

Heber Wild Horse Territory Final Management Plan



Forest Service

Apache-Sitgreaves National Forests
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Black Mesa Ranger District

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Introduction

The Heber Wild Horse Territory Management Plan (“territory management plan” or “plan”) serves as an operational plan to document the goals, objectives, management actions, and monitoring for managing animal, vegetation, and soil resources. one or more herd units of wild free-roaming horses and/or burros and retaining free-roaming horses in ecological balance associated with the Heber Wild Horse Territory on the Apache-Sitgreaves National Forests. The territory management plan includes measures for obtaining the desired population level, detailed management practices, interagency coordination, scheduling, and monitoring requirements for managing the territory in conjunction with natural and other managed resources (Forest Service Manual 2200, Chapter 2260). Management of the Heber Wild Horse Territory is governed by the Wild Free-Roaming Horses and Burros Act of 1971, as amended; the Multiple-Use Sustained-Yield Act; the National Forest Management Act; Forest Service regulations at 36 Code of Federal Regulations Part 222, Subpart D; the 2015 Apache-Sitgreaves National Forests Land Management Plan, as amended; and other guiding laws, regulations, and policies.

The territory management plan provides management actions which will be implemented into the foreseeable future. The environmental analysis and management plan will be updated as needed and determined by monitoring of conditions on the territory.

Location

The Heber Wild Horse Territory encompasses 19,700 acres on the Black Mesa Ranger District of the Apache-Sitgreaves National Forests and is located within Township 11 North, Range 15 East; Township 11 North, Range 16 East; and Township 12 North, Range 16 East. The territory is about 2.5 to 3 miles wide by about 7 miles long, centered about 5 miles southwest of Heber, Arizona. The designated boundary runs roughly in a north-easterly direction from its southern boundary on National Forest System Road 300 to the northern boundary, which is private land. The north-northeastern portion of the territory is bounded by the community of Heber, with houses, roads, and fences. The west-northwest flank of the territory is bound by the Highway 260 corridor fence. The southeast flank is an irregular boundary comprised of ridgelines, drainages, and section lines. The Mogollon Rim, with its steep canyons and ridges, lies to the south of the territory. Figure 1 displays the delineated Heber Wild Horse Territory, the Highway 260 corridor fence, and the proximity of the Fort Apache Indian Reservation and the town of Heber.

History

The Heber Wild Horse Territory was established under the Wild Free-Roaming Horses and Burros Protection Act of 1971. In 1973, when the territory was established, a purported census of 6 mares and 1 stallion were observed to be using the area. In 2017, an aerial survey estimated the population to be between 270 to 420 horses on the Sitgreaves National Forest. Based on the 2017 survey data, the calculated annual growth rate for the herd is 19 to 21 percent (Heber Wild Horse Territory WinEquus Population Modeling Analysis).

The Forest Service entered into a Stipulation Agreement filed on March 2, 2007, agreeing to develop a horse management plan for the territory as required in the Act. Under the Stipulation Agreement, the Forest Service agreed to “refrain from any gathering or removing of horses within the Heber Wild Horse Territory, as well as, on the Black Mesa and Lakeside Ranger Districts (the Sitgreaves National Forest) until the Forest Service completes, with public involvement, an analysis and appropriate environmental

document pursuant to the National Environmental Policy Act and develops a written Heber Wild Horse Territory Management Strategy”.

In 2019, Arizona State University’s School of Sustainability convened a collaborative effort consisting of wild horse advocates; ranchers; wildlife managers; and professionals in equine recreation and training, range science, and veterinary medicine to offer suggestions toward the development of the territory management plan. An integrated team of resource specialists from the Forest Service, Arizona Game and Fish Department, and the Arizona Department of Agriculture considered these comments in drafting the management plan.

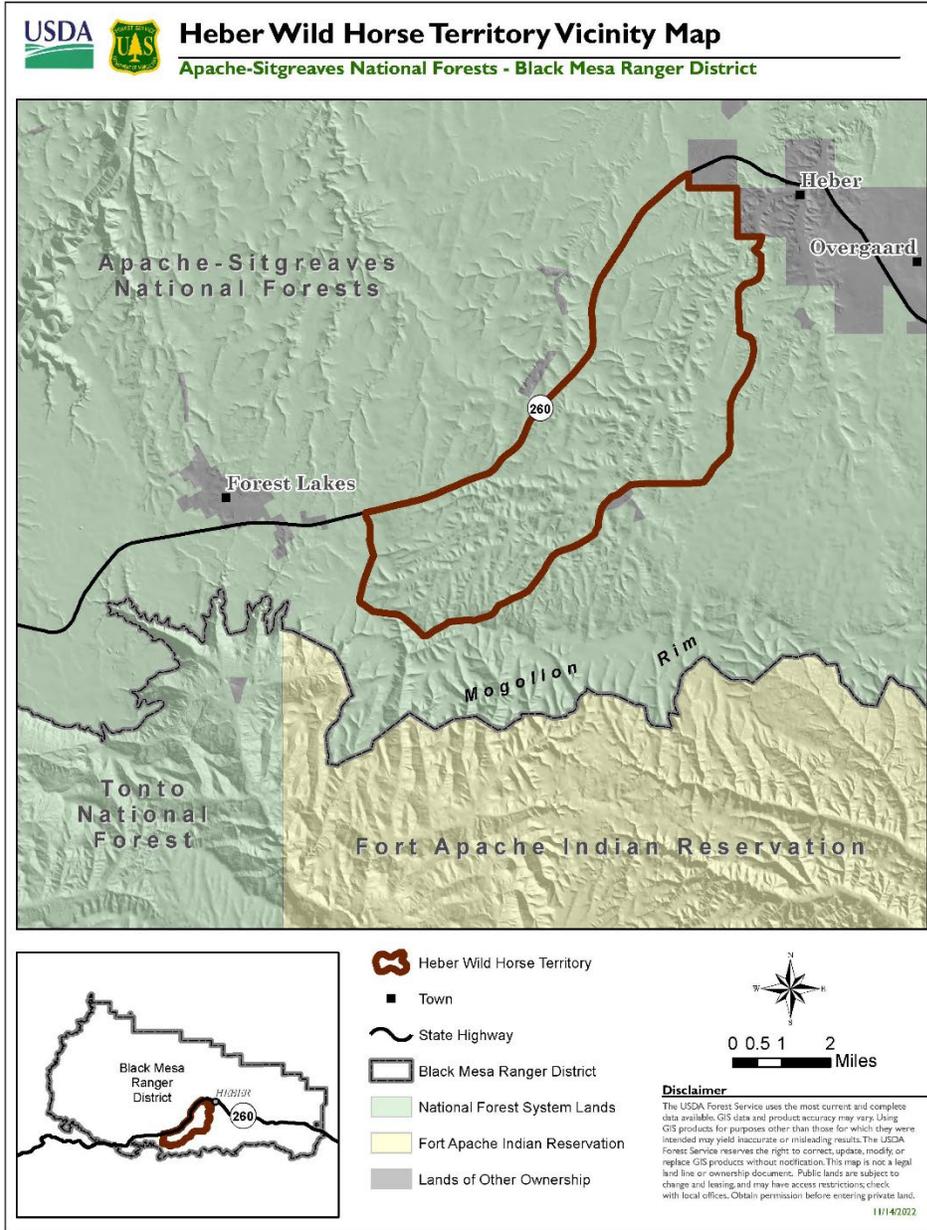


Figure 1: Heber Wild Horse Territory vicinity map

Desired Future Condition

The goal is to manage Heber Wild Horse Territory in thriving natural ecological balance with the surrounding environment. The objectives are to manage the territory as a biological unit that provides year-round forage, water, cover, and space for the horses associated with the territory.

Appropriate Management Level (AML)

An appropriate management level is expressed as a range with an upper and lower limit. The upper limit is the number of animals which results in a thriving natural ecological balance and avoids deterioration of the range.

To maintain a healthy herd within a thriving natural ecological balance, an in-depth analysis was conducted in accordance with 36 CFR 222.21(a)(4). Based on this analysis, the Forest Service found an appropriate management level of 50 to 104 horses based on the resources available within the territory. That analysis is detailed in the *Proposed Appropriate Management Level Determination* document and will not be reiterated here but rather incorporated by reference. The appropriate management level determination uses the multi-tier analysis process identified by the Bureau of Land Management (USDI Bureau of Land Management Handbook H-4700-1). After determining the sufficiency of the territory to provide the four essential habitat components of water, forage, cover, and space, the second-tier analysis determines the amount of sustainable forage available for horse use, taking into consideration the management objectives of the area. This includes meeting land management plan standards and guidelines for upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations, including objectives necessary to protect and manage threatened, endangered, and Forest Service sensitive species. The second tier of the analysis included using half of the available forage to establish the high end of the appropriate management level. Utilizing one half of the available forage ensures there is still enough forage for the other grazing animals in the area: by making half of the total available forage (989,063 pounds) available for the horses, the current obligation of 506,000 pounds of forage for permitted livestock use is still met, and there would be an additional 483,063 pounds of the available forage for wildlife (beyond that currently utilizing the area) or for future adjustments in the livestock grazing level.

Thriving Natural Ecological Balance

A thriving natural ecological balance can be described as balancing horse management with other multiple uses, which assures appropriate progress is made toward meeting desired conditions, standards, and guidelines identified in the 2015 land management plan for the Apache-Sitgreaves National Forests. This includes considering upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations. It also includes other site-specific or landscape-level objectives, such as those necessary to protect and manage threatened, endangered, and sensitive species. To help meet a thriving natural ecological balance, the following desired ecological conditions have been identified.

Vegetation and Forage

Vegetation is moving toward moderate to high degree of similarity with the potential natural vegetation for the various terrestrial ecological unit inventory mapping units within the territory, where there is site capability.

Desirable grass species are healthy, vigorous, diverse, and achieving maximum production for their mapping units. Cool season grasses and forb plants make up at least 50 percent of the herbaceous ground

cover (as site potential allows). Desirable grass species are healthy, vigorous, diverse, and achieving maximum production for their mapping units. Desired browse species are well distributed and healthy, age classes are well distributed, and growth forms are not currently “clubbed” in appearance. Active management to retain and/or improve vegetation conditions may be taken by the Forest Service.

Soil and Watersheds

Soil and watershed conditions are satisfactory or approaching satisfactory on capable and potentially capable rangeland. The percentage of good ground cover (plant basal area and litter) will be at least at a level to prevent accelerated soil loss (at or above soil loss tolerance) as described in the terrestrial ecosystem unit inventory for the Apache-Sitgreaves National Forests. Ground cover level on noncapable range will be managed to its maximum natural potential to minimize sediment production as described in the inventory.

Riparian Habitat

Riparian habitats are in or are trending toward proper functioning condition. Where potential exists, deeply rooted plants such as sedges occupy stream banks stabilizing those banks. Where potential exists, riparian woody plants are and will be established and maintained in a healthy condition, with a mix of age classes present. Springs have riparian species present, and the vegetation is in satisfactory condition.

Herbivore Grazing

Herbivore grazing is not contributing to reduced water quality from sediment or other non-point source pollutants. Best management practices are implemented and monitored to ensure water quality is maintained or improved throughout the territory.

Forage is available to big game species to help maintain healthy populations. The desire is to actively maintain a diverse mosaic of habitats for healthy and balanced wildlife populations is present. All wildlife species have abundant, widely spread foraging habitat. Prey species have habitats with good hiding cover and forage availability. Management indicator and threatened, endangered, and sensitive species are provided the habitat needed to sustain or increase their populations, as desired for individual species management objectives.

Wild ungulate, permitted livestock, and horse use does not exceed the estimated grazing capacity. Structural range improvements are well maintained and in good condition.

Dependable water sources are well distributed. Occupancy by unauthorized livestock is minimized.

Water Availability

As detailed in the *Proposed Appropriate Management Level Determination* document, there are generally enough water sources within the territory to keep horses watered year-round. Limiting factors may occur in times of extreme drought. Contributing water sources include range improvements, including the addition of tanks, all of which shall continue to be maintained by permittees, the Forest Service or volunteers.

Horse Health

Manage rangeland vegetation in a manner that achieves and maintains satisfactory ecological condition on rangelands and protects soil, water, and streamside-dependent resources. Forage is made available for use by livestock, horses, and wildlife. Livestock and horses are managed to maintain range resource productivity. The appropriate management level for horses is adjusted (either up or down), as needed, based on in-depth analysis of resource monitoring data.

Population Control

Horse monitoring would occur in accordance with the protocol in the plan; utilizing various on the ground and aerial techniques may be utilized. If funding allows, The Forest Service may attempt to conduct aerial surveys every 5-10 years or as funding allows. Aerial surveys would use the Simultaneous Double Observer technique (Griffin et al., 2020) or other acceptable population survey protocol. Aerial surveys will use the double observer technique, which is the scientifically accepted method for conducting these types of surveys. Monitoring of the horse population will be accomplished in collaboration with local volunteer groups, university students, ranchers and other forest visitors, and citizen science programs to monitor horses and their use of the territory. Radio collars may be used. As new technologies were to become available, for example Unmanned Aircraft Systems (UAS), these too could be used as appropriate to aid in population monitoring.

Excess Horses

Prior to removal of horses a determination of “excess animals” must be identified. The Act defines “excess animals”, meaning wild free-roaming horses and burros as those:

1. Which have been removed from an area by the Secretary pursuant to application of law or,
2. Which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relations in that area.

“Excess animals” is defined in FSM 2260 as “Wild free-roaming horses or burros that authorized personnel have removed or must remove, pursuant to law, to preserve and maintain ecological balance in coordination with other resources and activities.”

A determination of excess horses would be documented by the responsible official (Forest Supervisor) in a letter to the file and in the Annual Operating Plan.

In accordance with the Act, gathered excess horses would be held temporarily at a permanent holding facility until they can be relocated in the following order of priority:

- Offered for adoption—this would be the priority.
- Offered for sale with limitations if they are not adopted after three attempts or are over ten years old.
- Relocated to another territory or long-term holding facility.
- In accordance with 36 CFR 222.69(c)(1), in the most humane manner possible, sick, lame, or old animals would be euthanized.

Gather and Removal of Excess Horses

Gathers to Reach the AML

When AML is exceeded (based on surveys of number of horses and locations), the deciding official (Forest Supervisor) may make a determination that there is an excess of horses. The deciding official can then authorize actions to achieve the upper end of AML (104), which include both gathers and administrative of fertility controls. The default gather technique will be bait trapping. Helicopters would be allowed for gathers if bait trapping is ineffectual.

Horses will be removed starting furthest from the territory and progressively moving closer to the territory. Horses tend to stay within the same general vicinity if there is sufficient forage and water

available, therefore, the horses that reside either inside or nearby the territory are the horses most likely to use the territory for continued use.

If all horses that reside across the Sitgreaves National Forest are removed and the population still exceeds the upper end of AML, horses would be removed from within the territory boundary until the population reaches 104 horses.

Strategy to Maintain the AML

Once AML is reached (104 horses), removal of excess horses could be an approved management action if monitoring indicated that a threshold was reached in the Monitoring and Adaptive Management Table (Appendix 4). Excess horse removals are one of many different courses of action that the responsible official could choose. All management actions per monitoring question can be found in Appendix 4.

To achieve and maintain the AML range and manage the herd in a manner which promotes maintaining a thriving natural ecological balance, while maintaining herd health and genetic diversity, the plan is to first attain the upper end of the AML range by removing horses primarily through passive gathers and by treating with contraceptive agents. Population management would typically be prioritized for use by the least invasive and least disruptive methods to horse bands and horse behavior.

This strategy would continue until the population of horses is healthy and within the AML range. Once the population of horses is within the population AML, population growth rates should stabilize due to the regular application of contraceptive agents. Future excess animal removals to stay within the AML range would be based on survey data of range and horse conditions.

Removal of Unauthorized Livestock

On the Sitgreaves National Forest, horses not associated with the territory as defined in 36 CFR 222.60(b)(13) would be considered unauthorized livestock and removed per 36 CFR 222.63 and state law, as applicable. This would occur in consultation with Arizona Department of Agriculture brand inspectors, tribal livestock inspectors, or conservation officers.

Population Reduction Methods

Bait Trapping

Bait trapping, usually considered to be a low stress gathering technique, will be the primary method utilized to remove excess horses from the forest. Screening for sensitive resources, as identified in the design features (see appendix 5) will occur prior to setting any temporary animal handling facilities. Exact models and device usage will depend on factors such as terrain, existing roads, cellular coverage, water and feed availability, and presence of permitted livestock. As much as possible, remote devices with minimal human contact with horses will be utilized (see Appendix 1: Standard Operating Procedures for Gathering or Removal of Excess Horses).

Remote capture has proven successful on other wild horse territories; it is therefore likely the Forest Service may collaborate with a non-governmental organization as well as other federal and non-federal groups to utilize new and developmental technology, if they are approved by the Forest Supervisor.

Horses may be lured into traps using bait (feed, mineral supplement, water) or sexual attractants (mares in heat). Helicopter gathers will be used if passive means are unsuccessful.

Helicopter

Use of helicopters for gathers may be needed, but not as a primary method to remove excess animals. Contracted companies will be utilized who have provided low stress training and have Bureau of Land Management authorization in animal welfare training.

Helicopter gathering is conducted by utilizing a helicopter to herd animals into a handling facility constructed of portable pipe panels. A set of wings is constructed from jute, a burlap type material, strung on metal posts. The wings are constructed to form a “funnel” and facilitate the movement of animals into the trap.

One or more individuals on horseback may be on hand to assist the animals into the trap once they are within the wings. Additionally, “decoy” horses may be used to capture the animals more efficiently.

Fertility Reduction

First, horses which are inside or closest to the territory would be targeted for fertility reduction. The application of contraception will start with the horses residing inside the territory and moving outward across the Sitgreaves National Forest. Contraceptive application would occur on a regular and recurring basis.

Various techniques of fertility reduction are currently available to assist in achieving the desired appropriate management level while allowing for genetic diversity. Some of the licensed fertility reduction control agents currently available for use include injectable agents such as various formulations of porcine zona pellucida (PZP), gonadotropin releasing hormone (also known as Gonacon), and other agents being developed such as growth and differentiation factor 9 (GDF-9) and bone morphogenetic factor 15 (BMP-15), which are or will undergo scientific studies for possible future clearance. Intrauterine devices such as the Y-shaped silicone intrauterine device for horses may be used in horses that are gathered but will be returned to the territory (see Appendix 3). Additional contraception products and methods may be used which become licensed for horse use.

Monitoring and Adaptive Management

Key monitoring sites will be identified in each pasture within the Heber Wild Horse Territory. Specific detail will be addressed to critical areas such as riparian/meadow locations and Mexican spotted owl protected activity centers. Existing exclosures will be identified and incorporated into monitoring. Monitoring strategies might include the use of designated plots, photo technologies, specific drought indices, rain gauges, utilization cages, condition and trend transects, wildlife and domestic animal census, and other technologies to help assess the levels of utilization by cattle, elk, and horses.

Initially, a vegetative baseline will be established or verified within 3 years, then evaluated approximately every 5 to 10 years for trends occurring either stable or positive.

Horse population monitoring will occur through various techniques including on the ground and aerial surveying methodology. Continual monitoring of the horse population will be accomplished in collaboration with local volunteer groups, university students, ranchers and other forest visitors, and citizen science programs to monitor horses and their use of the territory. The Apache-Sitgreaves Wild Horse and Burro Coordinator will develop protocols for reporting of horse data and will maintain a database of horses which populate the territory. Volunteer groups will be standardized on the data they collect and report to the Forest Service. Observations will include indicators such as non-traditional

coloration patterns (such as paints, appaloosas, whites, etc.). Physical characteristics such as clubfoot or other congenital body deformations must be documented.

Monitoring will provide information needed to inform the types of activities under adaptive management that may be needed to maintain desired conditions for the Heber Wild Horse Territory.

Genetic Diversity

As appropriate and as funding allows, gathered horses will have genetic information collected, particularly during the first years of operations. The Forest Wild Horse and Burro Coordinator will follow the protocols outlined in the BLM Genetics Baseline Sampling and Data Collection Instructions (BLM 2009). Samples could be obtained through either blood or hair but will primarily use hair samples. Samples will be collected from both males and females in the same approximate ratio as the population, and from any age class. While it is preferred to collect samples from horses that would be released and remain on the territory, samples may be collected from removed horses to provide a better sample size and representation of the horses that exist in the area. The initial data collected will be compared to similar data from both domestic and other horse populations. This baseline will help establish a baseline against which future samples can be compared to identify genetic drift and any narrowing of diversity through inbreeding. If samples begin to show signs of homozygosity, a threshold will have been met in the monitoring and adaptive management table (Appendix 4) and management action could be taken, which includes some of the following: altering the age classes of the horses; altering the sex ratio; or introducing one to three young horses from a different wild horse territory. After a baseline of genetic information is established, genetic information will be sampled every 10 to 15 years.

Appendix 1: Standard Operating Procedures for Gathering or Removal of Excess Horses

Coordination

State Wildlife Agency

Coordination will occur with the State wildlife agency as required by 36 CFR § 222.61(a)(7). Contacts should include local, regional, and national agency personnel along with and involvement of wild-horse-interest organizations and humane associations well in advance of any planned gather action. Local public meetings are required if helicopters are to be used in the removal program (Forest Service Manual 2267.1).

State livestock boards and inspector

Local livestock inspector(s) should be advised of any planned removal. Any captured excess animals will be inspected by the livestock inspector and a hauling permit (if required by Arizona Department of Agriculture) secured for each animal to be placed under a private maintenance agreement. Keep the Arizona Department of Agriculture personnel and the state veterinarian apprised of all proposed removals. Extend cooperation to livestock boards for any potential disease diagnostic tests which may be needed on captured animals. Certain tests are required for any movement of animals placed in other states. Any branded or previously domesticated animal captured will be handled under regular impoundment and disposal procedures.

Public Notification

Public Meetings

In accordance with 36 CFR 222.64, a yearly public meeting will be held to discuss management actions anticipated over the course of the upcoming year. This includes gathers using motor vehicles or helicopters.

Annual Operating Plan

The annual operating plan will provide the specific activities necessary for management of the horses and the territory in accordance with the Heber Wild Horse Territory Plan. This will include items such as horse gather details, fertility management, infrastructure construction and maintenance, resource protection and improvements, and monitoring requirements and documentation.

The Wild Horse and Burro coordinator will closely be watching horse conditions, drought, forage, and other conditions to ensure we are maintaining the area in a thriving natural ecological balance.

The overall goal of the territory management plan is to encourage horses to utilize the designated territory rather than remaining on other areas on the national forest, while allowing for multiple uses and having a thriving ecological balance.

Relocation of Excess Horses

Relocation must be to one or more of the following:

- A different designated wild horse territory, if suitable habitat and grazing capacity is available.

- ◆ Excess animals will not be removed and relocated in other national forests' wild horse or burro territories unless there is sufficient capacity available on the receiving territory.
- Care for excess animals under private maintenance agreement such as private adoption, sanctuaries, (long-term holding facilities), or both.
 - ◆ Develop lists of potential individuals or organizations who may be willing to care for excess animals under a private maintenance agreement.
 - ◆ All applications for private maintenance must be carefully screened to assure humane treatment of the placed animals.
 - ◆ Photographs, microchip numbers, age, color, sex, and other identifying marks will be used for the description of horses placed under private maintenance agreements.
 - ◆ Hauling permits will be applied for prior to placement of excess animals with a cooperator. The permit will show the Forest Service as owner, in care of John Doe, Box XX, Heber, Arizona.
 - ◆ Case histories: Maintain a file system or folder for each placed animal. Provisions for follow-up checking after placement must be planned.

Methods of Removal and Care Standards

Sufficiently consider any removal action to be taken to including method of gather, transportation of captured animals, class and age of animals to be removed, and related information.

- Determine whether the operation is to be by Forest Service personnel or contractors. Contracts for capture: Contracts must specify acceptable methods of capture and assure, through contract clauses and administration, the humane treatment of horses.
- Timing of removal should all be considered in planning removals, including consideration of the following: normal weather patterns, condition of animal, age of foals, breeding and foaling seasons.
- Capture techniques will be allowed by bait trapping or helicopter. Horses will not be captured by snares or net gunning.
- Chemical immobilization must only be used for capture under exceptional circumstances and under the direct supervision of an on-site veterinarian experienced with the technique.

Bait Trapping

Horses may be lured into a temporary trap using bait (feed, mineral supplement, water) or sexual attractants (mares in heat) with the following requirements:

- The length time water sources other than those in the trap site are inaccessible must not adversely affect the wellbeing of horses, wildlife, or livestock, as determined by USDA Forest Service horse staff.
- Unattended traps must not be left unobserved for more than 12 hours.
- Mares and their dependent foals must not be separated unless for safe transport.
- Horses held for more than 12 hours must be provided with accessible clean water at a minimum rate of ten gallons per 1,000-pound animal per day, adjusted accordingly for larger or smaller horses and foals and environmental conditions.

- Horses held for more than 12 hours must be provided good quality hay at a minimum rate of 20 pounds per 1,000-pound adult animal per day, adjusted accordingly for larger or smaller horses and foals:
- Water, weed free hay and or mineral will be used on all trap sites on National Forest System Lands
 - ◆ hay must not contain poisonous weeds, debris, or toxic substances
 - ◆ hay placement must allow all horses to eat simultaneously

Helicopter Drive Trapping

- The helicopter must be operated using pressure and release methods to herd the animals in a desired direction and should not repeatedly evoke erratic behavior in the horses causing injury or exhaustion. Animals must not be pursued to a point of exhaustion; the on-site veterinarian must examine horses for signs of exhaustion.
- The rate of movement and distance the animals travel must not exceed horse limitations influenced by terrain, physical barriers, access limitations, weather, condition of the animals, urgency of the operation (animals facing drought, starvation, fire, etc.), and other factors.
- The appropriate herding distance and rate of movement must be determined on a case-by-case basis considering the weakest or smallest animal in the group (for example, foals, pregnant mares, or horses that are weakened by body condition, age, or poor health) and the range and environmental conditions present.
- Rate of movement and distance traveled must not result in exhaustion at the trap site, except for animals requiring capture exhibiting a severely compromised condition prior to gather. Where compromised animals cannot be left on the range or where doing so would only serve to prolong their suffering, euthanasia will be performed in accordance with American Veterinary Medical Association guidance and Forest Service Policy.
- Horses must not be pursued repeatedly by the helicopter such that the rate of movement and distance travelled exceeds the limitation set by the Apache-Sitgreaves National Forests horse staff. Abandoning the pursuit or alternative capture methods will be considered in these instances.
- Special attention will be made to avoid crossing onto the Fort Apache Reservation boundary, no flights will go over tribal lands.
- The Apache-Sitgreaves National Forests horse staff must determine the appropriate width of the opening the fence is let down to allow for safe passage through the opening. The Apache-Sitgreaves National Forests horse staff will decide if existing fence lines require marking to increase visibility to horses.
- The helicopter must not come into physical contact with any horse. The physical contact of any horse by helicopter must be documented by the Apache-Sitgreaves National Forests horse staff along with the circumstances.
- Horses may escape or evade the gather site while being moved by the helicopter. If there are mare and dependent foal pairs in a group being brought to a trap and half of an identified pair is thought to have evaded capture, multiple attempts by helicopter may be used to bring the missing half of the pair to the trap or to facilitate capture by roping. In these instances, animal condition and fatigue must be evaluated by the Apache-Sitgreaves National Forests horse staff or on-site veterinarian on a case-by-case basis to determine the number of attempts which can be made to capture an animal.

- ◆ The roping of any horse must be documented by the Apache-Sitgreaves National Forests horse staff along with the circumstances. Horses may be roped under circumstances which include, but are not limited to the following: reunite a mare and her dependent foal; capture nuisance, injured or sick horses or those which require euthanasia; environmental reasons such as deep snow or traps which cannot be set up due to location or environmentally sensitive designation; and public and animal safety or legal mandates for removal.
- ◆ Ropers should dally the rope to their saddle horn so animals can be brought to a stop as slowly as possible and must not tie the rope hard and fast to the saddle so as to intentionally jerk animals off their feet.
- ◆ Horses which are roped and tied down in recumbency must be continuously observed and monitored by an attendant at a maximum of 50 feet from the animal.
- ◆ Horses which are roped and tied down in recumbency must be untied within 30 minutes.
- ◆ If the animal is tied down within the wings of the trap, gather operations will cease until the tied-down animal is removed.
- ◆ Sleds, slide boards, or slip sheets must be placed underneath the animal's body to move recumbent horses, load recumbent horses, or both. Ropes used for moving the recumbent animal must be attached to the sled, slide board, or slip sheet.
- ◆ Halters and ropes tied to a horse may be used to roll, turn, or position a recumbent animal, but a horse must not be dragged by a halter or rope attached to its body while in a recumbent position.
- ◆ Animals captured by roping must be evaluated by the on-site or on-call veterinarian within two hours after capture, marked for identification at the trap site, and re-evaluated periodically for 12 hours or longer if deemed necessary by the on-site or on-call veterinarian.
- Horse captures must not be conducted when ambient temperature at the trap site is below 10 degrees Fahrenheit or above 95 degrees Fahrenheit without approval of the Apache-Sitgreaves National Forests horse staff.

Horse Care

Veterinarian

- On-site veterinary support must be provided for all helicopter gathers and on-call support must be provided for bait trapping.
- Veterinary support must be under the direction of the Apache-Sitgreaves National Forests horse staff. The on-site or on-call veterinarian will provide consultation on matters related to horse health, handling, welfare, and euthanasia at the request of the Apache-Sitgreaves National Forests horse staff. All decisions regarding medical treatment or euthanasia will be made by the on-site Apache-Sitgreaves National Forests horse staff and approved by the district ranger.

Appendix 2: Comprehensive Animal Welfare Standards

Excess animals may be transported to a Bureau of Land Management or Forest Service facility where they would be cared for in accordance with the Wild Free-Roaming Horses and Burros Act and the most current Forest Service regulations and policies (prepared [freeze-marked or micro-chipped, vaccinated and de-wormed] for adoption or long-term holding).

Facility Design

Trap Sites, Handling Corrals, and Holding Facility

- The trap site and holding facility must be constructed of stout materials and be maintained in proper working condition, including gates that swing freely and latch or tie easily.
- Trap sites should be located close to horse locations whenever possible to minimize the distance animals need to travel.
- If jute is hung on the fence posts of an existing wire fence in the trap wing, the wire must either be rolled up and removed or let down and bundled together into a cable at ground level for the entire length of the jute in such a way that minimizes possibility of entanglement by horses.
- Fence panels in pens and alleys must be not less than 6 feet high for horses and the bottom rail must not be more than 12 inches from ground level.
- Temporary holding facilities must have enough pens available to sort horses according to gender, age, number, temperament, or physical condition.
 - ◆ All pens must be assembled with capability for expansion.
 - ◆ Alternate pens must be made available for the following:
 - horses that are weak or debilitated
 - mares with dependent foals
 - ◆ Horses in pens at the temporary holding facility should be maintained at a proper stocking density to allow, when at rest, all horses to occupy no more than half the pen area.
- An appropriate chute designed for restraining horses must be available for necessary procedures at the temporary holding facility. This does not apply to bait-trapping operations unless directed.
- There must be no holes, gaps or openings, protruding surfaces, or sharp edges present in fence panels or other structures that may cause escape or possible injury.
- Padding must be installed on the overhead bars of all gates and chutes used in single-file alleys.
- Finger gates (one-way funnel gates) used in bait trapping must be constructed of approved materials approved. Finger gates must not be constructed of materials which have sharp ends that may cause injuries to horses, such as "T" posts, sharpened willows, etc.
- Water must be provided at a minimum rate of ten gallons per 1,000-pound animal per day, adjusted accordingly for larger or smaller horses, foals, and environmental conditions, with each trough placed in a separate location of the pen (troughs at opposite ends of the pen). Water must be refilled at least every 12 hours.

- The design of pens at the trap site and temporary holding facility should be constructed with rounded corners.
- All gates and panels in the animal holding and handling pens and alleys of the trap site must be covered with materials such as plywood, snow fence, tarps, burlap, etc. approximately 48 inches in height to provide a visual barrier for the animals. All materials must be secured in place. These guidelines apply:
 - ◆ For exterior fences, material covering panels and gates must extend from the top of the panel or gate toward the ground.
 - ◆ For alleys and small internal handling pens, material covering panels and gates should extend from no more than 12 inches below the top of the panel or gate toward the ground to facilitate visibility of animals and the use of flags and paddles during sorting.
 - ◆ The initial capture pen may be left uncovered as necessary to encourage animals to enter the first pen of the trap.
- Nonessential personnel and equipment must be located to minimize disturbance of horses.
- Trash, debris, and reflective or noisy objects should be eliminated from the trap site and temporary holding facility.

Loading and Unloading Areas

- Facilities in areas for loading and unloading horses at the trap site or temporary holding facility must be maintained in a safe and proper working condition, including gates which swing freely and latch or tie easily.
- The side panels of the loading chute must be a minimum of 6 feet high and fully covered with materials such as plywood or metal without holes which may cause injury.
- There must be no holes, gaps or openings, protruding surfaces, or sharp edges present in fence panels or other structures which may cause escape or possible injury.
- All gates and doors must open and close easily and latch securely.
- Loading and unloading ramps must have a non-slip surface and be maintained in a safe and proper working condition to prevent slips and falls. Examples of non-slip flooring would include, but not be limited to, rubber mats, sand, shavings, and steel reinforcement rods built into ramps. There must be no holes in the flooring or items that can cause an animal to trip.
- Trailers must be properly aligned with loading and unloading chutes and panels ensuring no gaps exist between the chute or panel and floor or sides of the trailer creating a situation where a horse could injure itself.
- Stock trailers should be positioned for loading or unloading to allow no more than 18 inches clearance between the ground and floor of the trailer for horses.

Transportation

- Only covered stock trailers in sound mechanical condition will be permitted to transport horses. Trailers must have sufficient interior height to allow each equine to stand with its head extended to the fullest normal postural height.
- Side-by-side trailers will not be authorized.

- Horses will be separated by sex when loaded. Stallions and any aggressive equines are completely segregated so no stallion can come into contact with any other horse on the conveyance. Each horse has enough floor space to ensure no equine is crowded in a way likely to cause injury or discomfort.
- All trailers will be single level and no “pot-belly” trailers are authorized to transport horses.
- Flooring of all transport trailers should not be slick or slippery, if metal, it should be covered with rubber matting to allow for secure footing and minimize slips and falls.
- All personnel driving transport trailers will have been properly trained in driving trailers with live animals.
- Adequate space to prevent overcrowding will be provided following American Veterinary Medical Association humane care and USDA Animal Care guidelines for horses when horses are loaded for transport.

Care

Feeding and watering

- Adult horses held in traps or temporary holding pens for longer than 12 hours must always be fed and watered at approximately 12-hour intervals with water available other than when animals are being sorted or worked.
- Water must be provided at a minimum rate of ten gallons per 1,000-pound animal per day, adjusted accordingly for larger or smaller horses, and foals, and environmental conditions, with each trough placed in a separate location of the pen (troughs at opposite ends of the pen). Water must be refilled at least every 12 hours.
- In all holding and working facilities the best hay possible will be used. Hay should be inspected prior to purchase to reduce the amount of weeds present. A weed monitoring and abatement plan will be implemented for each site.
- Hay must be fed at a minimum rate of 20 pounds per 1,000-pound adult animal per day, adjusted accordingly for larger or smaller horses, burros, and foals. Hay placement must allow all horses to eat simultaneously.
- When water or feed deprivation conditions exist on the range prior to the gather, the Apache-Sitgreaves National Forests horse staff should adjust the watering and feeding arrangements in consultation with the on call veterinarian as necessary to provide for the needs of the animals.

Dust abatement

- Dust abatement by spraying the ground with water may be employed when necessary at the trap site and temporary holding facility.

Trap site

- Dependent foals or weak or debilitated animals must be separated from other horses at the trap site to avoid injuries during transportation to the temporary holding facility. Separation of dependent foals from mares must not exceed four hours unless the immediate decision is made to wean the foals.

Holding facility

- All horses in confinement must be observed at least once daily to identify sick or injured horses and ensure adequate food and water.

- Dependent foals must be reunited with their mares at the temporary holding facility within four hours of capture unless foals are old enough to be weaned during the gather.
- Non-ambulatory horses must be in a pen separate from the general population and must be examined by the Apache-Sitgreaves National Forests horse staff, the on-call or on-site veterinarian, or both as soon as possible, no more than four hours after recumbency is observed. Water and hay must be accessible to the recumbent horses within 12 hours or sooner at the discretion of the Apache-Sitgreaves National Forests horse staff.
- Alternate pens must be made available for the following:
 - ◆ horses that are weak or debilitated
 - ◆ mares with dependent foals
- Aggressive horses causing serious injury to other animals should be identified and relocated into alternate pens when possible.
- Horses in pens at the temporary holding facility should be maintained at a proper stocking density such that, when at rest, all horses occupy no more than half the pen area.

Biosecurity

Health records for all saddle and pilot horses used on horse gathers must be provided to the Apache-Sitgreaves National Forests horse staff prior to joining a gather, including:

- Certificate of veterinary inspection (health certificate, within 30 days).
- Proof of:
 - ◆ a negative test for equine infectious anemia (Coggins or enzyme-linked immunosorbent assay [EIA or ELISA] test) within 12 months.
 - ◆ vaccination for tetanus, eastern and western equine encephalomyelitis, West Nile virus, equine herpes virus, equine influenza, and rabies within 12 months.

Handling

General Handling

- All sorting, loading, or unloading of horses during gathers must be performed during daylight hours except when unforeseen circumstances develop, and the Apache-Sitgreaves National Forests horse staff approves the use of supplemental light.
- Horses should be handled to enter runways or chutes in a forward direction.
- Horses should not remain in single-file alleyways, runways, or chutes longer than 30 minutes.
- No equipment should be operated in such a manner as to cause flighty behavior by or injury to horses.

Willful Acts of Abuse

- Hitting, kicking, striking, or beating any horse in an abusive manner is prohibited.
- Dragging a recumbent horse without a sled, slide board or slip sheet is prohibited. Ropes used for moving the recumbent animal must be attached to the sled, slide board, or slip sheet.
- There should be no deliberate driving of horses into other animals, closed gates, panels, or other equipment.

- There should be no deliberate slamming of gates and doors on horses.
- There should be no excessive noise (for example, constant yelling) or sudden activity causing horses to become unnecessarily flighty, disturbed, or agitated.

Handling Aids

- Handling aids such as flags and shaker paddles must be the primary tools for driving and moving horses during handling and transport procedures. Contact of the flag or paddle end of primary handling aids with a horse is allowed. Ropes looped around the hindquarters may be used from horseback or on foot to assist in moving an animal forward or during loading.
- Electric prods must not be used routinely as a driving aid or handling tool. Electric prods may be used in limited circumstances only if the following guidelines are followed:
 - ◆ Electric prods must only be a commercially available make and model that uses DC battery power, and batteries should always be fully charged.
 - ◆ The electric prod device must never be disguised or concealed.
 - ◆ Electric prods must only be used after three attempts using other handling aids (flag, shaker paddle, and voice or body position) have been tried unsuccessfully to move the horses.
 - ◆ Electric prods must only be picked up when intended to deliver a stimulus; these devices must not be constantly carried by the handlers.
 - ◆ Space in front of an animal must be available to move the horse forward prior to application of the electric prod.
 - ◆ Electric prods must never be applied to the face, genitals, anus, or underside of the tail of a horse.
 - ◆ Electric prods must not be applied to any one horse more than three times during a procedure (for example, sorting or loading) except in extreme cases with approval of the Apache-Sitgreaves horse staff. Each exception must be approved at the time by the Apache-Sitgreaves horse staff.
 - ◆ Any electric prod use that may be necessary must be documented daily by the Apache-Sitgreaves National Forests horse staff including time of day, circumstances, handler, location (trap site or temporary holding facility), and any injuries (to horse or human).

Appendix 3: Standard Operating Procedures for Fertility Reduction Treatments

This appendix provides the operating procedures for various fertility control treatments on horses, population management techniques, and monitoring and tracking treatments. In an effort to help the horse population achieve and maintain the appropriate management level on the Heber Wild Horse Territory, population growth suppression management tools may be used to maintain population size within the appropriate management level and extend the time between any needed gather operations. Use of these techniques will also reduce the number of excess horses that may need to be removed. Population management should be prioritized for use by the least invasive and least disruptive methods to horse bands and horse behavior.

Hands-on management action (for example, contracted gather, contraception delivery, etc.) with the horses may be arranged for public or private partnership to ensure humane and appropriate outcomes.

Table 1: Population management techniques to be considered

Method	Description	Pros	Cons
Immuno-contraception ¹	Porcine zona pellucida (PZP)	Low impact to herd Researched and readily available	Efficacy varies with on-going maintenance (requires retreatments) Multiple applications, gathering, etc. Time of year limited (re-dart after one month) Variable formulations Identification required for re-treatment Not permanent May result in abscesses on mares darted
Immuno-contraception	Gonacon	3- to 5-year efficacy One-time costs (dart, instruments, etc.)	Efficacy varies with ongoing maintenance (improves with re-darting frequency) Multiple applications, gathering, etc. Not permanent May result in abscesses on mares darted
Intrauterine device (IUD)	Y-shaped silicone IUD for feral horses	Can be reversed, no hormonal impact	Must be placed by licensed, experienced veterinarian. Mare must be over 1 year of age and verified non-pregnant.

Method	Description	Pros	Cons
Bait and passive gather	Periodically remove small (1 to 3) numbers of horses from individual bands in order to maintain population numbers when populations are approaching the upper quartile of the appropriate management level	Reduces numbers Low impact to herd Lower costs than large gather and removal actions Easier to find suitable locations to receive	Monitor bands for genetic diversity Ongoing maintenance Higher cost than use of immunocontraceptives
Removal ²	Several animals are gathered and permanently removed from the Apache-Sitgreaves National Forests.	Reduces numbers Good for acute situations which drastically reduce available forage like forest fires, drought, etc.	Finding suitable locations to receive may be limited; for example, adoption or sanctuaries Costs associated with gather and removal is high Mixed public perception or reception
Relocation ³	1 to 3 studs, mares, or both from a different horse territory would be transferred and released to maintain or improve genetic diversity	Horses continue to exist in natural state Support genetic diversity goals	New management area may cause health problems if too different Costs associated with relocation are high New horses may be injured by relocation process Individual animal identification and testing for interstate movement Must have approval from State animal health official (importing state) and a licensed and accredited veterinarian complete certificate of veterinary inspection

1. Mares chosen for release to the Heber Wild Horse Territory after capture may be treated with fertility reduction agents to reduce the population growth. This will exclude mares released to improve or maintain genetics within the territory.
2. Removal of animals from outside the Heber Wild Horse Territory and on lands not managed by the Forest Service would be given priority where possible. Removal may be done by bait and passive gather, use of helicopters, or both to herd and trap horses.
3. Hair samples, blood samples, or both would be acquired approximately every 10 years to determine whether Forest Service management is maintaining acceptable genetic diversity (avoiding inbreeding depression). Obtain samples during gathers and administration of contraceptives. Collect genetic material from individuals gathered, in accordance with sampling design.

Use of Immunocontraceptives

Zonastat-H (1-year porcine zona pellucida liquid), SpayVac®, Gonacon, or other federally approved immunocontraceptive solution.

The following implementation and monitoring requirements are part of any action that involves the use of liquid porcine zona pellucida, SpayVac®, Gonacon, or other federally approved injectable solution:

- Pesticide use approval (license) must be obtained by State authority.
- Pesticide use program must be submitted and approved.

- The porcine zona pellucida vaccine would be administered only by trained Forest Service personnel or collaborating partners. Collaborating partners must have a veterinary/client relationship for reporting and adverse reactions or addressing any animal health issues related to darting.
- Delivery of the vaccine would be by intramuscular injection into the manufacturers approved site of delivery (deep gluteal or cervical musculature).
- In the future, the vaccine may be administered remotely using an approved long-range darting protocol and remote delivery system if or when such technology is developed.
- All treated mares would be microchipped and registered in the USDA Forest Service national database.
- Directions for using the Y-shaped silicone intrauterine device (IUD) for feral horses: The Y-shaped silicone IUD for feral horses is to be placed in the uterus of mares by a veterinarian. The Y-shaped silicone IUD for horses is intended for use in mares that are at least approximately 1 year old, where age is determined based on available evidence, such as tooth eruption pattern. The IUD must be sterilized before use. The IUD is inserted into the uterus using a thin, tubular applicator, like a shielded culture tube commonly used in equine reproductive veterinary medicine, in a manner similar to methods used for uterine culture of domestic mares. Mares with IUDs should be individually marked and identified (such as with a radio-frequency identification microchip or via visible freeze-brand on the hip or neck).

Caution: These IUDs are only to be used in mares that are confirmed to be not pregnant. Checking pregnancy status can be accomplished by methods such as a transrectal palpation and/or ultrasound performed by a veterinarian. If a Y-shaped silicone IUD for horses is inserted in the uterus of a pregnant mare, it may cause the pregnancy to terminate, and the IUD to be expelled.

Monitoring and Tracking of Immunocontraceptive Treatments

Population growth rates of herds selected for intensive monitoring would be estimated every year for five years and intermittently thereafter 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 (number of foals to number of adults). If, during routine horse territory field monitoring (on-the-ground), data describing mare-to-foal ratios can be collected, these data should also be shared with the regional office and Washington office for possible analysis by the U.S. Geological Survey personnel.

An immunocontraceptive application data sheet would 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 field applicator would submit an immunocontraceptive application report and an accompanying narrative and data sheets would be forwarded to the regional office and Washington office. A copy of the form and data sheets, along with any photos taken, would be maintained at the Apache-Sitgreaves National Forests (scanned and hard copy).

A tracking system will be maintained detailing the type and quantity of immunocontraception product issued; disposition of any unused product; and the number of mares treated by collaborating groups, national forest office, and regional office along with any type of identification applied and date.

Appendix 4: Monitoring and Adaptive Management

This appendix provides the monitoring questions, indicators, and potential management actions that will be used to manage horses within the AML (50 to 104 horses).

Table 2: Monitoring and Adaptive Management

Type of Monitoring	Desired Condition	Indicator	Monitoring Question	Monitoring Methods	Monitoring Frequency	Monitoring Location	Threshold	Potential Horse Populations Management Actions	Potential Herd Health Management Actions	Potential Habitat Management Actions
Habitat and Ecological Conditions	Maintain or improve ecological conditions in the uplands	Ground Cover	What is the trend in ground cover?	Cover frequency plots (Daubenmire Cover Class method); common non-forested vegetation sampling protocol plots, other protocols as they become available.	Verify baseline within 3 years. Sample every 5 to 10 years for a trend determination. Sample more frequently if there is a large-scale disturbance.	Inside the territory boundary.	Downward trend and horses are a contributing factor.	Gather and removal of excess horses. Administer contraceptives.	None	Increase fence permeability by widening existing or installing additional gates. Monitor that gates are open when livestock are not present to facilitate horse movement. Develop additional water sources for horse use within the territory. Maintain enclosures around sensitive areas.
Habitat and Ecological Conditions	Maintain or improve ecological conditions in the uplands	Soil Condition	What is the trend in soil condition?	Soil condition assessments.	Verify baseline within 3 years. Every 5 years as needed in key monitoring areas.	Inside the territory boundary.	Downward trend and horses are a contributing factor.	Gather and removal of excess horses. Administer contraceptives.	None	Increase fence permeability by widening existing or installing additional gates as needed. Monitor that gates are open when livestock are not present to facilitate horse movement. Develop additional water sources for horse use within the Territory. Maintain enclosures around sensitive areas.
Habitat and Ecological Conditions	Maintain or improve ecological conditions in the uplands	Herbaceous species composition, or presence/absence or both.	What is the trend in herbaceous species composition?	Cover frequency plots (Daubenmire Cover Class method); common non-forested vegetation sampling protocol plots, other protocols as they become available.	Verify baseline within 3 years. Sample every 5 to 10 years for a trend determination. Sample more frequently if there is a large-scale disturbance.	Inside the territory boundary.	Downward trend and horses are a contributing factor.	Gather and removal of excess horses. Administer contraceptives.	None	Increase fence permeability by widening existing or installing additional gates as needed. Monitor that gates are open when livestock are not present to facilitate horse movement. Develop additional water sources for horse use within the Territory. Maintain enclosures around sensitive areas.

Habitat and Ecological Conditions	Maintain or improve ecological conditions in the uplands	Upland forage utilization	What is the upland vegetation utilization by all herbivores?	Various protocols with preference given to methods that incorporate degree of use by species.	Annually in the short term and situationally in the long-term.	Inside the territory boundary.	Exceeds 35% allowable use over 30% of the key monitoring sites for 2 consecutive years or any 2 out of 5 years, and horses are a contributing factor.	Gather and removal of excess horses. Administer contraceptives.	None	Increase fence permeability by widening existing or installing additional gates as needed. Monitor that gates are open when livestock are not present to facilitate horse movement. Develop additional water sources for horse use within the Territory. Maintain exclosures around sensitive areas.
Habitat and Ecological Conditions	Maintain or improve ecological conditions in riparian areas and wet meadows.	Riparian utilization and browse	What is the riparian herbaceous utilization? What is the utilization of terminal leaders on woody riparian browse?	Various protocols with preference given to methods that incorporate degree of use by species.	Verify baseline within 3 years. 1 to 3 year intervals	Inside the territory boundary.	Exceeds 30% allowable use of riparian herbaceous species over 30% of the key monitoring sites for 2 consecutive years or any 2 out of 5 years, and horses are a contributing factor.	Gather and removal of excess horses. Administer contraceptives.	None	Increase fence permeability by widening existing or installing additional gates as needed. Monitor that gates are open when livestock are not present to facilitate horse movement. Develop additional water sources for horse use within the Territory. Maintain exclosures around sensitive areas.
Habitat and Ecological Conditions	Maintain or improve ecological conditions in riparian areas and wet meadows.	Riparian woody species height class, streambank stability and ground cover	What is the riparian woody species height class? What is streambank stability? What is the ground cover?	Various protocols with preference given to methods that incorporate degree of use by species.	Verify baseline within 3 years. 5 to 10 year intervals	Inside the territory boundary.	Downward trend in riparian conditions through each of the 3 variables	Gather and removal of excess horses. Administer contraceptives.	None	Increase fence permeability by widening existing or installing additional gates as needed. Monitor that gates are open when livestock are not present to facilitate horse movement. Develop additional water sources for horse use within the Territory. Maintain exclosures around sensitive areas.
Habitat and Ecological Conditions	Maintain an open grassland/savanna conditions where appropriate (Grassland and Woodland: Pinyon-Juniper (Savanna) PNVTs	Canopy cover	Is there encroachment of woody species into Grassland and Woodland: Pinyon-Juniper PNVT's?	Soil and vegetation mapping (terrestrial ecosystem survey, LIDAR ¹ , cover frequency), stems per acre, common stand exam plots or walk-through exams.	Baseline mapping and mapping vegetation treatments	Forest-wide	More than 10% canopy cover in Grassland PNVT's More than 30% canopy cover in Woodland: Pinyon-Juniper PNVT (Savanna subgroup)	None	None	Vegetation treatments including but not limited to juniper removal, mechanical thinning and prescribed burning. These actions would require a separate environmental analysis outside of this project.

¹ LIDAR stands for Light Detection and Ranging. It is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth.

Habitat and Ecological Conditions	Maintain an open canopy cover in forested areas (ponderosa pine PNVT)	Canopy cover	Is there increasing canopy cover in Ponderosa Pine PNVT's?	Stand exam (common stand exam plots or walk through exams as outlined in Forest Service Handbook 2409.17 and associated supplements)	Baseline mapping and mapping vegetation treatments	Forest-wide	More than 40% canopy cover in Ponderosa Pine PNVT's	None	None	Vegetation treatments including but not limited to juniper removal, mechanical thinning and prescribed burning. These actions would require a separate environmental analysis outside of this project.
Herd Health and Population Monitoring	Maintain healthy horse populations within AML	Age and sex of horses	Do we have adequate ratio of age classes and sex to support a sustainable population of horses within the AML range?	Flight surveys, recorded observations using herd or band data, iNaturalist, or other tools as they become available. Fertility control monitoring would be conducted in accordance with agency guidance.	Once the upper end of AML is reached, every 1-3 years to establish a baseline. Long-term: every 10 years	Once the upper end of AML is reached, monitoring of horses would occur wherever they reside.	Horse populations age and sex ratios are not able to support a sustainable population.	Alter the herd age distribution to reduce population growth by controlling the release of age classes into the territory. Alter the ratio of male to female animals to reduce population growth by controlling the release of captured male or female animals back into the territory. Gather and removal of excess horses. Administer contraceptives.	Tracking of movements through either continued improvement of band data or other appropriate research methods including but not limited to radio collaring.	None
Herd Health and Population Monitoring	Maintain healthy horse populations within AML	Genetic diversity	Are we seeing traits in the horse population that would indicate a lack of genetic diversity in the herd?	Collect genetic information (hair, blood, or both) to determine a genetic baseline. Obtain samples during gathers and administration of contraceptives. Collect the material in accordance with sampling design as detailed in the territory management plan.	Once the upper end of AML is reached, every 1-3 years to establish a baseline. Long-term: every 10 years	Once the upper end of AML is reached, monitoring of horses would occur wherever they reside.	Observations of homozygosity	Alter the herd age distribution to reduce population growth by controlling the release of age classes into the territory. Alter the ratio of male to female animals to reduce population growth by controlling the release of captured male or female animals back into the territory. Gather and removal of excess horses. Administer contraceptives	Tracking of movements through either continued improvement of band data or other appropriate research methods including but not limited to radio collaring Introduce one to three young horses from a different wild horse territory to maintain or increase genetic diversity.	None

Herd Health and Population Monitoring	Maintain healthy horse populations within AML	Henneke body condition score	What is the body condition score of the horses?	Visual observations and recording of observations	Continuous	Once the upper end of AML is reached, monitoring of horses would occur wherever they reside.	Henneke body condition scores of 3 or less	Gather and removal of excess horses. Administer contraceptives	Tracking of movements through either continued improvement of band data or other appropriate research methods including but not limited to radio collaring Gather horses (if animal is at risk due to health/condition)	Develop additional water sources for horse use within the territory.
Herd Health and Population Monitoring	Maintain healthy horse populations within AML	Water availability	What is the Standardized Precipitation Index or the most updated Region 3 drought strategy index?	Calculate the Standardized Precipitation Index Visual observations of water sources	Periodic, increasing during dry and/or drought periods	Inside the territory boundary.	Standardized precipitation index (SPI) values of -1 or less for the preceding 12 months ² Water sources that are reliable during an average year are dry.	Gather and removal of excess horses. Administer contraceptives	Tracking of movements through either continued improvement of band data or other appropriate research methods including but not limited to radio collaring Gather horses (if animal is at risk due to health/condition)	Develop additional water sources for horse use within the territory.
Herd Health and Population Monitoring	Maintain healthy horse populations within AML	Forage availability	What is the forage availability in key areas?	Forage production and utilization would be calculated using various protocols.	Periodic, increasing during dry and/or drought periods	Inside the territory boundary.	Forage production levels of less than 50 pounds per acre.	Gather and removal of excess horses. Administer contraceptives	Tracking of movements through either continued improvement of band data or other appropriate research methods including but not limited to radio collaring	None
Herd Health and Population Monitoring	Maintain healthy horse populations within AML	Distribution patterns; number of individual bands	Are horses in bands and well distributed?	Continuing to update and record information in band books, radio collaring, or aerial flight survey's.	Periodic. Use of radio collars and/or microchips could be used to establish baseline to understand where horses reside (2-3 years). This would be discontinued after the initial information is gathered. Ground survey data is ongoing	Once the upper end of AML is reached, monitoring of horses would occur wherever they reside.	Areas of intense concentration or areas with little or no observed use.	Gather and removal of excess horses. Administer contraceptives	Tracking of movements through either continued improvement of band data or other appropriate research methods including but not limited to radio collaring	Develop additional water sources for horse use within the Heber Wild Horse Territory. Increase fence permeability by widening existing or installing additional gates as needed. Monitor that gates are open when livestock are not present to facilitate horse movement.

² If the Forest Service Region 3 issues a new metric for calculating drought rather than SPI, the new metric would be used.

Appendix 5: Design Criteria for Resource Protection

The design criteria in Table 2 will be used when implementing this territory management plan.

Table 3: Design Criteria

Number	Objective	Design Criteria or Best Management Practices	Responsible Party
Weeds-1	Reduce the spread of invasive species	Vehicles and equipment from off the national forest, including contractors, will be cleaned prior to entering the territory so there are no weed pieces nor mud which could carry weed seeds onto the horse territory	All Forest Service personnel, or designated representatives, including contractors or partners
Weeds-2	Reduce the spread of invasive species	Do not feed on public lands, except for short-duration feeding used to bait and trap horses, and in temporary traps and handling facilities. Hay used on all temporary sites on National Forest System lands will be certified weed-free hay. In all permanent facilities the best hay possible will be used. Hay should be inspected prior to purchase to reduce the amount of weeds present. A weed monitoring and abatement plan will be implemented for each permanent site. No emergency feeding will be authorized; by agency policy.	Forest Service range managers
Botany-1	Avoid impacts to sensitive plants	Previously disturbed areas would be used where possible.	Forest Service biologist or range specialist
Heritage-1	Avoid impact to heritage sites	Previously disturbed areas will be used where possible. Undisturbed areas identified as trap sites, fence lines, and watering tanks will be inventoried for cultural resources. If cultural resources are encountered, these locations would not be utilized unless they could be modified to avoid impacts to historic properties.	Forest Service archeologist.
Aquatics-1	To protect water quality and avoid impacts to threatened species	Temporary traps and gather corrals would not be located within riparian areas, lentic areas, wetlands, or within 300 ft either side of the center line of occupied Little Colorado spinedace habitat.	Forest Service hydrologist and aquatics biologist
Aquatics-2	Protect water quality and soils	There will be no new NFS roads or temporary roads constructed to the trap sites. ³ Existing roads used within riparian areas will be hydrologically functional before, during, and after use.	Forest Service hydrologist

³ This does not include roads that will be created to access the permanent holding facility.

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Number	Objective	Design Criteria or Best Management Practices	Responsible Party
Aquatics-3	Protect water quality and soils	During servicing or refueling of equipment or helicopters used in any operation, pollutants shall not be allowed to enter any waterway, riparian area, or stream course. Refueling areas will be located outside riparian areas, including seeps and springs. If helicopters are used as the gathering technique, all landing and refueling areas will be in prior-approved sites and not within identified riparian areas. Hazardous material spill control equipment and absorbent material will be on-site at all times of fuel use or storage.	Forest Service hydrologist
Aquatics-4	Protect water quality and soils and threatened species	Vehicles will not travel through seeps, springs, or streams except for use of existing fords on open Forest system road crossings. Off-highway vehicle travel off established roads within 100 feet of streams will occur only during periods when soil is dry. Vehicles will not enter streams within 300 ft either side of the center line of occupied Little Colorado spinedace habitat.	Forest Service hydrologist and aquatics biologist
Aquatic-5	Protect water quality and soils	When constructing livestock fences, locate gates, crossing areas, and watering areas where impacts to streambanks from livestock and horses will be minimized.	Forest Service range manager
Wildlife-1	Northern goshawk	Human presence should be minimized within nest areas during the nesting season of March 1–September 30.	Forest Service biologist
Wildlife-2	Mexican wolf	Disturbance-causing horse management activities on federal lands are not allowed within a 1-mi (1.6-km) radius around active dens between April 1 and July 31, and around active Mexican wolf rendezvous sites between June 1 and September 30, that the U.S Fish and Wildlife Service determines could adversely affect reproductive success, natural behavior, or persistence of Mexican wolves. Excluded from this definition is any authorized, specific horse management activity ongoing at the time Mexican wolves chose to locate a den or rendezvous site nearby.	Forest Service biologist
Wildlife-3	Raptor nests	Consult with the district biologist prior to implementing management actions to protect active raptor nests from disturbance during the nesting season as per the land management plan.	Forest Service biologist
Wildlife-4	Small mammals, birds and bats	Any water sources constructed will have escape ramps for wildlife	Forest Service biologist or range specialist
Wildlife-5	Wild ungulate movement	Fence construction within Mexican spotted owl protected activity centers will be outside of breeding season (March 1-August 31) unless protocol surveys indicate non-breeding or absence.	Forest Service biologist or range specialist

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Number	Objective	Design Criteria or Best Management Practices	Responsible Party
Wildlife-6	Mexican spotted owl	No new construction of permanent corrals will occur within Mexican spotted owl protected activity centers (PACs) or cores. Traps or other temporary facilities can be constructed and used outside of the breeding season (September 1-February). Temporary facilities may be constructed during breeding season (March 1-August 31) only if protocol surveys indicate non breeding or absence. No temporary facilities will be constructed within cores.	Forest Service biologist
Wildlife-7	Mexican spotted owl	No construction of water developments in Mexican spotted owl protected activity centers would occur during the breeding season (March 1–August 31) unless protocol surveys indicate non-breeding or absence.	Forest Service biologist
Wildlife-8	Mexican spotted owl	No bait or passive gather would occur in Mexican spotted owl protected activity centers during breeding season (March 1–August 31) unless protocol surveys indicate absence or confirmed active nest sites are greater than 0.25 mile from bait site or gather activities.	Forest Service biologist
Wildlife-9	Mexican spotted owl	No active gather (on ground) would occur in Mexican spotted owl protected activity centers during breeding season (March 1-August 31) unless surveys indicate absence or confirmed active nest sites are greater than 0.25 mile from gather activities.	Forest Service biologist
Wildlife-10	Mexican spotted owl	A no-fly zone will be in place for active gathers over Mexican spotted owl protected activity centers during the breeding season (March1–August 31) unless protocol surveys indicate non-breeding or absence.	Forest Service biologist
Wildlife-11	Mexican spotted owl	Field surveys to determine if Mexican spotted owl habitat is present and if Mexican spotted owl surveys need to be conducted prior to extensive reconstruction of existing improvements, the construction of new improvements, or temporary structures. Adjustments will be made in the location of improvements or the timing of construction, as appropriate, to avoid adverse effects to Mexican spotted owls or their recovery habitat.	Forest Service biologist
Wildlife - 12	Fence Construction	New fence construction or reconstruction should use four strands of wire, 42-inches from the ground. Bird diverters would be placed on the top strand. There will be 12-inches of spacing between the top two wires. The third will split the remaining distance. The bottom wire would be barbless wire 18 inches from the ground. ⁴	Forest Service biologist
Range-1	Horse movement	Excess fences (fences no longer needed for livestock management or resource protection) will be removed where feasible to allow free movement of horses within the territory. Excess fences in PACs would be removed outside the Mexican spotted owl breeding season.	Forest Service horse manager range manager and grazing permittees, contractors, volunteers, or a combination of these

⁴ This design feature applies to regularly sized fencing used (approx. 42-inches high). This will not apply to the 10-foot high fence that would be constructed to surround the 61-acre holding facility.

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Number	Objective	Design Criteria or Best Management Practices	Responsible Party
Range-2	Horse movement	After livestock are removed, pasture and boundary gates will be left open to provide horse passage and movement and to facilitate the movement of animals between seasonal ranges. Note: This does not include fences constructed to protect springs or other sensitive areas or fences adjacent to private lands.	Forest Service horse manager range managers, grazing permittees, and volunteers
Range-3	Horse movement	New fence construction, major fence reconstruction or cattleguard installations should be designed to facilitate horse movement within the territory and coordinated with district personnel.	Forest Service range or horse manager
Range-4	Horse movement	Within the territory, where animal concentrations are found along existing fence lines, gates may be widened or added to facilitate better distribution of animals.	Forest Service horse manager range manager and volunteers
Range-5	Fences/gates	If monitoring indicates a need, retrofit existing guards with more humane cattle guards. Any future cattleguards within the Heber wild horse territory will include this safety feature (unless adjacent to Hwy 260).	Forest Service horse manager range manager or engineer and volunteers
Public Notification-1	Public notification	Develop a communication plan for any gather of excess horses.	Forest Service public affairs
Public Notification-2	Stakeholder involvement	Work with stakeholders (wild horse advocates and experts, livestock operators, wildlife biologists, etc.) in the planning implementing habitat management and improvement projects within the designated territory.	Forest Service range or horse program manager
Veg-1	Maintain adequate cover	Maintain adequate tree cover that is consistent with a mosaic landscape, as described in the desired conditions, in the major use areas to provide horses with shelter during periods of extreme inclement weather.	Forest Service range or horse program manager, foresters
Veg-2	Maintain adequate cover and forage base	Limit amount of territory included in prescribed burning to less than one-third of total territory per growing season.	Forest Service range or horse program manager, foresters, fuels program manager
Watershed-1	Control water run-off and sedimentation	Install an adequate number of run-off and erosion control features. This could be concentric ditches, silt fences, check dams, traps, tanks running perpendicular to the slope that would intercept overland flow and allow sediment and manure particulates to settle out of suspension.	Forest Service range or horse program manager
Rec-1	Protect recreation opportunities	Where practical, conduct horse management activities, including any gather of excess horses and motorized use, outside developed recreation sites and away from typical areas of concentrated dispersed recreation use, or conduct in seasons of less visitor use.	Forest Service range or horse program manager and district recreation staff

Number	Objective	Design Criteria or Best Management Practices	Responsible Party
Rec-2	Protect recreation opportunities	When constructing temporary traps or handling corrals, the recreation opportunity spectrum and site management guidelines apply. (https://www.fs.usda.gov/sites/default/files/fs_media/fs_document/ros-guide.pdf).	District recreation staff
Horse-1	Horse health and welfare	All operations which involve handling of horses will be conducted in accordance with the Comprehensive Animal Welfare Program found in the territory management plan.	Forest Service range or horse program manager
Horse-2	Horse contraceptive application	The application of contraceptives will be overseen by the Forest Pesticide Use Coordinator (PUC) ⁵ , which must be licensed through the State.	Forest Service range or horse program manager
Horse-3	Horse contraceptive application	Contraceptive use proposals (FS-2100-0002) must be submitted to the PUC and approved by the Forest Supervisor.	Forest Service range or horse program manager
Horse-4	Horse contraceptive application	Contraceptives would be administered only by trained Forest Service personnel or collaborating partners in accordance with both Federal and State laws.	Forest Service range or horse program manager
Horse-5	Horse contraceptive application ⁶	Delivery of the contraceptives would be by intramuscular injection into the manufacturers approved site of delivery (deep gluteal or cervical musculature). In the future, contraceptives may be administered remotely using an approved long-range darting protocol and remote delivery system (RDS) if or when that technology is developed.	Forest Service range or horse program manager
Horse-6	Horse contraceptive application	All treated mares would be identified and documented.	Forest Service range or horse program manager
Horse-7	Horse contraceptive application	A data sheet would be used by field staff to record all pertinent data (the type and quantity of immunocontraception product issued, including any adverse reactions or personnel incidents; disposition of any unused product; the number of treated mares by collaborating groups or Forest Service personnel, along with any type of identification applied, date) and stored in Natural Resource Manager (NRM) database. An application report would be available through NRM for the Regional and Washington Office if needed.	Forest Service range or horse program manager

⁵ The pesticide use coordinator (PUC) is an individual designated by the Forest to ensure proposals comply with NEPA, the territory management plan, and that individuals carrying out the proposal have the correct certifications and training required by Federal and State laws.

⁶ These same procedures may be used for vaccines as well as contraceptives.

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