

Chapter 2. ALTERNATIVE DESCRIPTIONS

2.1 Introduction

This chapter describes and compares the alternatives considered for the Salida-Leadville-South Park Rangeland Allotment Management Planning (SLS RAMP) project. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for decision-making among the options.

2.2 Alternatives Considered

The Forest Service developed three alternatives including the “No Action” alternative and two “Action” alternatives (one being the Proposed Action), in response to issues raised by Forest Service specialists and the public. The effects of all three alternatives relative to issues and resources are addressed in Chapter 3 of this document.

Alternative A: No Action – No Livestock Grazing

Under the No Action/No Grazing alternative, no livestock grazing would be permitted on any of the allotments. Following current direction, existing permits would be phased out after giving permittees notice as provided for in the Forest Service Handbook (FSH) 2209.13, Chapter 10, section 16.13, R2 Interim Directive (ID) of 1/20/2004 which says that “...the authorized officer shall provide one year’s written notice before the modification takes effect, except in emergency situations.” According to direction given in FSH 2209.13, Chapter 90, section 94.1, R2 ID of 1/20/2004 “the “no grazing” alternative will always be fully developed and analyzed in detail.” “No action” is synonymous with “no grazing” and means that livestock grazing would not be authorized within the project area. Improvements such as stock tanks, spring developments and other water features used by wildlife would not be removed. Wildlife funding would assume the maintenance responsibilities for those water improvements that would remain in place. Other improvements such as fences, gates, and cattleguards would eventually be removed as time and funding allows. This alternative provides an environmental baseline for evaluation of the action alternatives.

Alternative B: No Change – Livestock Grazing under Current Allotment Management Plans or Annual Operating Instructions

Under the No Change alternative, livestock grazing would continue with current allotment management plans or, in the absence of such a plan or if the existing plan is not being followed for a variety of reasons, under the annual operating instructions. As provided for in FSH 2209.13, Chapter 90, section 94.1, R2 ID of 1/20/2004, “Current management will also be analyzed in detail as an alternative to the proposed action if current management will meet the stated purpose and need for action. This alternative is based on the current management action being implemented. Current management direction may be contained in an allotment management plan, annual operating instruction, a biological opinion, or a combination thereof.”

While current management has been changed over time to better address certain situations and known problems, there are places where this management is still insufficient in meeting or moving toward desired conditions from the LRMP. Total Animal Unit Months (AUMs) would not change from those currently permitted. In addition, allotments that are currently vacant would remain vacant. Existing improvements would continue to be maintained as assigned in Term Grazing Permits and may be re-constructed once the useful life has been met and the need identified. No new improvements would be authorized in this EA. New improvements would require additional NEPA analysis.

Alternative C: The Proposed Action – Livestock Grazing using Adaptive Management

Under the Proposed Action alternative, current LRMP direction would guide management. Livestock grazing would be implemented incorporating adaptive management to meet the LRMP goals, objectives, standards, and guidelines. Adaptive management is defined as a process where land managers implement management practices that are designed to meet LRMP standards and guidelines, and would likely achieve the desired conditions in a timely manner. However, if monitoring shows that desired conditions are not being met, or if movement toward achieving the desired conditions in an acceptable timeframe is not occurring, then an alternate set of management actions, as described and evaluated under this NEPA analysis would be implemented to achieve the desired results.

This alternative focuses on achievement of site-specific desired resource conditions as defined by an interdisciplinary team. It is based on the principle of applying adaptive management. A proposed course of action is selected as a starting point believed to best meet or move toward the desired condition. A list of potential management actions is listed in Table 2-1 (following page). This list is not all-inclusive. New science and management techniques may be incorporated as needed or when they are developed. Some practices alone may not meet the desired condition, but in combination with other practices, desired conditions may be met or moved toward. For example, a 2-unit deferred grazing system alone may not provide the anticipated result, but when coupled with light grazing intensity and construction of additional water developments, desired conditions would likely be met.

Monitoring will occur over time with evaluation of the results then being used by the Interdisciplinary Team (ID Team) and the Line Officer to determine what adjustments are needed to ensure adequate progress toward desired conditions. Monitoring details are discussed in the Monitoring Plan section, later in this chapter. All adaptive actions will be within the scope of effects recorded in this document, or a supplemental NEPA document and decision will be prepared as appropriate.

Table 2-1 appears on the next page and provides a list of potential adaptive management options that can be applied as necessary to move conditions toward the desired future condition or to accelerate the rate at which conditions are already moving toward desired.

Table 2-1 Potential Adaptive Management Options (Adaptive Management Tool Box)

Grazing Management Actions
Adjust stocking rate to Light, Moderate, and/or Heavy Grazing Intensity
Implement alternative riparian grazing dates based upon specific conditions (topography, range rider, upland water sources, livestock use patterns)
Use of salt or supplement to draw livestock toward or away from specific areas
Incorporate a range rider to move livestock from riparian areas (herding)
Change season of use – do not exceed permitted AUMs (stocking rate)
Change animal numbers – do not exceed permitted AUMs (stocking rate)
Change animal class – do not exceed permitted AUMs (stocking rate)
Change number of days of livestock utilization
Adjust permitted AUMs based on forage production inventories over two growing seasons.
Defer livestock turn-on date
Rest from livestock grazing for one or more seasons
Do not allow livestock grazing
Construct fence to create riparian unit – allow grazing under riparian grazing guidelines
Construct fence to exclude livestock from areas of concern (riparian, streams, springs, wetlands, mesic meadows, etc.)
Construct temporary electric fence to control livestock distribution patterns
Construct permanent fence to control livestock distribution patterns
Control livestock distribution patterns using water (turn water on or off at developed water sites)
Control livestock distribution patterns by constructing cross fences (electric, standard, permanent or temporary)
Construct livestock water development (springs, infiltrators, pipelines, tanks, windmill, sediment traps, wells, stock dams, submersible pumps, solar)
Remove existing water development (pipeline, tanks, windmill, well, stock dam)
Remove existing fence line (electric, standard, permanent or temporary)
Implement deferred grazing system (2-Unit, 3-Unit, 4-Unit etc.)
Implement Prescribed Fire projects to improve forest and range conditions
Implement forest thinning projects to reduce tree stocking levels and meadow encroachment
Implement a high-intensity/short duration grazing system (by riding, herding, temp. fence, etc.)
Implement rest-rotation grazing system
Implement multiple unit rotation with permittees' private land
Reseed native grass, shrub and forb species back into areas with introduced grasses
Enhance riparian shrub regeneration by planting native shrubs
Enhance native grasses by interseeding or furrowing
Inhibit fringed sage growth by disturbance or interseeding with native grasses

The potential management actions are designed to be used either alone or in combination to best meet, or at least, move toward the desired resource condition within a timeframe of ten years.

Project Design Criteria

In the planning and implementation of management activities, the Forest Service uses many measures to reduce or prevent negative impacts on the environment. The application of these measures begins at the planning-and-design phase of a project. The Forest Plan Standards and Guidelines and the direction contained in the Watershed Conservation Practices Handbook (Forest Service Handbook [FSH] 2509.25) are the first protection measures to be applied. Both of these sources are incorporated by reference and are not reiterated here. Other Project Design Criteria are then developed, as needed.

The following Project Design Criteria are applicable to this project for the **Alternative C: Livestock Grazing using Adaptive Management.**

Table 2-2 Project Design Criteria – Management Requirements Common to all Allotments:

Resource Area	Project Design Criteria common to all Allotments
Range Management	<p>Keep livestock distributed as evenly as possible throughout suitable rangelands within pasture or herd areas.</p> <p>Keep livestock in the proper pasture during the specified time periods</p> <p>Aspen regeneration will be monitored to determine the effects of livestock grazing. Use of aspen regeneration as browse would be limited to light use (up to 40%) as defined by the RAMTG. If livestock impacts are determined to be resulting in survival of aspen regeneration at less than desired, or if livestock use is greater than light use, livestock will be excluded from using the pasture or the regeneration will be fenced using either electric or permanent fencing until such time as the aspen growth is sufficiently tall (normally greater than 4.5 feet on average) that the area may be opened to livestock grazing with little expected impact on aspen growth.</p>
Hydrology - Uplands	<p>Use the Grazing Response Index (GRI) (see Appendix 1 for definitions, explanations and examples of this protocol) to assess the effects of annual livestock management and to allow for periodic adjustments in management in response to the findings. The management goal would be to have a positive or neutral GRI score as an average over every three-year period.</p> <p>Grazing intensity or amount of forage utilization in uplands would be light to moderate in areas with less than 40% bare ground and between 30% and 60% litter cover.</p> <p>In upland areas with 41- 60% bare ground and/or more than 61% litter cover, forage utilization would be moderate to heavy, but of short duration (14 days or less).</p> <p>Grazing intensity or amount of forage utilization in uplands would be moderate to heavy in areas with less than 40% bare ground and/or more than 61% litter cover.</p> <p>Grazing duration would be limited to a 28 day maximum stay in most pastures or grazing management areas so that frequency of livestock grazing individual plants would be four times or less each year. Frequency would be limited to favor maximum plant rest and regrowth.</p> <p>As an average over time, plants would be given the opportunity to reach near full growth prior to grazing (deferment) or to attain substantial regrowth following grazing.</p> <p>The earliest turn on date and latest removal date will be based on allotment conditions relative to wet soils or snow, and on avoiding conflicts with elk calving and big game hunting</p>

Resource Area	Project Design Criteria common to all Allotments
<p>Hydrology - Riparian</p>	<p>Utilization of riparian graminoids (sedges, etc.) would be measured by the average stubble height (residue) in key areas. Allowable use standards are an easy way to quantify this use.</p> <ul style="list-style-type: none"> ▪ Once the allowable use trigger standard for stubble height is reached, livestock must be moved to the next pasture, or in the case of the last pasture, they will be removed from the allotment. ▪ In most cases, four to six inches of residual plant material must be present in the hydrophilic plant community at the end of the grazing event or the end of the growing season (whichever occurs later), in order to trap and retain sediments associated with winter-spring water flows (Clary, 2000). ▪ If livestock graze the riparian area before September, the trigger stubble height standard would be four inches on riparian graminoids in key areas. This assumes that in an average year, the plants would regrow to meet the residual stubble height standard during the rest of the growing season. ▪ If livestock graze after September, the riparian stubble height standard would be five to six inches on riparian graminoids in key areas depending on where these key areas are located. This assumes that plants would not have much of an opportunity to regrow following grazing. At this point, once the stubble height standard is reached, livestock would be removed from the pasture or in the case of the last pasture; livestock would be removed from the allotment. ▪ Key area specific trigger stubble height and residual stubble height design criteria may be developed based on these general design criteria. ▪ Monitoring of the pastures and allotments for compliance with allowable use standards and to judge livestock moves based on stubble height would require active management by the permittee and Forest Service. <p>If the desired condition of a specific riparian area includes increasing willow cover, livestock would normally graze the riparian area earlier in the season when grasses and forbs are preferred over willows.</p> <ul style="list-style-type: none"> ▪ Livestock would be removed from the pasture when they reach allowable use standards on grasses or begin to make significant use of riparian shrubs (whichever comes first). ▪ The maximum utilization on riparian woody species (especially willow) in key areas would be light use of the current year’s growth, as defined by the GRI. <p>➤ If the desired condition of a specific riparian area includes increasing sedge or riparian graminoid cover, livestock would normally graze the riparian area later in the season when the sedges are not the only green and palatable forage in the pasture or livestock would graze early in the season (first pasture grazing) to allow these plants the greatest opportunity for growth following grazing. If this is not feasible due to pasture location, arrangement or availability, then the amount of time allowed for grazing that particular area would be lessened.</p> <p>Streambeds, banks, aquatic habitat, riparian vegetation composition, and structure would be monitored for progress toward desired condition objectives. Long-term trend monitoring would be conducted in representative benchmark sites within key riparian community types on a 5-10 year cycle</p>
<p>Heritage Resources</p>	<p>Ground disturbing activities such as installation of water developments, pipelines, fences or enclosures will require heritage resource survey by a Forest Service archaeologist or para-archaeologist to determine clearance.</p>
<p>Sensitive Species</p>	<p>Riparian areas identified as potential Boreal Toad habitat would be rested if allowable use standards are exceeded the previous grazing season, if the riparian conditions decline, or if monitoring indicates the desired future conditions won’t be achieved within ten years and livestock grazing is shown to be a significant factor. Rest may be achieved by rest of the full pasture, development of temporary electric fencing to exclude livestock from the specific riparian habitat, or permanent fencing to create a special riparian pasture to be managed to meet design criteria specific to the Boreal Toad.</p>

Resource Area	Project Design Criteria common to all Allotments
<p>Noxious Weeds and Invasive Species</p>	<p>Permittees will ensure that livestock do not contribute to the transport of noxious weeds onto the allotment(s). Permittees will be given identification information on State of Colorado noxious weeds during annual meetings with the Forest Service. The Colorado noxious weed list is available on the internet at: http://www.ag.state.co.us/dpi/WeedFreeForage/WeedFreeRules.pdf.</p> <p>Any hay, straw, or other feeds used on the allotment will be either certified as being free of noxious weeds, or will consist of heat-treated, pelletized feeds.</p> <p>Any seed used on the allotment will be tested for “all states noxious weeds” according to Association of Official Seed Analysts (AOSA) standards and will be certified by a Registered Seed Technologist or Seed Analyst as meeting the requirements of the Federal Seed Act (7 U.S.C. Chapter 37: Sections 1551-1611) and the Rules and Regulations of the Colorado Seed Act pursuant to 35-27-101 through 125, C.R.S. (1993 Supp. as amended by Senate Bill 93-17).</p>

Table 2-3 below expands the design criteria the Interdisciplinary Team developed into allotment specific locations. Some of these criteria are specific to one location, some may be common to a few, but not all, of the allotments. These criteria are considered to be just as important as the list published above.

Table 2-3 Allotment Specific Design Criteria

Table 2-3.a

Allotment/Pasture Benchmark	Specific Design Criteria
<p><u>Arkansas C&H Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: E, G thru L • See specific design criteria (BE/BA-Appendix 1) for the following species: <ul style="list-style-type: none"> ○ lynx ○ UFB ○ boreal toad ○ leopard frog ○ ptarmigan ○ riparian species

Table 2-3.b

Allotment/Pasture Benchmark	Specific Design Criteria
<p><u>Aspen Ridge Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • Keep stock tanks, salt supplements and similar features out of the WIZ if feasible and out of riparian areas and wetlands always. (WCP 12.1, DC-g). • WCP, Section 12, Management Measure (3), Design Criteria E, G thru L • Protect Sensitive Areas. • No salting or concentrated cattle use within a ¼ mile of the sensitive plant species occurrence.
<p>Coons Park Pasture wide (Coons Park)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria B, F, N, and I (hot-season requirement).
<p>Bull Gulch Pasture Wide (Bull Gulch)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria B, F, N, and I (hot-season requirement).

Calf Gulch Pasture Wide (<i>Calf Gulch</i>)	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria B, F, N, and I (hot-season requirement).
Aspen Ridge Pasture Wide	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria B, F, N, and I (hot-season requirement).

Table 2-3.c

Allotment/Pasture Benchmark	Specific Design Criteria
<u>Bassam Allotment:</u> Allotment Wide	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria E, G thru I, K, L
Mushroom Gulch Pasture Wide	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria I (hot-season requirement), J
North Kaufman Pasture Wide	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria I (hot-season requirement), J
Castle Rock Gulch Pasture Wide (<i>Castle Rock Gulch</i>)	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria I (hot-season requirement), J
Dry Lakes Pasture Wide (<i>Dry Lakes</i>)	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria: B, F, N, I (hot-season requirement), J

Table 2-3.d

Allotment/Pasture Benchmark	Specific Design Criteria
<u>Bear Creek Allotment:</u> Allotment Wide	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria E, G thru I, K, L Manage to maintain existing Bill's Neoparrya population. Reduce livestock concentrations on culturally sensitive sites. Lynx-BE Appendix 1 Adjust permit AUM based on forage production
(<i>Spring Gulch</i>)	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria: B, F, N, I (hot-season requirement), J

Table 2-3.e

Allotment/Pasture Benchmark	Specific Design Criteria
<u>Browns Creek Allotment:</u> Allotment Wide	<ul style="list-style-type: none"> WCP, Section 12, Management Measure (3), Design Criteria E, G thru I, K, L Adjust permit AUM based on forage production
Upper Browns Pasture Wide (<i>Upper</i>)	<ul style="list-style-type: none"> Lynx-BE Appendix 1 Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Browns Creek watershed from April 1st through September 30th.
Lower Browns Pasture Wide	<ul style="list-style-type: none"> Lynx-BE Appendix 1 Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Browns Creek watershed from April 1st through September 30th.

<p>Fourmile Pasture Wide</p>	<ul style="list-style-type: none"> • Lynx-BE Appendix 1 • Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Browns Creek watershed from April 1st through September 30th.
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Table 2-3.f

<p>Allotment/Pasture <i>Benchmark</i></p>	<p>Specific Design Criteria</p>
<p><u>Cameron Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria E, G thru I, K, L
<p>Upper Willow Pasture Wide</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria I (hot-season requirement), J
<p>Willow Pasture Wide (<i>Willow</i>)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: B, F, N, I (hot-season requirement), J

Table 2-3.g

<p>Allotment/Pasture <i>Benchmark</i></p>	<p>Specific Design Criteria</p>
<p><u>Chalk Creek Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • Improve overall livestock distribution and increase forage utilization in specific under-utilized portions of the allotment. • WCP, Section 12, Management Measure (3), Design Criteria: E, G thru I, K, L • Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Browns Creek watershed from April 1st through September 30th. • Adjust permit AUM based on forage production

Table 2-3.h

<p>Allotment/Pasture <i>Benchmark</i></p>	<p>Specific Design Criteria</p>
<p><u>Chubb Allotment</u> Allotment Wide</p>	<ul style="list-style-type: none"> • Control time, intensity, duration and frequency of livestock grazing. • Earliest on date of April 15th and latest off date of December 1st, to avoid conflicts with elk use. • WCP, Section 12, Management Measure (3), Design Criteria: E, G thru I, K, L • Adjust permit AUM based on forage production
<p>Goddard Pass Pasture Wide</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
<p>Lower Chubb Pasture Wide</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
<p>Newett Pasture Pasture Wide</p>	<ul style="list-style-type: none"> • Fencing and cattleguard at Lenhardy pass.
<p>Salt Creek Pass Pasture Wide (<i>Salt Creek Pass</i>)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: B, F, N, I (hot-season requirement), J

<p>Upper Chubb Pasture Wide</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
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Table 2-3.i

<p>Allotment/Pasture <i>Benchmark</i></p>	<p>Specific Design Criteria</p>
<p><u>Fourmile Allotment:</u> Allotment Wide (Lower Fourmile) (Goddard) (Davis Meadows) (Seven Mile)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J • WCP, Section 12, Management Measure (3), Design Criteria: E, G-I, K, L
<p>Upper Fourmile Pasture wide</p>	<ul style="list-style-type: none"> • If boreal toads are present then: exclude livestock from the Boreal toad habitat in the Fourmile Creek watershed from April 1st through September 30th • Lynx-BE Appendix 1

Table 2-3.j

<p>Allotment/ Pasture <i>Benchmark</i></p>	<p>Specific Design Criteria</p>
<p><u>Little Cochetopa Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • Sage Grouse, BE appendix 1 • Elk, BE appendix 1 • Adjust timing, intensity, duration and frequency of livestock grazing. • WCP, Section 12, Management Measure (3), Design Criteria: E, G-I, K, L
<p>Spruce Creek Pasture Wide</p>	<ul style="list-style-type: none"> • Maintain 20% of existing late seral sagebrush when creating the mosaic to provide cover for sage grouse. • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J • Until desired conditions are achieved on the willow; use this pasture first or last in the rotation, but not both; when livestock preference switches to the hardwoods remove livestock from the pasture. Do not exceed utilization standards or 20 days on the pasture. • Once DC is achieved on the willow, these criteria may be altered to maintain upward trend.
<p>Little Cochetopa (Head of Little Cochetopa)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J • Lynx-BE Appendix 1 • Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Little Cochetopa Creek watershed from April 1st through September 30th.
<p>Beaver Creek (Beaver Creek)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
<p>Marshall Pass Pasture Wide</p>	<ul style="list-style-type: none"> • If boreal toads are present then: exclude livestock from the Boreal toad habitat in the Ouray Creek watershed from April 1st through September 30th. • Lynx-BE Appendix 1
<p>(Marshall Pass)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
<p>Murphys Hole Pasture Wide (Murphys Hole)</p>	<ul style="list-style-type: none"> • WCP, Section 12, Management Measure (3), Design Criteria: B, F, N, I (hot-season requirement), J • Expand pasture to include lower Silver Creek pasture

Silver Creek Pasture Wide	<ul style="list-style-type: none"> • Include lower portion of pasture with Murphys Hole pasture • Exclude upper portion from the allotment.
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Table 2-3.k

Allotment/Pasture Benchmark	Specific Design Criteria
McQuaid Allotment: Allotment Wide	<ul style="list-style-type: none"> • Grazing dates shall be chosen to minimize conflicts with big game winter range. • Increase forage utilization in under-utilized portions of the allotment. These areas will change with use patterns and time. • WCP, Section 12, Management Measure (3), Design Criteria: E, G-I, K, L
Long Park (<i>Dry Lake</i>)	<ul style="list-style-type: none"> • Manage for upland shrub and grassland desired conditions. • Decrease the density of Mountain Sagebrush to increase the competitive ability of native grasses and forbs. • Improve livestock distribution.
North Long Park Pasture Wide	<ul style="list-style-type: none"> • Manage for native perennial graminoides and forb retention.
Pony Park (<i>Pony Creek</i>)	<ul style="list-style-type: none"> • Manage to promote willow establishment and retention. • Improve livestock distribution • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
Deadman (<i>Buffalo Creek</i>)	<ul style="list-style-type: none"> • Manage to promote willow establishment and retention. • Improve livestock distribution • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
Jones Hill (<i>Rough-n- Tumblin'</i>) (<i>Willow Creek</i>)	<ul style="list-style-type: none"> • Manage to retain or improve grassland and stream/riparian condition.
Watershed (<i>East of pipeline tank</i>)	<ul style="list-style-type: none"> • Increase density of grasses and forbs in upland grasslands. • Increase litter cover and decrease bare ground in upland grasslands. • Improve overall livestock distribution and increase forage utilization in specific under-utilized portions of the pasture.
Buffalo Springs (<i>Wild Game Springs</i>)	<ul style="list-style-type: none"> • Increase amount of riparian and upland grassland vegetation. • Expand extent of wetted soils in riparian area. • WCP, Section 12, Management Measure (3), Design Criteria: I (hot-season requirement), J
Lower Salt (<i>Brush Park</i>)	<ul style="list-style-type: none"> • Manage to encourage establishment of native graminoid species in bench and transition areas. • Increase litter cover and decrease bare ground. • Expand extent of wetted soils in riparian area. • Manage to encourage establishment of native graminoid and forb species. • WCP, Section 12, Management Measure (3), Design Criteria: B, F, N, I (hot-season requirement), J
Upper Salt (<i>West of Fence</i>)	<ul style="list-style-type: none"> • Manage for native perennial graminoides, grasses and forb retention.
Buffalo Meadows (<i>Buffalo Meadows</i>)	<ul style="list-style-type: none"> • This area is currently not grazed by livestock. Close this pasture.

Table 2-3.m

Allotment/Pasture Benchmark	Specific Design Criteria
<u>Union Allotment:</u> Allotment Wide	<ul style="list-style-type: none"> • Earliest on date of July 10th; Latest off date of October 10th. • Improve overall cattle distribution and increase forage utilization in specific under-utilized portions of the allotment. • Control cattle movements though out allotment. • WCP, Section 12, Management Measure (3), Design Criteria: E, G-I, K, L
Lower Pasture Wide <i>(Empire Gulch)</i>	<ul style="list-style-type: none"> • Wildlife will be considered when planning prescribed treatment. • Control cattle movement between middle and lower rotational pastures.
Middle Pasture Wide	<ul style="list-style-type: none"> • Wildlife will be considered when planning prescribed treatment. • Manage to maintain existing Colorado Tansy Aster population.
Upper Pasture Wide <i>(Empire Reservoir)</i>	<ul style="list-style-type: none"> • Increase monitoring in alpine meadows to determine the effects of cattle grazing on alpine species composition. • Control cattle movement between middle and upper rotational pastures. • Manage to maintain existing Colorado Tansy Aster population. • Manage for alpine, stream/riparian DC.

Alternative C-Adaptive Management is a process that uses the Design Criteria and the “Grazing Management Toolbox” to implement management actions that will move existing conditions towards desired conditions on the allotments. The table that follows shows the “active” grazing allotments and the adaptive management options that may be used as a means of moving the allotments towards desired conditions.

Table 2-4 Adaptive Options – Allotment Specific

Table 2-4.a

Allotment/Pasture Benchmark	Adaptive Options
<u>Arkansas C&H Allotment:</u> Allotment Wide	<ul style="list-style-type: none"> • If cattle distribution is less than desired, or utilization standards cannot be met then: <ul style="list-style-type: none"> ○ Improve use of salt, supplement, to enhance cattle movements. ○ Apply a rider to move cattle utilizing gentle herding techniques • Adjust timing, intensity, duration and frequency of livestock grazing. • Increase rest or shorten the time that cattle are on a specific pasture if desired condition requirements are not met.
Weldon Pasture Wide <i>(Weldon Gulch)</i>	<ul style="list-style-type: none"> • Develop spring , tank and pipeline (<1/2 mile)from the Blanks Cabin Enclosure (T50N R7E Sec 10 SW/SW) • Use of a solar pump from a reliable water source to move water from sensitive areas or areas of concern. • Use of permanent or temporary fencing to exclude cattle from areas of the riparian.
High Pasture Wide <i>(High Unit)</i>	<ul style="list-style-type: none"> • Develop water source from Weldon Gulch to a location higher in the unit (T50N R7E Sec 9 SW/SW just as USFS road 254 crosses Weldon Gulch). A gravity-fed pipeline could be run to a tank ~ ½ mile. • Redevelop Pit 301 as a water source and pipe out to a tank. Pit could be fenced to protect this source. • Use fencing to reduce cattle use within high recreation use areas. • Integrate travel management and possible road closures into overall area management.

<p>Bassam Park Pasture Wide</p>	<ul style="list-style-type: none"> • Tank 364 is a wooden tank that requires swelling before it seals and tends to overflow. It would be beneficial to replace the tank with a tire tank and possibly move the water or make the source an on/off source. • Develop Pit 366 into a spring box and pipe to a tank outside of the riparian area. • Use of high intensity, short duration grazing in northern portions of the pasture to enhance bunchgrass vigor. • Develop sediment catch dams along USFS road 187 to provide upland water sources. • Install snow fence in conjunction with pond catchments to catch drifting snow.
<p>Cow Gulch Pasture Wide</p>	<ul style="list-style-type: none"> • Develop the spring that feeds Pits 334 & 335 with a spring box and tank to draw cattle out of the bottoms, and retire the pits. • Develop Pit 306 to an upland tank south of the spring (T15S R76W Sec 20 NW/SW). • Develop a drip tank (T15S R76W Sec 17 NE/SW) to provide a water source in the north east portion of the unit. • Use of solar pump to draw water from Cow Gulch to a temporary/permanent tank (T15S R76W Sec 20 NW/NE). • Develop the spring located at (T15S R76W Sec 19 NE/SE) with a spring box and pipeline to a tank located ~ ¼ mile east and slightly south. • Establish monitoring in the southeast quarter of Section 20. • Develop sediment catch dams along USFS road 186 to provide upland water sources for the south half of the pasture. • Use double strand electric fencing parallel to the lower side of FSR 186.

<p>Bull Gulch Pasture Wide</p> <p><i>(Bull Gulch)</i></p>	<ul style="list-style-type: none"> • When livestock preference switches to the hardwoods remove livestock from the pasture. • Plant willow cuttings/slips/clumps or seed with native riparian vegetation as necessary. • Create an enclosure to monitor the woody component to establish an attainable goal for willow. • Develop a water source in the Herring Park project to allow utilization of forage. • Fencing out a portion of Bull Gulch below the road with electric/hard fence to prevent cattle from grazing the area. • Fencing the unit from the north and south vs. the current east west alignment and extending it through the Calf Gulch unit, dividing both units and creating two north/south units. • Cut trail(s) into aspen where needed to improve accessibility into stands. • Use of solar pump to draw water from Bull Gulch to a temporary/permanent tank(s). One identified location would be drawing from Pit 363 to a tank located ~ ¼ mi. north of the pit. • Retiring excess/non-functional pits located in Bull Gulch that are not needed. • Water sources could be supplied to the north portion of the unit using gravity fed pipelines and tanks from existing sources: <ul style="list-style-type: none"> Pit 311 could feed a tank located at approximately at (T15S R76W Sec 28 SE/NW) Pit 313 could feed a tank located at approximately at (T15S R76W Sec 28 SE/SW). • Eliminate the northern fence line and extend the eastern fence line of the Aspen Ridge pasture. • Establish monitoring in the east half of Section 32 along Bull Gulch. • Using electric or hard fence to eliminate ungulate grazing in the south half of Section 32. • Use of double strand electric fencing parallel to the lower side of FSR 186
<p>Calf Gulch Pasture Wide</p> <p><i>(Calf Gulch)</i></p>	<ul style="list-style-type: none"> • Use of permanent or temporary fencing to exclude cattle from areas of the riparian. • Use of existing downed woody material from the site to alter cattle trailing patterns, stabilize banks and increase ground cover. • Plant willow cuttings/slips/clumps or seed with native riparian vegetation as necessary. • Potential for riparian improvement project. • Use temporary electric fence around sensitive areas when cattle are in the pasture. • Redevelop Pits 320 and 321 with a pipeline and a tank. • Use Pit 323 or 326 to supply water to the north portion of the unit using gravity fed pipelines and tanks approximately located at (T15S R76W Sec 33 NE/SW). • Use of existing downed woody material from the site to alter cattle trailing patterns, stabilize banks and increase ground cover. • Retiring excess Pits 319 & 352. • Use of double strand electric fencing parallel to the lower side of FSR 186.

<p>Aspen Ridge Pasture Wide</p>	<ul style="list-style-type: none"> • Fencing out the riparian portions of Bull Gulch that are in poor condition with electric/hard fence to prevent cattle from grazing the area. • Relocate Bull Gulch water to the uplands away from the source to a temporary/permanent tank located at approximately (T15S R77W Sec 36 SE/SE). Two sources could be used to feed this tank: <ul style="list-style-type: none"> ○ Source 342 could be used to draw water to the tank using a temporary solar pump/pipeline (> ¼ mi.). ○ Source 343 could be used to gravity fed a pipeline run to the tank (~ ¼ mi). • Redevelop Source 337 to a spring box/tank to provide a northern upland water location. • Redevelop Source 338 with a gravity fed pipeline/tank located upland from Bull Gulch (T15S R77W Sec 36 NE/SW). • Eliminate the northern fence line and extend the eastern fence line of the Aspen Ridge pasture. • Use of existing downed woody material from the site to alter cattle trailing patterns, stabilize banks and increase ground cover. • When livestock preference switches to the hardwoods remove livestock from the pasture. • Plant willow cuttings/slips/clumps or seed with native riparian vegetation as necessary. • Create an enclosure to monitor the woody component to establish an attainable goal for willow. • Develop sediment catch dams along USFS road 186 to provide upland water sources. • Increase rest, shorten or alter the time that cattle are on the pasture if desired condition requirements are not meet. • High intensity short duration concentrated use in the pedestalled portion of the riparian area to eliminate pedastalling.
<p>Herring Park Pasture Wide</p>	<ul style="list-style-type: none"> • Incorporate pasture into the current rotation. • Alter the current allotment boundary to the south to coordinate with topographical features and placement of electric or permanent fence along allotment boundary. • Prescribed burning in the southeast portion of the Herring Park pasture. • Develop water sources for primary elk use at locations: • T15S R76W Sec 35 NE ¼, SE ¼ and T51N R10E Sec 3.

Table 2-4.c

<p>Allotment/Pasture <i>Benchmark</i></p>	<p>Adaptive Options</p>
<p><u>Bassam Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt or supplement to enhance cattle movements. ○ Apply a herder to move cattle utilizing gentle herding techniques • Adjust timing, intensity, duration and frequency of livestock grazing. • Develop sediment catch dams along USFS roads to provide upland water sources. • Run Bassam Allotment separate from Chubb Allotment.
<p>Bald Mountain Pasture Wide</p>	<ul style="list-style-type: none"> • Establish a drift fence along the crest (T14S R77W Sec 28 SW). • Tank development from the spring in Arnold Gulch (T14S R77W Sec 30 SE/SE) • Potential development of 348 pit/spring (currently has tank) • Pit 378--develop to pull water down to a tank upland. • Pit 377--cleared for development of an upland tank and pipeline. • Redevelop 379 (always dry) upstream or a potential development of the spring southwest of 379 (T14S R77W Sec 20 SE/SW). There is an old cabin site at the location. • Develop spring in S4. (T15S, R77W) • Reconstruct, relocate, and repair holding pasture fence.

Trout Creek Pasture Wide	<ul style="list-style-type: none"> • Develop water at proposed tank 380. • Develop upland tank and pipeline from development 377. • Construct fence from Triad ridge to ridge south east of FSR 300 (approx. in the center of the unit) to control cattle movement. • Redevelop these Pits 349 & 378 to export water and protect the spring.
Castle Park Pasture Wide	<ul style="list-style-type: none"> • Tank development west of pit 351 (T14S R77W Sec 27 NE/SE) • Tank development west of pit 329 (T14S R77W Sec 28 SW/SE) in “horse pasture gulch” • Redevelop Pit 352 with tank and pipeline. • Reconstruct fence between Castle Park and Columbine Gulch pastures.
Columbine Gulch Pasture Wide	<ul style="list-style-type: none"> • Develop Pit 307 with tank.
Mushroom Gulch Pasture Wide	<ul style="list-style-type: none"> • Run the pasture as two units (south and north) using geographic formations, salting and riding. • Run the pasture as two units (south and north) by constructing drift fence located in (T14S R77W Sec 11 NW). • Retire Pit 370. • Develop tank further upstream from Pit 370 in Mushroom Gulch (T14S R77W Sec 2 SE/SE). • Develop Pit 369 into a tank or develop tank further downstream. • Develop Pit 366 (needs symbol) into a tank. • Develop tank in Daley Gulch (T14S R77W Sec 11 SW/SE) • Develop Pit 381 to tank.
North Kaufman Pasture Wide	<ul style="list-style-type: none"> • Redevelop 371 tank/pipeline and create enclosure around riparian. • Redevelop 301 tanks (2). • Develop well and, pipeline in the North Kaufman pasture to run into a pipeline and tank system in the East Kaufman pasture. Possible solar pump to push water uphill. • Develop sediment traps on FS road 329 and 308.
East Kaufman Pasture Wide	<ul style="list-style-type: none"> • Redevelop tank 302. • Develop well and, pipeline in the North Kaufman pasture to run into a pipeline and tank system in the East Kaufman pasture. • Development of a well in the north or east portion of the unit. • S6, SE/SE possible spring in draw. • Sediment ponds on road in S8 and S5.
West Kaufman Pasture Wide	<ul style="list-style-type: none"> • Development of Groaning Spring (354, 353) with a stock tank (T14S R76W Sec 30 NE/NW) • Pit 339 is cleared for development as a tank. • Redevelop Pit 303 as a tank. • Fence currently exists north of Groaning Spring (Castle Rock pasture) and would either need to be moved south to allow cattle access; or water could be piped from Groaning Spring to tanks in the West Kaufman pasture.
Castle Rock Gulch Pasture Wide <i>(Castle Rock Gulch)</i>	<ul style="list-style-type: none"> • Develop tank west of Pit 363 (T14S R77W Sec 36 NE/SE) • Develop tank south of Pit 374 (T14S R76W Sec 31 SW/NE) • Develop tank northeast of Pit 359 (T14S R76W Sec 29 NE/SW) • Develop spring in South Castlerock Gulch (T15S R76W Sec 6 NE/NW); currently Pit 328. • Remove old headgate present in drainage. S30 or S31. • Replace existing pits with spring and tank developments.

<p>Dry Lakes Pasture Wide</p> <p><i>(Dry Lakes)</i></p>	<ul style="list-style-type: none"> • Redevelop tank 321 • Redevelop tank 311. • Redevelop tank 324. • Redevelop Pits 319 and 320. Pipe water from pits to upland tanks and construct enclosures around pits to protect as water source. • Develop spring south of 323 to upland tank (T14S R76W Sec 28 NW/SW) • Develop spring south of 323 to upland tank (T14S R76W Sec 29 NE/SE) • Redevelop Pit 341 as a tank. • Possible thinning and prescribed fire under burning conifer for range improvement. • Prescribed burning in upland grasses. • Plant salix/willows in riparian. Include possible temporary fence for willow protection. Possible change in timing to protect willow sprouts.
<p>Badger Pasture Wide</p>	<ul style="list-style-type: none"> • Redevelop Pit 339 with a stock tank. • Redevelop 343 tank. • Redevelop Pit 345 to a tank. • Redevelop 344 tank. • Develop pipeline and tank northeast of water development 317 (T15S R76W Sec 16 SE/NE). • Redevelop Pit 313 to a tank • Redevelop 342 tank • Fence pasture into two units. • Possible thinning and prescribed fire under burning conifer for range improvement. • Prescribed burning in upland vegetation. • T15S R76W S7 possible spring development with upland tank just east of Black Dump.

Table 2-4.d

<p>Allotment/Pasture <i>Benchmark</i></p>	<p>Adaptive Options</p>
<p><u>Bear Creek Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • Increase signs on gates/trailheads to inform visitors of cattle presence at the Kiosks on FSR 101 and 108. • Use of hard/temporary fence to deter livestock from utilizing Rainbow trail near Mud Springs. • Incorporate BLM permit into the rotation. • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt or supplement to enhance cattle movements. ○ Apply a rider to move cattle utilizing gentle herding techniques • Adjust timing, intensity, duration and frequency of livestock grazing. • Develop an upland stock water tank and pipeline from a reach of Bear Creek (T48N R9E Sec 10) • Use of salt and riders to prevent livestock concentration in the Neoparrya species location. • Install utilization cages in the uplands where the Neoparrya species is located. • Decrease utilization to light in the Neoparrya species location. • No salt use in the Neoparrya species location. • Drift fence to the south of the Neoparrya species location. • Build temporary or hard fence around the Neoparrya species location. • Move stockwater tanks out of riparian areas and redevelop on adjacent uplands. • Possible options include: <ul style="list-style-type: none"> ○ Development of water source ~1 mi. south of tank 304 to be piped out of riparian area. ○ Reconstruction of Mud Springs with a pipeline to a hard/dirt tank. ○ Creation of water bunks in suitable locations. • Use of salt and riders to prevent livestock concentration in sensitive areas. • Use of hard/temporary drift fence to discourage livestock from sensitive areas. • Develop water away from sensitive areas. • Change the allotment boundary to coincide with livestock movements and natural barriers.

	<ul style="list-style-type: none"> • Fence where needed to contain livestock in existing boundary.
<i>(Spring Gulch)</i>	<ul style="list-style-type: none"> • Redevelop 304 as a fenced out holding tank and develop a pipeline to a stock tank out of the riparian area to the west approximately ¼ mile. • Redevelop 304 as a fenced out holding tank and develop a pipeline to a stock tank out of the riparian area to the northwest approximately ¼ mile. • Jack straw available logs and trees to stabilize the area and reduce hoof action. • Increase rest or shorten the time that cattle are on the pasture if desired condition requirements are not meet.

2-4.e

Allotment/Pasture Benchmark	Adaptive Options
<u>Browns Creek Allotment:</u> Allotment Wide	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt or supplement to enhance cattle movements. ○ Apply a rider to move cattle utilizing gentle herding techniques • Adjust timing, intensity, duration and frequency of livestock grazing. • Increase signs on gates/trailheads and at the Kiosks on FSR 272 to inform visitors of cattle presence and their responsibilities to give way to cattle. • Installation of spring loaded gates on the Browns Creek trail.
Upper Browns Pasture Wide <i>Upper benchmark.</i>	<ul style="list-style-type: none"> • Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Little Cochetopa Creek watershed from April 1st through September 30th.
Lower Browns Pasture Wide	<ul style="list-style-type: none"> • Where boreal toads are present then: exclude livestock from the breeding ponds area Boreal toad habitat in Little Cochetopa Creek watershed from April 1st through September 30th. • Lynx-BE Appendix 1

Table 2-4.f

Allotment/Pasture Benchmark	Adaptive Options
<p>Fourmile Allotment: Allotment wide (Lower Fourmile)</p> <p><i>(Davis Meadows)</i></p> <p><i>(Seven Mile)</i></p>	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt or supplement to enhance cattle movements. ○ Apply a rider to move cattle utilizing gentle herding techniques. • Maintain or repair existing infrastructure. • Construct infrastructure (permanent or temporary) where needed. • Repair fencing between Chubb Park and Fourmile allotments. • Establish or use of Permanent or temporary fencing and other infrastructure needed to control livestock movement into or out of the pasture and to allow for willow establishment or enhancement. Create pastures to avoid season long grazing and implement short-duration grazing. • Utilize the area when there is a lower occurrence of recreational use in the area. • Develop stock water sources outside of riparian and high recreational use areas. Possible locations include: <ul style="list-style-type: none"> ○ A collection box, pipe and tanks in McGee Gulch (T14S R77W Sec 5 NE ¼ SW ¼). ○ Potential water sources located at (T13S R78W Sec 36 NW ¼ SW ¼) or (T13S R78W Sec 35 SE ¼ SE ¼) could be investigated for possible development. ○ Development location along Little Fourmile Creek (T13S R78W Sec 22 SE ¼ NW ¼). ○ Development location along Sevenmile Creek south of the Goddard Ranch (T13S R78W Sec 24 NW ¼ SW ¼). ○ Development location east of the Goddard Ranch in the Swede Cabin area (T13S R77W Sec 19 SE ¼ NW ¼). ○ Development location along an unnamed drainage northeast of the Goddard Ranch (T13S R78W Sec 13 NE ¼ SE ¼). • Reestablish ditch use in the homestead area for ungulate use. • Rebuilding of a drift fence from BLM boundary to a northern ridge (T13S R78W Sec 28 SE ¼ SE ¼).
<p><i>(Goddard)</i></p>	<ul style="list-style-type: none"> • Change the overland hydrologic flow in and around roads and pipeline by installing culverts, re-routing road ditches, collection of in-channel flow above pipeline. • Manipulation of mature willows through cutting or burning portions of willow plants. • If the ditch is found to have a negative affect on the wetted area then rehabilitate the ditch to keep water in the current wet area.
<p>Upper Fourmile Pasture Wide</p>	<ul style="list-style-type: none"> • Lynx-BE Appendix 1 • Use of temporary or permanent fencing where needed to protect Boreal toad and habitat. • Exclude livestock from Boreal Toa habitat from April 1st through September 30st • Remove pasture from allotment.
<p>Cameron Allotment: Allotment Wide</p>	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt or supplement to enhance cattle movements. ○ Apply a herder to move cattle utilizing gentle herding techniques • Adjust timing, intensity, duration and frequency of livestock grazing. • Incorporating private, leased and permitted BLM lands into the rotation to affect the timing, intensity, frequency and duration of grazing on all land within the allotment. • Development of sediment catch dams along USFS roads to provide upland water sources. • Use of mobile solar pump to provide water in upland areas.
<p>Turret Pasture Wide</p>	<ul style="list-style-type: none"> • Establish rock and log check dams and incorporate slash in Longs Gulch from the upper portion to the lower portion. • Repair of the upper check dam in Longs Gulch (T50N R9E Sec 3 NE/SW).

	<ul style="list-style-type: none"> • Divide the pasture along the ridge south of Railroad Gulch. • Develop a well (T50N R9E Sec 4 SW ¼ or T50N R9E SEC 5 SE/SE.) • Use the southeast portion of the pasture as a winter feeding area to incorporate organic matter into the soil. • Use high intensity, short duration, concentrated use in isolated areas to incorporate locally available yarded slash materials into the soil. • Increase rest, shorten or alter the time that cattle are on the pasture. • Increase the storage size of water source 312. • Pump water from the Quarry into the unit.
Spring Gulch Pasture Wide	<ul style="list-style-type: none"> • Water source 311 (if found functional) could be used to pipeline water over from Turret unit to Spring Gulch Unit. • Mobile solar pumps could be used to provide temporary water. • Investigate the potential for developing a spring at the SW and NW corners of School Section 16.
Aspen Pasture Wide	<ul style="list-style-type: none"> • Creation of sediment traps along FSR 185. • Mobile solar pumps could be used to provide temporary water.
Green Mountain Pasture Wide	<ul style="list-style-type: none"> • Develop spring 339 with a pipeline and a larger tank. • Develop check dams or sediment traps along Forest Roads. • Develop spring, tank/pipeline located at T51N R9E Sec 22 NE/SE. • Mobile solar pumps could be used to provide temporary water in alternative locations where available.
Manoa Pasture Wide	<ul style="list-style-type: none"> • Use a mobile solar pump/pipeline to make water available in the higher portions of the unit where timber work has occurred.
Pocket Pasture Wide	<ul style="list-style-type: none"> • Increase rest, shorten or alter the time that cattle are on the pasture if desired condition requirements are not meet. • Develop sediment catch dams along USFS road 174 to provide upland water sources. • Replace and bury pipeline from water source 333 to 334. • If 334 became functional, a temporary or permanent pipeline/tank could be located in the eastern portion (T51N R10E Sec 8 SE/NE) of the unit using 334 as the source. • A permanent or temporary tank could also be placed in the northern portion of the unit (T51N R10E Sec 5 SW/NE). This tank would be on Everett's private property, however the pipeline (> 1/8 mi) would originate from Sawmill spring on USFS lands.
Antelope Pasture Wide	<ul style="list-style-type: none"> • Increase rest, shorten or alter the time that cattle are on the pasture if desired condition requirements are not meet. • The existing pipeline from water sources 336B to 336C could be tapped into and gravity fed into a permanent or temporary tank in the southeast part of the unit (T51N R10E Sec 10 SE). • Potential tank placement in the eastern portion of the allotment along Antelope Gulch (T51N R10E Sec 10 SE/SE).
Ferren Pasture Wide	<ul style="list-style-type: none"> • Remove the 20 acre section of FS land from Ferren pasture and incorporate it into the Upper Willow pasture.
Upper Willow Pasture Wide	<ul style="list-style-type: none"> • Increase rest, shorten or alter the time that cattle are on the pasture if desired conditions are not met.

<p>Willow Pasture Wide</p> <p>(Willow)</p>	<ul style="list-style-type: none"> • Increase rest, shorten or alter the time that cattle are on the pasture if desired conditions are not met. • Jack straw available logs and trees to stabilize the head cut areas. • Installation of rock and log check dams. • Redevelopment of Suckerville spring to be piped to a tank outside of the riparian area. • A mobile solar pump/pipeline (~1 mile) could be used to pump water up to a temporary or permanent tank location (T51N R10E Sec 27 NW/SW) from either Suckerville Spring or Running Creek. • A water development along Banning Gulch that would allow a mobile solar pump to get water to an existing non-functional tank or different temporary tank on the south ridge (T 50N R10E Sec 4 NW/NE).
<p>Ute Trail Pasture Wide</p>	<ul style="list-style-type: none"> • A mobile solar pump/pipeline (~ ½ mi) could be used to pump water up to an existing non-functional 342 rain trap (T50N R10E Sec 9 NW/NE) from Everett private land source on Mill Gulch. • A mobile solar pump/pipeline (~ ½ mi) could be used to pump water from the existing 322 water development on Everett private lands to a permanent tank (T50N R10E Sec 8 NE/NE) onto Loco Ridge. • A mobile solar pump/pipeline (~1 mi) could be used to pump water from the existing 318 water development on Everett private lands to a permanent tank (T50N R10E Sec 9 SW/SW) onto Loco Ridge. • A gravity fed pipeline (~ ½ mi) could be used from the Black Diamond Spring to supply two tanks one located on Everett private property, and on USFS property.
<p>Ankele Pasture Wide</p>	<ul style="list-style-type: none"> • The permittees would like to change the official southern boundary of the unit to include the Grouse Spring and Tombstone Gulch. The unit currently runs with these boundaries created by geographical features. • Use of high intensity short duration grazing in NFS portions of the pasture to enhance bunchgrass vigor. • Introduction of prescribed burning to increase bunchgrass frequency and plant vigor. • Development of a guzzler in T50N R9E Sec 13 NE portion of the unit for wildlife use.
<p>Big Baldy Pasture Wide</p>	<ul style="list-style-type: none"> • A gravity fed pipeline (~ 1 mi) could be used from the existing 316 water source to supply three tanks that could be alternatively turned on and off to encourage cattle movements and distribution to the uplands. NW into S19, SW into S30, and S into S30. • Use drift fence tied into natural barriers to hold cattle within the pasture.
<p>Midway Pasture Wide</p>	<ul style="list-style-type: none"> • Redevelopment of Willard spring to be piped to a tank outside of the riparian area. • Sub-dividing the enclosure and apply different management treatments to be monitored including high intensity short duration grazing and reseeding and trampling. • Use of a mobile solar pump/pipeline (~ ½ mi) to pump water from Midway Spring to a temporary or permanent tank located ~ 1mi southeast of the spring (T50N R9E Sec 12 NE/SW). • Use of either a mobile solar pump or a gravity fed pipeline to pump water from Midway Spring to a temporary or permanent tank located ~ 1mi west of the spring (T50N R9E Sec 10 NE/SE). • Relocate FDR181 that parallels and bisects riparian below Midway Springs.

Table 2-4.g

Allotment/Pasture Benchmark	Adaptive Options
<p><u>Chalk Creek Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • Construct a permanent or temporary fence (<1/4 mile) and install a permanent or temporary cattle guard on FSR 270 to exclude the portion of pasture receiving resource damage. • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt, supplement, or fertilizer to enhance cattle movements. ○ Apply a herder to move cattle utilizing gentle herding techniques • Develop stock water tanks and pipelines to enhance distribution. Options include: <ul style="list-style-type: none"> ○ Redevelop and extend the Raspberry Gulch pipeline. ○ Develop a new pipeline and tank from Raspberry Gulch to the northern portion of the allotment. Tank will have an on/off valve to facilitate distribution. • Use temporary fencing to apply a short duration high intensity grazing treatment to concentrated on the area to reduce the competition of weedy annuals and increase the seed viability of desirable species. • Use of temporary/permanent fencing where needed to protect Boreal toad habitat. Exclude livestock from Boreal Toad habitat from April 1st through September 30th.

Table 2-4.h

Allotment/Pasture Benchmark	Adaptive Options
<p><u>Chubb Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt or supplement to enhance cattle movements. ○ Apply a herder to move cattle utilizing gentle herding techniques ○ Construct infrastructure (permanent or temporary) where needed. • Develop water sources in uplands. • Use prescribed fire to renew vegetation. • Adjust timing, intensity, frequency and duration of grazing on all land within the allotment. • Rest or defer as necessary. • Plant willow cuttings/slips/clumps or seed with native riparian vegetation as necessary. • Use fencing (temporary or permanent) to exclude or target use and use water gaps as necessary.
<p>Salt Creek Pass Pasture Wide (Salt Creek Pass)</p>	<ul style="list-style-type: none"> • Develop upland water sources. (at id #307 - redevelopment) : Install a buried storage system at the well and run a buried (2' deep) pipeline from the storage down the draw onto state lands ~ ½ mi.
<p>Trout Creek Pass Pasture Wide</p>	<ul style="list-style-type: none"> • Develop a temporary holding facility for unloading cattle on the top of Trout Creek pass.

Table 2-4.i

Allotment/Pasture Benchmark	Adaptive Options
<p><u>Little Cochetopa Allotment:</u> Allotment Wide</p>	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> • Improve use of salt or supplement to enhance cattle movements. • Apply a herder to move cattle utilizing gentle herding techniques • Adjust timing, intensity, duration and frequency of livestock grazing. • Redefine pasture boundaries to work better with topographic barriers. • Construct infrastructure (permanent or temporary) where needed. • Adjust rotational schedule for the Beaver Creek and Poncha Loop pastures to reduce cattle/recreation conflict during peak use periods • Construct hard or temporary fencing to exclude cattle and dispersed recreation
<p>Spruce Creek</p>	<ul style="list-style-type: none"> • Development of stock water tank/pipeline from Spruce Creek out of the riparian area (T49N

<p>Pasture Wide</p>	<p>R7E Sec 25 N ½ NW ¼).</p> <ul style="list-style-type: none"> • Development of a stock water tank/pipeline out of Stumpy Creek along USFS road 214 (T49N R7E Sec 26 NE ¼ SE ¼). • Development of a stock water tank/pipeline from spring (T49N,R7E,Sec26,SE1/4) • Establish or use of Permanent or temporary fencing and other infrastructure needed to control livestock movement into or out of the pasture and to allow for willow establishment or enhancement. • Manipulation of the resource through the use of mechanical thinning, prescribed burning, or concentrated short duration cattle grazing. • Graze to a maximum use of 30 percent during July and August. • If proposed land exchange within Section 36 occurs: then Dry Lakes could be developed as a water source. A pipeline may be used to distribute water to upland tanks down the ridges to the north and west.
<p>Dry Lake Pasture Wide</p>	<ul style="list-style-type: none"> • Establish or use of permanent or temporary fencing and other infrastructure needed to control livestock movement into or out of the pasture. • Redevelop or utilize the current 303/302 water sources to develop upland stock water options. • If proposed land exchange within Section 36 occurs then: • Dry Lakes could be developed as a water source. A pipeline may be used to distribute water to upland tanks down the ridges to the north and east. The acquired lands will be made available for grazing within the allotment.
<p>Upper Droz Creek Pasture Wide</p>	<ul style="list-style-type: none"> • Use of a temporary or permanent fence in north portion of pasture to prevent movement of livestock out of the pasture. • Develop a stock water tank in the upper portion of this unit (T48N R7E Sec 2 SW ¼ NW ¼)
<p>Lower Droz Creek Pasture Wide</p>	<ul style="list-style-type: none"> • Use of a temporary or permanent fence in north portion of pasture to prevent movement of livestock out of the pasture.
<p>Little Cochetopa Pasture Wide (<i>Head of Little Cochetopa</i>)</p>	<ul style="list-style-type: none"> • Separate the upper and lower portions of the pasture and run separately. • Use temporary or permanent fencing to separate the pasture. • If separated then: <ul style="list-style-type: none"> ○ Exclude livestock from the upper portion of the pasture. ○ Use the upper portion of the pasture as a swing pasture. ○ Restrict use of upper portion to summer/fall. • If boreal toads are present then: use temporary/permanent fencing where needed to protect Boreal toad habitat. Exclude livestock from Boreal Toad habitat from April 1st through September 30th.
<p>Beaver Creek Pasture Wide (<i>Beaver Creek</i>)</p>	<ul style="list-style-type: none"> • Use of temporary or permanent fencing across FSR 200A (closed). • Installation of a temporary fence across a closed jeep trail that cattle are utilizing (T48N R7E Sec 13 NE ¼ NE ¼) • Installation of temporary or permanent fence along the upper portion of the suitable and capable grazing area. • Bury the existing pipeline from Beaver Creek to tanks 306 and 307 (T48N R7E Sec 15 SE ¼ NE ¼ and T48N R7E Sec 14 SW ¼ NW ¼ respectively). • Extend the existing pipeline from the 307 tank to include tanks spaced as needed to provide adequate water to livestock down the ridge. • Establish a drift fence between Grays Creek and Beaver Creek. • Adjust the pasture boundary between Beaver Creek and Marshal Pass.
<p>Marshall Pass Pasture Wide (<i>Marshall Pass</i>)</p>	<p>Increase rest or shorten the time that cattle are on the pasture if desired condition requirements are not meet.</p> <ul style="list-style-type: none"> • If boreal toads are present then: use temporary/permanent fencing where needed to protect Boreal toad habitat. Exclude livestock from Boreal Toad habitat from April 1st through September 30th. • Evaluate current culvert locations and road ditches as they affect water flow to the drier sites. • Consider the use of additional culverts and ditches to control water movements. • Use high intensity short duration livestock concentrations on specific concern areas to incorporate organic matter (manure).

	<ul style="list-style-type: none"> • Add woody mulch materials from local sites as needed. • Broadcast seed with approved native seed mix.
Poncha Loop Pasture Wide	<ul style="list-style-type: none"> • Develop stock water tank at the bottom of Railroad Gulch (T48N R7E Sec 17 NE ¼ NE ¼) • Installation of a cattleguard and fencing along CR 201 in conjunction with adjacent hills to prevent livestock entering into the Shirley recreation site. • Locate and rebuild the historical mid-slope fenceline below the Rainbow trail to prevent cattle from moving out of the pasture and tie into the aforementioned fencing along CR 201. • Manipulation of the vegetation resource through the use of thinnings, prescribed burning, or concentrated short duration cattle grazing. • Extend pipeline from existing tank 304 or branch off existing line to the north to tank.
Murphys Hole Pasture Wide <i>(Murphys Hole)</i>	<ul style="list-style-type: none"> • Increase rest or shorten the time that livestock are on the pasture if desired condition requirements are not meet. • Exclude from the rotation until vegetation on benches and in mesic meadows improves to at least 40% cover of desirables. • Develop existing water sources within Murphy’s Hole and pipe to tanks. Placement of stock water tanks away from the riparian area. • Use the pasture as a swing pasture and use only once out of every 3-5 years depending on resource condition • Use of temporary or permanent drift fence between the Rainbow trail and the Murphy’s Hole pasture. • Change grazing intensity or season of use. • Plant willow cuttings/clumps or seed with native riparian vegetation as necessary. • Engineered channel restoration to restore the channel to appropriate width depth ratios and to raise the water table. • Closure of FSR 201C. • Add the lower portion of Silver Creek pasture to Murphys Hole pasture.
Silver Creek Pasture Wide	<ul style="list-style-type: none"> • Include lower portion of pasture with Murphys Hole pasture

Table 2-4,j

Allotments/Pastures Benchmarks	Adaptive Options
McQuaid Allotment Allotment Wide	<ul style="list-style-type: none"> • If livestock distribution is less than desired, then: <ul style="list-style-type: none"> • Improve use of salt/supplement to enhance livestock movements. • Move livestock using low-stress herding techniques • Ride as often as necessary to move cattle to desired areas. • Develop water in low- use areas to encourage utilization by cattle and big game.
Long Park <i>(Dry Lake)</i>	<ul style="list-style-type: none"> • Use riders or temporary fencing to hold the cattle in small areas to encourage trampling of shrubs. • Limit the time livestock spend on the grassland portion of the pasture. • Develop water in T11S R77W S31 NE4. • Decrease or vary the time of use by livestock. • Interseed with native grass mix.
North Long Park Pasture Wide	<ul style="list-style-type: none"> • Use the pasture as a high intensity (approximately, but not limited to 400 head), short duration (approximately, but not limited to 2-3 days) pasture. • Vary the time of use by livestock. • Vary the season of livestock use.
Pony Park <i>(Pony Creek)</i>	<ul style="list-style-type: none"> • Develop off-stream watering sites at Pony Spring T12S R77W S28 NW4, T12S R77W S28 SE4, and/or T12S R77W S27, N2. • Vary the season of livestock use to favor willow.
Deadman <i>(Buffalo Creek)</i>	<ul style="list-style-type: none"> • Develop off-stream watering sites at Pole Gulch T12S R77W S10 NW4, T12S R77W S17 NW4, and/or T12S R77W S21 NE4. • Vary the season of livestock use to favor willow.

<p>Jones Hill <i>(Rough-n- Tumblin')</i> <i>(Willow Creek)</i></p>	<ul style="list-style-type: none"> • Increase the time that livestock are in the pasture. • Move cattle to underused areas as often as necessary to achieve desired use. • Vary season of livestock use. • Increase the time that livestock are in the pasture. • Move cattle to underused areas as often as necessary to achieve desired use. • Vary season of livestock use. • Develop off-stream water to improve stream/riparian conditions in T11S R78W S36 NW4, T12 R78 S1 SW4, T12S R77W S6 NE4, T11S R77W S31 NW4, and/or T12 R77 S7 SE4.
<p>Watershed <i>(East of pipeline tank)</i></p>	<ul style="list-style-type: none"> • Vary or decrease the time of use by livestock. • Vary season of livestock use. • Periodically change rotation to allow for one full growing season of rest. • Develop water in T11S R77W S29 NE4, T11S R77W S33 NW4, T11S R77W S28 NE4 and/or T11S R77W S34 NW4
<p>Buffalo Springs <i>(Wild Game Spring)</i></p>	<ul style="list-style-type: none"> • Vary or decrease the time of use by livestock. • Exclude livestock and big game by using alternative fencing or timber barriers • Vary season of livestock use. • Periodically change rotation to allow for one full growing season of rest. • Interseed with native riparian graminoid mix. • Develop water in T12S R77W S4 NW4, T12S R77W S3 N2, T12S R77W S5 NW4 and/or T12S R77W S10
<p>Lower Salt <i>(Brush Park)</i></p>	<ul style="list-style-type: none"> • Vary or decrease the time of use by livestock. • Vary season of livestock use. • Periodically change rotation to allow for one full growing season of rest. • Develop water in T13S R77W S4 NE4 & SW4 and/or T12S R77W S32 NE4.
<p>Upper Salt <i>(West of Fence)</i></p>	<ul style="list-style-type: none"> • Vary or decrease the time of use by livestock. • Vary season of livestock use. • Periodically change rotation to allow for one full growing season of rest.
<p>Buffalo Meadows <i>(Buffalo Meadows)</i></p>	<ul style="list-style-type: none"> • Close the pasture.

Table 2-4.k

Allotment/Pasture Benchmark	Adaptive Options
<p>Union Allotment: Allotment Wide</p>	<ul style="list-style-type: none"> • If cattle distribution is less than desired, then: <ul style="list-style-type: none"> ○ Improve use of salt, supplement, or fertilizer to enhance cattle movements. ○ Apply a herder to move cattle utilizing gentle herding techniques • Construct infrastructure (permanent or temporary) where needed.
<p>Lower Pasture Wide <i>(Empire Gulch)</i></p>	<ul style="list-style-type: none"> • Manipulation of the resource through the use of mechanical thinning, prescribed burning, or concentrated short duration cattle grazing. • Interseed with native grass and forb mix. • Increase rest or shorten the time that cattle are on the pasture if desired condition requirements are not meet. • Use of hard or temporary fencing to control cattle movements. • Complete existing fence between the lower/middle pastures using temporary or hard fence (approximately ½ mile).
<p>Middle Pasture Wide</p>	<ul style="list-style-type: none"> • Manipulation of the vegetation resource through the use of mechanical thinning, prescribed burning, or concentrated short duration cattle grazing. • Increase rest or shorten the time that cattle are on the pasture if desired condition requirements are not meet. • Use of hard or temporary fencing to control cattle movements.

<p>Upper Pasture Wide (<i>Empire Reservoir</i>)</p>	<ul style="list-style-type: none"> • Construct two exclosures in alpine meadows to monitor for species composition changes. One exclosure built to exclude elk and cattle, the other to exclude cattle only. • Exclude the pasture from the current rotation and continue to monitor. • Increase rest or shorten the time that cattle are on the pasture if desired condition requirements are not met. • Adjust the allotment boundary to exclude alpine. • Increase signs on gates to inform visitors of cattle presence. • Install cattleguard on Forest Road 111, below and west of Empire Lake at fenceline. • Install cattleguard on trail in Empire Gulch, Sec 4, T10S, R79W
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2.3 Implementation Plan

PURPOSE. The purpose of this section is to create a standardized procedure for implementing the adaptive options identified in Alternative C. This should be reviewed and used any time an adaptive option is put in place. This plan affects only those activities that create new range improvements. If an improvement already exists, and the action is to rebuild it or repair it in place, or replace it in kind, then there may be no requirement to follow the guidelines below if cultural and/or biological analysis, and required permits, are already documented.

IMPROVEMENTS. Types of range improvements identified include, but not limited to, electric fences, permanent wire fences, water pipe lines, stock tanks, trick tanks, ponds, sediment catchment ponds, willow plantings, thinnings, seeding, fertilizing, prescribed burning, spring developments, check dams, guzzlers, wells, exclosures, slash barriers, gates, and cattle guards. This does not include administrative actions such as salting, supplements, riding/herding, or changes in rotation or duration.

RESPONSIBILITIES. The District Rangeland Management Specialist (DRMS) is responsible for working with the Permittee and interdisciplinary team to determine type, location, and desired schedule for installation of any range improvement. The DRMS is responsible for reviewing this plan to determine which clearances may be required, and coordinate the clearances with the appropriate Resource Specialists. The DRMS is responsible for ensuring that a copy of each clearance is appended to this NEPA file, and to the appropriate allotment file. The DRMS is also responsible to inspect the improvement construction to make sure it complies with any conditions or requirements that may be specified. The DRMS is responsible for completing the Grazing Permit Modification on a Cooperative Range Improvement form for each improvement.

Resource Specialists are responsible to provide a timely inspection of the area for each improvement to avoid delays. A biological evaluation (BE) will be completed by qualified wildlife, botanical and fishery resource specialists for all threatened, endangered, proposed, and sensitive species and management indicator species (MIS). These assessments will be prepared as needed to document the site-specific analysis of all proposed range developments. Also, the staff archeologist and hydrologist will produce and sign a memo identifying the improvement area inspected, the results of their investigation and any restrictions they feel necessary to protect their resource concerns. Whenever possible, the DRMS should be present during the inspection to explain the Permittee's intentions and plans. Inspections may be waived by a Specialist if

they have no resource concerns. In this event, the Specialist will provide a clearance memo or letter explaining why they have no resource concerns.

The District Ranger is responsible for reviewing and approving all new range improvements installed under this plan. For improvements not identified in this EA, the Ranger will ensure that appropriate NEPA is conducted. The Ranger signs all permit modifications for range improvements.

INSPECTIONS. All inspections, BE's and clearance memos and letters will be completed prior to work beginning on any improvement. As mentioned above, each range improvement will be evaluated for cultural, hydrological and biological resource concerns. Each specialist should have a clear understanding of what the improvement will be, and where it will go. They should also know what they are looking for and be able to state that in the memo, letter, and BE and MIS Report to the DRMS.

COORDINATION. Each year there will be at least two interdisciplinary team meetings held specifically to discuss monitoring results and if range improvements are needed. If so, discussion of implementation procedures (design criteria) will also occur. One meeting will be held in late October or early November. The objectives for this meeting are:

1. Review the preceding summer's monitoring results.
2. Develop the following summer's monitoring plan.
3. Review the list of proposed improvements.
4. Determine the list of inspections needed for each improvement project.
5. Draft a plan for inspections.

The next meeting will be held in April. The objectives for this meeting are:

1. Confirm the list of improvements proposed for that year.
2. Review the monitoring plan for that season.
3. Review the plan for project inspections, including timing.
4. Validate the improvement implementation schedule.

During the inspection analysis process, if a qualified biologist determines that a threatened, endangered, or proposed species may be affected by any proposed development in the biological evaluation, then the U.S. Fish and Wildlife Service (FWS) shall be consulted under section 7 of the Endangered Species Act, as amended (ESA). If the proposed development can be altered by the implementation of conservation measures, and those changes lead to a no effect determination to any listed or proposed species, then the FWS would no longer be required to be notified, and the project can move ahead. If the development cannot be altered, and there is a may effect determination to any species, their habitat, or critical habitat, then FWS shall be consulted under ESA prior to implementation.

DECISIONS. The recommendation on what improvement to install, and where, will be coordinated between the Permittee and the DRMS. The Annual Operating Plan (AOI) may be the document to record the coordination. The improvement will be approved by the District Ranger. It needs to be identified in this NEPA analysis. It should be covered by a permit modification. It

should satisfy a requirement identified through monitoring, and should be monitored to check its utility. (See Monitoring Plan.)

2.4 Monitoring Plan

Monitoring includes both Forest-level and project-level analysis and evaluation. Forest-level monitoring is discussed at length in the Forest Plan and is not reiterated here. Project-level monitoring is the focus of this section of the EA.

Monitoring is intended to answer specific questions and to inform on the ground management. It is intended to be rapid, practical, and cost-effective. The techniques are designed to be commensurate with the level of livestock grazing use and the complexity of the overall Analysis Area situation. The techniques and protocols listed in the Rangeland Analysis and Management Training Guide (USDA Forest Service 1996) (RAMTG96) would be used as the basis for monitoring. Techniques for evaluating streambank stability and alteration would include using photo points and transects with fixed pins to mark the locations. This will ensure repeatability.

Monitoring may serve several different purposes, including:

- determining the effectiveness of management practices
- determining whether implementation of livestock grazing is performed according to grazing management plans
- determining whether a site is moving toward or away from desired condition
- informing management decisions within an adaptive management framework (i.e. determining when threshold levels have been met or exceeded prompting management action)
- documenting range condition
- documenting the effects of livestock grazing on natural resources
- determining the cause of changes in resource conditions.

A number of attributes may be monitored. Attributes may be related vegetation, hydrology, riparian zones, or desired condition, or they may be specific plant or animal species surveys. Examples of vegetative attributes that may be monitored include herbaceous production, cover, frequency, and species composition. Examples of riparian or hydrological attributes that may be monitored include proper functioning condition (PFC), width-to-depth ratio, bank stability, channel cross section, greenline, lateral stability, water quality, erosion, sediment yield, desired condition, and sediment load. Other attributes of interest include particular species of interest that may be monitored through specific protocols such as pellet counts for big game monitoring or through standard protocols such as cover-frequency for monitoring rare plant populations. See the Region 2 Rangeland Analysis and Management Training Guide for a more comprehensive list of monitoring.

The administrative structure under which monitoring is conducted can be depicted in the following hierarchical and chronological way.

1. Decision made under NEPA; if an action Alternative is selected, then:

2. Grazing Permit issued with contents reflecting decision:
 - a) Allotment Management Plan (AMP) tiered to grazing permit and reflecting decision including details.
 - b) Annual Operating Plan (AOI) tiered to AMP and grazing permit, drafted annually to reflect decision and current resource conditions.
 - c) Grazing permit compliance is monitored.

3. Feedback from monitoring the Analysis Area and adjustment of actions made, as needed, in order to ensure conditions are meeting or moving toward Forest Plan and EA desired conditions. The flexibility for management adjustment varies by alternative:
 - a) Alternative B – somewhat inflexible. Changes in management may require new NEPA analysis.
 - b) Alternative C – flexible. Adjust actions adaptively using the Grazing Management Toolbox.

Feedback from monitoring, and any resultant adjustments of management actions, would be dependent on the specific Action Alternative selected. Under Alternative B, minor management adjustments could be made, by exception, in the AOI. Changes that cannot be done through the AOI may require new NEPA analysis. Under Alternative C, management adjustments could be made adaptively using the Grazing Management Toolbox. Initially, a concern would be identified based on monitoring. Secondly, a management tool would be selected that could potentially solve the concern. The success or failure of a given management tool would be determined based on monitoring. If a particular management tool failed to address the concern, a different management tool would be selected and assessed based on monitoring. A suite of management tools are available that could be used in a hierarchical way (low-intensity to high-intensity management) to adaptively correct concerns.

Critical to the adaptive management framework is the development of standards and guidelines (or threshold values) for determining when and how management action is necessary. Standards are developed through an interdisciplinary team. Once standards have been developed, attributes are selected that indicate whether standards are being achieved and whether conditions on the ground are moving towards desired condition.

Benchmarks and Key Areas are relatively small parts of the Analysis Area and represent much larger areas. Benchmark Areas are initially delineated on a map (see allotment maps) but they can change, as needed, depending on such factors as annual weather fluctuations, past permittee compliance history, and changes in current resource and/or social issues. Key Areas are those areas which are monitored annually to determine when a threshold (such as utilization, stubble height, or bank trampling) has been reached.

Two basic types of monitoring are expected to occur on the Analysis Area: 1) Implementation Monitoring, and 2) Effectiveness Monitoring. These two types of monitoring are discussed below.

Implementation Monitoring

Implementation monitoring is performed frequently and is intended to evaluate whether livestock management is being applied as prescribed. The Forest Service conducts this type of monitoring through administration of the grazing authorization (permit). Administration includes inspection of the Analysis Area. If an action Alternative is selected, the Forest Service would evaluate whether livestock management was in compliance with the grazing authorization, including the AMP and AOI, which are part of the authorization.

Table 2-5 displays the implementation monitoring schedule that would be followed if an action Alternative is selected. Implementation monitoring focuses on: 1) permit compliance, 2) meeting Forest Plan standards and guidelines for forage utilization, and 3) streambank stability and alteration. This latter monitoring item is intended to provide the Forest Service with a record of where problems repeatedly occur. Ultimately, the Forest Service would use the record to minimize undesirable resource conditions.

Table 2-5 - Annual Implementation Monitoring Schedule

Monitoring Item	Methodology	Standard
Compliance checks (meeting requirements in AOI/AMP/Term Grazing Permit)	Site visit	NA
Range Readiness	Plant development Soil moisture	Professional Judgment
Forage production	Production measurement	RAMTG96
Upland forage utilization	Stubble height Herbage left ungrazed Utilization study (paired plot) Ocular estimate of utilization Grazing response index	RAMTG96
Riparian forage utilization	Stubble height Herbage left ungrazed Utilization study (paired plot) Ocular estimate Grazing response index Woody species utilization	RAMTG96
Riparian Streambank stability	Streambank alteration	RAMTG96

Permittees are responsible for compliance with all relevant terms and conditions associated with the grazing authorization. The Forest Service would make multiple compliance checks annually. If an Action Alternative is selected compliance checks will be used to determine when standards or threshold values have been reached.

The Forest Service may vary the frequency of inspections on a case-by-case basis for some monitoring items depending on such factors as annual weather fluctuations, past permittee compliance history, and changes in current resource and/or social issues. Non-compliance would

dictate frequent monitoring until satisfactory compliance is attained. Vegetation monitoring would follow the techniques and protocols from the Rangeland Analysis and Management Training Guide.

Feedback from monitoring, and any resultant adjustments of management actions, would be dependent on the specific action alternative selected. Alternative A would eliminate all grazing, thus eliminating the effects that cattle have on the allotments. Monitoring requirements would be greatly reduced, or transferred to other resources to continue. Under Alternative B, minor management adjustments could be made, by exception, in the AOI. Changes that cannot be enacted through the AOI may require new NEPA analysis. Under Alternative C, management adjustments could be made adaptively (FSH 2209.13, Chapter 90; Quimby 2006) using the Grazing Management Toolbox. Initially, a tool would be selected that would efficiently solve the concern and also be one that the permittee could readily implement. Ultimately, the tool must solve the concern or another tool or set of tools would be implemented to correct the concern. The point here is that there is suite of available tools that can be used in a hierarchical way (low-intensity to high-intensity management) to adaptively correct concerns. Compliance success means the monitoring elements meet the requirements outlined in Table 2-5 above.

Effectiveness Monitoring

Effectiveness monitoring is long-term monitoring and focuses on determining whether the Analysis Area is meeting or moving toward desired conditions, and if the rate of change is acceptable. This level of monitoring is intended to ensure that all resource areas within the scope of this analysis are meeting or moving toward desired conditions. The rate of acceptable change is determined by the responsible official unless expressly directed otherwise in the Forest Plan.

Table 2-6 displays the effectiveness monitoring schedule that would be followed if an Action Alternative is selected. Effectiveness monitoring focuses on trends for the following: 1) vegetation, 2) riparian zones, 3) species-specific issues, and 4) desired condition. Vegetation monitoring would follow the techniques and protocols from the Rangeland Analysis and Management Training Guide (USDA Forest Service 1996). Monitoring attributes related to these four categories will show whether

- Forest Plan standards and guidelines are being met,
- stocking levels are appropriate relative to other resource values,
- Conditions on the ground are moving toward desired condition.
- Lynx Conservation Agreements (2000) (compliance with LCAS), Mexican spotted owl, and other threatened and endangered species recovery plans or agreements are being adhered to.

Table 2-6 Effectiveness Monitoring Schedule

Monitoring Item	Methodology
1. Vegetative Attributes	
Vegetative cover	Cover-frequency transect
Plant species composition	Cover-frequency transect Ocular plant composition
Frequency	Rooted nested frequency Cover-frequency transect
Forage production	Production measurement
2. Riparian and Soils Attributes	
Shrub canopy cover	Line intercept
Bank stability	Streambank alteration
Riparian shrub community	Shrub density/age form/class Woody species regeneration
Riparian plant community type	Cross-section composition
Riparian condition	Greenline
3. TES Plant and Animal Species	
TES plant population size/condition	Census Cover-frequency transect Species-specific methodologies
TES wildlife species surveys as necessary to determine presence and distribution	Appropriate protocol surveys are conducted within suitable habitats
4. Desired Condition	
Trend to desired condition	Similarity Coefficient
Rangeland health	Rangeland health evaluation matrix
Riparian condition	Proper functioning condition Riparian characteristics evaluation
5. Heritage and Recreation	
Heritage resource present	Ocular evaluation Transect
Recreation conflict	Recreation site inspection Recreation user complaint Permittee complaint

The feedback from monitoring, and any resultant adjustments of management actions, would be dependent on the specific action Alternative selected. Under Alternative B, minor management adjustments could be made, by exception, in the AOI. Changes that cannot be done through the AOI may require new NEPA analysis. Under Alternative C, management adjustments could be made adaptively using the Grazing Management Toolbox. Initially, a tool would be selected that would efficiently solve the concern and also be one that the permittee could readily implement.

Ultimately, the tool must solve the concern or another tool or set of tools would be implemented to correct the concern. For example, if the trend in upland vegetation is declining per assessment according to the techniques in the Rangeland Analysis and Management Training Guide, then tool(s) from the Grazing Management Toolbox would be selected to reverse the declining trend. Again, similar to implementation monitoring, there is a suite of available tools that can be used in a hierarchical way (low-intensity to high-intensity management) to adaptively correct concerns. Compliance success means the monitoring elements are meeting or moving toward the desired condition.

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