United States Department of the Interior
Bureau of Land Management

Preliminary Environmental Assessment
Challis Wild Horse Gather Plan

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1.0 Purpose and Need for Action

1.1 Introduction

The Bureau of Land Management (BLM) is proposing to gather excess wild horses in the Challis Herd Management Area (CHMA) in order to achieve the Appropriate Management Level (AML). The gather would occur for a 2 week period in the fall between September 15 and November 15. Approximately 274 wild horses would be gathered, and remove approximately 137 excess wild horses from within and outside the CHMA. Up to 137 of the captured wild horses would be released; of these, about 55 would be mares treated with fertility control and about 82 would be studs or geldings to maintain the sex ratio and slow population growth.

This Environmental Assessment (EA) is a site-specific analysis of the potential impacts that could result with the implementation of the Proposed Action or alternatives to the Proposed Action. Preparation of an EA assists the BLM authorized officer to determine whether to prepare an Environmental Impact Statement (EIS) if significant impacts could result, or a Finding of No Significant Impact (FONSI) if no significant impacts are expected.

This document is tiered to the Challis Resource Management Plan/Final EIS (RMP/EIS, 1999a).

1.2 Background

The CHMA is found in Custer County Idaho and consists of 168,720 total acres (154,150 BLM, 9,454 acres of State of Idaho lands, and 1,116 acres private lands near the East Fork of the Salmon River). The herd management area is bordered on the north by the Salmon River, on the west by the East Fork of the Salmon River, on the south by the ridgeline between Herd Creek and Road Creek and on the east by U.S. Highway 93 and the watershed boundary between the Salmon River drainage and the Lost River drainage.

The Appropriate Management Level (AML) for wild horses within the CHMA is (185). The AML was established in the October 1999 Challis Resource Management Plan EIS following an in-depth analysis of habitat suitability and resource monitoring and population inventory data, with public involvement. The AML for the CHMA is 185. The Challis RMP did recognize that between gathers the population would range up to 253. Two hundred and fifty-three (253) is the maximum number of wild horses that can graze in a thriving natural ecological balance and multiple use relationship on the public lands in the area.

The current estimated population of wild horses is 322 including wild horses residing in the CHMA and those outside the CHMA. This number is based on an aerial population inventory conducted as a direct count with multiple experienced observers immediately following the July 2009 gather, and prior to the release of gathered horses. The 57 animals the inventory identified on the range when coupled with the 167 animals released back into the CHMA following the gather, and the 3 following years foal increase result in a population of 322. Wild horse numbers have increased an average of 17% per year since the HMA was last gathered. The current population is about 174 animals over the AML.

The last wild horse gather of the CHMA occurred in July 2009, when 366 horses were captured, 141 horses were removed, 167 horses were released back into the CHMA. The 167 horses that

were released joined 57 horses that were not gathered, resulting in a 2009 post-gather population of 224 horses.

There are six allotments that are either partially or completely encompassed within the CHMA; including: Bradbury Flat, Bradshaw Basin, Mountain Springs, Road Creek, Split Hoof and Warm Springs. There are also two Areas of Critical Environmental Concern (ACEC) designated in the Challis RMP (USDI-BLM, 1999a), Malm Gulch/Germer Basin and Sand Hollow totaling 19,428 acres of "Frail Lands" where tuftaceous volcanic ash soils exist. These ACECs are part of the CHMA where wild horses have access, but are excluded to livestock grazing. Other ACECs in the CHMA include: Lone Bird, Antelope Flat, and East Fork Salmon River Bench. These ACECs contain a variety of unique features including pristine vegetation, rare plants, unusual plant assemblages, fragile soils, and cultural resource significance. The gather area involves two Wilderness Study Areas (WSAs): Corral-Horse Basin and Jerry Peak.

This environmental assessment (EA) evaluates the environmental effects of various alternatives the BLM has considered to maintain the CHMA wild horse AML.

This EA ensures compliance with the National Environmental Policy Act (NEPA) by providing site-specific analysis of potential direct, indirect, and cumulative effects to the human environment associated with completion of a gather and removal of excess wild horses in the CHMA. Should a determination be made that implementation of the Proposed Action or alternative actions would not result in significant environmental impacts, a FONSI would be prepared to document that determination, and a Decision Record providing the rationale for approving the chosen alternative would be issued.

Since the passage of the Wild Free-Roaming Horses and Burros Act (WFRHBA) of 1971, management knowledge regarding wild horse population levels has increased**.** By law, BLM is required to remove excess animals once a determination has been made that excess animals are present and removal is necessary. In the past two decades, program goals have shifted beyond establishing a *thriving natural ecological balance* (i.e. establishing AML for individual herds) and conducting gathers to achieve and maintain wild horse populations within the established AML so as to manage for a healthy wild horse populations and healthy rangelands. Management actions resulting from shifting the program emphasis include increasing fertility control and adjusting sex ratios to reduce population growth rates, increased gather intervals, improving the accuracy of population inventories and collecting genetic baseline data to support genetic health assessments. Decreasing removal numbers while reducing population growth rates and ensuring the welfare of wild horses on the range is pertinent to these program goals and consistent with findings and recommendations from the American Association of Equine Practitioners (AAEP), who recently issued a BLM Task Force Report in August 2011 following their evaluation of handling procedures and animal welfare at wild horse gathers, and short and long term sorting/holding facilities. The Executive Summary of this report stated: ―*Clearly the mission of the BLM Program – Healthy Ranges, Healthy Horses – is not a simple one. A central issue for all discussions involving the care and management of the wild horse population is controlling the reproductive rate of the wild horses on the range. The AAEP encourages the BLM to prioritize research and application of effective fertility control methods in order to reduce the foaling rate in wild herds"*

Public sentiment received for BLM gathers over the past few years have emphasized the desire for BLM to increase the use of fertility control in order to reduce the number of wild horses that have to be removed from the range or maintained in Long Term Pastures. This proposed gather is consistent with National BLM direction to increase the use of fertility control to maintain wild horses within AML with fewer necessary removals.

The following is a message from the BLM Director Bob Abbey: *"The BLM finds itself in the predicament of needing to gather overpopulated herds from the Western range each year while its holding costs keep rising – with no end in sight. Recognizing this unsustainable situation, the Government Accountability Office, in a report issued in October 2008, found the Bureau to be at a "critical crossroads" because of spiraling off-the-range holding costs and its limited management options concerning unadopted horses. In response, Secretary of the Interior Ken Salazar and I announced on October 7, 2009, a new and sustainable way forward for managing our nation's wild horse horses and burros. We recommended* ***applying new strategies aimed at balancing wild horse and burro population growth rates with public adoption demand to control holding costs*** **[emphasis in original]**. *This effort would involve slowing population growth rates of wild horses on Western public rangelands through the aggressive use of fertility control, the active management of sex ratios on the range, and perhaps even the introduction of non-reproducing herds in some of the BLM"s existing Herd Management Areas in 10 Western states".* Refer to the entire message at
http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro/national /about/director.html

The following is a quote from the Humane Society for the United States (HSUS): *"The HSUS strongly supports an increase in the use of fertility control – specifically the Porcine Zona Pellucida (PZP) immunocontraception vaccine – and sex ratio adjustments to slow population growth. This work should immediately be expanded to as many herds as possible as an alternative to gathers and long term holding. With an efficacy rate of over 90%, a comprehensive contraception program could dramatically reduce the financial burden on the agency and allow the BLM to once again focus its resources and efforts on range management programs" (HSUS 2010).*

To further implement this strategy of increasing population controls as a management tool, the 2012 BLM wild horse gather schedule increased emphasis to apply fertility control to reduce growth rates and thus the number of horses that must ultimately be removed from the range and either found adoptive homes or kept in long-term grazing pastures. This strategy's expected result is the removal of only limited numbers of excess wild horses for which there is the greatest adoption demand.

1.3 Purpose of and Need for Action

The Bureau of Land Management (BLM) Challis Field Office (CFO) is proposing to conduct a wild horse gather to remove excess wild horses from the Challis Herd Management Area (CHMA). The BLM is proposing to gather approximately 274 wild horses and remove approximately 140 excess wild horses from within and outside the CHMA in the fall. The purpose of the action is to address an excess population of wild horses, relative to the AML by

removing wild horses from the CHMA and all wild horses that have moved outside designated CHMA boundaries and to increase the interval between gathers.

The action is needed to be consistent with the established AML (USDI-BLM, 1999a) by removing excess wild horses from CHMA, and all horses outside the CHMA. This action would slow population growth rates, balance wild horse populations with herd health and other resources (Table 1). The action is needed to help prevent undue or unnecessary degradation of the public lands, protect rangeland resources from deterioration associated with excess wild horses within the CHMA, and would "restore a thriving natural ecological balance and multiple use relationship on the public lands consistent with the provisions of (P.L. 92-195 Section 1332 (b) (2) (as amended) of the *Wild Free-Roaming Horses and Burros Act WFRHBA of* 1971." Further, the action conducted in a humane, safe, efficient, and environmentally sound manner is needed to ensure current and future populations of healthy wild horses.

The Interior Board of Land Appeals (IBLA) has also held that "*Proper range management dictates removal of horses before the herd size causes damage to the rangeland. Thus, the optimum number of horses is somewhere below the number that would cause resource damage*" Animal Protection Institute, 118 IBLA 63, 75 (1991). The AML for CHMA needs to be achieved and maintained to prevent the decline of wild horse habitat and wildlife habitat and ensure long-term health and well-being of the wild horses. Maintaining wild horse populations consistent with the established AML would promote RMP and Allotment specific objectives, healthy riparian habitat, and maintaining or making progress towards attainment of Standards for Rangeland Health, and protection of ACECs and wilderness values in WSAs.

1.4 Land Use Plan Conformance

The Proposed Action is in conformance with the Challis Resource Management Plan (USDI-BLM, 1999a) under Wild Horses and Burros, Goal 1, Decision #1 "Manage the wild horse herd for an AML of 185 animals in accordance with the 1983 U.S. District Court Consent Judgment and the current activity plan for the wild horse CHMA"; Decision #3 "Monitor wild horse use of the Malm Gulch and Sand Hollow areas, and remove wild horses as necessary to protect fragile watersheds"; and Decision #7 "Adjust wild horse management to ensure progress toward the riparian and aquatic habitat conditions described in Attachment 1."

1.5 Appropriate Management Level (AML)

The AML was established through the Challis RMP (USDI-BLM, 1999a) process signed in 1999. The purpose of the RMP is to "*identify resource condition, objectives, land use allocations, and management actions and direction necessary to guide resource management on a long term, sustainable basis during the next 15-20 years*" (USDI-BLM, 1999a). The Challis RMP set the AML of 185 wild horses for the CHMA utilizing monitoring data, the Challis Experimental Stewardship Program sub-committee information, the 1976 Challis Herd Management Plan (CHMAP) and the 1989 CHMAP Update, as well as the Consent Judgment by United States District Judge Charles R. Richey. The Challis RMP also established objectives and goals of the CHMA stating "*The Herd would vary from 185 to 253 animals between roundups.* And allow the CFO to a*djust horse numbers to a lower level if causing unacceptable levels of resource degradation*".

The most recent helicopter inventory flight of the CHMA was conducted in 2009 immediately following the 2009 gather and before horses were released back to the CHMA, which resulted in a direct count of 57 wild horses. Once horses were released the wild horse population was 224. The 2012 estimated population based on 17% average annual increase (long-term average from inventory flights) is 322 wild horses (including foals) in the CHMA. The PZP fertility control was factored in for the 2011 year at 10% (fertility control for the treatment window, plus 90 mare's equaled 10% reproduction). The population estimate exceeds the established AML in the CHMA by 140 wild horses. Prior to the proposed gather, an inventory will be conducted to obtain a recent population inventory.

1.6 Relationship to Statutes, Regulations, Policy, Plans or other Environmental Analysis

The Proposed Action is in conformance with the WFRHBA of 1971 (Public Law 92-195, as amended), Section 302 (a) and (b) of the Federal Land Policy and Management Act (FLPMA) of 1976, the Public Rangelands Improvement Act of 1978 (Pub. L. 95-514, Sec. 4), the Code of Federal Regulations (CFR) at 43 CFR §4700, and policies. Applicable excerpts are as follows: *Where the Secretary determines . . . that overpopulation exists . . .* ***he shall immediately remove excess animals from the range*** *so as to achieve appropriate management levels. Such action shall be taken . . . until all excess animals have been removed so as to restore a thriving natural ecological balance to the range, and protect the range from the deterioration associated with overpopulation.*

The law also provides that determinations will be made ―*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)"*** [emphasis added].

FLPMA amended the WFRHBA with ―*In administering this Act, the Secretary may use or contract for the use of helicopters or, for the purpose of transporting captured animals, motor vehicles. Such use shall be undertaken only after a public hearing and under the direct supervision of the Secretary or of a duly authorized official or employee of the Department".*

PRIA directs the continued *"policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values.*

BLM policy IM 2010-140, states at Section E: ―*During gather or herd management area planning, the authorized officer will consider a range of alternatives to reduce (slow) population growth rates and extend gather cycles for all wild horse herds with annual growth rates greater than or equal to 5%. These alternatives may include (but are not limited to): fertility control, adjustments in the sex ratio in favor of males, a combination of fertility control and sex ratio adjustment, and management of selected HMA for non-reproducing wild horses".* Similar direction is also located at Section 4.5.3 of the Wild Horses and Burros Management Handbook H 4700-1.

Statutes and Regulations
This action is governed by the **Wild Free Roaming Horse and Burro Act of 1971 (WFRHBA)** (Public Law (PL) 92-195 as amended) and Title 43 **Code of Federal Regulations (CFR)** part 4700. Gathering and disposal of the wild horses would be in accordance with PL 92-195 as amended by PL 94-579 **Federal Land Policy and Management Act (FLPMA)** and PL 95-514 **Public Rangelands Improvement Act (PRIA)**. Included are: **Section 302(b)** of FLPMA states that all public lands are to be managed so as to prevent unnecessary or undue degradation of the lands. Interim Management Policy and Guidelines for Lands Under Wilderness Review (USDI-BLM, 1995a) would be followed.

This action is in accordance with the following Federal Regulations:

43 CFR 4710.1, **Land Use Planning**
Management activities affecting wild horses and burros including the establishment of herd management areas shall be in accordance with approved land use plans pursuant to part 1600 of this title.

43 CFR 4710.2 Inventory and monitoring
The authorized officer shall maintain a record of the herd areas that existed in 1971, and a current inventory of the numbers of animals and their areas of use. When herd management areas are established, the authorized officer shall also inventory and monitor herd and habitat characteristics

43 CFR 4710.3-1 Herd Management Areas
Herd management areas shall be established for the maintenance of wild horse and burro herds. In delineating each herd management area, the authorized officer shall consider 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 4710.4. The authorized officer shall prepare a herd management area plan, which may cover one or more herd management area plans.

43 CFR 4710.4 Constraints on management.
Management of wild horses and burros shall be undertaken with the objective of limiting the animals' distribution to herd areas. Management shall be at the minimum feasible level necessary to attain the objectives identified in approved land use plans and herd management area plans.

43 CFR 4720.1 Removal of excess animals from public lands
Upon examination of current information and a determination by the authorized officer that an excess of wild horses or burros exists, the authorized officer shall remove the excess animals immediately.

43 CFR 4720.2-2 Removal of excess animals from private lands
If the authorized officer determines that proper management requires the removal of wild horses and burros from areas that include private lands, the authorized officer shall obtain the written consent of the private owner before entering such lands. **Flying aircraft over lands does not constitute entry.**

CFR 4740.1(a) (b) Use of motor vehicles or aircraft

(a) Motor vehicles and air craft may be used by the authorized officer in all phases of the administration of the Act, except that no motor vehicles or aircraft, other than helicopters, shall be used for the purpose of herding or chasing wild horses or burros for capture or destruction. All such use shall be conducted in a humane manner.

(b) Before using helicopters or motor vehicles… the authorized officer shall conduct a public hearing in the area where such use is to be made.

43 CFR 4770.1 Prohibited acts

The following acts are prohibited:

(a) Maliciously or negligently injuring or harassing a wild horse or burro;

(b) Removing or attempting to remove a wild horse or burro from the public lands without authorization from the authorized officer;

(c) Destroying a wild horse or burro without authorization from the authorized officer except as an act of mercy;

(d) Selling or attempting to sell, directly or indirectly, a wild horse or burro or its remains;

(e) Commercially exploiting a wild horse or burro;

(f) Treating a wild horse or burro inhumanely;

(g) Violating a term or condition of the Private Maintenance and Care Agreement;

(h) Branding a wild horse or burro

(i) Removing or altering a freeze mark on a wild horse or burro;

(j) Violating an order, term, or condition established by the authorized officer under this part.

43 CFR 4180.2(b), which states: "Standards and guidelines must provide for conformance with the fundamentals of rangeland health 4180.1."

The National Historic Preservation Act of 1966, as amended (NHPA; with regulations under 36 CFR 800) established the federal government's policy and programs on historic preservation. Section 106 of NHPA requires agencies to consider the effects of their actions on historic properties (defined as cultural resources determined to be eligible for listing on the National Register of Historic Places) prior to project implementation. The NHPA specifically requires federal agencies to identify and manage historic properties on federally owned and managed lands. Consultation under NHPA for the permit renewals has been conducted in accordance with BLM's National Programmatic Agreement and the implementing Protocol Agreement between Idaho BLM and the Idaho State Historic Preservation Office.

The *Fort Bridger Treaty of 1868* (15 Stat. 673) specifically reserves the rights of the Shoshone-Bannock Tribes to hunt, fish, gather, and exercise other traditional uses and practices on unoccupied federal lands, including public lands managed by the BLM-Challis Field Office. The federal government has a federal trust responsibility to manage public lands to provide for the continued exercise of tribal treaty rights, consistent with management policies, on all unoccupied lands within their jurisdiction. Part of the Federal trust responsibility entails conducting government-to-government consultation with Indian groups when a proposed project has the potential to impact the exercise of treaty-reserved rights.

The Clean Water Act (CWA) (33 USC §1251 et seq.) requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes must adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the waters whenever possible.

Section 303(d) of the CWA establishes requirements for states and tribes to identify and publish a prioritized list of water bodies that are impaired (not fully supporting their designated beneficial uses, every two years). The most recent publication for Idaho was in 2010 by the Idaho Department of Environmental Quality (IDEQ). For waters identified on this list, the State must define total maximum daily loads (TMDLs) for each pollutant causing the water body not to fully support its designated beneficial uses. The TMDL is the amount of pollutant that could be added to the water body per day and the given water body would still fully support all of its designated beneficial uses. This is then used to establish allowable pollutant loads set at levels to achieve water quality standards required for the designated beneficial uses.

Section 7 of the Endangered Species Act (ESA) of 1973, as amended, outlines the procedures for Federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a) (2) states that each federal agency shall, in consultation with the Secretary, insure that any action it authorizes, funds, carries out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of its habitats.

Pursuant to Section 305(b)(2) of the Magnuson-Stevens Act, federal agencies must consult with the National Marine Fisheries Service (NMFS) regarding any of their actions authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken that may adversely affect Essential Fish Habitat (EFH). The Magnuson-Stevens Act, Section 3, defines EFH as "those waters and substrate necessary for fish for spawning, breeding, feeding, or growth to maturity."

In 1995, the BLM adopted the Interim Strategy for Managing Anadromous Fish-Producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California, commonly referred to as PACFISH (USDI-BLM 1995b). Also in 1995, the BLM implemented the Bull Trout Habitat Conservation Strategy known as INFISH (USDI-BLM 1995c). INFISH is virtually identical to PACFISH except that it applies to land management activities that influence bull trout habitats rather than anadromous fisheries habitats. INFISH standards apply to watersheds that are not already covered by PACFISH.

Sensitive plant inventories have been conducted on all proposed temporary capture sites and no populations have been discovered. If additional capture sites are needed plant clearances will occur prior to any action.

BLM Handbook 8550-1, the Interim Management Policy for Lands Under Wilderness Review (USDI-BLM, 1995a) provides guidance on Wild Horse and Burro Management: Taking into account the fact that wild horse and burro numbers fluctuate dramatically within WSAs due to a variety of factors, the Bureau must still endeavor to make every effort not to allow populations within WSAs to degrade wilderness values, or vegetative cover as it existed on the date of the passage of FLPMA. Wild horse and burro populations must be managed at appropriate management levels as determined by monitoring activities to ensure a thriving natural ecological

balance. Wild horse and burro developments existing within WSAs as of October 2, 1976 may continue to be utilized and maintained. Although these developments existed prior to the passage of FLPMA, there may be opportunities for mitigating their impacts on wilderness values. Motor vehicles may not be used in the maintenance of these developments unless the development is on an existing way or trail.

Helicopters and fixed wing aircraft may be used for the installation of new temporary facilities, for aerial surveys, for law enforcement activities, and for the gathering of wild horses and burros.

1.7 Conformance with Rangeland Health Standards and Guidelines

As stated in 43 CFR 4180.2(b) - ―Standards and guidelines must provide for conformance with the fundamentals of 43 CFR 4180.1. The Standards and Guidelines for Grazing Management for public lands have been reviewed by the Departmental Review Team who found that they comply with the requirements of the regulations. Gathering excess horses conforms to the Idaho standards and guides which are in conformance with appropriate land use plans.

1.8 Decision to be Made

The authorized officer's decision would determine whether to implement the proposed gather in order to bring the wild horse population back to AML by maintaining or adjusting sex ratios and/or implementing fertility control measures (PZP-22 or current formula) in order to maintain population size within the established AML and avoid the deterioration of the range that can result from wild horse overpopulation. The authorized officer's decision would not set or adjust AML nor would it adjust livestock use, as these were set through previous decisions including the Challis RMP.

1.9 Scoping and Identification of Issues

As part of the preparation of this EA, a scoping letter dated February 3, 2012 was mailed to 41 individuals, agencies, and organizations on the interested public list for the Challis Herd Management Area, Wilderness List, and the associated Allotment Lists. In addition to the scoping letter an open house was held at the Challis Field Office on February 24, 2012 to answer questions and receive comments. Six comments were received at the Open House. Additionally, over 4,000 comments were received from interested publics during the scoping process. A statewide Helicopter Hearing for the use of motorized vehicles in the management of wild horses was held in Kimberly, Idaho on March 7, 2012. Six individuals attended and four commented on the use of helicopters. All of the individuals that commented supported the use of motorized vehicles in particular helicopters in the management of wild horses. Time was available following the meeting to comment on the proposed gathers in Challis and Boise.

The following issues were identified as a result of consultation/coordination and public scoping relative to the BLM's management of wild horses in the planning area:

- Population size and growth rate
- Expected impacts to individual wild horses from handling stress
- Expected impacts to herd social structure
- Expected effectiveness of proposed fertility control application
- Potential effects to genetic diversity
- Potential impacts to animal health and condition

- Impacts to individual wild horses and the Challis Herd

2.0 Proposed Action and Alternatives

2.1 Introduction

This section of the EA describes the Proposed Action and alternatives, including any that were considered but eliminated from detailed analysis.

The authorized officer would determine whether to implement the proposed gather in order to bring the wild horse population back to AML by maintaining or adjusting sex ratios and/or implementing fertility control measures (PZP-22 or current formula) in order to maintain population size within the established AML and avoid the deterioration of the range that can result from wild horse overpopulation.

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

2.1.1 Alternative 1: Proposed Action

- Capture 274 wild horses or 85% of the population
- Remove approximately 140 excess wild horses; including approximately 10 horses outside the CHMA.
- Treat all mares released back into the CHMA with PZP-22 fertility control vaccine at the sorting/holding facility
- Maintain the 60% male sex ratio as specified in the CHMAP revision of 1989.
- Wild horses captured from outside of the CHMA boundaries would be removed regardless of age and would not be released back into the CHMA.
- Field dart mares on private land adjacent to the CHMA if cooperating land owners are willing to participate
- Photos of each mare treated with PZP-22 at the sorting/holding facility will be taken prior to release to assist in photo recognition to facilitate field darting trials in the future.
- Photos would also be taken of individual mares prior to being field darted for photo recognition.

2.1.2 Alternative 2: Removal Only

Capture and remove approximately 140 excess wild horses; including approximately 10 horses outside the CHMA with no fertility control and a 50/50 sex ratio adjustment.

2.1.3 Alternative 3: Removal with Fertility Control and Release of Geldings

- Selective removal of excess wild horses,
- Implementation of fertility control vaccine (PZP-22 or current formula),
- Maintain sex ratios to favor males (60:40),
- Achieving a post-gather population of 185 wild horses in the CHMA.
- A portion of the male population would be managed as a non-breeding population. The target sex ratio for the remaining breeding population would be 10:50:40 with a 10% gelding component.

2.1.4 Alternative 4: Removal with Fertility Control; without Sex Ratio Adjustment

- Capture and removal of approximately 140 excess wild horses, including approximately 10 wild horses from outside the CHMA
- Administer PZP-22 fertility control vaccine to released mares and adjust the sex ratio to 50:50 from 60:40.

2.1.5 Alternative 5: No Action (Deferred Gather)

No Action — Defer gather and removal for a ten year period based on the Jenkins modeling program. This will display the possible ramifications of not gathering for a ten year period.

2.2 Management Actions Common to Alternatives 1-4

- The gather would begin about Mid-October and take 10 to 14 days to complete. Several factors such as animal condition, herd health, weather conditions, or other considerations could result in adjustments in the schedule.

- Gather operations would be conducted in accordance with the Standard Operating Procedures (SOPs) (Appendix B) described in the National Wild Horse and Burro Gather Contract (Appendix A). The primary gather (capture) methods would be the helicopter drive method with occasional helicopter assisted roping (from horseback).

- Existing capture sites and temporary sorting/holding facilities are located outside of riparian areas in previously used sites or other disturbed areas. Additional capture sites determined to be necessary for humane and effective gather operations will be located outside of stream riparian habitat conservation area (RHCA) buffers, consistent with the Challis RMP (USDI-BLM 1999a, Attachment 4, p. 83 – 84).

- Additional capture sites or sorting/holding facilities determined to be necessary for humane and effective gather operations would be inventoried for cultural resources and sensitive plants, and if present the capture sites and/or facilities would be established elsewhere.

- An Animal and Plant Health Inspection Service (APHIS) Doctor of Veterinary Medicine (DVM) or other licensed DVM will be on-site during the gather to examine animals and make recommendations to BLM for care and treatment of wild horses, and in accordance the 1999 Challis RMP Record of Decision (ROD) (pg. 90.)

- Decisions to humanely euthanize animals in field situations will be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041). Current policy reference: http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html

- Data including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded, along with the disposition of that animal (removed or released).

- In accordance with IM 2009-062 hair samples should be collected every 10-15 years. DNA samples were last collected in 2002 placing the CHMA in the proper time frame for data collection. Hair samples would be collected on about 30 animals to assess the genetic diversity of the herd. Samples would also be collected during future gathers as needed to determine whether BLM's management is maintaining acceptable genetic diversity (avoiding inbreeding depression).

- Excess animals would be transported to the Challis BLM preparation facility where they will be prepared (freeze-marked, vaccinated and de-wormed) for adoption, sale (with limitations) or long-term holding.

- Temporary closure of roads within the CHMA during gather operations may be instituted as necessary to allow for safe and effective operations to proceed.

2.3 Description of Alternatives

2.3.1 Alternative 1. Proposed Action

The Proposed Action would gather about 274 or 85% of the population of wild horses beginning about Mid-October, in order to remove approximately 140 excess wild horses, apply PZP-22 fertility control vaccine to 55 released mares, and maintain a 60% male sex ratio. Wild horses captured from outside of the CHMA boundaries would be removed regardless of age and would not be released back into the CHMA. Animals would be removed using the National Selective Removal Policy IM 2010-164 (Appendix F). Selective removal criteria for the CHMA include: 1) First Priority: Age Class – Four Years and Younger; 2) Second Priority: Age Class – Eleven to Nineteen Years 3) Third Priority: Age Class Five to Ten Years 4) Fourth Priority: Age Class Twenty Years and Older should not be removed from the CHMA unless specific exceptions prevent them from being turned back to the range

Mares would be treated with a two-year PZP-22 or most current formulation or similar vaccine and released back to the range. Fertility control treatment would be conducted in accordance with the approved standard operating and post-treatment monitoring procedures (SOPs, Appendix B). Mares would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

Stallions and geldings would be selected for release with the objective of maintaining the 60% male sex ratio. Stallions would be selected to maintain a diverse age structure, herd characteristics and body type (conformation).

The primary gather technique would be the helicopter-drive trapping method. The use of roping from horseback could also be used when necessary. Multiple capture sites may be used to gather wild horses both from within and outside the CHMA. The existing potential capture sites are depicted on Map 8. Any new capture sites or areas designated for sorting/holding facilities would be analyzed prior to use.

Capture sites would be limited to roads or outside active riparian areas or cultural resource sites. Capture sites within WSAs would be restricted to existing roads. No additional capture sites would be set up within known populations of Sensitive Species; any new additional capture sites not depicted on Map 8 would be constructed outside of the RHCA to preclude impacts to riparian areas or aquatic resources. Sites may be monitored for invasive or non-native species for the next several years to verify that these species are not present and do not become established. The capture sites and sorting/holding facilities may be seeded with native seed mixes if deemed necessary by the authorizing officer. These capture sites are used for short time frame of one to three days. However; prior experience has shown sorting/holding facilities may receive sufficient disturbance to require seeding due to longer duration of horses being present and larger numbers of horses. Sorting/holding site selections would follow SOPs (Appendix B).

Following the capture of wild horses, animals would be sorted by age and sex, and selected for release back to the CHMA or for transport to the Challis Wild Horse Preparation Facility. Table 2 displays the anticipated gather and removal figures.

Most foals would be removed and transported to the Challis wild horse preparation facilities as they would be 5-7 months of age and weaned from their dams. If foals too young to wean are encountered they would be released with their dam. If the dam is unable to be released they would be kept together and the foal would not be weaned until of an appropriate age. Due to the timing of the gather in mid-October the occurrence of foals too small to wean would be rare.

Herd health and characteristics data would be collected as part of continued monitoring of the wild horse herds. Other data, including sex and age distribution, condition class information (using the Henneke rating system), color, size and other information may also be recorded for all gathered wild horses. Genetic data would be collected from approximately 30 individuals to monitor the genetic health of the wild horses within the CHMA and compare samples taken in 2002.

Gathered wild horses would be transported to Challis BLM preparation facility or other BLM facilities where they would be prepared for adoption and/or sale to qualified individuals who could provide them with a good home or for transfer to long-term grassland pastures.

Limited bait (food/mineral) trapping may be utilized to achieve the management targets or to relieve specific resource or human safety concerns within and adjacent to the CHMA.

Wild horses would be selected and released back to the CHMA, so as to represent the historic characteristics of the CHMA. This would include selecting animals of moderate or larger stature, average or better confirmation, 20% grey coloration as well as the historic range of colors found within the CHMA. Animals that exhibit exceptional characteristics may be chosen for release outside of the selective removal priorities on a case by case basis. Wild horses to be released would be selected for health, stamina, strength and mothering abilities when these factors can be determined. Weak, unhealthy, and unthrifty animals would not be selected for release back into the CHMA. A helicopter inventory flight may be conducted following the gather to collect information about numbers and distribution of remaining wild horses within the CHMA.

An APHIS DVM or other licensed DVM would be on-site during the gather, as needed, to examine animals and make recommendations to the BLM for care and treatment of wild horses. All excess wild horses removed from within and outside the CHMA would be made available for adoption or sale to qualified individuals.

Any old, sick or lame horses unable to maintain an acceptable body condition (greater than or equal to a Henneke body condition score of 3 or with serious physical defects such as club feet, severe limb deformities, parrot mouth, or sway back would be humanely euthanized as an act of mercy. Decisions to humanely euthanize animals in field situations would be made in conformance with BLM policy (Washington Office Instruction Memorandum 2009-041).Refer to:
http://www.blm.gov/wo/st/en/info/regulations/Instruction_Memos_and_Bulletins/national_instruction/2009/IM_2009-041.html

2.3.2 Alternative 2: Removal Only

Alternative 2 would gather about 274 and remove approximately 140 excess wild horses from within and outside the CHMA beginning about Mid-October. Fertility control **would not be** applied; and the herd's sex ratio would be returned to 50:50.

2.3.3 Alternative 3: Removal with Fertility Control and Release of Geldings

Alternative 3 would gather about 274 and remove approximately 140 excess wild horses from within and outside the CHMA beginning about Mid-October. Fertility control would be applied, as stated in the proposed alternative; the herd's *breeding* sex ratio would be 50:40 stallions to mares. Geldings would make up an additional 10% of the herd acting as a non-reproductive component of the herd. The population would then be comprised of 40% mares and 60% mixed stallions and geldings.

2.3.4 Alternative 4: Removal with Fertility Control; without Sex Ratio Adjustment

Alternative 4 would gather about 274 and remove approximately 140 excess wild horses from within and outside the CHMA beginning about Mid-October. Fertility control **would be** applied but the sex ratio would return to 50:50.

2.3.5 Alternative 5: No Action (Deferred Gather)

No Action — Defer gather and removal for a ten year period based on the Jenkins modeling program. This will display the possible ramifications of not gathering for a ten year period.

The Proposed Action, Alternative 2, Alternative 3 and Alternative 4 were developed to respond to the identified resource issues and the Purpose and Need to differing degrees. The No Action Alternative would not achieve the identified Purpose and Need. However, it is analyzed in this EA to provide a basis for comparison with the other action alternatives, and to assess the effects of not conducting a gather at this time. The No Action Alternative is in violation of the WFRHBA which requires the BLM to immediately remove excess wild horses, additionally it is not in conformance with regulatory provisions for management of wild horses and burros as set forth at 43 CFR § 4700.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

2.4.1 Water or Bait Trapping as the exclusive gather method

An alternative considered but dismissed from detailed analysis was use of water, bait (food/mineral) trapping as the primary gather method, instead of a helicopter gather. Though the use of water or bait trapping to remove excess wild horses and burros can be fairly effective on a small scale and under specific conditions and circumstances, this alternative was dismissed from detailed study for the following reasons: 1) the area within the CHMA is too rugged to access effectively during the most favorable times to gather; 2) the presence of widely spread water sources in the form of perennial springs and streams make it nearly impossible to restrict wild horse access to only selected water capture sites. The difficult terrain involved and the extended time necessary for implementation of this alternative would result in a substantial increase in gather costs and would make it difficult to limit the gather to the preferred winter months to take advantage of the recommended fertility control application period. Given the impracticalities of implementing this alternative for such a difficult geographic area, this alternative was eliminated from detailed study as the sole gather method. This method may be used in a limited approach on a case by case basis.

2.4.2 Remove or Reduce Livestock within the CHMA

This alternative would involve no removal of wild horses and instead address the excess wild horse numbers through the removal or reduction of livestock within the CHMA. This alternative was not brought forward for analysis because it is inconsistent with the Challis RMP and ROD and is inconsistent with multiple use management.

The proposal to reduce livestock would not meet the purpose and need for action identified in Section 1.3 "*to remove excess wild horses in the HMA. This action is needed in order to achieve a population size within the established AML, protect rangeland resources from further deterioration associated with the current wild horse overpopulation, and restore a thriving natural ecological balance and multiple use relationship in the area consistent with the provisions of Section 3(b) (2) of the Wild Free-Roaming Horses and Burros Act of 1971 (1971 WFRHBA)". R*educing horse populations to within AML is necessary in order to evaluate if wild horse management at AML would allow BLM to meet rangeland health standards.

The total authorized livestock AUMs with the upper range of AML in AUMs and the total wild horse population in AUMs for 2011 can be found in Table 9.

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

Furthermore, re-allocation of livestock AUMs to increase the wild horse/burro AMLs would not achieve a thriving natural ecological balance. Unlike livestock which can be confined to specific pastures, limited periods of use, and specific seasons-of-use so as to minimize impacts to

vegetation during the critical growing season or to riparian zones during the summer months, wild horses are present year-round and their impacts to rangeland resources cannot be controlled through establishment of a grazing system, such as for livestock. Thus, impacts from wild horses and burros can only be addressed by limiting their numbers to a level that does not adversely impact rangeland resources and other multiple uses. For the reasons stated above, this alternative was dropped from detailed analysis. Changes in forage allocations between livestock and wild horses/burros would have to be re-evaluated and implemented through the appropriate public decision-making processes to determine whether a thriving natural ecological balance can be achieved at a higher AML and in order to modify the current multiple use relationship established in the land-use plan.

2.4.3 Control the excess wild horses with only the use of fertility control treatment

An alternative to gather a significant portion of the existing population (95%) and implement fertility control treatments only, without removal of excess horses, was modeled using a three-year gather/treatment interval over a 20 year period. The wild horse population would continue to have an average population growth rate of 0.8% to 6.0 %, adding to the current wild horse overpopulation, albeit at a slower rate of growth. Over the next 20 years, on average the population would grow to between 322 and 1725 wild horses with the resulting population being between 130 and 1540 horses over AML. In order to accomplish the reduced rates of growth between 1435 and 1970 horses would need to be gathered and treated. This alternative would not bring the horse population to AML and would allow the wild horse population to continue to grow even further in excess of AML, resource concerns would escalate, and implementation of this alternative would result in significantly increased gather and fertility control costs without achieving a thriving natural ecological balance. This method has been used with small numbers of horses that are conditioned to human presence and easily approached. This alternative would not meet the purpose and need. It would not comply with the WFRHBA because it would not remove excess wild horses from the range and would not restore a thriving ecological balance to the ecosystem. The complete model trial data are described below in Table 1.

Table 1. WinEquus gather and treat data without removal

Population Size in 11 Years*

	Gathered	Removed	Treated
Lowest Trial	1052	0	306
10th Percentile	1328	0	415
25th Percentile	1530	0	465
Median Trial	1760	0	540
75th Percentile	1940	0	604
90th Percentile	2116	0	660
Highest Trial	2561	0	833

* 0 to 20+ year-old horses Parameters used in the modeling include the following assumptions:

Each time a horse is gathered it is counted, even though the same horse may be gathered multiple times during the 11 year period.

Each time a horse is treated with PZP-22 it is counted, even though the same horse may be treated multiple times over the 11 year period.

2.4.4 Gather a portion of existing population, make an incremental reduction (67 horses) in the excess wild horses and implement fertility control treatments while evaluating habitat response

An alternative to gather a significant portion of the existing population (85%) remove only a portion of the excess wild horse population (67 horses) and implement fertility control was recommended through the public review process. Implementation of this alternative would reduce the existing population by 16-18%, but the remaining wild horse population would be anticipated to increase at an average fertility rate of 17% (based upon average number of foals counted during population inventories) annually. This rate of increase would fully offset the 67 horses that would be removed as of the 2013 foal crop and no significant progress would be made in reducing resource impacts from the current overpopulation of wild horses within the CHMA. This alternative would not result in attainment of AML for the CHMA as required by under the WFRHBA.

Additionally, AML represents "*that optimum number of wild horses/burros which results in a thriving natural ecological balance and avoids a deterioration of the range*." (Animal Protection Institute, 109 IBLA 119 1989). The Interior Board of Land Appeals has also held that "Proper range management dictates removal of horses *before the herd size causes damage to the range land*. Thus, the optimum number of horses is somewhere below the number that would cause resource damage" Animal Protection Institute, 118 IBLA 63, 75 (1991) (italics added). The AML is set to prevent range deterioration and allow for allocation of forage for other use in compliance with our multiple use mission. For these reasons, this alternative was eliminated from further consideration.

2.4.5 Use of alternative capture techniques instead of helicopter capture of excess wild horses

An alternative using capture methods other than helicopters to gather excess wild horses was suggested through the public review process. The following optional methods were recommended through scoping; chemical immobilization, net gunning, and wrangler/horseback drive capture as potential methods for gathering horses. Net gunning techniques normally used to capture big game animals also rely on helicopters. Chemical immobilization is a very specialized technique and strictly regulated. Currently the BLM does not have sufficient expertise to implement either of these methods and it would be impractical to use given the size of the project area and the number of horses that would need to be removed, access limitations and difficulties in approachability of the horses. Each of these techniques may also increase mortality for wild horses as well as wranglers and domestic horses.

Use of wrangler on horseback drive-trapping to remove excess wild horses can be fairly effective on a small scale. However, given topography, terrain and difficulties in approaching the horses this technique would be ineffective and impractical. Horseback drive-trapping is also very labor intensive and can be very harmful to the domestic horses and the wranglers used to herd the wild horses. Domestic horses can easily be injured while covering rough terrain and the wrangler could be injured if he/she falls off. For these reasons, this alternative was eliminated from further consideration.

2.4.6 Density Dependent Mortality

While some members of the public have advocated "letting nature take its course", allowing horses to die of starvation would be inhumane treatment and would be contrary to the WFRHBA, which mandates removal of excess wild horses. The damage to rangeland resources that results from excess numbers of wild horses is also contrary to the WFRHBA, which mandates the Bureau to "*protect the range from the deterioration associated with overpopulation*", "*remove excess animals from the range so as to achieve appropriate management levels*", and *"to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area".* Once the vegetative resources are at these critically low levels due to excessive utilization by an over population of wild horses, the weaker animals, generally the older animals, and the mares and foals, are the first to be impacted. It is likely that a majority of these animals would die from starvation. The resultant population would be heavily skewed towards the stronger stallions which would lead to significant social disruption in the CHMA. By managing the public lands in this way, the vegetative resources will be impacted first and to the point that they have no potential for recovery. Competition between livestock, wildlife and wild horses for forage and water resources would continue, and worsen as wild horse numbers continue to increase above AML and would conflict with BLM's multiple use mission.

2.4.7 Designation of the CHMA to be Managed Principally for Wild Horses.

Designate the CHMA as "Wild Horse Range". This action under 43 CFR 4710.3-2 would require amendment of the 1999 Challis RMP, which is outside the scope of this EA. Only the BLM Director or Assistant Director (as per BLM Manual 1203: Delegation of Authority), may establish a Wild Horse and Burro Range after a full assessment of the impact on other resources through the land-use planning process. Wild Horse and Burro Range is not an "exclusive" designation. Designation would not necessarily exclude livestock use; therefore levels of livestock grazing permitted could remain the same. The CHMA has not been designated as a wild horse range under 43 CFR 4710.3-2.2. Currently there are four designated Wild Horse and Burro Ranges in the Western United States that are managed principally for wild horses and burros consistent with 43 CFR 4170.3-2.2. These are the Pryor Mountain Wild Horse Range in Montana; the Little Book Cliffs Wild Horse Range in Colorado; the Nevada Wild Horse Range and the Marietta Wild Burro Range in Nevada.

Table 2. Summary and Comparison of Impacts to Wild Horses by Alternative

	Alt 1: Proposed Action	Alt 2: Removal Only	Alt 3: 10% Geldings Removal and Fertility Control only	Alt 4: Removal and Sex Ratio only	Alt 5: No Action
Gather Number	274	274	274	274	0
Removal Number	140	140	140	140	0
Fertility Control - # Mares Treated	55	0	55	0	0
Post-Gather Sex Ratio	60/40*	50/50	60/40 or 10/50/40 Gelding/Stallion/ Mare	60/40	Unknown
Post-Gather Population	185	185	185	185	322

*The 1989 Challis Herd Management Plan Update changed the sex ratio to 60/40 males to females

3.0 Affected Environment and Environmental Effects

To comply with the National Environmental Policy Act (NEPA), the Bureau of Land Management is required to address specific elements of the environment that are subject to requirements specified in statute or regulation or by executive order. The following table outlines the elements that must be addressed in all environmental analyses, as well as other resources deemed appropriate for evaluation by the BLM, and denotes if the Proposed Action, sequential alternatives, or the No Action Alternative affects those elements.

Potential or expected impacts to the affected resources are discussed following the tables. Direct impacts are those that result from the actual implementation of the chosen alternative. Indirect impacts are those impacts that occur once an alternative has been implemented.

Table 3. Resources Considered in Impact Analysis

Resource	Present Yes/No	Affected Yes/No	Rationale
Air Quality	**Yes**	**No**	The implementation of all alternatives including the no action alternative would not result in the production of vehicle or equipment emission or particulate matter above incidental levels. Short term dust will be present at capture sites.
Areas of Critical Environmental	**Yes**	**No**	There are five Areas of Critical Environmental Concern (ACEC) within the CHMA. They are:

Table 3. Resources Considered in Impact Analysis			
Resource	**Present Yes/No**	**Affected Yes/No**	**Rationale**
Concern (ACEC's)			Malm Gulch/Germer Basin, Lone Bird, Antelope Flat, East Fork Salmon River Bench and Sand Hollow. These ACECs contain a variety of unique features including pristine vegetation, rare plants, unusual plant assemblages, fragile soils and cultural resource significance. No capture sites will be built in an ACEC.
Cultural Resources	**Yes**	**No**	Intensive survey for cultural resources in and near gather-related congregation areas (e.g., proposed capture sites, sorting/holding facilities) has occurred in 1986, 1994, and 2004. These specific areas are used recurrently to support gathers. If additional gather-related congregation areas are determined necessary for the 2012 wild horse gather, inventory and review for cultural resources impacts would occur prior to project implementation. Impacts to properties eligible for listing on the National Register of Historic Places would be avoided, in accordance with the 2012 revision of the BLM's National Programmatic Agreement and the implementing Protocol Agreement between Idaho BLM and the Idaho State Historic Preservation Office. Adherence of the Standard Operating Procedures (SOPs) (Appendix B), would mitigate many potential impacts to historic properties.
Environmental Justice	**No**	**No**	There are no minority or low income populations residing near the proposed project area.
Existing and Potential Land Uses	**No**	**No**	The proposed action would not affect the study areas current and likely future use as a grazing allotment.
Farmlands (prime and unique)	**No**	**No**	There are no prime or unique farmlands in the vicinity of the project area.
Floodplains	**No**	**No**	Based on the FEMA Flood Insurance Study, this allotment occurs in Zone D, an area where no floodplains have been delineated and no flood hazards have been identified (FEMA 1988).
Forest Resources	**Yes**	**No**	There are forest resources in the project area located at high elevations with limited vehicle access.
Grazing/Livestock Management	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Invasive, Non-Native Species	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects.
Lands with Wilderness Characteristics	**No**	**No**	The Challis CHMA overlaps with 6 LWC Inventory units. Three of the units were initially inventoried in the late 1970s (0407-01, Dry

Table 3. Resources Considered in Impact Analysis			
Resource	**Present Yes/No**	**Affected Yes/No**	**Rationale**
			Gulch; 0406-07, Lone Pine Peak; and 0406-09, Bradbury Flat), and three of the units were first inventoried for the purposes of this project (0406-16, Gossi Spring; 0406-17, Broken Wagon; and 0406-15, Warm Springs). These units are located on the flats and foothills west of Highway 93 between the town of Challis and Trail Creek Road. The units are primarily composed of low-lying vegetation (grasses and sagebrush) with some of the steeper, higher elevation slopes hosting mahogany and evergreen stands. With the exception of a portion of Unit 0406-07, all were found to be clearly and obviously lacking wilderness characteristics when initially inventoried in 1979. During re-inventory in 2012 it was found that this continues to be the case. The portion of Unit 0406-07 not found to be clearly and obviously lacking wilderness characteristics during initial inventory (identified as unit 46-7) was not evaluated further in the 1980 Idaho Intensive Wilderness Inventory Proposed Decision. However, during re-inventory in 2012 it was determined that this area does not have outstanding opportunities for either solitude or primitive and unconfined recreation. Therefore, there are no Lands with Wilderness Characteristics present or affected within the project area.
Migratory Birds	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects.
Mineral Resources	**Yes**	**No**	There are mineral resources (e.g., material that could be used as fill) in essentially all of the Challis Field Office area, including the project area. However, there would be no meaningful affects to such resources from the Proposed Action or alternatives.
Native American Religious Concerns	**Yes**	**No**	There are no known ceremonial sites or resources associated with ceremonial practices in the proposed project area.
Paleontological Resources	**No**	**No**	There are no known paleontological resources located in the proposed project area.
Range Resources	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Recreational Use	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Socio-economics	**Yes**	**No**	The proposed action is consistent with the prevalent economic and social values characteristic of this area. Many of the permittees within the CHMA are running far

Table 3. Resources Considered in Impact Analysis			
Resource	**Present Yes/No**	**Affected Yes/No**	**Rationale**
			below permitted use in part due to the high numbers of horses. With lower horse numbers they may be able run more livestock and add economic growth to Custer County. It is not known if there is revenue generated from Wild Horse viewing. If there is it may be temporarily reduced by fewer horses available.
Soils	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects.
Threatened, Endangered, and Sensitive Fish; Fisheries	**Yes**	**Yes**	Because of the absence of threatened / endangered fish no effects would occur, and elements of the action alternatives designed to limit or preclude effects to riparian vegetation or stream channels result in no effect to designated critical habitat. Potential impacts to sensitive fish present in the CHMA are disclosed under Environmental Effects.
Threatened, Endangered, and Sensitive Animals	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Threatened, Endangered, and Sensitive Plants	**Yes**	**No**	There are 5 sensitive plant species found within the proposed project area. They are: Lemhi Milkvetch (*Astragalus aquilonius*), Challis Crazyweed (*Oxytropis besseyi* var. *salmonensis*), Wavy-Leaf Thelypody (*Thelypodium repandum*), Park Milkvetch (*Astragalus leptaleus*), and Challis Milkvetch (*Astragalus amblytropis*). No capture sites will be located within known plant populations. Capture sites not previously surveyed will be surveyed prior to gather site construction.
Tribal Treaty Rights and Interests	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Vegetation	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Visual Resources	**Yes**	**No**	All facilities will be temporary and be removed at the conclusion of the action.
Wastes, Hazardous and Solid	**Yes**	**No**	Hazardous material (DVM drugs (including PZP22) and liquid Nitrogen) in use during the gather operation would be kept, used and disposed of under the supervision of trained BLM staff, contract DVM or APHIS DVM.
Water Quality (Surface and Ground)	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Wetland and Riparian Zones	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Wild and Scenic Rivers	**No**	**No**	There are no known Wild and Scenic Rivers in the area
Wildlife	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects
Wild Horses	**Yes**	**Yes**	Impacts are disclosed under Environmental

Table 3. Resources Considered in Impact Analysis			
Resource	**Present Yes/No**	**Affected Yes/No**	**Rationale**
			Effects
Wilderness	**Yes**	**Yes**	Impacts are disclosed under Environmental Effects

3.1 General Description of the Affected Environment

The CHMA encompasses 154,150 acres of BLM, 9,454 State of Idaho and 1,116 private lands near the East Fork of the Salmon River. The herd area is bordered on the north by the Salmon River, on the west by the East Fork of the Salmon River, on the south by the ridgeline between Herd Creek and Road Creek and on the east by U.S. Highway 93 and the watershed boundary between the Salmon River drainage and the Lost River drainage.

The climate of the region is semi-arid high desert typical of the Rocky Mountains in central Idaho. This climate is characterized by cold winters and hot dry summers which are affected by the Pacific Ocean maritime masses. Elevations, topography and aspect result in high variability in microclimates throughout the CHMA. The nearest national weather service station is located in Stanley, Id 1916-2010. This site recorded a mean monthly rainfall of 1.62 in during January, and 0.59 in during July. Mean monthly max temperatures were 26.5°F in January and 78.5°F in July. The total annual precipitation varies with elevation as a result of orographic lifting resulting in as much as 20-30 in (based upon Snotel Data from Mill Creek Summit site 627 at 8800 ft amsl) of annual precipitation near mountain tops and as little as ≈7 in of annual precipitation occurring on the valley floor. Most of the precipitation in the valley occurs as snow at higher elevations during falls and winter months.

The upland vegetation of the East Fork Watershed is dominated by coniferous forests with deciduous wooded areas interspersed along the watercourses. Highly productive mixed conifer stands at low to middle elevations consisting mainly of Douglas-fir, and lodgepole pine. At higher elevations, the moderately productive conifer species are Engleman spruce, subalpine fir, and lodgepole pine. Understory vegetation in the forested areas consists of various shrubs, forbs and grasses. Drier areas support grassland vegetation on sites where trees are scattered or absent. These lower elevation lands consist of a sagebrush/grass complex. Varieties of sagebrush (Artemesia spp.) dominate the watershed below 16 inches of annual precipitation. Mixed salt shrub types (Atriplex spp) are also present below 10 inches of annual precipitation. Herbaceous understory generally includes bluebunch wheatgrass, blue grasses, Idaho fescue, needle grasses, squirreltail, and a variety of perennial and annual forbs.

3.2 Wild Horses

3.2.1 Affected Environment

Congress passed the Wild Free Roaming Horses and Burros Act (WFRHBA) in 1971. The Act recognized the value of wild horses and burros on public lands, and directed public lands management agencies, including BLM, to establish herd management areas where wild horses and burros could be part of a thriving ecological balance. Within herd management areas, BLM establishes "Appropriate Management Levels" (or AMLs), which is a wild horse and burro population range that can be accommodated within the herd management area without adversely affecting other resources.

Since the passage of the WFRHBA, management knowledge regarding wild horse population levels has increased. By law, BLM is required to remove excess animals once a determination has been made that excess animals are present and removal is necessary. In the past 2 decades, program goals have shifted beyond establishing appropriate management levels for individual herds and conducting gathers to achieve and maintain wild horse populations within the established AML. Management actions resulting from shifting the program emphasis include increasing fertility control and adjusting sex ratios to reduce population growth rates, increased gather intervals, improving the accuracy of population inventories and collecting genetic baseline data to support genetic health assessments. Decreasing removal numbers while reducing population growth rates and ensuring the welfare of wild horses on the range is pertinent to these program goals.

The CHMA has been gathered 14 times since October 1979. Approximately 2000 horses have been gathered since that time. One hundred eighty five wild horses would remain in the CHMA after the gather; of these, about 55 would be mares treated with PZP-22 or latest formula and about 111 would be stallions or geldings; maintaining the sex ratio to 60:40 in favor of males to slow population growth rates and assist in maintaining wild horse population levels consistent with the established AML. The proposed gather would occur in October/November and would be conducted in accordance with the Gather Plan and Standard Operating Procedures (SOPs) located in Appendices A and B. Map 8 displays the proposed gather area, capture sites, wild horse winter range, livestock grazing allotments and pastures.

Wild horses have a long life-span (20-30 years), adapt well to a variety of habitats, and have few natural predators. They also reproduce at a prolific rate; 15-20% (17% in the CHMA) annual reproduction rates are not unusual. Consequently, it is very difficult to maintain the appropriate management level through natural means. Over the years, the BLM has attempted a variety of management techniques to control wild horse and burro populations. The most common method is removal of excess horses, with the intent that the horses would be adopted and trained for domestic use. However, interest in adoptions has declined in recent years, primarily because of the cost of care. Therefore, horses and burros that are removed from the range are often transported to holding facilities, where they are cared for until they are adopted or die. Currently, there are approximately 48,000 horses in short-term corrals and long-term holding facilities.

Long-term holding facilities are expensive to operate and, in the view of wild horse and burro advocates, are contrary to the purpose of the WFRHBA. In response to sky-rocketing costs and

public sentiment, the BLM has focused on other methods of population control, including the injection of contraceptives in mares, and adjusting male-female ratios. The most common equine contraceptive used, PZP is effective for two-to-three years, and must be re-applied to maintain effectiveness. Similarly, male-female ratios change over time. Thus, while contraceptive use and manipulation of the male-female ratio tends to reduce the reproductive rate, it does not preclude the need to periodically remove excess horses from the HMA.

The wild horses in the herd management area are descendants of domestic horses that were released into the wild in the 1800s and early 1900s. For many years, local residents captured the wild horses and bred them with a variety of stock. Presently, the Challis wild horses are a mixture of draft (primarily Percheron) and American Saddle types. This lineage explains the significant number of gray horses in the herd, although there are a variety of colors, including buckskin, sorrel, appaloosa, pinto and bay. Adult horses in the Challis wild horse herd weigh an average of 1,000 pounds and stand between 14.2 and 15.2 hands, with some individuals weighing over 1,200 pounds. The herd is generally healthy, with good genetic diversity. Herd size has varied over the years, primarily as a result of horses being gathered from the range.

Oral history provided by local ranchers was submitted in a court document dated April 15, 1980 (Thomas, 1980) and related that Morgan mares escaped from a ranch and were never recaptured while other Morgans were released, with no attempt to recapture. James Bennett's grandfather released good stallions on the range gathering the offspring each year. Some good saddle horses were also lost and never recovered. Tom Chivers stated that his grandfather ran range mares that were then bred to Shire and Belgian stallions (imported from England), as well as light saddle horses and coach horses. Lawrence Bradbury's grandfather had two or three French Coach Stallions that were turned loose on the range to breed horses for stagecoach horses. Pat Lynch raised both saddle and draft horses, letting the mares run on the range gathering the young draft horses as three year olds to halter brake and then gather again as 5 year olds to sell as teams. Joe Anderson raised saddle stock and catered to the Calvary remount program which added Thoroughbred genetics. One outstanding Thoroughbred or Standardbred stallion named Bally Hall was turned out on the range between the years 1910-1915. Kenneth (Kenny) Bradshaw's father raised Percheron and Belgian horses for his teams (he made his living as a freight driver), pasturing many of his horses on the range. Ken also remembered some good American Saddlers and Hambletonians that were later added to the range herds (Thomas 1980). In summary the CHMA is made up of Percherons, Belgians and Shires and a mix of light breeds. This lineage explains the significant number of gray horses in the CHMA.

Past gather results are listed in Table 4. Previous to and including 2002 all gathers in the CHMA were a "gate cut" action whereby the removal of animals stopped when the target number was reached. In 2004 and 2009 BLM's selective removal criteria was implemented. In 2004, 26 mares were treated with the fertility control PZP. Forty-three mares were treated and released as part of the 2009 gather and PZP treatment. A total of 1,775 horses have been removed since 1979 as part of 14 previous gathers.

Table 4. Challis Historical Gather Schedule

Date	Captured	Removed	Released	Died/Euthanized
Oct-79	148	148	0	
Oct-80	307	306	1	
Oct-83	311	311	0	
Sep-86	88	81	7	
Sep-88	99	99	0	
Sep-90	33	33	0	
Sep-92	82	82	0	
Sep-94	136	136	0	
Sep-96	90	86	4	
Aug-98	111	104	7	
Aug-00	105	97	8	
Aug-02	106	95	11	
Aug-04	140	86	51	1
July-09	366	141	167	2
Total	2119			

Forage is allocated for 185 horses or 2,220 Animal Unit Months (AUMs) in the CHMA. Monitoring data indicate that when the total horse population begins to reach the upper limit of 253 animals (3,036 AUMs), resource conditions begin to decline, especially in riparian areas. Winter Range is the limiting factor for the CHMA so AUMs are based on available forage in winter.

The first BLM population survey flight in 1971 counted 150 horses in the CHMA which helped to establish the original AML of 150 wild horses. In 1979 final grazing EIS and the CHMAP were completed. These decisions called for the "*horse population to average 162 animals with a sex ratio of 60% males to females to allow for no greater than 15% annual population increase*." On March 2, 1983 a Consent Judgment allowed the AML to fluctuate between 185-340 animals but allowed that "*levels may be adjusted, based on either monitoring evaluations, studies, any applicable land use plans or amendments, or upon the advice and recommendation of the Challis Experimental Stewardship Program (ESP) Steering committee. The 340 was based on maximum amount of winter forage available.*" (USDI-BLM 1989). On July 1, 1987 the ESP steering group concerned about heavy winter snows and spring range not being ready to be grazed by large numbers of animals determined to manage the herd numbers at a level of 185 horses. The 1989 CHMAP Revision upheld this number as does the 1999 Challis RMP. The 1999 RMP also recognized that while the AML is 185 that the wild horse population would increase to 253 between gathers.

Wild horses are a long-lived species with documented survival rates ranging between 92% and 95% for all age classes and do not have the ability to self-regulate their population size.

Table 5. Herd Management Areas' Age/Sex and Survival Rates used in WinEquus Modeling.

Wild Horse Range	Age/Sex Classes	Survival Rate
Pryor Mountain Wild Horse Range, Montana	Foal	>95%
	15 years and younger, except for foals, both sexes	93%
Granite Range HMA, Nevada	Foal	>95%
	15 years and younger, except for male foals	92%
Garfield Flat HMA, Nevada	Foal	> 95%
	24 years and younger, except both foals, both sexes	92%

Ecological carrying capacity of a population refers to the level at which density-dependent, population regulatory mechanisms would take effect within the herd. At that level, the herd would show obvious signs of ill fitness. These include poor individual animal condition, low birth rates, and high mortality rates in all age classes due to disease and/or increased vulnerability to predation. Predation and disease have not substantially regulated wild horse population levels within the proposed gather area. Wild horses in general are very resilient and adaptable animals that are able to survive in poor quality habitat. Wild horses typically do not begin to show signs of body condition decline until the habitat components are severely deficient. Once the decline begins, their health deteriorates rapidly.

Baseline genetic diversity and viability samples were gathered in 2002. A total of 46 blood samples were taken during the 2002 gather to create baseline data to establish the current level of genetic diversity for the CHMA. A summary of the data indicates the following:

- The total number of genetic variants was about what is average for domestic horse breeds and well above normal for wild horse populations.
- Genetic variation is well above mean values seen for wild herds and domestic breeds.
- Genetic similarity. The highest mean *(S*) was with the New World Spanish breeds, followed closely by North American Gaited breeds. However, a dendrogram of genetic similarity of the Challis herd to domestic breeds placed the Challis herd within the cluster of the Heavy Draft and True Pony breeds. This likely indicates a mixed breed origin for the herd which also accounts for the high variability and high proportion of rare alleles.
- Variation in the Challis herd is fairly high, most likely due to a mixed breed origin of the herd and a relatively high recent population size.
- The Challis herd is a single interbreeding group.
- No action to modify the genetic makeup of the herd was recommended at the time of the analysis (2003). Of most importance is that Dr. Cothran stated of the CHMA under the recommendation's heading that "*The **AML is high enough that no action should be required** for many generations unless there is a catastrophic reduction in population size.*" (Genetic Analysis of the Challis feral horse herd p.4 emphasis added)

Population Modeling Summary

The Wild Horse Population Model (*WinEqqus version 1.40*) developed by Dr. Steve Jenkins was used to estimate the population growth and size of herds five years after the gather. Dean Bolstad, Washington Office Wild Horse and Burro Specialist, stated "*We recognize that some of the data in the model may not be exact for any given herd management area, but the model has been useful to approximate the effects of management actions and to compare alternatives*". (Bolstad personal communication 2009)

Population modeling was completed for the proposed action and alternatives (Table 6) to analyze how the alternatives would affect wild horse populations. The primary objective of modeling was to identify if any of the alternatives crash the population or cause extremely low population numbers or growth rates. Modeling included: Alternative 1 removal of excess wild horses with implementation of fertility control and maintaining the sex ratio; Alternative 2 removal only; and Alternative 5 No Action (no removal) where any management on the CHMA would be delayed for a 10 year period. The adaptations in the population described by Alternatives 3 and 4 are not an available option in the model. It may be assumed that Alternative 3 numbers would range slightly lower than Alternative 1 and that Alternative 4 numbers would range higher than Alternative 1. The results of population modeling show that minimum population levels and growth rates would be within reasonable levels and adverse impacts to the population would not be likely under Alternatives 1 and 2. Graphic and tabular results are displayed in detail in Appendix D. The population model is run for a period of 11 years including the current year. In other words it is the current year and a 10 year period.

Table 6. Alternatives Modeled in WinEquus

Alternative	Number Gathered (11 years)*	Number Removed (11years)*	Number treated	Median Growth Rate Next 10 Years (%)	Projected Gather (Year)	Average population (11 Years)
Alternative 1 Proposed Action	658	344		12.2%	2022	192
Alternative 2 Removal Only	735		171	15.8%	2022	210
Alternative 5 No Action	N/A	N/A	N/A	15.5%	2022	512

* The WinEquus model runs analysis for 11 years including the current year so that it projects the information for the following 10 years.

3.2.2 Environmental Effects—Wild Horses

Impacts to wild horses would occur on either the individual or the population as a whole. Direct impacts include stress or injuries associated with gathering, sorting, and handling of animals. Indirect impacts include changes in herd dynamics or population numbers.

Proposed Action -Removal, Fertility Control, Maintain Sex Ratio, and Remote Darting

Individual animals would experience moderate levels of physical and psychological stress for short periods of time during gather operations. Heart rates would be elevated, especially during

the final move into a trap site. However, animals would be moving at a walk/trot during most of the gather and would not be moving more than 8-10 miles with the majority traveling 5 - 6 miles. While wild horses in the CHMA are habituated to low levels of human activity (recreation and livestock management) higher levels of disturbance related to gather operations could cause anxiety in individuals. Because all phases of the process would be carried out according to BLM policy, individual stress would be minimized. Animals would be expected to recover from stress within 24 hours of entering the capture site.

Helicopter pilots allow wild horses to travel at their own pace for most of the distance to the gather location. The pilots are very experienced and do not excessively pressure on the horses until the horses enter the wings of the capture site, when it is important to move the horses safely into the capture site and prevent them from turning back or trying to disband at the last minute. This is to avoid the need to re-gather or to rope the horses from horseback which could expose them to additional stress or injury. Foals separated during the gather process are safely grouped and transported to the sorting/holding facility to be reunited with their mother.

BLM staff would coordinate with the contractor on a daily basis to determine animal locations in proximity to gather sites, and to discuss terrain, animal health, gather distances and other gather logistics to ensure animal health and safety. Injuries would be examined and treated if needed by a veterinarian at the sorting/holding corrals.

Transport and sorting is completed as quickly and safely as possible so as to move the horses into the large holding pens where they can settle in with hay and water. When releasing animals back to the range, they would be returned to the same general area from which they were gathered.

The BLM has been gathering excess wild horses from public lands since 1975, and using helicopter since the late 1970s. Refer to Appendix B for information about methods that are utilized to reduce injury or stress to wild horses and burros during gathers. The national average mortality rate is 0.5%. In the CHMA 2009 gather, out of 366 horses gathered the mortality rate averaged 0.5% which is very low when handling wild animals. Another 0.6% of the animals captured were humanely euthanized due to pre-existing conditions and in accordance with BLM policy number WO-IM-2009-041. Another 2% died or were euthanized while in short term holding due to liver failure, injuries caused by other horses or collisions with corrals. This data affirms that the use of helicopters and motorized vehicles has proven to be a safe, humane, effective and practical means for the gather and removal of excess wild horses from the range. BLM staff is on-site at all times to observe the gather, monitor animal health, and coordinate the gather activities with the contractor. The SOPs outlined in Appendix B would be implemented to ensure that the gather is conducted in a safe and humane manner, and to minimize potential impacts to or injury of the wild horses. In their August 2012 BLM Task Force Report, the AAEP concluded that the care, handling and management practices utilized by the agency are appropriate for the horses and generally support the safety, health status and welfare of the animals.

Over the past 35 years, various impacts to wild horses from gathers have been observed. Individual, direct impacts to wild horses include handling stress associated with the capture,

sorting, animal handling, and transportation of the animals. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. Observations made through completion of gathers show that the majority of wild horses captured acclimate quickly to the sorting/holding facility situation, becoming accustomed to water tanks and hay, as well as human presence. Both the BLM Wild Horse and Burro Specialists, and the Gather Contractor and crew are very attentive to the needs of all wild horses captured during gathers, ensuring their health and safety.

Accidental death or the need to humanely euthanize animals, as a direct result of gather activities is infrequent and averages less than one half to one percent (0.5 -1%) of the wild horses gather. Injuries sustained by wild horses during gathers may include nicks and scrapes to legs, face, or body from brush or tree limbs while being herded to the capture sites by the helicopter. Rarely, wild horses will encounter barbed wire fences and will receive wire cuts. These injuries are generally not fatal and are treated with medical spray at the sorting/holding corrals until a veterinarian can examine the animal. During some gathers, due to temperament and/or body condition, injures are more frequent, while on other gathers no wild horses are injured or die.

Most injuries are sustained once the animal has been captured and is either within the capture sites, sorting/holding facility, or occurs during sorting. These injuries result from kicks and bites or from collisions with corral panels or gates. Transport and sorting is completed as quickly and safely as possible to reduce the occurrence of fighting and then the wild horses are moved into large holding pens to settle in with hay and water. Injuries received during transport and sorting most often consist of superficial wounds of the rump, face, or legs. Occasionally, horses may sustain a spinal injury or a fractured limb which requires humane euthanasia but these injuries are rare. Similar injuries could be sustained if wild horses were captured through water or bait trapping, as the animals still need to be sorted, aged, transported, and otherwise handled following their capture.

Indirect individual impacts are those impacts which occur to individual horses after the initial stress event, and may include spontaneous abortions in mares, and increased social displacement and conflict in stallions. These impacts, like direct individual impacts, are known to occur intermittently during wild horse gather operations. An example of an indirect individual impact would be the brief skirmish which occurs amongst older stallions following sorting and release into the stud pen. Traumatic injuries usually do not result from these conflicts.

Spontaneous abortion events among mares following capture is very rare. Observations following capture indicate the rate of miscarriage varies, but can occur in about 1 to 5% of the captured mares, particularly if the mares are in very thin body condition or in poor health. This is not likely to be a significant factor based on the timing of this gather and the healthy state of horses in the CHMA.

Stallions selected for release would be released to increase the post-gather sex ratio to approximately 60% stallions in the remaining herds. Stallions would be selected to maintain a diverse age structure, herd characteristics and body type (conformation). It is expected that releasing additional stallions to reach the targeted sex ratio of 60% males would result in smaller band sizes, larger bachelor groups, and some increased competition for mares. With more

stallions involved in breeding it should result in increased genetic exchange and improvement of genetic health within the herd.

Through the capture and sorting process, wild horses are examined for health, injury and other defects. BLM Washington Office Instruction Memorandum IM-2009-041 is used as a guide to determine if animals should be euthanized (refer to SOPs Appendix B). Animals that are euthanized for non-gather related reasons include those with old injuries (broken hip, leg) that have caused the animal to suffer from pain or prevents them from being able to travel or maintain adequate body condition; old animals that have lived a successful life on the range, but now have few teeth remaining, are in poor body condition, or are weak from old age; and wild horses that have congenital, hereditary, or serious physical defects such as club foot or sway back.

It is expected that a few foals may be orphaned during a gather. This can occur if the mare rejects the foal, the foal becomes separated from its mare and cannot be matched up following sorting, the mare dies or must be humanely euthanized during the gather, the foal is ill or weak and needs immediate care that requires removal from the mare, or the mare does not produce enough milk to support the foal. On occasion, foals are gathered that were previously orphaned on the range (prior to the gather) because the mother rejected it or died. These foals are usually in poor condition. Every effort is made to provide appropriate care to all horses, including orphaned foals. BLM staff or DVMs may administer electrolyte solutions or orphan foals may be fed milk replacer as needed to support their nutritional needs. Orphan foals may be placed in a foster home in order to receive additional care. Despite these efforts, some orphan foals may die or be humanely euthanized as an act of mercy if the prognosis for survival is very poor. Due to the timing of the proposed gather, it is unlikely that orphan foals will be encountered as the majority of the current year‘s foals will be weaned already from their mothers.

Wild horses are usually very fit and in good health when not stressed by lack of food and water and are able to endure the physical requirements of a gather. However, the environmental conditions and the overall health and well-being of the wild horses is continually monitored through both summer and winter gathers to adjust gather operations as necessary to protect the wild horses from gather-related health issues. For these reasons, flexibility in gather operations is an inherent part of all gathers.

Wild horses in the CHMA often use snow instead of water when available during fall, winter, and spring months. Wild horses in the CHMA have easy access to water so horses are well hydrated when moving to capture sites. In any case, wild horses are typically in top physical fitness and are able to endure the physical demands of a gather (whether in winter or summer) better than most domestic horses that are not on a top physical training routine due to the requirements of surviving in the wild. Most temperature related issues during a gather can be mitigated by adjusting daily gather times to avoid the extreme hot or cold periods of the day.

Snow accumulation may occur in October, which can increase fatigue and stress. The helicopter pilot, regardless of season, allows horses to travel slowly at their own pace. The Contractor may stomp trails in the snow leading to the capture sites to make it easier for horses to travel to the gather site.

BLM does not gather wild horses with a helicopter unless it is an emergency during the six weeks before or after the *peak* foaling period (April and mid-May) which correlates to the 4 month period between March 1 and June 30 when a majority of foals are born. It is not uncommon for a very small number of foals to be encountered during any month of the year; however most are born during March thru June. If newborn foals or foals too young to wean are gathered, they are matched up with their mares after being gathered. During the proposed gather, most foals would be 5-7 months old and of bigger body size, and can be weaned, if they have not been weaned naturally already. Fall and winter time-frames are less stressful to foals than summer gathers due to them being older and more self-sufficient. Young foals in summer months may be more prone to dehydration and complications from heat stress. Additionally, handling, sorting and transport can be a stress to young animals however, BLM staff on site takes every precaution to assure that horses are handled and maintained to reduce these concerns.

Removal of excess wild horses would improve herd health. Decreased competition for forage and water resources would reduce stress and promote healthier animals. Implementation of Alternative 1 would allow for healthy range conditions and animals over the long term. Reduced population growth rates would be expected to: extend the time until AML is exceeded; increase the intervals between gathers; reduce disturbance to individual animals and herd social structure over the foreseeable future. Modeling suggests that average population growth rates under the median trial for the Proposed Action would be 6.1%. Gathers would still need to occur every 3 years in order to re-apply fertility control, however, according to the modeling, Alternatives 1 and 3 would remove 289-560 fewer wild horses over 11 years.

According to the modeling, if follow-up gathers could be implemented on a regular basis, population control measures may be adequate to maintain the population within existing AMLs.

Population Growth Controls (Fertility Control treatments and sex ratio adjustments)

Under the Proposed Action and Alternatives 3 and 4, the objective for the gather would include the application of fertility control to approximately 55 mares which would be released. All mares selected for release would be treated with a single dose of two-year PZP-22 or similar vaccine/fertility control. Immuno-contraceptive (fertility control) treatments would be conducted in accordance with the approved standard operating procedures (SOPs, Appendix B). Mares selected for release would be selected to maintain a diverse age structure, herd characteristics and conformation (body type).

When injected, PZP (antigen) causes the mare‘s immune system to produce antibodies; these antibodies bind to the mare‘s eggs and effectively block sperm binding and fertilization (Zoo Montana, 2000). PZP is relatively inexpensive, meets BLM requirements for safety to mares and the environment, and can easily be administered in the field. In addition, among mares, PZP contraception appears to be completely reversible. The vaccine has also proven to have no apparent effect on pregnancies in progress, the health of offspring, or the behavior of treated mares (Turner et. al, 1997). Available data from 20 years of application to wild horses contradicts the claim that PZP application in wild mares causes mares to foal out of season or late in the year (Kirkpatrick and Turner 2003). The PZP vaccine is currently being used on over 75 horse management areas for the BLM and its use is appropriate for all free-ranging wild horse

herds. The long-term goal is to reduce or eliminate the need for gathers and removals (Kirkpatrick et al. 2010).

The highest success obtained for fertility control has been achieved when applied during the timeframe of November through February. Efficacy for application of the two-year PZP vaccine based on winter application is as follows:

Table 7. Fertility Control Effectiveness				
	Year 1	**Year 2**	**Year 3**	**Year 4**
Winter Period	Normal	94%	82%	68%
Summer Period	Normal	80%	65%	50%

The treatment would be controlled, handled, and administered by a trained BLM employee (Fertility SOPs, Appendix B). Mares receiving the vaccine would experience slightly increased stress levels associated with handling while being vaccinated and freeze-marked. Serious injection site reactions associated with fertility control treatments are rare in treated mares. Any direct impacts associated with fertility control, such as swelling or local reactions at the injection site, would be minor in nature and of short duration. Most mares recover quickly once released back to the CHMA, and none are expected to have long term impact from the fertility control injections.

As the sole approach, contraception would not allow the BLM to achieve the original population objectives; however, in conjunction with other techniques (e.g., removals of excess animals and adoption) and through incorporation of other population control techniques (e.g., sex ratio adjustments), it now provides a valuable tool in a larger, adaptive management approach to wild horse and burro management.

Contraception may be a cost effective and humane treatment to employ in horses to prevent increases in populations, or with other techniques, to reduce horse populations (Bartholow 2007). In general, contraception would not remove horses from an CHMA‘s population which would result in some continuing environmental effects by those individuals. Horses are long-lived reaching 20 or more years of age in the wild and those horses returned to the CHMA may continue exerting throughout their life span negative effects on the environment as described above, as opposed to the removal of a horse. Contraception, if effective, reduces future reproduction. Limiting future population increases of horses would limit increases in environmental damage from higher densities of horses. It may also reduce the effect of horse gather activities on the environment (if it limits the numbers of horse gathers required). If application of contraception to horses requires capturing and handling horses, the risks and costs associated with capture and handling of horses may be roughly equivalent (not counting the cost of adoption). Application of contraception to older animals and returning them to the CHMA may reduce risks associated with horses that are difficult to adopt or handle in captivity.

Ransom et al. (2010) found no differences in how PZP-treated and control mares allocated their time between feeding, resting, travel, maintenance, and social behaviors in three populations of wild horses, which is consistent with Powell (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. Turner and Kirkpatrick (2002) 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.

In two studies involving a total of four wild horse populations, both Nunez 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 Wilhelm 1995, Heilmann et al. 1998, Curtis et al. 2002). Ransom et al. (2010) found that control mares were herded by stallions more frequently than PZP-treated mares, and Nunez et al. (2009) found that PZP-treated mares exhibited higher infidelity to their band stallion during the non-breeding season than control mares. Madosky et al. (in press) found this infidelity was also evident during the breeding season in the same population that Nunez et al. (2009) studied, resulting in PZP-treated mares changing bands more frequently than control mares. Long-term implications of these changes in social behavior are currently unknown. Kirkpatrick et al. (2010) conclude by stating 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. (Kirkpatrick and Turner 2002, 2008; Turner and Kirkpatrick 2002, 2003; Willis et al. 1994.) Population wide indirect impacts are more difficult to quantify and would occur over time. A large percentage of inoculated mares would experience reductions in fertility. Recruitment of foals into the population would be reduced over a three-year period. The potential multi-year reprieve from foaling would greatly increase overall health and fitness of the mares, as well as the health of the foals born after fertility returns.

Following resumption of fertility, the proportion of mares that conceive and foal could be increased (rebound effect) due to the increased fitness. Additionally, fertility control treatment could cause breeding and foaling seasons to become out of sync with foals born earlier or later in the year, or throughout the year but is generally associated with the timing of the treatment and not the vaccine itself. Research is continuing to document and quantify these effects.

The indirect effect of fertility control and adjustment of sex ratios to favor stallions would extend the time before another gather is required when compared to a gather without implementation of either population growth control method. Wild horses would experience reduced stress and disruption to population dynamics as a result of less frequent gathers. However, it is being recommended that the BLM return to these areas every 2-3 years to re-apply fertility control in order to maintain its effectiveness in controlling population growth rates. By reducing population growth rates, the number of wild horses that would have to be removed from the CHMA during future gathers would also be reduced or possibly eliminated.

Fertility control application would allow the average population size to be maintained at a level consistent with the AML. Long term genetic and physical health and future reproductive success of mares within the herd would be sustained. Reduced population growth rates and smaller population sizes would also allow for improvements to range condition, which would have long-

term benefits to wild horse habitat quality and contribute to the achievement and maintenance of a thriving natural ecological balance.

Population control methods including the adjustment of sex ratios to favor stallions would be expected to have relatively minor impacts to overall population dynamics. Under the Proposed Action and Alternatives 3 and 4, impacts of additional stallions in the population could include: decreased band size, increased competition for mares, and increased size and number of bachelor bands. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Conversely, a selection criterion, which leaves more mares than stallions, would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis with the herd, and larger band sizes. With more stallions involved in breeding it should result in increased genetic exchange and improvement of genetic health within the herd.

Modification of sex ratios for a post-gather population favoring stallions is expected to reduce growth rates and subsequent population size, as a smaller proportion of the population would consist of mares that are capable of giving birth to foals. As a result, gather frequency could be reduced as well as the numbers of horses gathered and removed in future gathers.

Wild horses that are gathered would be subject to one or more of several scenarios listed below:

Wild Horses Remaining or Released into the CHMA following Gather

The post-gather goal would be for 185 wild horses to remain within the CHMA. Approximately 140 excess wild horses would be removed during the gather. Wild horses that are not captured may be temporarily disturbed and move into other areas during gather operations. With the exception of changes to herd demographics, direct population wide impacts have proven, over the last 33 years, to be temporary in nature and with most if not all impacts to individual wild horses disappearing within hours to several days of release. No observable effects associated with these impacts would be expected within one month of release except a heightened awareness of human presence.

Herd population dynamics, age structure or sex ratio, growth rates and population size over time are the primary attributes directly related to the proposed gather.

The National Selective Removal Criteria (Appendix B) would be followed to the extent possible, however it is expected that the majority of released and non-gathered animals would consist of all age groups greater than 5 years of age.

The effects of successive removals on populations causing shifts in herd demographics favoring younger horses (5 to 15 years) would also have direct effects on the population. These impacts are not thought of as adverse to a population. They include development of a population which is expected to be more biologically fit, more reproductively viable, and more capable of enduring stresses associated with traumatic natural and artificial events.

The genetic effective population size (Ne) is a measure of the total number of mares and stallions which contribute genetically to the next generation. A population with an age structure involving high numbers of young animals (<5 years of age) will have a lower value of Ne than a similar sized population with a larger component of older breeding-age animals (>5 years of age). Through implementation of the BLM selective removal policy, the wild horses aged 5-10 years of age would be the first priority for release back to the range. Most or all wild horses under five years of age would be removed, thus resulting in a potential increase to the Ne in the CHMA.

Temporary Sorting/Holding Facilities During Gathers

Wild horses gathered would be transported from the capture sites to a temporary sorting/holding facility within the CHMA, primarily in goose-neck trailers, however straight deck semi-trailers may be used. At the temporary sorting/holding facility wild horses would be aged and sorted into different pens based on sex, age and other variables. The horses would be fed certified weed free quality hay and fresh water while in the sorting/holding facility. Mares and their un-weaned foals (if encountered) would be kept in pens together and marked similarly for identification. Horses identified for retention in the CHMA and for fertility control treatment would be maintained in these temporary corrals until the fertility control treatment could be implemented and then be released back into the CHMA.

At the temporary sorting/holding facility recommendations to the BLM regarding care, treatment, and if necessary, euthanasia of the recently captured wild horses would be provided by a licensed DVM. Any animals affected by a chronic or incurable disease, injury, lameness or serious physical defect (such as severe tooth loss or wear, club foot, and other severe congenital abnormalities) would be humanely euthanized using methods acceptable to the American Veterinary Medical Association (AVMA) in accordance to WO-IM- 2009-041.

Transport, Short Term Holding, and Adoption Preparation

Wild horses removed from the range would be transported to the receiving short-term holding facility in a goose-neck stock trailer or straight-deck semi-tractor trailer. Trucks and trailers used to haul wild horses would be inspected prior to use to ensure they can be safely transported. Wild horses would be segregated by age and sex when possible and loaded into separate compartments. Mares and their un-weaned foals may be shipped together. Transportation of recently captured wild horses is limited to a maximum of 12 hours. During transport, potential impacts to individual horses can include stress, slipping, falling, kicking, biting, or being stepped on by another animal. Unless wild horses are in extremely poor condition, it is rare for an animal to die during transport.

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

would be sorted and placed in hospital pens, fed separately and/or treated for their injuries. Recently captured horses, generally mares, in very thin condition may have difficulty transitioning to feed. A small percentage of animals can die during this transition; however, some of these animals are in such poor condition that it is unlikely they would have survived if left on the range.

After the recently captured horses have transitioned to their new environment, they are prepared for adoption, sale, or transport to a long-term grassland pastures. Preparation involves freeze-marking the animals with a unique identification number, vaccination against common diseases, castration, and de-worming. During the preparation process, potential impacts to wild horses are similar to those that can occur during transport. Injury or mortality during the preparation process is rare, but can occur.

At short-term corral facilities, a minimum of 700 square feet is provided per animal. Mortality at short-term holding facilities averages approximately 5% (GAO-09-77, Page 51). This includes animals euthanized due to a pre-existing condition, animals in extremely poor condition, animals that are injured and would not recover, animals which are unable to transition to feed, and animals which die accidentally during sorting, handling, or preparation. Approximately 12,000 excess wild horses are being maintained within BLM's short-term holding facilities.

Adoption

Adoption applicants are required to have at least a 400 square foot corral with panels that are at least six feet tall. Applicants are required to provide adequate shelter, feed, and water. The BLM retains title to the horse for one year and the horse and facilities are inspected. After one year, the applicant may take title to the horse at which point the horse becomes the property of the applicant. Adoptions are conducted in accordance with 43 CFR § 5750.

Sale with Limitation

Buyers must fill out an application and be pre-approved before they may buy a wild horse. A sale-eligible wild horse is any animal that is more than 10 years old or has been offered unsuccessfully for adoption at least three times. The application also specifies that all buyers are not to sell to slaughter buyers or anyone who would sell the animals to a commercial processing plant. Sales of wild horses are conducted in accordance with the 1971 WFRHBA and congressional limitations.

Long-Term Grassland Pastures

Since fiscal year 2008, the BLM has removed over 31,680 excess wild horses or burros from the Western States. Most animals not immediately adopted or sold have been transported to long-term grassland pastures (LTP) in the Midwest.

Potential impacts to wild horses from transport to adoption, sale or LTP are similar to those previously described. One difference is that when shipping wild horses for adoption, sale or LTP, animals may be transported for up to a maximum of 24 hours. Immediately prior to transportation, and after every 24 hours of transportation, animals are offloaded and provided a minimum of 8 hours on-the-ground rest. During the rest period, each animal is provided access to unlimited amounts of clean water and two pounds of good quality hay per 100 pounds of body weight with adequate bunk space to allow all animals to eat at one time. The rest period may be

waived in situations where the anticipated travel time exceeds the 24-hour limit but the stress of offloading and reloading is likely to be greater than the stress involved in the additional period of uninterrupted travel.

Long-term grassland pastures are designed to provide excess wild horses with humane, and in some cases life-long care in a natural setting off the public rangelands. There, wild horses are maintained in grassland pastures large enough to allow free-roaming behavior and with the forage, water, and shelter necessary to sustain them in good condition. About 28,600 wild horses that are in excess of the current adoption or sale demand (because of age or other factors such as economic recession) are currently located on private land pastures in Oklahoma, Kansas, and South Dakota. Establishment of LTPs was subject to a separate NEPA and decision-making process. Located in mid or tall grass prairie regions of the United States, these LTPs are highly productive grasslands compared to more arid western rangelands. These pastures comprise about 256,000 acres (an average of about 10-11 acres per animal). Of the animals currently located in LTP, less than one percent is age 0-4 years, 49 percent are age 5-10 years, and about 51 percent are age 11+ years.

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

Euthanasia or Sale without Limitation

While euthanasia and sale without limitation has been limited by current Congressional appropriations, it is allowed under the WFRHBA. Neither option is available for horses under the Department of the Interior's fiscal year 2012 budgetary appropriations and is not expected to be available under the 2013 budgetary appropriations. Although the appropriations restrictions could be lifted in future appropriations bills, it would be contrary to Departmental policy to euthanize or sell without limitations healthy excess wild horses.

Alternative 2: Removal Only

Gather methods are the same as described in Alternative 1.

Implementation of Alternative 2 would result in capturing fewer wild horses than would be captured in Alternative 1. Alternative 2 would not involve fertility control; mares would not undergo the additional stress of receiving fertility control injections or freeze-marking and would foal at normal rates until the next gather is conducted. The post-gather sex ratio would be about 60:40 stallions to mares with a small percentage of geldings from the 2009 gather. All other aspects of the wild horse gather would be the same as those described for Alternative 1.

Alternative 3: Removal with Fertility Control and Geldings Released as a Non Reproducing Component

Alternative 3 would involve fertility control; therefore, impacts related to fertility control would be the same as Alternative 1. The post-gather sex ratio would be 50:50 mares to stallions. This would be expected to result in fewer and smaller bachelor bands, increased reproduction on a proportional basis within the herd, larger band sizes, and individual mares would likely begin actively producing at a slightly older age.

Bands with a single stallion and mares with offspring would be expected to decline in both size and number while bachelor bands would increase in size and number. An increase in genetic diversity (heterozygosis [Ho]) may also occur within the CHMA with an increase in stallions. A greater number of smaller herds would allow more stallions a chance to express their genetics. These effects would be slight, as the proposed sex ratio is not an extreme departure from normal sex ratio ranges. Modification of sex ratios for a post-gather population favoring stallions or geldings would further reduce growth rates in combination with fertility control reducing the frequency of gathers. This is beneficial in reducing the fertility rate by adding a sterile component that is not reproducing. Field observations from geldings returned to the CHMA in 2009 have shown some geldings will express their stallion behavior; retaining mares and defending territories. Mares in bands held by geldings will not reproduce. All other aspects of the wild horse gather would be the same as those described for Alternative 1.

Alternative 4: Removal with Fertility Control without Sex Ratio Adjustment

Alternative 4 would involve fertility control; but would not include sex ratio alteration returning the sex ratio to 50:50 from the 60:40 stallions and geldings to mares after the 2009 gather. All other aspects of the wild horse gather would be the same as those described for Alternative 1.

Alternative 5: No Action (Deferred Gather)

Under the No Action Alternative, there would be no active management to control the population size within the established AML at this time. In the absence of a gather, wild horse populations would continue to grow at an average rate of 17% per year based on population inventories conducted within the CHMA. Without a gather and removal now, the population would grow to 1,630 in ten years based on the average annual growth rate.

Use by wild horses would continue to exceed the amount of forage allocated for their use. Competition between wildlife, livestock and wild horses would continue, particularly on winter range where quantity and quality of forage is the limiting factor. Damage to rangeland resources would continue or increase. Over time, the potential risks to the health of individual horses would increase, and the need for emergency removals to prevent their death from starvation would also increase.

Due to density dependent factors horses would disperse into less populated areas and outside the CHMA. Movement of wild horses into populated areas and on Highways 75 and 93 would create a public safety hazard. Auto/horse collisions would increase due to this dispersal. Over the long-term, the health and sustainability of the wild horse population is dependent upon achieving a thriving natural ecological balance and sustaining healthy rangelands. Allowing wild horses to die of starvation would be inhumane and would be contrary to the WFRHBA which requires that excess wild horses be immediately removed. Allowing rangeland damage to continue to result from wild horse overpopulation would also be contrary to the WFRHBA which requires the BLM to *protect the range from the deterioration associated with overpopulation*, *remove excess animals from the range so as to achieve appropriate management levels*, and *to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.*

3.3 Vegetation Resources

3.3.1 Affected Environment

Forty-three upland vegetation communities have been identified within the Challis Field Office Area. All but four of these are found within the CHMA. The most dominate of these are sagebrush communities with varying understories of Idaho fescue (*Festuca idahoensis*), Bluebunch wheatgrass (*Pseudoroegneria spicata*), needle-and-threadgrass (*Hesperostipa comata*) or Sandbergs' bluegrass (*Poa secunda*) and Cusick's bluegrass (*Poa cusickii*) species. Five species of sagebrush are prevalent in CHMA those being Basin Big Sagebrush (*Artemisia tridentata tridentata*), Mountain Big Sagebrush (*Artemisia tridentata vaseyana*), Wyoming Big Sagebrush (*Artemisia tridentata Wyomingensis)*, Three Tip sagebrush (*Artemisia tripartita*) and Black Sagebrush (*Artemisia nova*). Also common are shadscale (*Atriplex confertifolia*) and chicken sage (*Sphaeromeria argentea*) communities with Swallen's needlegrass (*Achnatherum swallenii*), squirreltail (*Elymus elymoides*), and bluegrass understories on drier sites (<9 inch precipitation zones) and Douglas Fir (*Pseudotsuga menziesii*) and curled leaf mahogany (*Cercocarpus ledifolious*) communities on the higher elevation, wetter sites (>16" precipitation).

The upland communities are generally in a healthy state with adequate vegetative cover, good plant spacing, and relatively little invasion of noxious or invasive plants. Existing species composition (based on weight) places most of the sites in late seral stage. It is estimated that less than 30% of the CHMA is at mid to early seral stage.

There are 13 wild horse long term trend sites within the CHMA that were located in areas frequented by wild horses, but used infrequently by livestock due primarily to topography and/or distance to water. Seven of the Upland Trend study sites have been monitored in the last ten years and have applicable data. There are also 21 trend sites in Mountain Springs Allotment

within the CHMA, 4 on Bradbury Flat, 2 on Bradshaw Basin, 5 on Road Creek, 2 on Split Hoof, 5 on Warm Springs, and 1 in the Sand Hollow ACEC.

Table 8 below describes the ecological sites by study site and states trend and actual vs. expected vegetative cover. Only the studies that have been monitored in the last 10 years have been included in this analysis

Table 8. Trend and Actual Vegetative Canopy Cover and Expected Vegetation Canopy Cover based on NRCS Site Guides for Rangeland Health Assessment Sites from 2002 for the Challis CHMA

Site	Most Recent Year Monitored	Range Site, Vegetation Type and Landscape Position	Trend (Upward, Downward, or Static)	Actual Vegetative Cover (%)	Expected Vegetative Cover (%)
WH-01	2011	Zeelnot-Meegernot-Adek Association 5-40% Slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID	Downward	20%	15-20%
WH-02	2006	Venom-Cronks Complex 20-50% Slope South Slope Gravelly 11-13"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID	Upward	83%	*50-75%
WH-03	2006	Nielsen-Gaciba Association 20-50% Slope North slope loamy 12-16" ppt. Threetip sagebrush/Idaho fescue 012XY010ID	Static	93%	*65-75
WH-07	2010	Donkehill-Zeebar Complex 8-50% Slope Shallow Loam 11-13" ppt. Mountain big sagebrush/ Idaho Fescue/Bluebunch wheatgrass 012XY002ID	Downward	14%	15-20%
WH-08	2006	Hutchley-Nurkey Complex Limestone 10-40% South Slope Gravelly 11-13"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID	Upward	59%	*50-75%
WH-11	2011	Nitchley-Skibo-Rock Outcrop Complex 20-50% Limey Gravelly 8-13" ppt. Black sagebrush/Bluebunch wheatgrass 012XY001ID	Downward	9%	15-20%

Table 8. Trend and Actual Vegetative Canopy Cover and Expected Vegetation Canopy Cover based on NRCS Site Guides for Rangeland Health Assessment Sites from 2002 for the Challis CHMA

Site	Most Recent Year Monitored	Range Site, Vegetation Type and Landscape Position	Trend (Upward, Downward, or Static)	Actual Vegetative Cover (%)	Expected Vegetative Cover (%)
WH-13	2010	Nitchley-Skibo-Rock Outcrop Complex 20-50% Limey Gravelly 8-13" ppt. Black sagebrush/Bluebunch wheatgrass 012XY001ID	Static	23%	15-20%
SF-01	2009	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID	Upward	80%	*40-60%
SF-02	2006	Zeelnot-Gravelly Loam Low Precipitation 15-40% Slope Gravelly 13-16"ppt. Threetipped sagebrush/Idaho Fescue 012XY033ID	Downward	85%	*60-75%
SF-05	2006	Xeric Torrifluvents 1-3% Slopes Alluvial Bottom 8-13"ppt. Basin big sagebrush/Western wheatgrass 012XY011ID	Downward	3%	35-40%
SF-06	2005	Parkay-Friedman Association 20-50% Slope Loamy 16-22"ppt. Mountain big sagebrush/Idaho fescue 012XY021ID	Downward	10%	35-50%
SF-08	2005	Reck-Threedot Complex 5-35% Slope Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY034ID	Downward	87%	*60-75%
SF-10	2011	Dacont-Resoot-Nielsen Association 6-40% Slope South Slope Gravelly 11-13" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID	Downward	13%	15-25%
SF-11	2006	Simeroi Gravelly Loam 6-15% Gravelly Loam 8-12" ppt. Wyoming big sagebrush/	Static	52%	*35%

Table 8. Trend and Actual Vegetative Canopy Cover and Expected Vegetation Canopy Cover based on NRCS Site Guides for Rangeland Health Assessment Sites from 2002 for the Challis CHMA

Site	Most Recent Year Monitored	Range Site, Vegetation Type and Landscape Position	Trend (Upward, Downward, or Static)	Actual Vegetative Cover (%)	Expected Vegetative Cover (%)
		Bluebunch wheatgrass 012XY004ID			
SF-12	2008	Zeelnot-Gravelly Loam Low Precipitation 15-40% Slope Gravelly 13-16"ppt. Threetipped sagebrush/Idaho Fescue 012XY033ID	Downward	71%	*60-75%
SF-17	2009	Dawtonia Cold-Dawtonia Complex 2-5% Windswept 8-11"ppt. Silver chicken sage/Fringed sagebrush/Sandberg's bluegrass/Swallen's ricegrass 012XY006ID	Downward	7%	5-10%
SF-18	2007	Friedman-Reck-Goldhill Complex 5-35% Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID	Downward	11%	35-50%
SF-19	2005	Zeebar-Nielsen-Povey Complex 20-70% Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID	Downward	2%	35-50%
WS-08	2003	Friedman-Reck-Goldhill Complex 5-35% Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID	Downward	9%	35-50%
RCB-01	2010	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID	Upward	87%	*40-60%
RCB-02	2010	Zeelnot-Meegernot-Adek Association 5-40% Slope Loamy 13-16"ppt. Mountain big sagebrush/ Idaho Fescue 012XY012ID	Static	92%	*40-60%
WS-05	2009	Dawtoni-Frailton Complex 20-50% Slope South Slope Gravelly 11-13" ppt. Wyoming	Downward	10%	15-25%

Table 8. Trend and Actual Vegetative Canopy Cover and Expected Vegetation Canopy Cover based on NRCS Site Guides for Rangeland Health Assessment Sites from 2002 for the Challis CHMA

Site	Most Recent Year Monitored	Range Site, Vegetation Type and Landscape Position	Trend (Upward, Downward, or Static)	Actual Vegetative Cover (%)	Expected Vegetative Cover (%)
		big sagebrush/Bluebunch wheatgrass 012XY005ID			
WS-06	2009	Parkay-Zeebar Complex 5-20% Slope Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue/Bluebunch wheatgrass 012XY021ID	Downward	23%	35-50%
WS-07	2009	Friedman-Reck-Goldhill Complex 5-35%Slope Loamy 16-22" ppt. Mountain big sagebrush/Idaho fescue 012XY021ID	Downward	14%	35-50%
WS-14	2009	Parkay-Nurkey Complex 20-50% Slopes Loamy 16-22" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY021ID	Downward	3%	35-50%
RC-07	2010	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/Threetip sagebrush/Idaho Fescue 012XY012ID	Static	72%	*40-60%
SH-05	2006	Dacont-Resoot-Nielsen Association 6-40% slope South Slope Gravelly 11-13" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY005ID	Downward	68	50-75
BF-01	2006	Snowslide Gravelly Loam Dry 1-10 Percent Slopes Alluvial fans, terraces and drainages 8-12"ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY009ID	Upward	82	35
BF-02	2006	Nitchly-Skibo Rock Outcrop 20-50 Percent Slopes Alluvial/colluvial fans terraces	Upward	87	35

Table 8. Trend and Actual Vegetative Canopy Cover and Expected Vegetation Canopy Cover based on NRCS Site Guides for Rangeland Health Assessment Sites from 2002 for the Challis CHMA

Site	Most Recent Year Monitored	Range Site, Vegetation Type and Landscape Position	Trend (Upward, Downward, or Static)	Actual Vegetative Cover (%)	Expected Vegetative Cover (%)
		and mountain slopes 8-13" ppt.Black sagebrush/Bluebunch wheatgrass 012XY001ID			
BF-03	2006	Resoot-Friedman Complex 5-35% slope Loamy 13-16"ppt. Mountain big sagebrush/ Threetip sagebrush/Idaho Fescue 012XY012ID	Upward	95	65-75
BF-08	2006	Gany Gravelly Loam 30-60 Percent Slopes Alluvial/colluvial fans, terraces, and gentle foothills 13-16" ppt. Low sagebrush,/Bluebunch wheatgrass 043AY001ID	Upward	79	15-20
BB-01	2006	Parkay-Nurkey Complex 20-50% Slopes Loamy 16-22" ppt. Wyoming big sagebrush/Bluebunch wheatgrass 012XY021ID	Static	85	50-75
BB-02	2006	Dacont-Zeebar Association 20-50% Slopes South Slope Gravelly 11-13" ppt. Mountain big sagebrush/Bluebunch wheatgrass	Static	85	35-50

*Total Ground Cover by Litter, Rock and Vegetation

3.3.2 Environmental Effects-Vegetation

Potential horse capture sites have been identified (Map 8), most of which have been used in the past; additional sites may be used, but would be selected to avoid sensitive resources (Appendix B).

Alternatives 1-4

Effects common to all alternatives except the "No Action"

Short-term disturbance would occur in the immediate vicinity of the capture sites and the loading chute. The soil would be compacted and vegetation would be trampled during panel installation by personnel and vehicles and severely trampled in the catch pen area by wild horses, domestic horses, and the wranglers. Crushing of standing vegetation would occur during gather activities from running horses. Previously used capture sites are visually unapparent and difficult to distinguish from adjacent areas. Native vegetation is typically restored in a single growing season with no sign of noxious or weedy species. Although roads and trails would be used where possible, certain impacts would occur. It is unlikely these impacts would result in significant numbers of plants affected or size of area affected. Large stature shrub communities in the wetter areas would experience minimal impacts, while the low stature shrub communities (chicken sage, fringed sage) occupying the drier, more fragile ranges may experience some mortality resulting in reduced ground cover and increased bare ground. Although these impacts may appear to be considerable on a site-specific basis, they are generally slight when viewed throughout the project area. The area may be seeded after the disturbance with a certified weed free native seed that is well suited for the site.

Many of the vegetation types occupying the Herd Management Area are dominated by bluebunch wheatgrass. This particular species is sensitive to grazing during certain times of its life cycle due to its growth form. When the growing points (apical meristems) reach grazing height (4-6 inches) the plant ceases all growth if it is grazed. This response may last several years depending upon the severity of grazing, climate year, and health of the plant affected. Nested frequency plots located within bluebunch wheatgrass communities throughout the CHMA have a trend as follows: 4 static sites, five upward trending sites, and seven downward trending sites. It has not been conclusively determined that the downward trending sites are a result of uncontrolled wild horse grazing or merely natural plant dynamics (i.e. responses to drought). By controlling wild horse numbers at a level anticipated to be in balance with ecological capabilities of the site, these bluebunch wheatgrass communities would remain healthy and vigorous. Vegetation would be impacted positively due to a decrease in herbivory. It would be expected that livestock numbers would not change despite the increased of vegetation. Many of the AUMs that are currently being unused may continue to be unused.

A very small percentage of vegetation would be affected by actual gather activities. Each capture site would disturb <1 acre of surface vegetation. Concentration areas of horses may extend out to < 5 acres. The sorting/holding facility may also disturb an additional five acres. There are typically 3-5 capture sites used each gather. Following this logic up to 10 acres or less than $1/10^{th}$ of 1% of the CHMA vegetation would be affected by alternatives 1-4.

Alternative 5: No Action, Deferred Removal (10 years)
This alternative would also allow for unrestricted increases in the number of horses in the CHMA. Ecological trend of upland sites across the CHMA would be expected to decline. Under Alternative 5, residual herbaceous cover and litter cover from native plants would decrease across the CHMA. During late fall, winter and early spring woody vegetation would be browsed. Utilization would be higher, plant vigor would be lower, plant mortality would be higher, and plant community shifts toward less palatable species would occur faster. Invasive species would be expected to increase more rapidly, and special status plants habitat would be degraded.

3.4 Livestock Management

3.4.1 Affected Environment

The purpose of this section is to assess the potential direct and indirect effects to livestock management within the CHMA as a result of the Proposed Action and the Range of Alternatives. The information presented here is to supply the reader with a general background and degree of livestock use that occurs within the grazing allotments that occur within the CHMA.

Livestock grazing occurs on 88% of the CHMA; there are six cow/calf grazing allotments within the CHMA currently under deferred or deferred/rest rotation grazing systems with use periods of spring, summer and fall. Two additional areas (Malm Gulch and Sand Hollow) are closed to livestock grazing (Challis RMP, 1999a) due to fragile volcanic ash soils. Warm Springs, Mountain Springs, Road Creek, Split Hoof, Bradbury Flat and Bradshaw Basin allotments are within the CHMA. The pastures are relatively large and allow for a broad range of movement while livestock are present. Temporary electric fences are used to restrict livestock movement and to keep livestock out of the RHCA. Following the conclusion of the grazing season these temporary fences are disabled and gates are opened. The other primary resources associated with the rangeland environment including recreation activities, watershed protection and wildlife habitat.

Actual use helps determine the current level of use and number of animals. Managers can then better balance the on the ground use with the numbers that are permitted onto public land. Actual Use is defined as "*means where, how many, what kind or classes of livestock graze on an allotment or on a portion or pasture of an allotment*" (43 CFR 4100.0-5). In 2011 49% of the allotted AUMs were permitted on BLM. Conversely, 51% of the available AUMs were not permitted for various reasons some of which are resource protection, numbers of wild horses, and range improvement maintenance. Table 9 below describes by allotment the percent of AUMs used and what percentage of the allotment falls within the CHMA.

Table 9. CHMA LIVESTOCK AUMS FOR THE 2011 BILLING CYCLE (March 1, 2011 to February 28, 2012)

Allotment	AUMs Available	Actual Use 2011	% of Use	% of Allotment in CHMA	Allotment Acres Within CHMA	% of CHMA
Bradbury Flat	839	273	33	100	15706	9
Bradshaw Basin	908	277	31	100	8184	5
Mt. Springs	8884	6688	77	59	55695	32
Frail Lands (unallotted)	0	0	0	100	19428	12
Road Creek	534	37	7	98	9933	6

Table 9. CHMA LIVESTOCK AUMS FOR THE 2011 BILLING CYCLE (March 1, 2011 to February 28, 2012)						
Allotment	**AUMs Available**	**Actual Use 2011**	**% of Use**	**% of Allotment in CHMA**	**Allotment Acres Within CHMA**	**% of CHMA**
Split Hoof	268	102	38	100	8520	5
Warm Springs	4632	587	13	79	50774	31
Total	**16186**	**7964**	**49%**	**--**	**168648**	**100**

The CHMA has relatively few fences; most are "open ended" or drift fences that allow movement around the ends. There are some pasture fences that could limit travel. This is mitigated by gates being open except when livestock are present for 2-6 weeks during the year.

Table 10 below depicts the authorized livestock use (number of animals and dates of use) in the CHMA on all of the allotments except Mountain Springs which is depicted in Table 11.

Table 10. AUTHORIZED LIVESTOCK USE

Allotment	Pasture	Rotation Type	Livestock		Grazing Period		AUMS
			Number	Kind	Begin	End	
Bradbury Flat	Lime Rock	Deferred/Rest	166	Cattle	5/16	7/30	415
	Lime Rock North	Deferred/Rest	166	Cattle	5/16	7/30	415
	Bishop Spring	Deferred/Rest	166	Cattle	5/16	7/30	415
	RML	Deferred/Rest	166	Cattle	5/16	7/30	415
	Jensen Basin	Deferred/Rest	166	Cattle	5/16	7/30	415
	Lone Pine	Deferred/Rest	166	Cattle	5/16	7/30	415
Bradshaw Basin	Upper Bradshaw Basin	Deferred	279	Cattle	5/16	7/30	425
	Lower Bradshaw Basin	Deferred	279	Cattle	5/16	7/30	425
Split Hoof	Morraffio	Deferred	183	Cattle	5/16	6/15	187
	Pappas	Deferred					
Road Creek	Chicken Creek	Deferred	130	Cattle	5/16	8/31	207
	Dry Hollow	Deferred					
Warm Springs	Spar Canyon	Deferred/Rest	490	Cattle	5/9	8/24	1705
	Antelope Flat	Deferred	225	Cattle	5/15	6/15	213
	Antelope Flat	Deferred	225	Cattle	10/16	11/15	206
	Warm Springs	Deferred/Rest	512	Cattle	5/1	7/10	1171
	Warm Springs	Deferred/Rest	525	Cattle	11/1	1/7	1105

Table 11. Mountain Springs Authorized Livestock Use and Rotation

	Year 1		Year 2		Year 3		Year 4	
	2012	2012	2013	2013	2014	2014	2015	2015
	Date	#/ AUMS	Date	#/ AUMS	Date	#/ AUMS	Date	#/ AUMS
Gooseberry **	10/1-11/12	650/ 919	5/21-6/19	945/ 932	10/1-11/12	650/ 919	5/18-6/15	945/ 901
Antelope Flat	10/2-11/15	350/ 518	5/20-6/19	525/ 535	10/2-11/15	350/ 518	5/19-6/16 9/12 T	525/ 501 700 /23
Sheep Creek**	8/25-9/15	1400/ 1013	6/20-7/27	945/ 1181	8/13-9/11	1400/ 1381	REST	
Two Buttes**	5/18-6/15	840/ 801	9/9-9/13 10/2-11/12	1400/ 230 600/ 849	5/18-6/15	840 801	10/2-11/14	600/ 868
Sage Creek**	5/18-6/15	630/ 601	10/1-11/15	400/ 592	5/20-6/15	630/ 601	10/1-11/15	400/ 592
Dry Canyon	7/28-8/24	735/ 677	8/8-9/8 8/8-8/24	600/ 612 30/ 17	7/17-8/12	735/653	6/16 T 8/15-9/12	945/ 31 735/ 701
Spring Basin*	7/28-8/24	735/ 677	8/11-9/8 8/11-8/24	800/ 782 40/ 19	REST 7/14-7/16 T	735/ 73	6/17 T 7/17-8/14	735/ 24 735/ 677
Broken Wagon	Rest	--------	6/20-7/15 7/28-8/7	525/ 449 630/ 228	7/17-8/12	735/ 653	8/14-9/11	700/ 667
N. Fork Sage Road Creek*	6/16-7/13	735/ 677	REST		6/16-7/13	735/677	7/16-8/12	735/ 653
Horse Basin	7/14-7/27	1470/ 677	7/16-8/10 7/28-8/10	525/ 449 315/ 145	REST 7/14-7/16 T	735/ 73	6/17-7/15 6/17-7/15 8/1-8/4 T	525/ 501 210/ 200 735/ 24
Mosquito/Bear Creek	6/16-7/13	735/ 677	REST		6/16-7/13	735 /677	6/18-7/16	735/ 701
Total		1470/ 7237		1470/ 7020		1470/ 7026		1470/ 7064

**Outside CHMA, *Portion in CHMA, T- Trailing Action

There are also numerous range improvement projects located within the CHMA which have been built in cooperation with livestock operators in order to improve distribution of livestock, as well

as conditions of the range. These projects include spring developments, stock ponds, vegetation treatments, water tanks, and guzzlers. Much of the maintenance of these projects, especially water developments is performed by livestock operators. Maintenance includes such actions as repair or replacement of pipelines and head boxes, and repair of water tanks. The construction and maintenance of these improvements benefit livestock, wild horses, and wildlife.

3.4.2 Environmental Effects—Livestock Management

Alternatives 1-4
Livestock may be present on the Warm Springs Allotment during gather. Because gates would be opened between allotments to facilitate movement of wild horses to capture sites livestock could move between allotments during the gather. To prevent accidental trespass of livestock, permittees may be asked to move livestock to areas away from allotment boundaries or concentrations of wild horses. Livestock may experience some level of stress or may be displaced when the helicopter is in the area. This would put an additional burden on the livestock operator to ensure his cattle are out of the area. Impacts from humans and horses at capture site locations to livestock would be slight, localized per capture site, and for a limited period (<4 days).

Maintaining wild horse numbers within AMLs would result in slight reductions in forage utilization levels, around water developments, over a four year period. Overlap between wild horse and livestock use areas would also be limited resulting in appropriate utilization levels (40-50%) for each of the above allotments.

Alternative 5. No Action (Deferred Gather)
Increased horse numbers would result in increased competition for water and forage. This would result in vegetation utilization rates that would exceed the capacity of the area, degrading the forage resource and deteriorating the habitat. As the productivity and composition of desirable forage species decreases, an increase in the invasion of undesirable species would occur. This would result in greater competition for desirable forage between livestock and wild horses. It may also result in livestock traveling to more sensitive areas looking for more desirable forage. This decline would continue to the point that there would be both insufficient plant cover for range site protection and insufficient forage for all rangeland users, which in turn would reduce stocking rates and possible closure of the allotments. Livestock stocking rates may have to be reduced as wild horse population increases.

3.5 Invasive Species

3.5.1 Affected Environment
Invasive species and their encroachment on BLM administered lands represent a serious threat to the continued productivity, diversified use and aesthetic value of the CFO's public lands. BLM currently has an active noxious weed management program which emphasizes cooperation with Custer County, private landowners and BLM permitted land users. The CFO weed management program is based in part on the 2007 *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement.*

(USDI-BLM, 2007), and the Challis-Salmon Field Office Integrated Weed Control Program, DOI-BLM-ID-330-2008-EA-30.

Under this integrated program, most known weed sites are inspected and treated on an annual basis. Use of herbicides has been evaluated by BLM in the *2007 Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States PEIS* (USDI-BLM, 2007). The Challis Field Office tiered to this document in preparing the 2009 Challis -Salmon Integrated Weed Control EA.

Invasive species have been documented at 86 sites within or immediately adjacent to the CHMA. The species which have been documented and their number of occurrences are: Spotted knapweed *(Centaurea stoebe)* - 56; Leafy spurge (*Euphorbia esula*) – 13; Whitetop/Hoary cress (*Cardaria draba*) – 12; Diffuse knapweed (*Centaurea diffusa*) – 3; Canada thistle (*Cirsium arvense*) - 3; Black henbane (*Hyoscyamus niger*) -3; Russian knapweed (*Acroptilon repens*) -1; and Rush skeletonweed (*Chondrilla juncea*) -1. The vast majority of these sites are less than half an acre in size. Half of the inventoried sites occur along Highways 93 and 75, which are boundaries of the CHMA. In 2011, a total of 10.5 acres of chemical treatment was applied to weed sites throughout the CHMA.

Cheatgrass inventories have not yet been completed in the CHMA, so the extent of cheatgrass infestation is difficult to quantify.

3.5.2 Environmental Effects—Invasive Species

Alternatives 1-4
Wild horse gather activities would disturb soils in localized areas, primarily associated with capture sites and sorting/holding facility. Follow-up inspections by the BLM of these sites and treatment of any noxious weeds would prevent noxious weeds from invading and dominating adjacent native plant communities. There have been 14 gathers conducted in the CHMA since 1979. All of these have involved the use of trucks, trailers, domestic horses, and capture sites. An increase of invasive species has not been documented at any of the known capture sites; in most cases these sites are difficult, if not impossible to identify due to the recovery of native vegetation.

The BLM anticipates that the removal of wild horses over time would decrease overall impacts of wild horse use and proliferation of invasive, non-native species. As wild horses and livestock are managed within allocated forage levels, grazing pressure is reduced on native vegetation. Those native vegetation communities are then more resilient and better able to compete with non-native species.

Alternative 5 – No Action (Deferred Gather)
No impacts from the gather would occur. However, wild horse populations would remain over appropriate management levels and the impacts to native vegetation from wild horse grazing or trampling would increase. Impacts to the present plant communities could lead to an expansion of noxious weeds and invasive non-native species.

3.6 Wetlands/Riparian Zones

3.6.1 Affected Environment

Riparian-wetland habitats (i.e., riparian ecosystems) are generally defined as a body of water with its adjacent soil and vegetation (Hall and Bryant 1995). Healthy riparian ecosystems possess the following indicators: 1) adequate riparian-wetland vegetative cover present to protect banks and dissipate energy during high flows; 2) streambank vegetation, often called the "greenline" is comprised of those plants or plant communities that have root masses capable to stabilize streambanks; and 3) age class and structural diversity of riparian/wetland vegetation. Riparian-wetland vegetation should also reduce erosion by stabilizing streambanks, providing shade, filtering sediment, aiding floodplain development, dissipating energy, delaying flood water, and increasing groundwater recharge.

The riparian land cover includes natural vegetation dominated or characterized by shrub and/or herbaceous species requiring environmental conditions of moderate moisture and temperature. In semi-arid environments, riparian-wetland areas make up a relatively small but productive and resilient portion of the landscape, exhibiting vegetative or physical attributes reflective of the influence of water. They are important for the ecosystem functions they serve, such as floodplain and ground-water storage, water transport, improved water quality, and fish/wildlife habitat. The majority of the drainage network located within the CHMA consists of dry channels receiving water only during periods of high snow melt and/or intense precipitation. Relatively few stream miles (5% within the CHMA) convey water perennially; the stream miles by stream type are given in Table 12.

Proper Functioning Condition (PFC) is a qualitative method for assessing the condition of riparian-wetland areas. The term PFC is used to describe both the assessment process, and a defined, on the-ground condition of a riparian-wetland area. There are PFC methods for both streams (lotic) and springs (lentic) (USDI-BLM, 1998, 2003). PFC was designed as a baseline for the purpose of inventorying riparian areas and wetlands managed by BLM. While PFC is meant to establish a baseline, it is not a quantitative monitoring approach and is not meant for monitoring trend. Multiple Indicator Monitoring (MIM) has been developed for the purpose of monitoring stream channels and stream side vegetation on those streams and small wadeable rivers designated for monitoring. This is done for the purpose of determining the condition and trend of streambanks, channels and streamside vegetation. MIM measures the effectiveness of management strategies over 5 to 10 year time scales establishing trend. The metrics include but are not limited to': greenline-to-greenline width, streambank alterations, greenline vegetation composition, stubble height, woody species age class, and utilization on woody species. These metrics are then implemented in determining the ecological status of the greenline vegetation, the site wetland rating, and the streambank stability (USDI-BLM 2011a). Greenline analysis was conducted prior to MIM for the purpose of monitoring the streambank vegetation and determined the seral status and site wetland rating for a given DMA [Designated Monitoring Areas] (Winward, 2000). While both methods are similar the key difference is that the Winward Greenline Method was based upon steps of community type whereas the MIM method uses a plot (50 cm x 20 cm) placed at 80 or more locations within the DMA. The MIM method is considered more precise and/or repeatable than the Winward Greenline method. Photo monitoring has also been commonly employed by the CFO at streams and springs for implementation monitoring and to qualitatively assess conditions and trend.

Stream flow regimes in CHMA are indicative of a snow melt dominated system with highest flows occurring in July (870 CFS [Cubic Feet per Second] mean monthly discharge on East Fork Salmon River at USGS Gauge) and lowest flows occurring in January and February (79 CFS mean monthly discharge on East Fork Salmon River at USGS Gauge). The USGS Gauge is located near the mouth of the East Fork of the Salmon River and recorded surface flow from September 1928 – September 1939 & May 1973 – September 1981. The maximum flow 4,020 CFS was recorded on June 17, 1974 and the minimum flow 26 CFS was recorded on November 21, 1977. High magnitude flow events are typically associated with intense precipitation and/or high snow melt. This area is subject to high intensity short duration thunderstorms which result in episodic intense stream flow. Base flow occurs in the winter as a result of the majority of the precipitation being stored as snow.

Table 12. Miles of Stream by Stream Type

Stream Name	Stream Miles	Stream Type
Unnamed Streams	550.5	Intermittent to Ephemeral
Bear Creek	1.6	Intermittent to Ephemeral
Broken Wagon Creek	6.4	Intermittent to Ephemeral
Corral Basin Creek	0.9	Intermittent to Ephemeral
Horse Basin Creek	3.6	Intermittent to Ephemeral
Lone Pine Creek	8.5	Intermittent to Ephemeral
Mosquito Creek	1.6	Intermittent to Ephemeral
Road Creek	2.1	Intermittent to Ephemeral
Warm Spring Creek	2.7	Intermittent to Ephemeral
Unnamed Stream	17.2	Perennial
Bear Creek	4.1	Perennial
Broken Wagon Creek	1.3	Perennial
Corral Basin Creek	6.1	Perennial
East Fork Salmon River	0.2	Perennial
Horse Basin Creek	6.1	Perennial
Lone Pine Creek	0.3	Perennial
Mosquito Creek	6.1	Perennial
Road Creek	13.9	Perennial

Data compiled and distances estimated with a GIS using the USGS National Hydrology Dataset

Table 13. Proper Functioning Condition Inventory Summary for the Horse Management Area

Stream	Proper Functioning Condition (PFC)	Functional at Risk-Upward Trend (FAR-up)	Functional at Risk-Static (FAR-Trend Not Apparent)	Functional at Risk-Downward Trend (FAR-down)	Functional at Risk-Trend Not Assessed	Non Functional (NF)	Total Stream Miles
Bear Creek	1.8	0.4			2.9		5.1
Broken Wagon Creek					2.5*	1*	3.5
Corral Basin Creek					2.4	1.6	4
East Fork River	0.2						0.2
Horse Basin Creek	1.2	1			2.8	1.4	5.6
Lone Pine Creek		0.8					0.8
Mosquito Creek	3.9				1.2		5.1
Pine Creek				1.4	1.6		3
Road Creek					10	1.1	11.1
Warm Springs Creek					0.5		0.5
Percent of total	18%	6%	0%	4%	61%	13%	100%

All stream distances are given in miles and were estimated using GIS
*Data obtained from PFC Database (USDI-BLM, 2011b)

The CHMA is divided between the East Fork Salmon River and the Warms Spring Creek watersheds. The underlying geologic units are predominantly limestone and dolostone formations (Fisher and Johnson, 1995) which favor infiltration over stream runoff, resulting in the presence of springs with consistent perennial flow where portions of this infiltrated water re-emerges on these allotments. Riparian habitats involve not only riverine ecosystems, but also include vegetation associated with seeps, springs brooks, lakes, and ponds. The greenline plant community structure within riparian areas may vary depending on frequency of flooding, amount of scouring, and past disturbance. The riparian areas in the CHMA commonly support woody plant species including black cottonwood, quaking aspen, douglas-fir, mountain maple, wood's rose, willow species, red-osier dogwood, chokecherry, gooseberry, currant; as well as mesic forbs, grasses and desirable hydric species like nebraska sedge, beaked sedge and baltic rush.

The Spar Canyon sub-watershed is the first major drainage on the east side of the East Fork Salmon River traveling upstream from its mouth. Spar Canyon has no perennial tributary streams. Spar Canyon itself is 10 miles of deeply incised (10-20 feet) ephemeral stream channel that only conveys water during spring runoff and during occasional summer thunderstorms, and does not support riparian vegetation corridors. Spar Canyon has a number of ephemeral tributaries and springs including Bear Wallow, Tub Spring, Gossi Spring, White Colt Spring, Grey Stud Spring, and Sorrel Spring (IDEQ, 2003).

The entirety of the Road Creek Watershed with the exception of a small portion of privately owned lands proximal to the East Fork Salmon River is located in the southwestern portion of the CHMA. Road Creek is a tributary of the East Fork of the Salmon River and is perennial downstream of a spring located in the NW¼SW¼ & SW¼NW¼ sec. 36, T. 10 N., R 20 E., B. M. Road Creek has three perennial tributaries; Mosquito Creek, Horse Basin Creek and Bear Creek as well as multiple unnamed ephemeral dry washes; Pine Creek is an intermittent to ephemeral spring dominated tributary to Corral Creek which is a tributary to Horse Basin Creek. Road Creek and its perennial tributaries were assessed using the PFC protocol and the functionality determinations are given in Table 13 (Map 1).

Riparian monitoring occurs on Road Creek at five key areas. The key area MIM and Greenline Analysis monitoring results are given in Table 14. While the PFC data from 1994 indicated Road Creek was functioning at risk to nonfunctioning throughout the entire reach, the MIM and Greenline Analysis data indicate that riparian areas within Road Creek are at or near potential community and therefore likely functioning appropriately at this time. Based on monitoring horse use has been apparent in the Horse Basin and Corral Basin Creek drainages as well as along Road Creek. Wild Horse use in Horse and Corral Basin drainages is widely distributed and often season long; whereas use along Road Creek is seasonally focused in winter and apparent at localized areas. Horse use has not been apparent along Bear and Mosquito Creeks above their confluences into Road Creek. In those portions of the CHMA where surface water predominately occurs as upland springs (outside of the Road Creek Watershed) wild horse use of riparian areas/wetlands is focused at upland springs.

There were two lentic PFC's conducted on two springs located at the head of Chicken Creek on September 28, 1999. The spring located furthest up the drainage was approximately 0.1 acres and was rated as functioning at risk with trend not apparent. The second spring was downstream, 1.5 acres in size and was rated in proper functioning condition. Wild horses do not typically use the Chicken Creek drainage and therefore they were not a factor contributing to functionality at these springs. The majority of the springs within the CHMA were surveyed (1993-1994) for the Snake River Basin Adjudication of water rights. This survey found there are 12 ponds, 252 seeps and 26 spring brooks (Map 2). This survey found that use by wild horses, cows or big game was common throughout the CHMA.

Table 14. Riparian MIM and Greenline Analysis Monitoring Summary (1999-2012)							
Stream	Year	Key Area	Monitoring Method	Greenline Ecological Status Rating	Site Wetland Rating	Streambank Stability (%)	% Fines
Road Creek	1999	1	Greenline Analysis	Late Seral	Good		
Road Creek	2010	1	MIM	Potential Natural Community	Good	94%	49%
Road Creek	2005	3	Greenline Analysis	Potential Natural Community	Good		
Road Creek	2006	4	Greenline Analysis	Potential Natural Community	Good		
Road Creek	2010	4	MIM	Potential Natural Community	Very Good	97%	56%
Road Creek	2012	5	MIM	Potential Natural Community	Good	99%	39%
Horse Basin Creek	2007	2	MIM	Late Seral	Good	56%	

Lone Pine Creek is located in the northeastern portion of the CHMA located on Bradbury Flat. The upper reaches of Lone Pine Creek are known to be perennial, but surface water is discontinuous and the channel becomes dry typically more than 1 mile before its confluence with Warm Springs Creek with xeric species growing within the conveyance. Riparian monitoring occurs at a single photo point on Lone Pine Creek. Approximately 0.8 mile of the creek is located within an exclosure and this reach was assessed using the PFC protocol in October 1998, and was determined to be functioning at risk with an upward trend. The exclosure was constructed in 1992 for the purpose of excluding the majority of the perennial reach from grazing. Lone Pine creek within the exclosure is characterized by a narrow incised channel and receives sediment from its ephemeral tributaries during high intensity precipitation events resulting in siltation and sedimentation along this reach. The stream is also limited in its floodplain extent to the width of the stream bottom within the incised reach. Other water sources in the vicinity of Bradbury Flat are associated with ephemeral water courses; and springs which create spring brooks which flow for short distances before sinking. Population inventories and field observations indicate wild horses routinely use this area year round.

Broken Wagon Creek is located in the southeastern portion of the CHMA. Water distribution proximal to Broken Wagon Creek consists of the creek drainage including tributaries as well as upland seeps and springs, most of which do not convey surface water to the creek. There are multiple unnamed upland springs forming the headwaters of Broken Wagon Creek. The creek

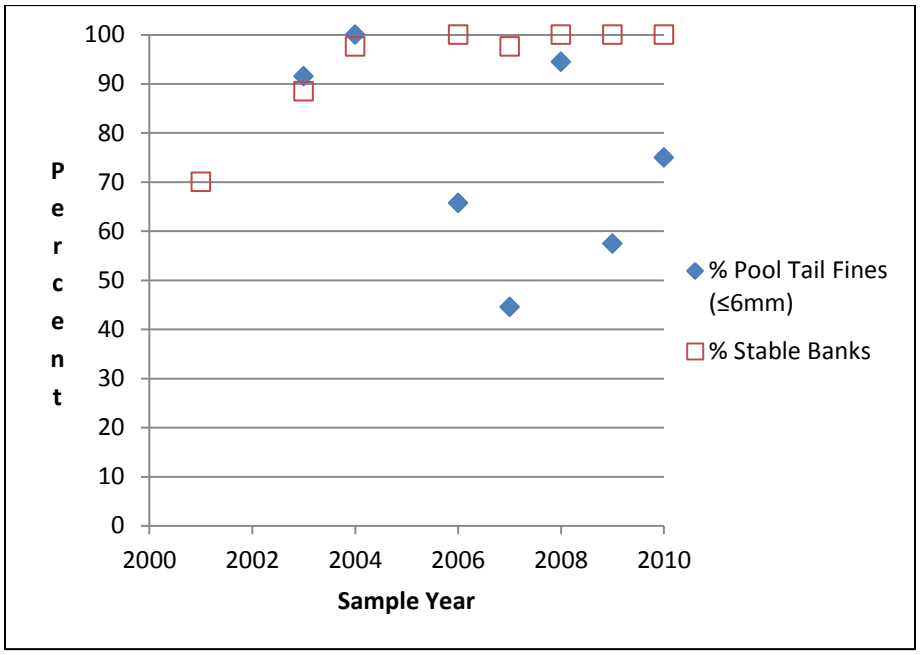
consists of approximately 1.3 miles of perennial reaches with the remainder classified as intermittent to ephemeral (see Table 12). Therefore it is likely that the reaches of the streams classified as non-functional during the 1994 PFC assessments were dry and may not have the potential to support a thriving riparian vegetation community. Population inventories and field observations indicate wild horses routinely use this area year round.

The 0.2 miles of the East Fork of the Salmon River is located along the southwestern margin of the CHMA at the mouth of Dry Hollow. This reach is in Proper Functioning Condition and is bounded to the west by steep topography which is prohibitive to horse access. Horse access is further limited by an east-west drift fence located at the northern margin of the mouth of Dry Hollow. Wild horses have not been observed in Dry Hollow during the last 7 population inventories (2000-2012).

The Pacific Anadromous Fish Strategy (PACFISH) and Inland Fish Strategy (INFISH) Biological Opinion Effectiveness Monitoring Program (PIBO – EM) for aquatic and riparian resources began development in 1998 following the ESA listing of steelhead and bull trout. A federal interagency effort to develop a large-scale monitoring program to determine whether PACFISH/INFISH management practices are maintaining, degrading, or improving biological and physical attributes, processes, and functions of riparian and aquatic habitats throughout the Upper Columbia River Basin. Interagency monitoring efforts at randomly selected streams in the upper Columbia River Basin began in 2001, typically on 5-year cycles. More information regarding the PIBO-EM program is available online (www) at http://www.fs.fed.us/biology/fishecology/emp/index.html. Relative to the CHMA, Road Creek has two monitoring locations associated with PIBO-EM. A DMA site, RC-KA-01, is used by the BLM for implementation monitoring (e.g. short term indicators of grazing use), and roving PIBO-EM crews conduct effectiveness monitoring (e.g. long term indicator of habitat condition or recovery). Approximately 0.1 miles upstream of RC-KA-01 there is an "Integrator" monitoring site. At this site PIBO-EM crews collect effectiveness monitoring data. This occurs typically at shorter intervals than 5 years (see Map 1).

At the Integrator reach on Road Creek effectiveness monitoring was conducted by PIBO monitoring crews 8 times from 2001 to 2010 (Figure 1). Between 2005 and 2010 pool tail fines appear cyclic; likely resultant of periodic transport limited deposition in this carex dominated reach, and periods of sufficient energy to transports fines. The high levels of bank stability are related to abundant root-binding greenline vegetation, resistant to hoof alteration. This data shows that this reach has attained/ maintained achievement of the riparian monitoring objective (>= 90% bank stability) pursuant to the Challis RMP (USDI-BLM, 1999) and that major decreases in fine sediment may not be possible due to geomorphology, beaver influence and perturbations resultant from yearlong wild horse and wildlife presence, seasonal grazing and the presence of the road along the creek.

Figure 1. Effectiveness monitoring data collected by PIBO crews 2001 to 2010 at Integrator Reach on Road Creek upstream of BLM DMA RC-KA-1.



3.6.2 Environmental Effects-- Wetlands/Riparian Zones

Alternative 1

Direct effects of horse gathering on riparian areas will vary based upon the distribution of the horses across the CHMA. Gather personnel will select capture sites based upon wild horse's distribution at the time of the gather. If the horses are distributed within the vicinities of riparian areas/wetlands a potential exists that horses may need to be gathered proximal to riparian areas. The gathering of horses near riparian areas has the potential to result in localized effects as a result of riparian areas/wetlands being traversed by the horses. For example during the 2009 gather 4 horses crossed Road Creek once each during the gather. These effects could consist of bank alterations from horses stepping on the stream banks. Moreover, the effects of horses crossing riparian areas/wetlands during a gather are not anticipated to be discernible from the number of crossings horses would make if a gather were not occurring because the horses cross the streams in the CHMA regularly.

There are three existing potential wild horse capture sites adjacent to Road Creek within the RHCA (Riparian Habitat Conservation Area), identified in the Challis RMP (P. 83-84, Attachment 4). These are categorized in the Challis RMP as: 1) a 300-foot buffer along perennial, fish bearing streams; 2) a 150-foot buffer along perennial non-fish bearing streams; 3) a 150-foot buffer around ponds, wetlands, lakes, reservoirs and wetlands greater than 1-acre in size; 4) and a 100-foot buffer around wetlands less than 1-acre and landslides / landslide prone areas (USDI-BLM, 1999a; USDI-USDA 1995b,c) the potential capture sites are proposed for use during the 2012 gather, and have been used in previous gathers. One site is located just downstream of the confluence of Horse Basin Creek and another located on the road approximately 1/3 mile downstream of the Bear Creek confluence. The most upstream proposed

capture site is near the North Fork Sage Road, between RC-KA-03 and RC-KA-04 (see Map 1). However, it is likely that only one site in the Road Creek watershed will be used during proposed wild horse gather operations. For example, during the 2004 and 2009 gathers only one capture site along Road Creek was used. The capture sites are located on the upstream side of the road among xeric flora. The effects of holding wild horses within these capture sites for a short duration (most would be only for hours, some could be held overnight) would be trampling of vegetation as well as loosening of surface soil, which could result in increased runoff from this site during subsequent precipitation events. Any excess sediment would be primarily buffered by the existing road. Furthermore, because the gather is likely to occur in the fall any subsequent precipitation would likely occur as snow not resulting in immediate runoff. The area would likely re-vegetate during the following spring growing season. Therefore, the gather is not likely to result in increased percent fines in perennial streams. In addition the immediate downstream reaches are influenced by beaver activity that has created multiple ponds acting as natural sediment traps. Any new capture sites would be outside of the RHCA to eliminate effects to streambanks and riparian vegetation.

Under this alternative wild horse population levels would undergo a short term (3-5 years) population reduction; this would likely result in an in kind short term reduction in the effects of horses to riparian areas and wetlands allowing for streams within the CHMA to continue to maintain or progress towards potential natural community. The AML was established by the RMP and where greenline monitoring and MIM have occurred these sites have continued to rate as late seral or potential natural community (see Table 14). The high bank stability indicates that the maintenance of AML in the CHMA has resulted in maintenance or recovery of riparian areas. Where wild horses effect upland springs (e.g. trampling, foraging, defecation) a short term reduction in the intensity and frequency of wild horse use would occur. There is a non-uniform spatial distribution of wild horse use on the upland springs within the CHMA. Those springs that receive relatively focused wild horse use are anticipated to continue to receive relatively focused wild horse use.

Alternative 2

The environmental effects to riparian and wetlands as a result of a gather result from population size and the extent of gather operations (e.g. number of trucks on roads, number of captures sites etc.). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 3, and 4 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to riparian and wetland resources would be the same under this alternative as alternative 1.

Alternative 3

The environmental effects to riparian and wetlands as a result of a gather result from population size and the extent of gather operations (e.g. number of trucks on roads, number of captures sites etc.). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 2, and 4 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to riparian and wetland resources would be the same under this alternative as alternative 1.

Alternative 4
The environmental effects to riparian and wetlands as a result of a gather result from population size and the extent of gather operations (e.g. number of trucks on roads, number of captures sites etc.). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 2, and 3 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to riparian and wetland resources would be the same under this alternative as alternative 1.

Alternative 5
Under this alternative no direct effects related to horse gather activities would. Rather than a short term reduction of horse population (as described under alternatives 1-4), the horse population would continue increasing. An increase of use by wild horses at riparian areas and upland springs is anticipated. For example monitoring data indicates that when the Appropriate Management Level of 185 is exceeded, wild horse effects (trampling, vegetation utilization, defection etc.) can intensify at riparian areas and upland springs. Livestock use criteria are used to manage the intensity of livestock grazing. Stubble height and bank alteration criteria have been set for the perennial streams in the CHMA by the Challis RMP. Use of riparian areas by wild horses has resulted in exceedance of these livestock grazing standards. For example, in 2003 there were 203 horses counted during the census conducted that year and livestock grazed from June 16 to July 11. When livestock were done grazing at Horse Basin Creek Key Area 2 the stubble height was 4 inches, on October 23 the stubble height was at 2 inches (the standard is 3 inches pursuant to the Challis RMP) and the bank shears were 26% (the Standard is less than 10% pursuant to the Challis RMP [USDI-BLM, 1999a]). In 2006 Horse Basin was rested from cattle grazing and 231 horses were counted during the census that year, stubble height was measured at Horse Basin Creek Key Area 2 at 2 inches. In both of these cases the exceedance of the grazing use criteria was attributable to horse use (see Appendix K).

Therefore as a result of this alternative it is likely that the springs and stream riparian areas in the CHMA would receive increased intensity and frequency of wild horse use. This has a potential to result in altered vegetation communities typically resulting in a lower seral stage. Lower seral stages have less recruitment of woody species reducing shade and stability of the site because binding roots associated with hydric herbaceous and mature trees/shrubs are not as prevalent. This results in an overall reduction in the spatial extent of the riparian area whether it is a stream or a spring site (USDI- BLM, 1998, 2003). This would result in riparian areas within the CHMA being more vulnerable to future disturbance such as drought, high flow events etc. and becoming nonfunctional.

3.7 Water Quality

3.7.1 Affected Environment

Approximately 346 stream miles were assessed within the CHMA by the IDEQ (Idaho Department of Environmental Quality) pursuant to section 305(b) of the CWA (Clean Water Act 33 U.S.C. §1251 et seq. 1972). Streams which are assessed pursuant to this section but do not meet the IDWQS (Idaho Water Quality Standards) are 303(d) listed, meaning that water body is classified as water quality impaired. Standard 7 of the Idaho Rangeland Health Standards states that surface and ground waters on public land shall comply with the IDWQS. The 305(b) water bodies assessed included perennial, intermittent and ephemeral stream reaches (see Table 12). Of these, approximately 95 stream miles were listed as impaired because they did not meet one or more of the IDWQS.

The majority of the stream miles within the CHMA are ephemeral to intermittent (see Table 12) under Riparian Areas and Wetlands) and only flow during periods of intense precipitation and/or high snow melt. Of particular importance to the streams located on the CHMA is the relationship between IDWQS and intermittent waters. An intermittent stream is defined (in Idaho Administrative Code 58.01.02.003.51) as a stream that has a period of zero flow for at least one week in most years. Where flow records are available a stream with a seven day average flow of less than 0.1 CFS is considered intermittent. Section 070.07 of IDWQS (Idaho Administrative Code 58.01.02.070.07) addresses the application of the IDWQS to these types of streams. IDWQS apply to intermittent streams during periods of optimum flow sufficient to support the beneficial uses for which the intermittent stream has been designated. In many cases, intermittent streams have not been designated and are protected for the default uses of cold water biota and secondary contact recreation (recreation that does not result in prolonged and intimate contact with the water when small amounts of water are likely to be ingested). Optimum flow is described as at least 1 CFS for aquatic life (cold water aquatic life) and at least 5 CFS for recreation uses. When flows drop below these threshold values, the IDWQS no longer apply to the given water body (IDEQ, 2001). The statuses of streams which are located upon the CHMA are given in Table 15.

Table 15. 305(b) Streams located on CHMA		
STREAM	Status	length (miles)
Unnamed Streams		207.50
Unnamed Streams	303D LISTED	76.99
Bear Creek		5.35
Broken Wagon Creek	303D LISTED	7.76
Corral Basin Creek		7.78
East Fork Salmon River		0.20
Horse Basin Creek		6.87
Lone Pine Creek		8.50
Mosquito Creek		1.61
Mosquito Creek	303D LISTED	6.05
Road Creek		12.23
Road Creek	303D LISTED	2.90
Sheep Creek	303D LISTED	0.32
Warm Spring Creek	303D LISTED	1.00

Due to the large scope of assessing all of the water bodies in Idaho the IDEQ has divided these bodies into lumped assessment units. Many of these assessment units have multiple monitoring sites for conducting assessments, if any of the assessment sites do not meet the criteria for being fully functioning the entire assessment unit is typically considered impaired and consequently 303(d) listed. The majority of unnamed stream miles which were 303(d) listed were lumped into the Warm Springs Creek source to Hole in the Rock Creek unit; the reason this assessment unit is 303(d) listed is for not supporting cold water aquatic life with low flow alterations and sedimentation /siltation listed as the pollutants. This assessment unit includes areas east of Highway 93 outside of the CHMA. The majority of monitoring sites used by IDEQ were assessed when no water was present in the channel, and the sites were selected in reaches which are classified as intermittent to ephemeral see Appendix H. Warm Springs Creek below Hole in the Rock Creek is not 303(d) listed. Population inventories and field observation indicate that wild horses are present in this portion of the CHMA but they do not affect the perennial and or ephemeral nature of the streams at the locations where assessments were conducted.

There is a short reach of Broken Wagon Creek (1.3 miles) which is perennial in the CHMA. Broken Wagon Creek is listed from source to mouth for not supporting cold water aquatic life

with low flow alteration and sedimentation/siltation listed as pollutants. The site monitored by IDEQ is not within the perennial reach and was monitored at a time when the stream was dry (see Appendix H for IDEQ monitoring data). The portion of Sheep Creek between Highway 93 and the confluence with Warm Springs Creek as well as the entirety of the ephemeral to intermittent unnamed streams above the confluence of Broken Wagon Creek and Warm Springs Creek were lumped into the Broken Wagon Creek source to Mouth Assessment Unit. Population inventories and field observation indicate that wild horses are present in this portion of the CHMA but they do not affect the perennial and or ephemeral nature of the streams at the locations where assessments were conducted.

The majority of perennial miles within the CHMA occur in the Road Creek watershed. Mosquito Creek is a tributary to Road Creek and is 303(d) listed from source to mouth for not supporting cold water aquatic life and salmonid spawning with combined biota/habitat bio-assessments (aquatic habitat conditions) listed as the pollutant. This determination was based upon a single 1998 sample taken 30 meters above the confluence into Road Creek and is not representative of typical habitat conditions within Mosquito Creek; during this sample IDEQ did not document salmonids, however westslope cutthroat have been documented by BLM electrofishing efforts in this reach. Furthermore IDEQ attempted to monitor a location in upper Mosquito Creek in 2004 and found the site to be inaccessible due to dense woody vegetation. Road Creek is 303(d) listed from confluence of Bear Creek downstream to the confluence of Horse Basin Creek for not supporting salmonid spawning with biota/habitat bioassessments (aquatic habitat conditions). Population inventories and field observation indicate that wild horses are present in this portion of the CHMA and the relative influence of wild horses on water quality determinations is unknown and the effects to aquatic habitat conditions as a result of the presence of wild horses is disclosed under fisheries.

3.7.2 Environmental Effects

Alternative 1

There is one capture site located along the 303(d) listed reach of Road Creek between the confluences of Mosquito Creek and Bear Creek. Any new capture sites would occur outside of the RHCA. Sedimentation and Siltation is the pollutant which is most likely to result from use of the capture sites, however a substantial contribution to streams within the CHMA is not anticipated as a result of the of capture sites, see Riparian Areas and Wetlands for further discussion. A low potential exists (see riparian area and wetlands for further discussion) for wild horses to step in streams while being gathered. This could result in bank shearing and/or stepping in fine substrate sediments creating short duration localized turbidity. Turbidity is the measure of the cloudiness or haziness of a water body and is used as a method to determine sediment loading. The IDWQS for meeting cold water aquatic life beneficial use is: *Turbidity, below any applicable mixing zone set by the Department, shall not exceed background turbidity by more than fifty (50) Nephelometric Turbidity Units (NTUs) instantaneously or more than twenty-five (25) NTU for more than ten (10) consecutive days* (IDAPA 58.01.02). IDWQS will not be violated as a result of gathering horses because of the short duration of the gather (typically less than 3 days at any capture site) and the low potential for horses to cross streams as a result of this action. Effects to salmonid spawning and TES Fish (cold water aquatic life) are disclosed under Fisheries.

As a result of this gather, a short term decrease in horse population will occur. As discussed under section 3.6 there are effects to riparian areas which in turn affect water quality. These effects are a reduction in; 1) foraging which allows for canopy (shade) maintenance/recovery which influences water temperature, 2) defecation which leads to fecal coliform presence in surface waters and 3) bank destabilization which can result in sedimentation/siltation. The intensity and frequency of use of wild horses at streams and springs will receive a short term in kind reduction. However those water bodies associated with riparian areas which receive relatively focused wild horse use would continue to do so.

Alternative 2
The environmental effects to water quality as a result of a gather result from population size and the extent of gather operations (e.g. number of trucks on roads, number of captures sites etc.). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 3, and 4 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to riparian and wetland resources would be the same under this alternative as alternative 1.

Alternative 3
The environmental effects to water quality as a result of a gather result from population size and the extent of gather operations (e.g. number of trucks on roads, number of captures sites etc.). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 2, and 4 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to riparian and wetland resources would be the same under this alternative as alternative 1.

Alternative 4
The environmental effects to water quality as a result of a gather result from population size and the extent of gather operations (e.g. number of trucks on roads, number of captures sites etc.). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 2, and 3 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to riparian and wetland resources would be the same under this alternative as alternative 1.

Alternative 5
Under Alternative 5, it is likely that the springs and stream riparian areas in the CHMA would receive increased intensity and frequency of wild horse use. This has a potential to result in altered vegetation communities typically resulting in a lower seral stage. Lower seral stages have less recruitment of woody species reducing shade and stability of the site because binding roots associated with hydric herbaceous and mature trees/shrubs are not as prevalent. This results in an overall reduction in the spatial extent of the riparian area whether it is a stream or a spring site (USDI- BLM, 1998, 2003). A decrease in canopy/shade will result in an increase in water temperatures. A decrease in bank stability will result in increased sedimentation. The increase

in numbers of wild horses will increase the fecal loading of springs and streams. Therefore the cessation of gathering wild horses for period of up to 10 years would affect water quality such that more water bodies would likely not meet the IDWQS and thereby increase the miles of 303(d) listed streams on the CHMA.

3.8 Threatened, Endangered, and Sensitive Fish; Fisheries

3.8.1 Affected Environment

Species and Critical Habitat

This section focuses on the distribution of threatened / endangered fish species, BLM sensitive and Idaho State fish species of concern, and water bodies designated as critical habitat that border or lie within the CHMA. The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) have, under ESA, identified the following threatened and endangered fish species and habitat that occur in the area administered by the CFO:

- **Snake River sockeye salmon** (*Oncorhynchus nerka*) (Endangered) (Federal Register 56FR58619). Critical habitat has been designated for Snake River sockeye salmon (Federal Register 58FR68543). However, the designation is limited to the Salmon River.

- **Snake River spring/summer Chinook salmon** (*Oncorhynchus tshawytscha*) (Threatened) (Federal Register 57FR14653). Critical habitat has been designated for Snake River spring/summer Chinook salmon and includes "river reaches presently or historically accessible…to Snake River spring/summer Chinook salmon" (Federal Register 58FR68543).

- **Snake River steelhead** (*Oncorhynchus mykiss*) (Threatened) (Federal Register 62FR43937). Critical habitat has been designated for Snake River Basin steelhead (Federal Register 70FR52630) and includes numerous streams in the Upper Salmon River watershed and the BLM Challis Resource Area.

- **Columbia River bull trout** (*Salvelinus confluentus*) (Threatened) (Federal Register 63FR31647). Critical habitat was designated for bull trout on September 26, 2005, and initially did not include the Salmon River. On October 18, 2010, a revised final designation of critical habitat was published which included mainstem rivers and numerous tributaries the Upper Salmon River watershed and BLM Challis Resource Area (Federal Register 75FR63898).

Although not ESA listed as threatened or endangered, westslope cutthroat trout (*Oncorhynchus clarki lewisi)* is an Idaho State species of concern and a BLM sensitive species. Westslope cutthroat trout occur in portions of the CHMA (USDI-BLM 1999a), and that benefit peripherally from stipulations and conservation measures intended to prevent effects to listed salmonids and designated critical habitat. Therefore, westslope cutthroat trout are discussed concurrently. Although designated critical habitat abounds in in the Salmon River, East Fork Salmon River and many tributaries, relatively few historically accessible streams and little designated critical

habitat occurs in the CHMA. Designated critical habitat for ESA listed salmonids (Map 3) and documented presence within and adjacent to the CHMA is summarized below in Table 16.

Table 16. Documented T/E and Sensitive Fish Species Presence and ESA Designated Critical Habitat Distribution Within the CHMA.

Stream Name	Stream Miles[1]	Stream Type[1]	T/E and Sensitive Fish Presence[2]	ESA Designated Critical Habitat
Unnamed Stream	550.5	Intermittent to Ephemeral	None	None
Bear Creek	1.6	Intermittent to Ephemeral	None[3]	CHS
Broken Wagon Creek	6.4	Intermittent to Ephemeral	None	None
Corral Basin Creek	0.9	Intermittent to Ephemeral	None	CHS
Horse Basin Creek	3.6	Intermittent to Ephemeral	UNK	CHS
Lone Pine Creek	8.5	Intermittent to Ephemeral	None	None
Mosquito Creek	1.6	Intermittent to Ephemeral	UNK	CHS
Road Creek	2.1	Intermittent to Ephemeral	WSCT	CHS
Warm Spring Creek	2.7	Intermittent to Ephemeral	None	None
Unnamed Stream	17.2	Perennial	None	None
Bear Creek	4.1	Perennial	WSCT	CHS
Broken Wagon Creek	1.3	Perennial	None	None
Corral Basin Creek	6.1	Perennial	None	CHS
East Fork Salmon River	0.2	Perennial	BLT, CHS, STH, RBT, WSCT	BLT, CHS, STH
Horse Basin Creek	6.1	Perennial	WSCT, RBT	CHS
Lone Pine Creek	0.3	Perennial	None	None
Mosquito Creek	6.1	Perennial	WSCT	
Road Creek	13.9	Perennial	RBT[3], WSCT	

[1]Data compiled and distances estimated with a GIS using the USGS National Hydrology Dataset. [2]Based on known documented observations collected by BLM-CFO between 1994 and 2012, IDEQ, or IDFG (IDEQ, 2010); [3]The intermittent / ephemeral reach of Bear Creek occurs in a headwaters mesic meadow with insufficient surface water / stream channel habitat to support salmonids.

BLT = bull trout, CHS = Chinook salmon, STH = anadromous steelhead, RBT = resident / fluvial rainbow trout, WSCT = westslope cutthroat trout, None = no T/E or sensitive species present, UNK = fish presence unknown but potentially accessible by fish in downstream occupied habitat

Land ownership within the CHMA encompasses ≈ 154,176 acres of BLM, ≈ 9,472 acres State of Idaho and ≈ 1,088 acres of private lands, with ≈ 55 miles of perennial stream within the CHMA. The entire CHMA occurs in the Upper Salmon River Basin – 4th Field Hydrologic Unit Code (HUC) or USGS Cataloging Unit 17060201 (ISU 2012). The Upper Salmon River Basin (≈1.5 million acres) includes the mainstem Salmon River and numerous fish bearing tributaries (including the East Fork Salmon River) from the headwaters near Stanley, ID extending downstream to the mouth of the Pahsimeroi River near the town of Ellis, ID. The CHMA is also included in the Upper Salmon River Major Population Group, used by NMFS to track the status

and recovery of ESA listed anadromous (e.g. ocean going) salmonids (NMFS 2011; Ford 2010). However, relatively little fish habitat occurs in the CHMA because of distinctly volcanic geology and a preponderance of naturally intermittent or ephemerally wetted stream channels that historically and currently preclude occupancy by fish in most drainages which have only infrequent surface water conveyance to mainstem streams and rivers. Native fish and/or introduced salmonids are only known to occur in ≈5.1% of the total stream / conveyance miles within the CHMA, almost entirely located within Road Creek drainage (Table 16; Map 3).

The northwestern margins of the CHMA are bordered by State Highway 75 and the mainstem Salmon River and the southwest margins are bordered by the East Fork Salmon River and the East Fork Road. The southern boundary of the CHMA extends to the ridgeline drainage divide between Herd Creek and Road Creek in the Upper Salmon River watershed and the divide between Road Creek and Sage Creek in the Big Lost River Basin (4th Field HUC or USGS Cataloging Unit 17040218). The eastern margins of the CHMA are bordered by State Highway 93 and Warm Springs Creek, predominately occurring on private lands. The northern apex of the Challis CHMA is bounded by private lands developed for agriculture and home sites and State Highway 93 (Map 3).

The Salmon River, East Fork Salmon River, and Herd Creek all bound portions of the CHMA and are occupied designated critical habitat for ESA listed fish species including, Chinook salmon, steelhead, and bull trout. Spawning and rearing by anadromous Snake River Chinook salmon and Snake River steelhead has been assessed by Idaho Department of Fish and Game via aerial Chinook Salmon spawning redd counts, hatchery weir operations, and stream sampling and spawning surveys conducted by several state, federal, and tribal fisheries personnel. Resident Columbia Basin bull trout, westslope cutthroat, and rainbow trout *(Oncorhynchus mykiss)* are widely distributed throughout the Upper Salmon River Basin and occur in reaches of the Salmon River, East Fork Salmon River, and Herd Creek drainage which border the CHMA (NMFS 2011; USFWS 2010; USFWS 2002; USDI-BLM 1999a, 1999b, 1999c, 1999d, 1999e). The presence of Sockeye Salmon relative to the CHMA is limited to upstream migration by adults and downstream migration by juveniles in the adjacent reaches of the mainstem Salmon River en-route to Redfish Lake and the Sawtooth Fish Hatchery near Stanley ID, and the Pacific Ocean, respectively (IDFG 2011).

Within the boundaries of the CHMA a limited reach (≈0.2 miles long) of the East Fork Salmon River exists (Table 16) but is bounded by steep bedrock topography and results in infrequent wild horse presence proximal to this reach. Relative to the CHMA the remainder of designated critical habitat and stream reaches occupied by native fish and/or introduced salmonids is limited to the Road Creek drainage (USDI-BLM 1999a, 1999b, 1999c, 1999d, 1999e). Road Creek and its tributaries, while not designated by USFWS as critical habitat for bull trout or by NMFS for Snake River Steelhead, were included in the broader designation of critical habitat for Chinook salmon and essential fish habitat under the Magnuson-Stevenson Act. Other drainages within the CHMA such as Malm Gulch, Spar Canyon, and the Warm Springs Creek watershed with tributaries Lone Pine Creek and Broken Wagon Creek have limited perennial reaches and were unlikely to be historically accessible by Chinook salmon or other native fish (Table 16). This is because surface flows infiltrate into alluvium and often do not convey surface water adequate to maintain riparian corridors or stream channels capable of supporting fish. As ephemeral

drainages approach their receiving waterways, their surface water conveyances are often absent or become diffuse which further limits ephemeral surface water connectivity to only during extreme episodic precipitation events. In the case of Warm Springs Creek, historical disconnection from the Salmon River and geothermal influences has prevented the establishment of a native resident fish population in the Warm Springs Creek watershed (NMFS 2011; IDEQ 2003). Thus, with the exception of Road Creek, drainages in the CHMA were unlikely to be historically accessible by fish in the mainstem and East Fork Salmon Rivers, are not occupied by fish, and thus are not considered critical habitat.

Road Creek and its tributaries drain towards the East Fork of the Salmon River and constitute vast majority (≈79.2%) of perennial reaches on named streams in the CHMA (Table 16). Perennial Road Creek tributaries known to be occupied by native salmonids include: Mosquito Creek, Bear Creek, and Horse Basin Creek (Table 16). Snake River spring/summer Chinook salmon and steelhead are unlikely to currently occupy potentially historic spawning and rearing habitats in Road Creek due to a combination of the county road culvert, stream diversions, and flow-losing intermittent reaches in the lower ≈3 miles of Road Creek (USDI-BLM 2004; USDI-BLM 1999b). Beaver activity influences most BLM administered reaches of Road Creek from approximately Mosquito Creek to Chicken Creek and among private lands in lower Road Creek which can influence fish distribution and create a dynamic influence on habitat (Meehan 1991; Swanston 1991). For example, beaver ponds provide excellent rearing habitat juvenile salmonids, and increased aquatic productivity and low-velocity overwintering habitats are benefits. However, beaver ponds can displace spawning gravels via sediment deposition inherent to low-gradient stream impoundments and elevated stream temperatures detrimental to salmonids can also result.

The ability of salmonids to freely move within a watershed is essential to reproduction, foraging, and seeking thermal refugia during temperature limiting times of the year (July – August). Westslope cutthroat trout are the most widely distributed salmonid within Road Creek and its perennial tributaries. This distribution is supported by perennial surface water connectivity among its major tributaries, which allows fish to seek thermal refugia or spawning habitats. In Road Creek, naturally occurring intermittent reaches can necessitate such fish movement, and human barriers can further fragment habitats and impede fish migration (Meehan 1991). A culvert fish passage inventory was conducted for the Challis Field Office in 2004. Three Road Creek culverts were assessed as barriers to fish movement based on excessive slope and perched outlets, which one located near the East Fork Salmon River confluence on the East Fork Road (downstream of the CHMA boundary), and two in upper Road Creek on BLM lands (USDI-BLM, 2004). Road culverts which impeded fish passage have been reduced in Road Creek since 2006; 2 culverts in upper Road Creek between RC-KA-03 and RC-KA-04 (Map 3) were replaced, and in 2008 westslope cutthroat trout were observed at RC-KA-04 during macroinvertebrate sampling near the upstream terminus of perennial reaches of Road Creek in spring-dominated habitat. The culvert over Horse Basin Creek, just above its confluence into Road Creek, was assessed as a possible impediment to fish passage and also replaced in 2006. However, intermittent surface waters and anthropogenic barriers (e.g. culvert at East Fork Road below CHMA boundary) in the lower reaches of Road Creek which fragment fish distribution will likely persist into the foreseeable future.

The Road Creek watershed within the CHMA, including mainstem Road Creek on BLM lands, and Mosquito, Bear, and Horse Basin creeks have documented to be occupied by resident westslope cutthroat trout, rainbow trout, possible hybrids and mottled sculpin, but steelhead, Chinook salmon and bull trout were documented as being absent, and attributed to anthropogenic impediments to fish passage (IDEQ, 2010; USDI-BLM 1999b, 1999d). This is based on past BLM electrofishing surveys in the 1990's and more recent visual observations. Limited sampling was conducted by IDEQ, and documented unknown salmonids in upper Road Creek, westslope cutthroat trout in Horse Basin and Bear Creeks, and several rainbow trout in lower Horse Basin Creek in 1997 and a possible 50-mm rainbow trout / unknown salmonid in Road Creek near RC-KA-01 on 8/1/2006.

Current fish presence, based on BLM electrofishing surveys conducted 6/7/2012 to 6/20/2012 throughout the Road Creek watershed from mouth to headwater terminus, included the same suite of species within the CHMA. It also appears fish from the East Fork Salmon River are unlikely to access and occupy habitat in Road Creek within the CHMA. A combination of westslope cutthroat trout, rainbow trout, salmonids visibly indicative of cutthroat x rainbow hybrids (Behnke 1992), and mottled sculpin were present at all sites sampled in the CHMA, except the most downstream parcel of BLM lands. Given intermittent reaches in upper (below DMA RC-KA-04) and the lower reaches of Road Creek, numerous beaver impoundments, volcanic geology and with substrate composition dominated by relatively fine particles, the presence of spawning gravel habitat is likely limited in distribution. This may suggest limited reproductive isolation, futher complicated by anthropgenic fragmentation, and the presence of resident rainbow trout. While fish stocking was historically common place in the Upper Salmon River Basin, the contribution of this potential anthropogienc influence on fish presence or hybridization, also known to occur naturally, is unknown (Kozfkay 2012). Furthermore, spawning habitat for steelhead and access are likely precluded by substrate composition dominated by fine sediments inhibitive to steelhead spawning and passage impediments, respectively.

The June 2012 BLM electrofishing effort also included the lower reaches of Road Creek downstream of the East Fork County Road, and outside of the CHMA boundary. Here the confluence into the East Fork Salmon River occurs and there are perennial flows, apparently influenced by flow-gaining / recharge upstream on private lands. There was also a distinctly different fish assemblage, consisting of rearing anadromous salmonids and fish from the East Fork Salmon River, than potentially isolated resident populations upstream on BLM lands within the CHMA. The distribution of fish from the East Fork Salmon River into Road Creek may not extend beyond the lower ≈0.25 to 1.0 miles on private lands near the confluence with where access/egress to the river can occur. Two reaches (18 and 75m in length) below the East Fork Road on private lands near the mouth were electrofished by the BLM on 6/20/2012; relative to all reaches sampled in the Road Creek watershed, here the largest relative abundance of individuals occurred with a total of 29 rainbow trout and / or rearing steelhead (≈60 to 250mm TL) and 82 rearing Chinook salmon (≈30 - 90mm TL), a single bull trout (≈180mm TL), and mottled sculpin. However, upstream of this important spring influenced flow-gaining reach; there is a distinctly flow-losing reach, likely exacerbated by diversions and historic channel incision, where dry channel in the summer/fall or flows low enough to limit migration and occupancy occur. For example, of the 13 electrofishing reaches (stream length ranged 18 –

200m of sampled habitat) the most downstream portion of BLM lands on Road Creek, concurrent with the aforementioned intermittent reach, was the only reach sampled (stream length 200m) to not contain any fish.

Water Temperature

Removal of canopy cover over small streams can result in detrimental increases in water temperature (Powell et al. 2000). In a comparison of ungrazed exclosures to areas subject to season-long grazing in the Blue Mountain region of Oregon, Claire and Storch (1983) noted that the grazed section was devoid of shrub cover and daily water temperatures were 12°F higher than water temperatures inside exclosures. Elevated stream temperatures can be influenced by impacts such as increased stream widths, decreases in stream depth, reductions in overhanging bank cover and vegetation, or reductions in stream flow. Intermittent reaches which lose flow to infiltration can experience naturally elevated water temperatures, and beaver impoundments also can result in elevated stream temperature (Swanston 1991). The seasonal occurrence of livestock grazing and the persistent use by wild horses has resulted in localized accessible areas with destabilized streambanks and reduced vegetative cover, but predominately riparian vegetation is functioning appropriately and providing stream shading throughout most of Road Creek and its perennial tributaries. Further descriptions of riparian vegetation and bank stability are discussed under Wetlands / Riparian Zones (Table 14).

Relative to the CHMA, flow diversion and intermittent reaches likely influence stream flow and water temperature in the lower reaches of Road Creek. Further upstream where BLM administered lands contain most of the Road Creek drainage, recreational use and congregation of livestock and wild horses has resulted in localized areas of decreased bank stability and/or riparian vegetation density (Table 14). However, stream reaches have predominately dense intact riparian corridors resistant to streambank impacts from wild horses or livestock. Natural influences on water temperature in Road Creek occur as beaver impoundments which decrease velocity, accumulate fine sediments and increase water temperature, potentially to detrimental levels during temperature limiting times of the year (July-August). In combination with climactic variability, other natural influences on water temperature are likely spring dominated flow-gaining reaches where temperature maxima can be mediated by groundwater contribution; other apparent flow-losing reaches occur as well, which can exacerbate temperature maxima (Kondolf 1989).

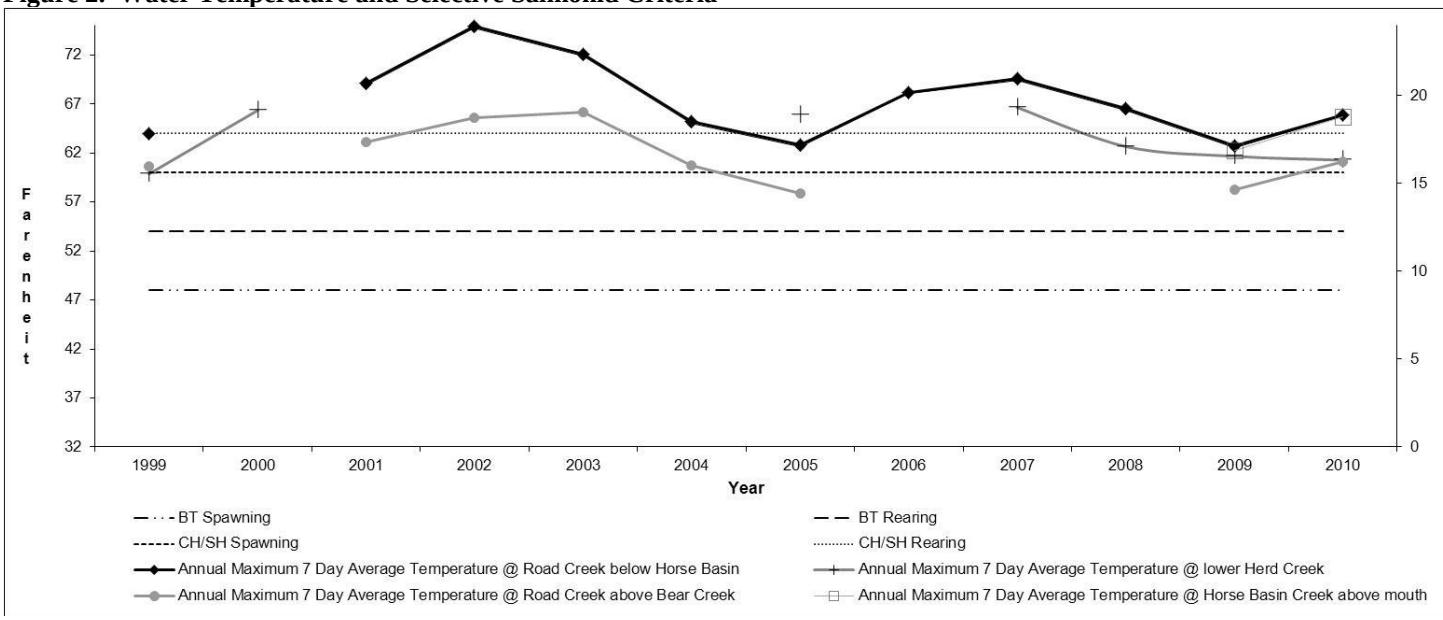
Table 17. PACFISH and INFISH Instream Temperature [1] Thresholds for ESA Listed Salmonids

Species	Spawning Season	Spawning Temperature (°C/°F)	Rearing Temperature (°C/°F)	Migration/Holding Temperature (°C/°F)
Chinook Salmon	Summer	≤ 15.6/60	≤ 17.8/64	≤ 17.8/64
Steelhead Trout	Spring	≤ 15.6/60	≤ 17.8/64	≤ 17.8/64
Bull Trout	Fall	≤ 8.8/48	≤12.0/54	≤ 15.0/59

[1] *Measured as the 7 day maximum average instream temperature.*

Table 17 identifies PACFISH and INFISH instream temperature thresholds (USDI-BLM, 1995b, 1995c; USDI-BLM, 1999 b) important to listed salmonid behaviors and figure 2 displays annual temperature maxima displayed as the 7-day maximum average temperature in Road Creek and Horse Basin Creek. Water temperature is also presented neighboring Herd Creek, which contains spawning and rearing Chinook salmon and steelhead, and also contains reproductive populations of resident salmonids. Temperature thresholds for steelhead are presented below, and because they are similar to temperature thresholds for westslope cutthroat trout they are adequate for comparison. Based on annual temperature maxima presented in Figure 2, and a review of the seasonal progression of daily-water temperatures at Road Creek below Horse Basin, water temperatures likely exceed Chinook salmon and steelhead rearing thresholds for a portion of July and August, during most years; during 2009 the temperature maxima did not exceed this threshold (Figure 2). However, thermal refugia in the form of ground water gaining reaches and upper portions of Bear and Mosquito creeks likely exist, and seasonal water temperature maxima in Road Creek are unlikely to preclude occupancy by listed salmonids. For example, similar temperature maxima occur in neighboring Herd Creek which supports spawning and rearing by ESA listed salmonids (Chinook salmon, steelhead, and bull trout). Relative to westslope cutthroat trout, figure 2 suggests temperatures in lower Road Creek within the CHMA boundary exceed optimal growth conditions (>17^{o}C) more often than Road Creek above its perennial tributaries, and has experienced temperature maxima (three seasons where data was available) greater that 20^{o}C which can reduce survival of juvenile westslope cutthroat trout (Bear et al. 2007). However, downstream of the CHMA boundary flow-gaining reaches on private lands mediate what would otherwise be relatively high temperatures at the mouth, or even dry-channel.

Figure 2. Water Temperature and Selective Salmonid Criteria



Temperature data presented as the highest 7 day average maximum temperature recorded annually 1999 to 2010. BT Spawning = bull trout spawning temperature threshold, BT Rearing = bull trout juvenile rearing temperature threshold, CH/SH Spawning = Chinook salmon and steelhead trout spawning temperature threshold, CH/SH Rearing = Chinook salmon and steelhead trout juvenile rearing temperature threshold.

3.8.2 Environmental Effects

Alternative 1

The potential for proposed horse gather operations to have effects on fish or habitat is inherently low based upon the location of streams relative to the distribution of gather activities, and the limited extent of occupied fish habitat in the CHMA. In addition, elements of the proposed gather alternatives described below are expected to prevent any effects to ESA listed fish or habitat within and adjacent to the CHMA. The majority existing proposed capture sites used in previous wild horse gathers and sorting/holding facilities (Map 3) would occur ≥3-miles from habitat occupied by listed fish in Herd Creek, the mouth of Road Creek, the East Fork Salmon River or the Salmon River. These areas lie outside the potential gather area and horses occur there infrequently. During gather operations any wild horses proximal to these areas would be directed toward the CHMA interior, away from these substantial rivers or occupied habitat often bounded by State Highways, County roads, fenced private lands, and / or steep topography. Areas outside of the CHMA where horses are expected to be gathered will likely occur in the Warm Springs drainage, without surface water connectivity to the Salmon River, and where no stream habitat occupied by species of concern or native fish exist.

A portion of the wild horse gather activities under alternative 1 would occur in the Road Creek watershed on public lands, where unoccupied designated critical habitat for Chinook salmon occurs, and streams are known to be occupied by westslope cutthroat trout and rainbow trout (Table 17; Map 3). Occupied habitat in Road Creek downstream of the CHMA would not be influenced by gather operations, which would not occur nearby, because the pattern of horse presence is not known to result in their presence on private lands near the mouth. The majority of existing capture sites depicted on Map 3 occur away from perennial fish bearing streams, with substantial buffers to prevent effects to riparian areas, water, or fish habitat. Furthermore, horse gather operations include an SOP identified under Appendix B which establishes that *"the capture sites would be constructed so that no riparian vegetation is contained within them. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas."* Thus, all existing CHMA capture sites and potential additional sites will occur outside of active riparian zones (e.g. based on lateral extent of riparian vegetation). Most existing sites occur outside of riparian habitat conservation areas (RHCA), identified in the Challis RMP (P. 83-84, Attachment 4). These are categorized in the Challis RMP as: 1) a 300-foot buffer along perennial, fish bearing streams; 2) a 150-foot buffer along perennial non-fish bearing streams; 3) a 150-foot buffer around ponds, wetlands, lakes, reservoirs and wetlands greater than 1-acre is size; 4) and a 100-foot buffer around wetlands less than 1-acre and landslides / landslide prone areas (USDI-BLM, 1999b; USDI-BLM, 1995b). Gather personnel may need to establish additional capture sites, beyond those depicted on Map 3, based upon the locations of the horses at the time of the gather.

Under Alternative 1, a single sorting/holding facility would be established within or adjacent to the CHMA. There are three proposed locations where a single sorting/holding facility could be established to facilitate gather operations, fertility control, trailer-loading, and selective removal. One location is along the Spar Canyon Road ≈ 1.5 miles from the East Fork Salmon River, in an existing gravel pit resilient to impact which should preclude effects to fish or habitat associated

with the East Fork Salmon River. Temporary sorting/holding facilities would not extend beyond the road towards the Spar Canyon drainage, which does not support aquatic resources or riparian vegetation. The other locations, far from a fish bearing streams, occur in uplands on the Warm Springs side of the CHMA (Map 3). However, based on the distribution of wild horses during the proposed gather, implementation may require establishing a sorting/holding facility elsewhere in the CHMA. This would not result in effects to fisheries resources because any "new" locations would be established outside of the RHCA, and unlikely to even be proximal to a water body, and would not occur within the Road Creek watershed. Similarly, the Challis Horse Corrals would serve as preparation facility and is located in upland habitat ≈2.5 miles from the nearest fish bearing habitat in the mainstem Salmon River, and no surface water conveyance to the Salmon River occurs proximal to the corrals and thus no effects to fish or habitat in the mainstem Salmon River would occur.

There are three existing wild horse capture sites adjacent to Road Creek, which based on the location of the road and topography do occur within the RHCA (Map 3). One site is located just downstream of the confluence of Horse Basin Creek and another located on the road approximately 1/3 mile downstream of the Bear Creek confluence into Road Creek. Another capture site is located upstream of these, approximately 1 mile from the Bear Creek confluence. The most upstream capture site is outside of the RHCA on the Road Creek Road, near the North Fork Sage Road, between riparian DMAs RC-KA-03 and RC-KA-04. However, it is important to note that only one site in the Road Creek watershed is likely to be used during proposed horse gather operations. This is consistent with past gathers, including those in 2004 and 2009, when only one capture site in the entire Road Creek was used.

Holding horses within these capture sites would cause temporary localized impacts to upland vegetation from trampling as well as loosening of surface soil. No effects to substrate composition in Road Creek are expected because any potential sediment transport would be buffered by the existing road prism and both upland and riparian vegetation. Further, the proposed capture sites along Road Creek are used infrequently and post-gather impacts are not apparent and sites are not readily discernible. For example, persistent disturbance and increases of invasive weeds have not occurred. During the following spring / summer season minor impacts to upland vegetation and soils should be repairable upon regrowth of vegetation.

Chinook salmon or bull trout spawning and incubation does temporally align with fall-season gather activities, but only occurs in habitat outside or bordering the CHMA in Herd Creek, East Fork and mainstem Salmon River. No effects would occur because gather activities would not occur near them (e.g. capture sites and facilities are all greater than 1.5-miles from occupied habitat), and predominately fragmented ephemeral drainages throughout the CHMA and beaver impoundments and intermittent reaches in Road Creek preclude downstream indirect effects. Within Road Creek and its tributaries, October gather operations would not overlap with spring/summer spawning and egg incubation for westslope cutthroat trout or rainbow trout (USBWP 2005), where sedentary redds can be susceptible to trampling or other disturbance.

Under Alternative 1, it is anticipated that helicopter-assisted gathering of horses would primarily occur along upland trails and existing roads used by and familiar to wild horses, which is consistent with past wild horse gather operations. Based on the distribution of capture sites

relative to fish bearing streams in the Road Creek watershed and observations during past gathers, there is a low likelihood of a wild horse herd being "gathered" across a fish bearing stream. For example, during the 2009 wild horse gather, no horses were actively gathered across fish bearing streams, but 4 individuals were observed to deviate from the band and forded Road Creek after an unexpected vehicle ascended the road they were being gathered along. Because stream crossings by wild horses, resultant of gather operations, are expected to occur infrequently or not-at-all and capture site destination would be located within the CHMA interior where no listed fish species are known to occur in Road Creek or its tributaries, the horse gather operations in the proposed gather area would not affect Chinook salmon, steelhead, bull trout, or sockeye salmon or habitat. In the event some horses forded a fish bearing stream occupied by westslope cutthroat trout or rainbow trout, no effects to these individuals are expected. For example, if wild horses forded Road Creek or its tributaries, predominately dense woody vegetation along the streambanks and undercut banks would provide suitable escape cover from the threat individual or small groups of wild horses would present.

Under Alternative 1, it is anticipated that after gather operations the population would undergo a short term (≈3-5 years) reduction. This may result in an in kind short term reduction in horse use in uplands, at uplands springs / seeps and perennial stream reaches where horses have been observed to occur. Horse gather operations are the active management approach described in the Challis RMP and employed to maintain the AML. Effectiveness monitoring at DMAs and PIBO-EM sites in the Road Creek watershed can be used to assess effectiveness of management relative to PACFISH, INFISH, and Challis RMP objectives. For example, high bank stability (≥80%) and late-seral greenline vegetation currently predominate along fish bearing streams in the Road Creek watershed, and is well documented at the PIBO-EM site (Figure 1 and Table 14). Therefore the ongoing approach to management and the 2012 horse gather will not prevent attainment of PACFISH riparian objectives and will allow for continued maintenance or recovery of riparian vegetation, bank stability, and fish habitat associated with perennial fish bearings streams, Road Creek, Bear Creek and Mosquito Creek.

However there are localized riparian area reaches in the Road Creek watershed, at both upland springs and fish bearing stream reaches, where wild-horse use is known to be focused. Often these locations have apparent bank alteration, regardless of the wild horse herd being at or above AML, and in the absence of cattle use. For example, along lower Horse Basin Creek (within the cattle exclosure) wild horses use is relatively frequent, and decreased bank stability from utilization by horses would persist. Streambank alterations attributable to wild horses present along Road Creek occur relatively infrequently. During March 2012 visual observations along Road Creek at monitoring site RC-KA-02 where horse presence has been observed in past winter / spring seasons , indicated no signs of wild horse streambank impacts were apparent, with streambank ice shelves that would preclude impacts much of the winter and early spring. In addition, the relative difference in horse use along Horse Basin Creek and Road Creek is related to the general distribution of wild horses being strongly related to portion of the CHMA north of Road Creek. Because impacted reaches are not distributed widely in the watershed and maintenance of the AML is proposed, the pattern and intensity of wild horse use relative to fish bearing streams is unlikely to increase and thus proposed horse gather operation would not have an effect on fish habitat within the CHMA.

Alternative 2. Removal Only
The potential for environmental effects to threatened, endangered and sensitive fish and fisheries from horse gather operations under this alternative are related to population size and the extent of gather operations (e.g. captures sites within the RCHA associated with fish bearing streams). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 3, and 4 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to fish bearing streams and rivers would be the same under this alternative as alternative 1.

Alternative 3. Removal with Fertility Control and Release of Geldings
The potential for environmental effects to threatened, endangered and sensitive fish and fisheries from horse gather operations under this alternative are related to population size and the extent of gather operations (e.g. captures sites within the RCHA associated with fish bearing streams). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 2, and 4 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to fish bearing streams and rivers would be the same under this alternative as alternative 1.

Alternative 4. Removal with Fertility Control; without Sex Ratio Adjustment
The potential for environmental effects to threatened, endangered and sensitive fish and fisheries from horse gather operations under this alternative are related to population size and the extent of gather operations (e.g. captures sites within the RCHA associated with fish bearing streams). The post gather wild horse population as a result of this alternative would not differ from alternatives 1, 2, and 3 and any subsequent changes in population growth rate would not have a differentiable effect to riparian and wetlands resources over the 3 – 5 year time period prior to the next anticipated gather. The spatial and temporal extent of the gather operations relative to fish bearing streams and rivers would be the same under this alternative as alternative 1.

Alternative 5. No Action (Deferred Gather)
Under this alternative, no horse gather activities would occur, and rather than a short term reduction of the horse population and maintenance of the AML (as described under alternatives 1-4), the horse population would continue to increase. Therefore an in kind increase of use by wild horses at riparian areas and upland springs is anticipated. This may cause intensified horse use at localized areas along fish bearing streams in the Road Creek watershed. For Example monitoring data indicates that when the AML is exceeded, wild horse effects (trampling, vegetation utilization, defection etc.) can intensify at riparian areas and upland springs. Grazing use criteria are used to manage the intensity of livestock grazing. Stubble height and total bank alteration criteria have been set for the perennial streams in the CHMA by the Challis RMP. Use of riparian areas by wild horses has resulted in exceedances of livestock grazing standards. In 2003 there were 203 horses counted during the census conducted that year and livestock grazed from 6/16-7/11; when livestock were done grazing at Horse Basin Creek Key Area 2 the stubble height was 4", on October 23 the stubble height was at 2" (the standard is 3" pursuant to the Challis RMP) and the bank shears were 26% (the Standard is less than 10% pursuant to the Challis RMP). In 2006 Horse Basin was rested from cattle grazing and 231 horses were counted

during the census that year, and a location known to receive focused wild horse use, stubble height was measured at Horse Basin Creek Key Area 2 at 2". In both of these cases the exceedance of the grazing use criteria was attributable to only horse use (see Appendix I). Based on patterns of wild horse use, under this alternative bank stability and greenline riparian vegetation important to instream fish habitat would be degraded along Horse Basin Creek where horses are known to concentrate relative to all other fish bearing habitats in the CHMA. This alternative may also result in changes in the spatial pattern of horse use and additional effects to unoccupied designated critical habitat for Chinook salmon and resident salmonids along Road Creek on BLM lands where wild horse use is relatively infrequent.

3.9 Wilderness Study Areas

3.9.1 Affected Environment

Approximately 47% of the CHMA is located within lands managed as WSAs (see Map 6). All 48,500 acres of the Corral-Horse Basin WSA fall within the CHMA. The Jerry Peak WSA makes up 46,150 acres; 23,269 acres of which are in the CHMA. WSAs are managed according to the Challis RMP and the Bureau's Interim Management Policy (IMP) and Guidelines for Lands under Wilderness Review H-8550-1, and BLM pays careful and particular attention to proposals that could limit Congress' ability to designate areas as wilderness. The IMP directs that in a WSA the preservation of wilderness values within the WSA is paramount and should be the primary consideration when evaluating any action that may conflict with or be adverse to those wilderness values. Any proposed use or facility within a WSA must be evaluated to determine whether the action would impair wilderness values. The BLM, therefore, considers proposals in the inventory area on a case-by-case basis to determine the potential impacts on wilderness characteristics. When appropriate, protective stipulations, relocations, or redesigns to reduce the effect on wilderness characteristics are considered.

As discussed above under the heading of *Relationship to Statutes, Regulations, Policy, Plans or Other Environmental Analysis*, the IMP provides guidance specific to wild horse and burro management which directs the BLM to manage populations at the appropriate management level to ensure a thriving natural ecological balance.

Wild horse census data from 1980 (the time of WSA designation) shows that 621 horses were counted on June 12th, 306 were gathered and removed from the CHMA in October, and 319 horses remained in December. The 1980 Intensive Wilderness Inventory does not include a narrative description of the wilderness characteristics for either the Corral-Horse Basin or Jerry Peak WSAs. The following is a synopsis of the characteristics as described in the 1991 Idaho Wilderness Study Report:

Corral-Horse Basin WSA:

> Size and Physical Characteristics
> The WSA contains 48,500 acres of BLM managed land roughly bounded on the north by Spar Canyon, on the west by the East Fork of the Salmon Road, on the south by Road Creek, and on the east by Dry Gulch Road. The WSA is composed of rolling hills surrounding Corral and Horse Basins. Anderson Peak, at 9,342 feet, dominates the WSA.

The vegetation is predominantly sagebrush and grass with strips of timber on streams, sideslopes, and bottoms. There is one large stand of Douglas-fir on the east slope of Anderson Peak.

Naturalness

The Corral-Horse Basin WSA presents the visitor with a general appearance of naturalness. The majority of human imprints are grazing activities, fences, and waterhole developments. These imprints are not considered to be major impacts to naturalness and blend into the landscape when viewed from more than .5 mile. Impacts to the natural appearance of the WSA consist of two cherry-stem roads which breach the boundaries for 6 miles and two vehicle ways traversing the WSA on the east.

Solitude

Rolling hills, wide basins, lack of vegetative screening, and outside sights and sounds from the cherry stems, boundary roads, and private ranches all detract from the solitude of the WSA, despite the WSA's size.

Primitive and Unconfined Recreation

The relatively large size of the unit, lack of man-made or natural barriers, and lack of developments result in outstanding opportunities for primitive and unconfined recreation. Opportunities are available for hiking, backpacking, fishing, hunting, horseback riding, cross-country skiing, snowshoeing, photography, bird-watching, and sightseeing. The lack of barriers and rolling terrain also encourage off-road vehicle use, especially in the fall.

Supplemental values

The excellent opportunities for wild horse viewing were identified as special features for this WSA (USDI-BLM 1991).

Jerry Peak WSA:

Size and Physical Characteristics

The WSA contains 46,150 acres of BLM managed land roughly bounded on the south by the Challis National Forest, on the west by the East Fork of the Salmon Road, on the north by Road Creek, and on the east by Pecks Canyon Road. The WSA is composed of rolling hills with sagebrush and grass on the northern half of the unit while the southern portion has steeper terrain culminating with Jerry Peak (10,010 ft. elevation). Large areas of timber are located in the upper reaches of Bear, Mosquito, Sage, and Lake Creeks. Herd Lake, located in the SW portion of the WSA is popular for fishing and sightseeing.

Naturalness

The Jerry Peak WSA presents the visitor with a general appearance of naturalness. The overall influence of human imprints on the naturalness of the area, as perceived by the visitor, is minimal due to the wide dispersal and low impact developments. Imprints exist from fences and spring developments associated with range management, access roads, and jeep trails. Range improvements tend to be small and blend in with the natural landscape. The four dead-end roads (Herd Lake, Mosquito Creek, Sage Creek, and Bradshaw Creek), while not technically part of the WSA, influence the perception of naturalness.

Solitude
Topographic relief and vegetative screening, especially in the Bear Creek and Lake Creek drainages, provide for outstanding opportunities for solitude.

Primitive and Unconfined Recreation
Outstanding opportunities for primitive and unconfined recreation exist in this WSA due to the large size of the WSA, lack of barriers and developments in or near the eastern portion of the unit. Opportunities are available for hiking, backpacking, fishing, hunting, horseback riding, cross-country skiing, snowshoeing, photography, bird-watching, and sightseeing.

Supplemental values
Excellent opportunities for viewing wild horses and the landslide (which created Herd Lake) were identified as special features for this WSA (USDI-BLM 1991).

During the Challis BLM travel management planning effort from 2002-2009, historic aerial photo analysis and an intensive inventory review were performed to determine the presence of motorized vehicle routes in the WSAs. Any vehicle routes not present within the WSAs at the time of inventory were removed from consideration for designation, not included on the final travel maps, and remain closed to motorized vehicle use. All routes were analyzed; however, some of these routes were left open to motorized vehicle use and some routes were closed. Cross country travel by motorized or mechanized means is prohibited in all WSAs managed by the Challis Field Office, including the Corral-Horse Basin and Jerry Peak WSAs.

3.9.2 Environmental Effects

Proposed Action-Alternative 1
Wild horses were identified during the Corral-Horse Basin and Jerry Peak WSA inventory processes as a supplemental wilderness value within both of the WSAs. Appropriate management techniques identified in the Wilderness IMP have been built into each alternative. Each of the action alternatives would capture enough horses to reduce the herd size to the Appropriate Management Level (185 head). This alternative would also utilize identical capture site locations and gather techniques (helicopters for aerial herding, temporary capture sites, sorting/holding facilities and use of motorized vehicles only on routes which existed at the time of inventory and designated for vehicle use).

It is likely that during the gather there would be some amount of surface disturbance due to the concentration of horses and humans within a temporary capture area. This surface disturbance would primarily occur outside of WSA boundaries due to project designs incorporated for the protection of WSA values. Where surface disturbance does occur within the WSA boundaries it would not be to a degree which requires reclamation. By maintaining the wild horse herd at the AML, degradation caused by overgrazing would be reduced — thus maintaining the overall health and appearance of the WSAs.

Nothing within the proposed action alternative would affect the size and physical characteristics of either the Corral-Horse Basin or Jerry Peak WSAs. Wilderness values such as outstanding opportunities for primitive recreation, solitude and naturalness would be temporarily impacted by the presence of human activity including helicopters, trucks, riders and temporary capture sites during the gather. The duration of the gather, and the impacts identified above, is expected to last about two weeks. The supplemental values noted in the original inventories include excellent wild horse viewing in Corral-Horse Basin WSA and the geological value of the Herd Lake landslide in Jerry Peak WSA. Wild horse viewing opportunities would be temporarily reduced due to fewer visible animals.

This project would be substantially unnoticeable once the temporary capture facilities are removed. These actions would not affect the area's wilderness characteristics or values in a manner which would constrain Congress' ability to determine suitability for preservation as wilderness. All of the action alternatives are consistent with the IMP for Land Under Wilderness Review.

Alternative 2. Removal Only
Under this alternative effects would be similar to the proposed action alternative. It is anticipated that the effects of the gather (i.e. reduced wild horse numbers) would have a shorter lasting duration.

Alternative 3. Removal with Fertility Control and Release of Geldings
Under this alternative effects would be similar to the proposed action alternative. It is anticipated that the effects of the gather (i.e. reduced wild horse numbers) would last for a longer duration of time. Adding geldings to the population may reduce or limit reproduction.

Alternative 4. Removal with Fertility Control; without Sex Ratio Adjustment
Under this alternative effects would be similar to the proposed action alternative. It is anticipated that the effects of the gather (i.e. reduced wild horse numbers) would have a shorter duration of time.

Alternative 5. No Action (Deferred Gather)
Under the No-action alternative, there would be no direct impacts to the wilderness characteristics of either the Jerry Peak or Corral-Horse Basin WSAs. However, indirect impacts would result from the unmanaged population growth of the wild horse herd. Effects to the soil, water, vegetation, wildlife and aesthetic qualities of the WSA would mount as the wild horse population continued to expand. This could ultimately impact the naturalness of the units and the outstanding opportunities for primitive and unconfined recreation. The No-action alternative would not be consistent with the IMP which states, "… the Bureau must still endeavor to make every effort not to allow populations within WSAs to degrade wilderness values, or vegetative cover as it existed on the date of the passage of FLPMA. Wild horse and burro populations must be managed at appropriate management levels as determined by monitoring activities to ensure a thriving natural ecological balance."
(USDI-BLM, 1991)

3.10 Recreation

3.10.1 Affected Environment

The CHMA falls primarily within the Challis Extensive Recreation Management Area (ERMA), while a sliver along the East Fork and Main Salmon Rivers falls within the Upper Salmon River Special Recreation Management Area (SRMA). The Upper Salmon River SRMA attracts and concentrates substantial numbers of recreationists who come to the area due to the outstanding opportunities for river recreation, ease of access, international name recognition, and proximity of the area to other prominent recreation centers. The SRMA is managed to accommodate this concentration of use by providing developed recreation opportunities such as campgrounds, day use areas, trails, interpretive signage, and boating facilities. The majority of recreational use in the Main Salmon River corridor, and recreational developments, occur between highway 75 and the river. Along the East Fork Salmon River, most use occurs along the East Fork Road and at the Little Boulder Creek Recreation Site.

In contrast to an SRMA, recreation management within an ERMA is custodial in nature and is not the driving management factor in the area. Recreation in the ERMA is generally dispersed in nature and includes hunting, fishing, hiking, wildlife viewing, scenic driving, and off-highway vehicle (OHV) use. Dispersed recreation activities allow visitors to experience an area in an unstructured manner, remove themselves from every day pressures, and to challenge themselves in an outdoor setting. Benefits resulting from these experiential opportunities are many and include a closer relationship to the natural world, improved physical and mental health, and interpersonal connections with other people who enjoy similar experiences.

Elements of the physical, administrative, and social setting can have an impact on both the opportunities and benefits for recreationists to the area. Approximately 47% of the Challis CHMA is managed by the BLM as WSAs. In order to protect the wilderness characteristics of these areas, and to provide a non-motorized hunting experience, the BLM implemented annual seasonal motorized closures from October 1-December 31 in the Corral-Horse Basin and Jerry Peak WSAs. Herd Creek, Road Creek, North Fork of Sage Creek, and Spar Canyon Roads are the only routes available to motorized use during the seasonal closure period. Due to these administrative actions affecting the ERMA, recreationists visiting the WSAs during this period of time have an expectation of a primitive recreational opportunity unaffected by the presence of motorized vehicle use.

The gather is scheduled to occur in October which coincides with the commencement of big game hunting seasons in this area (Idaho Department of Fish and Game Hunt Unit 36-A). In 2011, the following hunts took place in Unit 36-A during the month of October:

Table 18. October 2011 Hunts within Hunt Unit 36-A and Number of Hunters

Date	Hunt #/Description of Hunt	# of Hunters
9/25-10/24	#4037/Pronghorn, Draw Tag	10
10/10-10/24	NA/Regular Deer, General Tag	Unlimited
10/10-10/31	NA/White-tailed Deer, General Tag	Unlimited
10/26-10/31	#1019/Regular Deer, Controlled Tag	230
10/1-10/31	#2010/Antlered Elk, Controlled Tag	58
10/1-10/31	#2161/Outfitter Allocated, Antlered Elk, Controlled Tag	3

Unit 36-A is 494,000 acres, of which the CHMA affects 154,150 acres of public lands. The portion of the CHMA, and Unit 36-A, which is managed under the seasonal motorized closure is 72,500 acres.

3.10.2 Environmental Effects

Proposed Action-Alternative 1

Under the Proposed Action alternative 1, impacts to recreation would be limited. Due to the timing of the proposed gather (October), the user group most likely to be affected are big game hunters. The largest impact is likely to be the presence of the helicopter as it circles the area, directing bands of wild horses toward the capture sites. A second, and less disrupting impact, would be the possible restriction to vehicle traffic along Road Creek Road in the event that one of three capture sites on Road Creek drainage are utilized.

The greatest impact to recreational use of the ERMA would be expected to be a result of the use of a helicopter to gather wild horses during hunting season. The helicopter is expected to be in the air 5-8 hours a day for up to 1-2 weeks during the middle to late October. The sights and sounds of a low flying helicopter in the air for a majority of the daylight hours would impact the opportunity for solitude for any visitor to the area, regardless of the purpose of the visit (hunting, hiking, camping, etc.). The impact on hunting opportunity, and more specifically hunting success, would be entirely situation specific. It is possible that a hunt could be spoiled if the helicopter is situated in such a manner as to drive big game away from a hunter's position. However, it is equally possible that the flight pattern of the helicopter could direct the game toward a hunter, thus improving the odds of success.

A second likely impact to recreational visitors to the area would be the potential of the Arrowhead capture site to block through traffic on Road Creek. Road Creek Road is one of two routes which connect from east to west between Highway 93 and the East Fork area. It is also one of just a handful of routes not affected by the seasonal motorized closures in place to protect wilderness values and to provide a non-motorized hunting experience in the WSAs. However, even if capture sites along Road Creek are utilized for the proposed gather, the impacts to recreational use should be minimal for the following reasons; 1) Road Creek Road is a through route, so access would be available from either end at all times, 2) the capture site would only be expected to be in place 3-7 days, and 3) when not actively in use (containing, or soon to contain gathered horses), the capture would be opened up to allow vehicle access along Road Creek Road.

Alternative 2. Removal Only
Under this alternative effects to recreation would be nearly identical to the Proposed Action. The duration of higher wild horse reproduction increases the frequency of the gather cycle.

Alternative 3. Removal with Fertility Control and Release of Geldings
Under this alternative effects to recreation would be nearly identical to the Proposed Action. The duration of lower wild horse reproduction decreases the frequency of the gather cycle.

Alternative 4. Removal with Fertility Control; without Sex Ratio Adjustment
Under this alternative effects to recreation would be nearly identical to the Proposed Action. The duration of higher wild horse reproduction increases the frequency of the gather cycle.

Alternative 5. No Action (Deferred Gather)
Under the No-action alternative, there would be no direct impacts to recreational use of the area. However, indirect impacts would result from the unmanaged population growth of the wild horse herd. Effects to the soil, water, vegetation, wildlife and aesthetic qualities of the CHMA would mount as the wild horse population continued to expand. This could ultimately impact the desirability of the area for dispersed recreation activities such as hunting and camping. The ability of visitors to view wild horses would increase if the gather were to be deferred, though the condition of the landscape and of the horses themselves might equally impact the viewing experience.

3.11 Soils

3.11.1 Affected Environment
The Challis Field Office area has 190 mapped soil units (USDA-NRCS 2002); 72 of these soil units occur within the CHMA. The soils within the CHMA are shallow to very deep, gravelly to stony loams to clay loams derived from extrusive igneous rocks; some of these soils contain calcic horizons due to limestone deposits. Soils occurring at the higher elevations have a thick surface horizon (mollic); however, most are dry for at least half the growing season (aridic) (USDA-NRCS 2002).

The erosion hazard across most of the CHMA is slight to moderate (USDA-NRCS 2002); this indicates soils in the CHMA area are able to capture store and safely release nearly all precipitation, except during occasional high intensity thunderstorms or intense short-duration (1-2 days) spring snowmelt. In such cases, surface flow and sediment transportation into streams can be pronounced, particularly on very steep slopes (>60 %). An exception to this is the "badlands" soils mostly associated with Malm Gulch and Sand Hollow Allotments (domestic livestock grazing privileges have been relinquished on both allotments) which make up approximately 8% (≈ 13,764 Acres) of the HMA. These soils are Dawtonia-Frailton Complex (20-50% Slopes), Farvant-Badland-Gradco Complex (25-60% Slopes), Frailton-Dawtonia Complex (15-50% Slopes), Frailton-Gradco Complex 35-60% Slopes), and Gradco-Farvant Complex (30-60% Slopes); these soils are considered sensitive due to their highly erosive nature. All the soil types within the CHMA have rapid infiltration rates although some may have a clay or calcic horizon within 20 inches of the surface that may perch surface water (USDA-NRCS 2002).

Biological crusts are soil particles bound together by organic materials and are formed by living organisms and their by-products (USDA-NRCS 1997). In cool desert environments biological crusts generally increase water infiltration by acting as holding structures for water (USDI-BLM/USGS 2001). Biological soil crusts do occur within the CHMA, however the extent to which they are present is fairly limited and highly dispersed.

Ground cover is affected by the timing, duration, frequency, and intensity of grazing use. Domestic livestock grazing is controlled by the various grazing systems (numbers and kind of livestock, season of use, and number of AUMs) applied to the allotments within in the CHMA. Wild horse grazing is manipulated by controlling the population (the intensity of use) as the timing, duration and frequency of wild horse use is unmanaged.

Other factors impacting ground cover are outside of management control, such as climatic conditions resulting in annual variations in forage production. Climatic conditions (i.e. timing of precipitation and temperature) are primary factors determining the rate of photosynthesis and thus plant growth.

3.11.2 Environmental Effects

3.11.2.1 Alternative 1-4

Areas of heavy use occur around existing water sources such as springs, troughs, water gaps, salt licks, and areas providing cover or shade. The soils within and closely surrounding these areas receive heightened use as compared to surrounding areas and may, in some instances (e.g. areas of low soil moisture) show signs of soil compaction, erosion, and reduced productivity. These areas of decreased vegetation and litter cover are generally more susceptible to soil erosion and increased runoff. Conversely, congregation areas with high soil moisture that undergo several freeze-thaw cycles each year are less likely to remain compacted. This freeze-thaw action promotes soil stability by decreasing compaction and increasing surface area and sites for seed germination and vegetative establishment.

Impacts to the soil resource from large ungulate grazing activities include compaction (Wheeler 2002) and disruption or destruction of physical or micro-biotic soil crusts (Memmott 1998), which can result in soil erosion. Surface disturbance that disrupts or destroys physical or micro-biotic soil crusts can also lead to erosion. Erosion of the soil surface following disturbances would remove the litter layer and potentially portions of the A horizon (the uppermost, organic soil layer). Of the entire soil profile, the litter layer and the A horizon contain the greatest amount of organic matter which is the source of plant-available nutrients (Neff 2005). Alterations to the nutrient cycle via erosion can reduce plant community productivity and create conditions that are conducive to the introduction of nonnative species (Kourtev 2002). Impacts, which are generally caused by hoofing action, would be greatest in high use areas such as water troughs, fence lines, and crossings. However, the majority of the soil surface would be stabilized by root mass, organic matter (e.g., herbaceous/woody litter, manure from domestic livestock, wild horses and wildlife), decomposition products, and/or biological crust.

Impacts directly related to the gather operation are likely to be limited to the capture sites and the sorting facilities. Most of the capture sites and sorting facilities are located in areas that were used in previous gathers and are already disturbed sites. Any additional or new capture sites necessary to facilitate a more efficient and safer gather would be cleared prior to placement, and would only be set up on existing roads so new disturbances would be minimal. The existing capture sites are located in areas where little or no biological soil crust occur, however the potential exists for disturbance to soil crusts to occur during the course of moving the wild horses to the capture sites. This could result in an increase in the erosive potential on a site by site basis as the soil holding and precipitation infiltration benefits that biological crusts provide could be reduced (Brotherson and Rushforth. 1983).

Immediately following the gather the horse population would have a short term reduction and this would likely result in a short term reduction in the intensity of horse use at areas of concentrated use, however as this is only a short term decrease in the population no substantial improvement in soil condition (compaction, infiltration ability, etc.) is expected to occur.

3.11.2.2Alternative 5. No Action (Deferred Gather)

Under this alternative, the number of wild horses would increase leading to a potential increase and intensify of horse use across the CHMA. Of concern would be areas where concentrated use already occurs, where use would be intensified, and the possibility for initiating new areas of concentrated use. Population estimates have the herd size growing to 1,630 horses over the next 10 years, which equates to 19,560 AUM's. Both the projected wild horse numbers and projected AUMs are substantially over the designated herd size of 185 horses or 2,220 AUM's. At areas of concentrated use this increase could lead to reduction of cover which could increase soil erosion on a site by site basis. Land areas covered by plant biomass, living or dead, are protected and experience reduced soil erosion because raindrop and wind energy is dissipated by the biomass layer (Pimentel and Kounang 1998). Impacts to biological soil crusts would likely increase if the deferral is for an extended period of time and could lead to an increase in the erosion potential of the soil on a site by site basis.

3.12 Threatened/Endangered/Sensitive animals/birds/wildlife

3.12.1 Affected Environment

Threatened, Endangered, Candidate and Special Status Species

There are four terrestrial wildlife species that are identified by USFWS for consideration under Endangered Species Act (ESA) that have been documented or have the potential to occur in the CFO (Table 19).

Table 19. Threatened, Endangered, and Candidate Present on Lands Administered by the CFO.			
Common Name	**Scientific Name**	**Status**	**General Habitat**
Canada lynx	*Lynx canadensis*	Threatened	Conifer
Wolverine	*Gulo gulo luscus*	Candidate	Alpine, boreal, and arctic habitats
Yellow-billed cuckoo	*Coccyzus americanus*	Candidate	Riparian
Greater sage grouse	*Centrocercus urophasianus*	Candidate	Sagebrush steppe

The CHMA is not within a designated Canada Lynx (*Lynx canadensis*) Analysis Unit (LAU). A portion of lynx linkage exists on the southeast portion of the CHMA.

Wolverines (*Gulo gulo luscus*) seek higher altitude, colder habitats with persistent spring snow during denning and for physiological reasons the rest of the year. No designated habitat for wolverines exists within the CHMA.

Suitable yellow-billed cuckoo breeding habitat is defined as needing "large blocks of riparian..." with "dense understory foliage" (USFWS 2001). Likewise, Reynolds and Hinckley (2005) define breeding habitat requirements as "a minimum of approximately five acres of *prime* riparian habitat…of old growth cottonwoods, with a dense understory of willow or dogwood" (*emphasis added*). Reynolds and Hinckley (2005) conducted both a review of historic records and site sampling in Idaho, and concluded: 1) "yellow-billed cuckoos have never been particularly abundant in Idaho," and 2) the nesting strongholds are limited and few with "the statewide nesting population at fewer than 20 pairs, and in all likelihood closer to 10 pairs in an average year." Based on data from the USFWS (2001) and Reynolds and Hinckley (2005), potential, suitable breeding habitats do not exist in the CHMA for the yellow-billed cuckoo.

The Canada lynx, wolverine, and yellow-billed cuckoo will not be discussed further in this document due to a lack of suitable habitat and/or the lack of any known presence within the lands encompassed by the CHMA.

Greater Sage-Grouse

In response to declines in Greater sage-grouse populations, the *National Sage-grouse Habitat Conservation Strategy* (National Assessment) was developed to assess "the ecological status and potential factors that influenced greater sage-grouse and sagebrush habitats across their entire distribution" (Connelly 2004). The same year BLM developed the *National Sage-grouse Habitat Conservation Strategy* (National Assessment) "to guide future actions for conserving sage-grouse and associated sagebrush habitats and to enhance BLM's ongoing conservation efforts" with the purpose "to set goals and objectives, assemble guidance and resource materials, and provide a comprehensive management direction for the BLM's contributions to the on-going multi-state sage-grouse conservation effort in cooperation with the WAFWA" (USDI-BLM 2004b). In Idaho, state-wide guidance is provided by the *Conservation Plan for the*

Greater Sage-grouse in Idaho (Idaho Sage-grouse Advisory Committee 2006). The primary goal of the plan is to:

> "Maintain, improve, and where possible increase, sage-grouse population and habitats in Idaho, while considering the predictability and long-term sustainability of a variety of other land uses."

In order to meet this goal, the plan outlines a series of conservation measures designed to minimize impacts associated with a wide array of potential threats to sage-grouse and their habitats.

The Idaho Sage-grouse Management Plan was completed in 1997. This plan called for the "creation of Local Working Groups (LWG) that would develop sage-grouse management plans for each of Idaho's sage-grouse planning areas" (Idaho Sage-grouse Advisory Committee 2006). The Challis Sage-grouse Local Working Group (Challis LWG) was formed in 2002. The Challis LWG is made up of interested parties; both private citizens and public agencies. The Challis LWG completed the Challis Sage-grouse Conservation Plan (Challis SCP) in 2007. The goal of Challis SCP is to plan and oversee the implementation of conservation measures within the Challis Sage-grouse Planning Area "that will result in stable, healthy sage-grouse population within sustainable habitats" and that "management should occur in a socially, economically, and ecologically focused manner" (CSGLWG 2007). The Challis Sage Grouse LWG designated priority areas within the Challis SCP and has mapped seasonal sage-grouse habitat throughout the LWG area. Seasonal habitat is delineated by sage-grouse observations and habitat type encompassing those locations. Seasonal maps are updated as new data points are collected.

On March 5, 2010, the USFWS (FWS) found the greater sage-grouse "warranted, but precluded by higher priority listing actions" and placed it on the Candidate species list. Until sage-grouse can be addressed by USFWS, it is managed by the state and addressed by BLM as a special status species (USDI-BLM 2008b). In response to the petition to list, the FWS identified habitat conversion and fragmentation from wildfire, invasive plants, energy and infrastructure development, urbanization, and agricultural conversion to be the primary threats to greater sage-grouse throughout its range. Through the development of planning strategies to address FWS concerns for "improved regulatory mechanisms", BLM has identified wildfire, habitat loss due to invasive plant species, and habitat fragmentation as the major threats in the western portion of the existing sage-grouse range, of which Idaho is part.

On December 27, 2011, the BLM released Instruction Memorandum No. 2012-043, Greater Sage-grouse Interim Management Policies and Procedures (Interim Management), to provide interim conservation policies and procedures to be applied to ongoing and proposed authorizations and activities that affect the Greater Sage-grouse and its habitat until long term conservation measures can be incorporated into Land Use Plans. These policies and procedures apply to Preliminary Priority Habitats (PPH) and Preliminary General Habitats (PGH). PPH is defined as "areas that have been identified as having the highest conservation value to maintain sustainable Greater Sage-Grouse populations" and PGH is defined as areas "of occupied seasonal or year-round habitat outside of priority habitat." The majority of the CHMA is identified PPH (~124,119 ac) by Interim Management. The remainder of the CHMA is considered PGH

(~43,468 ac) except for two small portions (~261 ac for both) on the southern end of the CHMA that are not identified as either PPH or PGH (see Map 4). For PPH, policies and procedures are "to maintain, enhance, or restore conditions for Greater Sage-grouse and its habitat" (USDI-BLM 2011b). Specifics to wild horse and burro management from the policies and procedures include "Manage wild horse and burro population levels within established Appropriate Management Levels (AML)."

Sage-grouse habitat, which consists of large expanses of sagebrush-dominated shrub steppe, was delineated cooperatively by the BLM, IDFG, and other partners during the development of the *Conservation Plan for the Greater Sage-grouse in Idaho* (Idaho Sage-grouse Advisory Committee 2006). The majority of public lands administered by the Challis Field Office, including the CHMA, are designated as "key" sage grouse habitat. Key sage-grouse habitat is defined as "areas of generally intact sagebrush that provides sage-grouse habitat during some portion of the year" (Idaho Sage-grouse Advisory Committee 2006).

It is estimated that greater sage-grouse range wide distribution in potential habitat pre-settlement was 1,200,483 km^2 and current distribution is 668,412 km^2 (Connelly 2004). The CHMA and the Big Lost Valley in general represent a portion of the Big Lost sage-grouse sub-population which takes in 550,791 acres of the Warm Spring and Big Lost watersheds. Lek count data presented by Garton et al. (2011:348), suggests that this subpopulation has declined from an estimated high of 22,000 males in 1969 to approximately 5,500 males in 2007. The subpopulation appears to have stabilized at around 5,000 males since 1992. In comparison the National Assessment states:

> "Annual rates of change suggest a long term decline for greater sage-grouse in western North America and support the trend information obtained from lek attendance (males/lek) data. Sage-grouse populations declined at an overall rate of 2.0% per year from 1965 to 2003. From 1965-85, the population declined at an average of 3.5%. From 1986 to 2003, the population declined at a lower rate of 0.4% and fluctuated around a level that was 5% lower than the 2003 population (Connelly 2004)."

Beever noted in Studies of Avian Biology, Greater Sage-grouse: ecology and conservation of a landscape species and its habitats (2011) that "Past research elaborated that free-roaming horses can exert notable influences in sagebrush (*Artemisia spp.)* communities, on structure and composition of vegetation and soils, as well as indirect influences on numerous animal groups whose abundance collectively may indicate the ecological integrity of such communities."

Pygmy Rabbit

Pygmy rabbits (*Brachylagus idahoensis*) are known to be distributed historically (Green 1980) and presently (BLM files) throughout southern and eastern Idaho where preferred habitat conditions exist. Pygmy rabbits are sagebrush obligates and are found in landscapes with tall, dense stands of sagebrush and deep soils for construction of burrow systems (Green 1980). On September 20, 2010, the USFWS 12-month finding on the petition to list found pygmy rabbits

"not warranted at this time" for the populations found outside the Columbia River distinct populations segment.

Migratory Birds

Migratory birds have the potential to exist throughout the CHMA on all habitat types. The majority of wild horse use takes place in shrub steppe habitat and riparian corridors. Fragmentation and removal of habitat has been shown to have impacts on the presence of sagebrush obligate passerine species (Knick and Rotenberry 1995). Potential impacts to migratory birds are; direct disturbance, and removal of potential nesting habitat.

Big Game Species

Gray Wolf

Wolf populations have grown from the initial release of 66 wolves within the Intermountain West in 1995 and 1996 to an estimated 705 by the end of 2010 in Idaho alone (Holyan et al. 2011). Gray wolf management and population control efforts have been conducted in response to livestock depredation problems under the Memorandum of Agreement between The Secretary of the Interior and The State of Idaho (dated January 5, 2006), and in accordance with Idaho Wolf Population Management Plan (IDFG 2008). Idaho Department of Fish & Game conducted a hunt for wolves following the initial wolf delisting by USFWS in which 173 were harvested. Recorded wolf mortalities, including control efforts, have ranged from 15 wolves being removed in 2003 to 273 in 2009. On May 5, 2011, the USFWS, as directed by legislative language in the fiscal year 2011 appropriations bill, reinstated the 2009 rule removing gray wolves in the Northern Rocky Mountains Distinct Population Segment, which included the state of Idaho, from the endangered species list. Recreational hunting began in 2011 in the hunting unit on and around the CHMA with a quota limit that can be taken by recreationists. The quota for each hunting unit will be adjusted as needed to meet the management goals in IDFG's Idaho Wolf Population Management Plan. The Castle Peak Pack territory overlaps with the CHMA. Individuals not associated with a pack can be present throughout the CHMA. Potential impacts to gray wolf would be through direct disturbance and indirectly through removal of a potential food source.

Other Big Game

The Challis Field Office RMP designates habitat for antelope, bighorn sheep, elk and mule deer within the CHMA. These species will be referred to collectively as Big Game in this section. Of most concern are areas considered for winter use, especially those that have been designated as "crucial winter range." These crucial winter range areas are those that are the most readily accessible to big game and utilized most often in a severe winter. Potential impacts to big game would be displacement and vegetation removal.

Table 20 represents the currently designated big game winter ranges within the CHMA:

Table 20. Acres of Winter or Crucial winter Range by big game species:		
Species	Winter Range	Crucial Winter Range
Mule deer (*Odocoileus hemionus*)	67,563	15,713
Elk (*Cervus elaphus*)	54,254	3,360
Pronghorn Antelope (*Antilocapra americana*)	24,314	11,101
Bighorn Sheep (*Ovis canadensis*)	61	51
*Acreages Assessed in GIS		

3.12.2 Wildlife Environmental Effects

Alternatives 1-4
Threatened, Endangered, Candidate and Special Status Species

Greater Sage-Grouse

Potential impacts to sage-grouse would be disturbance of individuals by gathering activities and vegetation removal at capture sites. Disturbances by gathering activities would be short term and would be confined to small portions of the CHMA leaving the rest of the CHMA available for use without such disturbances. Capture sites would be temporary, limiting the time that horses would be present within them. Vegetation removal at capture sites is rarely entire and the percent of vegetation removal is dependent on time and intensity of activity at each site. Vegetation damage is likely, but is limited to a very small area (<0.01%) within the CHMA. Vegetation removal creates potential sites for invasive weeds to establish. SOPs (Appendix B) for horse gathers are to monitor these sites for weeds and treat if they are found. Several of the capture sites have been used for past gathers and remain weed free and not visually apparent. The gather would be performed at a time when there would be no lekking or nesting and young of the year chicks would already be capable of flight.

Pygmy Rabbit

Pygmy rabbits have the potential to be present throughout the CHMA where their preferred habitat exists. Potential impacts to pygmy rabbits would be vegetation removal at occupied burrows. SOP's for capture site placement is that it will be placed as to cause "as little damage to the natural resources of the area, as possible" and would have to be approved by an Authorized Officer. The Authorized Officer will be trained in recognition of pygmy rabbit sign so as to avoid capture placement on burrows. Alternatives 1-4, would be in compliance with BLM Manual 6840 and would not lead to the listing of the species.

Migratory Birds

Horse gather activities would take place after nesting of migratory birds, eliminating impacts associated with these activities. Gathering activities would still have the possibility of disturbing individuals. Adult and healthy young of the year would be capable of flight. Gather activities will be short term and limited to a portion of the CHMA. The remainder of the CHMA and surrounding landscape would be available for use by individuals that might be disturbed. Any

disturbances to vegetation would be limited to capture and staging sites. SOP's would be used to limit vegetation disturbance by gather activities to previously disturbed sites or locate new sites in areas to cause as little resource damage as possible. Individual birds that might be using activity sites would have the surrounding habitat to relocate to. Alternatives 1-4, would be in compliance with BLM Manual 6840 and would not lead to the listing of the species.

Big Game Species

Gray Wolf

Gray Wolves are a highly mobile species capable of using habitat at a landscape scale. Wolves that might be present in the CHMA could be disturbed by gather activities. This would be short term and habitat impacted by gather activities would be available to wolves following those activities. The horse gather would reduce herd size and remove potential prey for wolves. Wolves have not been documented preying on horses within the CHMA. Additionally, cow elk herd numbers are meeting population objectives for hunt units within and around the CHMA. Alternatives 1-4, would be in compliance with BLM Manual 6840 and would not lead to the re-listing of the species.

Other Big Game

Impacts from gather activities would take place outside of the crucial winter period for big game eliminating the potential for disturbances during this sensitive time. Disturbances to big game present within the CHMA during the gather would be short term and limited to isolated areas. The remainder of the CHMA and the surrounding habitat would be available for use by big game that could be disturbed by gather activities. Vegetation disturbances would be limited to capture and staging sites. There are 8 possible capture sites located in designated mule deer winter habitat and 7 possible capture sites in elk winter (see Map 5). There are no possible capture sites located in antelope or bighorn sheep winter range and no possible traps sits located in crucial winter range for any of the big game species. To the extent possible these sites would be placed in previously disturbed sites and would represent a small portion of the CHMA. Potential vegetation damage from this alternative would be of a scale as not to be a factor in big game herd health.

Alternative 5. No Action (Deferred Gather)
Threatened, Endangered, Candidate and Special Status Species

Greater Sage-Grouse

The AML would continue to be exceeded, if horses were not gathered under Alternative 5. "Long-term conservation objectives should consider the appropriate management levels of horses and burros that can be maintained, because free-roaming equids can influence the structure and function of sagebrush ecosystems" (Conelly, 2011). The horse herd has exceeded the AML and is consuming more AUM's than is set aside for them within the Challis RMP, and is leading to indirect effects of a reduction of nesting and brooding success for sage-grouse. Riparian areas are important to sage-grouse brood rearing. Ungulate utilization beyond that

allocated within the RMP would lead to increased impacts to riparian areas and increased potential for invasive weed infestations in areas of focused utilization such as riparian areas.

Pygmy Rabbit

Increased forage consumption by a larger horse herd could lead to a decrease in competition of grasses and forbs with sagebrush. An increase in sagebrush would favor pygmy rabbits in areas where burrow construction is possible. However, incidences of this would be scattered and small in scope of the CHMA. If horse herd numbers were to grow to the point of damaging mature sagebrush, individual pygmy rabbits could be impacted. Wild horse herd numbers in a magnitude to have an impact on sagebrush and indirectly on the pygmy rabbit population throughout the majority of the CHMA is not likely within the 10-year scope of Alternative 5. This alternative would be in compliance with BLM Manual 6840 and would not lead to the listing of pygmy rabbits.

Migratory Birds

An increased horse herd has a higher potential for impacts to nesting migratory birds. Whether or not the horse herd could grow to a size to have a measurable impact on nest success within the CHMA during the ten year period of this alternative is not known. If wild horse herd size were to increase to the point of having measurable impacts to migratory birds, they would be sporadic, both spatially and temporally, within the CHMA. The impacts would not exclude migratory bird use within the CHMA. The CHMA only occupies a portion (21%) of the CFO. CFO lands outside of the CHMA would be available for use by migratory birds without the wild horse herd being present. For these reasons, Alternative 5, would be in compliance with BLM Manual 6840 and would not lead to the listing of migratory birds.

Big Game Species

Gray Wolf

Greater forage consumption by horses in the CHMA would lead to greater competition with native ungulates, the wolves' primary prey. This could lead to a decreased native prey species. Horses could replace native ungulates as the preferred prey species of wolves who utilize the CHMA as a territory. This alternative would be in compliance with BLM Manual 6840 and would not lead to the re-listing of wolves.

Other Big Game

Utilization of forage by horses beyond what is authorized in the Challis RMP would be in direct competition with other authorized ungulate forage utilization. Big game forage utilization would likely shift to areas outside of the CHMA. This would lead to increased completion in big game areas outside of the CHMA. It could also lead to degradation of winter and crucial winter big game within and along the border of the CHMA.

3.13 Tribal Treaty Rights

3.13.1 Affected Environment

The 1868 Fort Bridger Treaty between the United States and the Shoshone and Bannock Tribes reserves the Tribes' right to hunt, fish, gather, and exercise other traditional uses and practices on unoccupied federal lands. The federal government has a unique trust relationship with federally-recognized American Indian Tribes including the Shoshone-Bannock Tribes. BLM has a responsibility and obligation to consider and consult on potential effects to natural resources related to the Tribes' treaty rights or cultural use. Resources or issues of interest to the Tribes that could have a bearing on their traditional use and/or treaty rights include: tribal historic and archaeological sites, sacred sites and traditional cultural properties, traditional use sites, water, fisheries, traditional use plant and animal species, vegetation (including noxious and invasive, non-native species), air and water quality, wildlife, access to lands and continued availability of traditional resources, land status, and the visual quality of the environment.

The CHMA includes unoccupied federal lands, Idaho State lands, and private lands located within the Shoshone-Bannock Tribes' aboriginal territory. Therefore, tribal treaty rights, as defined, are applicable to the project area. The current condition and nature of specific affected resources associated with tribal rights and interests are described in the following sections: Vegetation, Wildlife, and Fisheries.

3.13.2 Tribal Treaty Rights Environmental Effects

3.13.2.1 Alternatives 1-5

There would be no changes in land status or access associated with the proposed actions and the project area would retain its unoccupied Federal land status. During the actual wild horse gather, short term access limitations might be instituted to protect the health and safety of the horses, BLM employees and contractors. Information about where daily activities are expected to take place would be made available via a Wild Horse Gather Information Phone Line. Limitations would be expected to take place in specific areas for no more than 4-8 working days over no more than a 14 day period.

Discussion of potential impacts to specific resources associated with Tribal rights and interests can be found in the Vegetation, Wildlife, and Fisheries sections of this document.

3.14 Human Health and Safety

3.14.1 Affected Environment

Members of the public can inadvertently wander into areas that put them in the path of wild horses that are being herded or handled during the gather operations, creating the potential for injury to wild horses and to the BLM employees and contractors conducting the gather and/or handling the horses as well as to the public themselves. Because these horses are wild animals, there is always the potential for injury when humans get too close or inadvertently get in the way of gather activities.

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

During the herding process, wild horses will try to flee if they perceive that something or someone suddenly blocks or crosses their path. Fleeing horses can go through wire fences, traverse unstable terrain, and go through areas that they normally don‘t travel in order to get away, all of which can lead them to injure people by striking or trampling them if they are in the animal‘s path.

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

The BLM is committed to allowing access by interested members of the public to the fullest possible degree without compromising safety or the success of operations. To minimize risks to the public from helicopter operations, the gather Contractor is required to conduct all helicopter operations in a safe manner, and to comply with FAA regulations (FAR) 91.119 (Appendix G) and BLM IM No. 2010-164 (Appendix D). Public observations sites will also be established in locations that reduce safety risks to the public (e.g., from helicopter-related debris or from the rare helicopter crash landing, or from the potential path of gathered horses), to wild horses (e.g., by ensuring observers will not be in the line of vision of horses being moved to the capture site) and to contractors and BLM employees who must remain focused on the gather operations and the health and well-being of the wild horses. The Visitor Protocol and Ground Rules for public observation found in Appendix E provide the public with the opportunity to safely observe the gather operations. Every attempt will be made to identify observation site(s) at the gather location that offers good viewing opportunities, although there may be circumstances (flat terrain, limited vegetative cover, private lands, etc.) that require viewing locations to be at greater distances from the capture site to ensure safe gather operations..

At recent gathers, public observers have ranged in number from only a handful of individuals to a maximum of between 15-25 members of the public. At these numbers, BLM has determined

that the current level of public visitation to gather operations falls below the threshold of an open air assembly under the FAR regulations. 14 CFR § 91.119.

At current populations, wild horses are moving across Highways 93 and 75. This presents a safety hazard to both wild horses and motorists. A number of collisions have been reported on Highway 75.

3.14.2 Environmental Effects

3.14.2.1 Alternatives 1-4

All helicopter operations must be in compliance with FAR 91.119. Public safety as well as that of the BLM and contractor staff is always a concern during the gather operations and is addressed through the implementation of Visitor and Ground Rules that have been used in recent gathers to ensure that the public remains at a safe distance and does not impede gather operations. Appropriate BLM staffing (public affair specialists and law enforcement officers) will be present to assure compliance with visitation protocols at the site. These measures minimize the risks to the health and safety of the public, BLM staff and contractors, and to the wild horses themselves during the gather operations.

Gathering wild horses that occur near the highway corridors would reduce the risk of motorist/wild horse collisions.

3.14.2.2 Alternative 5. No Action (Deferred Gather)

There would be no gather related safety concerns for BLM employees, contractors or the general public as no gather activities would occur.

3.15 SocioEconomics

3.15.1 Affected Environment

The CHMA is located in Central Idaho within Custer County, which is among the most rural communities in the United States; it comprises approximately 3,160,320 acres with a total population of 4,368 with 0.9 persons per square mile. The population of Custer County grew by 0.6 percent between 2000 and 2010. The median age is 47 years old with 53 percent males and 47 percent females. The dominant areas of employment in Custer County are management and professionals at 35 percent; sales and office occupations at 20 percent; construction, extraction, and maintenance at 17 percent; service 13 percent; production/transportation 10 percent; and farming, fishing and forestry 5 percent. The unemployment rate in Custer County is currently 10.2 percent. The median household income is $41,910.00. Nearly 14 percent of the population lives below the poverty line. 93 percent of the population has a high school education (United States Department of Commerce 2010).

3.15.2 Environmental Effects

3.15.2.1 Alternatives 1-4

Gather operations are so transient in nature, only being within Custer County for less than a month, BLM does not anticipate direct socio-economic impacts would be measurable. However,

indirect impacts may result from impacts to other economic features. Timing of gather operations during hunting seasons may adversely affect or displace hunters which bring direct revenue stream into the local economy (i.e. spending on lodging, fuel, food, supplies, licenses, and other indirect expenditures). These same opportunities for local revenue may be replaced by the contractors and additional BLM staff that will be residing in Challis during the gather.

The CHMA contains a number of County and BLM roads. Travelers in the area may experience a short increase in area traffic due to gather operations, and small delays in traffic to allow for fueling of helicopters, and other gather operations.

3.15.2.2 Alternative 5. No Action (Deferred Gather)

While the effects described under Alternatives 1-4 above would not occur under the No Action Alternative other economic impacts may develop. If wild horses were not gathered for a period of ten years or more, this action or lack of action could necessitate livestock being reduced or removed from allotments within the CHMA. Without federal land grazing, it would be difficult for any of the 10 livestock operators to remain viable operations. Custer County livestock operators depend on public land grazing because 97% of the county is Federal or state lands. Therefore, private land for leasing is difficult to find. If they were able to stay in the livestock industry it would be at a greatly reduced level.

As rangeland health deteriorates wildlife species including upland and big game numbers would suffer, thus limiting tags, hunting opportunity and harvest. These reductions would affect the number of hunters that would purchase goods within the county. This also would directly affect the outfitters and guides within the area.

4.0 Cumulative Impact Analysis For All Alternatives

NEPA regulations define cumulative impacts as impacts on the environment that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The time frame for analysis is from the passage of the Wild Free-Roaming Horses and Burros Act of 1971 to 2022 ten years past the proposed gather which is a reasonable time frame to consider potential future actions within this analysis.

The Cumulative Impacts Assessment Area (CIAA) for this project includes the CHMA; Bradbury Flat, Bradshaw Basin, Mountain Springs, Road Creek, Split Hoof, Willow Creek, and Warm Springs livestock grazing allotments in their entirety; and portions of the Sage Creek and Herd Creek allotments; Malm Gulch/Germer Basin, Lone Bird, Antelope Flat, East Fork Salmon River Bench and Sand Hollow ACEC's; and all of Jerry Peak West and Corral/Horse Basin WSA's; and sage grouse habitat connected to the CHMA (see Map 7). Landscape characteristics within the CIAA are consistent with those described in the Affected Environment for the CHMA.

The CIAA intersects four watersheds, East Fork Salmon River, mainstem Salmon River, Big Lost River, and Warm Springs Creek. Warm Spring Creek is fully allocated for irrigation and is influenced by geothermal springs and does not contain a native fish assemblage and was likely

historically inaccessible to listed salmonids in the Salmon River, and is not designated critical habitat. The tributaries to Warm Spring within the CIAA are disconnected from Warm Spring Creek and only convey water during intense precipitation and or high snow melt events. Warm Springs Creek is anthropogenically altered by a combination of existing roads, extensive land conversion for agriculture, and diversion arrays and channel networks utilized primarily in the Round Valley of Challis, ID. Consequently these streams have little potential to convey water or sediment to the Salmon River, or result in contributions discernible from background conditions.

A portion of the Big Lost Watershed is located in the southeastern part of the CIAA and consists primarily of the Sage Creek drainage. Sage Creek does not flow perennial along its entire reach, it typically sinks near the canyon mouth where hydric species terminate approximately 4.5 miles upstream of the ephemeral confluence into Chilly Slough. The Sage Creek drainage tributaries consist of North Fork Sage Creek, Bradshaw Creek, Corral Creek, and the South Fork of Sage Creek. The Sage Creek subwatershed does not contain a fish population (native or introduced) and was likely historically inaccessible by native fish assemblages in the Big Lost River. The Big Lost River watershed does not contain ESA listed salmon or trout, but does contain the Big Lost River whitefish, a candidate species for listing under ESA. Their distribution is limited to mainstem reaches and perennial tributaries in the upper watershed outside of the CIAA.

Road Creek drainage is described under the Affected Environment for Wetlands/Riparian Zones, Water Quality, and Threatened, Endangered, and Sensitive Fish; Fisheries because it is entirely contained within the CHMA.

4.1 Past and Present Actions

According to the 1994 BLM Guidelines for Assessing and Documenting Cumulative Impacts, the cumulative analysis should be focused on those issues and resource values identified during scoping that are of major importance. Accordingly, the issues of major importance identified are Livestock Grazing and Mining/Infrastructure Development.

Past, present, and reasonably foreseeable actions that have impacted the watershed to varying degrees include livestock grazing and mining/infrastructure development. Although these actions probably do not account for all of the impacts that have or are likely to occur in the watershed, GIS analysis, agency records, and professional judgment suggest that they have contributed to the vast majority of cumulative impacts that have occurred in the CIAA.

Table 21. Past, Present, and Reasonably Foreseeable Future Actions within the Pahsimeroi River Watershed.		
Type of Activity	**Past and Present**	**Reasonably foreseeable**
Livestock Grazing		
Number of Permits/Leases	BLM-15 active permits USFS-2 active permits State-8 leases	BLM- renewing/modifying grazing permits as they expire; USFS – no projected changes to grazing permits. State – renewing/modifying leases as they expire.
Animal unit Months	BLM-15,794 State- 943	Adjustments in AUMs may be proposed based on allotment- specific conditions, though no adjustments are proposed at this time.
Range Improvements	Fences-157 miles Pipelines-43 miles Developed Springs-67 Troughs-170 Stock ponds-35	Additional fencing, pipelines, and troughs may be constructed based on allotment-specific needs. At this time, 3 spring exclosures are planned in Horse Basin Pasture on the Mountain Springs Allotment.
Mining/ Infrastructural Developments		
Powerlines	64 miles	0 miles
Power Poles	806 poles	0 poles
Motorized Routes	BLM—506 miles USFS—19 miles	0 miles
Non-motorized Routes (Closed Motorized Routes)	11 mile	0 miles
Surface Mining	145 acres	0 acres
Sand and Gravel	124 acres	0 acres
Irrigation Diversions	7	0

*Data derived from Challis Road Layer dated 2011.

**Forest Service roads include open and seasonally closed natural and gravel surfaced roads and primitive trails. Data derived from Forest Service Roads layer dated 2008.

Livestock Grazing

Livestock grazing in the CIAA began in the 1870's when miners came into the area looking for gold in the nearby mountains, specifically Yankee Fork and Bayhorse. Livestock operators soon followed. Open range ranchers began moving into the valley in 1872 with cattle, horses, and sheep. It soon became apparent that winter forage was a limiting factor to ranching in the area. At that time, the Federal Government was encouraging settlement through the Homestead Act which forced open range ranchers to build fences and produce hay. As a result of the location of the CIAA relative to active mining and homesteading private lands in the CIAA were not developed until the early 1900's with the first patent of land being granted in 1912 and the majority of the private lands being patented by 1930.

In 1934, the Taylor Grazing Act was passed and the first grazing permits were issued. Livestock grazing was consistently reduced from 1948 to 1975 (USDI-BLM 1977). AUMs were further reduced through implementation of the 1977 Challis Grazing EIS.

There are currently 15 livestock grazing operators on 10 allotments (see Map 8) that are permitted to graze 15,794 AUMs on BLM-administered lands within the CIAA. In support of these operations, 43 miles of pipeline, 157 miles of fence, 170 troughs, and 35 stock ponds have been constructed.

Each of the allotments found in the CIAA have similar histories and have been continuously grazed since the 1870's. An example of this history is found in the Warm Springs Allotment. Warm Springs Allotment has been grazed since the inception of the US Grazing Service in 1936. The first permit allowed 9,800 sheep, 175 cattle and 20 horses. In 1957, a range adjudication reduced livestock grazing privileges by 20%. In 1960 a partial conversion was made from sheep to cattle at a ratio of 5 sheep to 1 cow. In 1963, following a range survey, grazing privileges were established at 1265 cattle for 7453 AUMs (Harbour 1975).

A number of vegetation manipulation projects have occurred within the CIAA in the past. These have occurred as either seedings, brush removals, prescribed fire and broadleaf spray directed at removing or reducing sagebrush canopy. These treatments occurred as follows: Warm Springs Allotment at 10,695 acres, Mountain Springs Allotment at 8,062 acres, Split Hoof Allotment at 980 acres and Bradbury Flat Allotment at 300 acres for a total treated acres of 20,037 acres.

Past livestock grazing has influenced the composition of vegetation due to dietary preference and selectivity of forage by livestock. Within the CIAA, 91% of the lands are available for livestock grazing managed by State and Federal agencies. Additional grazing occurs on private lands within the CIAA, but is not quantifiable. Livestock grazing impacts plants by removing the leaf area available for photosynthesis, removing of growing points, and reducing the ability of the plant to maintain a favorable shoot to root balance. This ultimately impacts the vegetation composition and the ability to meet long-term resource objectives for plant communities. Further, livestock grazing can mechanically impact vegetation through trampling. This is especially true in areas of livestock congregation (e.g. salt licks, water sources, and trails between foraging and watering areas) that potentially would be devoid of vegetation. Impacts to vegetation would also occur as a result of construction of range improvements. These impacts

include: removal of vegetation and/or crushing or trampling vegetation, as well as altering of streambanks and wetland areas. In response to patch grazing, spring and riparian corridor exclosures have been installed. However exclosures have only been shown to reduce cattle grazing along streams and upland springs not wild horse use.

Mining and Infrastructure Development

Infrastructural development in the CIAA has increased over time, although the majority remains undeveloped (see Table 22). Most of the development has occurred along the Herd, Road and Warm Spring Creek's bottom where private lands have been modified to accommodate farming and ranching activities; irrigation diversions occur along each of these creeks for the purpose of irrigating the private lands. The prominent land use within these private lands is irrigated pasture. The majority of open water which occurs in the CIAA is located on private lands in ponds used primarily for irrigation storage.

Table 22. Land Use/ Land Cover within the CIAA

Land Use/ Land Cover Type	Acres	Percent of CIAA
Open Water	30	0.01
Developed Open Space	524	0.21
Developed Low Intensity	992	0.40
Developed Medium Intensity	518	0.21
Barren Land (bedrock/sand/clay)	2218	0.89
Evergreen Forest	14293	5.73
Shrub/Scrub	173653	69.57
Grassland/Herbaceous	56071	22.46
Pasture/Hay	1150	0.46
Cultivated Crops	132	0.05
Woody Plants (hydric)	20	0.01
Herbaceous Plants (hydric)	13	0.01
*All data derived from USGS(2006) using a GIS		

A road network has been developed in the CIAA which accommodates a wide variety of vehicular traffic. To date, approximately 446 miles of primitive road (4WD) and ATV trails, less than 1 mile of naturally surfaced road, 30 miles of gravel-surfaced roads, and 30 miles of paved roads including US 93 crisscross the CIAA. As a result of a recent Travel Management Plan decision, 11 miles of BLM-administered roads/trails have been closed to motorized vehicles. The majority of these roads were developed to accommodate ranching and recreation.

Infrastructural development has resulted in the removal of acreage from existing riparian habitat. Within the CIAA, approximately 31% of perennial streams miles contain a road within their riparian corridor, resulting in the removal of as much as approximately 28 acres or ≈1% of the RHCA present in the CIAA. Road crossings in the form of culverts can result in contributions of sediment, but more importantly can influence juvenile and adult fish passage, often due to

undersized diameter and/ or slope which results in excessive velocity and perched outlets which create vertical impediments to fish passage. Road crossings of fish bearing streams are limited to tributary habitats; bridges associated with the Salmon and East Fork Salmon rivers do not limit fish passage. Due to the distribution of fish bearing stream and designated critical habitat, culverts which impede fish passage are limited to the Road Creek watershed. However, culvert replacements by the BLM have improved connectivity among habitats in upper Road Creek and its tributaries. Private lands and the East Fork Road near the mouth have culverts likely to impede fish passage under some conditions, and these are likely to foreseeably to persist.

There are irrigation diversions that likely influence stream flow seasonally in the lower reaches of Road Creek, which can limit fish habitat relative to volume and temperature. There are approximately 1.4 miles of Road Creek in which irrigation occurs within the RHCA for a total of 30 acres or ½ of 1% of the total RHCA available in the CIAA. This irrigation has a further effect on the downstream 0.4 miles of Road Creek in the CIAA by reducing the water available for hydric species. Due to the past construction of roads and their ongoing existence and maintenance there has been a cumulative removal of approximately 28 acres or ≈0.5% of RHCA. In lower Road Creek the RHCA along the ≈2 miles of Road Creek (≈3% of the RHCA relative to CIAA) have been affected by stream diversion, riparian conversion to pasture, and other private land development.

Power lines within the CIAA are located along the US 93 corridor through Warm Springs Valley, a power line bisects the CIAA near Spar Canyon connecting US 93 with the East Fork Salmon River Valley. A power line also runs up the lower portion of Road Creek delivering power to the private residences. In total there are 64 miles of power lines in the CIAA.

The largest mine with the CIAA is the Three Rivers Stone Quarry which has a total disturbed area of 124 acres. The Three River Stone Quarry has a National Pollution Discharge Elimination System permit from the U.S. Environmental Protection Agency authorizing the discharge of sediment. It was determined and concurred upon (January 2009) by USFWS and NMFS that the Three River Stone Quarry would result in only insignificant effects to habitat and T&E fish associated with the East Fork and mainstem Salmon rivers resultant from disturbance (e.g. blasting) or sediment conveyance from the quarry (USDI-BLM, 2008; USDI-BLM, 2009).

There are 21 additional acres associated with surface mining in the CIAA. These mine sites include a building stone prospect, zeolite prospect, precious gemstone prospect, and a gold prospect (there are no known occurrences of gold in the CIAA). There are 124 acres of common variety sand/gravel/rock sites within the CIAA. The majority of these sites are no longer active; there are 6 active sites for a total of 20 acres or 16% of the 124 acres of disturbance within the CIAA. There no active oil and or gas leases within the CIAA.

The great majority of the infrastructure and mines in the CIAA has been in place for decades. Relatively recent changes include the expansion of the Three Rivers Stone Quarry near the confluence of the East Fork into the main stem Salmon River. These alterations of the lands within the CIAA are generally widespread geographically and have not resulted in a noticeable progression toward a more urban orientation.

Reasonably Foreseeable Actions

Reasonably foreseeable future actions include continuation of past and present actions as described above. The level and character of livestock grazing and infrastructure are anticipated to remain consistent into the foreseeable future. Within the next 10 years the 15 livestock grazing permits are projected for renewal. Each of the livestock permittees has applied for their permits to be renewed. The permits would be renewed with similar Terms and Conditions or may be modified to ensure compliance with Fundamentals of Rangeland Health.

Future range improvement projects in the CIAA include 3 spring exclosures in the Mountain Springs Allotment in the Horse Basin Pasture (USDI –BLM 1999f). These spring exclosures would address a number of resource management issues including heavy use by wild horses and livestock. There are no mining and/or infrastructure developments in the reasonably foreseeable future in the CIAA.

4.1.1 Cumulative Impacts Associated with Past, Present and Reasonably Foreseeable Future Actions

Each of the past, present, and reasonably foreseeable future actions contribute a specific incremental environmental effect that can be described or accounted for with the same indicators as used in the alternative analysis presented earlier in the document. The proper indicator depends upon the analysis method used and the resource affected by the action. Indicators might be measured by the acres of soil disturbed, acres of big game habitat affected, miles of stream affected, percentage change in ground cover, number of springs developed, or whichever indicator of effect is best used to describe and account for the accumulated effect to the resource of concern. The accumulated effect of past, present, and reasonably foreseeable future actions on a given resource provides a baseline from which to evaluate the contribution of the alternatives to the collective impact on that resource. The purpose of this section of the document is to provide that baseline. The effects of the various alternatives on the baseline are presented in the subsequent section.

4.1.1.1 Wild Horses

The indicator for wild horses is horse health and safety. Under Alternative 1-4 wild horses would be maintained within AML, this in addition to the livestock grazing AUMs would continue to be within the carrying capacity and provide a thriving natural ecological balance. Alternative water sources (i.e. troughs, water holes) provide water for wild horses as well as for domestic livestock. Mining, sand and gravel operations, and the related actions have displaced wild horses from 269 acres within the CIAA. The 525 miles of road within the CIAA allow for motorized vehicle travel which may affect wild horse distribution and behavior. No additional roads would be created for the horse gather. Power lines /poles do not affect wild horse health and safety.

Under Alternative 5 wild horse numbers would exceed the AML. This in addition to the permitted livestock grazing AUMs would be above the carrying capacity for the public lands. Deterioration of uplands and riparian areas through an overpopulation of wild horses would not

improve habitat for future generations of wild horses or wildlife; cumulatively resulting in reduced AML or elimination of wild horses within this HMA.

No other past, present or reasonably foreseeable actions would offset the damage to the range caused by an ever increasing population of wild horses.

4.1.1.2 Vegetation Type, Communities, and Rangeland Resources

The indicator for vegetation is acres of concentrated disturbance. Areas associated with this are 170 troughs, 35 water holes, 157 miles of fence and 43 miles of pipelines within the CIAA. Assuming a disturbance diameter of 0.7 acres per water source (e.g., trough and stock ponds), an 8-foot disturbance width for fences, and an 18-inch disturbance width for pipelines, a total of approximately 304 acres or about 0.1% of surface vegetation within the CIAA has been altered from their natural state by livestock grazing and associated activities.

The duration and intensity of the effects of these disturbances are not equivalent. The 144 acres of disturbance associated with water sources tends to be relatively intense and long-term, while the 152 acres associated with trailing along fences is more likely to be locally intense, but discontinuous. This disturbance includes removal of vegetation along the fence, trampling of vegetation from livestock trailing along the fence, and from T-posts being pounded into the ground. The 8 acres of disturbance associated with pipeline installation occurred as single events with disturbances being relatively short-term (i.e., 2 to 3 years).

Mining, sand and gravel operation, and associated activities have resulted in 269 acres of concentrated disturbance of vegetative communities. There are 525 miles of road in the CIAA. Assuming an average road width of 20 feet there are approximately 1,300 acres of vegetation disturbance. The disturbance related to power lines/poles is related to the roads as described above and the individual poles. Disturbance of the individual poles would be negligible. Cumulatively, this has resulted in a total vegetative disturbance of 1,873 acres.

Under Alternatives 1-4 approximately 10 acres of new concentrated disturbance would occur to vegetative communities. Cumulatively this would result in a 0.5% increase in the number of disturbed acres within the CIAA.

Under Alternative 5 there would be no new concentrated disturbance associated with gather activities. However, no other past, present or reasonably foreseeable actions would offset the effects caused by an increasing population of wild horses. Complete removal of permitted livestock would not compensate for unregulated population growth within the CHMA. The population would eventually reach a level in which forage is inadequate to meet demand.

4.1.1.3 Livestock Management

The indicator for livestock grazing is number of permitted AUMs. Mining/infrastructure development has not affected permitted AUMs. Alternatives 1-4 would not affect permitted AUMs because the AML would be maintained providing a thriving natural ecological balance.

Under Alternative 5 livestock management would need to be modified such that permitted AUMs may be reduced or cancelled, because forage availability for livestock would be reduced as a result of increased wild horse populations.

4.1.1.4 Invasive/Non-native Species

The indicator for invasive/non-native species is acres of disturbance because activities that remove native vegetation and expose bare soil are likely to create niches where there is a potential for weed invasion. Generally, invasive species have been introduced to the CIAA as "hitchhikers" on vehicles or animals, as evidenced by the pattern of infestations. The acres of disturbance associated with these type of activities are disclosed under section 4.1.1.2 Vegetation Type, Communities, and Rangeland Resources.

There are 86 noxious weed locations mapped across ownerships in the CIAA for an approximate total of 75 acres (USDI-BLM 2009c). This total comprises approximately .03% of the total acreage within the CIAA. Cheatgrass infestations have not yet been mapped on BLM lands within the CIAA. General field observations indicate that infestations are occurring to some degree along roadways and on drier southwest facing aspects.

Alternatives 1-4 would result in a direct effect of approximately 10 or less acres of disturbance for noxious weeds to invade. Cumulatively this would result in a 0.5% increase in the number of disturbed acres for invasive species to establish.

Under Alternative 5 there would be no new concentrated disturbance associated with gather activities. Due to increased horse populations it is anticipated that invasive/non-native species occurrences would increase due to reduced vegetation and increased ground disturbance. This would result in an increased effort to manage invasive/non-native species.

4.1.1.5 Wetlands/Riparian Zones

The indicator for wetlands/riparian areas is acres of riparian affected. Livestock grazing has locally affected streams and upland springs. In response to these localized effects, grazing exclosures have been constructed. There are three proposed upland spring exclosures at sites where wild horse and livestock use have affected the springs. Mining/Infrastructural development has resulted in the removal of acreage from existing riparian habitat. Within the CIAA, approximately 31% of perennial streams miles contain a road within their riparian corridor, resulting in the removal of as much as approximately 28 acres or approximately ½ of 1% of the RHCA present in the CIAA. Installation of power poles within riparian corridors has removed approximately 0.004 acres or less than 1/10th of 1% of riparian areas present in the CIAA (Table 23).

Irrigation diversions dewater Road Creek and reduce water available for maintenance of riparian areas. The importance of the presence of water to sustained healthy riparian corridors cannot be understated. There are approximately 1.4 miles of Road Creek in which irrigation occurs within the RHCA for a total of 30 acres or ½ of 1% of the total RHCA available in the CIAA. This irrigation has a further effect the downstream 0.4 miles of Road Creek in the CIAA by reducing

the water available for hydric species. The irrigation of 30 acres typically requires a diversion rate of 0.6 cubic feet per second, any diversion in excess of this amount will be returned to Road Creek as ground water flow.

Table 23. Cumulative Effects on Riparian Areas and Vegetation

Resource	Total within CIAA	Total within the CHMA
Acres of RHCA(300-ft buffer of Perennial Streams)	5,914	3,487
305(b) Streams miles	306	251
303(d) Streams miles	214	95
Perennial Stream Miles	91.8	54.5
Road Miles Within RHCA (300-ft buffer of Perennial Streams)	28.8	14.4
Miles of Perennial Stream Affected by Mining	0	0
Miles of Power lines within the RHCA (300-ft buffer of Perennial Streams)	0.8	0.7
Number of Power Poles within the RHCA (300-ft buffer of Perennial Streams)	18	12
Number of Developed Springs (based upon USFS and BLM Range Improvement GIS Data)	27	19

1. Data were compiled from various sources using and at various scales (e.g. watershed scale, allotment scale) GIS. The values given are best estimates derived using this GIS data.
2. These data were used for the majority of the percentage calculations given

Cumulatively, past and present actions have resulted in the removal of approximately 28 acres or ≈0.5% of RHCA due to the construction of roads; approximately 145 acres (the RHCA along the 2 miles of Road Creek) or ≈3% of the RHCA have been impaired or affected as a result of stream dewatering and private land development; all of the acres of RHCA have been potentially affected by livestock and/or wild horses. All sites for which monitoring data is available are in late seral status or at potential natural community and have shown a static to improved trend from 1999-2012 (Table 14).

Under Alternatives 1- 4 no new acres of disturbance would occur within RHCAs therefore no cumulative effects are anticipated as a result of gather activities. Under Alternative 5, it is anticipated that use of riparian vegetation and alteration of wetland areas by wild horses would increase.

4.1.1.6 Water Quality

The indicator for water quality is macroinvertebrate assemblages. Aquatic macroinvertebrates can be used to assess water quality and the influence of organic pollutants. The assemblage of macroinvertebrate taxa are relatively sedentary and can be quantitatively sampled; some of the metrics used to describe the macroinvertebrate assemblage and contributions of different taxa include the number of pollutant intolerant species and number of clinger taxa (which can decrease as a result of sedimentation/siltation). Quantitative aquatic macroinvertebrate sampling conducted by the BLM between 1994 and 2008 indicates a static to upward trend in water quality for perennial streams across the CIAA (See Appendix H). These data, combined with relatively high levels of bank stability and predominately late-seral riparian vegetation (see Table 14), suggest that ongoing grazing actions managed with an array of passive and active methods and periodic horse gather operations to maintain AML have allowed for maintenance and/or recovery of elements of stream habitat important to water quality for fish bearing streams. Furthermore, macroinvertebrate data collected by IDEQ for streams across the CIAA indicate that macroinvertebrate communities are appropriate for the bioregions in which they were collected (See Appendix H). Cumulatively, at the CIAA scale, water quality has been affected by increased sedimentation and siltation due to grazing, horse use and road developments. Mines, sand and gravel operations, and power lines/poles within the CIAA do not occur proximal to RHCAs. Livestock and wild horse use have also resulted in fecal loadings to waters within the CIAA.

Under Alternatives1-4, it is anticipated that macroinvertebrate assemblages would continue to show a static to upward trend in water quality. Under Alternative 5, macroinvertebrate assemblages (e.g. relative abundance of clinger and pollutant taxa) could reflect increased wild horse use in riparian areas.

4.1.1.7 Threatened / Endangered and Sensitive Fish; Fisheries

The indicator for Threatened/Endangered and Sensitive Fish; Fisheries is miles of ESA designated critical habitat for fish, which includes all fish bearing streams (see Table 24)

affected. Under Alternatives 1- 4 no new acres of disturbance would occur within RHCAs therefore no cumulative effects are anticipated for the miles of ESA designated critical habitat as a result of gather activities. Under Alternative 5, it is anticipated that the pattern of wild horse use of riparian vegetation and alteration of streambanks would expand.

Table 24. Threatened/Endangered and Sensitive Fish; Fisheries Resources and Cumulative Effects

Resource	Total within CIAA	Total within the CHMA
Acres on State and Federal Lands Subject to Grazing	227,270	149,343
Perennial Stream Miles	91.8	54.5
Approximate Fish Bearing Stream Miles	43.5	32.5
Miles of Designated Critical Habitat for Chinook Salmon	44.8	37.3
Miles of Designated Critical Habitat for Steelhead	3.3	1.6
Miles of Designated Critical Habitat for Bull Trout	1.8	1.5
Road Miles Within RHCA (300-ft buffer of Perennial Streams)	28.8	14.4
Miles of Perennial Streams where grazing is authorized	89.2	52.3
Acres of Grazing Exclosures	138	138
Miles of Perennial Streams within Exclosures	1.5	1.5

4.1.1.8 Wilderness

For the purposes of analyzing cumulative impacts, the CIAA for wilderness values includes the entirety of the Jerry Peak and Corral-Horse Basin WSAs (92,650 acres, combined). Due to the nature of WSAs some of the actions which have cumulatively affected the rest of the CIAA have not, and will not, occur within the boundaries of these special designations (agricultural development, road construction, and land use conversions). Both WSAs were found during Intensive Wilderness Inventory in 1980 to have certain wilderness values (size, naturalness, outstanding opportunities for either solitude or primitive and unconfined recreation, and supplemental values).

There have been no past and present actions which have impacted the size of the either WSA. There has been some amount of primitive road development (motorized routes created by the passage of vehicles) since the time of inventory, however, these routes were inventoried and closed during the 2008 travel planning effort. There have been no road construction or maintenance efforts that have affected the boundaries, and subsequent size, of either WSA.

The Jerry Peak WSA contains 1.4 miles of buried pipeline, 17 miles of primitive routes, 27.3 miles of fence, and 7 troughs. Corral-Horse Basin WSA contains 2.4 miles of buried pipeline, 34 miles of primitive routes, 25.8 miles of fence, and 9 troughs. All of these developments affect the naturalness of the WSAs to some degree, though the pipelines effectively disappear after one or two growing seasons. The 51 miles of primitive routes are all single vehicle width and have no impacts associated with construction, resulting in an average disturbance width of 8' and 49 acres of disturbance across both WSAs. The 53 miles of fence result in 51 acres of disturbance (assuming a worst-case scenario of 8' of initial vegetative disturbance), and the 16 troughs impact 10.5 acres. Therefore, the cumulative physical impacts to naturalness associated with the existing developments are approximately 110 acres, or .1% of the combined acreage of the WSAs. There would be no new facilities associated with the proposed action or alternatives. There are eight potential capture sites which might be utilized 'within the boundaries' of the WSAs. Of these eight sites, one is located on private land, one on State land, and four are on Road Creek Road. Approximately one acre of vegetation could be trampled during gather operations at each of the 6 of the capture sites on or directly adjacent to the WSAs, resulting in an additional six acres of temporary physical disturbance (.006% of the WSA acreage).

Outstanding opportunities for solitude could be reduced during helicopter operations, though they would not cumulatively affect the long term availability of solitude (or primitive recreation) within the impact area. Finally, managing the wild horse herd for the appropriate management level would maintain the supplemental values identified during inventory at a healthy and sustainable level.

4.1.1.9 Recreational Use, Existing and Potential

In the CIAA, recreational use has been affected, and will continue to be affected, by certain elements of grazing management and mining/infrastructure development. The common denominators, when considering the cumulative impact of these broad activities to recreational

use, are the elements/indicators which have the potential to affect the naturalness (or scenic) quality of the landscape or the ability of visitors to freely traverse the landscape.

Past and present grazing related actions which have cumulatively combined to affect the natural across quality of the CIAA include the construction of 157 miles of fencing, 43 miles of pipeline, 170 water troughs, and 35 stockponds. The impact of pipelines is nearly non-existent because once the initial, short term disturbance recovers; their evidence on the landscape becomes virtually unnoticeable to the casual observer. The presence of 170 troughs within the CIAA equates to one trough for every 1,437 acres of publically accessible land within the CIAA. With an effective impact of approximately 0.7 acres/trough, the impact to the naturalness of the area becomes very limited (approximately 119 acres). Waterholes have a similar impact area of 0.7 acres/waterhole, resulting in approximately 25 acres of disturbance across the CIAA. The presence of fencing affects both the naturalness of the area, as well as the ability for a recreationist to move freely throughout the ERMA. With 244,349 acres of publicly accessible land within the CIAA (381 square miles), there currently exists approximately one mile of fence for every 2.5 square miles. At an average disturbance width for fence construction of 8 feet, this would directly affect approximately 152 acres. While additional fencing, troughs, and pipelines may be constructed in the future based on specific needs, the only additional grazing developments in the foreseeable future are the 3 potential spring exclosures in Mountain Springs Allotment. By nature, small exclosure fences result in minimal impacts to freedom of movement for recreationists and impact the naturalness of an area at a localized scale.

Motorized routes (trails, roads, and primitive roads) also affect both the naturalness of the area and the ability to traverse the landscape. Dependent on the activity, and more so on the perception of the user, motorized routes can add or detract from the recreational experience. However, regardless of the experience, 525 miles of designated motorized routes within the CIAA directly affects the naturalness of the area by the disturbance of approximately 1,536 acres of vegetation (assuming an average width of disturbance of 25 feet), or 0.6% of the CIAA. The BLM has recently completed a travel management plan which affects the CIAA and there are no known plans for designating new motorized routes in the foreseeable future. There are 11 miles of existing routes on the BLM within the CIAA which have been closed to motorized use and would be expected to return to a natural condition as use diminishes over time.

The remaining key elements within the CIAA that affect the naturalness of the area are land use conversions (irrigated private lands and mineral extraction developments) and infrastructure related to rural development (such as powerlines and homes). These actions tend to be concentrated in the valley bottom, within or close to, private lands and county roads. In total, these activities have reduced the quality of naturalness on approximately 2,282 acres or less than 1% (this is the acreage for Developed Open Space, Developed Low Intensity, Developed Mod Intensity, and the 248 acres of surface mining identified in the CIAA description) of the assessment area by removing natural vegetation, disturbing soils, and facilities construction. There are no known plans for additional land use conversions or infrastructure development in the foreseeable future.

The impacts associated with the proposed action and alternatives considered in this analysis would not result in any measurable cumulative impacts to recreational experiences or

opportunities. There would be no addition or subtractions to the road and fencing systems which impact recreational mobility, nor would there be any impacts to the naturalness of the area beyond short term impacts to vegetation at discrete capture sites (less than 20 combined acres across the CIAA, or .008%).

4.1.1.10 Soils

Soils within the CIAA have been impacted by disturbances. The majority of grazing impacts (livestock, and wild horse) occur around existing water sources such as springs, troughs, stock ponds, areas providing cover or shade and along fence lines where livestock and horses tend to trail. The soils within and closely surrounding these areas receive heightened use and may exhibit signs of soil compaction, erosion, and reduced productivity. These areas of decreased vegetation and litter cover are generally more susceptible to soil erosion, increased runoff, and infestation by invasive, non-native plant species. Pipelines, not typically areas of intensive use, also disturb vegetation and soils as a consequence of their installation for the short term, but recover within 2 to 3 years. The indicator for soils is acres of concentrated surface disturbance. The acres of concentrated disturbance are described under 4.1.1.2 Vegetation Type, Communities, and Rangeland Resources.

Under Alternatives 1-4 approximately 10 acres of new concentrated disturbance would occur to soils. Cumulatively this would result in a 0.5% increase in the number of disturbed acres within the CIAA.

Under Alternative 5, there would be no new concentrated disturbance associated with gather activities. However, no other past, present or reasonably foreseeable actions would offset the effects caused by an increasing population of wild horses. Complete removal of permitted livestock would not compensate for unregulated population growth within the CHMA. The population would eventually reach a level in which forage is inadequate to meet demand. The decrease in vegetation cover would result in increased erosion.

4.1.1.11 Threatened/Endangered/Sensitive Animals/Migratory Birds/Wildlife

Cumulative effects on wildlife are those impacts that alter or remove a measurable portion of natural processes that individual species have evolved to need during some portion of their life. BLM recognizes that individuals or portions of populations could move in and out of the representative CIAA. The CIAA used here is delineated to encompass the majority of the population of each specific species that use the habitat influenced by the actions proposed in this document in conjunction with the cumulative impacts occurring to the habitat within the CIAA boundary. The CIAA also fits within the scope of BLM CFO's purview and capabilities of accurate analysis for the time, intensity, and scope of cumulative impacts. The CIAA is also delineated as to accurately represent cumulative impacts to each species and not be overly large as to dilute potential impacts. Analysis under this section of cumulative effects will focus on habitat health within the CIAA as described in this document and how the health of the CIAA impacts different species that uses it.

<u>Greater Sage-Grouse</u>

The indicators for impacts to Sage-grouse are the removal of habitat and direct disturbance or removal of individuals by the above described activities. Cumulative effects analysis in this section will focus on sagebrush steppe health of the CIAA. However, sage-grouse population trend is indicative of the stochasticity (unpredictable spatiotemporal fluctuations in the environment) of the sagebrush ecosystem and population trend will be discussed in an effort to determine sagebrush steppe health. Interim Management (IM-2012-043) designated 27% (68,292 acres) of the CIAA as Preliminary General Habitat (PGH) and 69% (173,865 acres) as Preliminary Priority Habitat (PPH). PPH covers the majority of the CIAA with PGH only being present around the periphery of unsuitable sage-grouse habitat. Sage-grouse movements are not well understood, but site fidelity has been documented by sage-grouse. Males have been documented showing site fidelity to lekking sites and females showing fidelity for nesting areas (Connelly 2004). The gather is scheduled to take place outside of the lekking and nesting period. The scheduled gather period takes place during the sage-grouse summer period (7/1 – 11/15). Mapped CSGLWG summer seasonal habitat occurs on the southern half of the CIAA and is generally associated with higher elevations of the CIAA. According to Garton (2011) the Big Lost sage-grouse subpopulation extents into the south east half of the CIAA.

Summer seasonal habitat for the CHMA within the alternatives equates to 64% (37,822 acres) of that mapped by CSGLWG (59,180 acres) within the CIAA.

Greater sage-grouse within the CIAA have been impacted in varying degrees by all of the past, present, and reasonable foreseeable future actions. Impacts from ungulate grazing occur in the form of altering the sagebrush and herbaceous cover needed for sage-grouse habitat, and nest trampling. Grazing of wild ungulates occurred throughout the region at various levels prior to European settlements. Livestock grazing prior to the passage of the Taylor Grazing Act and pre-European settlement native ungulate grazing intensities are not known. After passage of the Taylor Grazing Act in 1934 livestock have been present throughout the CIAA in different forms, seasons, and rates. Impacts associated with livestock developments include fences, troughs, waterholes, and pipelines. The total acreage impacted by these developments is 304 acres or approximately 0.1% of the CIAA. These developments have different levels of impacts on sage-grouse. Impacts associated with waterholes and pipelines are generally limited to construction. Troughs pose a potential for entrapment if bird ramps are not maintained and fences have the potential for impacts to low flying individuals. There are 170 trough locations within the CIAA. Using the 0.7 acres of disturbance of sage-grouse habitat per water trough equates to a loss of approximately 119 acres or 0.04% of the CIAA. There are 157 miles of fence on State and Federal lands within the CIAA. The density of fencing within the CIAA is 0.4 miles of fence per square mile. This density of fencing is below the 1.6 miles of fence per square mile that poses a higher risk for sage-grouse (USDI-BLM 2011).

Infrastructure development can have different forms and different direct and indirect impacts on sage-grouse that occur within the CIAA. There is 64 miles of powerlines within the CIAA. Power poles that have the potential to be used by raptors as a perch but do not have perch deterrents installed and exist within the sage grouse habitat would continue to provide raptors an opportunity to be used as such. There are 506 miles of roads within the CIAA. Existing routes have the potential to aid the spread of invasive weeds. Possible impacts from roads within sage-

grouse habitat include the spread of invasive weeds, habitat fragmentation, and direct disturbance or mortality depending on the amount occurring and the frequency used. There is 145 acres of surface mining occurring in the CIAA. Open pit mining activities remove habitat from use by sage-grouse for typically long periods of time.

Pygmy Rabbit

The indicators for impacts to pygmy rabbits are the removal of habitat and direct disturbance or removal of individuals by the above described activities. Power poles can provide perches for raptors. There are 64 miles of powerlines within the CIAA. Power poles that are present around pygmy rabbit activity and do not have perch deterrents installed would continue to provide a perching opportunity for raptors. Roads can promote invasive weeds and fragment habitat. Mining activities can remove habitat for pygmy rabbits during active mining.

Migratory Birds

The indicators for impacts to migratory birds are the removal of habitat and direct disturbance or removal of individuals by the above described activities. Migratory birds have the potential to exist throughout the CIAA on all habitat types. The majority of ungulate use takes place in shrub steppe habitat. Ungulate grazing has the potential to be present throughout the CIAA during the entire breeding/nesting season. Habitat conversions are not detrimental on a species level if other habitat is available. Open pit mining activities of all scales typically remove vegetation during normal operations. Vegetation removal and disturbances during breeding/nesting season have the potential to cause breeding/nesting failure. The extent to which this has happened in the CIAA is not known. Infrastructure development also has the ability to impact birds positively and negatively. Vehicle collisions increase as roads develop and speeds increase. Powerlines can provide perches for birds and act as a surrogate to natural structures. Some powerline designs can also cause electrocutions when birds come in contact with them.

Gray Wolf

The indicators for gray wolves are direct disturbance or removal and the altering of prey abundance and composition. Factors influencing how many wolves might be removed because of depredation are numerous. Wolves that have been removed because of past depredation have not inhibited wolf population growth in Idaho since their reintroduction in 1995. Wolves are highly mobile and use habitat on a landscape scale. The remaining elements as described in the past and present actions are at a scale that has not shown impacts to wolves as a species. Wolves have continued to expand their range and population since their reintroduction.

Other Big Game

The indicators for big game are direct competition for resources, removal of vegetation, and direct disturbance. Horse and livestock grazing takes place throughout the majority of the CIAA. Infrastructure development can remove big game habitat, cause mortalities, and influence behavior. There are 506 miles of designated routes within the CIAA. There is 145 acres of surface mining in the CIAA. Infrastructure development can remove or fragment available big

game habitat. Vegetation treatments are generally favorable to big game. There have been 20,037 acres of vegetation treatments in the past in the CIAA. Vegetation treatments act as a controlled surrogate to wildfire and reset successional changes to provide a mosaic of vegetation availability that can benefit big game.

Cumulative Impacts Common to All Species

Under Alternatives 1-4 approximately 10 acres of new concentrated disturbances would occur to vegetative communities. Cumulatively this would result in a 0.5% increase in the number of disturbed acres. The proposed actions within this alternative are isolated and limited to this one action. The proposed gather actions (herding, trapping, and transportation) would have a negative impact to individual wildlife species present during activities. The actions would be limited both spatially and temporally. A reduction in the horse herd would lesson forage removal/consumption and the potential for disturbances by horses. These actions, when added to other past, present, and reasonably foreseeable actions, would not lead to the listing of any of the species described in this document and present within the CIAA.

Under Alternative 5 horse herd number would increase and lead to greater consumption of forage and a greater potential for disturbances to wildlife. The proposed actions in this alternative would lead to the horse herd numbers increasing. There are no gather activities associated with this alternative. Horse herd number would continue to increase. The AML would continue to be exceeded and forage not allocated to horses would be removed. This would lead to an increase in completion for forage and potential for disturbance of wildlife, as well as, a decrease in cover for certain wildlife. However, these actions, when added to other past, present, and reasonably foreseeable actions, would not lead to the listing of any of the species described in this document and present within the CIAA within the proposed time period in this alternative of ten years.

4.1.1.12 Tribal Treaty Rights

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Within the Challis Horse Management Area (CHMA), there are 154,150 acres of BLM lands, 9,454 acres of State of Idaho lands, and 1,116 acres of privately owned lands. Access to treaty reserved resources within the Shoshone-Bannock Tribes' aboriginal territory may no longer be possible on privately owned lands within the CHMA because of land status and/or access restrictions.

The federal government has a federal trust responsibility to manage public lands to provide for the continued exercise of tribal treaty rights, consistent with management policies, on all unoccupied lands within their jurisdiction. The proposed action and alternatives analyze potential management actions designed to address appropriate and effective wild horse management on lands within the CHMA. Provisions are also made to protect the safety and health of the horses, BLM employees and contractors during actual gather activities, and may include short-term area closures within the CHMA.

Any short-term temporary areal closures deemed necessary would not alter federal land status, but would necessarily limit access to and utilization of treaty-reserved resources on unoccupied federal lands during actual wild horse gather activities. Impacts to access of specific areas

within the CHMA would last between 4-8 days over an approximate two-week period in October.

Detailed discussion of potential cumulative impacts to resources of special interest to the Shoshone-Bannock Tribes such as water quality, fisheries, vegetation, ad wildlife are analyzed and discussed in detail within those specific sections (e.g., Fisheries, Vegetation) located elsewhere within this document.

4.1.1.13 Human Health and Safety

Members of the public can inadvertently wander into areas that put them in the path of wild horses that are being herded or handled during the gather operations, creating the potential for injury to wild horses and to the BLM employees and contractors conducting the gather and/or handling the horses as well as to the public themselves. Because these horses are wild animals, there is always the potential for injury when humans get too close or inadvertently get in the way of gather activities.

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

4.1.1.14 Socioeconomics

The CIAA is located in Custer County, a rural area with an estimated population of 4,368 (U.S. Department of Commerce 2010). Over the last ten years, the county's population has remained more or less static, increasing by 0.6%. The primary population centers within the county are Challis (pop. 1,081), Mackay (pop.517), and Stanley (pop. 63). Population density within the county is low at an estimated 0.88 persons per square mile, in part because 97% of the county is in federal or state ownership.

Median household income as of 2010 was $41,773.00, slightly below the state median of $44, 640.00.

Traditionally, the largest employment sectors in the county have been mining, government and agriculture, though employment patterns have shifted markedly through time. According to the U.S. Department of Commerce (2011), employment in the mining sector shrunk from approximately 38% of total employment in 1998 to 10% in 2003. Since 2003, the mining sector has seen more or less steady growth, reaching approximately 37% of total employment by 2009.

Employment in government fluctuated to a lesser degree. In 1998, the percentage of total jobs in federal, county, or local government was approximately 16%; it grew markedly to 24% by 1993 and then shrank to its 2009 level of 17.4%.

In contrast to employment in the mining and government sectors, employment in the services sector has seen steady growth within the county and as of 2009, represented 65.2 % of total employment (U.S. Department Commerce 2011). Within the services sector, relatively low paying jobs in accommodation, food service and retail trade now rival higher paying jobs in mining as the dominant source of income in the county.

The trend in agricultural employment, on the other hand, has been one of slow, but steady decline. Since 1970, farm employment shrank by approximately 21% and, as of 2009, comprised 10.5 % of total employment in the county (U.S Department of Commerce 2011, 2001).

One reason for the slow and steady decline in the agricultural sector is suggested by farm operator earnings. As indicated in Table 25, net average cash income from farms has been well below the median income for the county as a whole (when adjusted for inflation). A substantial number of farms have operated with a net loss. It is clear that one means to keep the farm operating under these circumstances is to supplement their income by working off the farm. As indicated in Table 25, more than half of the operators in the county worked off the farm for at least some portion of the year during the 1992-2007 period, many for more than 200 days a year.

Table 25. Farm operators net average cash income and days worked off the farm, Custer County, 1992-2007.

	Net average cash income from farms (dollars adjusted for inflation, 2011)	Operators with net losses (percentage of total)	Operators working off farm for any number of days (percentage of total)	Operators working off farm more than 200 days in a year
1992	13,819	169 (63.3)	144 (53.9)	84 (31.5)
1997	13,292	158 (59.0)	158 (59.0)	95 (35.4)
2002	(4,407)	212 (74.4)	164 (57.5)	111(38.9)
2007	27,676	74 (28.4)	182 (69.7)	76 (29.1)

United States Department of Agriculture (1992b, 1997a, 1997b, 2002, 2007c)

Several researchers have noted that profit is not the primary motivating factor in the choice to remain on the farm. In their study of ranching in Colorado, Bartlett et al. (1989) concluded that

rate of return was of little or no importance in the rancher's decision to stay in the cattle business with most respondents citing the ranching way of life as their principal motivating factor. Similarly, Rowe et al. (2001) indicate that tradition, place attachment, and family were the primary motivating factors to stay in agriculture. Similar motivations have also been discussed by Liffman et al. (2000) and Bartlett et al. (2002). When ranchers do choose to sell, typical motivations cited are a lack of heirs, impending retirement, and detrimental public policy with lack of profitability being one of the least cited reasons. These factors may explain the rather slow pace of decline in the agricultural sector within the county.

The steep level of growth in the retail trade and accommodation/food service sectors and the gradual decline of the more traditional agricultural sector are accompanied by potential social consequences. In their study of Owyhee County, Idaho, Harp and Rimby (2004) found that communities characterized by ranching displayed higher levels of cohesion, integration, and attachment than those that did not, and argue that declines in ranching would result in similar reductions in these societal characteristics. Winkler et al. (2007) describe a similar decline in extractive-oriented economic structures in communities throughout the Intermountain West and a new orientation towards natural and cultural amenities. The result has been an in-migration of "outsiders", the presence of seasonal populations, increasing tourism and higher housing values; a phenomenon characteristic of the "New West."

While declines in societal cohesion and integration and the transformations characteristic of the "New West" phenomenon are not readily apparent in the communities within Custer County, these types of changes may become more apparent in the future given current trends in economic indicators.

5.0 Monitoring and Mitigation Measures

The BLM Contracting Officer's Representative (COR) and Project Inspectors (PIs) assigned to the gather would be responsible for ensuring contract personnel abide by the contract specifications and the SOPs (Appendix B). Ongoing monitoring of forage condition and utilization, water availability, aerial population surveys, rangeland resources health, and animal health would continue.

Fertility control monitoring would be conducted in accordance with the SOPs (Appendix B). Monitoring the herd's social behavior would be incorporated into routine monitoring. The objective of this additional monitoring would be to determine if additional stallions form bachelor bands or are more aggressive with breeding bands for the forage and water present.

If genetic monitoring indicates a loss of genetic diversity, then mares would be introduced into the CHMA from another HMA with similar characteristics.

6.0 List of Preparers

The following list identifies the interdisciplinary team member's area of responsibility:
Kevin Lloyd, Wild Horse and Burro Specialist/Rangeland Management Specialist
Peggy Redick, Supervisory Resource Management Specialist
Kyle Jackson, Rangeland Management Specialist
Bart Zwetzig, Wildlife Biologist

Ryan Beatty, Fisheries Biologist
Carol Hearne, Archeologist/Supervisory Resource Management Specialist
Nate Arave, Hydrologist
Leigh Redick, Invasive Species
Jeff Christenson, Outdoor Recreation Planner

7.0 Government to Government Consultation

Government to government consultation with the Shoshone-Bannock Tribes was initiated. The Tribal Business Committee was notified concerning the gather through the scoping letter BLM staff and Tribal technical staff meetings occurred on 4/26/2012. To date, no concerns about short- or long-term impacts to tribal treaty rights or access have been expressed by the Tribes.

7.1 Public Consultation and Coordination

Public hearing(s) are held as a single state-wide hearing at the Challis Field Office regarding the use of helicopters and motorized vehicles to capture wild horses (or burros). During the hearing(s), the public is given the opportunity to present new information and to voice any concerns or opinions regarding the use of these methods to capture wild horses (or burros). BLM Idaho held a statewide hearing on March 7, 2012 in Kimberly Idaho. This location was chosen because it was centrally located between HMAs where gathers may occur in 2012.

News releases throughout the state invited interested publics to attend the meeting.

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9.0 Appendices

Appendix A:

Gather Plan

The purpose of the gather plan is to outline the methods and procedures for conducting a gather to remove excess wild horses from public lands administered by the CFO. Implementation of the Proposed Action would require the capture of 274 and removal of approximately 140 wild horses to achieve a post-gather population of 185 wild horses. An adoption will be held at the Challis Wild Horse Facility following vaccinations, freezmarking, deworming, gelding and blood being drawn for Coggin's test.

A. Gather Area

The Proposed Gather Area includes the CHMA and areas outside of the CHMA boundary East of HWY 93. The CHMA is 168,468 total acres including federal, state and private lands. Refer to Map 8, which displays the CHMA, grazing allotments and the gather area.

B. Administration of the Contract /Gather Operations

The National Wild Horse and Burro Gather Contract would be used to conduct the wild horse gather tentatively scheduled for October 2012. BLM personnel would be responsible for overseeing the contract for the capture, care, aging, and temporary holding of wild horses from the capture area. BLM WH&B Specialists would be present during all aspects of the gather activities.

Standard Operating Procedures (SOPs) described within this document (Appendix B) would be utilized for the capture and handling of wild horses and burros, and have been developed over time to ensure minimal impacts associated with gathering, handling, and transporting wild horses and burros and collecting herd data.

It is estimated that 3-5 capture sites and 1 set of central sorting/holding facility would be necessary to complete the gather. Ideally, capture sites would be established away from riparian vegetation and stream channels in areas of previous soil or vegetation disturbance (such as gravel pits and roads), to avoid impacts to aquatic habitat, unaltered vegetation, cultural resources and soils.

Branded and/or claimed horses would be transported to a temporary sorting/holding facility. Ownership would be determined under the estray laws of the State of Idaho by an Idaho Brand Inspector. Collection of gather fees and any appropriate trespass charges would be collected per BLM policy and regulation.

An APHIS DVM or other licensed DVM would be on-site for the duration of the gather to provide recommendations to WH&B Specialists for care and treatment of sick or injured wild horses as per the 1983 Consent Decree. Consultation with the DVM may take place prior to the

euthanasia of wild horses in accordance with Washington Office Instruction Memorandum (IM 2009-041). Refer to Appendix B, Part E for more information about the euthanasia policy.

Precautions would be taken to ensure that young or weak horse foals are safely gathered and cared for appropriately. If a band has a small foal that can't keep the mare and foal are left and not gathered. If the pilot is unable to determine which mare the foal belongs to than the entire band may be left ungathered. In some instances the may be gathered by wranglers that are guided to the foals location by the pilot. Every effort is made to reunite mares and foals as soon as they arrive at the sorting facility. If a foal were determined to be an orphan, qualified adopters would be contacted immediately to provide proper care for the foal. Milk replacer formula and electrolytes would be available to care for orphan foals if necessary.

C. General Overview of Wild Horse and Horse Gather Methods

The contractor supplies and transports all equipment needed to conduct a gather to a central location where a sorting/holding facility is constructed, which consists of six or more pens constructed of sturdy panels 6 feet high, with a central alleyway and working/squeeze chute in the center. Corral panels are covered with snow fencing to keep animals calm and to create a visual barrier reducing disturbances and to reduce collisions, and water tanks are located within the pens. The central alley and pen arrangement allows the BLM staff and the contractor to sort recently captured animals, separating animals to ship to the adoption facilities, and mares and foals from stallions to prevent fighting and injury. The pen arrangement allows the contractor to off-load wild horses from stock trailers into the pens, and facilitates the loading of the horses to be transported to facilities onto large straight deck trucks.

At various locations throughout the CHMA, smaller sets of capture sites are constructed in order to gather horses in the proximal vicinity of where wild horse herds are located. The capture sites or capture sites consist of a series of pens made out of sturdy steel panels six feet tall, and wings made out of jute (a fibrous material) and "T" posts that funnel wild horses into the corrals as they are captured. Once captured, the horses are loaded into stock trailers and transported to the central sorting/holding facility. Horses typically remain less than 24 hours at the capture site before being transported to the sorting/holding facility. Horses may also spend up to an hour one stock trailers while other groups of horses are brought to the capture sites.

The contractor utilizes a helicopter and pilot to conduct gathers. Use of a helicopter is humane, safe and effective. Methods for use of helicopter are well established after over 30 years of BLM WH&B experience. Contract pilots are certified for the moving of animals under governmental contract. Experience and field observations have shown that wild horses settle down once gathered and are more concerned with intra-species dominance than the helicopter. The pilot locates groups of wild horses within the CHMA and guides them towards the capture corrals. In most cases, horses are allowed to travel at their own pace, and are not pushed. Distances average 4-7 miles over mixed terrain which may consist of rolling foothills or steeper terrain, drainages, ridges and valley bottoms. The horses often follow their own trails. The pilot, BLM staff (including the Contract Officer Representative and the Project Inspector) and APHIS DVMs monitor the condition of the horses to ensure their safety, checking for signs of exhaustion, injuries etc. The contractor and pilots are very skilled at designing and building capture corrals, and safely herding the horses to them. Generally, wild horses are very fit, and recover quickly from being captured. Distances that the horses travel are modified to account for summer temperatures, snow depth, animals in weakened condition, young foals, or older/lame animals. Under ideal conditions, some horses could be herded 10 miles at the discretion of the COR/WH&B Specialist.

Once near the capture site, the contractor holds a Prada horse (a tame trained horse) at the mouth of the wings. As the pilot pushes the wild horses closer, the Prada horse is released, which then runs into the capture corrals, leading all of the wild horses with him. Crewmembers rush in to secure gates once the horses are within the corrals. During summer gathers, the crew often separates foals from adults at the capture site so that they may be transported to the Sorting/holding facility separately and avoids being injured by adult horses. Foals may be loaded into a separate stock trailer where they can have shade, water, and electrolyte if necessary. Once

unloaded at the sorting/holding facility, foals may be rejoined with the mothers if not old enough to wean, and monitored to ensure that all of the foals "join-up" or reunited with their dams. Often paint marks are applied to the foals and mothers to assist the contractor and BLM staff in identifying pairs.

Occasionally (and more frequently for difficult to gather areas) helicopter-assisted roping is implemented, in which the pilot moves a small group of horses to the gather area, and the crewmembers rope the animals from horseback. This method often prevents overstressing the horses from repeated attempts to move them into the capture corrals. The roped horses are then led to the corrals, to awaiting stock trailers, or immobilized on the ground (less than 30 minutes) until they can be loaded into stock trailers.

Once horses are loaded and transported to the sorting/holding facilities, they are sorted by the contractor's staff and BLM employees. The contractor looks at the horse's teeth to estimate age while held in the chute, and the BLM staff documents age, color, body condition and lactation status of the horse. Aging wild horses is a process of estimation due to the type of wear that can occur to the teeth of a wild horse on the range. Injuries are noted and treated if needed. Once sorted, the horses are given hay and unlimited water, if no health concerns exist. During this time, the BLM may consult with a DVM to treat sick or injured animals, or make recommendations for euthanasia.

When sufficient numbers of horses to be removed are available at the sorting/holding facility, they are loaded into the straight deck trailers that hold 35-45 wild horses depending upon their size semi-tractor trailer will transport horses to the Challis Preparation Facility on Upper Hot Springs Road in Challis, Idaho. This requires separating horses remaining in the CHMA from those to be removed. The trailers have three compartments so that mares, stallions and foals can be transported separately. Transportation time is estimated to be an hour from the sorting/holding facility to the Challis Preparation Facility. If additional room is required or for any other reason horses are not able to be shipped to the Challis Facility, they will be shipped the Boise Idaho Facility or the Rock Springs Wyoming Facility, both approximately 5-7 hours away.

During sorting, BLM staff identifies wild horses to be released back to the CHMA based on the National Selective removal guidance, fertility control and historic characteristics. Mares may be held until the end of the gather so that fertility control can be given to them to slow future population growth rates. When it is time for the release, the mares and stallions are each loaded into separate stock trailers and transported back inside the CHMA. The rear of the trailer is opened up, and the horses are allowed to step off and travel back into the CHMA. Sometimes the horses are released directly from the sorting/holding facility located within the CHMA.

Before the wild horses are released back to CHMA, hair samples would be collected for genetic testing from 40 random individuals that are gathered from varying parts of the CHMA. Data collected during the gather in conjunction with previous genetic analysis reports will be used to monitor the genetic health of the CHMA.

D. Data Collection

The WH&B Specialist would be responsible for collecting population data on individual HMAs. The extent to which data is collected may vary among the field offices to meet specific needs pertaining to each HMA.

1) Hair Samples/Genetics Analysis

Hair samples would be collected for genetic testing from 40 random individuals that are gathered from varying parts of the CHMA and analyzed for genetic trend data (last collected in 2002) of wild horses (genetic diversity (heterozygosity), historical origins and unique markers). These data determine adequacy of herd size, genetic diversity, and historic characteristics. WHB Specialists would collect a minimum sample size of 25 hair samples from both mares and stallions in a ratio similar to the sex ratio released. Age would not be a defining factor in determining which animals to sample. Samples would be sent to Texas A&M University for analysis.

2) Herd Health and Viability Data Collection

WHB Specialists would document information related to age, sex, color, overall health, pregnancy, or nursing status from each animal captured. An estimate of the number of horses evading capture would also be recorded. Information on reproduction would be collected to the extent possible, through documentation of the wild horses captured during the gather, and the age of those released following the gather.

3) Characteristics

WHB Specialists would record color and size of the animals, and any characteristics as to type would be noted, if determined. Any incidence of negative genetic traits (parrot mouth, club foot etc.) or other abnormalities would be noted as well.

4) Condition Class

A body condition class score would be recorded based on the Henneke System. This would be recorded for the population in general and/or for specific animals if necessary.

E. Euthanasia

The Authorized Office (or designee) will make decisions regarding euthanasia, in accordance with BLM policy as expressed in Washington Office Instructional Memorandum No. 2009-041. A DVM may be called to make a diagnosis and final determination. Current BLM SOP is to have a DVM from APHIS on site throughout the gather to observe animal health and condition and provide input to BLM staff regarding the potential need to euthanize wild horses on gathers. Euthanasia shall be done by the most humane method available. Authority for humane euthanasia of wild horses or burros is provided by the Wild Free-Roaming Horses and Burros Act of1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM Manual 4730 - Euthanasia of Wild horses and Burros and Disposal of Remains. The following are excerpted from IM 2009-41:

A Bureau of Land Management (BLM) authorized officer may authorize the euthanasia of a wild horse or Burro in field situations (includes free-roaming horses and burros encountered during gather operations) as well as short- and long-term wild horse and Burro holding facilities with any of the following conditions:

(1) Displays a hopeless prognosis for life;
(2) suffers from a chronic or incurable disease, injury or serious physical defect; (includes severe tooth loss or wear, severe club feet, and other severe acquired or congenital abnormalities)
(3) would require continuous treatment for the relief of pain and suffering in a domestic setting;
(4) is incapable of maintaining a Henneke body condition score greater than two, in its present environment;
(5) has an acute or chronic injury, physical defect or lameness that would not allow the animal to live and interact with other horses or burros , keep up with its peers or exhibit behaviors which may be considered essential for an acceptable quality of life constantly or for the foreseeable future;
(6) suffers an acute or chronic infectious disease where State or Federal animal health officials order the humane destruction of the animal as a disease control measure.

There are three circumstances where the authority for euthanasia would be applied in a field situation:
(A) If an animal suffers from a condition as described in 1-6 above that causes acute pain or suffering and immediate euthanasia would be an act of mercy, the authorized officer has the authority and the obligation to promptly euthanize the animal. If the animal is euthanized during a gather operation, the authorized officer will describe the animal"s condition and report the action using the gather report in the comment section that summarizes gather operations (See attachment 1). If the euthanasia is performed during routine monitoring, the Field Manager will be notified of the incident as soon as practical after returning from the field.

(B) Older wild horses and burros encountered during gather operations should be released if, in the opinion of the authorized officer, the criteria described in 1-6 above for euthanasia do not apply, but the animals would not tolerate the stress of transportation, adoption preparation, or holding and may survive if returned to the range. This may include older animals with significant tooth wear or tooth loss that have a Henneke body condition score greater than two. However, if the authorized officer has inspected the animal"s teeth and feels the animal"s quality of life will suffer and include health problems due to dental abnormalities, significant tooth wear or tooth loss; the animal should be euthanized as an act of mercy.

(C) If an animal suffers from any of the conditions listed in 1-6 above, but is not in acute pain, the authorized officer has the authority to euthanize the animal in a humane manner.

I. Special Stipulations
1) Private landowners or the proper administering agency(s) would be contacted and authorization obtained prior to setting up capture corrals on any lands which are not administered by BLM. Wherever possible, capture sites would be constructed in such a manner as to not block vehicular access on existing roads.

2) Capture sites would be constructed so that no riparian vegetation is contained within them. No vehicles would be operated on riparian vegetation or on saturated soils associated with riparian/wetland areas.

3) The helicopter would avoid eagles and other raptors, and would not be flown repeatedly over any identified active raptor nests. No unnecessary flying would occur over big game on their winter ranges or active fawning/calving grounds during the period of use.

4) Standard operating procedures in the site establishment and construction of capture sites will avoid adverse impacts from capture site construction or operation to wildlife species, including threatened, endangered, or sensitive species.

5) Capture sites and sorting/holding facility
No personnel working at gather sites may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any archaeological resource located on public lands or Tribal lands.

Prior to setting up a trap or temporary holding facility, BLM will conduct all necessary surveys (archaeological, T&E, etc). All proposed site(s) must be inspected by a government archaeologist. Once archaeological survey has been conducted, the trap or temporary holding facility may be set up. Said surveys shall be arranged for by the COR, PI, or other BLM employees.

Gather sites and temporary holding facilities would be constructed outside the RHCA.

Locations would be placed only in areas that have been surveyed and reviewed for potential impacts to cultural resources. Capture site capture sites capture sites. capture sites and sorting/holding facilities

Wilderness Study Areas: When gathering wild horses from within Wilderness Study Areas (WSAs), applicable policy will be strictly adhered to. Only approved roads will be traveled on. A Wilderness Specialist or designee would be present to ensure that only inventoried ways or cherry stemmed roads are traveled on by vehicles within the WSA.

Capture sites and sorting/holding facilities will be constructed outside of weed infested areas to limit the spread of weedy species.

Appendix B: Standard Operating Procedures for Wild Horse and Horse Gathers

Gathers are conducted by utilizing contractors from the Wild Horse Gathers-Western States Contract, or BLM personnel. The following procedures for gathering and handling wild horses would apply whether a contractor or BLM personnel conduct a gather. For helicopter gathers conducted by BLM personnel, gather operations will be conducted in conformance with the *Wild Horse Aviation Management Handbook* H-4740-1 (January 2009).

Prior to any gathering operation, the BLM will provide for a pre-capture evaluation of existing conditions in the gather area(s). The evaluation will include animal conditions, prevailing temperatures, snow depth, drought conditions, soil conditions, road conditions, and a topographic map with wilderness boundaries, the location of fences, other physical barriers, and acceptable capture locations in relation to animal distribution. The evaluation will determine whether the proposed activities will necessitate the presence of a licensed DVM during operations. If it is determined that a large number of animals may need to be euthanized or capture operations could be facilitated by a DVM, these services would be arranged before the capture would proceed. The contractor will be apprised of all conditions and will be given instructions regarding the capture and handling of animals to ensure their health and welfare is protected. Capture sites and temporary sorting/holding facilities will be located to reduce the likelihood of injury and stress to the animals, and to minimize potential damage to the natural resources of the area. Wherever possible, capture sites would be located on or near existing roads to limit ground disturbance.

All capture sites and sorting/holding facility locations must be approved by the Authorized Officer prior to construction. All capture sites and sorting/holding facilities not located on public land must have prior written approval of the landowner.

Capture sites would be located to cause as little injury and stress to the animals, and as little damage to the natural resources of the area, as possible. Sites would be located on or near existing roads. Additional capture sites may be required, as determined by the Authorized Officer, to relieve stress to the animals caused by specific conditions at the time of the gather (i.e. dust, rocky terrain, temperatures, etc.).

The primary capture methods used in the performance of gather operations include:
1. Helicopter Assisted Gathering. This capture method involves utilizing a helicopter to direct wild horses into a temporary corral.
2. Helicopter Assisted Roping. This capture method involves utilizing a helicopter to herd wild horses or burros to ropers on horseback.
3. Bait Trapping. This capture method involves utilizing bait (food/mineral) to lure wild horses into a temporary corral.

A. Capture Methods used in the Performance of Gather Contract Operations

1. The primary concern of the contractor is the safe and humane handling of all animals captured. All capture attempts shall incorporate the following:

All capture sites and sorting/holding facilities locations must be approved by the Contracting Officer's Representative (COR) and/or the Project Inspector (PI) prior to construction. The Contractor may also be required to change or move trap locations as determined by the COR/PI. All traps and sorting/holding facilities not located on public land must have prior written approval of the landowner.

2. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who would consider terrain, physical barriers, weather, condition of the animals and other factors. Under normal circumstances this travel should not exceed 10 miles and may be much less dependent on existing conditions (i.e. ground conditions, animal health, extreme temperature (high and low)).

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

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

    b. All loading chute sides shall be a minimum of 6 feet high and shall be fully covered, plywood, metal without holes larger than 2”x4”.

    c. All runways shall be a minimum of 30 feet long and a minimum of 6 feet high for horses, and 5 feet high for burros, and shall be covered with plywood, burlap, plastic snow fence or like material a minimum of 1 foot to 5 feet above ground level for burros and 1 foot to 6 feet for horses. The location of the government furnished portable fly chute to restrain, age, or provide additional care for the animals shall be placed in the runway in a manner as instructed by or in concurrence with the COR/PI.

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

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

4. No modification of existing fences would be made without authorization from the COR/PI. The Contractor shall be responsible for restoration of any fence modification which he has made.

5. When dust conditions occur within or adjacent to the trap or sorting/holding facility, the

Contractor shall be required to wet down the ground with water.

6. Alternate pens, within the sorting/holding facility shall be furnished by the Contractor to separate mares or jennies with small foals, sick and injured animals, estrays or other animals the COR determines need to be housed in a separate pen from the other animals. Animals shall be sorted as to age, number, size, temperament, sex, and condition when in the sorting/holding facility so as to minimize, to the extent possible, injury due to fighting and trampling. Under normal conditions, the government would require that animals be restrained for the purpose of determining an animal's age, sex, or other necessary procedures. In these instances, a portable restraining chute may be necessary and would be provided by the government. Alternate pens shall be furnished by the Contractor to hold animals if the specific gathering requires that animals be released back into the capture area(s). In areas requiring one or more satellite traps, and where a centralized sorting/holding facility is utilized, the contractor may be required to provide additional sorting/holding facility to segregate animals transported from remote locations so they may be returned to their traditional ranges. Either segregation or temporary marking and later segregation would be at the discretion of the COR.

7. The Contractor shall provide animals held in the traps and/or sorting/holding facilities with a continuous supply of fresh clean water at a minimum rate of 10 gallons per animal per day. Animals held for 10 hours or more in the traps or sorting/holding facilities shall be provided good quality hay at the rate of not less than two pounds of hay per 100 pounds of estimated body weight per day. The contractor would supply certified weed free hay if required by State, County, and Federal regulation.

8. 8. It is the responsibility of the Contractor to provide security to prevent loss, injury or death of captured animals until delivery to final destination.

9. The Contractor shall restrain sick or injured animals if treatment is necessary. The COR/PI would determine if animals must be euthanized and provide for the destruction of such animals. The Contractor may be required to humanely euthanize animals in the field and to dispose of the carcasses as directed by the COR/PI.

10. Animals shall be transported to their final destination from temporary sorting/holding facilities as quickly as possible after capture unless prior approval is granted by the COR for unusual circumstances. Animals to be released back into the CHMA following gather operations may be held up to 21 days or as directed by the COR. Animals shall not be held in traps and/or temporary sorting/holding facilities on days when there is no work being conducted except as specified by the COR. The Contractor shall schedule shipments of animals to arrive at final destination between 7:00 a.m. and 4:00 p.m. No shipments shall be scheduled to arrive at final destination on Sunday and Federal holidays, unless prior approval has been obtained by the COR. Animals shall not be allowed to remain standing on trucks while not in transport for a combined period of greater than three (3) hours in any 24 hour period. Animals that are to be released back into the capture area may need to be transported back to the original trap site. This determination would be at the discretion of the COR/PI or Field Office horse specialist.

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

1. Capture attempts may be accomplished by utilizing bait (food/mineral) to lure animals into a temporary trap. If this capture method is selected, the following applies:

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

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

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

2. Capture attempts may be accomplished by utilizing a helicopter to drive animals into a temporary trap. If the contractor selects this method the following applies:

    a. A minimum of two saddle-horses shall be immediately available at the trap site to accomplish roping if necessary. Roping shall be done as determined by the COR/PI. Under no circumstances shall animals be tied down for more than one half hour.

    b. The contractor shall assure that foals shall not be left behind, and orphaned.

3. Capture attempts may be accomplished by utilizing a helicopter to drive animals to ropers. If the contractor, with the approval of the COR/PI, selects this method the following applies:

    a. Under no circumstances shall animals be tied down for more than one hour.

    b. The contractor shall assure that foals shall not be left behind, or orphaned.

    c. The rate of movement and distance the animals travel shall not exceed limitations set by the COR/PI who would consider terrain, physical barriers, weather, condition of the animals and other factors.

C. Use of Motorized Equipment

1. All motorized equipment employed in the transportation of captured animals shall be in compliance with appropriate State and Federal laws and regulations applicable to the humane transportation of animals. The Contractor shall provide the COR/PI with a current safety inspection (less than one year old) for all motorized equipment and tractor-trailers used to transport animals to final destination.

2. All motorized equipment, tractor-trailers, and stock trailers shall be in good repair, of adequate rated capacity, and operated so as to ensure that captured animals are transported without undue risk or injury. Equipment will need to be washed to remove invasive species seed.

3. Only tractor-trailers or stock trailers with a covered top shall be allowed for transporting animals from capture site site(s) to temporary sorting/holding facilities, and from temporary sorting/holding facilities to final destination(s). Sides or stock racks of all trailers used for transporting animals shall be a minimum height of 6 feet 6 inches from the floor. Single deck tractor-trailers 40 feet or longer shall have two (2) partition gates providing three (3) compartments within the trailer to separate animals. Tractor-trailers less than 40 feet shall have at least one partition gate providing two (2) compartments within the trailer to separate the animals. Compartments in all tractor-trailers shall be of equal size plus or minus 10 percent. Each partition shall be a minimum of 6 feet high and shall have a minimum 5 foot wide swinging gate. The use of double deck tractor-trailers is unacceptable and shall not be allowed.

4. All tractor-trailers used to transport animals to final destination(s) shall be equipped with at least one (1) door at the rear end of the trailer, which is capable of sliding either horizontally or vertically. The rear door(s) of tractor-trailers and stock trailers must be capable of opening the full width of the trailer. Panels facing the inside of all trailers must be free of sharp edges, protrusions or holes that could cause injury to the animals. The material facing the inside of all trailers must be strong enough so that the animals cannot push their hooves through the side. Final approval of tractor-trailers and stock trailers used to transport animals shall be held by the COR/PI.

5. Floors of tractor-trailers, stock trailers and loading chutes shall be covered and maintained with wood shavings to prevent the animals from slipping.

6. Animals to be loaded and transported in any trailer shall be as directed by the COR/PI and may include limitations on numbers according to age, size, sex, temperament and animal condition. The following minimum square feet per animal shall be allowed in all trailers:

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

7. The COR/PI shall consider the condition and size of the animals, weather conditions, distance to be transported, or other factors when planning for the movement of captured animals. The COR/PI shall provide for any brand and/or inspection services required for the captured animals.

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

D. Treatment of Injured or Sick; Disposition of Terminal Animals

The contractor would restrain sick or injured animals if treatment is necessary. A veterinarian may be called to make a diagnosis and final determination. Destruction would be done by the most humane method available. Authority for humane destruction of wild horses is provided by the Wild Free-Roaming Horse and Burro Act of 1971, Section 3(b)(2)(A), 43 CFR 4730.1, BLM

Manual 4730 - Destruction of Wild Horses and Burros and Disposal of Remains, and is in accordance with BLM policy as expressed in Instructional Memorandum No. 98-141.

The Authorized Officer would determine if injured animals must be destroyed and provide for destruction of such animals. The contractor may be required to dispose of the carcasses as directed by the Authorized Officer.

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

The carcasses of the animals that must be destroyed as a result of age, injury, lameness, or noncontagious disease or illness would be disposed of by removing them from the capture site or sorting/holding corral and placing them in an inconspicuous location to minimize visual impacts. Carcasses would not be placed in drainages regardless of drainage size or downstream destination.

E. Safety and Communications

1. The Contractor shall have the means to communicate with the COR/PI and all contractor personnel engaged in the capture of wild horses utilizing a VHF/FM Transceiver or VHF/FM portable Two-Way radio. If communications are ineffective the government will take steps necessary to protect the welfare of the animals.

a. The proper operation, service and maintenance of all contractor-furnished property is the responsibility of the Contractor. The BLM reserves the right to remove from service any contractor personnel or contractor-furnished equipment which, in the opinion of the contracting officer or COR/PI violate contract rules, are unsafe or otherwise unsatisfactory. In this event, the Contractor will be notified in writing to furnish replacement personnel or equipment within 48 hours of notification. All such replacements must be approved in advance of operation by the Contracting Officer or his/her representative.

b. The Contractor shall obtain the necessary FCC licenses for the radio system

c. All accidents occurring during the performance of any task order shall be immediately reported to the COR/PI.

2. Should the contractor choose to utilize a helicopter the following will apply:

a. The Contractor must operate in compliance with Federal Aviation Regulations, Part 91. Pilots provided by the Contractor shall comply with the Contractor's Federal Aviation Certificates, applicable regulations of the State in which the gather is located.

b. Fueling operations shall not take place within 1,000 feet of animals.

F. Site Clearances

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

No personnel working at gather sites may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage or otherwise alter or deface any archaeological resource located on public lands.

New capture sites and temporary holding/sorting facilities would be constructed outside RHCA or weed infested areas.

G. Public Participation

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

H. Responsibility and Lines of Communication

Incident Command

Chris Robbins—Idaho Wild Horse and Burro State Lead

Contracting Officer's Representative

Kevin Lloyd—Challis Field Office Wild Horse and Burro Specialist

Alternate Contracting Officer's Representative

Scott Fleur—Lander (WY) Field Office Wild Horse and Burro Specialist

Project Inspector

Kent Benson– Burley Field Office BLM Range Technician

The Contracting Officer‘s Representatives (CORs) and the project inspectors (PIs) have the direct responsibility to ensure the Contractor‘s compliance with the contract stipulations. Kevin Lloyd, Challis Field Office WH&B Specialist would serve as the primary COR. Todd Kuck, CFO Field Manager, other CFO employees, Idaho Falls District employees and members of the Idaho Wild Horse Team will take an active role to ensure the appropriate lines of communication are established between the field, Field Office, State Office, National Program Office, and BLM

Sorting/holding Facility offices. All employees involved in the gather operations will keep the best interests of the animals at the forefront at all times.

All publicity, formal public contact and inquiries will be handled through the Idaho State Office and the Idaho Wild Horse Team Public Affairs Officer. These individuals will be the primary contact and will coordinate with the COR on any inquiries.

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

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

Should the Contractor show negligence and/or not perform according to contract stipulations, he would be issued written instructions, stop work orders, or defaulted by the COR.

I. Additional requirements for personnel conducting gather operations also include:

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

Appendix C Standard Operating Procedures for Population-level Fertility Control Treatments

One-year liquid vaccine: The following implementation and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered through darting by trained BLM personnel or collaborating research partners only. For any darting operation, the designated personnel must have successfully completed a nationally recognized wildlife darting course and who have documented and successful experience darting wildlife under field conditions.
2. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund's Modified Adjuvant (FMA) and loaded into darts at the time a decision has been made to dart a specific mare. Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund's Incomplete Adjuvant (FIA).
3. The liquid dose of PZP vaccine is administered using 1.0 cc Pneu-Darts with 1.5" barbless needles fired from either Dan Inject® or Pneu-Dart® capture gun.
4. Only designated darters would mix the vaccine/adjuvant and prepare the emulsion. Vaccine-adjuvant emulsion would be loaded into darts at the darting site and delivered by means of a capture gun.
5. Delivery of the vaccine would be by intramuscular injection into the left or right hip/gluteal muscles while the mare is standing still.
6. Safety for both humans and the horse is the foremost consideration in deciding to dart a mare. The Dan Inject® gun would not be used at ranges in excess of 30 m while the Pneu-Dart® capture gun would not be used over 50 m, and no attempt would be taken when other persons are within a 30-m radius of the target animal.
7. No attempts would be taken in high wind or when the horse is standing at an angle where the dart could miss the hip/gluteal region and hit the rib cage. The ideal is when the dart would strike the skin of the horse at a perfect 90° angle.
8. If a loaded dart is not used within two hours of the time of loading, the contents would be transferred to a new dart before attempting another horse. If the dart is not used before the end of the day, it would be stored under refrigeration and the contents transferred to another dart the next day. Refrigerated darts would not be used in the field.
9. No more than two people should be present at the time of a darting. The second person is responsible for locating fired darts. The second person should also be responsible for identifying the horse and keeping onlookers at a safe distance.
10. To the extent possible, all darting would be carried out in a discrete manner. However, if darting is to be done within view of non-participants or members of the public, an explanation of the nature of the project would be carried out either immediately before or after the darting.
11. Attempts would be made to recover all darts. To the extent possible, all darts which are discharged and drop from the horse at the darting site would be recovered before another darting occurs. In exceptional situations, the site of a lost dart may be noted and marked, and recovery efforts made at a later time. All discharged darts would be examined after recovery in order to determine if the charge fired and the plunger fully expelled the vaccine.

22-month time-release pelleted vaccine:
The following implementation and monitoring requirements are part of the Proposed Action:

1. PZP vaccine would be administered only by trained BLM personnel or collaborating research partners.
2. Mares that have never been treated would receive 0.5 cc of PZP vaccine emulsified with 0.5 cc of Freund‘s Modified Adjuvant (FMA). Mares identified for re-treatment receive 0.5 cc of the PZP vaccine emulsified with 0.5 cc of Freund‘s Incomplete Adjuvant (FIA).
3. The fertility control drug is administered with two separate injections: (1) a liquid dose of PZP is administered using an 18-gauge needle primarily by hand injection; (2) the pellets are preloaded into a 14-gauge needle. These are delivered using a modified syringe and jabstick to inject the pellets into the gluteal muscles of the mares being returned to the range. The pellets are designed to release PZP over time similar to a time-release cold capsule.
4. Delivery of the vaccine would be by intramuscular injection into the gluteal muscles while the mare is restrained in a working chute. The primer would consist of 0.5 cc of liquid PZP emulsified with 0.5 cc of Freunds Modified Adjuvant (FMA). The pellets would be loaded into the jabstick for the second injection. With each injection, the liquid or pellets would be injected into the left hind quarters of the mare, above the imaginary line that connects the point of the hip (hook bone) and the point of the buttocks (pin bone).
5. In the future, the vaccine may be administered remotely using an approved long range darting protocol and delivery system if or when that technology is developed.
6. All treated mares will be freeze-marked on the hip or neck CHMA to positively identify the treated animals during the research project and during subsequent gathers. Within the Challis CHMA, treated mares are freeze branded with an AA on their left (right?) hip.

Monitoring and Tracking of Treatments:
1. At a minimum, estimation of population growth rates using helicopter or fixed-wing surveys will be conducted before any subsequent gather. During these surveys it is not necessary to identify which foals were born to which mares; only an estimate of population growth is needed (i.e. # of foals to # of adults).
2. Population growth rates of herds (CHMA is not selected for intensive monitoring) selected for intensive monitoring will be estimated every year post-treatment using helicopter or fixed-wing surveys. During these surveys it is not necessary to identify which foals were born to which mares, only an estimate of population growth is needed (i.e. # of foals to # of adults). If, during routine CHMA field monitoring (on-the-ground), data describing mare to foal ratios can be collected, these data should also be shared with the NPO for possible analysis by the USGS.
3. A PZP Application Data sheet will be used by field applicators to record all pertinent data relating to identification of the mare (including photographs if mares are not freeze-marked) and date of treatment. Each applicator will submit a PZP Application Report and accompanying narrative and data sheets will be forwarded to the NPO (Reno, Nevada). A copy of the form and data sheets and any photos taken will be maintained at the field office.
4. A tracking system will be maintained by NPO detailing the quantity of PZP issued, the quantity used, disposition of any unused PZP, the number of treated mares by HMA, field office, and State along with the freeze-mark(s) applied by HMA and date.

Appendix D: WinEquus Population Modeling Summary

Summary of Genetic Viability and Population Modeling in Wild Horse Herds

Genetic Viability
The concept of Minimum Viable Populations (MVP), or the minimum number of breeding individuals required for a population to survive over a period of time has been a central issue to conservation biology for years. The BLM is now taking MVP into consideration in the management of its wild horse herds in response to the challenge of balancing wild horse impacts on their ecosystem with a herd size large enough to constitute a viable population size. A wild horse population managed at numbers low enough to prevent ecological damage may pose problems to the long-term health and genetic diversity of a herd.

Genetic diversity, within wild horse and burro populations, refers to the entire complement of genetic material representative of all individuals (or a sample of individuals) from within the population. Some populations may possess genetic uniformity to a certain "type" or breed of horse, but management interests are specific to maintaining a maximum diversity of genetic material which appears representative of each herd. Promotion of diversity will minimize the effects of genetic drift, or the random loss of genetic material due to mating processes, and maximize genetic health of the herds.

The genetic effective population size (Ne) is a measure of the total number of mares and stallions which contribute genetically, through successful breeding, to the next generation. Although no standard goal for Ne currently exists for wild horse and burro herds, a goal of Ne=50, which comes from domestic breeding guidelines, can be conservatively applied**.** Populations, where Ne is calculated to be less than 50, may experience higher rates of loss of genetic diversity than would be considered acceptable under recommended management goals.

Viable management Alternatives for conserving genetic diversity within managed wild horse herds may take several forms. Some options to be considered might include: altering population age structure (through removals) to promote higher numbers of reproductively-successful animals; altering breeding sex ratios (through removals) to encourage more breeding males; increasing generation intervals (and reducing the rate of loss of genetic material) by removing (or sterilizing) younger versus older mares; and/or introducing breeding animals periodically from other genetically similar herds to help in conservation efforts. In this last scenario, only one or two breeding animals per generation (~10 years) would need to be introduced in order to maintain the genetic resources in small populations of less than 100 animals.

Population Modeling
The **Wild Horse Population Model** (*WinEquus version 1.40*) developed by Dr. Steve Jenkins was used to estimate the population growth and size of herds five years after the gather. There are three data sets from three Herd Management Areas (Garfield, Granites, and Pryor Mountain) built into and available for use in the Jenkins Model. An infinite number of data sets from other sources can also be entered into the model for local herds. Most population projections are based on the Garfield data. These data are the best available for many areas and are based on substantial field work and research. The model's projections using the Garfield data are very

close to what actually occurs in the herds. BLM has not conducted an independent analysis to compare the model's projections with observed growth rates. The Jenkins Model is a tool that BLM uses compare the relative effects of one proposed management action to other alternative management actions including removals and fertility control. Dean Bolstad stated "*We recognize that some of the data in the model may not be exact for any given herd management area, but the model has been useful to approximate the effects of management actions and to compare alternatives*". (Bolstad personal communication 2009)

The wild horse population data used in the statistical analysis modeling was extrapolated from the 2009 gather/removal and population inventory, including numbers, age and sex structure of the remaining horses in the CHMA as well as the ones released back into CHMA.

Sex ratio at Birth: 43% Females 57% Males

The following percent effectiveness of fertility control was utilized in the population modeling for Alternative I:

Year 1: 94%, Year 2: 82%, Year 3: 68%

The environmental and demographic model option was selected as a means to project population growth while weighing both environmental and demographic variables during 'good' and 'bad' years. Results of the Jenkins population model are not considered a 'prediction' of what will happen to the herds in the future. Results of the model are being used as an aid to evaluate the management practices that are identified in this document and to project population growth.
The modeling analysis made the following assumptions for all Alternatives:
1. The current age selection policy would continue through the lifetime of the modeling analysis.
2. Gathers would be completed every four years with the herds lowered to AML.
3. The herd would rise to at least the threshold limit prior to a gather.
4. Foals are included in the herd appropriate management level.
5. 85% of the herd can be located during gather operations; 15% are not found.
6. All simulations used the survival and foaling rates supplied with the WinEquus population model for the Garfield Flat HMA.
7. Simulations were run for ten years with 100 trials each.
Assumptions: Population Modeling Criteria/Management Options by Alternative, Proposed Alternative, Fertility Control
Gather interval: regular interval of four years
Gathers for fertility treatment only occur if population exceeds threshold.
Gathers continue after removals to treat additional females to be released.
Percent effectiveness of fertility control: Year 1: 94%, Year 2: 84%, Year 3: 62% (November window).
Percentages of released mares treated: 5-20+: 100%.
100% of 0-4 year olds removed.

The modeling trials are based on Alternatives1, 2 and 5. Alternatives 3 and 4 are too specific for WinEquus to model. It may be expected that were trials conducted the numbers for Alternative 3 numbers would range lower than Alternative 1 and Alternative 4 numbers would range higher than Alternative 1.

Alternative 1-Proposed Action
Remove Wild Horses using selective removal criteria, administer Fertility Control on mares returning to the CHMA and maintaining the 60:40 sex ratio of males to females

Alternative 2-Removal only following the selective removal criteria without the fertility control or skewing the sex ratio

Alternative 3-Removal with fertility control with geldings being released as a non-reproducing component of the wild horse herd

Alternative 4- Removal with fertility control but no sex ratio adjustment

Alternative 5- No Action
Modeling under this alternative shows no management of wild horses where they are allowed to reproduce uncontrolled until natural parameters begin to take effect.

Objectives of Population Modeling
Review of the data output for each of the simulations completed with the population model provided many useful comparisons of the possible outcomes for each Alternative. The creator of the modeling program, Stephen Jenkins stresses that it is important to think about the range of possible outcomes, not just focus on one average or typical trial. Some of the questions that needed to be answered through the modeling include the following:
• Do any of the Alternatives "crash" the population?
• What effect does fertility control have on population growth rate?
• What effects do the different Alternatives have on the average population size?

Population size in ten years
Out of the 100 trials in each simulation run, the model tabulated minimum, average and maximum population sizes. The model was run for a period of ten years from 2009 to 2018, and gives output through 2019 (which is actually eleven years). These numbers are useful to make relative comparisons of the different Alternatives, and potential outcomes under different management options. The data displayed within the Table 26 is broken down into different levels. The 10th percentile, 90th percentile and the average are all shown on the Table 26. This output, together with the summary graph of population sizes, is probably the most important representation of the results of the program in terms of assessing the effects of the management plan because it shows not only expected average results but also extreme results that might be possible. The data is for all horses from 0 to 20 years of age.

None of the results obtained for any of the Alternatives indicate that a crash of the population would occur if the Alternative were implemented.

Table 26. Population Size Graph

Modeling Statistics CHMA	Alternative 1 Proposed Action	Alternative 2 Removal Without Additional Population Controls	No Action Alternative 5
Population in Year One	185	185	322
Median Growth Rate	14.5	17.4	16.9
Average Population	204	234	292
10th Percentile	178	212	229
90th Percentile	230	257	362

Alternative 1—Proposed Action
The Proposed Action Alternative includes the gather and removal of horses as well as implementing fertility control and skewing the sex ratios 60:40 in favor of males.

Figure 3. Management Efforts of Gathering Approximately Every Three Years

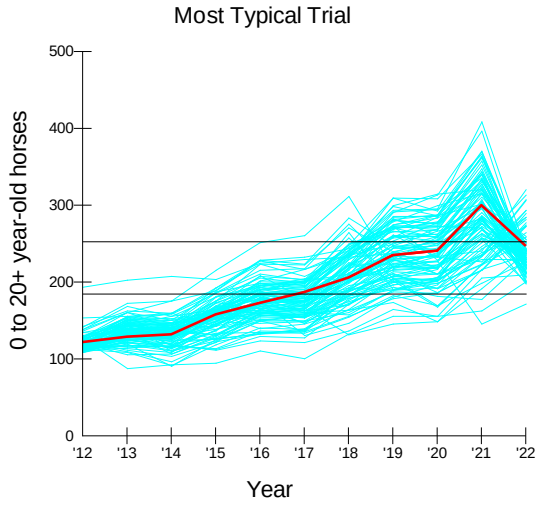


Figure 3 above shows management efforts including gatherings approximately every three years.

Figure 4. Maximum, Average, and Minimum Growth Rates of the Proposed Action

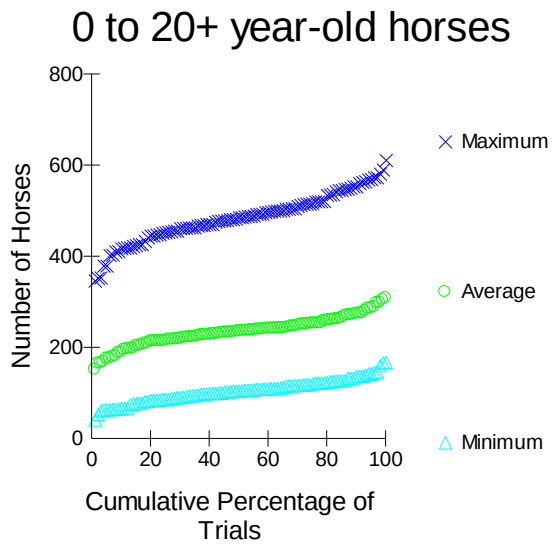


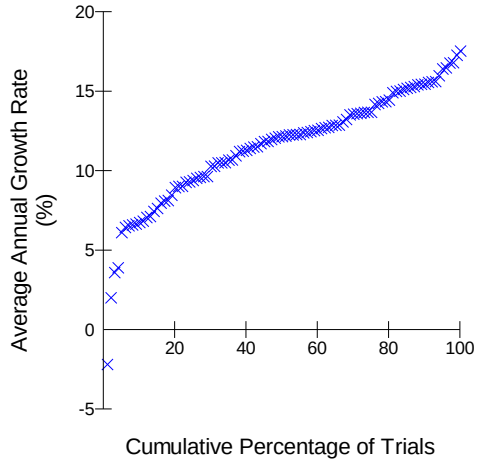
Figure 4 above shows the maximum, average, and minimum growth rate with the proposed action management tools.

Population Sizes in 11 Years*			
	Minimum	Average	Maximum
Lowest Trial	88	137	201
10th Percentile	110	166	256
25th Percentile	111	178	274
Median Tria	117	192	296
75th Percentile	124	206	322
90th Percentile	130	218	350
Highest Trial	194	227	409

* 0 to 20+ year-old horses

In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 88 and the highest was 409. In half the trials, the minimum population size in 11 years was less than 117 and the maximum was less than 296. The average population size across 11 years ranged from 137 to 227.

Figure 5. Cumulative Percentage of Trials with Average Annual Growth Rate of Proposed Action



Average Growth Rate in 10 Years	
Lowest Trial	2.2
10th Percentile	6.8
25th Percentile	9.5
Median Trial	12.2
75th Percentile	14.0
90th Percentile	15.5
Highest Trial	17.6

Alternative 2—Removal Only

Figure 6. Alternative 2 Trial

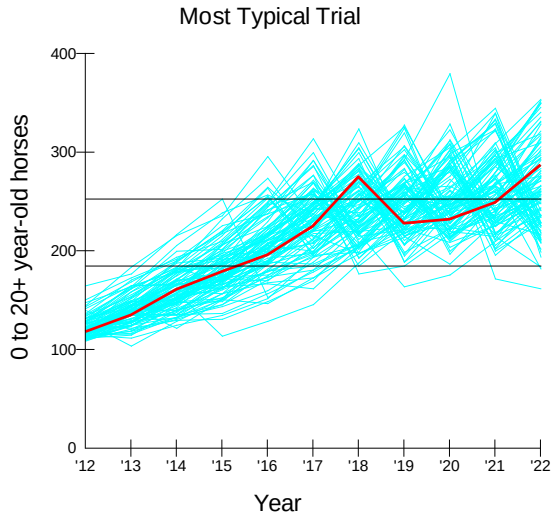
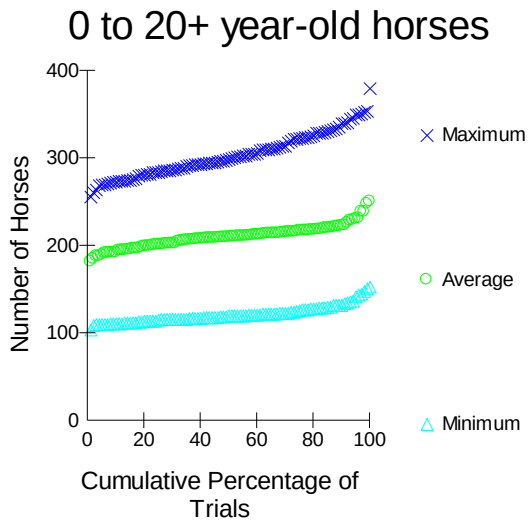


Figure 7. Cumulative Percentage of Trials with Average Annual Growth Rate of Alternative 2



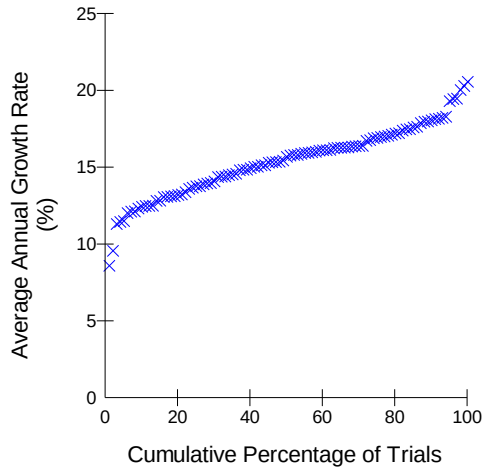
Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	104	182	256
10th Percentile	111	194	274
25th Percentile	116	201	284
Median Trial	120	210	300
75th Percentile	126	217	323
90th Percentile	133	223	340
Highest Trial	153	251	380

* 0 to 20+ year-old horses

In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 104 and the highest was 380. In half the trials, the minimum population size in 11 years was less than 120 and the maximum was less than 300. The average population size across 11 years ranged from 182 to 251.

Figure 8. Cumulative Percentage of Trials with Average Annual Growth Rate



Average Growth Rate in 10 Years	
Lowest Trial	8.6
10th Percentile	12.5
25th Percentile	13.8
Median Trial	15.8
75th Percentile	17.0
90th Percentile	18.1
Highest Trial	20.6

Alternative 5--No Action

No Management is the No Action Alternative where no management of the CHMA would occur to alter the population.

Sex ratio at birth: 57% males
Scaling factors for annual variation: survival probabilities = 1.00, foaling rates = 1.00
Correlation between annual variation in survival probabilities and foaling rates = 0.00
Management by removals and fertility control
Starting year is 2012
Gathering occurs at minimum interval of 3 years
Initial gather year is 0
Gathers for fertility treatment occur regardless of population size.
Gathers do not continue after removals to treat additional females.
Threshold population size for gathers is 0.
Target population size following removals is 0.
Foals are included in AML.
Percent of population that can be gathered = 80%.
Percent effectiveness of fertility control: year 1 is 90%, year 2 is 0%, year 3 is 0%, year 4 is 0%, year 5 is 0%.

Figure 9. Cumulative Percentage of Trials with Average Annual Growth Rate of Alternative 5.

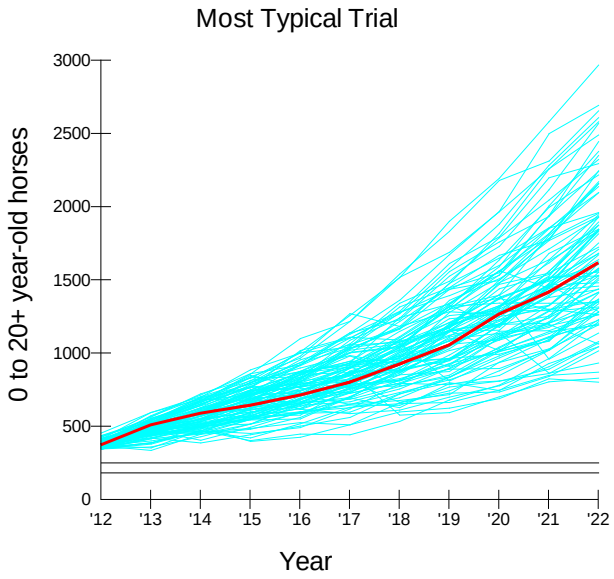
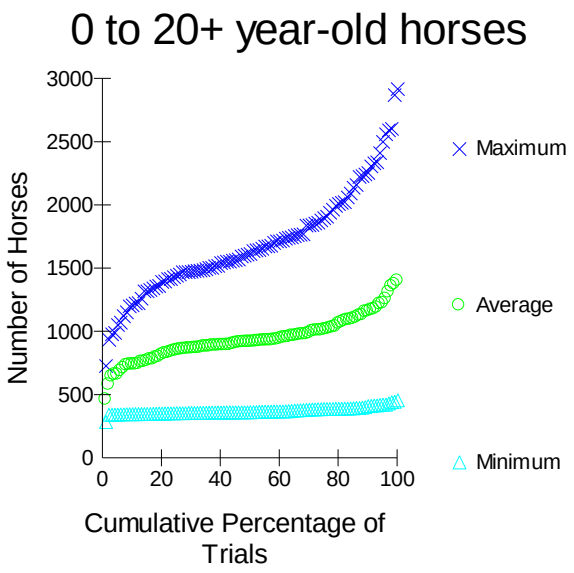


Figure 10. No Management-Typical Trial



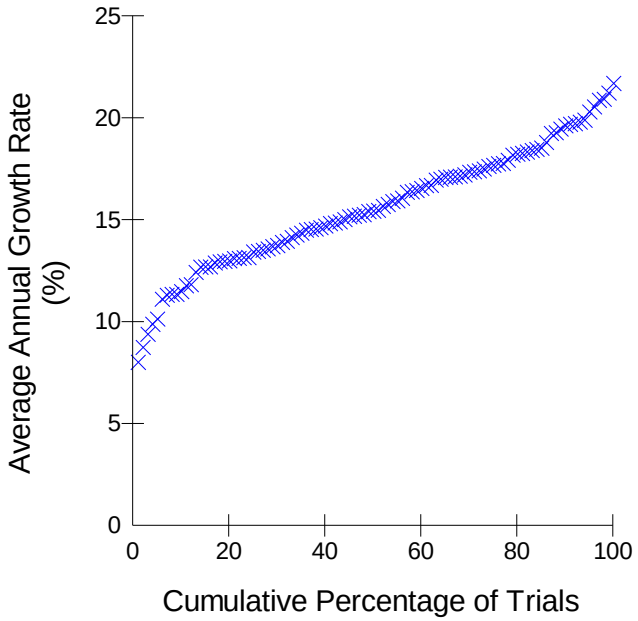
Population Sizes in 11 Years*

	Minimum	Average	Maximum
Lowest Trial	288	463	732
10th Percentile	350	742	1220
25th Percentile	358	856	1451
Median Trial	366	921	1630
75th Percentile	391	1018	1908
90th Percentile	414	1167	2285
Highest Trial	460	1404	2922

* 0 to 20+ year-old horses

In 11 years and 100 trials, the lowest number of 0 to 20+ year-old horses ever obtained was 288 and the highest was 2922. In half the trials, the minimum population size in 11 years was less than 366 and the maximum was less than 1630. The average population size across 11 years ranged from 463 to 1404.

Figure 11. No Management-Population Graph



Average Growth Rate in 10 Years	
Lowest Trial	8.0
10th Percentile	11.7
25th Percentile	13.5
Median Trial	15.5
75th Percentile	17.7
90th Percentile	19.7
Highest Trial	21.7

Average Growth Rates in 10 years

Growth rates were obtained from running the model for 100 trials for four years under management options for each Alternative. As expected, the Alternative implementing fertility control reflects the lowest overall growth rate. The type of gather (gatecut vs. selective removal) seems to have minimal impacts to the growth rates as there are little differences between Alternatives I and 2. The range of growth rates are reasonable and do not indicate that any of the Alternatives would result in growth rates that are so low as to put the population at risk.

Growth Rate Graph

The growth rate graph shows the distribution of average growth rate across all trials in graphical format. Each point on the graph represents one of the 100 trials run for each simulation. The direct effects of removals are not counted in computing annual growth rates, although a selective removal may change the average foaling rate or survival rate of individuals in the population and may indirectly affect the growth rate. Fertility control was reflected in a reduction of population growth rate compared to the observed rate from previous censuses.
The following graphs illustrate the results obtained from the model for growth rates for each Alternative.

Proposed Alternative I
Population Modeling Summary
To summarize the results obtained by simulating the range of Alternatives for the CHMA wild horse gather, the original questions can be addressed.
• Do any of the Alternatives "crash" the population?

None of the Alternatives indicate that a crash is likely to occur to the population under any of the Alternatives. Minimum population levels and growth rates are all within reasonable levels, and adverse impacts to the population are not likely.
• What effect does fertility control have on population growth rate?

As expected, the Alternative implementing fertility control reflects the lowest overall growth rate of 14.5%.
• What effect do the different Alternatives have on the average population size?

The growth rate does not vary between the different alternatives that do not include fertility control. Growth is similar between Alternative I and Alternative II. Populations of wild horses have the capacity to increase at rates as high as 30% per year. Research has shown that unmanaged populations of wild horses and might eventually stabilize (due to density-dependent regulatory mechanisms) at very high numbers, near what is known as their food-limited ecological carrying capacity. At these levels, however, the herds would show obvious signs of ill-fitness including poor individual animal condition, low birth rates, and high mortality rates in all age classes due to disease and/or increased vulnerability to predation. In addition, supporting range conditions would be noticeably deteriorated, with much of the available habitat showing symptoms of irreparable over-grazing. The CHMA is currently managed to allow the herd to be healthy with strong foal production and survival rates. The model analysis indicates that with fertility control and removals, production rates would decline and the herds could be managed at a four year gather cycle.

Appendix E: Protocol and Ground Rules Daily Visitation Protocol and Ground Rules for the Challis Wild Horse Gather

BLM recognizes and respects the right of interested members of the public and the press to observe the Challis wild horse gather. At the same time, BLM must ensure the health and safety of the public, BLM's employees and contractors, and America's wild horses. Accordingly, BLM developed these rules to maximize the opportunity for reasonable public access to the gather while ensuring that BLM's health and safety responsibilities are fulfilled. Failure to maintain safe distances from operations at the gather and temporary sorting/holding sites could result in members of the public inadvertently getting in the path of the wild horses or gather personnel, thereby placing themselves and others at risk, or causing stress and potential injury to the wild horses.

General Daily Protocol

A Wild Horse Gather Information Phone Line will be set up prior to the gather so the public can call for daily updates on gather information and statistics. Visitors are strongly encouraged to check the phone line the evening before they plan to attend the gather to confirm the gather and their tour of it is indeed taking place the next day as scheduled (weather, mechanical issues or other things may affect this) and to confirm the meeting location.

Visitors must direct their questions/comments to either their designated BLM representative or the BLM spokesperson on site, and not engage other BLM/contractor staff and disrupt their gather duties/responsibilities - professional and respectful behavior is expected of all. BLM may make the BLM staff available during down times for a Q&A session on guided pubic-observation days. However, the contractor and its staff will not be available to answer questions or interact with visitors.

Observers are prohibited from riding in government and contractor vehicles and equipment.

Observers must provide their own 4-wheel drive high clearance vehicle, appropriate shoes, winter clothing, food and water.

Gather operations may be suspended if bad weather conditions create unsafe flying conditions.

BLM will establish one or more observation areas, in the immediate area of the gather and sorting/holding sites, to which individuals will be directed. These areas will be placed so as to maximize the opportunity for public observation while providing for a safe and effective horse gather. The utilization of such observation areas is necessary due to the use and presence of heavy equipment
and aircraft in the gather operation and the critical need to allow BLM personnel and contractors to fully focus on attending to the needs of the wild horses while maintaining a safe environment for all involved. In addition, observation areas will be located so as to protect the wild horses from being spooked, startled or impacted in a manner that results in increased stress.

BLM will delineate observation areas with yellow caution tape (or a similar type of tape or ribbon).

Visitors will be assigned to a specific BLM representative on guided-observation days and must stay with that person at all times.

Visitors are **NOT** permitted to walk around the gather site or temporary sorting/holding facility unaccompanied by their BLM representative.

Observers are prohibited from climbing/trespassing onto or in the trucks, equipment or corrals, which is the private property of the contractor.

When BLM is using a helicopter or other heavy equipment in close proximity to a designated observation area, members of the public may be asked to stay by their vehicle for some time before being directed to an observation area once the use of the helicopter or the heavy machinery is complete.

When given the signal that the helicopter is close to the gather site bringing horses in, visitors must sit down in areas specified by BLM representatives and must not move or talk as the horses are guided into the corral.

Individuals attempting to move outside a designated observation area will be requested to move back to the designated area or to leave the site. Failure to do so may result in citation or arrest. It is important to stay within the designated observation area to safely observe the wild horse gather.

Observers will be polite, professional and respectful to BLM managers and staff and the contractor/employees. Visitors who do not cooperate and follow the rules will be escorted off the gather site by BLM law enforcement personnel, and will be prohibited from participating in any subsequent observation days.

BLM reserves the right to alter these rules based on changes in circumstances that may pose a risk to health, public safety or the safety of wild horses (such as weather, lightening, wildfire, etc.).

Public Observation
Guided public observation will provide for interested members of the public to see the wild horse gather activities at a given site. On this day, BLM attempts to allow the public to get an overall sense of the gather process and has available staff who can answer questions that the public may have. The public may rendezvous at a designated place and may be escorted by BLM representatives to and from the gather site. If not escorted, maps and meeting locations/times will be provided.

The number of guided observation days, and which days they are, will be determined prior to the gather and will be announced through a press release and on the website. Interested observers should RSVP ahead through the BLM-Challis Field Office. A meeting place will be set for each observation day and the RSVP list notified. BLM representatives will escort observers on guided observation days to and from the gather site and temporary sorting/holding facility.

Appendix F: BLM Instruction Memorandum Number 2010-164

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT WASHINGTON, D.C. 20240 http://www.blm.gov
July 22, 2010
In Reply Refer To:
4710 (260) P

EMS TRNASMISSION 07/23/2010
Instruction Memorandum No. 2010-164
Expires: 09/30/2011

To: All Field Officials (except Alaska)
From: Assistant Director, Renewable Resources and Planning
Subject: Public Observation of Wild Horse and Burro Gathers

Program Area: Wild Horse and Burro Program

Purpose: The purpose of this Instruction Memorandum (IM) is to establish policy for public observation of wild horse and burro (WH&B) gathers.

Policy/Action: The Bureau of Land Management's (BLM's) policy is to accommodate public requests to observe a gather primarily through advance appointment, on days and at times scheduled by the authorized officer. Planning for one public observation day per week is suggested.

Specific viewing opportunities will be based on the availability of staff with the necessary expertise to safely and effectively host visitors, as well as other gather-specific considerations (e.g., weather, terrain, road access, landownership). The public should be advised that observation days are tentative and may change due to unforeseen circumstances (e.g., weather, wildfire, trap relocation, equipment repair, etc.). To ensure safety, the number of people allowed per observation day will be determined by the District Manager (DM) and/or Field Office Manager (FM) in consultation with the Contracting Officer's Representative/WH&B Specialist (COR) for the gather.

The DM/FM has the primary responsibility for effectively planning and managing public observation of the gather operation. Advance planning will:
· Ensure that the public have opportunities to safely observe wild horse gathers;
· Minimize the potential for disruption of the gather's execution;
· Maximize the safety of the animals, visitors, and the BLM and contractor personnel;
· Provide for successful management of visitors; and
· Ensure preparedness in the event of unanticipated situations.
The authorized officer will consider the following when planning for public observation of WH&B gather operations. Also see Attachment 1 (Best Practices When Planning for Public Observation at Gathers).

A. Safety Requirements
During WH&B gathers, the safety of the animals, the BLM and contractor personnel, and the public is of paramount importance. Because of the inherent risk involved in working with WH&B, the public will not be allowed inside corrals or pens or be in direct contact with the animals. Viewing opportunities during the gather operation must always be maintained at a safe distance (e.g., when animals are being herded into or worked at the trap or temporary sorting/holding facility, including sorting, loading) to assure the safety of the animals, the BLM and contractor personnel, and the public.

Unless an emergency situation exists, the BLM's policy prohibits the transportation of members of the public in Government or Contractor-owned or leased vehicles or equipment. Therefore, observers are responsible for providing their own transportation to and from the gather site and assume all liability for such transportation.

The helicopter/aircraft is the private property of the gather contractor. Due to liability and safety concerns, Bureau policy prohibits observers from riding in or mounting cameras onto the aircraft. Should observers create unsafe flying and gathering conditions, for example, by hiring an aircraft to film or view a gather, the COR, in consultation with the gather contractor, will immediately cease gather operations.

The COR has the authority to stop the gather operation when the public engage in behavior that has the potential to result in harm or injury to the animals, employees, or other members of the public.

B. Planning for Public Observation at WH&B Gathers
During advance planning for public observation at WH&B gathers, the authorized officer should consult with the State External Affairs Chief or appropriate Public Affairs office. An internal communications plan will be developed for every gather (Attachment 2). It may also be helpful to prepare answers to frequently asked questions (Attachment 3).

C. Law Enforcement Plan
A separate Law Enforcement Plan should be developed if the need for law enforcement support is anticipated. The Law Enforcement Plan must be approved in advance by the Special Agent-In-Charge (SAC) or the State Staff Ranger of the State in which the gather is occurring.

D. Temporary Closure to Public Access
Under the authority of section 303(a) of the Federal Land Management and Policy Act (43 U.S.C. 1733(a)), 43 CFR 8360.0-7, and 43 CFR 8364.1, the authorized officer may temporarily close public lands within all or a portion of the proposed gather area to public access when necessary to protect the health and safety of the animals, the public, contractors and employees. Completion of a site-specific environmental analysis of the environmental impacts associated with the proposed closure and publication of a Federal Register Notice is required.

E. Gather Contract Pre-Work Conference
· Talk to the contractor about how many members of the public are expected and when. Discuss, and reach mutual agreement, about where best to position the public at the individual trap-sites to

allow the gather to be observed, while accomplishing the gather objectives and assuring the humane treatment of the animals and the safety of the BLM and contractor personnel, and public.
· No deviation from the selected viewing location(s) should be made, unless the gather operation is being adversely impacted. The COR will consult with the gather contractor prior to making any changes in the selected viewing locations.
· The BLM's policy prohibits it from ferrying observers in the helicopter or any other mode of conveyance unless an emergency situation exists. Review this policy with the contractor during the pre-work conference.

F. Radio Communication
· Assure there is effective radio communication between law enforcement personnel, gather COR or project inspectors (PIs), and other BLM staff.
· Identify the radio frequencies to be used.
· Communication with the gather contractor is through the BLM COR or PI, and from the gather contractor to the helicopter pilot. Direct communication between BLM personnel (other than the COR) and the helicopter pilot is not permitted, unless agreed upon by the BLM authorized officer and the contractor in advance, or the pilot is requesting information from the COR.

G. Pre- and Post-Action Gather Briefings
· Pre-briefings conducted by knowledgeable and experienced BLM staff can be helpful to the public.
· The pre-gather briefing is an opportunity to explain what individuals will see, why the BLM is conducting the gather, how the animals will be handled, etc.
· Post-action briefings may also be helpful in interpreting and explaining what individuals saw, what happened, why certain actions were taken, etc.

H. Summary of Individual Roles and Responsibilities
1. District and/or Field Office Managers
DMs and/or FMs are responsible for keeping the State Director and State WH&B Lead fully informed about the gather operation. Included is working with State/local public affairs staff to prepare early alerts if needed. An additional responsibility is determining if a law enforcement presence is needed.
2. Public Affairs Staff
The local district/field office public affairs staff is responsible for working with the COR, DM/FM, other appropriate staff, the State WH&B Program Lead, and the State Office of Communications to implement the communications strategy regarding the gather.
3. Law Enforcement
Develop and execute the law enforcement plan in consultation with District/Field Office Managers, the COR/PI, and the State's Special Agent-In-Charge or State Staff Ranger.
4. Contracting Officer's Representative (COR)/Project Inspectors (PIs)
The COR and the PI's primary responsibility is to administer the contract and manage the gather. A key element of this responsibility is to assure the safe and humane handling of WH&B. The COR is also responsible for working closely with the DM/FM and Public Affairs Staff to develop the communication plan, and for maintaining a line of communication with State, District, and Field Office managers, staff and specialists on the progress of, and any issues related to, the gather operation.

Timeframe: This instruction memorandum is effective immediately.

Budget Impact: Higher labor costs will be incurred while accommodating increased interest from the public to attend gather events. The budget impacts of unanticipated situations which can occur during WH&B gathers include substantial unplanned overtime and per diem expense. Through advance planning, necessary support staff can be identified (e.g., law enforcement, public affairs, or other BLM staff) and the cost-effectiveness of various options for providing staff support can be evaluated. In situations where public interest in a gather operation is greater than anticipated, the affected state should coordinate with the national program office and headquarters for assistance with personnel and funding.

Background: Heightened interest from the public to observe WH&B gathers has occurred. Advance planning for public observation of gather operations can minimize the potential for unanticipated situations to occur during WH&B gathers and assure the safety of the animals, the BLM and contractor personnel, and the public.

Manual/Handbook Sections Affected: No change or affect to the BLM manuals or handbooks is required.

Coordination: This IM was coordinated among WO-200 and WO-260 staff, State WH&B Program Leads, field WH&B Specialists, public affairs, and law enforcement staff in the field.

Contact: Questions concerning this policy should be directed to Susie Stokke in the Washington Office at (202) 912-7262 or Lili Thomas in the National Program Office at (775) 861-6457.

Signed by:
Bud C. Cribley
Acting, Assistant Director Division of IRM
Governance, WO-560
Renewable Resources and Planning

Authenticated by:
Robert M. Williams

Appendix G: Federal Aviation Administration

General Operating and Flight Rules Sec. 91.119

Part 91 GENERAL OPERATING AND FLIGHT RULES
Subpart B--Flight Rules General
Sec. 91.119
Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:
(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) Helicopters, powered parachutes, and weight-shift-control aircraft. If the operation is conducted without hazard to persons or property on the surface—

(1) A helicopter may be operated at less than the minimums prescribed in paragraph (b) or (c) of this section, provided each person operating the helicopter complies with any routes or altitudes specifically prescribed for helicopters by the FAA; and

(2) A powered parachute or weight-shift-control aircraft may be operated at less than the minimums prescribed in paragraph (c) of this section.]
Amdt. 91-311, Eff. 4/2/10

Appendix H. Water Quality and Macroinvertebrate Data

The inventory of streams pursuant to section 305(b) of the CWA (Clean Water Act 33 USC §1251 et seq. 1972) is accomplished using quantitative criteria set forth in the IDWQS (Idaho Water Quality Standards, Idaho Code 58.01.02) and the Idaho Small Stream Ecological Assessment Framework (IDEQ, 2002). The assessments typically involve collection of habitat data, macroinvertebrate samples and an electro-fish sample. These data are then in turn used to derive stream habitat (SHI), macroinvertebrate (SMI) and fish (SFI) indexes, these indexes are then used to calculate a 1 – 3 score based upon bioregion with 3 being the highest score, the specific criteria is given in Table 27 below. The scores for each index are then averaged. A stream with an average score greater than or equal to two is considered fully functioning. Due to the large scope of assessing all of the water bodies of the state the IDEQ (Idaho Department of Water Quality) have divided these bodies into lumped assessment units. Many of these assessment units have multiple monitoring, if any of the assessment sites do not meet the criteria for being fully functioning the entire assessment unit is considered impaired and consequently 303(d) listed.

Table 27. Index Scoring Criteria Based upon Bioregion

	Bioregion Classification			
Condition Category	**Northern Mountains**	**Central and Southern Mountains**	**Basins**	**Condition Rating**
SMI Bioregion Scoring Criteria				
Above the 25th percentile of reference condition	≥65	≥59	≥51	3
10th to 25th percentile of reference condition	57-64	51-58	43-50	2
Minimum to 10th percentile of reference condition	39-56	33-50	33-42	1
Below minimum of reference condition	<39	<33	<33	Minimum Threshold
SFI Bioregion Scoring Criteria				
	Rangeland	Forest		
Above the median of reference condition	≥82	≥81		3
25th percentile to median of reference condition	62-81	67-80		2

Table 27. Index Scoring Criteria Based upon Bioregion				
	Bioregion Classification			
	Northern Mountains	**Central and Southern Mountains**	**Basins**	**Condition Rating**
5th to 25th percentile of reference condition	39-61	34-66		1
Below 5th percentile of reference condition	<39	<34		Minimum Threshold
SHI Bioregion Scoring Criteria				
	Northern Rockies	Northern Basin and Range	Snake River Basin/ High Desert	
Above 25th percentile of reference condition	≥66	≥63	≥58	3
10th to 25th percentile of reference condition	58-65	50-62	55-57	2
below 10th percentile of reference condition	<58	<50	<55	1

Table 28. Stream Index Data for CHMA from IDEQ										
Stream	Assessment Unit	Date	Flow (CFS)	SMI Bioregion	SMI/ Score	SHI Bioregion	SHI / Score	SFI Bioregion	SFI/ Score	Average Score
Lone Pine Cr. upper	Warm Springs Cr., Hole in the Rock Cr. - Mouth	6/3/2008	0							
Lone Pine Cr. Lower	Warm Springs Cr., Hole in the Rock Cr. - Mouth	6/3/2008	0							

Table 28. Stream Index Data for CHMA from IDEQ										
Stream	Assessment Unit	Date	Flow (CFS)	SMI Bioregion	SMI/ Score	SHI Bioregion	SHI / Score	SFI Bioregion	SFI/ Score	Average Score
Warm Springs Cr.	Warm Springs Cr., Hole in the Rock Cr. - Mouth	6/29/1995	3.5		Macro-invertebrates collected but no MBI score reported					
Warm Springs Cr.	Warm Springs Cr., Source to Hole in the Rock Cr.	7/13/2005	0							
Broken Wagon Cr. Source to Mouth	Broken wagon Cr. Source to Mouth	6/3/2008	0							
Corral Basin Cr.	Corral Basin Cr. Source to Mouth	7/3/2007	0*							
Horse Basin Cr. upper	Horse Basin Cr. Source to Mouth	6/3/2008	0*							
Horse Basin Cr. lower	Horse Basin Cr. Source to Mouth	7/26/2006	0*							
Horse Basin near Corral Basin Cr. Confluence	Corral Basin Cr. Source to Mouth	9/12/2001	0							
Horse Basin Near Road Cr.	Corral Basin Cr. Source to Mouth	7/7/1997	2.5		Macro-invertebrates collected but				Fish Sampled no SFI report	

Table 28. Stream Index Data for CHMA from IDEQ										
Stream	Assessment Unit	Date	Flow (CFS)	SMI Bioregion	SMI/ Score	SHI Bioregion	SHI / Score	SFI Bioregion	SFI/ Score	Average Score
					no MBI score reported				ed	
Bear Cr. near confl u. with Road Cr.	Road Cr. Source to Confl u. with Horse Basin Cr.	8/4/1998	3.38		Macro-invertebrates collected but no MBI score reported				Fish Sampled no SFI reported	
Mosquito Cr. near confl u. with Road Cr.	Mosquito Cr. Source to Mouth	8/4/1998	1.13		Macro-invertebrates collected but no MBI score reported				Fish Sampled no SFI reported	
Mosquito Cr. near confl u. with Road Cr.	Mosquito Cr. Source to Mouth	8/17/2004	0*							
Road Cr. 1/2 mile dwnstrm spring source	Road Cr. Source to Confl u. with Horse Basin Cr.	6/27/1995	0.5		Macro-invertebrates collected but no MBI score reported				Fish Sampled no SFI reported	
Road Cr. dwnstrm of Bear Cr. Confl u.	Road Cr. Source to Confl u. with Horse Basin Cr.	8/11/1997	1.1		Macro-invertebrates collected but no MBI score reporte				Fish Sampled no SFI reported	

Table 28. Stream Index Data for CHMA from IDEQ										
Stream	Assessment Unit	Date	Flow (CFS)	SMI Bioregion	SMI/ Scored	SHI Bioregion	SHI / Score	SFI Bioregion	SFI/ Score	Average Score
Road Cr. Dwnstrm of Mosquito Cr. Conflu.	Road Cr. Source to Conflu. with Horse Basin Cr.	7/7/1997	5.1		Macro-invertebrates collected but no MBI score reported				Fish Sampled no SFI reported	
Road Cr. upstrm of Chicken Cr. Conflu.	Road Cr. Source to Conflu. with Horse Basin Cr.	8/1/2006	2.29	Central and Southern Mountains	70.33/ 3	Northern Mountains	51.0/ 1	Forested	61.42 /1	1.67
Road Cr. Upstrm of Pvt. Land Boundary	Road Cr. Conflu. with Horse Basin Cr. to Mouth	9/11/2001	1.68	Central and Southern Mountains	60.70/ 3	Northern Mountains	63.0/ 2			2.5
Road Cr. Upstrm of Pvt. Land Boundary	Road Cr. Conflu. with Horse Basin Cr. to Mouth	8/13/2003	0							
Unnamed Trib. to Road Cr. near Pvt. Boundary	Road Cr. Conflu. with Horse Basin Cr. to Mouth	6/3/2008	0							

Table 28. Stream Index Data for CHMA from IDEQ										
Stream	Assessment Unit	Date	Flow (CFS)	SMI Bioregion	SMI/ Score	SHI Bioregion	SHI / Score	SFI Bioregion	SFI/ Score	Average Score
Road Cr. Upstrm of Conflu. East Fork Salmon River	Road Cr. Conflu. with Horse Basin Cr. to Mouth	7/29/2010	1.33							
Spar Canyon Upper	Spar Canyon Source to Mouth	6/3/2008	0							
Spar Canyon Lower	Spar Canyon Source to Mouth	6/3/2008	0							
Bradshaw Gulch Creek near East Fork	Bradshaw Gulch Creek Source to Mouth	6/3/2008	0							
Unnamed Tributary to Salmon River	Salmon River East Fork to Garden Creek	7/2/2007	0							
* **Site Listed as inaccessible**										

Table 29. Sage Creek IDEQ Beneficial Use Reconnaissance Program Data: 1st Order N. Fork and Main Sage Creek above Corral

Burp Site location	SMI Score	SHI Score	Flow	Date Sampled
1 mi. above Forks	3	3	8.16	6/29/1998
Below Corral Cr.	3	3	2.56	6/29/1998
North Fk. 200m above Forks	2	3	2.75	6/29/1998

Table 30. Water Quality Data for CHMA Streams										
Site Name	Time	Date	Easting	Northing	TempC	Specific Conductance µs/cm	SAL PPT	PH	FLOW (CFS)	Comment
Road Creek	14:20	20100830	721256	4896256	11.1	198.9	0.13	8.14		Above private property boundary
Road Creek KA1	14:00	6/15/2011	725207.0	4894276.0	10	140.1	0.07		11.35	Flow Tracker used to Measure Flow
Horse Basin Creek KA1		11/1/2011	725677	4896722	0.8	349.3	0.17	7.39		
Horse Basin Creek KA2	10:45	11/1/2011	732079	4896002	0.2	281.1	0.13	7.96		

Table 31 summarizes multiple metrics from fixed-area quantitative aquatic benthic macroinvertebrate sampling conducted by the BLM Challis Field Office within the CHMA. Sample processing, organism identification, method development, and calculation of metrics conducted by the National Aquatic Monitoring Center, Utah State University, Logan, UT (NAMC, 2009). * = Site is located outside of the CHMA, but within the cumulative analysis area. The stream and location where sample reach occurred are presented with associated metrics: *Richness = an estimate of community structure and stream health based on the number of distinct taxa; # of Families = Similar to richness it is the number of taxanomic groups (families) present in the sample; # of EPT Taxa = the number of distinct taxa within the insect Orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddis flies) commonly considered sensitive to pollution; # of Intolerant Taxa & # of Tolerant Taxa= The Hilsenhoff Biotic Index [(HBI) (Hillsenhoff 1987)] summarizes the overall pollution tolerances of the taxa collected, and has been used to detect nutrient enrichment, high sediment loads, low dissolved oxygen, and thermal impacts. Taxon HBI values can also be used to determine the number of pollution intolerant and tolerant taxa occurring at a site, where taxa with HBI values < 2 were considered intolerant clean water taxa and taxa with HBI values > 8 were considered pollution tolerant taxa; # of Clinger Taxa = The number of taxa characterized as those which generally cling to the tops of rocks and can be reduced by sedimentation or abundant algal growths.*

Table 31. Macroinvertebrate Sampling Within the CHMA Summary							
Stream (Location)	**Date**	**Richness**	**# of Families**	**# of EPT taxa**	**# of intolerant taxa**	**# of tolerant taxa**	**# of clinger taxa**
Bear Creek (BRC-KA-01)	8/16/1994	19	16	11	6	0	9
	8/16/1995	18	15	9	5	0	6
	8/18/1996	18	16	10	4	1	8
	8/18/1997	23	20	15	9	1	9
	8/12/2008	27	20	17	9	1	11

Table 31. Macroinvertebrate Sampling Within the CHMA Summary							
Stream (Location)	**Date**	**Richness**	**# of Families**	**# of EPT taxa**	**# of intolerant taxa**	**# of tolerant taxa**	**# of clinger taxa**
Horse Basin Creek (HBC-KA-01)	8/23/1993	18	16	7	4	0	6
	8/2/1994	15	12	5	3	0	8
	8/9/1995	16	14	6	4	0	7
	8/8/1996	17	15	8	5	0	6
	8/5/1997	17	16	6	4	0	9
	8/13/2008	23	18	7	5	1	6
Horse Basin Creek (HBC-KA-02)	9/23/1995	20	17	12	6	0	12
	8/13/1996	19	16	12	6	0	11
	8/12/1997	16	15	9	5	1	8
	8/6/2008	28	19	13	6	1	13
Lower Horse Basin Creek (LHB-KA-01)	8/8/1996	19	17	6	4	0	6
	8/5/1997	22	19	7	5	0	7
	8/6/2008	30	22	12	7	0	16
Mosquito Creek (MQC-KA-01)	7/27/1994	17	15	9	4	1	4
	7/27/1995	20	17	12	6	0	6
	7/31/1996	17	13	7	3	0	6
	8/7/1997	25	23	15	9	0	9
	8/15/2008	30	25	15	9	1	11
North Fork Sage Creek (NFS-KA-01)	8/5/2008	36	23	21	14	0	18
Road Creek (RC-KA-01)	8/2/1995	18	13	10	8	0	9
	8/8/1996	16	12	6	4	1	10
	8/7/1997	17	13	8	4	0	11
	8/11/2008	21	15	10	8	1	11
Road Creek (RC-KA-02)	8/2/1995	17	15	8	6	0	6
	8/8/1996	18	14	10	6	0	11
	8/5/1997	17	13	8	6	0	11
	8/11/2008	27	19	13	10	1	14

Table 31. Macroinvertebrate Sampling Within the CHMA Summary

Stream (Location)	Date	Richness	# of Families	# of EPT taxa	# of intolerant taxa	# of tolerant taxa	# of clinger taxa
Road Creek above Bear Creek confluence (RCABEAR)	8/7/2008	29	22	16	12	0	18
Road Creek (RC-KA-03)	8/3/1995	14	12	6	3	0	6
	8/8/1996	13	12	7	3	0	5
	8/5/1997	17	15	7	4	0	6
	8/5/2008	28	19	11	5	1	9
Road Creek (RC-KA-04)	8/19/1994	23	18	6	3	0	4
	8/21/1995	16	14	3	0	0	3
	8/5/2008	17	12	7	4	1	4

Appendix I Annual Indicator Monitoring

2001

Horse Basin grazing AUM Total - 475 from 7/16 – 8/7

- 7/23/2001 – 232 Horses Counted
- March 30, 2001 – Use along Horse Basin Creek was observed to have exceeded use standards. This was a pre livestock assessment
  July 12, 2001 HBC-KA1, 7.1" stubble height & HBC-KA2, 10.1" stubble height
  July 27, 2001 HBC-KA2, 7" stubble height
  Aug 15, 2001 HBC-KA1, 3.5" stubble height, 5% shearing- livestock use not apparent
  HBC-KA2, 5" stubble height, less than 5% shearing
  Oct 12, 2001 HBC-KA2, 2" stubble height
  Oct 16, 2001 HBC-KA1, 3" stubble height, less than 5% shears

2002

- Horse Basin Rested – 0 cattle AUMs
- 7/25/2002 – 251 horses Counted
- July 16, 2002 HBC-KA2, 8.5" Stubble Height

2003

- Horse Basin grazing AUM Total - 519 from 6/16 – 7/11
- 8/28/2003 – 203 horses counted
- June 17, 2003 LHB-KA1, 6" stubble height
- June 17, 2003 HBC-KA1, 12" stubble height
- June 17, 2003 HBC-KA2, 8" stubble height
- July 1, 2003 LHB-KA1, 4" stubble height
- July 1, 2003 HBC-KA2, 4" stubble height
- Oct. 23, 2003 LHB-KA1, 4" stubble height, 15% bank shears – horse use was apparent
- Oct. 23, 2003 HBC-KA2, 2" stubble height, 26% bank shears – exceedance of 3" stubble height and 5% bank shears attributed to wild horse use

2004

- Horse Basin grazing AUM Total - 609 from 6/21 – 7/12
- 6/28/2004 – 241 horses counted
- July 28, 2004 HBC-KA2, 4" stubble height
- Oct. 12, 2004 LHB-KA1, 3.5" stubble height, 19% shears – very little livestock sign; exceedance of 5% attributed to wild horse use
- Oct. 12, 2004 HBC-KA1, 12+" stubble height, 0% shears

2005

- Horse Basin grazing AUM Total - 383 from 7/16 – 8/11
- 9/29/2005 – 208 horses counted
- Aug. 31, 2005 HBC-KA2, 6" stubble height, slight use on willows
- Oct. 18, 2005 HBC-KA2, 3" stubble height, light to moderate use on willows

2006

- Horse Basin Rested – however cattle trailing occurred through this pasture
- 9/21/2006 – 231 horses counted
- June 21, 2006 HBC-KA2(Upstream)- 6" stubble height, alteration 3.6%, shearing <1%
- June 21, 2006 HBC-KA2(Downstream)- 5" stubble height, alteration 9.6%, shearing 5%
- Oct. 11, 2006 HBC-KA2 - 2" stubble height, 13.6% alteration, shearing <5%

2007

- Horse Basin grazing AUM Total - 618, from 6/16-7/13 use was focused in upper horse basin
- 9/2007 – 360 horses estimated
- July 17, 2007 HBC-KA2 – 4.1" stubble height, alteration 40%, slight use on willows
- Nov 20, 2007 HBC-KA2 – 2" stubble height, alteration not measured, slight use on willows

2008

- Horse Basin grazing AUM Total – 691, from 7/13-7/29
- 9/18/2008 – 413 horses counted

2009

- Horse Basin grazing AUM Total – 378, from 7/13 - 8/1
- 9/2009 224 - horses estimated
- 7/16/2009 HBC-KA2 – 5" stubble height, Alterations were 24% on right bank and 22.5% on left bank (measures taken prior to grazing indicating horse use)
- 9/11/2009 HBC-KA2 – 3.5" stubble height

2010

- Horse Basin Rested, 73 grazing AUMS attributed to trailing on 7/14-7/16
- 9/2010 263 - horses estimated
- 8/10/2010 HBC-KA1 – 12" plus stubble height, alterations not measured
- 11/03/2010 HBC-KA2 – 4.1" left bank & 3.1" right bank stubble height, 39% alterations

2011

- Horse Basin Grazing AUM Total – 606, 7/12 – 8/8
- 9/2011 275 - horses estimated
- 6/29/2011 HBC-KA1
- 6/29/2011 HBC-KA2
- 8/25/2011 HBC-KA1
- 8/25/2011 HBC-KA2
- 11/1/2011 HBC-KA1 – 5.3" stubble height, 12% alterations
- 11/1/2011 HBC-KA2 – 4.7" stubble height, 25% alterations
- 11/4/2011 LHB-KA1 – 3.9" stubble height, 31% alterations