stray onto parcels of private land at some point in the future. This novel interpretation presents a radical departure from how the BLM has managed wild horses in the past and offers a troubling - and flawed - interpretation of the WFRHBA.</p>	

Comment #	Comment Text	BLM Response
201	<p>Finally, BLM's proposed action also violates the Unlawful Inclosures Act, a law Congress passed in 1885 to prohibit exactly this kind of "fencing out" of public lands by private grazing interests. BLM should not remove entire wild horse herds from public land, in violation of federal law, to appease a private ranching organization.[...]</p> <p>The removal of wild horses from the Wyoming Checkerboard to benefit private grazing interests violates the Unlawful Inclosures Act.</p> <p>As is clear from the 100-year history of forage allocation in the Wyoming Checkerboard, the agency has managed the wild horse herds on the Wyoming Checkerboard to benefit private grazing interests at the expense, both literally and figuratively, of both wild horses and American taxpayers.</p> <p>In 1979, BLM allowed RSGA, a private ranching organization, to determine the number of wild horses RSGA would "tolerate" on over two million acres of forage on the Wyoming Checkerboard. The Unlawful Inclosures Act (UIA), passed by Congress in 1885 specifically to deal with conflicts over forage resources in Checkerboard lands in the arid West, makes it unlawful for private landowners to enclose public lands for the benefit of private grazing interests.</p> <p>Specifically, UIA Section 1 states:</p> <p>"That all inclosures of any public lands . . . constructed by any person . . . to any of which land included within the inclosure the person . . . had no claim or color of title made or acquired in good faith . . . are declared to be unlawful." 23 Stat. 321, 43 U.S.C. 1061."</p> <p>Section 3 further provides:</p> <p>"No person, by force, threats, intimidation, or by any fencing or inclosing, or any other unlawful means, shall prevent or obstruct, or shall combine and confederate with others to prevent or obstruct, any person from peaceably entering upon or establishing a settlement or residence on any tract of public land subject to settlement</p>	<p>No fences are proposed as part of any of the alternatives analyzed; moreover, some of the issues attendant to fences on public lands are discussed in the rationale for the Proposed RMP Amendment in section 2.3. See Chapter 1 for more information on the background for this plan amendment.</p>

Comment #	Comment Text	BLM Response
	<p>or entry under the public land laws of the United States, or shall prevent or obstruct free passage or transit over or through the public lands: Provided, This section shall not be held to affect the right or title of persons, who have gone upon, improved, or occupied said lands under the land laws of the United States, claiming title thereto, in good faith."</p> <p>Congress passed the UIA specifically to prevent the unlawful enclosure of public lands, and the Tenth Circuit has expressly recognized that the prohibition against unlawful enclosures applies not just to people, but to wild animals. In 1988, well before the 2013 Consent Decree was signed, the Tenth Circuit held that the UIA prohibits enclosures that limit access of wild animals, including antelope, to BLM lands, stating that "the UIA prohibition against enclosing public lands was not limited to people . . . that clause does not contain the word 'person' and neither does the Court believe that 'person' from the preceding clause should be read into it...According to the statute, "all enclosures of public lands . . . are . . . declared to be unlawful."</p> <p>The language of the 2013 Consent Decree demonstrates that, despite the agency's obligations under the Unlawful Inclosures of Public Lands Act, BLM relinquished the public's right to the use of over a million acres of public lands. For example, while the Consent Decree notes that RSGA holds only "a grazing permit from the BLM for the alternating sections of the public lands within the Wyoming Checkerboard," the Consent Decree also states:</p> <p>"RSGA reached an agreement with wild horse advocacy groups to tolerate 500 wild horses on the Checkerboard in January 1979, once 'BLM has proven that they are capable of managing the wild horses with respect to numbers of horses to be allowed in the Rock Springs District.' (Emphasis added.)"</p> <p>The 2013 Consent Decree specified that private ranching organization RSGA "recognized" that BLM is "required to comply with other federal law in conjunction with undertaking the</p>	

Comment #	Comment Text	BLM Response
	<p>required actions herein." In fact, the Consent Decree actually states that "fencing the private lands may violate the Unlawful Inclosures Act," but the proposed amendments created a "virtual fence" around two million acres of grazing land to serve interest of ranchers at the expense of wild horses and the public at large. And BLM notes that the U.S. District Court for the District of Wyoming, in approving the 2013 Consent Decree, stated that the agreement is a "fair, reasonable, equitable, and adequate settlement of RSGA's claims against the BLM" which does not "on its face violate the law or public policy." However, eliminated wild horses on public land to serve the interest of RSGA would violate the law.</p> <p>Before taking any action to remove the last remaining wild horses on the Wyoming Checkerboard, BLM must address a critical issue central to its obligation to manage wild horses on behalf of the American people: removing all wild horses from a public lands based purely on the needs of a private grazing organization that incorporated for the purpose of controlling two million acres, well over half of which are owned by the Federal government, constitutes the very type of "enclosure" of Federal public lands made unlawful under the UIA.</p>	
202	<p>These failures compound the obvious shortcoming of the DEIS in failing to consider a single Alternative that embodies the 2013 Consent Decree approved by the District Court of Wyoming in <i>Rock Springs Grazing Assn. v. Salazar</i>, 935 F. Supp. 2d 1179 (D. Wyo. 2013). The 2013 Consent Decree has received wide support from various agencies and organizations, including Wyoming Game and Fish Department, Wyoming State Grazing Board, Wyoming Stock Growers Association and others. Yet, the RSFO has taken it upon itself to dismember the 2013 Consent Decree such that the comprehensive solution devised by the parties to that Decree is frustrated. Since BLM was a party to this agreement, which was approved by the Department of Justice and the Department of the Interior, the Coalition questions the authority of a Field Office to dismantle the agreement itself.</p>	<p>Section 1.1 of the EIS discusses how the 2013 Consent Decree is addressed in this amendment. In Chapter 2 of the EIS, each alternative that analyzes a component of the Consent Decree explains how that alternative meets the requirements of the Consent Decree.</p> <p>See response to comment 193.</p>

Comment #	Comment Text	BLM Response
203	<p>None of the four BLM Alternatives in the Draft RMP Amendment and EIS are acceptable, and particularly Alternative D. The management of all HMAs containing checkerboard land for 0 (zero) wild horses is totally unacceptable to the American Public. Only 1% of Adobe Town, 25% of the Great Divide Basin, 38% of Salt Wells Creek and 42% of White Mountain are private land. Of that private land, 690,000 surface acres within Sweetwater County (Rock Springs Field Office) and 110,000 surface acres within Carbon County (Rawlins Field Office) are owned, not by RSGA, but by Occidental Petroleum, who has not (to my knowledge) requested that BLM remove wild horses from their land.[...]</p> <p>I am requesting to please be provided with, either by mail or email, a map showing exactly which checkerboard lands within Herd Areas or Herd Management Areas are owned by Occidental Petroleum. This will provide me with a much better picture of just which sections we are looking at. Thank you.[...]</p> <p>The State of Wyoming is considering the purchase of roughly 1 million acres of land, and 4 million acres in mineral rights, along the Union Pacific Railroad corridor (near Interstate 80). The property is currently owned by Occidental Petroleum Corporation. This tract of land is commonly referred to as the Union Pacific checkerboard. It is interspersed with lands managed by the Bureau of Land Management (BLM). The State sees it as a rare opportunity to acquire minerals, recreation, and other types of assets in Wyoming. As it appears that the State may not be purchasing this land, which is primarily in Sweetwater County (690,000 surface acres) and also 110,000 acres in Carbon County. If the State does not purchase the acres within Herd Management Areas, I would propose that their purchase be explored either by the Public, or by non-profit entities and dedicated to the wild horses and other wildlife for viewing and enjoyment by the general public.</p>	<p>Section 1.1 has been updated to more clearly explain the background for this plan amendment. A potential land sale by Occidental is too speculative to be considered a reasonably foreseeable future action. Additionally, a change in ownership of this private land would not change the purpose and need, or the analysis contained in this EIS.</p> <p>NEPA is a procedural safeguard meant to ensure that federal agencies weight the environmental consequences of a proposed action. NEPA does not mandate any particular outcome.</p>
204	<p>Unless the RSGA has purchased this land in total, and has full ownership of said lands, and they are not public lands then they can fence the horses out</p>	<p>Maintaining only the public land portions of these HMAs within the Checkerboard area was considered but eliminated for detailed analysis (see Section 2.4).</p>

Comment #	Comment Text	BLM Response
205	<p>The EIS failed to discuss and delineate exactly what the "private land conflicts" (EIS at 10) are. Given that eliminating these supposed "private land conflicts" is the foundation on which the EIS rests, the failure to provide any information as to the nature, extent and time frames of these "conflicts" disallows any ability of the public and the decision-maker to examine the alternatives in light of these "conflicts" to see if the range of alternatives are reasonable or not.</p>	<p>Information on the private land conflicts is discussed in the Introduction to the EIS (see Section 1.1).</p>
206	<p>Section 4 of the WFRHBA provides a process to address situations where wild horses roam onto private lands. The EA fails to provide any information, whatsoever, regarding the application of Section 4 to lands owned by the RSGA.</p> <p>If wild free-roaming horses or burros stray from public lands onto privately owned land, the owners of such land may inform the nearest Federal marshal or agent of the Secretary, who shall arrange to have the animals removed. WFRHBA 1334</p> <p>No information has been provided as to where and when such straying onto private lands has been reported to the BLM or a federal marshal. Of note here is that these complaints are only allowed from the "owners of such lands". The law does not allow lessees to request removal. So any "conflicts" on Occidental private checkerboard which cover around 2/3's of the checkerboard cannot form the basis of this RMP amendment, unless they have been made by Occidental Petroleum themselves.[...]</p> <p>43 CFR 4720.2-1 Removal of strayed animals from private lands.</p> <p>Upon written request from the private landowner to any representative of the Bureau of Land Management, the authorized officer shall remove stray wild horses and burros from private lands as soon as practicable. The private landowner may also submit the written request to a Federal marshal, who shall notify the authorized officer. The request shall indicate the numbers of wild horses or burros, the date(s) the animals were on the land, legal description of the private land, and any special conditions</p>	<p>Information on the private land conflicts is discussed in the Introduction to the EIS (see Section 1.1).</p> <p>This planning action does not implement Section 4 of the WFRHBA, but the purpose and need for the action is based, in part, on BLM's responsibilities under Section 4 of the Act.</p>

Comment #	Comment Text	BLM Response
	<p>that should be considered in the gathering plan. (emphasis added)</p> <p>Without providing what sections of private, wild horse numbers, who the owner is, who the complainant was and when the complaint was filed there is no legal basis to the likely manufactured "conflicts" that are the very heart of the purported need for this process. In other words, this entire multi-decade effort by the RSGA and the BLM to eliminate wild horse from the public lands is substantially based on fiction.</p>	
207	<p>I highly recommend that BLM recognize all prevailing "Fence Out Laws," including both state & local. These would obligate RSGA ranchers to fence wild horses off their private Checkerboard lands. This would counter their arrogant, unfair & unreasonable demand that they be totally removed from these.</p>	<p>This recommendation would not meet the purpose and need of the proposed action. State "fence out laws" do not override BLM's obligations under Section 4 of the WFRHBA.</p>
208	<p>The BLM cannot use a settlement agreement with the Rock Springs Grazing Association (RSGA) as an excuse to eradicate wild horses from this area. The settlement requires only that BLM analyze the impacts of such action; it does not require implementation of this destructive plan. Further, the RSGA does not even own the majority of checkerboard land and should not be allowed to dictate the management of public lands in this area, including whether or not wild horses are allowed to live in this critical habitat area. If RSGA don't want horses on the land they</p>	<p>The EIS analyzes various aspects of the Consent Decree. Alternative A represents a No Action alternative that would not implement any aspect of the Consent Decree. The Consent Decree informed the development of the alternatives, but is not part of the rationale for the Proposed RMP Amendment. Requiring a private landowner to fence private land would not meet the purpose and need of the proposed action.</p>

Comment #	Comment Text	BLM Response
	control they should follow Wyoming livestock laws and fence out.	
209	<p>Wyoming is a fence-out state (Wyoming Statute Title 11, Chapter 28). It is the property owner's responsibility to fence-out livestock and other animals from entering their private property. Wild horses not should be penalized or removed because private-property owners refuse to fence their land</p>	<p>This recommendation would not meet the purpose and need of the proposed action. State "fence out laws" do not override BLM's obligations under Section 4 of the WFRHBA.</p>
210	<p>BLM failed to consider the positive impact of wild horses.</p> <p>BLM's NEPA documents indicate that wild horses have an exclusively negative impact on the health of the range. However, literature from wildlife ecologists suggests the opposite may be true. A healthy, free-roaming wild horse population serves to fertilize soils, suppress catastrophic wildfires, and contribute to overall ecological stability.²¹ Therefore, BLM's analysis must include a discussion regarding the positive impacts of wild horses.</p> <p>When given sufficient habitat to roam, there are many ways that wild horses actually support ecosystems on public land.²² Wild horses help spread plant seeds over large areas where they roam. They do not decompose the vegetation they ingest as thoroughly as ruminant grazers, such as cattle or sheep, which allows the seeds of many plant species to pass through their digestive tract intact into the soil that the wild horses fertilize by their droppings.²³ Additionally, other animals depend on horses to make certain resources, such as water, available. For example, in the winter horses are able to break through the ice to expose water to a variety of species.²⁴ Wild horses also reduce dry, parched and flammable vegetation, and thus can prevent catastrophic wildfires that are on the increase. Further, their ability to build more moisture-retaining soils makes them very</p>	<p>Language has been added to Section 4.2.2 and 4.2.4 of the EIS to discuss some of the potential positive impacts to these resources from wild horses.</p>

Comment #	Comment Text	BLM Response
	<p>important in this respect, since soil moisture dampens out incipient fires and also makes the air coating the earth more moist.²⁵ Wild horses and burros are well adapted to their habitats and fill a significant niche within the North American ecosystem.</p> <p>BLM must consider and disclose the beneficial ecological role of wild horses and provide a comprehensive analysis of the ecological impacts of eliminating wild horses from over two million acres of land before undertaking any action to remove these horses. In addition, BLM must provide a comprehensive analysis of the environmental impacts of grazing by cows and sheep. Without that comprehensive comparative analysis of the impacts of wild horses versus the impacts of grazing by cows and sheep, BLM will not have provided critical information necessary to make an informed decision about the impacts of removing wild horses from the Wyoming Checkerboard.</p>	

Comment #	Comment Text	BLM Response
211	<p>Priority Habitat Management Areas (PHMAs) for greater sage grouse occur within all HMAs in the project area, and in addition state-designated Core Areas not currently classified as PHMA occur in the Adobe Town and Salt Wells HMAs. There is currently a habitat objective to maintain at least 7 inches of grass height within PHMAs under the Wyoming Approved Resource Management Plan Amendment (ARMPA) of 2015. BLM has failed to take a hard look on an allotment-by-allotment basis to determine which grazing allotments are meeting this objective and which are not. Importantly, livestock grazing has a cumulative effect with wild horse grazing, and therefore impacts to grass height in sensitive seasonal habitats must be assessed in detail. For allotments not meeting this objective, livestock numbers will likely need to be reduced to achieve this objective as part of this project decision. While BLM notes that certain allotments are currently not meeting Rangeland Health Standard 2, specifically Rock Springs Standard 2, Bush Rim, Mellor Mountain, Salt Wells, Vermillion Creek, and Lombard. Wild Horses are a "potential causal factor" for failure to meet this standard on Rock Springs, Vermillion Creek, but not Bush Rim, Mellor Mountain, Salt Wells, or Lombard. See Appendix A, Tier 2 Analyses. But while "sage-grouse" is mentioned 18 times in the DEIS, at no point does BLM attempt to assess to what extent and for what areas the current grazing allotments within these HMAs are meeting the 7" grass height objective as a matter of baseline information, and to what degree the combined wild horse, livestock, and other herbivory would comply with this objective under each alternative. Indeed, it may be necessary to adjust livestock AUMs downward to comply with this objective. Yet BLM considers no such alternative in this DEIS.</p>	<p>Language was added to Section 4.2.6 of the EIS to incorporate by reference the information discussed in the 2015 Sage-grouse RMP amendment EIS.</p> <p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
212	<p>I'm writing this letter in reference to the 2020 RMP/EIS (Resource Management Plan/Environmental Impact Study) proposal. Since moving to Sweetwater County in 1989, I've observed, photographed and researched history of the wild horse herds in the four HMA's which are included in this proposal, and I'm concerned of the impact of the possible removal of all horses in the four HMA's (Salt Wells, Adobe Town, Divide Basin and White Mountain). First and foremost, I can not find any recent surveys or studies regarding range health from the impact of wild horses, except for wild horse counts in 2019 and projected counts for 2020. I agree the counts are above Appropriate Management Levels (AML) and need to be managed to AML, just as ranchers are required to follow livestock limits with BLM grazing permits. A healthy range is not possible if more animals are added to it every year, and I agree the horse herds are over AML, and need to be managed, NOT zeroed out.</p>	<p>See Section 1.2 for the purpose and need for the proposed action. Rationale for the Proposed RMP Amendment is discussed in Section 2.3 of the EIS. Detailed information on wild horse populations within these HMAs is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>
213	<p>Considering the economic impact of removing wild horses from Pilot Butte Wild Horse Scenic Loop in Alternative D: We are concerned about the plan in Alternative D to remove wild horses from this scenic loop viewing area, and believe that the loss of revenue coming from this area should be researched and included in the EIS. Creating a new scenic loop on the land where horses will be moved to under this alternative, to still have an official viewing area for wild horses, would allow revenue to continue flowing in from recreation.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.</p>

Comment #	Comment Text	BLM Response
214	<p>The BLM failed to make the legally required examination of the cumulative impacts of wild horse removal on public recreation. In addition, the BLM's limited analysis of direct impacts of wild horse removal, and elimination of wild horse viewing opportunities, is itself flawed. BLM states,</p> <p>Other dispersed recreational opportunities such as hunting, wildlife viewing and camping can be negatively impacted by the presence of wild horses.</p> <p>Therefore, any alternative that removes wild horses from some of these areas would likely improve conditions for other recreational opportunities.</p> <p>DEIS at 90. Yet the agency provides no supporting analysis or information to back up the claim that wild horses have a negative impact on other types of recreation (this is a hard look problem). The area occupied by wild horses under this Plan Amendment provides some of the highest-quality elk hunting areas in the state, and some of the most sought-after elk tags. Dispersed camping, hiking, exploring, rockhounding are all popular in the Plan Amendment area, and yet BLM makes no credible claim that any of these activities is negatively affected by wild horses. The Red Desert is known as a prime wildlife viewing and photography hotspot, in the presence of wild horses; most places in Wyoming, though lacking wild horses, are not known as wildlife viewing hotspots. Thus, BLM's unsupported claim that wild horses negatively impact non-wild-horse viewing recreation opportunities (see, e.g., DEIS at 89) are unsubstantiated and therefore lack merit.</p>	<p>Cumulative impacts associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS. Language has been added to Section 4.2.11 to better explain how recreational experiences could be impacted by the alternatives.</p>

Comment #	Comment Text	BLM Response
215	<p>The BLM also failed to examine the cumulative effect on recreation of livestock grazing authorizations and forage allocations, which are intertwined with wild horse decisions as noted in these comments and the DEIS itself. Cattle and domestic sheep negatively impact the recreation experience of the vast majority of recreational visitors to the Rock Springs Field Office, because: (1) Domestic livestock compete with native species for forage, diminishing populations of native wildlife valued by the recreating public for viewing and pursued as hunted species; (2) domestic livestock concentrate at water sources that otherwise would be prime recreation sites, trampling and denuding vegetation, fouling water, and dotting the landscape with foul-smelling and unsanitary manure; (3) one of the greatest recreational values of public lands in the RSFO is its wild and natural appearance, and encountering cattle and domestic sheep, rather than the wild bison native to these lands, dispels the wild and natural setting and experience of recreationists; (4) history buffs enjoying historic sites like the Point of Rocks - South Pass Stage Road, South Pass Historic Landscape, or Overland Trail find cattle and domestic sheep a detriment to the historic setting, because these species were not present when these historic features were in use and therefore are historically incongruous (wild horses, on the other hand, were already present in this area prior to the arrival of the first EuroAmerican explorers); and (5) heavy grazing from domestic livestock can suppress flowering plants valued by botany enthusiasts. To the extent that wild horse removals may result in increases in domestic cattle and sheep (as discussed elsewhere in these comments), recreationists face a double-whammy of impacts to their recreational experience as a result of wild horse removal, but since forage allocations for cattle and sheep - and their impacts to lands and recreation - are discussed in a different NEPA document, the cumulative effects of these decisions are nowhere presented.</p>	<p>Language was added to Section 4.2.11 of the EIS to describe the potential cumulative impacts of the alternatives, together with livestock grazing, on recreational experiences.</p>
216	<p>How much economic benefit to local economies comes from wild horse tourism and to what extent will this reduction in wild horse population (alternative D) negatively impact local businesses? We express concern for the</p>	<p>Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.</p>

Comment #	Comment Text	BLM Response
	local economy but believe the ecological benefits of removing wild horses outweighs the potential impact to the local economy.	
217	<p>Timing of Horse Gathers</p> <p>The Department requests that wild horse gathers are scheduled so they do not occur during opening weekends of hunting seasons to avoid disrupting hunters. However, if this is the only time period gathers can occur, achieving lower horse numbers would be our priority. We recommend coordinating with Department personnel to reduce impacts to hunters.</p>	Specific timing of gathers is an implementation level decision and is beyond the scope of this EIS.
218	<p>The White Mountain HMA encompassed the BLM's Wild Horse Scenic Loop, an improved gravel road that is promoted as an area for wild horse viewing. BLM describes this Scenic Loop only briefly and in passing. DEIS at 43, 54. Impacts of removing wild horses from the Wild Horse Scenic Loop are similarly mentioned in passing (DEIS at 90), but this is limited to noting that wild horse viewing opportunities would be eliminated here. This restatement of the basic facts does nothing to analyze the magnitude of the environmental consequences, including (but not limited to) loss of Recreation Visitor-Days to the public, reduction of tourism-related economic benefits for local communities, and reduction of quality of life for local residents interested in viewing wild horses.</p> <p>The Great Divide, Salt Wells, and Adobe Town HMAs involve lands that are part of a proposed Red Desert National Conservation Area. BLM's impact analysis should include impacts to public enjoyment of this area, particularly because wild horse viewing is an activity undertaken by many recreational visitors. In fact, BLM's impacts analysis should have estimated the proportion of recreational visitors who enjoy wild horse viewing as part of their recreational experience in the Red Desert, but the agency neglected to perform such an analysis, which is a necessary prerequisite to analyzing the impacts of wild horse removals to the recreational visitor experience. In addition, the Adobe Town citizens' proposed wilderness is officially designated as Very Rare or Uncommon under state law. The DEIS did not analyze the impacts</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to recreational opportunities are discussed in Section 4.2.11 of the EIS.</p>

Comment #	Comment Text	BLM Response
	<p>of wild horse removal to public recreation in these areas of elevated public recreational interest, and indeed, the DEIS makes no mention of them.</p>	

Comment #	Comment Text	BLM Response
219	<p>Sweetwater County, Wyoming is home to the Pilot Butte Wild Horse Scenic Loop which tourwyoming.com notes, "offers the best chance to see the wild horses." The county relies on wild horses in this area for ecotourism; made evident by the fact that the home page predominantly features wild horses and that the county has created information specifically to promote the self-guided tour of this 24-mile Loop.⁴ The Loop is the easiest area for the public to view wild horses in southwest Wyoming because part of the road is paved, it is well marked, there are interpretive signs, and visitors can observe horses in the southern area of the White Mountain HMA, which is closest to Route 80. Visitors to the Loop are only 14 miles outside town, with good cell service, so if they were to get into trouble it is easy to call for help. Every time Carol Walker , a wild horse photographer who frequently photographs the horses in this region, visits the loop she has seen other people, tourists and locals driving around and watching and/or photographing the horses. Multiple travel national and international travel sites promote the Pilot Butte Wild Horse Viewing Loop as an excellent place to see wild horses.</p> <p>Currently, the proposed action would remove all wild horses from the Loop, even though it is clear that the Loop is an integral part of tourism in Wyoming and that the wild horses in the White Mountain HMA (in and around the Loop) are iconic and popular herds to the American public. The 1997 Green River RMP spent time analyzing the visual resource management of the public lands in the area. The BLM explicitly provided for 500 acres of public land as "wild horse viewing area," allocated with a half mile buffer. The RMP notes that wild horse herd viewing areas would be closed to long-term or permanent intrusions and surface disturbing activities that could interfere with opportunities to view horses. However, the current RMP Amendment spends no time analyzing the impacts that removing wild horses from the wild horse viewing loop would have on the visual resource management of the project area, or the public's ability to view horses in the wild as was clearly an intent of the original RMP.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.</p>

Comment #	Comment Text	BLM Response
	<p>As such, AWHC objects to the BLM' s plan to remove the majority of horses in this region and destroy the public's ability to observe the horses on public lands. Instead, the BLM should analyze reasonable alternatives to preserve wild horse habitat and ecotourism interests for the state. Such alternatives would replace the BLM's assertion that the public's ability to see wild horses is preserved under the proposed action by the ability for the public to visit BLM corrals and instead give adequate consideration to the preservation of important tourism and observation opportunities for the public to see wild horses free-roaming on public lands.[...]</p> <p>Finally, the BLM must analyze the impacts to the local tourism economy caused by the elimination of wild horses from accessible viewing areas, including the Pilot Butte Wild Horse Viewing Loop.</p>	
220	<p>Under the preferred Alternative D, we do not support the reduced opportunities to view wild horses. We request that the agencies allow a closer viewing point to larger population centers, specifically I-80; similar to the Pilot Butte Wild Horse Scenic Loop. As stated in the DEIS, "Opportunities for a new wild horse viewing area in the remaining HMA could be also considered", the city of Rock Springs is known for their wild horse viewing and is a part of Wyoming recreation.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Impacts to recreational opportunities, including opportunities to view wild horses, are discussed in Section 4.2.11 of the EIS.</p>

Comment #	Comment Text	BLM Response
221	<p>Under the proposed Alternative D, 75% of wild Horses will need to be removed. A popular area known as the Wild Horse Scenic Loop will no longer contain wild horses. This limits the public's availability of viewing wild horses to the planning area only. Wild horse-based tourism offers experiences to the general public that some deem exclusive (Notzke, 2016). Public knowledge and interaction with these wild herds is vital to the success of projects like these. This DEIS claims that this effect is an "unavoidable adverse impact." We believe that this issue should not be classified in this definition because the problem is not an issue "where there are no mitigation measures." We believe that there are measures to mitigate this issue. The BLM should propose an alternative such as signs which show the history and images of wild horses roaming the Wild Horse Scenic Loop.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Impacts to recreational opportunities, including opportunities to view wild horses, are discussed in Section 4.2.11 of the EIS.</p>
222	<p>In a particularly shocking move, the BLM intends to remove all horses from the Wild Horse Scenic Loop, a popular area for the public to view wild horses. The agency's proposed action would likely reduce tourism and interest; the EIS notes that visitors would have to drive further from larger population areas in order to view wild horses and that the increased travel time could deter visitors (pg. 90-91). The EIS cursorily acknowledges the negative ramifications, but fails to adequately consider the impacts of removing all wild horses from the viewing loop area. The BLM acknowledges that wild horses offer unique recreational and sightseeing experiences for visitors to these HMAs; however the EIS does not analyze how increasing livestock use could further reduce recreational and sightseeing opportunities (pg. 89).</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to recreational opportunities, including those associated with the Wild Horse Scenic Loop, are discussed in Section 4.2.11 of the EIS. None of the alternatives propose an increase in permitted livestock use in these areas.</p>

Comment #	Comment Text	BLM Response
223	<p>Considering the recreational value of wild horse viewings at Pilot Butte Wild Horse Scenic Loop: We believe that the full effects of having wild horses at this public horse viewing area should be considered from a recreation standpoint and researched fully. Visitors come to this scenic loop for the opportunity to see wild horses up close, photograph them, and simply enjoy their presence. Taking away this scenic loop viewing area would result in a loss of enjoyment of wild horses.[...]</p> <p>Considering the recreational impact of removing wild horses from Pilot Butte Wild Horse Scenic Loop in Alternative D:</p> <p>We are concerned about the plan in Alternative D to remove wild horses from this scenic loop viewing area. We believe that the loss of recreation opportunities due to this alternative could be detrimental to the local community, and this effect should be fully researched and addressed in the EIS. We suggest potentially creating a new scenic loop to have an official viewing area for the horses so that this recreational opportunity is not lost.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to recreational opportunities, including those associated with the Wild Horse Scenic Loop, are discussed in Section 4.2.11 of the EIS.</p>
224	<p>Recreation</p> <p>The positive benefits to recreation as a result of wild horse removals appear to be understated throughout the document. For example, on page 90 paragraph 2, nearly the entire paragraph documents negative impacts to wild horse recreationalists, but only one sentence is dedicated to positive impacts of other users. We recommend more consideration is given to recreationists, such as hunters and wildlife enthusiasts, who are affected by wild horse impacts to wildlife populations as a result of current horse management in the planning area.</p>	<p>Potential impacts to recreational activities, both positive and negative, are discussed in Section 4.2.11 of the EIS.</p>

Comment #	Comment Text	BLM Response
225	<p>Delicate riparian areas are particularly susceptible to damage due to livestock overuse. While horses trail in and out to water, cattle are more sedentary creatures due to their ruminant digestive system. They congregate close to water, trample the ground, denude the soil and foul the water with their excrement.</p> <p>A scientific study titled "Factors Influencing Selection of Resting Sites by Cattle on Shortgrass Steppe" by R.L. Senft, L.R. Rittenhouse and R. G. Woodmansee which took place in northeastern Colorado, found that "A significant portion of daytime resting occurred near water (23%)...at all times of the year" and that the observed resting time near water was always higher than what the researchers expected. (Attachment 15) It is also important to note that the watering area was defined as "the area within a 100m radius of the water tank," supporting the assertion that cattle spend a significant amount of time lingering in very close proximity to water.</p> <p>Since these HMA rangelands must, by order of Congress, be managed primarily for the welfare of the wild horse herds, livestock damage in Riparian areas must be analyzed regularly and measures taken to restore these areas as soon as damage is noted. The following must be disclosed:</p> <ul style="list-style-type: none"> * Would any of the riparian areas in the 4 HMAs show a change in status or show significant degradation, if a rangeland health assessment had been done in the past decade? * How many (what percentage) of these areas show a downward trend now due to overuse by the primary user - privately owned livestock? * How many (what percentage) of streams/riparian areas are drying up altogether as a result of climate change trends? * Have riparian areas shown significant changes in patterns of use or degradation since permits were changed from sheep to cattle? * If so, what is the trend in these areas? * If cattle AUMs were switched to horse AUMs, would we expect to see a reduction in grazing pressure in riparian areas, since horses do not congregate as long near water? 	<p>Information regarding riparian areas is discussed in Section 3.4 of the EIS. Potential impacts to riparian habitat associated with these alternatives is discussed in Section 4.2.4 of the EIS. Additional information about existing range conditions is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p>

Comment #	Comment Text	BLM Response
	<p>* Where is the current (not decades old) monitoring data that supports the proposed alternatives in the EIS? This data must be produced.</p> <p>* Current monitoring data that implicates wild horses in rangeland and riparian area damage must be produced, if it exists.</p> <p>* Current monitoring data that analyzes the impact of the privately-owned livestock on rangeland and riparian areas must be produced.</p> <p>* Current data analyzing forage allocation (in its proportionate ratio of users) and the implications on rangeland health and riparian area degradation must be produced.</p>	

Comment #	Comment Text	BLM Response
226	<p>Delicate riparian areas are particularly susceptible to damage due to livestock overuse. While horses trail in and out to water, cattle are more sedentary creatures due to their ruminant digestive system. They congregate close to water, trample the ground, denude the soil and foul the water with their excrement.</p> <p>A scientific study titled "Factors Influencing Selection of Resting Sites by Cattle on Shortgrass Steppe" by R.L. Senft, L.R. Rittenhouse and R. G. Woodmansee which took place in northeastern Colorado, found that "A significant portion of daytime resting occurred near water (23%)...at all times of the year" and that the observed resting time near water was always higher than what the researchers expected. (Attachment 15) It is also important to note that the watering area was defined as "the area within a 100m radius of the water tank," supporting the assertion that cattle spend a significant amount of time lingering in very close proximity to water.</p> <p>Since these HMA rangelands must, by order of Congress, be managed primarily for the welfare of the wild horse herds, livestock damage in Riparian areas must be analyzed regularly and measures taken to restore these areas as soon as damage is noted. The following must be disclosed:</p> <ul style="list-style-type: none"> * Would any of the riparian areas in the 4 HMAs show a change in status or show significant degradation, if a rangeland health assessment had been done in the past decade? * How many (what percentage) of these areas show a downward trend now due to overuse by the primary user - privately owned livestock? * How many (what percentage) of streams/riparian areas are drying up altogether as a result of climate change trends? * Have riparian areas shown significant changes in patterns of use or degradation since permits were changed from sheep to cattle? * If so, what is the trend in these areas? * If cattle AUMs were switched to horse AUMs, would we expect to see a reduction in grazing pressure in riparian areas, since horses do not congregate as long near water? 	See response to comment #225.

Comment #	Comment Text	BLM Response
	<p>* Where is the current (not decades old) monitoring data that supports the proposed alternatives in the EIS? This data must be produced.</p> <p>* Current monitoring data that implicates wild horses in rangeland and riparian area damage must be produced, if it exists.</p> <p>* Current monitoring data that analyzes the impact of the privately-owned livestock on rangeland and riparian areas must be produced.</p> <p>* Current data analyzing forage allocation (in its proportionate ratio of users) and the implications on rangeland health and riparian area degradation must be produced.</p>	
227	<p>Many plant and wildlife communities are only found in riparian areas, these may be small but they serve as a biological oasis and represent a vegetation structure, soil, and hydrology very unique to this area.</p> <p>* Riparian areas occupy 61,089 acres within the planning area for the wild horses, how will this affect the ranching and cattle community?</p>	<p>Current riparian habitat within the planning area is described in Section 3.4 of the EIS. Potential impacts to riparian areas and livestock grazing management associated with the alternatives are discussed in Sections 4.2.4 and 4.2.10 of the EIS.</p>

Comment #	Comment Text	BLM Response
228	<p>P. 92-93 The DEIS has not corrected the analysis of the socioeconomic impacts of eliminating the White Mountain HMA on Sweetwater County, Green River, and Rock Springs. The DEIS does not even mention the loss of tourism from cancellation of the White Mountain HMA which is a local an economic driver. According to the Rock Springs and Green River Chamber of Commerce, each report that between the tourist season months of May 1st to October 1st each chamber responds to easily 200 inquiries a month regarding the Wild Horse Loop Tour. That translates into 10 inquires per day. The Chambers also indicated that that they receive inquiries from people planning their entire vacations around viewing wild horses.</p> <p>* Has the BLM contacted Sweetwater County for this information? * Has the BLM contacted the Town of Green River to discuss these impacts? * Has the BLM contacted the City of Rock Springs or the Chamber of Commerce to discuss these impacts?</p> <p>It appears the BLM has opted to assume that wild horses in the other HMAs will overshadow the loss of this HMA without any analysis as to the impact on these communities or visitors.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS. Local agencies participated as cooperating agencies in the planning process for this EIS.</p>
229	<p>Another cause of concern is, if our horse herds are reduced to zero wild horses, how will this impact our tourism revenue in Sweetwater County? Is there a plan on how the BLM or RSGA will make up for the lost revenue? The wild horses are a huge part of our tourism industry, and many local residents and out of state tourists go to White Mountain HMA to view the wild horses, where there are already signs and information areas in place, as well as the other HMA's. Some people own photography and tour businesses either as extra income or their primary source of income and they will be impacted greatly by the removal of the wild horse herds. Food, lodging and fuel industries will be impacted as well, along with sales tax money for Sweetwater County.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.</p>
230	<p>Page 38, Socioeconomics, Alternative A to D: Comment: WDA urges BLM consider the economic benefit the agency will receive by not</p>	<p>The costs associated with the overall management of the wild horse and burro program (including costs associated with</p>

Comment #	Comment Text	BLM Response
	conducting as many gathers following reductions and reproductive treatments.	gathers, holding, etc.) are beyond the scope of this EIS.
231	I am a concerned citizen that believes the removal of the wild horses will be a great loss of money to the surrounding towns and to the entire state of Wyoming. My husband and I have personally spent thousands of dollars visiting the state of Wyoming because of the horses. I know of many people who are planning to undertake the same trip just to see these animals in their natural environment, free of fencing. We are retiring in 8 weeks and plan to spend our future among as many HMAs as possible with Wyoming being a preferred area. I believe you should reconsider the plans to remove the horses. They draw more tourism than your other plans for the land. This will result in a loss of monies for the cities, counties, and overall state of Wyoming. The results will also cause a drastic change to these eco systems. I must believe that the BLM would choose to do the correct thing by protecting the horses and the lands they have been sworn to protect.	Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.
232	We think including whether the decrease in the wild horse population could cause a decrease in tourism would help support the alternative further. Another piece of information to include could be if the decrease in tourism will have a negative impact at all or would this further increase the positive impacts on the environment.	Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.
233	Wild horse ecotourism is a viable economic interest for many small towns and rural areas, and especially to the city of Rock Springs which created the Pilot Butte Wild Horse Scenic Loop to attract tourists to their area. This plan calls for the elimination of all wild horses in this area which will detrimentally affect those many businesses that rely on this tourist traffic.	Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway. Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.
234	- The EIS fails to adequately consider the economic harm that will be done to the community of Rock Springs if this plan is carried out. To have no wild horses on the "Wild Horse Scenic Loop" will be catastrophic to local businesses that depend on tourist revenue. These 4 HMAs are a source of income that can never be replaced. Wild horse lovers from all over the nation and world travel to this area to	Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway. Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.

Comment #	Comment Text	BLM Response
	view these magnificent, unique wild horses. Losing this opportunity is irreversible harm.	
235	<p>I live in Rawlins Wyoming, I have a business downtown, one popular sales item is photos of wild horses. I do wild horse tours in our desert, people from other states, England. They stay in motel in Rawlins, eat and purchase food and gas here.</p> <p>other business in town are asked by visitors where to go see wild horses.</p> <p>With the current roundups, it is very difficult to find horses.</p> <p>I will remind you that tourism #2 money maker in Wyoming.</p>	Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.
236	My family has a ranch by little mountain and I have lived with seeing the wild horse from childhood. This will be a mistake to take the wild horse off the land. In fact it will hurt the tourist industry since I have met several people that have traveled to RS jus to see the wild horses.	Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.
237	Furthermore, this will be an economic blow to Wyoming, as many people enjoy the wild horses and travel from all over the country to visit and photograph these wild herds.	Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.
238	How much economic benefit to local economies comes from wild horse tourism and to what extent will this reduction in wild horse population (alternative D) negatively impact local businesses? We express concern for the local economy but believe the ecological benefits of removing wild horses outweighs the potential impact to the local economy.	Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.

Comment #	Comment Text	BLM Response
239	<p>Impact on the American Taxpayer The impacts on American taxpayers, who will pay the price for the costly roundup and warehousing of wild horses in holding pens and subsidize commercial livestock grazing, have not been disclosed or analyzed.</p> <p>The proposal repeatedly claims that the “preferred alternative” will involve the reduction in horse numbers by 1,529. This cannot be accurate – the 2019 data estimates the number of horses in the four HMAs at around 3,257. Alternative D proposes a total of 430 – 655 horses should remain: a reduction of between 2,602 and 2,827, excluding the 2019 and now 2020 foals. Some estimates suggest the number removed would be in the order of 4,000, which would be added to the already 45,000+ in holding, with associated costs borne by taxpayers.</p>	<p>The costs associated with the overall management of the wild horse and burro program (including costs associated with gathers, holding, etc.) are beyond the scope of this EIS. A site specific NEPA document would be prepared prior to any gather operations. This site specific NEPA analysis would disclose details regarding the number of wild horses that will be gathered and removed from these HMAs.</p>
240	<p>We believe that research needs to be done regarding the economic benefits of having wild horses at this scenic loop viewing area, such as possible entrance fees, horse adoptions, and other sales. This EIS should explicitly address how much revenue comes from this viewing area. We also are interested in knowing more about how this revenue has been used, and how it could be affected by changing the viewing area.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p> <p>Potential impacts to tourism associated with wild horse viewing opportunities are discussed in Sections 4.2.11 and 4.2.12 of the EIS.</p>
241	<p>The potential of introducing a barrier between checkerboard lands and solid-block lands was insufficiently explored. A cost comparison should be carried out in the projected cost of frequent gathers due to managing herd areas to zero wild horses versus designing and constructing a long-lasting and ecologically sound barrier. The report as it stands gives no indication that a barrier was given any serious consideration.</p>	<p>None of the alternatives in this EIS directly propose the installation of fences or other barriers. Alternative B recognizes that fences or other barriers may be needed to manage wild horses under that alternative, but it does not specify that fences will be used as part of that alternative. Potential impacts to wildlife under Alternative B are described in Section 4.2.5 of the EIS, and includes potential impacts associated with the construction of a fence or other barrier.</p>
242	<p>For tourism and economic development purposes related to the White Mountain Wild Horse Loop Tour, Sweetwater County supports maintaining a non-reproducing herd with a sufficient number of wild horses for public viewing within the White Mountain HMA. The Draft RMP/EIS Alternative B mostly closely supports this position.</p>	<p>Alternative D has been updated to retain the White Mountain HMA, and the Wild Horse Scenic Loop Byway.</p>

Comment #	Comment Text	BLM Response
243	<p>Under Special Status Species, the impacts resulting to special status species is described for each alternative. Under Alternative A, the text states, "Although yellow-billed cuckoo are known to be present in portions of the planning area, they do not occur in the areas that have been impacted by current management, and adverse impacts would not be expected under this alternative." This equates to a "may affect, not likely to adversely affect" determination under section 7 of the ESA. For Alternatives B, C, and D, the text states, "Although yellow billed cuckoo are known to be present in portions of the planning area, they do not occur in the areas that would be impacted by this alternative." There is no equivalent effect determination made here the way the following sentence states that there would be no impacts to blowout penstemon or Ute ladies'-tresses.</p>	<p>The language in this section of the EIS has been clarified to demonstrate that no impacts to yellow-billed cuckoo are anticipated as a result of any alternatives.</p>
244	<p>The HMAs under consideration also represent many acres of core sage-grouse habitat. As a member of the statewide Sage-Grouse Implementation Team, WWF requests more detail (p. 81) on how the proposed herd reduction procedures and management actions, specifically roundups, will minimize impacts on sage-grouse leks, nesting areas, and seasonal movements.</p>	<p>Language was added to the EIS to incorporate the analysis found in the EIS for the 2015 Sage-grouse RMP amendment by reference (see Sections 1.7 and 4.2.6). This RMP Amendment does not include decisions regarding gather operations. Specific details regarding how gather operations would occur is beyond the scope of this analysis. A decision to conduct gathers is an implementation level decision subject to future NEPA analysis.</p>
245	<p>The WSGB comments that this DRAFT is inadequate with respect to any assessment of the environmental impacts to sage grouse for any of the alternatives. The WSGB comments that the entire Wyoming Governor's Executive Order on Sage Grouse must be completely adopted by the BLM in this EIS and that the environmental impacts of the terms and conditions in the Executive Order on any remaining BLM horse habitat be evaluated using current science-based procedures.</p>	<p>See response to comment #244.</p> <p>Language was added to the EIS to incorporate by reference the analysis found in the EIS for the 2015 Sage-grouse RMP amendment (see Sections 1.7 and 4.2.6). The 2015 Sage-grouse RMP amendment was built on the foundation for Greater Sage-grouse management established by and complementary to the Governor's Executive Order.</p>

Comment #	Comment Text	BLM Response
246	<p>While we agree that the preferred alternative minimizes impacts in many ways, we have concerns about its assessment for the special status species, the greater sage-grouse. Section 3.6 of the EIS states that “significant populations of Greater Sage-grouse are found throughout most of the planning area,” however, section 4.2.6 states that Alternative D would only cause “minimal impacts” to them. We believe it is warranted to expand upon the research on these impacts and clarify this language.</p> <p>Much attention and research has gone into the greater sage-grouse over the years that we would like to see included in the EIS. To start, the greater sage-grouse’s diet consists of many forbs that overlap with that of the wild horses in Wyoming, where it is home to roughly 40 percent of all sage grouse. Furthermore, if mothers do not get enough nutrition during gestation, chick viability and survival dramatically decreases. Considering that the greater sage-grouse’s overall population has been decreasing since 1965, and their number one driver of change is habitat degradation, it’s important for the future of the species to limit vegetation decline due to horse grazing and stomping. Heavily considering the population dynamics of this species is important in order to protect them from being listed as a threatened species and to continue the efforts of the Sage Grouse Initiative, as just the annual cost of a species listed under the Endangered Species Act could amount to roughly one billion dollars. By monitoring and mitigating these threats early, the BLM could save the federal government money in the long-term as well as protect the species’ future.</p> <p>We understand that the BLM’s mission is to sustain the health of our nation’s land, and by incorporating our suggestion to expand upon the research of the impact these wild horses will have on the greater sage-grouse, it will further the mission of the BLM in this project. The greater sage-grouse is a national species that, if lost, would affect us all.</p>	See response to comment #244.

Comment #	Comment Text	BLM Response
247	Two plant species listed under the ESA were noted; Blowout penstemon and Ute-ladies'-tresses. We believe the final EIS needs to include stronger evidence that these species will not be negatively impacted under the preferred alternative. The proposed area the horses will be restricted to will undergo more intense grazing, and there is no data included regarding the relationship between wild horse grazing and these two species. The BLM should provide more data on the possible effects on these two species from wild horses as well as plans to mitigate the over-grazing of the two species. Several BLM Wyoming sensitive plant species present in the area are also of concern, further data on grazing intensity and impacts on these species should be included in the FEIS as well.	As described in Section 3.6 there are no known populations of Blowout penstemon and Ute-ladies' tresses within the planning area. Potential impacts to special status species are provided in Section 4.2.6 of the EIS.
248	Perhaps most troubling, there is no accounting of sage grouse population status and trends in the DEIS for each of the HMAs. Wyoming Game and Fish Department keeps detailed male counts for each known sage grouse lek in the state, and these lek counts are available to the BLM so that they can determine areas where sage grouse are declining. Sage grouse numbers are down 44% since 2016. Attachment 3. Because livestock grazing has been shown to have a negative impact on sage grouse nest success (Doherty et al. 2014, Attachment 4), it would be important to know where sage grouse population declines are greatest so particular allotments in those areas can be reduced as part of this plan amendment. This baseline information is of critical importance for BLM to make informed decisions among alternatives in this plan amendment process.	A discussion on the potential impacts livestock may have on sage-grouse is beyond the scope of this EIS. Potential impacts livestock may have on sage-grouse will be discussed as part of the separate RMP Revision effort. Also, see response to comment #244.
249	Sage-grouse As the DEIS states, there are significant populations of sage-grouse and 918,400 acres of Priority Habitat Management Areas in the planning area. Riparian and mesic areas are rare, but are important brood-rearing habitats for sage-grouse from late spring through summer. If not protected by exclusionary fencing, these habitats and areas surrounding them may be impacted by year- round wild horse use in the planning area, limiting forb and insect production, as well as hiding cover. We recommend the FEIS provides a more detailed analysis of the impacts of current wild horse	See response to comment #244.

Comment #	Comment Text	BLM Response
	management on sage-grouse habitat, as well as the potential benefits of the proposed wild horse removal.	
250	<p>BLM must disclose the impacts on sage grouse resulting from helicopter removals and the removal of all wild horses from sage grouse habitat.</p> <p>BLM admits that significant populations of greater sage grouse are found throughout most of the planning area. In fact, 918,400 acres of the planning area are considered Priority Habitat Management Areas for sage grouse. However, BLM fails to consider the impacts of the removal of wild horses, and potential addition of cattle and sheep on sage grouse.³⁴ BLM must consider the potential impacts of its proposed action on sage grouse and their habitat, including the degree to which sage grouse breeding is disrupted by helicopter trapping, and the extent to which cows and sheep, impact sage grouse.</p>	Specific impacts associated with implementation level activities (such as gathers) are beyond the scope of this EIS. Such impacts would be discussed in a site specific NEPA analysis that would be prepared prior to conducting any gather operations. Potential impacts to sage-grouse are described in Section 4.2.6 of the EIS. None of the alternatives propose an increase in permitted livestock use in these areas.
251	<p>Greater sage-grouse</p> <p>Overgrazing by wild horses has reduced sagebrush and grass cover vital to Greater sage-grouse and has resulted in lower survival rates in those areas. The draft EIS acknowledges that significant populations of Greater sage-grouse are found throughout most of the planning area and that each of the HMAs in the planning area contain significant expanses of Greater sage grouse Priority Habitat Management Areas (PHMAs). While Section 4.2.6 of the draft EIS considers special status species to include Greater sage-grouse, it falls seriously short of sufficiently analyzing the impacts to the bird under each alternative, especially in context to past, and current, management conditions where wild horse populations have been significantly above AML As such, the BLM should revisit its analysis of impacts to Greater sage-grouse for all alternatives.</p>	Potential impacts to sage-grouse are described in Section 4.2.6 of the EIS. Language was added to the EIS to incorporate by reference the analysis found in the EIS for the 2015 Sage-grouse RMP amendment (see Sections 1.7 and 4.2.6).

Comment #	Comment Text	BLM Response
252	<p>Disclose and Analyze the Impacts of Various Levels of Wild Horses on Designated Greater Sage-Grouse Priority Habitat.</p> <p>The DEIS discloses the overlap between existing and proposed HMA boundaries and sage-grouse habitat. DEIS at Map 3-1. It does not, however, disclose how wild horse utilization will affect or frustrate achievement of Sage-Grouse habitat guidelines. This is a profound flaw for Alternatives A, B, and C, all of which would maintain wild horses in priority sage grouse habitat. BLM cannot deny that this is a major issue, especially since Interior has issued a Supplemental Draft Environmental Impact Statement for Sage-Grouse Management as a result of litigation in Idaho. See generally <i>Western Watersheds Proj. v. Bureau of Land Mgmt.</i>, 1:16-cv- 00083, ECF No. 189 (Oct. 16, 2019). As of the date of this comment, the 2015 Approved Resource Management Plan Amendment ("2015 ARMPA") has been reinstated including habitat objectives and standards and required habitat assessment strategies. The DEIS does not address whether Alternatives A through C comply with these standard[...]</p> <p>DEIS Map 3-1 DEIS Section 3.6 DEIS 80-83</p> <p>The DEIS must do more than disclose the overlap of sage-grouse habitat and potential HMAs. See DEIS at Map 3-1. The DEIS must describe the impacts to sage-grouse by disclosing how horses impact soils, vegetation, canopy cover, and riparian areas according to the 2013 Conservation Objectives Team Report prepared by the U.S. Fish and Wildlife Service. For example, the COT Report found that wild horses consume more of the plant, at more detrimental times of the year, cause soil erosion, degrade extremely important water sources, and trample sage-grouse nests and leks. None of these impacts are discussed.</p> <p>The DEIS must also analyze whether the proposed HMAs in Alternatives B and C conform to the 2015 ARMPA. The changes in AML for Adobe Town were intended to address the</p>	<p>The Adobe Town HMA would be managed in accordance with existing guidelines established in the 2015 Greater Sage-grouse RMP amendment.</p> <p>Also, see response to comment #244.</p>

Comment #	Comment Text	BLM Response
	<p>former Field Manager's concern that wild horses had overutilized sagebrush habitat. If RSFO intends to ignore this issue, the DEIS must establish there is no over-utilization and wild horse use conforms to sage brush habitat guidelines.</p>	
<p>253</p>	<p>DEIS at 47, 51 918,400 acres of the planning area are considered Priority Habitat Management Areas (PHMA). DEIS at 51. According to the DEIS, "The Adobe Town HMA has 59,100 acres of PHMA, the Great Divide Basin HMA has 254,600 acres of PHMA, the Salt Wells Creek HMA has 341,200 acres of PHMA and the White Mountain HMA contains 263,500 acres of PHMA." Id. Alternative A does not discuss how the current AMLs impact attainment of 2015 Sage- Grouse Habitat Objectives in Table 2-2 of the 2015 ARMPA. Chapter 3 does not discuss to what degree wild horse utilization has prevented stubble height objectives, canopy cover and other sage-grouse habitat objectives as required by the Habitat Assessment Framework. DEIS at 47, 51. Chapter 4 does not discuss how each alternative will prevent or improve attainment of these habitat objectives. See DEIS at 71-74 (vegetation) 79</p>	<p>Language was added to the EIS to incorporate the analysis found in the 2015 Sage-grouse RMP amendment by reference (see Sections 1.7 and 4.2.6). Effects of wild horse activity on sage-grouse habitat was discussed in the 2015 Sage-grouse RMP amendment. Management would continue in accordance with that plan amendment under all alternatives in this EIS.</p>

Comment #	Comment Text	BLM Response
	(sage-grouse). Thus, the DEIS fails to address comments made by RSGA since 2013 and fails to conform to the 2015 Sage- Grouse ARMPA.	
254	According to Wyoming Game & Fish Mapping, significant sage-grouse core areas lie within the current HMAs included within this AMP However, WSGA finds no acknowledgement of these core areas and recognition of the impacts that wild horse herds can have on this iconic species.	Map 3-1 describes the location of Sage-grouse PHMA (i.e. sage-grouse core areas). Section 4.2.6 describe potential impacts to sage-grouse from the alternatives. Language was added to the EIS to incorporate the analysis found in the EIS for the 2015 Sage-grouse RMP amendment by reference (see Sections 1.7 and 4.2.6).

Comment #	Comment Text	BLM Response
255	<p>Wild horses happily graze on coarse, old-growth forage. (Think: Hay.) Horses are like lawn mowers. They take off the top growth - the dry, unpalatable layer.</p> <p>Eisenhauer, Lloyd. (2013, April 3). DECLARATION OF LLOYD EISENHAUER. Point #8. [LEGAL DECLARATION filed by former BLM Rock Springs and Rawlins area manager, Lloyd Eisenhauer: IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF WYOMING. Rock Springs Grazing Association, Case No. 2:11-cv-00263-NDF Plaintiff, v. Ken Salazar, et al., Defendants.] Retrieved from http://protectmustangs.org/?p=7021</p> <p>This grazing method enables plants to put down deeper roots, and it prevents weeds from maturing to produce seeds. The horses' frequent "mowing" or "topping" prevents further flower-stalk development before seed-head emergence, when the stalks become woody and unpalatable to cattle. The mowing stimulates new shoots, which are of higher nutritional quality. As a result, cattle put on more weight. Thus, wild horses make the range better for livestock.</p> <p>Grass Growth and Regrowth for Improved Management. (2020). Practical Applications. Topping Pastures. Oregon State University. Forage Information System. Department of Crop and Soil Science. Retrieved from https://forages.oregonstate.edu/regrowth/how-does-grass-grow/developmental-phases/vegetative-phase/roots</p> <p>Livestock prefer tender new growth. They will even return to patches previously grazed - that is, patches that have not been rested - to get at that new growth.</p> <p>Hanselka CW, Lyons R, and Teague R. (2002, October) Patch Grazing and Sustainable Rangeland Production. AgriLife Communications and Marketing, Texas A&M University System. Retrieved from http://www1.foragebeef.ca/\$Foragebeef/frgebeef.nsf/all/frg30/\$FILE/rangedistributionpatch.pdf</p>	<p>Potential impacts to vegetation from the various alternatives is discussed in Sections 4.2.4 of the EIS. The articles provided in this comment were considered, but the information provided was not relevant to the analysis in the EIS.</p>

Comment #	Comment Text	BLM Response
	<p>The Checkerboard's livestock need wild horses.</p>	
<p>256</p>	<p>The EIS often implies cattle and wild horse grazing impact are equal. However, wild horse grazing has adverse effects compared to cattle grazing. This should be clarified in the Final EIS.[...]Wild horses forage and consume 20-65% more than cattle and are one of the least-selective grazers (Beever 2003, Hanley 1982, Wagner 1983, Menard et al. 2002). Also, they trim vegetation closer to the ground due to their elongated head, upper front incisors, and flexible lips. Consequently, vegetation takes a longer time to recover (Symnaski 1994, Beever 2003, Menard et al. 2002)[...]Some of the most significant impacts of grazing occur at a landscape scale. Wild horses use few trails to travel, travel further distances to access water, and utilize higher elevation, including high ridge tops and benches. Combined with their effects from foraging, arid regions are generally used</p>	<p>Language has been added to Section 4.2.10 to help clarify some of the differences between how wild horses and livestock graze.</p>

Comment #	Comment Text	BLM Response
	unevenly by wild horses (Beever 2003, Pellegrini 1971)	
257	The removal of an entire species from an ecosystem will have a cascading effect on other species who share the ecosystem.	Potential impacts to vegetation and wildlife from the various alternatives is discussed in Sections 4.2.4, 4.2.5 and 4.2.6 of the EIS.
258	The horses actually manage the land not destroy it like cattle and sheep. They cut the tops off of the grass not pull it up by the roots.	Potential impacts to vegetation from the various alternatives is discussed in Sections 4.2.4 of the EIS. Language has been added to Section 4.2.10 to clarify some of the differences between how wild horses and livestock graze.
259	<p>WDEQ - Water Quality Division (WQD) is responsible for protecting surface water and groundwater quality in the State of Wyoming and therefore takes an interest in the potential impacts of the Project to water resources. Please accept the following comments on behalf of the WQD.</p> <p>The BLM could improve their analysis by quantifying the potential impacts of the project to surface water quality across all alternatives. Such an analysis could apply a buffer using ArcGIS to all water resources in each Herd Management Area (HMA) within the planning area to estimate the total riparian area. Then, for each alternative, BLM could estimate the number of wild horses (AML) and/or cattle (AUM) that would occur in each HMA. Total potential impacts to water quality could be reported in terms of total riparian area impacted and intensity of total riparian area impacted that also includes the number of animals per unit area for each HMA. Additional considerations that could improve the impact analysis include approximating AMLs in terms of AUMs in order to account for seasonal nature of grazing,</p>	Potential impacts to water quality are adequately addressed in Section 4.2.3 of the EIS.

Comment #	Comment Text	BLM Response
	accounting for best management practices, and other actions in HMAs.	

Comment #	Comment Text	BLM Response
260	<p>* Page 34, Water resources - Comment: Overall, the water resources range of alternatives inadequately and inconsistently analyzes Impacts from wild horses. There are numerous variations of impacts analyzed between the alternatives. None of the alternatives meet the intent to properly quantify, measure and characterize the Impacts to the resource. We encourage BLM work closely with Wyoming Department of Environmental Quality (WDEQ) to accomplish this. Additional examples of insufficient or vague water resources impacts analysis in the draft EIS include:</p> <p>o Page 34, Water Resources, Alternative A: Wild horses can impact water resources when they concentrate near them. Comment: This discussion is too vague and would benefit from the application of a consistent approach to quantifying water resources impacts as discussed above.</p> <p>o Page 34, Soil and Water Resources, Alternative B: Comment: WOA requests the EIS include year-round use by wild horses in the analysis to accurately convey negative Impacts to resources.</p> <p>o Page 34, Water Resources, Alternative C: "Removal of all wild horses would provide greater localized protections to water resources by preventing surface disturbance and trampling of riparian areas caused by wild horses. In addition, sediment loads would be reduced under this alternative Comment: BLM's definition for surface disturbance is; "Surface Disturbing Activities -An action that alters the vegetation surface/near surface soil resources, and/or surface geologic features, beyond natural site conditions and on a scale that affects other Public Land values. Examples of surface disturbing activities may Include: operation of heavy equipment to construct well pads, roads, pits and reservoirs; Installation of pipelines and power lines; and the conduct of several types of vegetation treatments (e.g., prescribed fire, etc.). Surface disturbing activities may be either authorized or prohibited. Wild horse use does not meet the provided definition and is misapplied in Alternative C. We urge BLM to</p>	<p>Language was added to Section 4.2.3 of the EIS to clarify potential impacts to water resources. A definition of "Surface Disturbance" and "Surface Disturbing Activity" was added to the glossary.</p>

Comment #	Comment Text	BLM Response
	<p>remove this term "surface disturbance" and replace with "negative Impacts."</p> <p>o Additionally, the analysis under Alternative C incorporates the potential reduction of sediment loading. However, Alternatives A, B, and D does not contemplate sediment loading. There is no discussion in the draft EIS that indicates a data-driven analysis to support this assertion in Alternative C. We do not believe BLM has the data to determine how much sediment loading is caused by wild horses, or can compare between stocking rates of wild horses across the HMAs, across all four alternatives. Again, we recommend revising the analysis across all alternatives to quantify the number of water resources impacted throughout the HMAs given a change in the wild horse stocking rates across all four alternatives.</p>	
261	<p>Water Resources</p> <p>* When looking at different water sources the Colorado River Basin will be the majority of the water resource for the horses. How big of a concern is salinity within the Colorado River Basin? How big of an effect will it have on these wild horses?</p> <p>* The Wyoming Department of Environmental Quality (WDEQ) states that there are Class 2, 3, and 4 waters present. Class 1 being the best while Class 4 being the worst, meaning Class 4 do not have aquatic life criteria. How will these Class 4 bodies of water affect the wild horses' water resources. Is there enough water in the Class 2 and 3 waters to sustain these wild horses?</p>	<p>Potential impacts to water quality are adequately addressed in Section 4.2.3 of the EIS. Appendix A provides an analysis of available water for wild horse use within these HMAs under each alternative.</p>

Comment #	Comment Text	BLM Response
262	<p>Under this proposed analysis, the BLM is proposing to zero out three HMAs, substantially reduce wild horse habitat, roundup and remove more than 3,000 wild horses, potentially "spay" and/or apply GonaCon or PZP to mares, geld stallions, and skew sex ratios in remaining horses of the Adobe Town HMA. Thus, this analysis will be problematic on many fronts. As such the final EIS must better analyze the impacts of BLM's proposed action on the wild horses themselves, including but not limited to consideration for loss of habitat, AUM/forage allocation, genetic viability, and the significant mortality rate of horses held in short-term and long-term holding that results from traumatic injury, complications from surgical sterilization procedures and other roundup-related factors. Indeed, records obtained by AWHC show dozens of horses perishing in holding facilities in the months immediately following the last checkerboard roundup. BLM must analyze the roundup-related impacts to these horses and the post-roundup effects of placing them in holding facilities.³</p> <p>Further, BLM must analyze the full effects of its action (namely the reduction of these wild horse populations far below their current AMLs) and, in turn, assess reasonable measures to mitigate those effects. Historically, federal courts have instructed BLM to not only fully analyze the impacts of its decisions for wild horses in this region, but to also then evaluate all reasonable efforts that BLM can (and should) take to mitigate the harm caused to these wild horses by BLM's reduction of these populations far below a viable AML. Thus, BLM must do so in this EIS, in order to comply with NEPA, its regulations, and previous court orders requiring consideration of mitigation measures that would inure to the benefit of the horses that are set be removed from these public lands under the preferred alternative in a manner that is inconsistent with the WHA.[...]</p> <p>Therefore, the BLM must properly analyze the effects of the current proposed action, with mass roundup and removal, habitat loss, sterilization procedures, non-reproducing herd management strategies, skewing of sex ratios,</p>	<p>Section 4.2.1 of the EIS discusses potential impacts to wild horses related to each alternative. Providing specific details regarding impacts associated with short and long term holding of wild horses is beyond the scope of this EIS. See Section 4.3 for a discussion of the irretrievable loss of wild horses under some alternatives.</p> <p>Any adjustment of livestock AUM allocations would be addressed through future decisions following further NEPA analysis.</p> <p>Specific details regarding how gather operations would occur is beyond the scope of this analysis. A decision to conduct gathers is an implementation level decision subject to future NEPA analysis.</p>

Comment #	Comment Text	BLM Response
	<p>and potential application of GonaCon[...]. According to BLM's own records obtained by AWHC through the Freedom of Information Act, as of July 2015 at least 86 wild horses that were removed from these HMAs in 2014 had already died as a result of roundup-related activities and/or in post-roundup holding facilities. That high mortality rate is not even mentioned-let alone analyzed-in BLM's Draft EIS, nor are alternatives (such as returning some of these horses to the HMAs) explored that might mitigate this high mortality rate.</p>	

Comment #	Comment Text	BLM Response
263	<p>When relocating animals, especially herd animals, the risk and spread of disease increases. In section 2.2.4, the description of Alternative D includes assessing the health of the horses. There is a further description of the disease analysis of individuals and herds in section 4.2.1. Unfortunately, there is no claim of a holding period before herds are introduced after being tested for pathogens. Signs and symptoms may not appear for weeks or months, depending on the pathogen. Tests also may become too expensive after so many individual samples. A detailed description of the protocol and health examination budget would benefit the EIS from discrepancies from local ranchers. If a wild horse spreads an infectious disease to local livestock, the BLM may face many lawsuits against them by local ranchers (Wagnerova et al. 2016).</p> <p>? Relocating animals risks disease spread to those that aid in relocation because of zoonotic diseases that spread from horse to human either via multiple routes. Adequate measures need to be detailed to prevent this spread. Additionally, horses are carriers of specific diseases that can spread to cattle, like vesicular stomatitis, which is highly contagious and can be economically devastating if cattle catch these diseases. This can spread through flies that transmit the disease or through inhalation or some type of fluid contact. Appropriate testing methods for these diseases are not discussed and need to be to ensure that disease does not spread from horses that may not show symptoms to humans or livestock.</p>	<p>The information requested is beyond the scope of this EIS. This information would be provided in a site specific NEPA analysis that would be prepared prior to taking any herd management action.</p>
264	<p>The BLM's plan, without any scientific justification, would funnel a large number of wild horses into an already unsustainable warehousing system that costs American taxpayers an estimated \$50 million each year.</p>	<p>Potential impacts associated with the removal of wild horses from these HMAs is discussed in Section 4.2.1 of the EIS. The costs associated with the overall management of the wild horse and burro program (including costs associated with gathers, holding, etc.) are beyond the scope of this EIS.</p>

Comment #	Comment Text	BLM Response
265	<p>While protected by law, wild horses act like any non-native species. Without any natural predators, wild horses numbers increase exponentially and have for the almost 50 years since the Wild Horse Act was passed in 1971. Wild horses graze differently than cattle, sheep or big game, by taking a years' growth of the plant. In years of good to normal precipitation, their diet consists of grasses and forbs, a critical component of rangeland heath standards and sagebrush understory. In dry or droughty years, wild horses severely hedge sagebrush. Their territorial nature means that wild horses guard their water to the detriment of other big game.</p>	<p>Chapter 4 of the EIS provides information on the impacts wild horses can have on other resource values.</p>
266	<p>The EIS fails to adequately analyse the impacts of this mass removal plan on the wild horses themselves, in terms of genetic effects of mass removal and habitat loss and the behavioural, social and health impacts of efforts to maintain remaining herds within the reduced numbers (including the intention to create non-reproducing herds). All four herds are distinct, and the horses have different characteristics. In particular, the Salt Wells Creek herd carries unique genetics in the Curlies. The “preferred alternative” demonstrates absolutely no protection for one of the rarest horses in the world. The plan must propose a strategy to protect them.</p>	<p>Potential impacts to wild horses as a result of the alternatives is discussed in Section 4.2.1 of the EIS. This includes potential impacts to the genetic diversity of these herds, and the potential loss of the unique genetics found within these herds.</p>
267	<p>Where will the gathered horses go?</p>	<p>This information is discussed in Section 4.2.1 of the EIS.</p>
268	<p>Appendix A, Adobe Town HMA, Tier 1 Analysis, Water It's unclear whether or how water sources for the Adobe Town HMA or any other HMAs/HAs were assessed for viability, and in particular, viability through drought years and annually in late summer when water becomes much less available. It seems unlikely that enough water exists for[...] all uses, particularly native wildlife. Water availability impacts pronghorn (and likely deer) productivity (doe-fawn ratios), and ultimately survival and population performance, in these areas. These issues underscore the importance for provision for viable, late season water sources for native wildlife where wild horses are excluded.</p>	<p>Appendix A adequately assesses the availability of water resources within these HMAs. Current conditions for wildlife are discussed in Section 3.5. Potential impacts to wildlife species are discussed in Section 4.2.5.</p>

Comment #	Comment Text	BLM Response
269	<p>The same monitoring data shows that horses were exclusively defending water sources (sometimes 40 horses defending an improved livestock tank). In essence, livestock permittees were hauling water into their allotments for livestock, but that water was being used by horses and available to big game. Thus, the BLM conclusions that there is enough water in the HMAs as structured is completely inconsistent with on-the-ground experience and reported research.</p> <p>The DEIS has not been revised to reflect this data and again belies the BLM's assertion that it has coordinated and cooperated with local governments in this planning process. The DEIS would be substantially strengthened if BLM would evaluate and consider on-the-ground range studies that demonstrate wild horse impacts on the resources. Failing to consider this data is significant.[...]</p> <p>Appendix A Each of the comments above regarding the BLM's calculation of AML and the available forage amounts derive from, or are premised on, Appendix A. Thus, the Coalition incorporates each of the above comments by reference here as they apply to Appendix A.</p> <p>Appendix A states that "Wild horses require a minimum of 10 gallons of water per day. For the entire herd at high AML this equates to a need of 8,000 gallons per day. There are approximately 191 reservoirs, 39 springs and 27 water wells present within the HMA. Each of these sources provides various quantities of water at various times of the year. Furthermore, the water sources are spread out through the entire HMA, allowing for a proper distribution of the wild horses. Overall, there is adequate water within the HMA to meet the needs of the wild horse herd."</p> <p>Although the number of water sources discussed per HMA varies, Appendix A repeats these general conclusions 15 times throughout the discussion. Appendix A, however, does not include any quantification of the amount of water that these sources can produce or have</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. Additional information about water availability is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use.</p> <p>In assessing water availability within these HMAs the BLM has used the best information available, as presented in Appendix A.</p> <p>Language was added to Section 4.2.5 to clarify impacts wild horses may have on wildlife that compete for the same water sources.</p>

Comment #	Comment Text	BLM Response
	<p>produced or any qualification that these water sources may produce much less water contingent on the year.</p> <p>The DEIS fails to disclose who owns the water and how the water is available for wild horse use. Many of the areas historically used are on the Checkerboard. The DEIS needs to make the distinction.</p> <p>Nor does the discussion provide a range of the minimum amount and maximum amount of water or any monitoring data that supports BLM's broad conclusions. Similar to the forage analysis, BLM expects the Coalition to accept as true BLM's unsupported conclusions that the HMAs can support the AMLs without any evidence that supports such a conclusion.</p> <p>It is well accepted that horses will aggressively defend water resources and yet there is no discussion of this fact or how it may impact wildlife and livestock either in the DEIS or in Appendix A. The fact that there are many water sources does not change horse behavior to congregate in preferred water sources and defend that source from pronghorn, mule deer, livestock and even range riders.</p>	
270	<p>Within Alternative A there is information that states that water developments may help distribute grazing pressure, but they can also cause issues with competition near the developments. We request that more water developments be considered on the HMA that would result in the chosen Alternative D. If deemed necessary, we ask that the potential locations of these developments be discussed in the final EIS.</p>	<p>Specific details regarding possible water developments would be examined in implementation-stage NEPA review.</p>
271	<p>The agency should create a plan to monitor wildland fire in the areas that the wild horses are being removed from. As intense grazing lowers the risk of fire, the removal of 1,529 wild horses from the area will increase the vegetation which can result in wildland fires. An explanation or management plan on how this increase in vegetation will be managed is needed from the agency and what precautions</p>	<p>Information was added to Section 3.7 and 4.2.7 to better explain how BLM utilizes a comprehensive fire management plan to help address potential impacts associated with wildland fires.</p>

Comment #	Comment Text	BLM Response
	the agency will take to decrease wildland fires in the new HA areas.	
272	A reduction of wild horses and a reduction in grazing of this magnitude may lead to the accumulation of fine fuels like annual grasses. How will this increased fire risk be addressed and are there measures in place to mitigate this risk?	Information was added to Section 3.7 and 4.2.7 to better explain how BLM utilizes a comprehensive fire management plan to help address potential impacts associated with wildland fires.
273	By reducing the amount of wild horses by 75% BLM risks Wildland Fire environmental impact. With less wild horses foraging, the abundance of fine fuels and fuel load increases. This is a potential risk for fire ignition. BLM should implement a management plan in order to deal with this potential risk. The BLM should look into implementing a grazing system utilizing cattle in order to reduce fuel load. If livestock is not an option other methods such as green stripping should be implemented.	Potential effects wild horses can have on wildfire activity are discussed in Section 4.2.7 of the EIS. Information was added to Section 3.7 and 4.2.7 to better explain how BLM utilizes a comprehensive fire management plan to help address potential impacts associated with wildland fires.

Comment #	Comment Text	BLM Response
274	<p>Toward the end of your draft EA, you admit that the removal of wild horses from the great majority of this original legal area will result in increased dry grasses & finer vegetation & that this would pose the risk of increased wildfires. You should not understate this very important & timely positive contribution by wild horses in mitigating & even preventing wildfires. These are becoming more & more frequent & severe in many areas of our nation due to the increasing temperatures that have been brought on by so much of humanity's consumerist lifestyle. This blindly & insensitively continues to pollute the atmosphere as well as water, soils, & the very bodies of plants & animals themselves. To ignore/deny Global Climate Change/Warming/Heating is criminal in the extreme! It is to ignore a very serious threat to all of precious life on Earth today! As I point out in my article and in the references I therein cite, wild horses have been proven to be major mitigation agents & even preventers of catastrophic wildfires & their presence as fair, viably sized herds has saved vast forest, chaparral, meadow, grassland, riparian & other types of ecosystems, both here in the West & throughout the world. Other equid species such as burros & species within the mammalian Order Perissodactyla can & do play the same crucial role throughout the world. -- I offer a professional PowerPoint presentation on this endangered order & welcome opportunities to present this.[...]</p> <p>Additionally, I urge you to consider additional empirical information & proposals that wild horse conservationist Bill Simpson has made public. His "Wild Horse Fire Brigade" plan for preventing extreme & damaging wildfires should not be thoughtlessly dismissed, especially given the looming threats of Global Warming. To learn more about this go to the link: https://www.horsetalk.co.nz/2017/07/31/wild-horse-fire-brigade-work. On his Wild Horse Ranch, the presence of a substantial number of wild horses greatly reduced dry sub-story "tinder" vegetation, which saved not only his 1,000-acre ranch from burning up but also the extensive Siskiyou National Monument located in northern California & southern Oregon. This was the Klamathon Fire of a few years ago. He</p>	See response to comment #273.

Comment #	Comment Text	BLM Response
	also has proven the major value of Juniper trees to ecosystem health, including the mutualistic symbiosis of this tree with horses & many other interrelated species as well as soils & aquifers.	
275	* Page 36, Wlldland Fire, Alternative B: Comment: Alternative B lacks any Information related to wildfire and how the concentration of wild horses In the smaller HMAs will reduce fine fuels and ultimately wildfire.	The information requested is discussed in Section 4.2.7 of the EIS.
276	<p>Simpson (2018) has crunched the numbers. He estimated that each wild horse that is free to graze down the dry, senescent forage - those one-hour fuels that might otherwise spark into a wildfire - would save taxpayers \$72,000. Instead of having staff pre-burn the range, horses can pre-graze it. Millions of dollars of fire-fighting costs would be saved by the wild horses' fire-prevention duty.</p> <p>Simpson, William E. II. (2019, February 5). What Is The Value Of An American Wild Horse? Does \$72,000.00 sound right? Downloaded from https://www.wildhorsefirebrigade.com/</p>	See response to comment #273.

Comment #	Comment Text	BLM Response
277	You would be decimating a critical wild resource that is keeping the risks of range fires and encroachment by other non-eco-system-friendly smaller animals that will not balance regeneration of range vegetation.	See response to comment #273.
278	<p>P. 74</p> <p>The DEIS has not been corrected to include approximate estimates of the amount of forage available, utilization requirements and habitat components for wildlife (Greater Sage Grouse) and big game and maps necessary to review how wild horse herds overlap big game migration and crucial winter range under Alternative A. The RSFO provides maps for sage-grouse, but omits any map for antelope, mule deer, elk and other species of wildlife. The DEIS also fails to map water locations to ensure that there is adequate forage at these locations.</p> <p>* What percentage of the HMAs will overlies crucial winter range for mule deer and pronghorn?</p> <p>* What are the forage capabilities for key forage species for big game in each of the HMAs?</p> <p>* What is a reasonable range of forage productivity during drought years?</p> <p>* What is a reasonable range of snow, supported by data, in the HMAs overlying crucial winter range?</p> <p>There is no discussion of mule deer, no discussion of pronghorn, nor any discussion of the species of forage upon which those species rely under Alternative A.</p>	Information on big game, including their crucial winter range, is discussed in Section 3.5 of the EIS.
279	<p>Section 4.2.5 considers the impact of Alternative D on wildlife. Though the overlap between the HMA and pronghorn CWR may be reduced in Alternative D, this may not reduce the impact on pronghorn species as much as described. Hennigs et al., in a 2018 study, found that over the course of four months, nine feral horses from Adobe Town HMA visited crucial pronghorn range 430 times (Hennigs et al. 2018). Given this study, even if the Adobe Town HMA is reduced, horses may still impact pronghorn. This must be considered in wildlife impacts.[...]In Section 4.2.6, the impact of Alternative D on the sage-grouse is discussed. The BLM should consider the Hennigs et al. study, which shows that nine feral horses from</p>	Potential impacts to wildlife species are discussed in Section 4.2.5 and 4.2.6 of the EIS.

Comment #	Comment Text	BLM Response
	<p>Adobe Town HMA visited greater sage-grouse core area 214 times over three months (Hennigs et al. 2018). This overlap should be included in the impacts on the sage-grouse.</p>	
280	<p>Page 69, last paragraph; and, Page 71, second full paragraph Provisions for protecting natural water sources from wild horses (e.g., long-term, wildlife-permeable fencing, off-site watering for livestock and wild horses, etc.) should be included with more certainty in this alternative. Specifically, the language "could be developed" should be strengthened to provide more water resource certainty for native wildlife, particularly as wild horse populations rebound post round-up and with uncertainty of future round-ups to maintain AML(s).</p>	<p>Specific information regarding water developments is beyond the scope of this RMP level EIS. This information would be provided in any site specific NEPA analysis that would be prepared before taking any such action.</p>

Comment #	Comment Text	BLM Response
281	<p>There is a great deal of missing baseline information in this DEIS that would be a prerequisite for a legally sufficient 'hard look' pursuant to NEPA. Unbelievably for a DEIS on wild horse management, there is no estimate of current populations of wild horses for each HMA, or an accounting of recent population trends and how they have been affected by past roundups. There is a list of BLM Sensitive Species present (DEIS at 50), but no estimate of population sizes and trends for each HMA, or the types of project-related impacts (direct impacts of cattle, sheep, or wild horse grazing and trampling; or cumulative impacts of grazing and trampling by all three). There is no baseline information on the number of deer using the Red Desert to Hoback Mule Deer Migration Corridor, or baseline information on habitat conditions and/or forage availability for deer along the migration route. There is a list of acreage of pronghorn and elk crucial ranges for each HMA (DEIS at 48), but no accounting of elk or pronghorn current population size or trend.[...]</p> <p>The Red Desert to Hoback mule deer migration corridor (Attachment 10) crosses through the Great Divide Basin HMA; the DEIS (e.g., at 18) references a "Sublette Mule Deer Migration Corridor," which we presume is the same one based on BLM's description of it (DEIS at 48). The amount of forage available to mule deer for this migratory herd, both along the migration corridor and on winter ranges in the Leucite Hills and near Point of Rocks, is a crucial consideration both in terms of wild horse forage utilization and livestock utilization of forage plants used by migrating and wintering mule deer. Yet BLM makes no attempt to consider the direct impacts of the various alternatives on the availability of forage for migrating mule deer, let alone the cumulative impacts of all BLM management decisions in the RMP revision together with the Wild Horse plan amendment.</p> <p>As we pointed out in our scoping comments, the Steamboat Mountain elk herd utilizes the Great Divide Basin and White Mountain HMAs. The Petition elk herd utilizes the Adobe Town and Salt Wells HMAs. The DEIS provides acreages for</p>	<p>As described in Section 1.2, Purpose and Need, the need for this RMPA is driven by the checkerboard pattern of public and private land ownership within the HMAs, the requirements of the WFRHBA, RSGA's withdrawal of consent to maintain wild horses on privately-owned lands, and the requirements of the wild horse management regulations and handbook. An evaluation of forage availability for wildlife, and wildlife population trends, is not needed in order to analyze the effects of the four planning alternatives on wild horses, other resources, and resource uses, and to make reasoned decisions about which checkerboard areas, if any, should be designated for wild horse use. Detailed information on wild horse populations within these HMAs similarly is not needed to make these RMP level decisions.</p>

Comment #	Comment Text	BLM Response
	<p>elk Crucial Winter Range for each HMA. DEIS at 48. But the amount of forage available to elk, along the migration corridors, in parturition areas, and on winter ranges has not been assessed both in terms of wild horse forage utilization and livestock utilization of forage plants used by elk. The degree to which elk habitat needs are being met, or not being met, at all points in the life cycle, will need to be evaluated and presented in order to meet NEPA's hard look requirements.</p>	
<p>282</p>	<p>P. 42-43 The DEIS states that "[t]he area supports significant wildlife populations including elk, deer, and pronghorn." The DEIS does not estimate the forage and habitat requirements for the number of wildlife that use the area. The failure to analyze the probable impacts makes this DEIS neither defensible nor durable.</p>	<p>Potential impacts to wildlife species are discussed in Section 4.2.5 and 4.2.6 of the EIS. In determining potential impacts, BLM utilized the best information available.</p> <p>See response to comment #281.</p>

Comment #	Comment Text	BLM Response
283	<p>With fewer deer and elk projected due to CWD, the range would not be adequately grazed. Here again, horses are of benefit. Research by Dr. Mark Zabel - Associate Director of the Prion Research Center, Colorado State University, Fort Collins - disclosed that wild horses are resistant to prions. He believes that wild-horse grazing in infected areas could reduce the concentration of prions.</p> <p>Schlossberg, Josh. (2018, February 27). Wild Horses May Hold a Solution to Slowing Spread of Fatal Chronic Wasting Disease in Deer, Elk. EnviroNews Colorado. Retrieved at https://www.environews.tv/022718-wild-horses-may-hold-solution-slowng-spread-fatal-chronic-wasting-disease-deer-elk/#comments</p> <p>So, while they are keeping the landscape heterogeneous, wild horses are also likely protecting the deer and elk from CWD.</p>	<p>Analysis of patterns in wildlife pathogens is beyond the scope of this EIS.</p>
284	<p>The DEIS fails to take a hard look at the impacts of fencing under the various alternatives, including the No Action alternative (which would otherwise provide a baseline). BLM policy states for wild horse management, "Fencing within an HMA should be done only after the impacts are carefully analyzed through the NEPA process." Handbook H-4700-1. Additional fencing is flagged as part of several alternatives (e.g., DEIS at 4, 15, 28, 60, 62). These wild horse HMAs are currently largely unfenced. DEIS at 40. Fences have largely been installed as range improvements to facilitate livestock grazing on public lands (DEIS at 54, and see 57), but they can have significant negative effects on native wildlife, particularly sage grouse and pronghorns. BLM provides only a cursory analysis of the impacts of additional fencing (DEIS at 74), and fails to analyze by alternative the impacts to sage grouse populations and pronghorn migrations. Barbed-wire fences present entanglement hazards and migration obstacles for pronghorns (Gates et al. 2012, Attachment 5). Barbed-wire fences are a major collision hazard for sage grouse, a major source of mortality that is only partly mitigated when fence markers are employed (Christiansen 2007, Attachment 6; Van Lanen et al. 2017, Attachment 7). The only provision included in the EIS to protect sage grouse from collision</p>	<p>None of the alternatives in this EIS propose the installation of fences. Alternative B recognizes that fences or other barriers may be needed to manage wild horses under that alternative, but it does not specify that fences will be used as part of that alternative. Potential impacts to wildlife under Alternative B are described in Section 4.2.5 of the EIS, and includes potential impacts associated with the construction of a fence or other barrier. A fence removal alternative would not meet the purpose and need of the plan amendment.</p>

Comment #	Comment Text	BLM Response
	<p>mortality is not constructing fences within 0.6 mile of leks, which is insufficient because sage grouse concentrate their nesting within a radius of 5.3 miles of leks (Holloran and Anderson 2005, Attachment 8), and according to the best available science regarding lek buffers (Manier et al. 2014, Attachment 9), low structures - including fences - should be located 1.2 to 3 miles from leks. BLM discloses that fence removal would be beneficial for wild horses and their forage base (DEIS at 56), yet no alternative appears to incorporate fence removal.</p>	
285	<p>* Page 65: General Comment: The EA inconsistently and often underestimates the impacts of year long grazing by wild horses and simply states the Impact In terms of AUMs. Resources such as soils and sage grouse are impacted more by year-long wild horse grazing compared to designated season-of-use by domestic livestock. We encourage the BLM to review the EA and Include the year-long grazing throughout the analysis. See page 80, Alternative B, second paragraph as one example correctly incorporating year-long grazing into the EA.</p>	<p>Impacts to wildlife related to the yearlong use by wild horses are described in Section 4.2.5 and 4.2.6 of the EIS.</p>

Comment #	Comment Text	BLM Response
286	Wild horses are formally considered by BLM as a supplemental value contributing to wilderness qualities, yet the number, identity, and acreage of WSAs and Lands with Wilderness Characteristics determined in the Rock Springs RMP revision, and the degree to which wild horses will contribute supplemental values to each area selected for management for wilderness qualities, is not presented in the DEIS.	Wild horses are not mentioned as a supplemental value in either the manual for conducting wilderness characteristics inventory on BLM lands (6310) or the manual on management of Wilderness Study Areas (6330). Manual 6330 does mention management of wild horses on WSAs, but focuses primarily on the need to manage herds within AML to prevent damage to resource values in the area. Since none of the alternatives would have a potential impact on either lands with wilderness characteristics, or Wilderness Study Areas, they were not analyzed in the EIS.
287	The Adobe Town, Alkali Draw, South Pinnacles, Oregon Buttes, and Honeycomb Buttes WSAs, as well as the Pinnacles, Big Empty, Oregon Buttes Badlands, and other associated citizens' proposed wilderness lands, as well as portions of the Kinney Rim North and South citizen proposed wilderness areas, appear to be within the HMAs proposed for wild horse elimination. The absence of detailed maps in the DEIS precludes certainty. Wild horses are recognized by BLM as a "supplemental value" contributing toward wilderness characteristics. Yet BLM's impacts analysis makes no mention of impacts of the various alternatives on wilderness characteristics in the delineated areas in question.	Wild horses are not mentioned as a supplemental value in either the manual for conducting wilderness characteristics inventory on BLM lands (6310) or the manual on management of Wilderness Study Areas (6330). Manual 6330 does mention management of wild horses on WSAs, but focuses primarily on the need to manage herds within AML to prevent damage to resource values in the area. Since none of the proposed actions would have a potential impact on either lands with wilderness characteristics, or Wilderness Study Areas, they were not analyzed in the EIS.
288	<p>The EIS Must Fully Analyze an Adaptive Management Strategy</p> <p>Interior Secretary order No. 3270 issued March 9, 2007 established agency policy to incorporate Adaptive Management into agency management programs. Under this policy, land use decisions can be adjusted in order to meet environmental , social and economic goals; to increase scientific knowledge; and to decrease tensions among stakeholders. There are numerous reasons why the BLM should apply its adaptive management policy to the management of the HMAs in the project area.</p> <p>* The BLM understands the high economic costs associated with the proposal to removal horses from the range and keep them in short-/long-term government holding facilities. Indeed, the BLM has repeatedly emphasized that the agency practice of rounding up and warehousing wild horses is not fiscally sustainable.</p> <p>* The BLM must consider and analyze the</p>	<p>MA016 allows for AML to be adjusted based on the results of site-specific monitoring data. This represents an adaptive management approach to the Wild Horse Program in this area.</p> <p>Information on the social and economic impacts associated with the alternatives is discussed in Section 4.2.12 of the EIS.</p>

Comment #	Comment Text	BLM Response
	<p>societal opposition to the removal of horses. Over the past few years , the BLM has received hundreds of thousands of letters from...</p>	
289	<p>The DEIS states that the new AML for Adobe Town will be 259 – 536 horses. DEIS at 5. Aside from the fact that this contradicts the 2013 Consent Decree, the AML analysis in Appendix A, however, lacks the essential data, including in-depth utilization monitoring data and use pattern mapping to support any AML. Thus the DEIS fails to meet the legal minimum to support any AML and the BLM cannot justify the Preferred AML over, for example, the 2013 Consent Decree AML.</p>	<p>Alternative B has been updated to analyze an AML of 225 – 450 wild horses to better align with the requirements of the 2013 Consent Decree. Appendix A provides the analysis used to determine the AML of 259 – 536 wild horses under Alternative D.</p>