

## **Chapter 2. ALTERNATIVE DESCRIPTIONS**

### **2.1 Introduction**

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This chapter describes and compares the alternatives considered for the Salida-Leadville Rangeland Allotment Management Planning (SL 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**

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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. There were no other alternatives proposed by the team or the public for analysis in this EA.

#### **Alternative A: No Action – No Livestock Grazing**

Under the No Action - No Livestock 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” for this EA 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 – 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 under the annual operating instructions. Table 3-1 provides a good summary of current allotment numbers. 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 –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 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)**

<b>Grazing Management Actions</b>
1. Adjust stocking rate to Light, Moderate, and/or Heavy Grazing Intensity
2. Implement alternative riparian grazing dates based upon specific conditions (topography, range rider, upland water sources, livestock use patterns)
3. Use of salt or supplement to draw livestock toward or away from specific areas
4. Incorporate a range rider to move livestock from riparian areas (herding) on a defined frequency
5. Change season of use – do not exceed permitted AUMs (stocking rate)
6. Change animal numbers – do not exceed permitted AUMs (stocking rate)
7. Change animal class – do not exceed permitted AUMs (stocking rate)
8. Change number of days of livestock utilization in a specified pasture
9. Adjust permitted AUMs based on appropriate monitoring averaged over three growing seasons.
10. Defer livestock turn-on date
11. Rest from livestock grazing for one or more seasons
12. Do not allow livestock grazing in a specified area for a specific timeframe
13. Construct fence to create riparian unit – allow livestock grazing under riparian grazing guidelines
14. Construct fence to exclude livestock from areas of concern (riparian, streams, springs, wetlands, mesic meadows, etc.)
15. Construct temporary electric fence to control livestock distribution patterns
16. Construct permanent fence to control livestock distribution patterns
17. Control livestock distribution patterns using water (turn water on or off at developed water sites)
18. Control livestock distribution patterns by constructing cross fences (electric, standard, permanent or temporary)
19. Construct livestock water development (springs, infiltrators, pipelines, tanks, windmill, sediment traps, wells, stock dams, submersible pumps, solar)
20. Remove existing water development (pipeline, tanks, windmill, well, stock dam) if they do not support the current livestock management objectives.
21. Remove existing fence line (electric, standard, permanent or temporary) where they do not support the current livestock management objectives.
22. Implement deferred grazing system (2-Unit, 3-Unit, 4-Unit etc.)
23. Implement prescribed fire projects to improve forest and rangeland conditions
24. Implement forest thinning projects to reduce tree stocking levels and meadow encroachment
25. Implement a high-intensity/short duration grazing system (by riding, herding, temp. fence, etc.)
26. Implement a rest-rotation grazing system
27. Implement multiple unit rotation with permittees' private land
28. Temporarily or permanently combine allotments where greater management efficiency and effectiveness can occur.
29. Reseed native grass, shrub and forb species back into areas with introduced grasses or where native grass/forb cover is not at desired condition
30. Enhance riparian shrub regeneration by planting native shrubs and/or by temporary exclusion from livestock browsing until shrubs are established
31. Enhance native grasses by interseeding or furrowing
32. Inhibit fringed sage growth by disturbance or interseeding with native grasses

## 2.3 Project Design Criteria

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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 (WCP) (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.

### **Design Criteria Common to All Allotments**

This list is consolidated from all available specialist reports or lists. It does not include monitoring, or other regulatory requirements. It lists allowances and restrictions for livestock actions, range management actions, and range improvements. These design criteria can serve as mitigation for one or more resources from the possible effects of livestock grazing on those resources. They also form the standards for future range management on the allotments.

### **Livestock Management Design Criteria**

1. Keep livestock appropriately distributed throughout suitable range.
2. Keep livestock in the proper pasture during the specified time periods.
3. Use the Grazing Response Index (GRI) 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.
4. Do not graze pastures at the same time each year where feasible, and where it supports other resource management objectives.
5. Do not allow livestock grazing through an entire growing season in pastures that contain riparian areas and wetlands.
6. Apply short-duration grazing as practicable to minimize re-grazing of individual plants, to provide greater opportunity for regrowth and to manage utilization of woody species and reduce soil compaction.
7. Manage livestock herds to avoid concentrating in riparian areas and other wet areas.
8. Management actions will allow forage plants set seed most years (e.g., 2 out of every 3 years) and ensure that forage plants are able to essentially achieve full growth before being grazed by livestock or are able to achieve substantial regrowth following grazing by livestock.

**Upland Design Criteria**

9. Follow standards directed by the Forest Plan for utilization by following the stubble height requirements identified in these design criteria. For areas not covered in these criteria, use Forest Plan utilization tables to determine allowable use.
10. The earliest turn on date and latest removal date will be based on allotment conditions relative to vegetation, soil, and moisture.
11. Salt or supplement will be placed on rocky knolls, well-drained sites or in timber where excessive trampling will not destroy plant growth. As utilization patterns develop, salt will be moved to areas where forage has not been grazed, or where it has been grazed lightly.
12. Keep salt at least a ¼ mile from water sources (streams, springs, water developments, or other wetlands) when possible unless prior approval is obtained from the authorized officer as a tool to accomplish a specific objective.
13. Salt will be removed from area after proper use has been achieved. Use the minimum amount of salt needed.
14. Salt will not be placed on known heritage sites, or near known TES plant sites.
15. Salt shall not be placed within tree regeneration areas where the smallest trees are less than five feet tall.
16. Salt shall not be placed near trailheads, open roads, in areas of concentrated public use, or in other areas where such placement is liable to result in conflicts with other forest users.

**Riparian Design Criteria**

17. Follow standards directed by the Forest Plan for utilization and stubble height requirements.
18. Follow management measures and design criteria from the WCP Handbook for livestock grazing.
19. Remove livestock from pasture when the average stubble height on riparian graminoids in the key area reaches 3-4 inches during spring/summer-use or 4-6 inches during fall use at the end of the livestock grazing season, or plant growing season, whichever is first.
20. Manage dry meadow and upland plant communities, including Kentucky bluegrass types that have invaded into wetland /riparian areas in a manner that will contribute to their replacement over time by more mesic native plant communities to the extent practicable.

21. Where riparian graminoid stubble height is not applicable (e.g. Kentucky bluegrass), utilization in riparian zones will not exceed slight to moderate use (up to 40%).
22. Remove livestock from riparian hardwood areas when their preference switches from riparian herbaceous to riparian hardwood species and/or limit utilization of riparian hardwood plants to slight/light use (6-20%) of the current season's growth.
23. Manage livestock grazing in riparian areas to achieve a mixture of early, mid-, and late seral stages in all landscape-scale riparian areas.
24. Implement total rest in riparian pastures with deteriorated habitat conditions that have a downward trend where other livestock management practices are not believed capable of reversing the trend in a reasonable timeframe and where livestock are a key factor in the existing situation.
25. Avoid any loss of rare wetlands such as fens and springs.
26. Keep stock tanks, salt supplements, and similar features out of the water influence zone (WIZ) if practicable and out of riparian areas and wetlands always.
27. Keep stock driveways out of the WIZ except to cross at designated points. Armor water gaps and designated stock crossings where needed and practicable.
28. Locate new concentrated-use sites outside the WIZ if practicable and outside riparian areas and wetlands. Armor or reclaim existing sites in the WIZ to prevent detrimental soil and bank erosion.
29. Maintain the extent of stable banks in each stream reach at 74% or more of reference conditions.
30. Consider degree of livestock trampling and riparian vegetation utilization on or immediately adjacent to stream banks when timing livestock moves between units.

### **Range Improvement Design Criteria**

#### **General**

31. Prior to construction of any new structural improvement, compliance will be ensured with cultural, botanical, and other required clearances. NEPA compliance will also be reviewed, and if needed an additional NEPA analysis and decision will be completed.

#### **Fences**

32. Wire spacing will follow guidance from R2 Range website. 16'' 24'' 30'' 42'' on 4 wire fence; on three wire fence bottom wire should not be lower than 16'' top wire no higher than 42'' and middle wire at least 12'' below top wire.
33. In areas where large wild ungulate crossing is common, wire spacing, or substitution of smooth wire for the top and/or bottom wire may be used.
34. In areas where large wild ungulate crossing causes repeated damage to fences, a standard let-down fence may be used in the problem area.

### **New Spring Developments**

35. Developments will have shut-off valves or disconnects that will be placed near the spring box. The valve will be closed shortly after the grazing event, unless wildlife needs are identified.
36. Floats will be installed at the tank unless being used in a winter grazing season.
37. Over-flows will be installed so that water would be returned to a point which is as close to the original removal point as possible.
38. Wildlife escape ramps will be installed in all new and existing tanks.
39. Prior to redeveloping an existing stock water development, compliance of that development with Colorado water laws and regulations should be verified. Whether working to install a new or redevelop an existing stock water development, coordinate with the Forest water rights coordinator to ensure compliance.
40. All springs will be developed in such a manner as to protect the hydrologic function (chemical, biological and physical integrity) of the spring and the surrounding aquatic and terrestrial habitat supported by the spring. Spring sources used for new developments should be fenced or otherwise excluded from livestock impact, as long as the development is maintained and in service.
41. If the spring source is no longer needed to provide water for livestock, and the facility is not needed for wildlife or other purposes, then the collection gallery, pipeline, tank and associated stock water development features should be removed. The spring should be restored as closely to its natural condition as possible. The fence enclosure should also be removed.
42. Water developments will be compatible with wildlife use, including bat access, to the maximum extent practicable.
43. Natural lakes, ponds and kettles will not be depleted as a source for livestock water.

### **Earthen Pond Development**

44. New ponds will be constructed less than ¼ acre in size and less than 10 feet in depth. Ponds will be built with gently sloping banks, and located away from open parks and perennial and intermittent streams.
45. Sufficient overflow protection will be provided to ensure against failure or accelerated erosion.
46. Disturbed soil will be revegetated with native species if feasible.

### **Wildlife Habitat Design Criteria**

#### **Lynx:**

(All allotments except Union C&H)

47. Within lynx/snowshoe hare habitats, manage livestock grazing in riparian areas and willow (*Salix* spp) carrs to maintain or achieve mid seral or higher condition to provide cover and forage for prey species where the potential occurs for these species.
48. In areas of big sagebrush (*Artemisia* spp) if livestock grazing occurs, areas of big sage may be grazed by livestock to a maximum of 30% allowable use standard.
49. Maintain at least 20% cover of sagebrush that are tall (16 + inches) in sagebrush habitats where site conditions allow.
50. Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components. Delay livestock use in post-fire and post-harvest created openings until successful regeneration of the shrub and tree component occurs.
51. Manage livestock grazing in aspen to ensure sprouting and sprout survival, and other forested stands to ensure seedling survival sufficient to perpetuate the long-term viability of the stands.

#### **Uncompahgre Fritillary Butterfly (UFB):**

(Arkansas C&H, Union C&H, Four-mile C&H, Chalk Creek C&H, Browns Creek C&H, Little Cochetopa C&H)

52. Prohibit salting and water developments in or within 100 yards of patches of snow willow (*Salix nivalis*). No bedding of livestock should occur in snow willow.
53. If UFB breeding colonies are found, prohibit salting, watering, and herding of livestock through the colony area.
54. Any new ground disturbing activities that are proposed in potential UFB habitat require UFB surveys for two consecutive years to determine the presence or absence of UFBs.

Accepted protocol methods will be used (outlined in the Uncompahgre Fritillary Butterfly Recovery Plan (1994).

55. Graze livestock lightly (no more than 20% utilization of snow willow) and keep livestock well dispersed and moving when above 12,000 ft in elevation.

**Mexican Spotted Owl:**

(Four-mile C&H, Chubb Park C&H, Bassam C&H, Aspen Ridge C&H, Cameron C&H)

56. Manage livestock grazing in riparian areas to maintain or achieve a preponderance of mid seral or higher condition to provide cover and forage for prey species where the potential occurs.

**Boreal Toad:**

(Arkansas C&H, Union C&H, Four-mile C&H, Chalk Creek C&H, Browns Creek C&H, Little Cochetopa C&H)

57. Identify and map all potential suitable boreal toad breeding habitat within grazing allotments.
58. Limit interaction between livestock and boreal toad during critical periods (egg, larval, metamorphic, and adult life stages). Exclude livestock seasonally (May 15 – Sept. 30) within known and adjacent potential boreal toad breeding sites to protect tadpoles and metamorphs from a reduction of cover and from trampling. A site-specific buffer (approximately 300 ft) around breeding sites will be established by a qualified wildlife biologist and range specialist.
59. Within suitable boreal toad habitat not protected by a seasonal no grazing buffer, survey all potential boreal toad breeding habitat within grazing allotments according to the survey protocol identified in the Conservation Plan and Agreement (Loeffler 2001) and the Boreal Toad Recovery Team recommendations. These surveys will be completed over the next 5 years with at least one year of protocol surveys every 5 years thereafter within suitable habitat areas with no known boreal toad occupancy.
60. If livestock grazing occurs within boreal toad breeding sites outside of the seasonal exclusion period (May 15 – Sept. 30), initiate monitoring to determine the effects of these activities on toads and their habitats.
61. In known breeding ponds, do not withdraw water that might affect water levels that could affect egg, tadpole, metamorph, or adult toad survival or habitat conditions.
62. Minimize management activities that may spread the chytrid fungus (*Bd*) to boreal toad habitats. These activities include: 1) transfer of off-site water from one drainage or watershed to another with suitable toad habitat should not occur; 2) wash all equipment when moving from one drainage to another; and 3) avoid moving livestock through water while herding them from one drainage to another.



**Gunnison Sage Grouse:**  
(Little Cochetopa C&H)

63. Do not encourage livestock use in sagebrush habitats during summer/fall. In areas of big sagebrush (*Artemisia tridentata*) if livestock grazing occurs, areas of big sage may be grazed by livestock to a maximum of 30% allowable use standard.
64. Maintain at least 20% cover of sagebrush that are tall (16 + inches) in sagebrush habitats where site potential exists.
65. Do not graze in Sage Grouse habitat for one year following a burn.

**Elk, Deer, and Bighorn Sheep – Breeding, Winter Range, and Concentration Areas:**  
(Arkansas C&H, Union C&H, Four-mile C&H, Chubb Park C&H, Bassam C&H, Aspen Ridge C&H, Cameron C&H, Chalk Creek C&H, Browns Creek C&H, Little Cochetopa C&H, Bear Creek C&H)

66. Protect calving/fawning/lambing concentration areas from habitat modification and disturbance from approximately May 15 to June 30.
67. Provide water sources for big game where possible/practicable.
68. Do not restrict movement, and minimize mortality, due to range developments.
69. Do not graze domestic sheep and goats where they may transmit disease to native bighorn sheep.

**Alpine Species Habitat:**

(Union C&H, Four-mile C&H, Chalk Creek C&H, Browns Creek C&H, Arkansas C&H, Little Cochetopa C&H, Bear Creek C&H)

70. Do not encourage concentrated livestock use in alpine habitats.

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.

## 2.4 Implementation Plan

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**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 all those activities covered in the adaptive management tool box. 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 are not limited to; electric fences, permanent wire fences, water pipe lines, stock tanks, trick tanks, ponds, sediment catchment ponds, willow plantings, seeding, 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. If it is determined to be needed for consultation, a biological evaluation/biological assessment (BE/BA) will be completed by qualified wildlife, botanical and fishery resource specialists for all threatened, endangered, and sensitive species. These assessments may be prepared as needed to document the site-specific analysis of any proposed range developments that might negatively affect those species. Also, the staff archeologist and hydrologist may 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.

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, clearance memos, and letters will be completed prior to work beginning on any improvement. As mentioned above, each range improvement will be evaluated for resource concerns. Each specialist should have a clear understanding of what the

improvement will be, and where it will go. They should also be able to describe what they find in their report to the DRMS.

During the inspection process, if a Resource Specialist determines that a threatened or endangered species may be affected by any proposed development then the FWS shall be consulted under section 7 of ESA. If the proposed development can be altered to change the effect, which leads to a no effect determination, then FWS would not need to be consulted.

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 range improvements are needed, discussion of implementation procedures (design criteria) will also occur. One meeting will be held in the fall. 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 the spring. 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.

DECISIONS. The recommendation on what improvement to install, and where, should be coordinated between the Permittee and the DRMS. The Annual Operating Instructions (AOI) may be the document to record the coordination. The improvement will be approved by the District Ranger. It should 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.

EXAMPLE. Adaptive management alternative C gives the Forest Service and permittee the flexibility to Design a dynamic management plan that allows us to apply these four basic principles of range management identified by Fitch et al (see Range Effects, Ch 3) to the allotments by choosing techniques from a management toolbox until desired conditions are achieved. The following is an example of how this process may potentially take place. In the Aspen Ridge Pasture of the Aspen Ridge allotment, there is a riparian area known as Calf Gulch. Dirt stock ponds dug into the riparian area are responsible for concentrating livestock use and do not encourage distribution into the adjoining uplands. A combination of the current concentrated livestock use, wildlife use, and illegal mud-bogging by recreationists has led to areas along Calf Gulch that do not meet desired conditions. The first step to correcting this issue is to develop a source of water in Calf Gulch and pipe it to a tank in the nearby uplands. This creates an opportunity for livestock and wildlife to have a clean source of water on dry level ground; providing improved footing, reduced physical effort and instability, increased visibility and security and a preferred water temperature (McIver, 2004). Establishing a preferred source of water out of the riparian should attract livestock to the uplands, improve distribution, and

eliminate concentrated use areas in the riparian. Combining salting and riding with this water improvement should increase effectiveness. If this scenario solves the issue and monitoring shows that concern areas begin moving toward desired condition, we can stop the improvement implementation process for this pasture. If this is not the case we can take another step and select another option from the management toolbox like combining temporary electric fence with the water improvement, salting, and riding. Once again if we are not successful we may result to permanent fence to reach desired riparian utilization. Any one, or any combination of several, of the items in the management toolbox may be the answer for reaching desired condition.

## 2.5 Monitoring Plan

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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 management situation. The techniques and protocols listed in the Rangeland Analysis and Management Training Guide 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, 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 presence/absence surveys for boreal toad, 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.

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.

Benchmarks and Key Areas are relatively small parts of the allotments and represent much larger areas. Benchmark Areas are initially delineated on a map (see Appendix 1; allotment maps) but they can change, as needed, depending on such factors as 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. This in turn tells us when an action is required, like moving the cattle to the next pasture.

Two basic types of monitoring are expected to occur on the allotments: 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 specific areas of the allotments. 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 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) meeting design criteria such as appropriate allowable use, and streambank stability and alteration. This latter monitoring item is intended to provide the Forest Service with a record of where problems repeatedly occur and assist in making timely adaptive changes to resolve the problem. Ultimately, the Forest Service would use the record to guide management toward minimizing undesirable resource conditions and move toward the desired condition.

General compliance monitoring is conducted at the pasture level and appropriately for the attribute being monitored. As an example, a fence may be monitored to see if the maintenance standards are complied with, or a specific pasture may be monitored to ensure that the livestock are being moved on time. Implementation monitoring for design criteria is normally conducted in key areas within each pasture. The key areas are shown on the allotment maps in Appendix 1.

**Table 2-2 - Implementation Monitoring**

<b>Monitoring Item</b>	<b>Methodology</b>	<b>Standard</b>	<b>Frequency</b>
Compliance checks (meeting requirements in AOI/AMP/Term Grazing Permit)	Site visit	NA	Periodically through the grazing season
Range Readiness	Plant development Soil moisture	Professional Judgment	Spot check prior to grazing season
Upland forage utilization	Stubble height Herbage left ungrazed Utilization study (paired plot) Ocular estimate of utilization Grazing response index	RAMTG	During grazing period on key areas
Riparian forage utilization	Stubble height Herbage left ungrazed Utilization study (paired plot) Ocular estimate Grazing response index Woody species utilization	RAMTG	During grazing period in benchmarks and key areas
Riparian Streambank stability	Streambank alteration	RAMTG	During grazing period in benchmarks and key areas

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 design criteria 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. If a pattern of non-compliance occurs without resolution, it will lead to suspension or cancellation action as outlined in FSH 22009.13 R2 Id.

### **Effectiveness Monitoring**

Effectiveness monitoring is long-term monitoring and focuses on determining whether the allotment 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. Monitoring attributes related to these four categories will show whether:

- Forest Plan standards and guidelines are being met;
- stocking levels/management intensity are appropriate relative to other resource values;
- Conditions on the ground are adequately meeting or moving toward desired condition;
- Threatened and endangered species recovery plans or agreements are being adhered to;
- Adaptive options are needed to resolve concerns, and which option to use.

Effectiveness monitoring is long term monitoring. Natural resource conditions seldom change enough to measure in the short term. Effectiveness monitoring will be conducted every 3 to 5 years for Vegetative Attributes, riparian and soils attributes, and desired condition, in the benchmarks. Monitoring for TES plant and animal species, heritage, and recreation, will occur on a variable cycle of up to 10 years. The timing will be determined by the District Ranger. It will depend on the adaptive management option selected and the circumstances of the implementation. Most effectiveness monitoring will occur at the benchmarks, shown on the maps in Appendix 1.

On upland benchmark sites where the Parker-3-Step method was used in the past, selected transects will be read one last time using Parker, then read again using the Cover-Frequency method currently supported in the Forest Service.

Riparian benchmark sites will be monitored using one or more protocols appropriate to the data needs and resource concerns at the specific site. Where riparian hardwoods are part of the site potential and desired condition, monitoring will focus significantly on woody species regeneration and canopy cover.

**Table 2-3 Effectiveness Monitoring**

<b>Monitoring Item</b>	<b>Methodology</b>
<b>1. Vegetative Attributes</b>	
Vegetative cover	Cover-frequency transect
Plant species composition	Cover-frequency transect Ocular plant composition
Frequency	Rooted nested frequency Cover-frequency transect

<b>2. Riparian and Soils Attributes</b>	
Shrub canopy cover	Line intercept
Bank stability	Streambank alteration Proper Functioning Condition
Riparian shrub community	Shrub density/age form/class (seral stage) Woody species regeneration and utilization
Riparian plant community type	Cross-section composition
Riparian condition	Greenline
<b>3. TES Plant and Animal Species</b>	
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
Monitor UFB habitat where grazed by livestock.	Ocular evaluation
Within suitable boreal toad habitat not protected by a seasonal no grazing buffer	Survey protocol identified in the Conservation Plan
Within <i>O. susanae</i> habitat	Sample Trout Creek Spring discharge volume twice annually to determine if up-valley water use is affecting <i>O. susanae</i> habitat.
<b>4. Desired Condition</b>	
Trend to desired condition	Similarity Coefficient
Rangeland health	Rangeland health evaluation matrix
Riparian condition	Proper Functioning Condition Riparian characteristics evaluation
<b>5. Heritage and Recreation</b>	
Heritage resource	Ocular evaluation Transect
Recreation conflict	Recreation site inspection Recreation user complaint Permittee complaint