Standards for Rangeland Health and Guidelines for Grazing Management

for
BLM Lands in Utah

United States
Department of the Interior
Bureau of Land Management
Utah State Office

May 1997

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RECORD of DECISION
and
FINDING OF NO SIGNIFICANT IMPACT

ACTION

Adopt and implement the Utah Bureau of Land Management Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah. Standards describe the ecological conditions that BLM will achieve through management of land uses. Guidelines are grazing management practices that BLM will apply in order to attain those Standards.

DECISION

It is my decision to adopt and implement the Standards for Rangeland Health and Guidelines for Grazing Management as described in the accompanying document, dated December 1996. These Standards and Guidelines are State Director's Policy, pursuant to 43 CFR 1600 (Planning Guidance) and 43 CFR 4180 (Grazing Administration). As such, Standards will apply to all BLM decisions concerning all uses of BLM Lands in Utah (notwithstanding law and regulation to the contrary), and Guidelines will apply to all BLM decisions concerning grazing on BLM Lands in Utah.

Existing land use plans have been reviewed and I have determined that these Standards and Guidelines are in conformance with existing decisions contained in Resource Management Plans and Management Framework Plans in this state and supplement those plans. The plan conformance review document is available at the BLM Utah State Office. Those plans may be amended as necessary in the future to assure that objectives and decisions in those plans fully implement the requirements and intent of Standards and Guidelines. Existing plans affected by this decision are:

Resource Management Plans	Management Framework Plans
Box Elder	Randolph
Pony Express	Park City
House Range	Sevier River
Warm Springs	Mountain Valley
Diamond Mountain	Parker Mountain
Book Cliffs	Henry Mountain
Price River	Paria
San Rafael	Zion
Grand	Vermillion
San Juan	Virgin River
Cedar-Beaver-Garfield-Antamony	Pinyon

This decision will be effective upon approval of these Standards and Guidelines by the Secretary of the Interior, which is anticipated prior to February 12, 1997. If they are not approved prior to

that date, the Fallback Standards and Guidelines contained in 43 CFR 4180 may be implemented. The Fallback Standards and Guidelines, if so implemented, will remain in effect until the proposed Standards and Guidelines are approved.

A period for public protest and the Governor's Consistency Review is being provided pursuant to BLM regulations. That period ends January 28, 1997. Protests are to be filed with the Utah State Director, Bureau of Land Management, P.O.Box 45155, Salt Lake City, UT 84145-1155.

FINDING OF NO SIGNIFICANT IMPACT

Based on scoping, public participation, and the comparison of anticipated impacts described in the Administrative Determination contained in the Draft Utah Standards and Guidelines, I have determined that no significant impacts will occur and that neither an environmental impact statement nor an environmental assessment is required. Impacts from implementing the Utah Standards and Guidelines would be the same as implementing the Fallback Standards and Guidelines analyzed in the Rangeland Reform '94 EIS. In the short term and long term there will be beneficial impacts to water quality, riparian and terrestrial wildlife habitat, wildlife, riparian area functions, ecological processes, rangeland productivity and plant cover and diversity. In the short term there will be impacts to grazing permittees and some land users in the form of increased costs, restrictions or changes in the way BLM Lands are used and/or reductions in allowable use. In the long term, rangeland resource production will be sustained, both in amount and quality, and grazing permittees and other users should realize a gain.

APPROVED BY:

G. William Lamb
State Director, Utah

4/7/97
Date

APPROVED BY:

Bruce Babbitt
Secretary of the Interior

MAY 20 1997
Date

INTRODUCTION

This document describes policies, practices, and procedures that the Bureau of Land Management (BLM) in Utah will implement in order to assure BLM lands are healthy. The concept of healthy rangelands expresses the BLM's desire to maintain or improve productivity of plant, animal (including livestock), soil, and water resources at a level consistent with the ecosystem's capability.

In order to meet society's needs and expectations for *sustained* production and conservation of natural resources from BLM rangelands, use of these lands must be kept in balance with the land's ability to sustain those uses. Identifying that balance requires an understanding and application of ecological principles that determine how living and non-living components of rangelands interact. Recognition of the interdependence of soil, water, plants, and animals (including livestock) is basic to maintaining healthy rangelands and the key element in BLM's proposed Standards and Guidelines.

The policies, practices, and procedures contained in this document are referred to as Standards and Guidelines. Standards and Guidelines will apply to all uses of BLM land for forage, including livestock, wildlife, and wild horses and burros.

Standards describe desired ecological conditions that BLM intends to attain in managing BLM lands, whereas Guidelines define practices and procedures that will be applied to achieve Standards. While Standards will initially be applied to grazing, it is BLM's intent to eventually apply these Standards to all rangeland uses that have the ability to affect or be affected by the ecological characteristics of rangelands.

FUNDAMENTALS OF RANGELAND HEALTH

The Bureau of Land Management has defined four Fundamentals of Rangeland Health, which are the basic ecological principles underlying sustainable production of rangeland resources. These Fundamentals are embodied in BLM's new Grazing Regulation (43 Code of Federal Regulations, Part 4100) which became effective in August of 1995. These four **Fundamentals of Rangeland Health**, which also serve as the basis for Standards and Guidelines for Grazing Management, are:

1) Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian/wetland, and aquatic components; soil and plant conditions support water infiltration, soil moisture storage, and release of water that are in balance with climate and landform, and maintain or improve water quality, water quantity, and timing and duration of flow.

2) Ecological processes, including the hydrologic cycle, nutrient cycles, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities. [1]

3) Water quality complies with State water quality standards and achieves, or is making progress toward achieving, established BLM management objectives such as meeting wildlife needs.

4) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Federal Candidate, other special status species, native species, and for economically valuable game species and livestock.

By developing Standards and Guidelines based on the Fundamentals listed above, and by applying those Standards and Guidelines to BLM land management, it is BLM's intent to:

→ PROMOTE HEALTHY, SUSTAINABLE RANGELAND ECOSYSTEMS THAT PRODUCE A WIDE RANGE OF PUBLIC VALUES SUCH AS WILDLIFE HABITAT, LIVESTOCK FORAGE, RECREATION OPPORTUNITIES, WILD HORSE AND BURRO HABITAT, CLEAN WATER, CLEAN AIR, ETC.;

→ ACCELERATE RESTORATION AND IMPROVEMENT OF PUBLIC RANGELANDS TO PROPERLY FUNCTIONING CONDITION, WHERE APPROPRIATE;

→ PROVIDE FOR THE SUSTAINABILITY OF THE WESTERN LIVESTOCK INDUSTRY AND COMMUNITIES THAT ARE DEPENDENT UPON PRODUCTIVE, HEALTHY RANGELANDS; and

→ ENSURE THAT BLM LAND USERS AND STAKEHOLDERS HAVE A MEANINGFUL VOICE IN ESTABLISHING POLICY AND MANAGING BLM

Ecological processes such as energy flow, hydrologic cycle and nutrient cycle, while important, cannot be practically measured in the field on vast areas managed by BLM. Ecological processes are addressed through indicators in other Standards (such as upland watersheds) . These indicators can be measured or observed to determine if the hydrologic cycle, nutrient cycle, and energy flows are functioning properly. For example, the amount of yearly vegetative production (measurable) that is left to turn in to litter (measurable) that in turn becomes soil organic matter (difficult to measure) are all indicators. Production and litter have been selected as indicators; soil organic matter was not although it may, in practice, be used for special situations.

RANGELANDS.

STANDARDS AND GUIDELINES

STANDARDS are descriptions of the desired condition of the biological and physical components and characteristics of rangelands. Standards:

- are measurable and attainable;
- comply with various Federal and State statutes, policies, and directives applicable to BLM rangelands; and
- *establish goals for resource condition and parameters for management decisions.*

Indicators are features of an ecosystem that can be measured or observed in order to gain an understanding of the relative condition of a particular landscape or portion of a landscape. Indicators will be used by the rangeland manager to determine if Standards are being met. The indicators proposed for use are commonly accepted and used by members of the rangeland management profession in monitoring rangelands. Methods and techniques for evaluating these indicators are also commonly available. In using these terms, it should be recognized that not every indicator applies equally to every acre of land or to every ecological site. Additional indicators not listed below may need to be developed for some rangelands depending upon local conditions.

Similarly, because of natural variability, extreme degradation, or unusual management objectives, discretion will be used in applying Standards. Judgements about whether a site is meeting or failing to meet a Standard must be tempered by a knowledge of the site's potential. Examples of this are thousands of acres of the Great Basin in western Utah where native perennial grass species have been replaced by cheatgrass, an annual exotic species. It will be difficult and expensive to return all those areas to their natural potential because they have been greatly altered. It may not even be feasible to restore such areas from such an altered state to a state similar to "natural" conditions.

Site potential is determined by soil, geology, geomorphology, climate, and landform. Standards must be applied with an understanding of the potential of the particular site in question as different sites have differing potentials.

GUIDELINES are management approaches, methods, and practices that are intended to achieve a standard. Guidelines:

- *typically identify and prescribe methods of influencing or controlling specific public land uses;*
- *are developed and applied consistent with the desired condition and within site*

capability; and
- *may be adjusted over time.*

It should be understood that these Standards and Guidelines are to be applied in making specific grazing management decisions. However, it should also be understood that they are considered the minimum conditions to be achieved. Flexibility must be used in applying these policy statements because ecosystem components vary from place to place and ecological interactions may be different.

Standards and Guidelines for use on BLM Land in Utah are described in the following pages. Standards and Guidelines, once approved by the Secretary of the Interior, will be implemented through subsequent Resource Management Plans (RMPs) and other decisions by BLM officials involving matters related to management of grazing. Where applicable, the statewide Guidelines may be adopted as terms and conditions for grazing permits and leases. Additional Guidelines may be identified and implemented through subsequent Resource Management Plans and activity plans to address local situations not dealt with by the statewide Guidelines.

STANDARDS for RANGELAND HEALTH

Standard 1. UPLAND SOILS EXHIBIT PERMEABILITY AND INFILTRATION RATES THAT SUSTAIN OR IMPROVE SITE PRODUCTIVITY, CONSIDERING THE SOIL TYPE, CLIMATE, AND LANDFORM.

As indicated by:

a.) Sufficient cover and litter to protect the soil surface from excessive water and wind erosion, promote infiltration, detain surface flow, and retard soil moisture loss by evaporation.

b.) The absence of indicators of excessive erosion such as rills, soil pedestals, and actively eroding gullies.

c.) The appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community (DPC), where identified in a land use plan conforming to these Standards, or (2) where the DPC is not identified, a community that equally sustains the desired level of productivity and properly functioning ecological conditions.

Standard 2. RIPARIAN AND WETLAND AREAS ARE IN PROPERLY FUNCTIONING CONDITION. STREAM CHANNEL MORPHOLOGY AND FUNCTIONS ARE APPROPRIATE TO SOIL TYPE, CLIMATE AND LANDFORM.

As indicated by:

a.) Streambank vegetation consisting of, or showing a trend toward, species with root masses capable of withstanding high streamflow events. Vegetative

cover adequate to protect stream banks and dissipate streamflow energy associated with high-water flows, protect against accelerated erosion, capture sediment, and provide for groundwater recharge.

b.) Vegetation reflecting: Desired Plant Community, maintenance of riparian and wetland soil moisture characteristics, diverse age structure and composition, high vigor, large woody debris when site potential allows, and providing food, cover, and other habitat needs for dependent animal species.

c.) Revegetating point bars; lateral stream movement associated with natural sinuosity; channel width, depth, pool frequency and roughness appropriate to landscape position.

d.) Active floodplain.

Standard 3. DESIRED SPECIES, INCLUDING NATIVE, THREATENED, ENDANGERED, AND SPECIAL-STATUS SPECIES, ARE MAINTAINED AT A LEVEL APPROPRIATE FOR THE SITE AND SPECIES INVOLVED.

As indicated by:

a.) Frequency, diversity, density, age classes, and productivity of desired native species necessary to ensure reproductive capability and survival.

b.) Habitats connected at a level to enhance species survival.

c.) Native species re-occupy habitat niches and voids caused by disturbances unless management objectives call for introduction or maintenance of non-native species.

d.) Habitats for threatened, endangered, and special-status species managed to provide for recovery and move species toward de-listing.

e.) Appropriate amount, type, and distribution of vegetation reflecting the presence of (1) the Desired Plant Community, where identified in a land use plan conforming to these Standards, or (2) where the DPC is not identified a community that equally sustains the desired level of productivity and properly functioning ecological processes.

Standard 4. BLM WILL APPLY AND COMPLY WITH WATER QUALITY STANDARDS ESTABLISHED BY THE STATE OF UTAH (R.317-2) AND THE FEDERAL CLEAN WATER AND SAFE DRINKING WATER ACTS. ACTIVITIES ON BLM LANDS WILL FULLY SUPPORT THE DESIGNATED BENEFICIAL USES DESCRIBED IN THE UTAH WATER QUALITY STANDARDS (R.317-2) FOR

SURFACE AND GROUNDWATER. [2]

As indicated by:

a) Measurement of nutrient loads, total dissolved solids, chemical constituents, fecal coliform, water temperature and other water quality parameters.

b) Macro invertebrate communities that indicate water quality meets aquatic objectives.

GUIDELINES for GRAZING MANAGEMENT

1. Grazing management practices will be implemented that:

a) Maintain sufficient residual vegetation and litter on both upland and riparian sites to protect the soil from wind and water erosion and support ecological functions;

b) Promote attainment or maintenance of proper functioning condition riparian/wetland areas, appropriate stream channel morphology, desired soil permeability and infiltration, and appropriate soil conditions and kinds and amounts of plants and animals to support the hydrologic cycle, nutrient cycle and energy flow.

c) Meet the physiological requirements of desired plants and facilitate reproduction and maintenance of desired plants to the extent natural conditions allow;

d) Maintain viable and diverse populations of plants and animals appropriate for the site;

e) Provide or improve, within the limits of site potentials, habitat for Threatened or Endangered species;

f) Avoid grazing management conflicts with other species that have the potential of becoming protected or special status species;

g) Encourage innovation, experimentation and the ultimate development of alternative to improve rangeland management practices; and

h) Give priority to rangeland improvement projects and land treatments that

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[2] BLM will continue to coordinate monitoring water quality activities with other Federal, State and technical agencies.

offer the best opportunity for achieving the Standards.

2. Any spring and seep developments will be designed and constructed to protect ecological process and functions and improve livestock, wild horse and wildlife distribution.

3. New rangeland projects for grazing will be constructed in a manner consistent with the Standards. Considering economic circumstances and site limitations, existing rangeland projects and facilities that conflict with the achievement or maintenance of the Standards will be relocated and/or modified.

4. Livestock salt blocks and other nutritional supplements will be located away from riparian/wetland areas or other permanently located, or other natural water sources. It is recommended that the locations of these supplements be moved every year.

5. The use and perpetuation of native species will be emphasized. However, when restoring or rehabilitating disturbed or degraded rangelands non-intrusive, non-native plant species are appropriate for use where native species (a) are not available, (b) are not economically feasible, (c) can not achieve ecological objectives as well as non-native species, and/or (d) cannot compete with already established non-native species.

6. When rangeland manipulations are necessary, the best management practices, including biological processes, fire and intensive grazing, will be utilized prior to the use of chemical or mechanical manipulations.

7. When establishing grazing practices and rangeland improvements, the quality of the outdoor recreation experience is to be considered. Aesthetic and scenic values, water, campsites and opportunities for solitude are among those considerations.

8. Feeding of hay and other harvested forage (which does not refer to miscellaneous salt, protein, and other supplements), for the purpose of substituting for inadequate natural forage will not be conducted on BLM lands other than in (a) emergency situations where no other resource exists and animal survival is in jeopardy, or (b) situations where the Authorized Officer determines such a practice will assist in meeting a standard or attaining a management objective.

9. In order to eliminate, minimize, or limit the spread of noxious weeds, (a) only hay cubes, hay pellets, or certified weed-free hay will be fed on BLM lands, and (b) reasonable adjustments in grazing methods, methods of transport, and animal husbandry practices will be applied.

10. To avoid contamination of water sources and inadvertent damage to non-target species, aerial application of pesticides will not be allowed within 100 feet of a

riparian/wetland area unless the product is registered for such use by EPA.

11. On rangelands where a standard is not being met, and conditions are moving toward meeting the standard, grazing may be allowed to continue. On lands where a standard is not being met, conditions are not improving toward meeting the standard or other management objectives, and livestock grazing is deemed responsible, administrative action with regard to livestock will be taken by the Authorized Officer pursuant to CFR 4180.2(c).

12. Where it can be determined that more than one kind of grazing animal is responsible for failure to achieve a standard, and adjustments in management are required, those adjustments will be made to each kind of animal, based on interagency cooperation as needed, in proportion to their degree of responsibility.

13. Rangelands that have been burned, reseeded or otherwise treated to alter vegetative composition will be closed to livestock grazing as follows: (1) burned rangelands, whether by wildfire or prescribed burning, will be ungrazed for a minimum of one complete growing season following the burn; and (2) rangelands that have been reseeded or otherwise chemically or mechanically treated will be ungrazed for a minimum of two complete growing seasons following treatment.

14. Conversions in kind of livestock (such as from sheep to cattle) will be analyzed in light of Rangeland Health Standards. Where such conversions are not adverse to achieving a standard, or they are not in conflict with land BLM use plans, the conversion will be allowed.

MONITORING AND ASSESSMENT

The determination of whether or not a particular grazing unit, pasture or allotment is meeting a Standard will be made by the Authorized Officer based on rangeland assessments and monitoring.

Monitoring the indicators will be in the form of recorded data from study sites or transects. It may be supplemented by visual observations and other data by BLM or other agency personnel, ranchers, interested public, wildlife agency personnel, or other resource data.

Assessments are the interpretation of data, observations, and related research findings. Assessments are the usual basis for prescribing grazing adjustments or practices. In some cases, such as with threatened or endangered species, Section 7 consultation with the U. S. Fish and Wildlife Service under the Endangered Species Act will occur. In all cases, conformance with Standards and Guidelines is a local

decision based on local circumstances involving a collaborative process with affected interests.

Should an assessment determine that an allotment is not meeting a standard, the next step is to determine the cause of failing to meet the Standard. If that determination reveals that grazing is involved or partially responsible, the Authorized Officer, with involvement of the interested parties, will prescribe actions that ensure progress toward meeting the Standard. Those actions may be a part of an activity plan, a coordinated management plan, or an administrative decision. Corrective management actions will be based on actual on-the-ground data and conditions.

Appendix A contains additional information about specific indicators to be monitored.

CONSULTATION, COORDINATION and PUBLIC PARTICIPATION

Public involvement in developing these Standards for Rangeland Health and Guidelines for Grazing Management for BLM Lands in Utah was obtained through individual consultation, public meetings, and public mailings.

The following entities were consulted by the Rangeland Health Team Leader prior to preparation of the Draft S&Gs:

Utah Department of Natural Resources
Utah Department of Agriculture
Utah State University (Department of Natural Resources)
Utah Cattleman's Association
Utah Wilderness Society
Southern Utah Wilderness Association
Sierra Club
Audubon Society
Utah Woolgrowers
Utah Farm Bureau
Forest Service, USDA
National Resource Conservation Service, USDA
The Nature Conservancy

BLM Utah formed a Rangeland Health Team, consisting of a variety of specialists from BLM, Forest Service, State of Utah, Utah State University, and the National Resource Conservation Service. Members of the Team consulted with peers within and outside their respective offices. The Team met on three occasions to prepare the Preliminary Draft and Draft documents as well as serving as advisors to the Utah BLM Advisory Council.

Consultation found that the level of public interest was relatively low. It also found these concerns: (1) the eventual Standards and Guidelines must be realistic and implementable, (2) they must be based on good science, (3) they should address social and economic concerns, (4) Standards must be measurable, (5) decisions concerning Standards and Guidelines must involve input from interested parties, (6) all forms of grazing should be dealt with, not just livestock, and (7) the Utah Standards and Guidelines must be flexible enough to deal with a wide variety of local situations.

The Draft document was mailed to the public in August 1996 for review and comment, opening a 60 day comment period. Approximately 1950 Draft documents were mailed with about 1780 of those going to BLM grazing permittees. The remainder went to county commissions, State and Federal agencies, Native American tribes and nations, environmental groups, and numerous interested individuals. A total of 39 responses was received from those sources. A list of people and entities receiving the Draft can be obtained from the Utah BLM State Office.

Public meetings to provide information and receive public comments were held in Salt Lake City, Brigham City, Moab, Roosevelt, Richfield and Cedar City during the week of September 9. Open houses were held at BLM offices during the same time in Vernal and Moab. In total, 52 people attended those meetings and open houses. Sixteen people provided formal comments.

The Utah BLM Resource Advisory Council (RAC) met seven times to consider S&Gs. The first four meetings were orientation and education meetings: Jan. 19 and Feb. 16 in a classroom setting with instructors from agencies and universities, and March 22 and 23 and May 8, 9 and 10 on field trips to gain hands-on experience. The RAC met on June 13 and 14, and again on July 15 to prepare the Draft. It met again to consider public comments on the Draft and prepared the Final on Nov. 1, 1996.

BLM's responses to the public comments received on the Draft document are contained in the section titled "Public Comments and Responses".

This Final version of Standards for Rangeland Health and Guidelines for Grazing Management on BLM Lands has been submitted to the Governor of the State of Utah for his consistency review pursuant to the Federal Land Policy and Management Act. It is also subject to public protest during the period provided by BLM.

COMMENTS AND RESPONSES

Public comments have been addressed in the following section if they relate to inaccuracies in interpreting BLM policy and regulation, contain suggestions for more desirable scientific applications and methodologies, or contain substantive disagreements or interpretations.

1. ***Comment:*** *The Draft S&Gs document does not comply with the intent of BLM grazing regulations to emphasize native species in support of ecological function. It does not go far enough in giving preference to native plant species over introduced species.*

Response: Standard 3 states "Desired species, including native, threatened, endangered, and special-status species, are maintained at an appropriate level for the site and species involved." It is BLM's intent that native species will be favored over introduced species wherever possible; however, where native species cannot feasibly be maintained or reintroduced, compatible introduced species may be considered. Scientific literature supports this position. Many studies have shown the difficulty in reintroducing native species and the current scientific thinking now is that desirable, non-invasive introduced species can be utilized to support ecological function and provide a transitional ecosystem until native species can re-establish themselves. Several comments expressed concern with too much use of crested wheatgrass. BLM agrees that vast homogeneous stands of crested wheatgrass or any other species are not best, but may often be the only realistic alternative considering the site potential of much of the rangeland involved. BLM will continue to manage for vegetative diversity and assist in developing and securing more native or quasi-native plant species. Guideline 5, we believe, clearly states that intent as well.

2. ***Comment:*** *A number of comments expressed concern over BLM's intent to use qualitative and quantitative data for assessing rangeland health. Some favored using only quantitative ("hard") data; others favored using more qualitative ("soft") data.*

Response: While these comments do not directly relate to Standards and Guidelines, they relate to a very critical part of assessing rangeland health. One reality of rangeland management today is that the BLM does not have the human and financial resources to collect the amount of "hard" data that may be required to make decisions. Another reality is that there is significant controversy over the suitability of traditional monitoring techniques for making management decisions. Combining those two concerns with the increasingly important need to obtain more involvement from interested publics, BLM believes that a combination of qualitative and quantitative data applied through a consensus approach is the desirable course to choose.

3. ***Comment:*** *The BLM Draft S&Gs do not satisfy the regulatory requirement to address ecological functions (energy, water, and nutrient cycles).*

Response: This topic has been reviewed thoroughly by the Resource Advisory Council, the Rangeland Health Team, and during consultation with scientific authorities. That deliberation resulted in the conclusion that these basic ecological functions cannot practically

be monitored directly in field on a scale necessary to assess millions of acres of BLM Lands. The Standards and Guidelines were developed with the intent that the functioning of ecological processes is absolutely necessary to attaining rangeland health. The measurement of those functions would have to be rates, accomplished through measurements of other indicators such as plant cover (including cryptogamic crusts), litter, plant species composition, productivity, erosion rates, diversity of species and age classes, etc.

4. ***Comment:*** *The Draft section on Historic Perspective contains erroneous statements about the effect of herbivory on the evolution of rangelands in Utah. Some commented that grazing was insignificant in shaping plant communities while others believed that grazing was essential to maintaining healthy rangelands because Utah rangelands evolved with herbivory.*

Response: The Historic Perspective section was included in the Draft only for the purpose of providing the reader with a brief background of how grazing has been a very significant rangeland health factor for years. Since this section is not especially relevant to Standards and Guidelines content, it has been deleted from the Final. The question the public and BLM faces today is not whether grazing is essential for or detrimental to maintaining viable, healthy rangelands but rather what are the ecological "goalposts" and how is grazing to be managed to attain those goals.

5. ***Comment:*** *Can, or should there be limits or thresholds for indicators of rangeland health that BLM establishes and uses to determine if rangeland conditions are meeting or not meeting the Standard? Why aren't specific, measurable attributes such as stubble height included? There is an obvious lack of quantifiable indicators.*

Response: Acceptable levels and thresholds will be established for many indicators, but on a site specific basis. It was not deemed possible or desirable to attempt to establish specific thresholds, acceptable limits or ranges for all the indicators for all of the BLM Lands in Utah. For the most part, however, these thresholds are already established for the Water Quality and Riparian/Wetland Standards by the State of Utah (water quality) and the BLM Riparian Area Management - Process for Assessing Riparian Proper Functioning Condition (riparian/wetland). A mix of qualifiable and quantifiable thresholds or indicators for uplands soils/watersheds and plant and animal communities will need to be determined locally because of extreme variability between locations. Reference areas will be used, to the extent they are known or can be found, to establish indicator baselines for proper functioning condition for uplands and biotic communities. Since plant and animal populations are susceptible to land use activities and difficult to "standardize," the BLM, with assistance from other interested parties and agencies, will continue to identify Desired Plant Communities (compared to reference areas) and key animal species through land use plans and activity plans.

6. ***Comment:*** *The Draft Standards and Guidelines do not describe the monitoring techniques and protocol that BLM will use to determine if Standards are being met.*

Response: It is not the intent of this document to describe specific indicators that will be applied or specific monitoring techniques that will be employed. This document focuses on developing Standards and Guidelines. (See Response to Comment 5). Utah BLM will

prepare a Standards and Guidelines Implementation Strategy or handbook for field instruction and public information. This document will explain how S&Gs will be implemented and monitored. Although monitoring is obviously critical to successfully meeting the Standards, BLM does not consider monitoring to be part of developing the S&Gs. BLM anticipates that this document will be finished by March 1997 and available for public information. Additional information about monitoring techniques can be found in Appendix A of this document.

7. ***Comment:*** *Several comments were received that questioned definitions of terms in the glossary, or suggested other terms should be defined. Some examples are the terms Rangeland Health, crypto-gamic crusts, sustainability, desired natural community, and viable.*

Response: The glossary has been reviewed and definitions added or changed as appropriate to conform with definitions currently accepted by the scientific community.

8. ***Comment:*** *The Standards for Rangeland Health should be applied to other uses and users of BLM Lands, such as recreation and mining.*

Response: BLM agrees with this statement and intends to develop Standards and Guidelines for other land uses later. First priority is given to Grazing Management because the Grazing Regulations of August 1995 require BLM to have them complete by February 1997.

9. ***Comment:*** *The new regulations require that the Standards and Guidelines must address subsurface soil conditions, stream energy dissipation, sediment capture, groundwater recharge, stream bank stability, stream channel morphology and function, and kinds and amounts of soil organisms, plants, and animals to support ecological function.*

Response: These are important features and indicators of rangeland health. They are addressed in Standard 1, Standard 2, Standard 3 and Guideline 1.

10. ***Comment:*** *Footnote 1 (page 3) should be deleted because it implies the S&Gs are more valid (and more scientific) than the Fundamentals. Footnote 2 should also be eliminated because it illegally attempts to avoid regulatory requirements to address nutrient cycling and energy flow.*

Response: Footnote 1 has been deleted because BLM feels it was somewhat misleading and confusing. Footnote 2 remains (as footnote 1) because BLM feels it is an accurate explanation to the reader that ecological processes are, for practical purposes, difficult if not impossible to measure over vast acreage. BLM has attempted to satisfy the regulatory requirements by developing the Standards for upland soils and riparian areas to include indicators that will indirectly address ecological processes, such as allowing sufficient residual vegetation and litter to support ecological function and providing for proper infiltration and permeability. We agree that, if possible, it would be desirable to monitor nutrient and energy cycles but the technology and capability is not available to do that on a large scale. By definition, a Standard must be measurable and that is the difficulty in developing a Standard for ecological functions.

11. ***Comment:*** *The fact that indicators are "commonly accepted" by the rangeland management profession is not the full test for acceptable indicators. The measures of wildlife biologists, ornithologists, herpetologists, conservation biologists, mycologists, and ecologists, to name a few, are equally relevant under BLM's new ecosystem management focus for range management.*

Response: Wildlife biologists, ecologists, soils specialists, water quality specialists and other specialists were consulted with and involved in preparing the S&Gs. BLM considers "rangeland managers" to be inclusive of the specialists mentioned above. A wide variety of ecological specialists need to be involved in making management decisions. Please refer to the List of Preparers in this document.

12. ***Comment:*** *It is incorrect to state that the purpose of the S&Gs is to "provide guidance ... of all forms of grazing on public lands in Utah." The S&Gs are solely to guide livestock grazing management.*

Response: BLM Utah has broadened the scope of the August 1995 Grazing Administration Regulations which states that the fundamentals and standards and guidelines are limited to livestock grazing administration. The Federal Land Policy and Management Act and BLM's regulations for planning give the State Director authority to develop rules and guidance for public land planning. The Utah State Director is employing that authority to broaden Standards and Guidelines to apply to all forms of grazing. This, we believe, is a very realistic and impartial approach to dealing with rangeland health because it allows BLM to deal with any grazing use that is detrimental to rangeland health.

13. ***Comment:*** *We urge you to improve the chances of standardizing interpretations of the Standards and Guidelines in the field . . . a wide variety of interpretations could largely supplant this effort and defeat its purpose. Consistency in interpretation is key to success of this effort.*

Response: BLM agrees that consistency is difficult yet critical to success. Managing rangeland resources requires a blend of science and art, and is not always exact. Nonetheless, BLM intends to strive for consistency by providing field direction (Implementation Strategy) and to continue to utilize the best science available. Standards and Guidelines will be implemented by establishing management objectives that contain quantitative and qualitative benchmarks or targets for numerous indicators that are applicable to a given site. Those objectives will be developed and monitored in a multi-disciplinary and public manner.

14. ***Comment:*** *The guideline referring to "weed free hay" should be changed to read "weed seed free hay." Weeds will not hurt ranges if they are not seeded out.*

Response: The term "weed free hay" refers to hay that has been inspected in the field and certified by an inspector of the Utah Department of Agriculture as being free of weeds. The guideline directs that only such inspected and certified hay may be brought onto BLM Lands.

15. ***Comment:*** *Where a standard is being exceeded, can the permittee expect to receive a*

proportional increase in AUMs? It seems fair to us that if a penalty is to be imposed for failure to meet the Standards, then a reward should be offered for exceeding the Standard.

Response: BLM currently has no provision for rewarding cooperators who assist in meeting or exceeding a Standard, other than operational flexibility and increased tenure. However, we believe that incentives need to be considered in any cooperative management plan.

16. ***Comment:*** *It is unlikely that Indicator d. of Standard 1 will ever be used and should be deleted. What is currently done and is measurable is the plant cover or biomass. It is then assumed that if plant cover is maintained, there is an appropriate amount of organic matter incorporated into the soil.*

Response: Indicator d. has been deleted because the Resource Advisory Council and BLM agree that soil organic matter will not routinely be monitored.

17. ***Comment:*** *BLM's intentions of promoting sustainable and properly functioning rangeland ecosystems may in some cases conflict with the BLM's intention of providing for the sustainability of the western livestock industry and communities. The document is not clear on how such potential conflicts will be resolved.*

Response: BLM's view is that the sectors of the western livestock industry that are dependent upon public lands can only be sustained on a long-term basis as long as grazing is in balance with the rangeland's ability to produce forage. As the Final S&Gs document states, it is BLM's intent to promote healthy, sustainable rangeland ecosystems that produce a wide range of public values such as wildlife habitat, clean water, livestock forage, recreational opportunities, etc. Sustaining the integrity and proper functioning of ecosystems is BLM's primary concern; producing goods, services, and public values from those ecosystems is secondary.

18. ***Comment:*** *Several comments addressed the Guideline for placing salt a specified distance from water. Some favored a certain distance (i.e., 1/4 mile), others opposed it. Some comments were concerned about creating numerous trampled areas by requiring livestock permittees to move salt/supplement locations every year.*

Response: The Guideline has been reworded to stress that although there is not minimum distance required, salt and other nutritional supplements will be located away from riparian and other permanent water sources. Because of concern for creating additional disturbed areas by moving supplements every year, that requirement was deleted. It was also determined that because rangeland conditions are so variable it may be unworkable to require a minimum of 1/4 mile. However, it is BLM's position that supplements be located so that they minimize impact to riparian/wetland areas and areas adjacent to those supplements.

19. ***Comment:*** *A definition of sustainability is needed.*

Response: A definition has been included in the glossary.

20. ***Comment:*** *The document states that "conformance with S&G's is a local decision based on local circumstances involving a collaborative process with affected interests." We are not sure what the "affected interests" are and the term needs to be defined in the glossary.*

Response: BLM's intent is to make resource decisions with the assistance and benefit of thinking from all parties that are interested in that decision. No definition is offered for "affected interests" because decision-making for BLM Lands is a public process open to anyone.

21. ***Comment:*** *Guideline 10 states that aerial application of pesticides will not be allowed within 100 feet of a riparian/wetland area unless the product is registered for such use by EPA. How will this be controlled and monitored?*

Response: Aerial application of pesticides has become an uncommon practice but is still utilized to some extent. Aerial application is closely monitored by observing weather conditions, drift, handling procedures, and extent of coverage to avoid introducing chemicals into non-target areas. This is standard procedure on BLM Lands.

22. ***Comment:*** *There should be an "action" section that describes what will happen when Standards are not being met or when "significant" progress in meeting the Standards is not occurring.*

Response: The monitoring and assessment section of this document briefly describes that the Authorized Officer will take corrective actions to ensure progress toward meeting the Standard. Also, refer to 43 CFR 4180.2 which requires action by the Authorized Officer before the beginning of the next grazing season upon determining that grazing is a factor in failing to achieve the Standards and conform with the Guidelines. Also, see Response to Comment 6.

23. ***Comment:*** *Each Standard should have its own Guidelines.*

Response: An earlier version of this Draft attempted to do this. It was found to be very redundant and confusing.

24. ***Comment:*** *The Standards and Guidelines do not address the effect of grazing and grazing management activities on cultural resources.*

Response: BLM acknowledges that some cultural resources could and are affected by grazing and grazing related activities. Cultural values, such as sacred sites and herbs and medicines could be considered under Standards and Guidelines since they are components of the natural ecosystem. However, they were omitted because BLM already has clear direction to identify and avoid adverse impact to such values by any land use activity, including grazing.

25. ***Comment:*** *In many cases, activities which impact protected or special status species have nothing to do with grazing management. Grazing should not be impacted unless it is clearly documented that grazing practices are causing impacts to the species.*

Response: BLM agrees. The process for evaluating the effect of grazing on a

Standard involves determining why the Standard is not being met, and if grazing is a factor in failing to meet the Standard.

26. ***Comment:*** *The requirement to use only certified weed free hay on BLM Land is another unfunded Federal mandate, which will increase costs to operators unnecessarily.*

Response: Certified weed free hay is more expensive than other hay and will raise the cost of feeding animals, but it is a necessary step to be taken to reduce the rate of noxious weeds spread. However, feeding hay to permitted livestock on BLM Land is not allowed except in emergency conditions as stated in Guideline 9. Some hay is fed to saddle stock, for example, but this is a very minor amount and will have to be certified weed free. The overall increase in costs to livestock operators will be negligible.

27. ***Comment:*** *The current standard in Utah is that a mechanically treated area will remain ungrazed for only one season. Doubling the time will create problems for operators, as well as additional stress on other allotment areas.*

Response: There may be some disagreement over this Guideline, but scientific literature supports removing grazing for two growing seasons. This does not mean 2 years. Treated areas may often be grazed after the second growing season, which is often less than 2 years.

28. ***Comment:*** *I think it is very realistic to state, based on 40 years of research, that the best option we have for restoration of depleted rangelands to native species will be using introduced species as a forerunner to native grass establishment. What a terrible defeat it will be for soil conservation and future biodiversity on sensitive disturbed BLM Lands, if this management tool is removed or limited in its scope of use.*

Response: The subject of introduced vs. native species is frequently debated and difficult to resolve. The Resource Advisory Council and BLM heard many polarized opinions on this subject and discussed it thoroughly. The Standards and Guidelines are intended to be implemented in a way that allows use of and management for both classes of plants, with preference given to natives. See revised Guideline 5.

29. ***Comment:*** *Guideline 9 discusses feed as a source of noxious weeds, but none of the Guidelines address vehicle routes and other human intrusions as an invasion path for noxious weeds.*

Response: The spread of noxious weeds by vehicles is a significant and complex problem. Most vehicles on BLM Lands are recreational, and would not fall under these Standards and Guidelines. BLM realizes vehicular travel is a weed problem, but ensuring that weeds are not spread by vehicles, whether recreational or livestock related, is a major challenge. BLM has taken steps to eliminate weed transport by its own vehicles and machinery.

30. ***Comment:*** *At whose expense will improvements for livestock be constructed, relocated or modified? (Guideline 3.)*

Response: These costs will be borne by the livestock operator, BLM and other cooperators in proportion to their ownership or investment.

31. ***Comment:*** *We do not agree with the proposed Guidelines because they allow grazing to continue in areas where the Standards are not being met.*

Response: That is correct. However, BLM's grazing regulations state that some form of corrective action must be taken prior to the beginning of the next grazing season should a determination be made that livestock grazing is a factor in failing to meet the Standard. Corrective action may involve changing seasons of use, numbers or class of livestock, or complete removal.

32. ***Comment:*** *The importance of cryptogamic crusts in Colorado Plateau ecosystems should be explicitly recognized. Erosion rates should be monitored.*

Response: These indicators, while referred to indirectly under Standard 1, will be identified in the Implementation Strategy or handbook that is under development. BLM agrees these are important indicators.

33. ***Comment:*** *These Guidelines offer exemptions from achieving Standards under certain conditions based on economic considerations. The regulations do not offer that flexibility.*

Response: BLM agrees with your statement and Standards 1.c. and 3.e. have been modified to address your concern. Exemptions will be very limited and will be justified. Some flexibility is necessary to ensure public acceptability and account for site-specific conditions.

LIST OF PREPARERS

The following individuals were involved in preparing Utah's Standards and Guidelines:

Name	Affiliation	Expertise
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Dee Holladay	" "	Comm. Recreation
Bonnie Hutchings	" "	Off-road Vehicle
Bradley Johnson	" "	Elected Official (State)
John Kimball	" "	Wildlife
John Kirkham	" "	Energy/Minerals
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		(County)
Charles (Hardy) Redd	" "	Ranching
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Leon Berggren	BLM, Natural Resource Spec.	"
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Jean N.-Sinclear	BLM, Planner/Botanist	Botany/T&E Species
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GLOSSARY OF TERMS

Accelerated Erosion - Soil loss above natural levels resulting directly from man's activities. Due to the slow rate of soil formation, accelerated erosion can lead to a permanent reduction in plant productivity.

Activity Plan - A detailed and specific plan for managing a single or several resources or land uses undertaken as needed to implement more general land use plan decisions, regulations, policies, etc.

Allotment - An area of land where one or more individuals graze their livestock. Generally consists of varying amounts of public land, State land, and private land. Livestock grazing is regulated by BLM who determines the number of livestock, class of livestock, and season of use for each allotment through the land use planning process.

Annual Plant - One that completes its life cycle and dies in 1 year or less.

Aquatic or Aquatic Habitat - Relating to streams, rivers, springs, lakes, ponds, reservoirs, and other water bodies; plants and animals that live within or are entirely dependent upon water to live.

Authorized Officer - Any person authorized by the Secretary of the Interior to administer the laws and regulations pertaining to public lands.

Biological Diversity (or biodiversity) - The relative abundance or numbers of species and subspecies in an area or community; referring to plants, animals, and all living organisms. Includes species diversity and genetic variations within species.

Biotic Communities - The assemblage of native and exotic plants and animals associated with a particular site or area, including micro-organisms, algae, fungi, vascular and herbaceous plants, invertebrate and vertebrate animals.

Cover - Generally, the plants or plant parts, living or dead, on the surface of the ground. May also include cryptogamic crusts and rock covering the soil surface.

Cryptogamic (Cryptobiotic) Crust - A biological community that forms a surface layer or crust on some soils. Generally includes algae, microfungi, mosses, lichens, and bacteria. Important in soil protection and nutrient supply. Once depleted or disrupted, requires many years to recover.

Desired Plant Community (DPC) - A plant community which produces the kind, proportion, and amount of vegetation necessary to meet or exceed management objectives for an ecological site. DPC is defined, recognizing site's ability to produce the desired vegetation through natural succession, management, land treatment, or a combination of the three, by an interdisciplinary team.

Ecological Site - A category of land having a unique combination of physical properties (soil, aspect, slope, climate) differing from other kinds of land in its ability to produce vegetation and respond to management.

Ecology - The science concerned with the interrelationship of organisms and their environment.

Ecosystem - Organisms together with their abiotic environment forming an interacting system.

Energy Flow - The passage of energy from the sun through producing plants to consuming animals and back to the soil, thence back to plants and animals, etc.

Environmental Assessment (EA) - A concise public document generally prepared by a Federal agency. It serves to (1) disclose the effect on the environment of a proposed action, (2) assist in determining if an Environmental Impact Statement is needed, and (3) fulfill an agencies

requirements under the National Environmental Policy Act.

Erosion - The wearing away of land/soil by water, wind, gravitation, or other geologic agents. Often categorized into sheet erosion (even, overland flow), rill erosion (numerous but small channels), and gully erosion (less numerous but more major channels). Natural erosion is that which occurs under natural conditions (without the influence of man's activities).

Exotic species - Plant or animal species not native to ecosystems of the United States; generally referring to undesirable species that occupy sites in place of more desirable species.

Feed - Harvested forage, hay, and grain provided to grazing animals.

Fecal Coliform - Bacteria originating from animal waste that enters a water supply (stream) and can eventually cause disease in humans.

Floodplain - The land area adjacent to a stream which is periodically flooded; an important component function of a riparian area.

Forage - All browse and herbaceous growth available and acceptable to grazing/browsing animals.

Functioning Physical Condition - A characteristic of a component of an ecosystem, usually a portion of a landscape or watershed, that indicates the degree of sustainability of that component; a balance between ecosystem components that is sought in order to assure continued production of desired resources.

Grazing - Consumption of forage from rangelands or pastures by livestock, wild horses and burros, or wildlife.

Grazing Permit or Lease - Official permission to graze a specific number, kind, and class of livestock for a specified period of time on a defined area of public rangelands.

Grazing Season/Season of Use - The period of the year during which grazing is authorized on public lands.

Growing Season - The period of the year during which weather conditions allow plant growth Commonly, the period of time from beginning to cessation of twig/leaf growth which often equates to that portion of the year between last frost of spring to first frost of fall.

Guideline - Management approaches, methods, and practices that are intended to achieve a Standard.

Habitat - The natural abode of a plant or animal that provides food, water, shelter, and other biotic, climatic, and soil factors necessary to support life.

Herbaceous - Vegetative growth having no woody component, such as grasses and forbs.

Herbivore - Animals that subsist mainly or entirely on plants or plant materials.

Hydrologic Cycle - The movement of water and water vapor from the atmosphere to the earth, through the soil, overland, water courses, organisms, and back to the atmosphere.

Indicator - A feature of the environment (i.e., soil, water, etc.) that is used to express and/or measure the desirable or undesirable condition of that environmental component.

Infiltration - The downward entry of water into the soil.

Intrusive - Plant species having the ability to spread and establish themselves on ecological sites where they were absent in the original vegetation, especially following disturbances; invaders.

Kind of Animal - Referring to the species of grazing animal; i.e., domestic sheep or cattle, domestic or wild horses/burros, goats or wildlife such as elk, deer, antelope, bison, etc.

Kind of Livestock - A domestic animal species or species group such as sheep, cattle, goats, horses, or burros.

Land Use Plan - Any document developed to define the kinds of use, goals and objectives, management practices and activities that will be allowed to occur on an area of land. In BLM, a Resource Management Plan or Management Framework Plan. The document that translates general guidance or policy (such as Standards and Guidelines) into more specific management direction and decisions for specific land and water areas.

Landform - A discernible natural landscape that exists as the result of geological activity, such as a plateau, basin, or mountain. In general, the physical attributes of an area of land, such as slope, exposure, geologic origin, soil type, etc.

Litter - Undecomposed or slightly decomposed plant material deposited on the soil surface. A major source of nutrients entering the soil.

Macroinvertebrate - Larger, visible members of the insect, mollusk, and other animal species used as indicators of desired water conditions.

Microclimate - Local, site-specific climatic conditions that differ from the general climate because of local differences in elevation and exposure. Also, the climate at or near the surface of the ground that determines the ability of plant species to propagate and survive, including soil moisture, humidity, irradiation, amount of sunlight, cryptogams, etc.

Native Species - Any species of plant or animal that is naturally occurring within a given area

of land or body of water; part of the original flora or fauna of the United States; indigenous.

Noxious Plant - A plant that is undesirable because it is of no forage value (or even toxic) or is capable of invading a community and replacing native species. Also referred to as invasive, non-native species.

Nutrient Cycle - Passage of nutrients between plants, animals, and the soil. Along with energy cycle and water cycle, an indicator of ecosystem functionality, or "rangeland health".

Nutrient Load - Nutrients, such as nitrogen, phosphorus, potassium, that when found in high concentrations are detrimental to aquatic life; may originate from decaying vegetation or man's activities (fertilizers).

Perennial Stream - A stream that flows throughout the year for many years.

Permeability - The ease with which gases, liquids (water), or plant roots penetrate or pass through a soil or a layer of soil. A key factor in influencing the rate of water infiltration.

Perennial Plant - A plant that has a life cycle of 3 or more years.

Plant Cover - The amount (usually a percentage) of the soils surface that is occupied or covered by plant material.

Point Bars - Soil and rocks deposited by flowing streams that can become suitable sites for plant establishment and growth.

Properly Functioning Condition - An attribute of a landform that indicates its ability to produce desired natural resources in a sustained way. When used to refer to a riparian area, expresses the ability of the ecosystem to dissipate energy, filter sediment, transfer nutrients, develop ponds and channel characteristics that benefit fish production, waterfowl, and other uses, improve water retention and ground-water recharge, develop root masses that improve streambank stability, and support greater biodiversity. In upland landforms, an indication of the ecosystem's ability to sustain the natural, biotic communities.

Public Lands - Any land or interest in land outside the State of Alaska owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management. Used synonymously with "BLM Lands".

Rangeland (or Public Rangelands) - Deserts, grasslands, shrublands, mountains, canyons, forests, woodlands, and riparian areas that support an understory or periodic cover of herbaceous and woody vegetation amenable to production of tangible products such as forage, wildlife habitat, water, minerals, energy, plant and animal gene pools, recreational opportunities, and other vegetative products. Also valuable for the production of intangible products such as open space, natural beauty, and study of natural ecosystems. Rangeland

includes lands revegetated naturally or artificially to provide a plant community that is managed similarly to natural vegetation.

Rangeland Assessments - The analytical process of using scientific data and visual observations to determine the relative condition of a rangeland for the purpose of prescribing needed changes in management, usually in livestock grazing.

Rangeland Health - The degree to which the integrity of the soil and ecological processes and components of rangeland ecosystems are sustained and functioning. Serves as a measure of whether the capacity of rangelands to produce commodities and satisfy values is being conserved. Expressed in terms of healthy, at risk, or unhealthy.

Rangeland Improvement Projects - Man-made manipulations and structures applied to or built upon rangelands for the purpose of improving productivity or ecosystem function; generally, reseedings, weed control, water retention structures, stream channel structures, erosion control structures, fences, etc.

Rangeland Monitoring - Collecting scientific data about rangeland attributes that indicate whether desired conditions are being achieved; generally, data about vegetation, soil erosion, grazing use, climate, etc.

Residual Plant Cover/Residual Vegetation - Standing herbaceous vegetation that remains after grazing.

Resource Advisory Council - A group of citizens representing a diversity of interests concerned with management of public lands. In Utah, a statewide body with 15 members advising the BLM State Director about public land issues and solutions.

Riparian Area - Lands along, adjacent to, or contiguous with perennial and intermittently flowing rivers and streams, and the shores of lakes and reservoirs, that exhibit vegetation characteristics reflective of permanent water influence. Consisting of two groups: (1) lentic (standing water), and (2) lotic (running water).

Sediment - Soil transported from its point of origin into drainages and streams by water, or relocated from point of origin to other sites by wind.

Sensitive Species - All species that are under status review, have small or declining populations, or live in unique habitats. May also be any species needing special management. Sensitive species include threatened, endangered, or proposed species as classified by the U.S. Fish and Wildlife Service, or species designated by a State wildlife agency as needing special management.

Series Description - A classification of soils having similar characteristics such as structure, particle size, horizon thickness, moisture holding capacity, density, and parent material; also

characterized by specific vegetation.

Sinuosity - Configuration of a stream and its channel, developed over time by volume of water passing, soil, streambank vegetation, and gradient; an "S"-shaped configuration is indication of greater sinuosity, which is desirable for proper riparian area functioning.

Site Potential or Site Capability - The optimal productivity of a given area of land or a range site expressed in amount of wildlife habitat, forage production, clean water yield, water infiltration, biodiversity, and other desired resource products, depending upon the natural characteristics of the site, such as precipitation, type of soil, exposure, temperature, plant succession, and past management.

Soil A-Horizon - The upper-most layer of topsoil characterized by finer particles of soil and higher concentration of organic matter. In many desert soils, this horizon is poorly developed or absent.

Soil Moisture - Water stored in the soil; an important feature of soils which determines the amount of vegetation that will be produced.

Standard - A description of the desired condition of the biological and physical components and characteristics of rangelands. An objective to be achieved by management.

Stream Channel Morphology - The shape, depth, width, gradient, and other features of a stream channel that affect the flow of water and how the stream channel shapes and re-shapes itself over time.

Supplemental Feed - Nutritional additives (salt, minerals, vitamins, protein blocks) or harvested forage given to livestock to correct dietary deficiencies.

Sustained Yield - Production of specified resources or commodities at a given rate over time.

Sustainability - The concept that natural processes are functioning in away that assures the sustained yield of commodities and public values to the extent possible considering the capability of the land to do so.

T & E Species - Plant or animal species listed by the U.S. Fish and Wildlife Service pursuant to the Endangered Species Act as either in danger of becoming extinct or threatened to the degree that their continued existence as a species is in question. Proposed Species: plant or animal species proposed by USFWS for listing as Endangered; protected under the ESA. Candidate Species: plant or animal species considered as potentially Threatened but not yet proposed by USFWS for listing; not protected by the ESA.

Total Dissolved Solids - A variety of salts and salt aggregates that, when dissolved in water, can change the chemical nature of that water. In high concentrations, can become lethal to

aquatic life.

Uplands - Land at a higher elevation than the alluvial plain or low stream terrace; all lands outside the riparian, wetland, or aquatic zones.

Utilization - The percentage of annual growth of vegetation that has been removed by a grazing animal; used as an indicator of grazing intensity.

Vigor - The relative health of a plant, judged by observing its robustness and over-all ability to sustain and regenerate itself considering the climate and productivity of the site it occupies; expressed in relative terms of poor, medium and high.

Watershed - The total area above a given point on a waterway that contributes runoff water to the streamflow at that point; an area draining water into a drainage or stream.

Wetland - Permanently wet or intermittently water-covered areas, such as swamps, marshes, bogs, and potholes.

Woody - Consisting of wood such as trees or bushes.

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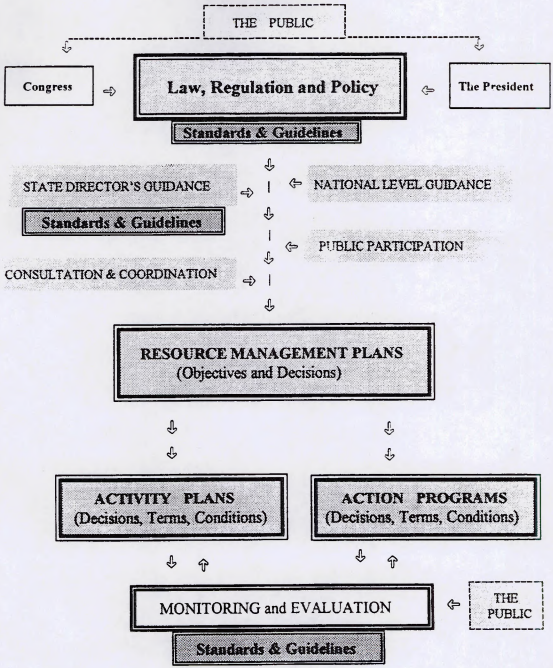
APPENDIX A. Monitoring and assessment techniques for measuring the indicators of Rangeland Health

standard	*indicators*	*technique/assessment*	*frequency*
Standard 1: Upland soils exhibit permeability and infiltration rates that sustain or improve site productivity, considering the soil type, climate and landform.	Cover and litter, composition Water infiltration Soil erosion (rills, pedestals, gullies) and deposition	Condition, trend , use studies Photo plots, cover studies Qualitative assessments [1] for biological and physical components Water quality measurements	Yearly 1 to 3 yr. intervals As needed As needed
Standard 2: Riparian and wetland areas are in prop-erly functioning condition. Stream channel morphol-ogy and functions are appropriate to soil type, climate and landform.	Hydrogeomorphic: (floodplain, recharge/discharge, ground water, sinuosity, width/depth ratio, etc.) Vegetation: (type, canopy, reproduction, production, root density, etc.) Erosion/deposition: (bank and bed stability, deposition) Soils: (type, soil water states, capillarity, etc.) Water Quality: (sedim., temp., nutrients, salinity, etc.)	Riparian Proper Functioning Condition Assessments, pursuant to BLM TR 1737-9 and TR 1737-11. Condition and trend, cover studies Habitat assessments Water quality measurements	1 to 5 years As needed 1 to 5 years 1 to 10 years
Standard 3: Desired species, including native, threatened, endangered, and special status species, are maintained at a level appropriate for the site and species involved.	Vegetation: (age classes, frequency, density, composition, productivity, ratio of native/non-native, etc.) Soils: (erosion, bare space, infiltration, etc.) Habitats: (cover, connectivity, abundance of species, diversity, etc.)	Condition and trend, photo plots , utilization or residual levels, etc. Qualitative assessments for biological and physical components. Habitat assessments, biological opinions (sec. 7 ESA)	1 to 5 years As needed As needed
Standard 4: BLM will apply and comply with water quality standards established by the State of Utah (R.317-2) and the Clean Water and Safe Drinking Water acts. Activities on BLM Lands will fully support designated beneficial uses described in the Utah Water Quality Standards for surface and groundwater.	Nutrient loads, total dissolved solids, chemical constituents, fecal coliform, temperature, metal, etc.	Water chemistry, macroinvertebrate and other analyses as approved and required by the State, EPA, BLM, etc.	As needed, in conjuntion with interagency data collection efforts and/or as required by the State of Utah or BLM's management objectives.

1. The BLM is developing a qualitative, rapid assessment process for upland watersheds, soils, and ecological processes which will generally be used in conjunction with quantitative data. The objective is to develop a process for determining whether an upland ecosystem is functioning (meeting or progressing toward meeting the Standards), functioning at risk (marginally meeting or failing to meet the Standards), or non-functioning (failing to meet the Standards).

APPENDIX B. Application of Standards and Guidelines to Multiple Use Management of BLM Lands



APPENDIX C. List of NEPA documents providing NEPA documentation that supports the Administrative Determination for Utah's Standards and Guidelines.

Dixie Resource Management Plan, (ongoing)
Cedar Beaver Garfield Antimony Resource Management Plan, (1984)
House Range Resource Management Plan includes Rangeland Program Summary, (1987)
Warm Springs Management Plan includes Rangeland Program Summary, (1987)
Pony Express Resource Management Plan includes Rangeland Program Summary, (1990)
Box Elder Resource Management Plan includes Rangeland Program Summary, (1986)
Diamond Mountain Resource Management Plan, (1995)
Book Cliffs Resource Management Plan includes Rangeland Program Summary, (1985)
Grand Resource Management Plan includes Rangeland Program Summary, (1985)
San Rafael Resource Management Plan includes Rangeland Program Summary, (1989)
San Juan Resource Management Plan includes Rangeland Program Summary, (1991)

Vegetation Treatment on BLM Lands Final Environmental Impact Statement, (1991)
Rangeland Health Reform Final Environmental Impact Statement, (1995)

Final Hot Desert EIS, (1978)
Kanab/Escalante Grazing Management Final EIS, (1980)
Pinyon Grazing Management Final EIS, (1982)
Price River Grazing Final EIS
Henry Mountain Grazing Final EIS
Randolf Grazing EIS, (1979)
Tooele Grazing Final EIS, (1983)
Parker Mountain Grazing Final EIS, (1980)
Mountain Valley Grazing Final EIS, (1980)
Ashley Creek Grazing Final EIS, (1982)
Three Corners Grazing Final EIS, (1980)

Note: This list does not include subsequent amendments (if any) pertaining to grazing management.