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P.O. Box 21868 Mesa, AZ 85277

March 14, 2020

Heber Wild Horse Territory Comments
P.O. Box 640
Springerville, AZ 85938

RE: Comments on the Proposed Action, Heber Wild Horse Territory Management Plan, Navajo and Coconino Counties, Arizona, Apache-Sitgreaves National Forests, January 2020

Submitted electronically: https://cara.ecosystem-management.org/Public/CommentInput?project=18916

Dear U.S. Forest Service, NEPA team specialists for the Heber Wild Horse Territory Management Plan,

We appreciate the opportunity to submit comments and support the proposed action to develop a Heber Wild Horse Territory (HWHT) Management Plan (Plan). The Plan must ensure the herd is managed to maintain a self-sustaining population of healthy animals within the designated territory, in a thriving natural ecological balance with other uses and the productive capacity of their habitat. This includes achieving the desired conditions to have forage and cover available to prey species and big game species to maintain healthy populations, vigorous desirable forage species, functioning riparian habitats and satisfactory soil and watershed conditions.

However, there are significant issues not fully considered or lacking in the proposed action that may cause social or economic harm and place rural communities, local governments, hunters, outdoor recreationists, grazing permittees, and private land inholdings within the Apache-Sitgreaves National Forests at risk. There are also issues not considered that may cause harm to localized wildlife and other species. These issues are provided in the following comments, supported by pertinent references or additional information submitted electronically as attachments with this comment letter via the internet Cara.ecosystem-management.org public comment weblink noted above.

Interrelated and Interconnected Reasonable and Prudent Measures, Terms and Conditions:

Reasonable and prudent measures, terms and conditions, as outlined in Section 7 ESA consultation for threatened, endangered, or proposed (TEP) species in established U.S. Fish and Wildlife Service (USFWS) Biological Opinions (BO) and Forest Decision documents for prior federal actions that are interrelated and interconnected, should be considered in the proposed action analysis.

For example, a primary reasonable and prudent measure within the May 13, 2015 BO, 02EAAZ00-2013-F-0363, Land Management Plan (LMP) for the Apache-Sitgreaves National Forests (Forest), mandates the Forest

- minimize or eliminate adverse effects to TEP species, with protection of occupied breeding sites and critical habitat during authorized activities under the LMP. This includes species specific terms and conditions, monitoring and annual reporting.

- The exclusion of livestock to protect occupied breeding sites during certain times of the year is also included and non-discretionary.
- For several TEP species, livestock access is excluded or limited by exclosures, pasture management and rough terrain.
- Further, based on the BO, guidelines within the LMP have the potential to help protect or restore riparian habitat and the adjacent uplands that contribute to riparian conditions which would benefit various species and their habitat.
- Protection and restoration would be addressed by:
  - stocking in balance with available forage to meet the needs of wildlife (guideline 136);
  - proper timing of grazing relative to plant growth (guideline 133);
  - requiring habitat improvement (guideline 32), and;
  - managing for the special concerns within riparian areas which are critical areas for livestock grazing management (guideline 132).

Furthermore, in all the Forests (livestock) allotment management plans measures are included to maintain healthy levels of forage and are recognized within the BO determinations.

Additionally, during drought conditions, livestock grazing adjustments are required, forest wide.

Therefore, continued forage use on riparian and upland vegetation, such as by unmanaged feral or free-roaming horses, can result in long-term significant adverse effects, including where there is suitable breeding habitat that is not permitted to develop. For these reasons,

- at a minimum, the same non-discretionary measures and terms and conditions described above should be considered and analyzed for the feral or free roaming horses (grazing ungulates) within and outside the HWHT that may be authorized to remain after a gather is accomplished.
- This is important when evaluating native, TEP species, and species of concern viability within their historic range, which is critical to maintain.
- Species viability is further discussed in these two documents:
  https://www.fs.fed.us/emc/nfma/includes/cosreport/Committee%20of%20Scientists%20Report.htm (Committee of Scientists Report, Chapter 3, pages 37-39, provides extensive discussion about species viability. See Appendix A)
  https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5130670.pdf (White paper on managing for species viability, 37 pages. See attached - USDAFS_WhitePaperonSpeciesViability-stelprdb5130670 (1).pdf)

Correspondingly, please see below:

USFWS reasoning for their determination for protected species such as the New Mexico Jumping Mouse, in Biological Opinion AESO/SE May 13, 2015, 02EAAZ00-2013-F-0363, Page 149 includes, but is not limited to, the following standards and guidelines in the LMP.

- Page 14, *Livestock grazing (both authorized and unauthorized), in addition to feral **horses** and elk herbivory, can affect jumping mouse habitat when it eliminates or reduces herbaceous plants or alters the riparian plant species composition and structure.*
  - *While most mouse sites are protected from livestock, they can still be affected by feral **horses** and elk.*
  - *Other un-surveyed sites with suitable habitat, where occupancy is unknown, may be affected by livestock, elk and feral **horses**.*
- Page 17 and 18, ***Standard 3**- limit impacts from activities such as control of invasive weeds within habitats needed by the jumping mouse. Standard 3 will help limit impacts from activities like invasive plant species control by maintaining or moving plant composition towards a moderate to high level of similarity to the site's vegetation potential.*

- Page 158, DC 83: *Floodplains and adjacent upland areas provide diverse habitat components (e.g., vegetation, debris, logs) as necessary for migration, hibernation, and brumation (extended inactivity) specific to the needs of riparian-obligate species (e.g., New Mexico meadow jumping mouse, Arizona montane vole (Microtus montanus arizonensis), narrow-headed gartersnake).*
- Page 158 and 160, DC 54 and 278: *Herbivory [Livestock grazing] is in balance with available forage (i.e., grazing and browsing by authorized livestock, wild **horses**, and wildlife do not exceed available forage production within established use levels).*
- Page 163, GL 71 and 76: *Cool and/or dense vegetation cover should be provided for species needing these habitat components (e.g., Goodding's onion (Allium goodingii), black bear, White Mountains chipmunk (Tamias sp.), western yellow-billed cuckoo).[**The needs of localized species should be considered and provided for during project activities to ensure their limited or specialized habitats are not lost or degraded** (e.g., New Mexico meadow jumping mouse, Bebb willow, White Mountain paintbrush (Castilleja sulphurea)].*
- Page 164, GL 136: *Forage, browse, and cover needs of wildlife, authorized livestock, and wild **horses** should be managed in balance with available forage*.

Hence, it is important to recognize and therefore include in your analysis, that overgrazing by unmanaged feral or free-roaming horses, such as those within and outside the HWHT, can significantly affect TEP species, be degrading to habitat, and create the potential for invasive weeds and loss of site potential.

Forage Use, Effects to Ecological Balance and Watershed, Effects on Localized Species, Impacts to Soils and Streambanks and Riparian Areas:

> Therefore, within your HWHT management plan, at a minimum you should include management and monitoring of the horses forage use, effects from their distribution across the landscape to ecological balance and the watershed, effects on localized species, impacts to soils and streambanks and riparian areas, at a detailed level equal to other species analyzed for Forest management.

Ecosystem Impacts by Hindgut Fermenters with top and lower jaw incisors:

Of importance in your analysis of effects to the environment, the way a horse grazes and chews forage are very different compared to other animals. This is evident when evaluating the residual forage or lack of across Forest rangelands occupied by the feral or free-roaming horses.

Ruminant animals (cattle, deer, elk, pronghorn, and sheep) have incisors on the bottom jaw and a dental pad on the top jaw.

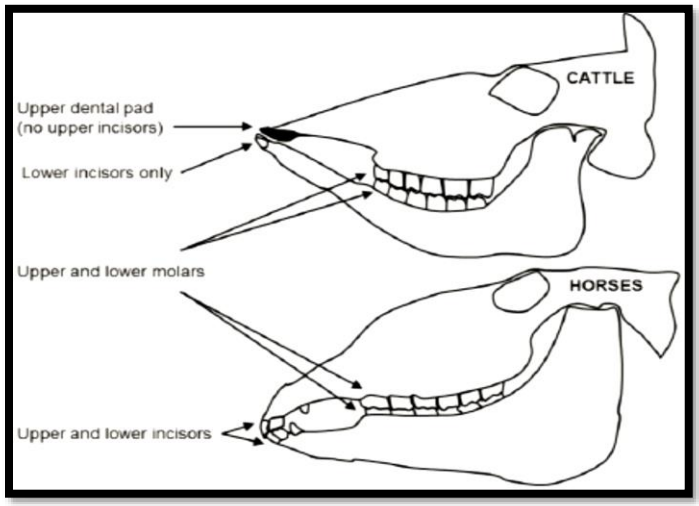
Hindgut fermenters such as horses have incisors on the top and bottom jaws. Grass consumption by horses typically equals or exceeds (82% vs. 74% grass) that of beef cattle and is greater than elk (47%), domestic sheep (42%), pronghorn (8%) and mule deer (6%).

Cattle leave residual vegetation when grazing (commonly 2" above the soil) and they only graze approx. 8 hours or less per day, because they ruminate for about 12 hours, and sleep or rest the remaining time. The residual vegetation left after cattle grazing (and other animals with upper dental pads and no upper incisors, such as elk and deer) commonly leaves a grass plants' apical meristems or "growing tip," thus, triggering new cell growth at the tips of roots and shoots, thereby sustaining plant resilience and continued growth.

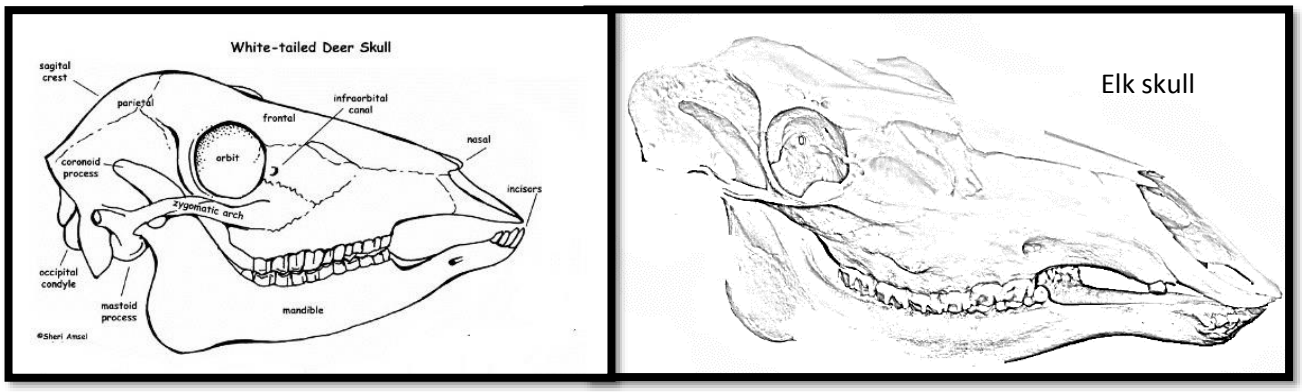
Horses don't ruminate like cattle, deer, elk, and pronghorn, therefore graze much longer. Also, with incisors on the top and bottom jaws, a horse can bite grasses off down to the dirt.

These are all critical factors that must be examined when considering allowing unmanaged horse grazing on public lands, which has occurred with hundreds of feral or free-roaming horses on the Forest that are unauthorized or undocumented and not monitored, causing significant effects to Forest natural resources and localized wildlife.

Please review this additional information:
http://www.uwyo.edu/esm/faculty-and-staff/scasta/pdfs/b-1260.pdf (Dietary Composition and Conflicts of Livestock and Wildlife on Rangeland, University of Wyoming Extension, B-1260, Nov. 2014, 10 pages. See attached - DietaryCompositionandConflictsUnivWyomingExt-b-1260.pdf).
https://forages.oregonstate.edu/regrowth/how-does-grass-regrow/animal-habits/chewing (Oregon State University, Forage Information System, Grass Growth and Regrowth for Improved Management, Animal Habits, Chewing. 3 pages. See Appendix A - Chewing _ Forage Information System _ Oregon State University.pdf).



The figure above is on Page 2 of http://www.uwyo.edu/esm/faculty-and-staff/scasta/pdfs/b-1260.pdf
Attached: DietaryCompositionandConflictsUnivWyomingExt-b-1260.pdf



Natural forage consumers - localized *managed* baseline species wildlife, deer and elk with upper jaw dental pad with no top front teeth. Sketch at left above: https://www.exploringnature.org/db/view/White-tailed-Deer-Skull-Diagram-and-Labeling . Sketch at right above: Elk skull showing ivory tooth at canine location. Sketch from image on https://www.skullsunlimited.com/

Water Availability:

We also appreciate you considering water availability in your draft proposed action. A loss of 10% of body water is fatal to most livestock, including horses.

It is well documented in State, federal, and local weather records the territory and surrounding national forest system lands in the two Ranger Districts of concern will have years with drought, therefore, years of limited to no natural drinking water available in many locations.

This is complicated by the lack of management for the feral or free-roaming horses in the area, who will often graze or bed down near a stock water pond until it dries up and also force (charge and run off) localized wildlife and cattle away from those waters. This can be a deterrent and cause disruption in established habits of survival for localized wildlife, and the cattle whose owners have built and maintain the stock ponds to water their cattle and who maintain those ponds for wildlife.

Cattle and wildlife such as elk and deer who may use the same locations, are "managed" consumers of Forest resources, and the feral or free-roaming horses in this area have had no management. The possible future management of these horses also draws concerns based on federal budgets and limited staffing. These factors must be considered in developing a management plan and appropriate management levels (AML).

Additionally, it is important to consider water intake for horses can range from 4 - 20+ gallons per day, depending on age or class, stage of production, lactation, environmental temperatures, activity, and body size. Animals eating native range forge versus a digestible grain require more water. The water content of forage also determines water needs.

With **one horse** requiring an estimated 15 gallons per day of water, 450 gallons would be needed for a month, and 5,475 gallons over a 365-day period. With **104 horses** that would require 46,800 gallons per month, or 569,400 (15x104x365) gallons of water over a 365-day period. With a 20 or more gallon per day need for one horse, which may be more common for more active feral and free-roaming horses grazing forage plants that have less moisture, 600 gallons would be needed for a month, and 7,300 galloons over a 365-day period. With 104 horses needing 20 gallons per day, that would require 62,400 gallons per month, or 759,200 (20x104x365) gallons of water over a 365-day period.

Stock ponds or dirt stock watering ponds, of which there are 23 throughout the territory based on your proposed action map, and based on your initial determinations, apparently do not provide the water necessary to sustain localized wildlife populations of deer and elk (as well as other wildlife), permitted cattle, and the current feral or free-roaming horses (within the territory). Thus, the Forests proposal to build seven more stock ponds.

Stock ponds commonly authorized on National Forest System lands, if requiring a dam, do not have a dam higher than 10 feet. Pit tanks (pit ponds) where a dam may not be needed are commonly 5-6 feet deep in the center. It is important to note these man-made water sources are not 5-6 feet deep across the entire pond, rather the depth is sloped from shallow on the outer edges down to the ~6-foot depth in the center. Thus, compared to a swimming pool whose depth drops vertical at the edge of the pool, a stock pond with purposeful slopes removes approx. 45% of the vertical holding capacity comparatively. This is important to note as many calculations for water capacity and water availability of man-made ponds do not take into account the intentional slope of a dirt stock pond on National Forest System lands.

In addition, certain site conditions must be considered to have a successful stock pond that provides year-round or even seasonal water (e.g., porosity or soil, clay soil, height above fractured geologic features or parent materials in the soil, effects of surrounding topography). Also, you must take into account that evaporation and seepage cause significant losses of any available water.

There are limestone formations throughout Arizona including in the Sitgreaves forest, which often force shallow built stock ponds to keep pond clay layers above the fractured limestone.

Additionally, access to stock ponds should be controlled to maintain the integrity of the structure and water quality, therefore, all stock ponds are not available all the time.

Importantly, your analysis must consider the water needs of localized wildlife and permitted cattle.

If the 23 stock ponds (considering evaporation and seepage) were an average 1/2-acre with 6 ft. average depth in the center, this offers 3 acre/feet, but an approximate 45% deduction must be accounted for with the slopes in dirt stock ponds (based on information obtained from livestock permittees who have dedicated many years of building stock ponds on National Forest Systems lands). With 325,829 gallons in 1-acre foot, with 3 acre/feet less 45% volume to account for slopes, one stock pond has the potential to hold 537,617 gallons of water.

However, when each pond actually contains usable water (obtained only from rainfall or snowmelt), the rate of loss, and the frequency and amount of replenishment are important factors to determine true availability. In natural settings on forest lands, sediments often fill in stock ponds, drought or drying up from use without replenishment causes deep cracks and fissures in the clay layer that holds the water, ash flows post wildfires or prescribed fires often damage stock pond integrity and use. Therefore, regular maintenance of the ponds and management of their use must be accomplished to ensure water holding capability and water quality.

Thus, 23 or an additional 7 stock ponds may sound like more than sufficient available waters, but the number of possible stock ponds is a moot point without considering the factors involved in the construction, maintenance, use, and natural impacts, to ensure available quality drinking waters for animals. These are all factors that must be analyzed, for each individual stock pond, when considering potential available waters. Also, the existing stock ponds must be evaluated to determine whether they are still functional and can hold water.

Elk and Deer Water Needs:

All wildlife localized to the areas impacted by the feral and free-roaming horses need water to survive.

Here we provide one example showing Elk and Deer water requirements. Water requirements generally vary with available food sources, climactic conditions and the animal's physiological state.

- Elk (Cervus elaphus) drink about 6-8 gallons of water a day. (Steve Clark, Executive Director of the Arizona Elk Society). One elk requiring an average of 7 gallons of water per day, would need 210 gallons per month, and 2,555 gallons for a 365-day period.

- Mule deer (Odocoileus hemionus), consume approx. 0.5 gallons of water per 100 pounds of body weight per day. Therefore, an average size animal would need to drink 1.5 gallons per day (NRCS Wildlife Habitat Management Institute, Mule Deer #28). One Mule deer weighing an average of 300 pounds of body weight, requiring 1.5 gallons of water per day, would need 45 gallons per month, and 547.5 gallons for a 365-day period.

With an estimated number of approximately 200 elk and 200 Mule deer in the area within or near the territory, these animals would require 511,000 gallons of water for elk, and 109,500 gallons of water for Mule deer for a 365-day period. Actual numbers of wildlife in the area must be obtained from the Arizona Game and Fish Department.

This information is critical to include in your analysis of the territory. Please also contact our State wildlife managers for additional data on habitat monitoring.

Please review this additional information:
https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_010100.pdf (NRCS Wildlife Habitat Management Institute. See attached - MuleDeer-nrcs143_010100.pdf)
https://www.fs.fed.us/database/feis/animals/mammal/odhe/all.html (FEIS database. See attached - Odocoileus hemionus.pdf)
https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_010000.pdf (NRCS Wildlife Habitat Management Institute. See attached - AmericanElk-nrcs143_010000.pdf
https://www.fs.fed.us/database/feis/animals/mammal/ceel/all.html (FEIS database. See attached - Cervus elaphus.pdf
https://www.ag.ndsu.edu/pubs/ansci/livestoc/as1763.pdf (Livestock Water Requirements, NDSU publication, 4 pages. See attached - NDSU_LivestockWaterRequirements_as1763.pdf)
https://www.fs.fed.us/pnw/pubs/pnw_gtr250.pdf (Specification for Structural Range Improvements, USDA FS, PNW-GTR-250, 1990, 126 pages. See attached - pnw_gtr250 (1).pdf)

Impacts to localized Big Game animals, Elk and Deer:

The HWHT Management Plan must consider the decline of elk and deer populations, how this impacts big game opportunity for hunters, and how disturbance or negative impacts such as from exponential population growth of unmanaged horses affects the established State management of elk and deer populations (42 USC § 4331, 40CFR1508.14) This includes the impacts to wildlife reproductive behavior, foraging behavior, defensive behavior, communication behavior, territorial behavior, dispersal and social behavior patterns. The elk and deer populations continue to decline in this area, and the number of elk and deer tags have been influenced by the large excess number of horses across thousands of acres on the Sitgreaves Forest. Arizona Game and Fish Department surveys indicate a decrease in elk and deer populations south of highway 260, as can be seen in the figure below (courtesy Arizona Game and Fish Department).

Elk

Year	GMUCode	Bull	Calf	Cow	Spike	Total	Groups	M100F	J100F	MaleCI	JuvCI
2014	03A/03C	17	67	125	8	217	20	13.6	53.6	5	6
2015	03A/03C	64	293	133	28	518	44	31	45	9	4
2016	03A/03C	35	101	235	26	397	37	26	43		
2017	03A/03C	75	120	315	27	537	56	32.4	38.1		
2018	NO SURVEY										
2019	03A/03C	36	52	101	3	192	44	38.6	51.5		

Mule Deer

Year	GMUCode	Buck	Doe	Fawn	Spike	Unclassifie	Total	Groups	M100F	J100F	MaleCI	JuvCI
2014	03A/03C	25	121	66			212	35	20.7	54.5	7	6
2015	03A/03C	44	219	74			364	43	20	53	5	4
2016	03A/03C	29	86	48			164	26	34	56	6	
2017	03A/03C	NO SURVEY										
2018	03A/03C	19	93	51			163	21	20.4	54.8		
2019	03A/03C	No survey										

Best Available Science, Including Study of All areas where Free-roaming Horse Occur:

It is also crucial the analysis for this territory management plan include evaluation of the best available science and information studying all areas where free-roaming horses occur, analyze the adverse impacts, and required management to protect native wildlife and natural resources on public lands or National Forest System lands.

For example, this would include information provided by the USFWS such as their summary regarding Feral Horse and Burro Management at the Sheldon National Wildlife Refuge (as well as *other* locations). This summary provides the image and information below. One example of information that must be evaluated as part of your analysis of the best available science.

Water sources such as springs and streams on Sheldon NWR are being impacted by horses. This springhead above Catnip Reservoir is severely impacted by horse grazing, causing loss of riparian vegetation such as willows and other plants that provide cover and shade for fish and other water organisms. The Lahontan cutthroat trout, and endangered species, relied on this spring for reproduction and is being negatively impacted by this loss of habitat.

Please review this additional information: https://www.fws.gov/refuge/sheldon/ https://www.fws.gov/sheldonhartmtn/pdf/Feral%20Horse.pdf (See attached -USFWS-gov-sheldonhartmtn-Feral Horse.pdf

Petition to list a Distinct Population Segment of North American Wild Horses on All U.S. Federal Public Lands under the Endangered Species Act, FWS–R8–ES–2015–0049 (2015):

In 2014, there was a requested action to list a Distinct Population Segment (DPS) of North American Wild Horses. However, there was no substantial scientific or commercial information indicating that the requested action may be warranted. Therefore, status reviews for the horses were not initiated.

On June 17 of that year, the USFWS received a petition from Friends of Animals and The Cloud Foundation, requesting that the DPS of North American wild horses on all U.S. federal public lands be listed as an endangered or threatened species under the Act. In an October 3, 2014, letter to the petitioner, the USFWS responded that they reviewed the information presented in the petition and did not find that the petition warranted an emergency listing. This finding addresses the petition:

Based on USFWS review of the petition and sources cited in the petition, they found that the petition did not provide substantial information indicating the petitioned entity may qualify as a DPS and, therefore, a listable entity under section 3(16) of the Act. The petition did not present substantial information supporting the characterization of North American wild horses on all U.S. Federal public lands as a DPS, because the discreteness criteria were not met. Therefore, this population is not a valid listable entity under section 3(16) of the Act, and the USFWS are not initiating a status review in response to the petition. Their justification for this finding can be found as an appendix at http:// www.regulations.gov under Docket No. FWS–R8–ES–2015–0049 under the ‘‘Supporting Documents’’ section.

This finding is important to consider as you move forward in your analysis.

Please review this additional information:
https://www.fws.gov/news/ShowNews.cfm?ref=blm-fws-agreement-enhances-management-of-wild-and-feral-horses-and-burros&_ID=1345 (BLM, FWS Agreement. See Appendix A - News Releases - U.S. Fish and Wildlife Service.pdf)
https://www.fws.gov/refuges/RefugeUpdate/SepOct_2013/ferel_horses.html (Feral Horses: a Conundrum of Epic Proportions. (See Appendix A - Refuge Update 2013, National Wildlife Refuge System.pdf)
https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=9571 (USFWS Species profile for Horses. See Appendix A - Species Profile for Horse (Equus caballus).pdf)
https://www.govinfo.gov/content/pkg/FR-2015-07-01/pdf/2015-16001.pdf#page=1 (Federal Register, 90-day findings on petitions. See attached - 2015-16001.pdf)

Higher level of legal requirements:

The *loss of TEP habitat* or *other significant environmental impacts (including adverse impacts to state managed wildlife*) would raise your analysis to a higher level of legal requirements, including the need to consider significant impacts, a more comprehensive analysis and "hard look" at cumulative impacts with all existing and reasonably foreseeable future actions in the area, providing an Environmental Impact Statement. This rather than remaining at the Environmental Assessment and Finding of No Significant Impact (FONSI) level as defined in regulation and policy under the National Environmental Policy Act (NEPA).

Stipulation and Joint Motion, considerations and recommendations based on available information:

The 2007 Stipulation and Joint Motion, Case No. CV-05-2754-PHX-FJM (see attached), terms and conditions included the recognition that the Heber Wild Horse Territory still exists and has not yet been dissolved. Consider, based on the information you have provided in your Proposed Action thus far, that the conditions may exist for the HWHT to be deemed inactive.

Your analysis should provide enough evidence to make a determination of active or inactive based on the evidence and according to the law.

We agree, the development of a written HWHT Management Strategy must be completed prior to consideration of any gathering or removing of the horses in the territory or the Black Mesa or Lakeside Ranger Districts.

Following a Decision on the HWHT Management Plan we recommend you schedule an immediate gather, or as soon as possible, of all horses to make determinations of ownership, placing them in temporary holding corrals within the familiar area from which they would be captured, following the procedures you have outlined in Appendix E, or something similar as decided in the final HWHT Management Plan.

Further, with the 2007 Stipulation stating the Forest *will* continue to coordinate with the White Mountain Apache Tribe for *repair and maintenance* of the boundary fence. Your proposed action should be more specific on how you will accomplish this important task. This boundary fence is paramount to any consideration of protecting genetic integrity of any horses protected under the Wild Free-Roaming Horses and Burros Act of 1971, as amended, and critical to avoid adverse impacts to natural resources from current and any future unauthorized grazing of White Mountain Apache Tribe feral horses.

Please review this additional information:
https://heberhorsecollaborative.asu.edu/ In 2007, the Forest Service entered into a Stipulation Agreement to develop a written HWHT Management Strategy (Plan). (See attached - stipulation agreement Heber horsesfseprd487549.pdf)

Adaptive Management and LMP requirements, Excess Animals, Fencing, Population Inventory and Gather, and Harm or Hazardous Conditions:

Using Adaptive Management, the territory management plan should also include how the LMP will be amended after monitoring and in-depth analysis is completed, as must be prescribed in the territory management plan.

This includes considering potential changes to the horse population objective AML, and where rangelands are monitored based on horse use. In addition, the territory management plan should also describe that a new plan will be evaluated with any changes in law, regulation or policy, also requiring an amendment to the LMP.

The territory management plan should state that a timely gather of excess animals (horses) from the Forest, including those outside the territory will occur within 30-days following the final Decision document of the territory management plan. This timing and process is not unlike Forest Service roundups of unauthorized cattle, making it a reasonable request.

This would ensure the horse AML is achieved and unauthorized forage use by excess animals does not cause further or permanent degradation and loss of natural resources (P.L. 92-195; 16 USC 30 §1332 (f) "excess animals" means wild free-roaming horses and burros (1) which have been removed from an area by the Secretary pursuant to application law or, (2) which must be removed from an area in order to preserve and maintain a thriving natural ecological balance and multiple-use relationship in that area.)

To avoid continued adverse effects to natural resources from the current excess horses within and outside the territory, where the territory boundary is not fenced, it should be fenced to control the horse population within the territory to protect natural resources and genetic diversity and implement management as mandated in the Wild Free-Roaming Horses and Burros Act and associated edicts.

Further, with an AML already determined as defined in your proposed action, ***prior*** to implementing the territory management plan, the established territory boundary should have completed and repaired fencing to be able to manage the horses as is required by law. This includes focusing on the White Mountain Apache Reservation fence boundary with the Forest, as a high priority since there are multiple issues of ingress and egress and lack of regular maintenance.

Additionally, the current (2020) estimate of horses within and outside the territory should be verified through population inventory (direct count), followed by consecutive gather to remove excess horses within and outside the territory.

Gathering of the excess horses must be done to avoid adverse effects to natural resources and prevent harm to the horses, localized wildlife, and prevent harm or hazardous conditions to the public.

Fencing and Management, Avoiding adverse effects of the action upon the quality of the human environment:

It is noted in the proposed action the territory northern boundary is against private lands bounded by the community of Heber, with houses, roads, and fences, and with boundary against state highway 260. Avoiding or minimizing adverse effects of the action upon the quality of the human environment is also critical in the development of a proposal under NEPA (40CFR1500.2). "Human environment" shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment (§1508.14).

Fencing for public safety should be considered a high priority.

It would be beneficial to establish a perimeter fence along major public motorized roads in the territory as well as outside the territory where horses currently occupy National Forest System lands as described in the proposed action.

Further, highway 260 does not have fencing that prevents the horses from crossing the highway and onto National Forest System lands within Arizona Game and Fish Department hunt units 4A and 4B. The Forest Lakes community in the same area has had multiple instances of horses grazing in their neighborhoods. The horses have also been observed as far north as Wildcat Canyon (Any flight surveys of horses outside the territory must include these areas).

We recommend fencing along the 51 Road, south from Heber to the 300 Road, then west until the 300 Road reaches Highway 260 at the Black Canyon lake turnoff to prevent the horses from entering the highway and private lands in the area.

It is important to note as part of the analysis in developing the proposed action (and any alternatives to the proposed action), the degree to which the effects on the quality of the human environment are likely to be highly controversial and should be considered (40CFR1508.27). Further, the "effects" must certainly be evaluated during the environmental assessment process, but also be considered during the initial analysis to develop the proposed action.

And, with the agency knowledge required to perform a NEPA analysis, the knowledge of direct and indirect or cumulative effects should be part of the initial analysis that considers ecological, aesthetic, historic, cultural, economic, social, or health effects (§1508.8).

Baseline information and Existing conditions:

The proposed action in conjunction with the purpose and need development prior to public comment should include discussion of existing and desired conditions, resource needs, and formation of objectives. Also, details of how the baseline information for the territory was evaluated and accomplished and when it began should be a part of that pre-NEPA frontloading, along with meeting National Forest Management Act, NFMA, requirements. Additional baseline information should be provided during the proposal development, with further data collection during analysis.

Within the proposed action, it states several current sources of information are available which show the **existing** condition in the territory. Yet, that information was *not* fully disclosed and should be.

In the analysis process leading up to the development of a proposed action the identification of desired conditions, existing conditions, and resource management needs are important steps (Forest Service directives).

Desired conditions are discussed numerous times throughout the document, **existing** conditions are not.

To be able to determine the resource management needs and possible practices the analysis must compare desired conditions with existing conditions.

Existing conditions are critical to understand in developing a proposed action and disclose to the public to make an informed and substantive comment on the proposed action.

The Interior Board of Land Appeals (IBLA) defines Appropriate Management Level (AML) as the 'optimum' number of wild horses or burro which results in a thriving natural ecological balance and avoids deterioration of the range (109 IBLA 119).

The proposed action has disclosed an estimated number of horses within and outside the territory. But, does not provide the critical information of existing conditions (i.e., ecological status of the vegetation, composition

and arrangement of plant communities, status and function of riparian areas and wetlands, stream bank and stream channel characteristics, wildlife and fish habitat characteristics, cultural resource protection, soil protection and water quality).

Existing conditions should be specific and quantified.

This includes the lack of available and accessible water for wildlife where the horses linger and trail around water sources (i.e., developed stock waters, or natural water collection surface cavity). As stated earlier, the behavioral patterns of the horses observed has been to dominate water sources until they dry up, especially during the summer months. This drives off other wildlife.

We appreciate you considering at least seven water developments, and recommend you complete a more in-depth analysis of the limited available waters within the territory to provide for drinking, and importantly for horse/herd distribution management to avoid overgrazing and soil degradation.

Western Governors Association Policy:

As reiterated in the Western Governors Association (WGA) policy, the U.S Fish and Wildlife Service has recognized that wild horse and burro populations in excess of AMLs can degrade habitat, and in the context of the Endangered Species Act, has identified this situation as a localized threat in some areas to the viability of certain protected species.

Wild horse and burro populations above AML thresholds can also have harmful impacts on other wildlife species, habitat and riparian areas, rangeland ecosystem function as well as negative consequences for permitted domestic livestock grazing and local governments and States that experience federal regulatory decisions influenced by habitat impacts of wild horses and burros (See Appendix A, WGA Policy Resolution 2018-01).

Appropriate Management Levels (AML), Past and Current Management Failures:

Based on the statements in the proposed action, the AML for the territory is 50 to 104 horses. The estimated horse population surveys between 2012 and 2017 ranged from 9 to 51 within the territory and 177 to 420 outside the territory clearly demonstrate exponential growth of unmanaged horses in the area, that is likely much higher now (three years later).

Further, the agency has demonstrated the inability to meet direction regarding the mandates of the Wild Horse and Burro Act to manage the horses on National Forest System lands within the Apache Sitgreaves National Forests since the mid-1970s.

And, that according to the agency's documents, the original 7 horses on the territory had all died and did not reproduce, so the current horses in the area are likely all feral, unauthorized animals from the neighboring White Mountain Apache Reservation.

These issues further demonstrate the critical importance of disclosing the existing conditions in the proposed action, not just the desired conditions or needs for infrastructure, for the public to provide fully informed substantive comments and understand resource management needs.

Transparency and use of Scientific Information:

The National Research Council's report "Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward," that is certainly applicable to National Forest System lands, emphasizes transparency to stakeholders, and the use of scientific information. The proposed action fails to provide full transparency to stakeholders by only mentioning a report and determination that discusses AMLs that was

apparently done in 2018 and is not readily available on the provided website link, which states when accessed: 'content could not be located' https://www.fs.usda.gov/detail/asnf/landmanagement/resourcemanagement/?cid=fseprd5343l3. Again, this report has information that should be at least be summarized in the proposed action, purpose and need, for the public to make informed substantive comments.

Need for a Wild Horse Specialist:

To implement successful management of the HWHT and horses within the territory and outside the territory, the Forest must employ a Wild Horse Specialist as defined by the Department of Interior and include additional specialized training based on the needs of the territory horses, including an understanding of genetics.

White Mountain Apache Reservation:

Also, we recommend you change the phrase "Fort Apache Indian Reservation" and "Fort Apache Reservation" in your proposed action and any further documentation or analysis or correspondence to "White Mountain Apache Reservation." (see https://itcaonline.com/member-tribes/white-mountain-apache-tribe/)

Considerations about the Management of Wild or Unauthorized Domestic Horses:

We support your proposal to use thresholds that should include monitoring and appropriate management of horses occupying areas outside of the territory; the methods to remove excess animals; the population management techniques; the comprehensive animal welfare standards; the ecosystem health monitoring to be done; the stray horse monitoring to be done; Horse movements, patterns, connectivity, and distribution monitoring to be done; Horse population numbers and health monitoring to be done; the adaptive management and monitoring matrix; and the design criteria and best management practices.

However, the methods and techniques described in the proposed action appendices are intended to apply to wild horses, and based on the agencies own documents, the horses that are currently occupying the landscape within and outside the territory are from the White Mountain Apache Reservation, which based on our understanding constitutes domestic private ownership.

Based on available Forest documents, it appears the HWHT no longer contains wild horses, and could be deemed inactive (as are several other territories). The documentation of those already inactive territories should be included in your analysis.

Thank you for your consideration of our comments. Please contact us if you have any questions.

Sincerely,

John J. Kolezar
Past President , Arizona Deer Association
Designated Heber Wild Horse Territory Management Respondent

*Appendix A included (following pages)

*11 Attachments provided separately to be submitted with letter within the Forest Service provided weblink to Cara.ecosystem-management.org.

1) USDAFS_WhitePaperonSpeciesViability-stelprdb5130670 (1).pdf, 37 pages.
2) 2015-16001.pdf, 12 pages.

3) pnw_gtr250.pdf, 126 pages.
4) NDSU_LivestockWaterRequirements_as1763.pdf, 4 pages.
5) USFWS-gov-sheldonhartmtn-Feral Horse.pdf, 4 pages.
6) DietaryCompositionandConflictsUnivWyomingExt-b-1260.pdf, 10 pages.
7) AmericanElk-nrcs143_010000.pdf, 8 pages.
8) Cervus elaphus.pdf, 92 pages.
9) MuleDeer-nrcs143_010100.pdf, 16 pages.
10) Odocoileus hemionus.pdf, 89 pages.
11) stipulation agreement Heber horsesfseprd487549.pdf, 5 pages.

Appendix A

Committee of Scientists Report, Chapter 3, pages 37-39.
https://www.fs.fed.us/emc/nfma/includes/cosreport/Committee%20of%20Scientists%20Report.htm
Select sections of Pages 37-39:

3-4. Cross-Scale Issue: **Population-Viability Analysis** in the Northwest Forest Plan

The species-viability assessment conducted by the Forest Management Assessment Team (FEMAT; 1993) used expert panels to assess the likelihood of four possible outcomes for habitat conditions on federal lands. The panel process was designed to elicit expert opinion and professional judgment relative to these outcomes:

Outcome A

Habitat is of sufficient quality, distribution, and abundance to allow the species population to stabilize and to be well distributed across federal lands.

Outcome B

Habitat is of sufficient quality, distribution, and abundance to allow the species population to stabilize, but with significant gaps in the historic species distribution on federal land. These gaps cause some limitations in interactions among local populations.

Outcome C

Habitat only allows continued species existence in refugia with strong limitations on interactions among local populations.

Outcome D

Habitat conditions result in species extirpation from federal land.

Options were compared by assessing whether a species (or group) attained an 80% or greater likelihood of achieving outcome A. This likelihood and outcome combination were selected, based on the collective judgement of the scientists involved, to represent a relatively secure level of habitat and an appropriate criterion for comparing options. The charge to FEMAT (from the Forest Conference Executive Committee, which was composed of the relevant cabinet offices) was to present alternatives that provided a medium-to-very high probability of ensuring species viability.

The authors pointed out that options other than attaining an 80% likelihood of Outcome A to achieve viability may be acceptable for some species. For other species, irreversible gaps in their historical distributions may have already occurred, and Outcome B may be their most likely future, under even the most protective options. If a species is already restricted to refugia by its own natural history or past management actions, some combination of outcomes A, B, and C may result.

Cross-Scale Issue: Species Viability

The emphasis on composition, structure, and processes within ecological systems directs the focus to broad spatial scales and large landscapes. A systems approach gives equal emphasis to the components of the system (i.e., the individual species).

The desire to ensure species viability is an expression of both the intrinsic and instrumental value of biological diversity. Diversity is sustained only when individual species persist; the goals of ensuring species viability and providing for diversity are inseparable.

A viable species is defined as consisting of self-sustaining populations that are well distributed throughout the species range. Self-sustaining populations are those that are sufficiently abundant and have sufficient genetic diversity to display the array of life history strategies and forms that will provide for their persistence and adaptability in the planning area over time.

Because of the inescapable uncertainty of environmental events, the likelihood of a species persisting indefinitely across time is always uncertain.

Because it is impossible to ensure the viability of a given species, it is necessary to be clear about the goals of a viability requirement and the process of viability analysis. **Some important principles related to viability are:**

1) The **short-term viability of a species** is influenced by many factors, including its size, sex ratio, age structure, reproductive and survival rates, and geographic distribution. In addition to total population size, the spatial distribution of local populations, and of individuals within populations, can have profound effects on the likelihood of persistence.

2) Any statement about the likelihood that a species will be viable under a management **strategy should explicitly incorporate probability and time**; that is, the likelihood that a species will be viable under a management strategy is measured along a continuum, in terms of some projected likelihood of persistence over a specified time period.

3) The purpose of a viability assessment is to **gain insights into how resource management can influence** the probability of persistence.

4) A first step in providing for species viability is to assess the likelihood that a species will be viable over specified periods. Such an assessment should be based on a current understanding of how populations change in space and time as a consequence of internal and external factors. Since viability can never be ensured with 100% certainty, whether a population is deemed viable is a decision based on an acceptable risk of extinction. **Ultimately, this is a value-based, not a science-based, decision**.

5) Given that habitat loss and fragmentation are often major factors that put species at risk, the Forest Service planning process should stress the **quantity, quality, and distribution of habitat necessary** for species viability.

An example of species viability assessment is provided by the work done for the Northwest Forest Plan.

Focal Species

Because monitoring the status and assessing the viability of all species is impossible, studies must focus on a smaller subset of species. The Committee proposes the generic term "focal species" to allow a variety of approaches to selecting those species to monitor and to assess for viability. The key characteristic of a **focal species is that its status and time trend provide insights to the integrity of the larger ecological system**. The term "focal" includes several existing categories of species used to assess ecological integrity:

1**) Indicator species**: species selected because their status is believed to (1) be indicative of the status of larger functional group of species, (2) be reflective of the status of a key habitat type; or (3) act as an early warning of an anticipated stressor to ecological integrity. The presence of fish in a river is an indicator of water quality.

2) **Keystone species**: species whose effects on one or more critical ecological processes or on biological diversity are much greater than would be predicted from their abundance or biomass (e.g., the red-cockaded woodpecker creates cavities in living trees that provide shelter for 23 other species).

3) **Ecological engineers**: species who, by altering the habitat to their own needs, modify the availability of energy (food, water, or sunlight) and affect the fates and opportunities of other species (e.g., the beaver).

4) **Umbrella species**: species who, because of their large area requirements or use of multiple habitats encompass the habitat requirements of many other species (e.g., deer).

5**) Link species**: species that play critical roles in the transfer of matter and energy across trophic levels or provide a critical link for energy transfer in complex food webs. For example, prairie dogs in grassland ecosystems efficiently convert primary plant productivity into animal biomass. Prairie dog biomass, in turn, supports a diverse predator community.

6) **Species of concern**: species that may not satisfy the requirement of providing information to the larger ecosystem but because of public interest will also be monitored and assessed for viability. Such species include some threatened and endangered species, game species, sensitive species, and those that are vulnerable because they are rare.

Available knowledge of species' ecologies and their functional roles in ecological systems is so limited that it is not always possible, a priori, to unambiguously identify focal species. Therefore**, the selection of focal species, based on existing information and the criteria for inclusion, should be treated as a hypothesis rather than a fact**. Given this uncertainty, the assumption that a specific species serves a focal role must be validated by monitoring and research.

An emphasis on focal species, including their functional importance or their role in the conservation of other species, combines aspects of single-species and ecosystem management. It also leads to considering species directly, in recognition that focusing only on composition, structure, and processes may miss some components of biological diversity.

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Western Governors' Association Policy Resolution 2018–01

Wild Horse and Burro Management

A. BACKGROUND

1. Wild horses and burros are managed by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) according to the Wild Free-Roaming Horses and Burros Act of 1971 (Act), as amended by the Federal Land Policy and Management Act of 1976, the Public Rangeland Improvement Act of 1978, the Omnibus Parks and Public Lands Management Act of 1996, and the Fiscal Year 2005 Omnibus Appropriations Act. The Act has not been modified by Congress since 2005. Most wild horses and burros are managed by the BLM.

2. The Act protects wild horses and burros from harassment or death and states that these animals are to be protected and managed as components of public lands.

3. The BLM's goal is to manage healthy wild horse and burro populations on healthy rangelands (Wild Horses and Burros Management Handbook, 2010). The BLM manages wild horses and burros on designated Herd Management Areas (HMAs) and attempts to assure populations are "in balance with other uses of the public lands and that a thriving natural ecological balance is achieved and maintained." As part of achieving this objective, the BLM establishes an Appropriate Management Level (AML) for each HMA.

4. Increasingly, federal agencies have been unable to adequately manage wild horse and burro populations, both on-range and in holding facilities. This is due to difficulties in adopting or selling wild horses and burros, increases in the number of wild horses and burros on the range, lack of effective fertility control measures, insufficient availability of short- and long-term holding facilities, and increasing management costs.

5. The Interior Board of Land Appeals (IBLA) has defined AML as "the 'optimum' number of wild horses or burros which results in a thriving natural ecological balance and avoids a deterioration of the range" (109 IBLA 119). As of March 1, 2017, the BLM estimated that 72,647 wild horses and burros roamed BLM-managed rangelands in 10 western states, which exceeds by more than 45,900 the west-wide AML of 26,715. The U.S. Fish and Wildlife Service has recognized that wild horse and burro populations in excess of AMLs can degrade habitat, and in the context of the Endangered Species Act, has identified this situation as a localized threat in some areas to the viability of the greater sage-grouse in sagebrush ecosystems. Wild horse and burro populations above AML thresholds can also have harmful impacts on other wildlife species, habitat and riparian areas, rangeland ecosystem function as well as negative consequences for permitted domestic livestock grazing and local governments and states that experience federal regulatory decisions influenced by habitat impacts of wild horses and burros.

6. While the 1971 Act requires the agencies, upon request, to remove wild horses and burros that stray onto private lands, private landowners have often been forced to engage in costly litigation to seek compliance with this mandate.

B. GOVERNORS' POLICY STATEMENT

1. Current wild horse and burro population levels, the continued exponential growth of these populations, and the federal agencies' inability to meet direction for attaining AMLs presents an urgent concern for management policy and practice.

2. We support thoughtful, appropriate and science-based management decisions for wild horse and burro management. In particular, we support management decisions that ensure populations are managed within AMLs in order to promote horse and burro herd health, species conservation and recovery, and habitat as well as forage vitality for wild and domestic species.

3. Monitoring data should be collected and used by BLM and USFS to inform herd management plans, AMLs and wild horse management. In states that do their own monitoring, BLM and USFS should coordinate with those states to obtain and use the states' data.

4. We agree with the finding in the National Research Council's *Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward* report that the process to establish, monitor and adjust AMLs should be made transparent to stakeholders, be supported by scientific information (including state data), and be amenable to adaptation with new information and environmental conditions and social change.

5. Various types of fertility control have proven effective on domestic animals, including horses and burros, and should be utilized for wild horse and burro population management. Some HMAs currently have effective fertility control programs in place and those programs should continue and be expanded to other areas. Research and other efforts to improve fertility control should also be expedited.

6. Collaboration with local governments, state governments, tribes, other federal agencies, livestock producers, private landowners, wildlife and sportsmen groups, conservation groups, and others is necessary to develop a plan to educate the public on wild horse and burro issues and management and to implement management solutions.

7. HMA Plans should use adaptive management to allow for responsive and timely adjustments in management if AML herd thresholds are exceeded. This approach requires monitoring and development of triggers to adjust management.

8. Alternative food sources for horses and burros in short- and long-term facilities should be considered. For example, hay harvested from Conservation Reserve Program lands or highway rights-of-way could be used to feed wild horses and burros.

9. Many groups adopt wild horses and burros for use in training, therapy, recreation and education programs. Gathering and adoption or other appropriate herd reduction approaches should continue and be expanded by BLM including, where partnership opportunities exist, with local governments, state governments, tribes, other federal agencies, livestock producers, private landowners, wildlife and sportsmen groups, conservation groups, and others.

10. Data related to wild horse and burro management and populations is not easily accessible and generally not published in a timely manner. Federal agencies should remedy this problem so data can be used in management decisions and in educational materials.

C. GOVERNORS' MANAGEMENT DIRECTIVE

1. The Governors direct the WGA staff, where appropriate, to work with Congressional committees of jurisdiction and the Executive Branch to achieve the objectives of this resolution including funding, subject to the appropriation process, based on a prioritization of needs.

2. Furthermore, the Governors direct WGA staff to develop, as appropriate and timely, detailed annual work plans to advance the policy positions and goals contained in this resolution. Those work plans shall be presented to, and approved by, Western Governors prior to implementation. WGA staff shall keep the Governors informed, on a regular basis, of their progress in implementing approved annual work plans.

Western Governors enact new policy resolutions and amend existing resolutions on a biannual basis. Please consult www.westgov.org/policies for the most current copy of a resolution and a list of all current WGA policy resolutions.

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https://www.fws.gov/news/ShowNews.cfm?ref=blm-fws-agreement-enhances-management-of-wild-and-feral-horses-and-burros&_ID=1345

Conserving the Nature of America (https://www.fws.gov)

News Release

BLM, FWS Agreement Enhances Management of Wild and Feral Horses and Burros

September 2, 2010

Contact: Division of Public Affairs External Affairs Telephone: 703-358-2220

Website: https://www.fws.gov/external-affairs/public-affairs/ (https://www.fws.gov/external-affairs/public-affairs/)

The Bureau of Land Management (BLM) and the U.S. Fish and Wildlife Service (FWS) have signed a Memorandum of Understanding (MOU) that will further improve management of wild horses and burros on BLM- managed public lands in northwest Nevada, northeast California and south central Oregon and feral horses and burros on FWS-managed lands within the Sheldon-Hart Mountain National Wildlife Refuge (NWR) Complex.

The wild horses and burros managed by the BLM are defined by the Wild Free-Roaming Horses and Burros Act of 1971. Feral horses and burros, as defined by the FWS, are non-indigenous, unbranded, unclaimed descendents of domestic horses and burros that exist and move about unrestricted on refuge lands. FWS manages feral horse and burro populations to benefit a diverse assemblage of native plant and wildlife species, habitats and naturally functioning systems characteristic of the Great Basin ecosystem. The Sheldon NWR is currently reviewing management options as part of its Comprehensive Conservation Planning process.

Each agency is still responsible for management of horses and burros on lands they administer in accordance to respective policies and management plans. The MOU provides for improved coordination and cooperation, leading to enhanced management of horses and burros across the tri-state area.

Improved coordination between the BLM and FWS will result in achieving land use plan resource objectives and, where applicable, on the BLM-managed public lands, maintaining a thriving natural ecological balance for wild horses and burros and other natural resources. Utilizing the best available science, the agencies will work cooperatively together to conduct all management activities, including population inventories, gathers, habitat and population monitoring and outreach.

The agencies will establish an Executive Committee consisting of the BLM Nevada, California and Oregon State Directors and the FWS Pacific Regional Director/their designated representatives that will provide the leadership to implement management strategies outlined in the MOU. An Operational Working Group consisting of the BLM.

District/Field Office Managers and the Hart Mountain and Sheldon Refuge Managers/their designees will be responsible for implementing management priorities outlined by the Executive Committee.

A copy of the MOU is available on the web at www.blm.gov/nv (http://www.blm.gov/pgdata/nv.html).

Information contained in older news items may be outdated. These materials are made available as historical archival information only. Individual contacts have been replaced with general External Affairs office information. No other updates have been made to the information and we do not guarantee current accuracy or completeness.

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people. We are both a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals, and commitment to public service. For more information on our work and the people who make it happen, visit www.fws.gov (https://www.fws.gov/).

For more information on our work and the people who make it happen, visit http://www.fws.gov/ (https://www.fws.gov/). Connect with our Facebook page (https://www.facebook.com/usfws), follow our tweets (https://twitter.com/usfws), watch our YouTube Channel (https://www.youtube.com/usfws) and download photos from our Flickr page (http://www.flickr.com/photos/usfwshq/).

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https://www.fws.gov/refuges/RefugeUpdate//SepOct_2013/ferel_horses.html

Feral Horses: A Conundrum of Epic Proportions

By Karen Leggett

While some may see wild horses as majestic symbols of the American West, these feral animals cause substantial habitat damage. Consider Sheldon National Wildlife Refuge in Nevada, which was established to provide habitat for pronghorn, mule deer, greater sage–grouse, pygmy rabbits and others.

The refuge has experienced the damage that feral horses can wreak. The refuge is full of sagebrush–dependent species native to its high–desert habitat—nearly 300 invertebrates, 235 birds and 76 mammals.

Feral horses at Sheldon National Wildlife Refuge, NV, damage wildlife habitat by grazing and trampling vegetation and streambeds. (Gail Collins/USFWS)

The horses on the refuge are descendants of domesticated animals turned loose. They damage habitat by grazing and trampling vegetation and streambeds. In 2008, then–project leader Paul Steblein studied more than 100 scientific papers about the effects of horses on the sagebrush–steppe ecosystem and concluded that "never have I found science so condemning." He believes horses are the number one issue inhibiting the mission of Sheldon Refuge, an assessment corroborated by a panel of wildlife biologists and natural resource managers.

Current project leader John Kasbohm says habitat monitoring data from 2002 onward show that 44 percent of the refuge's streams and 80 percent of its springs are severely degraded because of feral horse and burro activity. The soil becomes compacted and eroded, stream banks become unstable, species richness and plant cover are reduced, and cultural resource sites are trampled. Recent research shows horses are having similar impact on critical upland habitats.

Without controls, the horse population increases by 18 to 20 percent a year. Sheldon Refuge now has more than 800 horses and 100 burros. Sterilization has cut the foaling rate by more than two–thirds over the past six years, but that does not resolve the problem quickly enough to reverse the habitat damage.

The refuge's 15–year comprehensive conservation plan (CCP) calls for removing feral horses and burros by 2017. The refuge is implementing that provision with particular care because of the horse's iconic status.
Horse advocates range from those who want to leave the animals alone and let nature take its course to those who may be willing to work with the refuge to find homes in which to place the horses. The primary solution involves using helicopters to gather the horses for removal, and paying contractors or individuals to find long–term care for them.

"I came here knowing how to do partnerships and make sure people knew what we were doing and why. It's hard to reach common ground," says Kasbohm. "Most environmental groups support horse removal because they recognize the damage to refuges where wildlife is the primary mission."

During public meetings and comment periods before the CCP was approved in September 2012, animal rights activists as well as wild horse and burro advocates expressed concerns about treatment of the animals during and after the gathering and the possible loss of the horses entirely. However, independent veterinarians are present during gather operations, and the refuge continues to work with known horse adoption contractors.

Even plans carefully designed to navigate the controversies can be problematic.

Sheldon Refuge received almost $1 million from a special U.S. Fish and Wildlife Service fund for large invasive species projects as well as matching funds and in–kind contributions from conservation partners. The refuge plans to gather 400 horses this summer and 400 next summer. But the price per horse to place them with an adoption contractor continues to increase. Kasbohm blames the drought–driven high price of hay and a market saturated with horses.

Now the refuge is partnering with horse advocates again, trying to find new adoption vendors and investigating a group that has offered to take 40 horses for free. "Unfortunately, we may have to take longer to remove the horses," Kasbohm says.

In the end, Steblein says, "we recognize the stature of the horses. It's an icon of the West. There's a place for horses. Just not on a national wildlife refuge."

Karen Leggett is a writer–editor in the Refuge System Branch of Communications.

Refuge Update September/October 2013,
Last updated: August 28, 2013

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https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=9571

Horse (*Equus caballus*)

Range Information |Candidate Info |Federal Register |Recovery |Critical Habitat |SSA |Conservation Plans |Petitions |Biological Opinions |Life History

Taxonomy:

View taxonomy in ITIS

Listing Status: Not Listed

General Information

Current Listing Status Summary

Status	Date Listed	Lead Region	Where listed
Not Listed		Pacific Southwest Region (Region 8)	Wherever found

» Range Information

Current Range Wherever found

- **States/US Territories** in which this population is known to or is believed to occur: Arizona, California, Idaho, Montana, Nevada, New Mexico, Oklahoma, Utah, Wyoming
- **US Counties** in which this population is known to or is believed to occur: View All
- **USFWS Refuges** in which this population is known to occur:

» Candidate Information

No Candidate information available for this species.

No Candidate Assessments available for this species.
No Candidate Notice of Review Documents currently available for this species.
No Uplisting Documents currently available for this species.

» Federal Register Documents

Federal Register Documents

Date	Citation Page	Title	Supporting Documents
07/01/2015	80 FR 37568 37579	90-Day Findings on 31 Petitions	

Showing 1 to 1 of 1 entries

Species Status Assessments (SSAs)

No Species Status Assessments (SSA's) are currently available for this species.

Special Rule Publications

No Special Rule Publications currently available for this species.

» Recovery

No Current Recovery Plans available for this species.
No Other Recovery Documents currently available for this species.
No Five Year Reviews currently available for this species.
No Delisting Documents currently available for this species.

» Critical Habitat

No Critical Habitat Documents currently available for this species.

» Conservation Plans

No Conservation Plans currently available for this species.

» Petitions

Petition Title	Date Received by the FWS	Where the species is believed to or known to occur	Petitioner Name	Requested Action	Petition Finding(s)	Active	Petition Documents
North American Wild Horses; list on U.S. Public Lands	06/17/2014	AZ, CA, ID, MT, NM, NV, OK, UT, WY	• Friends of Animals • The Cloud Foundation	• Listing: Threatened	• 90 Day Not Substantial on 07/01/2015	No	• Wild Horse Petition
Horse, Pryor Mountain Mustang DPS	06/19/2017	AZ, CA, ID, MT, NM, NV, OK, UT, WY	• Friends of Animals	• Listing: Threatened or Endangered	• Petition findings not yet made	No	• Mustang Petition Cover Letter • Petition to List the Pryor Mountain Mustang Population

Showing 1 to 2 of 2 entries

» Biological Opinions

No Issued Biological Opinions have been entered into this system for this species.

» Life History

No Life History information has been entered into this system for this species.

» Other Resources

NatureServe Explorer Species Reports-- NatureServe Explorer is a source for authoritative conservation information on more than 50,000 plants, animals and ecological communities of the U.S and Canada. NatureServe Explorer provides in-depth information on rare and endangered species, but includes common plants and animals too. NatureServe Explorer is a product of NatureServe in collaboration with the Natural Heritage Network.

ITIS Reports-- ITIS (the Integrated Taxonomic Information System) is a source for authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world.

FWS Digital Media Library -- The U.S. Fish and Wildlife Service's National Digital Library is a searchable collection of selected images, historical artifacts, audio clips, publications, and video." +

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https://forages.oregonstate.edu/regrowth/how-does-grass-regrow/animal-habits/chewing

Oregon State University, Forage Information System, Grass Growth and Regrowth for Improved Management

- HOW DOES GRASS GROW?
- HOW DOES GRASS REGROW?
- RESOURCES
- SITE GUIDES
- ABOUT THE PROJECT

Home » Grass Growth and Regrowth for Improved Management » How does Grass Regrow? » Animal Habits

Chewing

Different animals select, bite off, and chew plants differently. Each animal type has a tool or set of tools that help them gather food (prehension), grind it (mastication), and swallow (deglutition). Pigs use their snout to get the process started. Poultry scoop up food bits. This section discusses the main livestock involved in forage production, beef and dairy cows, horses, sheep, and goats. Forage-livestock managers should consider the differences in livestock chewing in establishing grazing programs.

Cows

Equipped with a long and dexterous tongue, the cow can wrap its tongue around plant parts and pull the food into its mouth where it is placed between its lower jaw and a pad on the upper surface. Once in the mouth, the cow swings its head to severe the plant parts and chews the food slightly and mixes it with saliva before swallowing. Later the cow will regurgitate the food to chew and grind it again. This

process is called rumination or chewing the cud. The actual chewing portion of a cow's day consumes eight hours and ruminating takes about 12 hours. Cows can take around 890 bites per hour for about 8 hours a day. Due to the design of the cow's lips, teeth, and jaw a cow can't easily get closer than 2 inches from the soil. An ideal height of grass is about 6 inches, higher or lower than that will consume more time and energy for the cow. Cows will not graze much longer than 8 hours, so grass at the proper height will increase intake and improve animal nutrition. Cows also prefer not to eat around their own paddies but are willing to graze after a different type of animal has defecated. Cows like to graze on rolling land, although they are able to graze anywhere.

Horses

A horse will eat more often than a ruminant animal because it doesn't spend time ruminating, but it will eat a smaller amount per session because its stomach is smaller on a per body weight basis. Horses have upper and lower sets of front incisor teeth used primarily for biting while the back set of molars are used mainly for grinding food. A strong, sensitive, upper lip gathers the food and brings it to the incisors. Its short tongue is less essential to the eating process. The upper teeth are wider which causes wear on the teeth from grinding and sometimes there is a need for their teeth to be filed. Horses can graze a pasture to the soil level because the teeth and head can get so close to the sod. They tend to section off their pastures into eating and spoiling areas.

Sheep

While cows may best utilize their tongue, sheep use their lips and teeth as their primary forage gathering tools. Cleft lips move away from their teeth on the lower jaw and help bring food in, while the upper jaw has a dental pad that is about 1.6 inches wide. Together, the teeth on the lower jaw and the pad on the upper jaw sever the leaf blades. Such a mouth structure allows sheep to bite closer to the ground than cows and the ability to be more selective. The ideal grass height for sheep is about 4 inches.

Both cows and sheep are ruminant animals which mean they have four stomachs through which they cycle feed. This requires time for rumination or the regurgitation of the bolus that was made from bites of forage and rechewing, preparing for easier digestion. So, cows and sheep need time for both eating and ruminating. Maximum efficiency is achieved by providing abundant forage at an optimal height.

Goats

Much like sheep, goats also have teeth on their lower jaw and a strong dental pad on their upper lip. The upper lip is incredibly mobile and with the help of a strong tongue, goats can selectively grab and are able to avoid thorns and spines. Goats select woodier browse and will choose young, tender leaves and twigs, before grasses and legumes. Thus, young trees will need to be protected in agroforestry systems. Forage Information System

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