

**FSH 2209.13 – GRAZING PERMIT ADMINISTRATION HANDBOOK
CHAPTER 90 – RANGELAND MANAGEMENT DECISIONMAKING**

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Approved: /s/ Lucia M. Turner
Deputy Regional Forester

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Digest:

In order by code, summarize main additions, revisions, or direction removals in this supplement.

2209.13	This supplement provides clarification and Regional level operating procedures within the guidance of the parent text FSH 2209.13 – Grazing Permit Administration Handbook; Chapter 90 - Rangeland Management Decision making.
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90.5 Definitions

Adaptive Management is a formal, systematic, and rigorous approach to learning from the outcomes of management actions, accommodating change, and improving management. See Figure 1.

Reference: Nyberg, J.B., Forest Practices Branch, BC Forest Service. An Introductory Guide to Adaptive Management For Project Leaders and Participants, January 1999.

Apparent Trend. An interpretation of trend based on observation and professional judgment at a single point in time.* An assessment, using professional judgment, based on a one-time observation. It includes consideration of such factors as plant vigor, abundance of seedlings and young plants, accumulation or lack of plant residues on the soil surface, and soil surface characteristics (i.e. crusting, gravel pavement, pedestalled plants, and sheet or rill erosion). Interagency Technical Reference 1734-4

Benchmark. A permanent reference point, in range inventory and effectiveness (trend) monitoring, it is used as a point where changes in vegetation, in response to applied management through time, are measured. Adapted from “A Glossary of Terms Used in Range Management.” Forth Edition, edited by the Glossary Update Task Group, Society for Range Management, Thomas E. Bedell, Chairman. 1998. Second Printing 2003.

Deferment. The delay of grazing to achieve a specific management objective. A strategy aimed at providing time for plant reproduction, establishment of new plants, restoration of plant vigor, a return to environmental conditions appropriate for grazing, or the accumulation of forage for later use. *

Deferred Grazing. The deferment of grazing in a non-systematic rotation with other land units. *

Deferred-Rotation. Any grazing system, which provides for a systematic rotation of the deferment among pastures. *

Desired Conditions. Descriptions of the **social, economic and ecological attributes** that characterize or exemplify the desired outcome of land management. They are aspirational and likely to vary both in time and space. Adapted from: *Foundations of Forest Planning: Volume 1 (Version 2.0) Model of a Forest Plan.* USDA Forest Service, January 2005

Ecological Site (ES) is a kind of land with specific physical characteristics which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and its response to management.* Also refer to the National Range and Pasture Handbook, USDA, Natural Resources Conservation Service, page 3.1.

Ecological Site Description (ESD) ESDs contain information about soil, physical features, climatic features, associated hydrologic features, plant communities possible on the site, plant

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community dynamics, annual production estimates and distribution of production throughout the year, associated animal communities, associated and similar sites, and interpretations for management. ESDs are narratives and map units containing ecological sites. Many ESDs also have State and Transition Models developed for them. Refer to the National Range and Pasture Handbook, USDA, Natural Resources Conservation Service, page 3.1-1.

Ecological Type is a category of lands with a distinctive (i.e., mappable) combination of landscape elements. The elements making up an ecological type are climate, geology, geomorphology, soils, and potential natural vegetation. Ecological types differ from each other in their ability to produce vegetation and respond to management and natural disturbances. (Terrestrial Ecological Unit Inventory Technical Guide: Landscape and Land Unit Scales, USDA Forest Service, Gen Tech Report WO-68, 2005)

Ecological Units. Map units designed to identify land and water areas at different levels of resolution based on similar capabilities and potentials for response to management and natural disturbance. These capabilities and potentials derive from multiple elements: climate, geomorphology, geology, soils and potential natural vegetation. Ecological units should, by design, be rather stable. They may, however, be refined or updated as better information becomes available. (Terrestrial Ecological Unit Inventory Technical Guide: Landscape and Land Unit Scales, USDA Forest Service, Gen Tech Report WO-68, 2005)

Frequency (as a management tool) refers to the number of times forage plants are defoliated during the grazing period. Reed Floyd, Roy Roath, and Dave Bradford. 1999. The Grazing Response Index: A Simple and Effective Method to Evaluate Grazing Impacts. *Rangelands* 21(4): 3-6.

Frequency (as a measurement for trend) The ratio between the number of sample units that contain a species and the total number of sample units.*

Grazing Intensity is the degree of herbage removed through grazing and trampling by livestock. Grazing intensity may be described in terms herbage removed during the grazing and/or growing period or as a utilization level at the end of the growing period. It is important to clearly define how intensity is being viewed and described. Removal of leaf material, when the plant is actively growing can affect root growth which in turn affects future leaf growth. Sufficient leaf area is essential to support plant functions through photosynthesis. Heavy to severe intensity or utilization can affect current plant development and growth, as well as growth during subsequent growing seasons.

Grazing Intensity is discussed by Holechek (Reference 1 below):

Light- Only choice plants are used. There is no use of poor forage plants. The range appears practically undisturbed.

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Moderate- About ½ of the good and fair forage value plants are used. There is little evidence of livestock trailing and most of the accessible range shows some use.

Heavy- Range has a clipped or mowed appearance. Over half of the fair and poor value forage plants are used. All accessible parts of the range show use and key areas are closely cropped. They may appear stripped if grazing is very severe and there is evidence of livestock trailing to forage.

The above descriptions, may be especially helpful when reviewing grazing during the growing season.

Additional qualitative assessment of grazing intensity can be determined using the Landscape Appearance Method. It can be found in the Interagency Technical Reference 1734-3 *Utilization Studies and Residual Measurements*. Page 119.

Grazing Intensity as depicted as a utilization level at the end of the growing season as discussed by Holechek, (Reference 2 below):

Light to non-use	0-30 percent
Conservative	31-40 percent
Moderate	41-50 percent
Heavy	51-60 percent
Severe	61+ percent

References: (1) Holechek, Jerry L., Rex D. Pieper, and Carlton H. Herbel. 2004. Range Management, Principles & Practices. Prentice Hall, page 248.

(2) Holechek, Jerry L. and Dee Galt. 2000. Grazing Intensity Guidelines. *Rangelands* 22(3): 11-14.

An additional qualitative grazing assessment and planning tool is the Grazing Response Index (GRI). Reed Floyd, Roy Roath, and Dave Bradford. 1999. The Grazing Response Index: A Simple and Effective Method to Evaluate Grazing Impacts. *Rangelands* 21(4): 3-6.

Grazing Occurrence is how often a given area is grazed. How often a pasture is exposed to grazing or rested from grazing provides for different responses within the plant community due to differing opportunities for plant recovery.

Grazing Period is defined as the length of time grazing livestock or wildlife occupy a specific land area. * The length of time a pasture is exposed to grazing affects many variables such as potential for regrowth of plant material, soil impacts and animal behavior. The grazing period influences the intensity of grazing and the frequency of grazing. It can also influence items tied to animal behavior such as trailing, and trampling such as between loafing and watering areas.

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Key Area A relatively small portion of a range selected because of its location, use or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the overall acceptability of current grazing management over the range. *

Key Species (1) Forage species whose use serves as an indicator to the degree of use of associated species. (2) The species which must, because of their importance, be considered in the management program.*

Monitoring The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives. This process must be conducted over time in order to determine whether or not management objectives are being met. *

Implementation Monitoring- This short-term monitoring answers the question, was the management implemented as designed. Annually documents several items. Examples include:

- 1) Were management actions implemented as designed, and
- 2) Did the management actions achieve the annual effect expected?

Items which may be documented through implementation monitoring include, but are not limited to: **actual use (livestock numbers and days)**, condition of range improvements, utilization, wildlife observations.

Effectiveness Monitoring- This long-term monitoring documents whether management actions are having the expected progress towards achieving resource management objectives.

Resource Management Objectives are concise statements of measurable, time –specific outcomes intended to achieve desired conditions. The objectives for a plan are the means of measuring progress toward achieving or maintaining desired conditions. Adapted from: *Foundations of Forest Planning: Volume 1 (Version 2.0) Model of a Forest Plan*. USDA Forest Service, January 2005

A good objective is "**SMART**": **Specific** in what it will accomplish; **Measurable** in what it will produce; **Achievable** (has a good chance of being carried out); **Realistic** within the given time frame and budget; and **Timefixed** (has an endpoint). Leslie, M. G.K. Meffe, J.L. Hardesty, and D.L. Adams. 1996. *Conserving Biodiversity on Military Lands: A Handbook for Natural Resources Managers*. The Nature Conservancy, Arlington, VA.

Rest is to leave an area of grazing land ungrazed or unharvested for a specific time, such as a year, a growing season or a specified period required within a particular management practice. *

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Rest-Rotation. A grazing management scheme in which rest periods for individual pastures, paddocks or grazing units, generally for the full growing season, are incorporated in a grazing rotation. *

Seasonal Utilization is the amount of utilization that has occurred before the end of the growing season. Interagency Technical Reference 1734-3, page 1.

Terrestrial Ecosystem Survey Terrestrial Ecosystem Unit Inventory: (TES/TEUI): is the systematic examination, description, classification, mapping and interpretation of terrestrial ecosystems. A terrestrial ecosystem is an integrated representation of soil, climate and vegetation as modified by geology, geomorphology, landform and disturbance processes. Refer to Terrestrial Ecological Unit Inventory Technical Guide: Landscape and Land Unit Scales, USDA Forest Service, Gen Tech Report WO-68, 2005.

Timing is the time of season grazing occurs relative to the phenological stage of plant development, such as early growth period, reproductive period, or dormant period. Disturbance, such as that from grazing, may provide differing responses within the plant depending upon the stage of development.

Trend. The direction of change in an attribute as observed over time.*

Utilization is the proportion or degree of the current year's forage production that is consumed or destroyed by animals (including insects). The term may refer either to a single plant species, a group of species, or to the vegetation community as a whole. Interagency Technical Reference 1734-3, page 133.

* Definition from "A Glossary of Terms Used in Range Management." Forth Edition, edited by the Glossary Update Task Group, Society for Range Management, Thomas E. Bedell, Chairman. 1998. Second Printing 2003.

92.1 Plan-to-Project Analysis

The Plan-to-Project analysis occurs prior to initiation of the formal National Environmental Policy Act (NEPA) analysis and documentation. If NEPA analysis has previously been conducted with an associated NEPA decision, grazing permit, and Allotment Management Plan (AMP), review the NEPA documentation and decision to determine consistency with the existing grazing permit, AMP, and AOI. This review would be necessary prior to permit expiration and/or reauthorization of grazing occurring. Review may also be needed should new information become available or if effectiveness monitoring indicates planned adaptive management needs to be altered from that which was analyzed. Section 18 of FSH 1909.15 provides guidance for review of the original NEPA analysis, documentation, and decision.

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For those allotments without appropriate NEPA analysis and an associated decision, the following provides guidance for conducting analysis. It is through the Plan-to-Project analysis, conducted by an interdisciplinary team, in coordination with the permittee, that desired conditions, existing conditions, and resource management objectives to address resource management needs are determined. Possible management practices and information needs are also determined during the Plan-to-Project analysis. Possible management practices should address any and all practices to be addressed through an adaptive management strategy. Determination and analysis of adaptive management provides the flexibility to respond to continually changing conditions found within natural ecosystems. Through monitoring, progress towards objectives and ultimately desired conditions can be determined. If satisfactory progress is not being observed, as determined by the ID Team and Line Officer, adaptive management options can be implemented without further analysis. Analysis and documentation of all likely adaptive management options provides the authorized officer the ability to facilitate needed changes in management to continually improve resource conditions.

The Plan-to-Project Matrix, text and forms, (see Exhibits 1A, 1B, and 1C) provide tools which have been developed for the purpose of assisting with initial formulation of desired conditions, assessment of existing conditions, planning management practices, and planning monitoring efforts. The matrix is provided as an optional tool. If the matrix is used, empty boxes may identify information needs. If information needs are identified, the deciding official must determine if gathering that information is necessary to make the decision or if the information can be accrued in conjunction with project implementation and adaptive management. **The type of information needed as well as the determination of the necessity of the information should be well documented in the project record.** When the matrix is utilized, it should be developed to reflect the complexity of the allotment(s) and display areas which are tied to the ground, for example through mapping and classification. It is suggested that a matrix be created for each ecological site or TES map unit, or for each pasture within the allotment as an example.

92.11– Identification of Desired Conditions

The broad scale applies to single or multiple allotments to be included in the analysis. Desired conditions identified in the Land and Resource Management Plan can be further refined by analyses such as landscape assessments, watershed analyses or assessments, ecosystem assessments at the watershed scale etc., which facilitate the development of broad scale (allotment level) desired conditions. Desired conditions are fairly broad goals, which, should be determined and discussed in a specific, quantifiable and focused manner. Desired conditions should describe desired outcomes, not desired actions.

92.11a – Development of Desired Conditions

Current LRMP Desired Conditions are often expressed as Forest Plan goals. Within the context of Desired Condition descriptions or goals contained in the LRMP, utilize the following considerations to develop allotment specific statements of desired conditions.

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1. Develop project (site)-specific desired conditions through an interdisciplinary team process and collaboration with stakeholders, including permittees.
2. The Interdisciplinary Team should use the best available information and data, whether through formalized assessments, observations or anecdotal information. An explanation of information utilized and its usefulness should be documented in the project record.
3. Desired conditions must be realistic/attainable and tied to site potential, i.e. TES mapping and associated narratives, and/or ecological site descriptions.
4. Desired conditions should be specific enough to clearly apply to a particular geographic location.
5. Although desired conditions may be qualitative, they should describe environmental features in a way that allows for evaluation of progress towards the desired condition, so related management objectives can be monitored through established procedures.
6. Desired conditions should incorporate natural variation by describing a range of appropriate conditions within the identified area rather than a single condition.
7. Achievement of desired conditions should be those which can be addressed by livestock grazing practices, unless other types of management practices are to be employed.

Refer to Exhibit 1A for an example of a Desired Condition Statement.

92.12 – Identification of Existing Condition

There are many sources to utilize when identifying existing conditions within a project area. Examples include allotment files, corporate databases, historic survey and monitoring data from varied disciplines, such as Threatened, Endangered, and Sensitive species, or Management Indicator Species, or soil condition surveys. Determine existing condition through inventory, sampling or documented observations.

92.12a – Determination of Existing Condition

1. Determine project (site)-specific existing conditions through an interdisciplinary team process and collaboration with stakeholders, including permittees.
2. The Interdisciplinary Team should use the best available information and data, whether through formalized assessments, observations, or anecdotal information. An explanation of information utilized and its usefulness should be documented in the project record.
3. Existing conditions should be specific enough to clearly apply to a particular geographic location, such as a map unit within a pasture.
4. Existing condition analysis should focus on determining cause and effect relationships between existing condition, past and present livestock management, but [ALSO]take into account other influences within the project area, such as disturbance from fire, roads, and wildlife.

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5. Existing conditions **should be determined for resources for which a desired condition has been identified**, which can be addressed through livestock grazing practices.

Refer to Exhibit 1B for example of Existing Condition Statement.

92.13 – Identification of Resource Management Needs

If desired conditions (Refer to 92.11a) and existing conditions differ, there are resource management needs. Resource management needs may also arise from ecological services and social desires the landscape is expected to provide. **Resource management needs should be defined enough to pinpoint particular concerns.** Resource management needs address concerns; however, those concerns must be addressed through resource management objectives.

Resource management objectives **should be described in terms which can be monitored over time to determine if management is being effective in moving existing condition towards desired condition.** Resource management objectives describe attributes which are measurable within a designated timeframe. If desired conditions and existing conditions are the same, there is no need for change. A resource management objective, in that case, would reflect maintaining existing conditions. In this situation, continuation of current management may be appropriate for maintaining existing condition. Whether the resource management objective is to change or maintain, the attributes which depict the condition **should be described in measurable terms.**

Determining and documenting why a resource management objective is necessary or desired may assist the responsible official in making the decision. This can also be included in the Plan-to- Project Matrix, Exhibit 1C. The exhibit provides guidance for determining resource management objectives.

92.14 – Identification of Possible Practices

Once the resource management objectives are developed, determine the management practices or action(s) to be utilized to achieve the objectives. Management actions are those practices which may be implemented to achieve resource management objectives. Management practices state how the differences between desired conditions and existing conditions are going to be addressed.

Management practices may be grazing practices or all other management practices to be employed, such as vegetation treatment, or erosion control measures. It is important to document the relation of each practice to the other practices, such as causative effects to other practices. It is also important to document what management practices are being applied to address which objectives.

Management practices for livestock grazing may include such examples as discussed below.

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- Varying seasons of use, (i.e. year-long, and seasonal use and on/off dates) which ensure vegetation growth conducive to withstanding grazing pressure and soils dry enough to withstand damage.
- Allow for mixed kinds and classes of livestock to achieve economic and ecological objectives.
- Various grazing systems.
- Control timing of use and grazing period, by employing herders to provide for riparian area recovery.
- Control timing of grazing to allow for recreational needs such as hunting season.
- Position salt to increase livestock grazing in select areas, in order to remove vegetation, decreasing litter build-up to provide open areas for increasing forb component of the community.

Refer to Exhibit 2 for guidance in stating management actions to be employed.

92.15 – Identification of Information Needs

Once desired conditions, existing conditions, resource management needs and objectives have been determined, any additional information needs **should be determined. The authorized officer will need to assess what additional information is required for efficient decision making.**

Knowledge of data needed, priority for collection, process for data collection and time and cost associated with collection should be provided to the authorized officer by the interdisciplinary team. **In order to make project-level decision making more efficient, information needs should be identified 2-3 years in advance of project initiation.**

92.21 – Decision Framework

Authorization of grazing must be preceded by a NEPA-based decision. If a valid NEPA decision does not exist the Responsible Official must conduct a NEPA analysis in order to continue to authorize livestock grazing. If a valid decision exists, grazing authorization may occur by issuing a new permit in accordance with direction in the parent text (sec. 92.21). **This shall be preceded by a plan-to-project analysis appropriate for the scale, scope, and any changed conditions of the landscape to determine if additional analysis and a new NEPA decision is needed.** Any such authorization without re-initiation of a NEPA analysis, and the rationale for doing so, **shall be documented** in the project record (see section 92.1). Refer to Exhibit 3 for guidance in writing the decision framework.

92.22 – Purpose and Need

The purpose and need for the proposed action is the result of the resource management needs determined by the interdisciplinary team, which can be addressed through livestock grazing practices. The purpose is to authorize livestock grazing in a manner consistent with Forest Plan

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direction. The need is the maintenance of current conditions or to provide for changes in conditions to move toward desired conditions.

Refer to Exhibit 4 for guidance in writing the purpose and need statement.

92.23 – Proposed Action

Refer to Exhibit 5 for guidance in writing the proposed action.

92.23a – Scope of Proposed Action

Proposed actions that are narrow in scope and focus exclusively on authorization of livestock grazing must include livestock management practices necessary for an adequate environmental affects analysis and management of rangeland resources. Rangeland suitability was made as a final determination during plan development for all current plans developed under the 1982 rule. Therefore, suitability does not need to be readdressed at the project level for rangeland projects guided by current forest plans, developed under the 1982 rule.

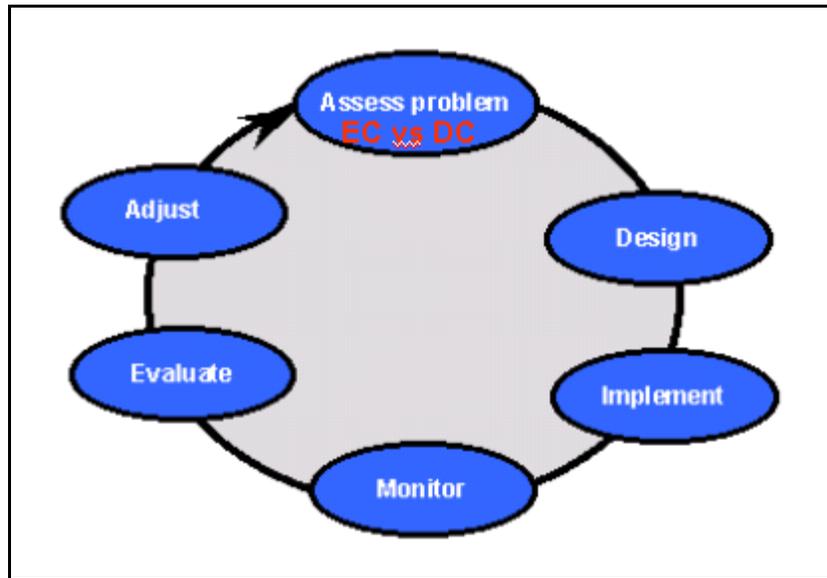
92.23b – Adaptive Management

Adaptive management is a formal, systematic, and rigorous approach to learning from the outcomes of management actions, accommodating change and improving management. It involves synthesizing existing knowledge, exploring alternative actions and making explicit forecasts about their outcomes. Management actions and monitoring programs are carefully designed to generate reliable feedback and clarify the reasons underlying outcomes. Actions and objectives are then adjusted based on this feedback and improved understanding. In addition, decisions, actions and outcomes are carefully documented and communicated to others.

Reference: Forest Practices Branch, BC Forest Service. An Introductory Guide to Adaptive Management For Project Leaders and Participants, January 1999.

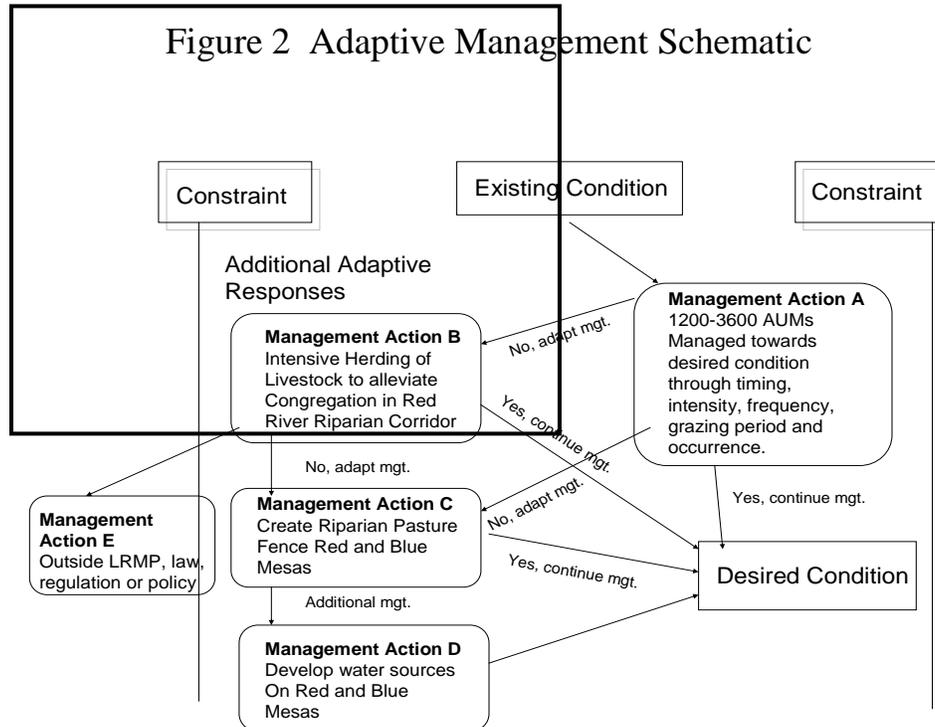
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Figure 1 Adaptive Management Process



When monitoring indicates the need for implementation of adaptive management adjustments disclosed in the project-level decision, those adjustments can be implemented without further NEPA review. Monitoring should answer the question “Is acceptable progress being made towards attainment of resource management objectives and thus desired conditions?” If the answer to this question is “yes” current management may continue. If the answer to this question is “no” various adaptive management adjustments may be initiated. The Responsible Official needs to ensure what the Agency proposes to do under adaptive management is **displayed and analyzed** in the NEPA analysis. The constraints, as referenced in the parent text (92.23b) are the sideboards of all management practices to be analyzed. In practice, the constraints consist of the range of variability of management actions which allows for adjustment over time. These are identified in the Proposed Action, which is the collection of possible management actions. See Figure 2. As depicted, the constraints provide for a variety of acceptable tools and management actions to be utilized to achieve the desired conditions. These include but are not limited to variables such as a flexible description of the levels of use (permitted numbers of livestock and/or AUMs of use), season of use and management methods for livestock grazing based on ecological variation in herbaceous forage production in the Southwestern Region.

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Through the use of an adaptive management decision, which identifies an array of possible management practices, the grazing permit, AMP and/or AOI may be administratively modified or re-issued over time, based on monitoring, as long as the modified permit, AMP and/or AOI are within the bounds of the original adaptive management decision and supporting NEPA analysis and documentation.

92.23c – Considerations of an Adaptive Management Alternative

The following are examples of considerations when devising adaptive management strategies.

- Due to annual climatic variability, the length of time livestock are allowed on the allotment varies from year to year. Length of time may be altered by altering both entry and exit dates.
- Stocking rates, grazing strategies and season of use are all tools to implement the decision.
- Levels of livestock use, (e.g. livestock numbers, maximum or a range of livestock number and/or AUMs etc.) and seasons of use described are only approximations and recognize the natural ecological fluctuation in forage production.

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- When monitoring indicates changes in management strategy should be considered, permittee ability to adjust management must be integral to the adaptive management strategy.
- Other livestock and resource management practices such as excluding or closing areas to domestic livestock grazing, adjusting herding, changing salt locations, supplementing with nutrients, and adding rangeland improvements may also be considered.
- Based on monitoring results of the previous season, and observed trends towards the accomplishment of resource management objectives, permitted numbers and length of stay, and method of management can be reasonably predicted for the next grazing season.

92.31 Alternatives

At least two alternatives must be analyzed; the “no action” alternative and the proposed action. The current management alternative should be developed with a clear description. Current management may or may not be analyzed in detail. In some situations, current management, or a slight modification of current management, may be the proposed action. This would be appropriate if current management is consistent with the Forest Plan, and if, through monitoring, it has been shown that current management is achieving resource management objectives. Whether current management responds to the purpose and need for the project, determines the level of analysis of current management. Adaptive management should be well defined if it is being considered under any alternative.

Current management is a combination of the current permit and how the current permit has been administered through the AMP and AOI, for at least the past 3-5 years (3-5 years is a minimum, longer periods of 10 years or more may also be utilized to document current management), in order to meet resource management objectives.

92.32 Effects of Alternatives

A well constructed adaptive management alternative covering an array of possible management practices, responsive to management objectives, should minimize or eliminate the need for multiple alternatives to be developed.

The analysis of the environmental effects should focus on outcomes of the proposed management (achievement of resource management objectives, documented through monitoring). Analysis of adaptive management alternatives should focus on the environmental effects of remaining within the constraints (array of possible management actions/practices which may be implemented over time through adaptive management) identified in the alternative, which is the collection of management actions. See Figure 2. An adaptive management alternative identifies the measurable objectives which, if met, provide progress towards achieving the desired conditions. Because all courses of actions are designed to move the allotment towards objectives and desired conditions, the effects of each potential course of action are essentially the same if the actions remain within those stated constraints. However, if multiple alternatives are developed to address issues, the most probable effects may vary by

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alternative since the different alternatives have different courses of action. **Analyses should consider likely outcomes, not just extremes.**

If the effects of any action anticipated are outside boundaries established by law, regulation or policy (i.e. Forest Plans guidance) then the alternative **should be modified or mitigation should be designed to keep effects within constraints.**

93.2 – National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470 et seq.)

All management actions that are certain to be implemented within 2 years (sec. 92.32 parent text), and that involve ground disturbance subject to compliance with NHPA **shall have an archaeological clearance completed prior to completing the effects analysis for the environmental assessment.**

In order to phase in the archaeological work for management options involving ground disturbing activities that may be implemented at some future point in time beyond 2 years, utilize the process authorized through the Standard Consultation Protocol for Rangeland Management Appendix H (effective May 17, 2007).

94 – NEPA-BASED DECISIONS AND IMPLEMENTING ACTIONS WHICH FOLLOW.

Grazing permits **shall be** modified or new permits issued within 90 days of final agency action following a NEPA decision to authorize grazing.

94.1 – Allotment Management Plans (AMPS)

Allotment Management Plans (AMPs) will each be unique based on the individual landscape and ranch operation. However, certain components are common to almost all AMPs.

Components of an AMP include:

- Goals and Objectives of Management
- Current Management Strategies (Grazing system(s) or method)
- Stocking Levels
- Livestock Distribution Aids
- Animal Husbandry
- Range Improvement Construction and Maintenance
- Monitoring Plan (requirements and needs)
- Travel Management guidelines and/or restrictions
- Associated Maps

Concurrent with modification or issuance of a new permit following a NEPA decision the allotment management plan must be modified to be consistent with the NEPA decision and must be included in Part 3 of the term grazing permit. All allotments must maintain a current AMP developed within the bounds of the NEPA based decision.

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94.2 – Grazing Permits

Continue to show full permitted numbers and season of use as authorized in the NEPA based decision (or maximum numbers and season of use) in Part 1 of the term grazing permit. In Part 3 of the permit clearly specify the range in constraints for the appropriate timing, intensity, frequency, and grazing period variables. The issuance of the term grazing permit is an administrative action as discussed in sec. 92.23b of the parent text.

94.3 – Annual Operating Instructions (AOI)

Annual operating instructions should be developed within the scope of the project-level decision, and resulting grazing permit. Annual operating instructions developed within the scope of the project-level decision are not subject to administrative appeal. The AOI is the instrument for the implementation of specific management actions on an annual basis to achieve resource management objectives.

95 – MONITORING

The need for monitoring **shall** be included in the project-level NEPA decision. Implementation and Effectiveness monitoring are both critical in determining when or if adaptive management changes should be made. Both types of monitoring are also critical to document the cause and effect relationships between management and movement towards resource management objectives. A monitoring plan which is part of the Allotment Management Plan specifies the likely monitoring protocols to be utilized. Monitoring protocols shall be defined during the formulation of desired conditions and resource management objectives. Monitoring is comprised of five key components: 1) the purpose for monitoring, 2) attributes to be monitored, 3) method selected to monitor those attributes, 4) the frequency which monitoring will be conducted and 5) the location, benchmark or key area where monitoring will take place. The purpose(s) for each monitoring activity should be well documented. Attributes to be monitored should be tied to the resource management objectives documented in the NEPA based decision and AMP. Methods should be appropriate to the attributes to be monitored. Frequency of monitoring should be appropriate to the potential changes desired to monitor. Short-term implementation monitoring often occurs on key areas. Long-term effectiveness monitoring often occurs on benchmarks. In many instances these areas are one in the same. In critical areas designated monitoring locations must be determined based on the purpose, attributes and appropriate methods, as well as changes to be monitored.

Implementation monitoring may include such items as: actual use in each pasture, condition of range improvements, seasonal utilization, annual utilization, stubble heights, or any other annual monitoring which may be important or required. Effectiveness monitoring should include attributes, locations and methods which will determine movement towards objectives. Implementation and effectiveness monitoring design **should be an open, cooperative, and inclusive process, which includes the Line Officer, ID Team, rangeland users and other interested parties.** This process should also determine priorities for

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monitoring, which may include federally listed species habitat, impaired streams, and areas critical to the livestock operation. The monitoring plan should be feasible to accomplish and should be consistent with Forest-wide monitoring goals. Both qualitative and quantitative monitoring can be of value. Qualitative monitoring, such as the Landscape Appearance Method or the Grazing Response Index, as well as photos can depict annual impacts. Long term qualitative monitoring, such as repeat photography can depict changes over time. Qualitative monitoring can be supplemental to quantitative monitoring.

Quantitative monitoring for trend towards achievement of resource management objectives is the foundation for any adaptive management decision. Each identified objective should have monitoring which indicates the trend towards objectives. Monitoring should reflect the five components. It is important to remain consistent with monitoring methods and locations to assess changes. Should new methodologies become available, the ID Team needs to evaluate those methods for applicability based on monitoring objectives. It is important locations for monitoring also be maintained. Changes to either methods or locations should only occur after much thought and within the same open, cooperative, and inclusive process. Monitoring results need to be evaluated by the ID Team and Line Officer to determine if management is achieving resource management objectives. Based upon the evaluation of the results, adjustments in management may or may not be required. The evaluation and potential adjustment completes the Adaptive Management loop. It is also important to tie monitoring to the multiple uses to be provided by the landscape. For example, if a vegetative resource management objective is tied to particular wildlife species, it is important to determine if achieving the resource management objective is having the anticipated effects on the associated wildlife species.

Although the process of determining desired and existing conditions, developing resource management objectives, designing management practices and monitoring appears to be linear, in reality it is not. It is iterative and happens concurrently. Continual evaluation of management, through the adaptive management process, provides a framework for management which can address the complexities of responses within an ecosystem.

Procedures for rangeland assessment and monitoring are not limited to procedures in the current edition of the Rangeland Analysis and Management Training Guide. Other sources of information related to appropriate procedures for rangeland assessments and monitoring for application with the Southwestern Region include the following sources which are hereby incorporated by reference for use within the Southwestern Region.

Monitoring:

- Interagency Technical References (ITR) 1734-4 and 1734-3. Many of these methods are currently being developed electronically for storage in the NRIS database.
- Some Methods for Monitoring Rangelands, University of Arizona Extension Report # 9043 1997. Several of these methods are also in ITR 1734-4 and ITR 1734-3.

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- Monitoring Manual for Grassland, Shrubland and Savanna Ecosystems-
USDA/ARS Jornada Experimental Range
- Monitoring the Vegetation Resources in Riparian Areas. Alma H. Winward. GTR
– 47. 2000

Assessments:

- Rapid Assessment Methodology RITF Report # 58
- Interpreting Indicators of Rangeland Health TR 1734-6
- A User Guide to Assessing Proper Functioning Condition and the Supporting
Science for Lotic Areas. TR 1737-15 1998
- Process for Assessing Proper Functioning Condition for Lentic Riparian –
Wetland Areas. TR 1737-11 1994

References:

- Principles of Obtaining and Interpreting Utilization on Southwest Rangelands
AZ1375 10/2005
- Principles of Obtaining and Interpreting Utilization Data on Rangelands AZ1375
05/2007.
- The Grazing Response Index: A Simple and Effective Method to Evaluate
Grazing Impacts. *Rangelands* 21(4) 3-6,1999.
- Grazing Management Processes and Strategies for Riparian – Wetland Areas. TR
1737-20 2006
- Terrestrial Ecological Unit Inventory Technical Guide: Landscape and Land Unit
Scales GTR Report WO-68. 2005.
- Existing Vegetation Classification and Mapping Technical Guide Version 1.0.
GTR Report WO-67. 2005.
- Rangeland Management Before, During and After Drought AZ1136 07/1999.

Refer to Exhibit 6 for an example of monitoring direction.

96 – REVIEW OF EXISTING PROJECT-LEVEL NEPA-BASED DECISIONS

Regardless of the status of the permit with regard to expiration and/or the results of effectiveness monitoring, District Rangers must review the currency of NEPA with the grazing activity and existing permit on an interval of at least 3-5 years to insure the grazing activity (and associated grazing permit(s) AMP, and AOI) are consistent and within the bounds of the existing NEPA documentation. At this time (at 3-5 year intervals), the District Ranger must document to the record (2210 allotment file), that the grazing permit and activity are consistent with the previous NEPA documentation. If, as the result of this review, the responsible official determines that a correction, supplement, or revision to an environmental document is necessary, follow the relevant direction in FSH 1909.15 sections 18.2 - 18.4.

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EXHIBIT 1A Desired Condition Statement (Refer to 92.11a)

The Plan to Project Matrix is an optional tool to assist the ID Team to discover and generate resource goals and information gaps.

Desired conditions are fairly broad goals, not actions. **Desired conditions should be determined and discussed in a specific, quantifiable and focused manner.**

The following example is based upon the Volcanic Hills 16 – 20 Inch Precipitation Zone Clayey Ecological Site. However, a Terrestrial Ecosystem Survey Map Unit, such as Map Unit 806 on the Cibola National Forest could be applied in the same way.

Plan-to-Project Matrix			
Allotment: Grassy Flats			
Designated Area: Volcanic Hills 16-20 Inch p.z. Clayey Ecological Site (VHCES) in Silver, Gold, Tin, and Copper Pastures			
	Vegetative Resource	Wildlife Resource	Soil Resource
1A) Potential	Mixed grassland, warm and cool season grasses, forbs, lesser shrubs and trees.	Habitat diversity for variety of mountain and grassland wildlife species.	Bare ground of 3-15% with a rock component of 35-80% with vegetative ground cover of 21-75%.
1B) Desired Condition	Vegetative communities reflective of the VHCES.	Forage and nesting cover of 6 inches is provided for ground nesting birds in the XYZ nesting habitat.	Soil surfaces are protected by vegetative ground cover, which includes vegetation basal area, and litter.

Sample Desired Condition Statement

Vegetative and soils conditions provide for a broad array of rangeland uses, such as wildlife habitat, livestock production, and properly functioning watersheds. This will be demonstrated by vegetative communities reflective of the Volcanic Hills Clayey Ecological Site Description (ESD) potential. The potential plant communities provide vegetation as forage for livestock, wildlife and birds and nesting cover for ground nesting birds. The potential plant communities comprise warm and cool season grasses, forbs, shrubs and trees. The desired condition requires a variety of species for forage and seed production, as well as maintaining protective cover of at least 6 inches during the nesting season in XYZ nesting habitat. Soil condition should reflect adequate vegetative ground cover for protecting the soil surface.

The above statement reflects the desired condition for three resource areas which grazing management can address, providing more detail than that displayed in the matrix, which was

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utilized by the ID Team to guide initial discussion and document the discussion.

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EXHIBIT 1B Existing Condition

Inventory of current conditions which could be taken from Range Analysis files, sampling relative to TES, or other inventories such as those conducted for wildlife or fuels management, etc.

Plan-to-Project Matrix			
Allotment: Grassy Flats			
Designated Area: Volcanic Hills 16-20 Inch p.z. Clayey Ecological Site (VHCES) in Silver, Gold, Copper Pastures and Tin Trap			
	Vegetative Resource	Wildlife Resource	Soil Resource
1A) Potential	Mixed grassland, warm and cool season grasses, forbs, lesser shrubs and trees.	Habitat diversity for variety of mountain and grassland wildlife species.	Bare ground of 3-15% with a rock component of 35-80% with vegetative ground cover of 21-75%.
1B) Desired Condition	Vegetative communities reflective of the VHCES.	Forage and nesting cover of 6 inches is provided for ground nesting birds in the XYZ nesting habitat.	Soil surfaces are protected by vegetative ground cover, which includes vegetation basal area, and litter.
1C) Existing Condition	The VHCES lacks perennial cool season grasses in the Gold and Silver Pastures. The Tin Trap also lacks cool season grasses due to consistent fall use for weaning. Copper Pasture has appropriate species composition based on the ESD.	Forage is provided by forb and grass component as well as insect component. Cover for nesting is not adequate during nesting season, as average cover height in the Copper pasture, which is utilized prior to or during nesting averages 4 inches.	Bare ground averages > 30% in Silver and Gold Pastures. Bare ground averages 10% which is appropriate in the Copper Pasture and the Tin Trap.

Sample Existing Condition Statement

Most of the Volcanic Hills Clayey Ecological Site locations demonstrate diverse species composition when compared to the potential plant community, however the Silver and Gold pastures lack perennial cool season grass diversity. Surface rock fragments play an important role in the function of this site, however vegetative ground cover is important as well. The Silver and Gold pastures lack adequate vegetative ground cover. The Tin Trap, which is a small gathering trap utilized during the fall for weaning and shipping,

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also does not demonstrate possible abundance of cool season grasses. Topography and livestock handling infrastructure prevent use of any other part of the allotment for weaning and shipping. Although current management provides for deferment to a degree, the Copper Pasture is utilized during some portions of the growing season each year and traditionally has been utilized either before nesting season or during nesting season. Although management is appropriate for plant physiology needs, it is not providing for the desired cover at the critical nesting time.

This existing condition statement addresses all three resource areas addressed through the desired condition statement. It addresses where current condition is meeting desired condition and where there is a departure between the two.

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EXHIBIT 1C Development of Resource Management Objectives.

Determining resource management objectives is, again, an interdisciplinary process. Resource management objectives must be directly related to the achievement of desired conditions. (Refer to 92.11a). Resource management objectives are composed of three components, what, where and when. When these three are determined, the result is measurable specifics within a timeframe. Determining and documenting why a resource management objective is necessary or desired may assist the responsible official in making the decision. **Often times knowing why something is being done can provide information towards what should be done.** For example some change may be necessary to provide habitat conditions required in a federally listed species recovery plan, or knowing the importance of certain ecological attributes can assist ID Team members in determining priorities for management actions. The “why” could be based upon a particular management plan, such as a Land and Resource Management Plan or Riparian Management Plan or Allotment Management Plan. The “why” could also be based upon a general goal such as to reduce sedimentation to a particular level in a particular stream.

What: What do we want our desired condition to be? Therefore what change is needed specifically to move towards desired conditions? This could be related to a specific vegetative condition such as riparian area condition, or a vegetative ground cover condition or species habitat condition. Development of project site-specific desired conditions and associated changes needed to move towards those desired conditions are determined through an interdisciplinary team process **and collaboration with stakeholders.** Therefore, desired conditions take into account human dimensions. Desired conditions must be realistic/attainable and tied to site potential, i.e. TES mapping and ecotype descriptions. The change needed which is determined to attain desired conditions becomes the “what” of the resource management objective.

Where: Where could be described by specific location, such as particular creeks, particular watershed or more generally such as TES map unit or vegetation type.

When: When could be described by a year within an attainable timeframe or could be based on a particular time of year such as spring or end of the growing season.

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EXHIBIT 1C Development of Resource Management Objectives (Cont.)

Plan-to-Project Matrix			
Allotment: Grassy Flats			
Designated Area: Volcanic Hills 16-20 Inch p.z. Clayey Ecological Site (VHCES) in Silver, Gold, Copper Pastures and Tin Trap			
	Vegetative Resource	Wildlife Resource	Soil Resource
1A) Potential	Mixed grassland, warm and cool season grasses, forbs, lesser shrubs and trees.	Habitat diversity for variety of mountain and grassland wildlife species.	Bare ground of 3-15% with a rock component of 35-80% with vegetative ground cover of 21-75%.
1B) Desired Condition	Vegetative communities reflective of the VHCES.	Forage and nesting cover of 6 inches is provided for ground nesting birds in the XYZ nesting habitat.	Soil surfaces are protected by vegetative ground cover, which includes vegetation basal area, and litter.
1C) Existing Condition	The VHCES lacks perennial cool season grasses in the Gold and Silver Pastures. The Tin Trap also lacks cool season grasses due to consistent fall use for weaning. Copper Pasture has appropriate species composition based on ESD.	Forage is provided by forb and grass component as well as insect component. Cover for nesting is not adequate during nesting season, as average cover height in the Copper pasture, which is utilized prior to or during nesting averages 4 inches.	Bare ground averages > 30% in Silver and Gold Pastures. Bare ground averages 10% which is appropriate in the Copper Pasture and the Tin Trap.
1D)What	Increase perennial cool season grasses	6 Inch cover height	Demonstrate increase in vegetative ground cover towards High Similarity to ESD potential.
1D)Where	VHCES in Silver and Gold Pastures	XYZ Nesting Habitat, which is in the Copper Pasture	VHCES in Silver and Gold Pastures
1D)When	Within 1 decade (2016)	Nesting Season June 30 – August 15	Within one decade (2016)
1D)Why	CS grasses are important for spring forage for wildlife, livestock and general diversity.	Per District Wildlife Management Plan and research reference, Reed et al. 1999	Soil stability during monsoon season as well as general soil condition.

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Sample Resource Management Objective Statements

In Volcanic Hills Clayey Ecological Sites in the Gold and Silver Pastures, demonstrate an increase in perennial cool season grasses within one decade. Within the Tin Trap it is not necessary to provide for a change condition as cool season grass species are provided for elsewhere. Therefore, in the Copper Pasture and the Tin Trap maintain current species composition.

In the XYZ nesting habitat, located in the Copper pasture, provide for at least a 6 inch cover height from June 30 through August 15.

In Volcanic Hills Clayey Ecological Sites in the Gold and Silver Pastures, demonstrate an upward trend in soil conditions within one decade, by increasing vegetative ground cover towards High Similarity of 67 percent of potential. In the Copper Pasture and the Tin Trap maintain at least current vegetative ground cover.

These resource management objective statements address all three resources for which current condition and existing condition are not the same. They also reflect maintaining current conditions where desired condition and current condition are the same.

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EXHIBIT 2 Documentation of Management Actions

State possible management practices which would be utilized to move resource conditions from existing conditions to desired conditions. These could be grazing practices or other management practices such as vegetation treatments, erosion control treatments, and the like.

Sample Management Action Statements

Proposed permitted use will vary between 1200 to 3600 Animal Unit Months (AUMs) year-long. Grazing will occur through a rotational system, (either deferred or rest-rotation grazing) which will allow plants opportunity for growth or regrowth.

Grazing management will periodically adjust the timing, intensity, and frequency of grazing to allow for the increase in perennial cool season grasses. Timing and intensity of grazing in the Silver and Gold pastures will be controlled in order to allow for the physiological needs of the remnant cool season grass populations. Generally, moderate use during the early part of the growing season allows for regrowth during the remainder of the season and light to conservative use when grazed at the end of the growing season as regrowth is limited. Total use at the end of the growing season should generally be within conservative use levels of 30-40 percent utilization to maintain or improve rangeland vegetation (Holechek, J.L., H. Gomez, M. Francisco, and D. Galt. 1999. Grazing studies: What We've learned. Rangelands: 21(2)).

The Tin Trap will continue to be grazed during the weaning and shipping season. This generally is in September and October. Frequency of defoliation and grazing period will be managed to allow for the maintenance of vegetative and soil conditions.

To provide for nesting cover in the XYZ nesting habitat, grazing will be monitored to allow for the desired 6 inch cover height during nesting season.

Proposed improvements appear to be adequate to achieve the desired management and resource objectives. Should acceptable progress toward desired conditions not be observed in the Red River Riparian Corridor within the Copper Pasture, creation of a riparian pasture by fencing along the Red and Blue Mesas will be completed. Should this occur, water will be developed via wells on the Red and Blue Mesas. Grazing management will adjust the timing, intensity, frequency, and grazing period to allow for increased vegetative material and litter cover. Maintaining conservative utilization levels of 30-40 percent will allow for adequate vegetation remaining for soil protection. Limit the grazing period pastures are exposed to livestock to limit other impacts to the soil resource such as trailing and trampling of travel routes and saddles and loafing areas. Provide periodic growing season rest to allow for increased plant vigor, production, and reproduction.

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The above management action statements provide management to address the resource management objectives for vegetation, wildlife and soil resources. The above example also addresses the need for a contingent management action should it appear a resource management objective will not be achieved. In this case it was a riparian corridor, which had desired condition, existing condition, and resource management objectives developed for it elsewhere.

Example causative relationship statements:

In the Volcanic Hills Clayey Ecological Sites with encroachment of redberry and one-seed juniper, prescribed burning needs to be utilized to remove the encroaching canopy cover. Once the canopy cover has been removed, livestock will be grazed controlling the timing, intensity, frequency, and grazing period to allow for adequate vegetative material and litter cover.

The above statement is provided as an example for situations where it is recognized grazing management will not allow for progress toward a desired condition until an overriding departure from desired condition is first addressed.

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EXHIBIT 3 Sample Decision Framework

Sample Decision Framework Statement

The District Ranger is the responsible official who will decide whether or not to continue to authorize livestock grazing on the _____ allotment(s) and if so, under what terms.

EXHIBIT 4 Purpose and Need

Sample Purpose and Need Statement

The purpose and need of this proposed action is for authorization of livestock grazing in a manner that moves toward Forest Plan objectives and desired conditions. Authorization is needed on this/these allotment(s) because:

Where consistent with other multiple use goals and objectives there is Congressional intent to allow grazing on suitable lands. (*Multiple Use Sustained Yield Act of 1960, Wilderness Act of 1964, Forest and Rangeland Renewable Resources Planning Act of 1974, Federal Land Policy and Management Act of 1976, National Forest Management Act of 1976*)

The allotment(s) contain(s) lands identified as suitable for domestic livestock grazing in the _____ Forest Plan and continued domestic livestock grazing is consistent with the goals, objectives, standards, and guidelines of the forest plan (forest plan pages ____).

It is Forest Service policy to make forage available to qualified livestock operators from lands suitable for grazing consistent with land management plans. (*FSM 2203.1; 36 CFR 222.2 (c)*).

It is Forest Service policy to continue contributions to the economic and social well being of people by providing opportunities for economic diversity and by promoting stability for communities that depend on range resources for their livelihood. (*FSM 2202.1*)

[Add one of the following paragraphs:]

A management plan is in place and livestock management is shown to be meeting or moving toward desired conditions. Management is consistent with Forest Plan standards, guidelines, goals, and objectives. There appears to be no need for other than minor change from current management.

- OR -

There is a need for change:

- *Briefly include source of desired condition(s) which are not being achieved, e.g. forest plan, collaboration, etc.*

There is a need for change from current management as the allotment(s) is/are not meeting or moving toward desired conditions in an acceptable timeframe.

Through collaboration with stakeholders, as well as Forest Plan direction, desired conditions are vegetative and soils conditions which provide for a broad array of rangeland uses, such as

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wildlife habitat, livestock production, and properly functioning watersheds. This will be demonstrated by vegetative communities reflective of the Volcanic Hills Clayey Ecological Site Description (ESD) potential. The potential plant communities provide vegetation as forage for livestock, wildlife and birds and nesting cover for ground nesting birds. The potential plant communities comprise warm and cool season grasses, forbs, shrubs and trees. The desired condition requires a variety of species for forage and seed production, as well as maintaining protective cover of at least 6 inches during the nesting season in XYZ nesting habitat. Soil condition should reflect adequate vegetative ground cover for protecting the soil surface.

Under Existing Conditions most of the Volcanic Hills Clayey Ecological Site locations demonstrate diverse species composition when compared to the potential plant community, however, the Silver and Gold pastures lack perennial cool season grass diversity. Surface rock fragments play an important role in the function of this site, however, vegetative ground cover is important as well. The Silver and Gold pastures lack adequate vegetative ground cover. The Tin Trap, which is a small gathering trap utilized during the fall for weaning and shipping, also does not demonstrate possible abundance of cool season grasses. Topography and livestock handling infrastructure prevent use of any other part of the allotment for weaning and shipping. Although current management provides for deferment to a degree, the Copper Pasture is utilized during some portions of the growing season each year and traditionally has been utilized either before nesting season or during nesting season. Although management is appropriate for plant physiology needs, it is not providing for the desired cover at the critical nesting time.

Therefore, there is a need for change. The need for change will be addressed through resource management objectives.

In Volcanic Hills Clayey Ecological Sites in the Gold and Silver Pastures, demonstrate an increase in perennial cool season grasses within one decade. Within the Tin Trap it is not necessary to provide for a change condition as cool season grass species are provided for elsewhere. Therefore, in the Copper Pasture and the Tin Trap maintain current species composition. Cool season grasses are important for early nutritional forage for wildlife and livestock.

In the XYZ nesting habitat, located in the Copper pasture, provide for at least a 6 inch cover height from June 30 through August 15. Based on research by Reed et al. 1999 and the District Wildlife Management Plan, cover height of at least 6 inches is critical for nesting success.

In Volcanic Hills Clayey Ecological Sites in the Gold and Silver Pastures, demonstrate an upward trend in soil conditions within one decade, by increasing vegetative ground cover towards High Similarity of 67 percent of potential. In the Copper Pasture and the Tin Trap maintain at least current vegetative ground cover. Vegetative ground cover is important to provide protection to the soil surface during the monsoon season, as discussed in the ESD. "When the soils are dry, it produces little runoff. It produces significant runoff only when heavy rain falls on snow or moist soils."

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EXHIBIT 5 Proposed Action

- *Describe the management actions and monitoring required to show movement toward or maintain desired conditions. The management actions **must be comprehensive enough for resource specialists to conduct a useful effects analysis and yet flexible enough to allow for adjustments within some range of variability**, the constraints under which grazing will take place. (Refer to Exhibit 2 for examples.)*
- *Do NOT describe the permit. The permit is an instrument that **implements the decision to authorize grazing.***
- *Do NOT limit the proposal to a 10-year term. The proposed authorization should be **built to last until the agency has reason to change it.***

Sample Proposed Action Statement

The _____ Ranger District, _____ National Forest proposes to continue to authorize livestock grazing on the _____ allotment(s) under the following terms:

Proposed permitted use will vary between 1200 to 3600 Animal Unit Months (AUMs) year-long. Grazing will occur through a rotational system, (either deferred or rest-rotation grazing) which will allow plants opportunity for growth or regrowth.

*Grazing management will periodically adjust the timing, intensity, and frequency of grazing to allow for the increase in perennial cool season grasses. Timing and intensity of grazing in the Silver and Gold pastures will be controlled in order to allow for the physiological needs of the remnant cool season grass populations. Generally, moderate use during the early part of the growing season allows for regrowth during the remainder of the season and light to conservative use when grazed at the end of the growing season as regrowth is limited. **Total use at the end of the growing season should generally be within conservative use levels of 30-40 percent utilization to maintain or improve rangeland vegetation** (Holechek, J.L., H. Gomez, M. Francisco, and D. Galt. 1999. *Grazing studies: What We've learned. Rangelands: 21(2)*).*

The Tin Trap will continue to be grazed during the weaning and shipping season. This generally is in September and October. Frequency of defoliation and grazing period will be utilized to allow for the maintenance of vegetative and soil conditions.

To provide for nesting cover in the XYZ nesting habitat, grazing will be monitored to allow for the desired 6 inch cover height during nesting season.

Proposed improvements appear to be adequate to achieve the desired management and resource objectives. Should acceptable progress toward desired conditions not be

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observed in the Red River Riparian Corridor within the Copper Pasture, creation of a riparian pasture by fencing along the Red and Blue Mesas will be completed. Should this occur, water will be developed via wells on the Red and Blue Mesas. Grazing management will adjust the timing, intensity, frequency, and grazing period to allow for increased vegetative material and litter cover. Maintaining conservative utilization levels of 30-40 percent will allow for adequate vegetation remaining for soil protection. Limit the grazing period pastures are exposed to livestock to limit other impacts to the soil resource such as trailing and trampling of travel routes and saddles and loafing areas. Provide periodic growing season rest to allow for increased plant vigor, production, and reproduction.

A monitoring plan will be developed as part of the Allotment Management Plan. The monitoring plan will address implementation monitoring and effectiveness monitoring.

Implementation Monitoring: *Within key areas of the Gold and Silver pastures, annual monitoring will be conducted, which may include, but is not limited to evaluating grazing intensity during the season, and utilization at the end of the growing season in order to practice adaptive management and make necessary management changes needed for plant development and plant regrowth for recovery from the grazing event. Managing for plant development and recovery will provide for increased ground cover and potential changes in species composition within the Volcanic Hills Clayey Ecological Site. Example methods for implementation monitoring may include comparative yield, grazed plant count, paired plot clipping and weighing and the utilization gauge. Qualitative monitoring may also occur, such as the Grazing Response Index or the Landscape Appearance Method.*

Within the XYZ nesting habitat, cover height will be monitored when livestock are utilizing the area prior to or during the nesting season to allow for management of livestock to provide the needed nesting cover. When livestock utilize the nesting area post nesting season, cover height is not necessary to monitor. An example method is Robel Pole or ruler.

Implementation monitoring may also include actual use (livestock numbers and dates in each pasture), condition of range improvements, and deviations from the AOI.

Effectiveness Monitoring: *Long term condition and trend monitoring will be used to assess the effectiveness of management in achieving desired objectives. This monitoring may include, but is not limited to measurements to track upland vegetative conditions and soil condition towards achievement of the objectives. Example methods for effectiveness monitoring may include, but are not limited to dry weight rank, pace transects, pace quadrat frequency, Parker 3-step, ground cover, and repeat photography. Monitoring will occur on historic benchmarks, which correspond with key areas. Depending upon the method selected monitoring should occur at an interval of at least every 5-10 years in key areas.*

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EXHIBIT 6 Monitoring

Two types of monitoring are normally used, Implementation and Effectiveness. Implementation monitoring annually documents several items. Examples include: 1) were management actions implemented as designed, and 2) did the management actions result in maintaining use of the resource within desired guidelines?

Effectiveness Monitoring documents whether management actions are having the expected progress towards achieving resource management objectives. If desired progress is not being shown through effectiveness monitoring, adaptive management options shall be implemented.

Sample Monitoring Statements

Implementation Monitoring: *Within key areas of the Gold and Silver pastures, annual monitoring will be conducted, which may include, but is not limited to evaluating grazing intensity during the season, and utilization at the end of the growing season in order to practice adaptive management and make necessary management changes needed for plant development and plant recovery from the grazing event. Managing for plant development and recovery will provide for increased ground cover and potential changes in species composition within the Volcanic Hills Clayey Ecological Site. Example methods for implementation monitoring may include comparative yield, grazed plant count, paired plot clipping and weighing and the utilization gauge. Qualitative monitoring may also occur, such as the Grazing Response Index or the Landscape Appearance Method.*

Within the XYZ nesting habitat, cover height will be monitored when livestock are utilizing the area prior to or during the nesting season to allow for management of livestock to provide the needed nesting cover. When livestock utilize the nesting area post nesting season, cover height is not necessary to monitor. An example method is Robel Pole or ruler.

Implementation monitoring may also include actual use (livestock numbers and dates in each pasture), condition of range improvements, and deviations from the AOI.

Effectiveness Monitoring: *Long term condition and trend monitoring will be used to assess the effectiveness of management in achieving desired objectives. This monitoring may include, but is not limited to measurements to track upland vegetative conditions and soil condition towards achievement of the objectives. Example methods for effectiveness monitoring may include, but are not limited to dry weight rank, pace transects, pace quadrat frequency, Parker 3-step, ground cover, and repeat photography. Monitoring will occur on historic benchmarks, which correspond with key areas. Depending upon the method selected monitoring should occur at an interval of at least every 5-10 years in key areas.*

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The above statements portray the difference between implementation monitoring and effectiveness monitoring. They also portray how monitoring is tied to an attribute and when it is appropriate to monitor an attribute.

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CHAPTER 90 – RANGELAND MANAGEMENT DECISIONMAKING**

Blank Planning Matrix

Planning Matrix			
Allotment:			
Designated Area:			
1A) Potential			
1B) Desired Condition			
1C) Existing Condition			
1D)What			
1D)Where			
1D)When			
1D)Why			