

2013 Walker Basin Allotment Management Plan (AMP)

Red Rock Ranger District

Coconino National Forest

This Allotment Management Plan is made part of your Term Grazing Permit in accordance with Part 2,
8(a).

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Date 2/21/13

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Date 2-15-13

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Date 2/21/13

Record of Decision Summary

This Allotment Management Plan follows the “Environmental Assessment (EA)” and “Decision Notice (DN) and Finding of No Significant Impact (FONSI)” for the Walker Basin Range Allotment signed on October 2011. Complete information on the purpose and need of the project, alternatives considered, and effects of the alternatives can be found in the EA or the Decision Notice and FONSI.

According to Ch. 90 Rangeland Management Decision-making, concurrent with modification or issuance of a new permit following a National Environmental Policy Act (NEPA) decision the allotment management plan must be modified to be consistent with the NEPA decision and must be included in Part 3 of the term grazing permit. All allotments must maintain a current AMP developed within the bounds of the NEPA based decision.

Desired Condition

The need for a change in management is identified by comparing specific descriptions of what is desired across the landscape to what currently exists. Desired conditions are the on-the-ground resource conditions management is working towards achieving. These are the expected results if management goals are achieved. These results are how we bring broad-scale desired conditions from the Forest Plan down to the project level. Based on identified disparities, the table below shows the broad goals and objectives (from the Forest Plan) that are applicable to Walker Basin Allotment.

Condition	Goals and Objectives Broad Goals/Objectives Across the Allotment
Allotment Grazing	Develop a grazing strategy that allows for the continuation of livestock grazing on Walker Basin Allotment while maintaining or moving towards desired conditions.
Soil Conditions	Improving and moving towards satisfactory conditions on the allotment, sustaining vital soil functions and soil productivity. The number of acres of soil in impaired or unsatisfactory condition is decreasing, and the number of acres of soil in satisfactory condition is remaining static or increasing. The amount of compacted soil is decreasing, and soil nutrient cycling is improving. Bare soil would not exceed the TES potential.
Soil Structure	Structure is granular or sub angular blocky, parting towards granular and has common or many tubular pores. Maintain ground cover attributes in amounts that match or approximate TES potential. This would ensure that vegetative ground cover is adequate (at or above threshold levels) to maintain soil stability.
Vegetation	Vegetative conditions are “satisfactory” or moving toward satisfactory condition based on trend analysis conducted by the range staff with Permittee involvement. Maintain ground cover attributes (basal vegetation and litter) in amounts that match or approximate TES potential. This would ensure that vegetative ground cover is adequate (at or above threshold levels) to maintain vegetative productivity. This would be adequate to prevent erosion. Maintain

	residual herbaceous vegetation along the green line or streambank and maintain or increase canopy cover of herbaceous species. Maintain all three successional stages (early, mid, and late seral) to provide biological diversity‡.
Erosion	No new gullying or head cutting is evident on hill slopes or within grassland parks. Gullies and head cuts created in the past are healing.
Springs	Showing improvement with healthy and vigorous riparian vegetation.
Riparian Areas	Riparian streams and reaches are in Proper Functioning Condition or making improvements towards PFC. Woody vegetation and other riparian plant species along the stream reaches and springs are increasing. Annual impacts to seedling and sapling riparian woody species are fewer and physical impacts to alterable streambank and green lines are reduced. Riparian tree and shrub establishment has been optimized.
Water Quality	Sedimentation of Wickiup Draw has decreased. Downstream of the allotment, water quality (turbidity or suspended solid parameter) improves in the Verde River and Beaver Creek. Water quality in West Clear Creek remains the same and continues to attain all uses. Water quality in Walker Creek attains all uses and provides for a warm water fishery. Floodplains and streambank are being reestablished, improving stream channel function and stability. State of Arizona water quality standards are met.

Note: All measurements would involve comparing observed conditions to that which is predicted by TES.

†The numbers that we have obtained from our existing plots would be considered our baseline data. What we would measure is whether there is an increase or decrease in the desired condition, relative to the baseline.

‡ Natural cover species are used to evaluate the ideal diversity. Historical allotment records were used to determine if a missing natural cover species was ever present in the past. Only species that had been present at the site before were considered desired. Appendix 6 of the Range Specialist's report lists all existing and desired plant species.

The desired condition for Walker Basin Allotment is a condition that would provide for livestock grazing in a manner that would allow the allotment to achieve or move towards achieving the goals and objectives in the above table.

Allotment Management

Walker Basin Allotment is located on the Red Rock Ranger District (RRRD) and the Mogollon Rim Ranger District (MRRD), and encompasses approximately 70,000 acres. The western end of the allotment is located approximately one mile east of Camp Verde, AZ, and one mile south of Rimrock, AZ. The eastern end extends about one mile east of Mahan Park, AZ on the Mogollon Plateau

Permitted Livestock:

The permitted livestock numbers would be a maximum of 6,600 AUMs. However, that does not mean grazing of 6,600 AUMs would be authorized each year. Livestock grazing will continue under a conservative grazing strategy, with specific rangeland improvements, specific restoration projects, and an expansion of the use of adaptive management. Actual livestock numbers would be authorized on an annual basis in cooperation with the permittee at levels that help promote desired conditions. At the onset of a grazing season, livestock numbers would be based on the state of vegetation and soil condition, and water and forage availability, which would be

monitored throughout the grazing season. Consequently, within season decreases may occur if projected forage does not grow, and/or resource conditions decline or do not exhibit improvement. Conversely, should conditions and trends improve; the numbers of livestock could increase up to the maximum number under the permit.

Season of Use

The typical season of use would be 12 months – from January 1 to December 31. The allotment is divided into four use zones with approximate time periods as follows:

- Winter Zone (low country pastures) January – May ~10 weeks
- Transition Zone (spring use pastures) May – June 15 ~6 weeks
- (fall use pastures) December – January ~3 weeks
- Summer Zone (high country pastures) June – December ~26 weeks
- Shipping Zone (spring use pastures) June ~3 weeks
- (fall use pastures) December - January ~4 weeks

Time periods are approximate and would be based on utilization levels. They would also vary from year to year on the grazing schedule and range conditions.

Management:

The grazing system will consist of deferred-rotation and rest-rotation to facilitate soil and vegetation improvement. Region 3 and Coconino national Forest drought management polices recommend resting pasture from grazing as a method for mitigating grazing effects during drought. When a pasture would be rested and for how long it would be rested would depend on conditions. These decisions would be made by the Responsible Official after consulting the Range Specialist and the Permittee.

Pasture rotations would be planned at the onset of spring, but may be modified later in response to environmental changes, such as drought or a wet season.

Following FSH 2209.13, Grazing Permit Administration handbook, the Standardized Precipitation Index (SPI), combined with site-specific information, would be used to assess moisture conditions. Using SPI as a baseline and combining it with site-specific information a determination for drought would be made, and adaptive management alternatives would be evaluated. Some of the indicators used for drought evaluation include leaf size and color, flower and seed production, and root mass. Site-specific information may include Arizona drought status guidelines as established by the Arizona Department of Water Resources. These guidelines break precipitation amounts into categories to assess stages of drought.

A one day trail through will be required through East Wickiup Pasture only when monitoring shows the vegetation on flat terraces adjacent to the gully are not meeting 2/3 potential natural cover.

Allowable Utilization Guidelines

Allotment-wide: Light end of season forage utilization on impaired soils (30%) and conservative end of season utilization on satisfactory soils (40%) would be employed to maintain satisfactory soils, improve impaired and unsatisfactory soils, and improve rangeland vegetation.

Light to moderate grazing intensity (30-50%) would be managed for in the late spring to early summer months when sufficient opportunity exists for plant re-growth.

- Pastures with the 30% allowable use include all those west of Horse Knoll and West Snake Ridge.
- Pastures using the 40% guideline are all other pastures.
- For unsatisfactory and inherently unstable soils no capacity is assigned; however, incidental use may occur.

Riparian Areas: Within riparian areas, utilization would not exceed 20% on the woody vegetation (trees and shrubs such as cottonwood and willow). This takes into account the cumulative browsing effects of wildlife and livestock. For riparian areas, at least 80% of stream bank total linear distance would be maintained in a stable condition. A stubble height of 4 inches would be tested and monitored to determine if this height is adequate to protect the streambank. Important riparian areas are: Beaver Creek, Walker Creek, Russell Spring, Deer Run Spring (formally unnamed spring), Cabin Spring and Walker Spring.

Pasture Grazing Period

The schedule grazing period per pasture would generally be less than 50 days, but would depend on the size of the pasture, weather/climate conditions, forage production, the opportunity for plant re-growth following grazing, and allowable utilization guidelines. Other factors that may occasionally affect the grazing period include wildfires and prescribed burning. Generally, pastures would only be grazed once during the growing season.

The Shipping Lanes 1 – 4 would need to be used a second time in the fall to accommodate migration from the summer to winter zones. Cattle would be moved through fall migration pastures in an expedited manner (1-3) days per pasture). Summer Heifer pasture may need to be used twice to accommodate yearling cattle in the spring and cows with calves in late summer or early fall. Summer Heifer would be stocked in a manner that maintains an appropriate period of use and appropriate number of cattle. Any need to use rest pastures would be considered, such as in the case of drought or wildfire.

Second entries into above mentioned pastures or extensions to the migration time, would only be allowed if: The annual cumulative grazing does not exceed maximum allowable use, the pasture was not grazed in excess of the allowable use the year prior, and grazing does not occur during a critical growth period of key vegetative species. In the event of a wildfire, coordination would occur between the District Range Specialist and the allotment Permittee to develop possible strategies while keeping in mind the above second entry conditions.

If needed, rest pastures may be used if the following criteria are met: cattle did not exceed allowable use the year before, use would not occur during a critical growth stage for key plant species, and the maximum allowable use would not be exceeded during use. Use of rest pastures would not be authorized if vegetation and soil conditions are compromised, or if forage production does not exceed 100 lbs. per acre in the pasture being rested.

East and Middle Pastures

The concerns in the Wickiup Pastures include active head cut gully erosion, highly erosive soils, and unsatisfactory soil conditions consisting of compacted soils, lack of vegetative litter and basal area (too much bare soil), and poor vegetation composition (lack of diversity). The following is how East and Middle Wickiup would be utilized and monitored under the proposed action.

- If monitoring shows ground cover on the flat terraces adjacent to the gully in East Wickiup pasture not meeting 2/3 of potential natural cover as described by TES, trailing through the pasture would be permitted for only one day. The trailing route designated would be a route that has the least impact on Wickiup Draw. The Permittee would make every reasonable attempt to perform a one-day trail through in 24 hours for the entire herd. It is understood that in some cases, calving mothers and mothers with young may not make it across in the first 24 hours. The best efforts would be used by the Permittee to move these remaining cattle through the pasture as soon as possible. This one-day trail through may never be necessary during the life of the Term Grazing Permit; it all depends on whether or not the TES trigger point is reached (less than 2/3 potential natural cover).
- Grazing would be allowed in Middle Wickiup Pasture for four days.
- Soil and vegetation monitoring would be done in the first year established baseline conditions. Active monitoring on flat areas adjacent to the gully would be done for the next three consecutive years. Grazing would be permitted as long as conditions continue to improve. See the adaptive management options under **Monitoring and Adaptive Management** below.
- The specific trigger to reintroduce grazing would be when ground cover is approximately 2/3 of natural ground cover. For the TES units in which the gully is located (381, 383), potential is 30%.

To address concerns within the Wickiup watershed, there is an ongoing effort to identify a feasible watershed restoration plan. Pending the results of ongoing survey efforts, the scale of this watershed restoration effort may vary. Possible restoration efforts that would be authorized under this proposed action may include:

- Re-contouring hill slopes,
- Channel grade stabilization,
- Lop and scatter within the watershed uplands,
- Building check-dams within the stream corridor, including connected tributaries,
- Re-vegetation techniques, and
- Road closures.

Rest may be needed for both these pastures to ensure the success of restoration efforts (see **Monitoring and Adaptive Management** below).

Water Bodies

Certain water bodies are important for wildlife because they are the only reliable source of water in the area. The Forest Service requests the Permittee maintain water for wildlife in these areas after domestic livestock have been removed from the pasture. These water bodies include:

Sugarloaf Pine Ridge Turkey Draw Cave Draw Cheap

Lucky	Dead Horse	Kitty Pan	Dozer	Bow Ribbon tanks
Kelly	Little Hole	Limestone	HS	Bill Dick
Mahan Park Tanks	Harris	Harris Park		

In addition, existing partial fences would be improved or repaired at the following tanks: Harris Tank, Harris Park, Snake Ridge Tank, Kitty Pan and Mesa Tank. Improvements to be done by the Permittee would be done through the AOIs. In years of drought or should a specific wildlife habitat objective be needed, coordination with the Permittee would occur to identify different and/or additional tanks for both wildlife and livestock use. All fences would be maintained by the Permittee.

Russell Spring

Russell Springs was rated as Functional at Risk in 2004, and mostly Non-Functional in 2008. The spring needs additional protection to move towards the desired condition of Proper Functioning Condition. Baseline conditions would be determined and yearly monitoring would be done to determine trend. Photo points would be established in riparian areas and routinely updated to monitor conditions, in collaboration with the grazing permittee.

To address concerns in the Russell Wash riparian area, restoration efforts are currently being conducted collaboratively with the University of Arizona V-V Ranch, as funding becomes available to the cooperators. The goal of these efforts is to identify restoration techniques, which includes ways to stabilize as actively down-cutting head cut. Restoration efforts that would be authorized under this proposed action include:

- Restoring natural riffle, run, and pool structure in the stream corridor
- Revegetation techniques
- Road closures

With these restoration efforts, it is expected that riparian function would improve over time in Walker Basin Allotment and that reaches that are currently in PFC would maintain this status, and reaches that are not in PFC would move towards PFC.

By using the exclosure in Deer Run Spring (see below) as an example for potential, Russell Wash would be monitored to determine trend. Monitor both Deer Run Spring and Russell Wash to their own individual potential. Photo monitoring and PFC, as well as other riparian vegetation monitoring techniques may be used to determine trend. One of the other techniques that may be used is the *Tonto Riparian Inventory and Monitoring Method*.

If Russell Wash does not show an upward trend with-in 3-4 years, various adaptive management strategies may be used (see **Monitoring and Adaptive Management** below).

Deer Run Spring

An exclosure would be constructed at Deer Run Spring in Bull Pen Pasture. This exclosure would not be constructed to prevent livestock from accessing the spring. This exclosure would be constructed to monitor a piece of ground for 3 years to establish site potential.

Improvements

1. About seven miles of new fence would be constructed to Forest Plan standards in the following locations to more effectively distribute cattle across the allotment:
 - Construct about 2.2 miles of electric fence to separate Upper and Horse knoll pasture.
 - Construct about 2.0 miles of electric fence to separate Pine and Wildcat pasture.
 - Construct about 2.0 miles of electric fence to separate Willow and Steer pasture.
2. Fences identified (through monitoring) in disrepair would be reconstructed by the permittee to Forest Plan standards. A repair schedule would be reflected in the AOIs. Specific fences that have already been identified for reconstruction are:
 - Harris Tank
 - Harris Park
 - Snake Ridge
3. The Cabin Spring fence would be repaired to prevent cattle from impacting the spring.
4. Two new cattle guards would be constructed in the following locations to help manage the movement and distribution of cattle across the allotment.
 - One on FR 81A on the new fence separation Pine and Wildcat pasture, also
 - One on FR 81 on the new fence separating Pine and Wildcat pasture [done 2012].
5. About two miles of existing fences would be removed from the following locations to help with cattle distribution.
 - 1.0 mile of fence in Buckhorn and West Snake pastures
 - 0.8 miles of fence in Shipping Lanes 4 & 5
6. A maintenance schedule would be developed with the permittee to gradually bring existing fences into compliance with Forest Service standards for wildlife. Each year, these would be identified in the AOI.
7. Water developments would be constructed to provide additional water availability and improve livestock distribution across the allotment:
 - About 11 miles of new water pipeline would be constructed in the following locations:
 - 1.6 miles of pipeline from the West Wickiup Well to South Montezuma Pasture, Gypsum Pasture and Landfill Corrals (South Montezuma Pipeline).
 - A total of 1.9 miles of pipeline from the Water Storage Center in Middle Wickiup to Winter Heifer Pasture (Winter Heifer Pipeline) in two separate pipelines.
 - 4.3 miles of pipeline from the existing water well in Cedar Flats F Pasture west to Cedar Flat Waterlot and Shipping Lane 2 (Cedar Flats Pipeline).
 - 0.4 miles of pipeline from the existing water well in Cedar Flats F Pasture east to Cedar Flats E.
 - 2.6 miles of pipeline from Cedar Flats F to Big Hill Pasture and ending at Windmill Waterlot (Cedar Flats Pipeline).
 - 10 drinkers and 11 storage tanks and drinkers would be constructed
 - 1 storage tank and drinker in West Wickiup Pasture

- 3 drinkers in South Montezuma Pasture
 - 1 storage tank and drinker in Gypsum Pasture
 - 3 drinkers in Gypsum Pasture
 - 1 storage tank and drinker in Landfill Pasture
 - 1 storage tank and drinker in Landfill Pasture and corrals
 - 1 drinker in West Wickiup Pasture
 - 3 drinkers in Winter Heifer Pasture
 - 1 storage tank and drinker in Cedar Flat Corral
 - 1 storage tank and drinker in Twin Buttes pasture
 - 1 storage tank and drinker in Cedar Flat E Pasture
 - 1 storage tank and drinker in Cedar Flat F Pasture
 - 1 storage tank and drinker in Big Hill Pasture near Red Hill
 - 2 storage tanks and drinkers in Shipping Lane
8. Where not already present, wildlife escape ramps would be constructed on open water storage tanks and drinkers (troughs). This would help reduce wildlife drowning.
9. Riparian utilization guidelines, water improvements, pasture rest, rotation and deferment schedules, and new fencing as proposed are expected to reduce livestock grazing in sensitive areas and allow riparian conditions to improve. However, livestock enclosure fencing may be constructed at additional riparian areas if desired conditions are not achieved through the control of livestock grazing. Desired conditions would be evaluated in collaboration with the permittee. Enclosure fencing would be designed and constructed to protect the important riparian areas while still providing for livestock watering. Pastures with critical riparian vegetation include: Buckhorn Holding (Cabin Springs), East Russell (Russell Spring), Walker Basin (Walker Creek), and Bull Pasture, which contains a spring (Deer Run Spring) and riparian area. There is one existing water access point along Walker Creek.
10. Routes in the East and Middle Wickiup Pastures that are not slated to remain open under the analysis being completed for the Travel Management Rule may be closed and/or decommissioned, subsequent to obtaining all necessary clearances. This would be done as part of the restoration effort for these pastures. Routes that may be affected include Forest Service roads: 09205x, X25723, X25682, 09203K, 09203L, X25648, 09203E, 09203M, X25178, X25007, X24981, and X25024.
11. Road closures in Russell Spring Pasture may occur based on the outcome of the forthcoming travel management decision and archaeological clearances.
- ❖ Range improvements will be to Red Rock Ranger District standards.

Monitoring and Adaptive Management

Modifications are often necessary because of variable environmental conditions. Implementation and effectiveness monitoring would provide the basis for modifying

management. Adaptive Management allows the use of other techniques, such as stock and monitor, to meet the goals and objectives under the Walker Basin Allotment Rangeland Management Analysis. Management would be modified in cooperation with the Permittee. Elements of the grazing system that might be modified include: timing, intensity, frequency, and duration of grazing. These modifications were evaluated in the EA; if needed, they would be implemented through the AOIs.

Adaptive management would also allow for the construction of range improvements, if they are determined through monitoring to be necessary for moving the allotment toward desired conditions. The table below shows the adaptive management trigger points and possible management responses for Walker Basin Allotment.

Triggers and Adaptive Management Options	
Indicator/Trigger Point	Adaptive Management Response options
If end of season grazing utilization is in compliance with the 30 or 40% guideline on at least 70% of each pasture.	Continue current management system.
If end of season grazing utilization is NOT in compliance with the 30 or 40% guideline on at least 70% of each pasture	The strategy for that pasture the following year may be either be to rest it, graze it at lighter intensity, or shorten the use period. The season of use or timing of grazing the next year may be changed The permittee would be required to increase riding and herding to distribute use better.
If seasonal grazing utilization is NOT in compliance with the 30 or 40% guideline on a least 70% of each pasture	Cows might leave that pasture early The strategy for that pasture the following year may be to rest it, graze it at lighter intensity, or shorten the use period. The season of use or timing of grazing the next year may be changed. The permittee would be required to increase riding and herding to distribute use better.
If Russell Wash does not show improvement in 3-4 years	Fencing of the wash and/or rest or deferral of the pasture would be considered
If in a 5 year period guidelines have been exceeded twice or if guidelines are exceeded in two consecutive years and the trend (apparent or measured) is down	We have the option to reduce AUs or apply other adaptive management actions, such as closing pastures.

If ground cover on the flat terraces adjacent to the gully in East Wickiup Pasture improves to 2/3 of natural cover as described by TES	Reintroduction of grazing would be considered.
If ground cover on the flat terraces adjacent to the gully in East Wickiup Pasture remains static or does not improve in 3 years	Fencing, rest, or deferral of the pasture would be considered.
If ground cover on the flat terraces adjacent to the gully in Middle Wickiup Pasture improves to 2/3 of natural cover as described by TES	An increase in allowable grazing would be considered.
If ground cover on the flat terraces adjacent to the gully in Middle Wickiup Pasture remains static or does not improve in 3 years	Either a decrease in grazing or reduction to a one day trail through would be considered. Other options that would be considered include fencing, rest, and deferral of the pasture.
If Russell Spring is not showing an upward trend within 3 years	Consider the following options: rest-rotation, deferral, piping water away from springs, not grazing during the growing season, and fencing.
If monitoring indicates that ground cover is not moving towards or meeting 2/3 of natural cover, as determined by TES, in the meadows within Summer Heifer and East Snake Ridge Pastures	The meadows may be closed to recreational use, fenced, or both.
If we do not see an upward trend outside the exclosure around a portion of Deer Run Spring in Bull Pen Pasture	Consider fencing off the entire drainage and/or piping water to a drinker away from the drainage.
If wildfires and/or prescribed burning occur in pastures	Based on the intensity of the fire and the condition of the vegetation afterwards, resting pastures may be considered.

The Grazing Management Toolbox

A list of rangeland management option, called the Grazing Management Toolbox, is presented in the following table. This list is not intended to be all inclusive, but provides a sense for the types of general actions available to the RRRD to maintain or improve resource conditions to move towards or meet Forest Plan goals and management objectives. New management techniques, as they are developed, would be incorporated into this toolbox, provided their implementation would be consistent with the effects documented in the Walker Basin Allotment EA.

Grazing Management Toolbox	
Use of any tool below must consider rangeland condition and other relevant Forest Plan goals and objectives for the allotment area.	
✓	Change season of use – do not exceed the estimated Animal Unit Month (AUM) capacity; use range readiness to determine livestock turn on date and allowable use standards and guidelines to determine

livestock off date.
✓ Change livestock numbers – do not exceed the estimated AUM capacity; use allowable use standards and guidelines to determine proper rangeland use and time to move livestock (including off date).
✓ Change livestock class – do not exceed estimated AUM capacity.
✓ Adjust livestock grazing intensity and/or duration. (Such as in response to wetness and drought)
✓ Adjust livestock herding to manage specific areas of concern.
✓ Rest specific areas from livestock grazing.
✓ Restrict livestock grazing in specified areas (does not apply to recreation and outfitter/guide livestock under this analysis).
✓ Install barriers on trails to prevent livestock from cutting switchbacks on the trails.
✓ Use or exclusion of a pasture.
✓ Modify allotment infrastructure.
✓ Adjust pasture boundaries.

Design Criteria/Best Management Practices and Resource Protection Measures

Range

#	Resource Protection Measure	Purpose
1	The District Range Staff will monitor permittee compliance with the Term Grazing Permit, Allotment Management Plan, and Annual Operating Instructions.	To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.
2	Manage livestock grazing intensity and utilization to improve vegetative ground cover and to improve the quality and quantity of desirable vegetation.	To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.
3	Design and implement a planned grazing system that will provide for adequate rest during the plants growing season. Monitoring and adaptive management will be used to modify the grazing system to account for the continually changing effects of resource conditions and climate.	To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.
4	Grazing impacted areas will be monitored for grazing intensity, utilization, production, and vegetation condition and trend.	Provide resource information to make adjustments in management to maintain or improve the long-term diversity, density, and production of upland vegetation.
5	Utilize salt to improve livestock distribution. Salt at a reasonable distance away from waters or natural congregating areas such as swales, drainages, riparian areas and meadows. Move salt when livestock distribution objectives are not being achieved or to	To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.

#	Resource Protection Measure	Purpose
	correct localized over use by livestock grazing.	
6	Existing range structural improvements are to be maintained. New range structural improvements are to be constructed to standard and maintained as necessary. New structural range improvements such as corrals, troughs, trails, storage tanks, should not be located in areas such as swales, drainages, riparian areas and meadows. Installation and maintenance of approved range structural improvements will allow for the implementation of proper livestock control and distribution, shorter graze periods and longer rest periods, and other livestock management techniques.	To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.

Soil and Water

- Pastures dominated by satisfactory soil conditions should be allowed up to 40% utilization during the growing season.
- Pastures dominated by impaired soils should be allowed up to 30% annual utilization.
- Pastures with high amounts of Unsatisfactory soils connected to Impaired soils are rested or Unsatisfactory soils fenced until desired conditions are met. Adequate rest during the plants dormant season allows for the accumulation of plant litter.
- Key grazing areas will be monitored to determine when cattle should be moved to the next pasture (See page 4 and Table: Triggers and Adaptive Management Options, 3rd row). A planned grazing system is designed to promote flexibility in the grazing program and to buffer the adverse effects of drought according to BMP 22.11, 22.12, 22.14, (FSH 2509.22).
- To achieve the objective of improving and/or maintaining long-term soil productivity and enhancing water quality and protect riparian area function, salt would be utilized to improve livestock distribution.
 - Salt at a ¼ mile distance away from waters or natural congregating areas such as swales, drainages, riparian areas and meadows.
 - Move salt when livestock distribution objectives are not being achieved or to correct localized over-use by livestock grazing according to BMP 22.12 (FSH 2509.22).
- To achieve the objective of maintaining and improving long-term soil productivity and enhancing water quality, livestock will be managed to graze on all soils at an intensity that will maintain or improve effective ground cover (effective ground cover is defined as the percent litter greater than 1.25 cm in size and percent total plant basal area) to enhance soil function (minimizes soil erosion, promotes water infiltration and enhances nutrient recycling) and to improve the quality and quantity of desirable vegetation. BMP 22.11.
- Manage livestock grazing at an intensity so that target effective ground covers for all soils (by TES Map Unit) are approximately equal to or greater than the threshold effective ground cover (amount necessary to maintain soil stability and productivity) and be moving towards the natural (under potential plant community) within 10 years for all Impaired and Unsatisfactory soils. Overall soil conditions will move towards satisfactory on Impaired and

Unsatisfactory soils and remain at satisfactory for soils that are currently in satisfactory condition.

- Strive to achieve 90% of the potential ground cover in montane meadows (TES units 53 and 55). This would prevent accelerated surface erosion and gully formation, but probably take longer than 10 years. Therefore, during the 10 year permit, target ground covers on these meadow soils would be about 2/3 of natural cover.
 - Threshold ground cover values are not achievable on Inherently Unstable soils but target cover values should strive to move towards natural cover values.
- During drought, these effective ground covers would be difficult to attain, but livestock grazing would not decrease existing effective ground cover.
- To achieve the objective of maintaining and improving long-term soil productivity and enhancing water quality, existing range structural improvements would be maintained.
- New range structural improvements are to be installed and maintained as necessary.
- Structural range improvements such as corrals, fences, cattle guards, trails and storage tanks would not be located in areas such as swales, drainages, riparian areas and meadows.
- Installation and maintenance of approved range structural improvements would allow for the implementation of proper livestock control and distribution, shorter graze periods and longer rest periods, and other livestock management techniques. BMP 22.13
- To achieve the objective of improving long-term soil productivity, grazing will be avoided on soils in Unsatisfactory soil condition areas where adjacent to and connected to major tributaries to the Verde River and West Clear Creek by active herding or deferral, according to BMP 22.12 (FSH 2509.22).
- To filter sediments, maintain bank stability and improve riparian function, a minimum of a 10 cm residual stubble height of hydrophilic vegetation would be left (sedge/rush) to improve riparian conditions in riparian areas, according to BMP 22.1 (FSH 2509.22).
- To improve or maintain a stable and desired plant community and improve water quality while maintaining or improving soil condition, the intensity, frequency, duration and season of grazing would be manipulated in such a manner that the impacts to vegetative and water quality would be positive.
- Maintain or improve riparian and upland area vegetation and protect stream banks from erosion.
- Promote ecological and stable plant communities on both upland and bottom land sites.
- To control livestock access to and use of sensitive areas, such as stream banks; soils prone to erosion, and riparian zones, improved grazing management systems (e.g., herding) would be used to reduce physical disturbance of soil and vegetation and minimize direct loading of animal waste and sediment to sensitive areas.
- Installation of alternative drinking water sources and use of exclusionary practices, such as fencing (conventional and electric) will also be used as appropriate.
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Sensitive Plants

#	Design Criteria	Purpose
Proposed Action		
1	Survey areas containing proposed structural	Identifies locations of Region 3 Sensitive

	improvements before construction for Region 3 Sensitive plants and noxious or invasive weeds before construction of improvement. Identify populations and mitigate impacts of management actions if needed.	plants and identifies potential impacts to Region 3 Sensitive plants that may occur during construction.
2	Avoid Region 3 Sensitive plants (if found during survey) during the construction of structural improvements	Mitigates impacts to Region 3 Sensitive plants.
3	Identify and treat noxious or invasive weed populations that may occur in areas of proposed structural improvements (refer to noxious or invasive weed report for treatments and mitigations)	Mitigates impacts to Region 3 Sensitive plants by reducing the risk of noxious or invasive weed infestations in populations or habitats

Invasives

Objective	Best Known Practice
RANGE MANAGEMENT	
Grazing	
RM-1. Consider weed prevention and control practices in the management of grazing allotments.	<p>1.1 – Include weed prevention practices, inspection and reporting direction, and provisions for inspection of livestock concentration areas in allotment management plans and annual operating instructions for active grazing allotments.</p> <p>1.2 – For each grazing allotment containing existing weed infestations, include prevention practices focused on preventing weed spread and cooperative management of weeds in the annual operating instructions. Prevention practices may include, but are not limited to:</p> <ul style="list-style-type: none"> • Maintaining healthy vegetation • Preventing weed seed transportation • Minimize potential ground disturbance - altering season of use or exclusion • Weed control methods • Revegetation • Inspection and Monitoring • Reporting • Education
RM-2. Minimize transport of weed seed into and within allotments.	<p>2.1 – If livestock are potentially a contributing factor to seed spread, schedule units with existing weed infestations to be treated prior to seed set before allowing livestock on those units. Schedule these infested units to be the last in the rotation.</p> <p>2.2 – If livestock were transported from a weed-infested area, corral livestock with weed-free feed, and annually inspect and treat allotment entry units for new weed infestations.</p> <p>2.3 – Designate pastures as unsuitable range to livestock grazing when</p>

	infested to the degree that livestock grazing will continue to either exacerbate the condition on site or contribute to weed seed spread.
RM-3. Maintain healthy, desirable vegetation that is resistant to weed establishment.	<p>3.1 – Through the allotment management plan or annual operating instructions, manage the timing, intensity (utilization), duration, and frequency of livestock activities associated with harvest of forage and browse resources to maintain the vigor of desirable plant species and retain live plant cover and litter.</p> <p>3.2 – Manage livestock grazing on restoration areas to ensure that vegetation is well established. This may involve exclusion for a period of time consistent with site objectives and conditions. Consider practices to minimize wildlife grazing on the areas if needed.</p>
RM-4. Minimize ground disturbances.	<p>4.1 – Include weed prevention practices that reduce ground disturbance in allotment management plans and annual operating instructions. Consider for example: changes in the timing, intensity, duration, or frequency of livestock use; location and changes in salt grounds; restoration or protection of watering sites; and restoration of yarding/loafing areas, corrals, and other areas of concentrated livestock use.</p> <p>4.2 – Inspect known areas of concentrated livestock use for weed invasion. Inventory and manage new infestations.</p>
RM-5. Promote weed awareness and prevention efforts among range permittees.	<p>5.1 – Use education programs or annual operating instructions to increase weed awareness and prevent weed spread associated with permittees' livestock management practices.</p> <p>5.2 – To aid in their participation in allotment weed control programs, encourage permittees to become certified pesticide use applicators.</p>
GENERAL INTEGRATED WEED MANAGEMENT PRACTICES FOR ALL SITE-DISTURBING PROJECTS AND MAINTENANCE PROGRAMS	
2. Avoid or remove sources of weed seed and propagules to prevent new weed infestations and the spread of existing weeds.	<p>2.3 – Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Determine the need for, and when appropriate, identify sites where equipment can be cleaned. Clean all equipment before entering National Forest System lands; a forest officer, in coordination with the unit invasive species coordinator, needs to approve use of on-forest cleaning sites in advance. This practice does not apply to service vehicles traveling frequently in and out of the project area that will remain on a clean roadway. Seeds and plant parts need to be collected when practical and incinerated.</p> <p>2.4 – If operating in areas infested with weeds, clean all equipment before leaving the project site. To minimize time spent cleaning equipment, time all work in infested areas last and concurrently, designate a “contaminated” parking lot where project vehicles working in the infested area may be parked for the duration of the project. This area should be monitored in followup mitigation and should be near a “clean” vehicle/equipment lot. Identify sites where equipment and vehicles can be cleaned before leaving the site at the end of the project. Seeds and plant parts need to be collected when practical and incinerated.</p> <p>2.5 – Workers need to inspect, remove, and properly dispose of weed seed and plant parts found on their clothing and equipment after being</p>

	trained to recognize the priority species in the area. Proper disposal means bagging the seeds and plant parts and incinerating them.
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Visuals

- Camouflaging range improvements such as fencing and drinkers by using self-weathering steel or painting improvements flat, non-reflective colors that blend with the landscape.
- Use dull rusty materials; avoid bright or galvanized materials to ensure elements blend with the natural landscape character.
- Continue to bury pipelines to drinkers.

Wildlife

#	Mitigation	Purpose & Rationale
W1	Livestock grazing and management activities will occur within PAC's, but no human disturbance or construction activities associated with cattle grazing operations would occur within PAC's during the breeding season (March 1 through August 31). Although fence construction and reconstruction would not be allowed during the breeding season, fence maintenance, cattle gathering and herding may be allowed if necessary.	To minimize disturbance to MSO during the breeding season., in accordance with Mexican spotted owl recovery plan, 1995, and Region 3 FS Framework for streamlining informal consultation for livestock grazing activities, 2004.
W2	Forest Service requests that the Permittee maintain water in stock tanks for wildlife use after domestic livestock have been removed from the grazing unit.	To provide for wildlife needs.
W3	Fences will be built to wildlife standards (from Coconino Forest Plan page 69).	To facilitate wildlife movement from one pasture to another.
W4	All open storage tanks and drinkers will be provided with entry and escape ramps for wildlife (from Coconino Forest Plan page 69).	To provide for wildlife needs.
W5	Approved protocols will be followed when conducting work in earthen livestock tanks. This protocol will be attached to the AOI.	To minimize the risk for introducing and spreading disease among aquatic systems
W6	Biologists will be given at least 60 days notice prior to conducting work in earthen tanks. This notice will allow for surveys, if needed, and/or mitigation to reduce adverse affects to amphibians.	To avoid affecting amphibians during tank cleaning efforts.

Range and Fisheries

#	Resource Protection Measure	Purpose
1	The district Range Staff will monitor permittee compliance with the AMP throughout the grazing period of each year for the life of the permit. Compliance with the terms and conditions of the livestock grazing permit will be strictly enforced including livestock grazing scheme, contingencies for drought conditions, monitoring agreements and any cost sharing for structural range improvements.	To achieve the objective of improving and/or maintaining long-term soil productivity and enhancing water quality.
2	Manage livestock grazing at an intensity that will improve vegetative ground cover (primarily the litter component) to enhance soil function (minimizes soil erosion, promotes water infiltration and enhances nutrient recycling) and to improve the quality and quantity of desirable vegetation. Each pasture is grazed in a planned sequence. Adequate rest during the plants growing season allows plants to become established and grow undisturbed. Adequate rest during the plants dormant season allows for the accumulation of plant litter. Key grazing areas will be monitored to determine when cattle should be moved to prevent over use. A planned grazing system is designed to promote flexibility in the grazing program and to buffer the adverse effects of drought.	To achieve the objective of improving and/or maintaining long-term soil productivity and enhancing water quality.
3	Utilize salt to improve livestock distribution. Salt at a reasonable distance away from waters or natural congregating areas such as swales, drainages, riparian areas and meadows. Move salt when livestock distribution objectives are not being achieved or to correct localized over use by livestock grazing.	To achieve the objective of improving and/or maintaining long-term soil productivity and enhancing water quality.
4	Existing range structural improvements are to be maintained. New range structural improvements are to be installed and maintained as necessary. Structural range improvements such as corrals, trough, trails, storage tanks, should not be located in areas such as swales, drainages, riparian areas and meadows. Installation and maintenance of approved range structural improvements will allow for the implementation of proper livestock control and distribution, shorter graze periods and longer rest periods, and other livestock management techniques.	To achieve the objective of improving and/or maintaining long-term soil productivity and enhancing water quality.
5	Do not graze soils in unsatisfactory soil condition. USDA-Forest Service, Soil Condition Field Evaluation Form and Soil Condition Rating Guide (Reference FSH 2509.18).	To achieve the objective of improving long-term soil productivity.

Mitigations

Mitigation	Purpose
<p>During drought conditions, adjust grazing timing, intensity, frequency, numbers, and the management system as necessary to protect the upland vegetation resource.</p>	<p>To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.</p>
<p>In the event of planned and/or unplanned fire, adjust grazing timing, intensity, frequency, numbers, and the management system as necessary to protect the upland vegetation resource.</p>	<p>To achieve the objective of improving and/or maintaining long-term diversity, density, and production of upland vegetation.</p>
<p>If the Palmer Drought Index displays a severe or extreme drought for 3 years or greater in a row, recommend reduced utilization levels of deferral from grazing until drought conditions lessen and very conservative utilization for 3 growing seasons following initiation of wet cycle.</p>	<p>To minimize the effects of drought on plant production and corresponding above ground plant production available for litter.</p>