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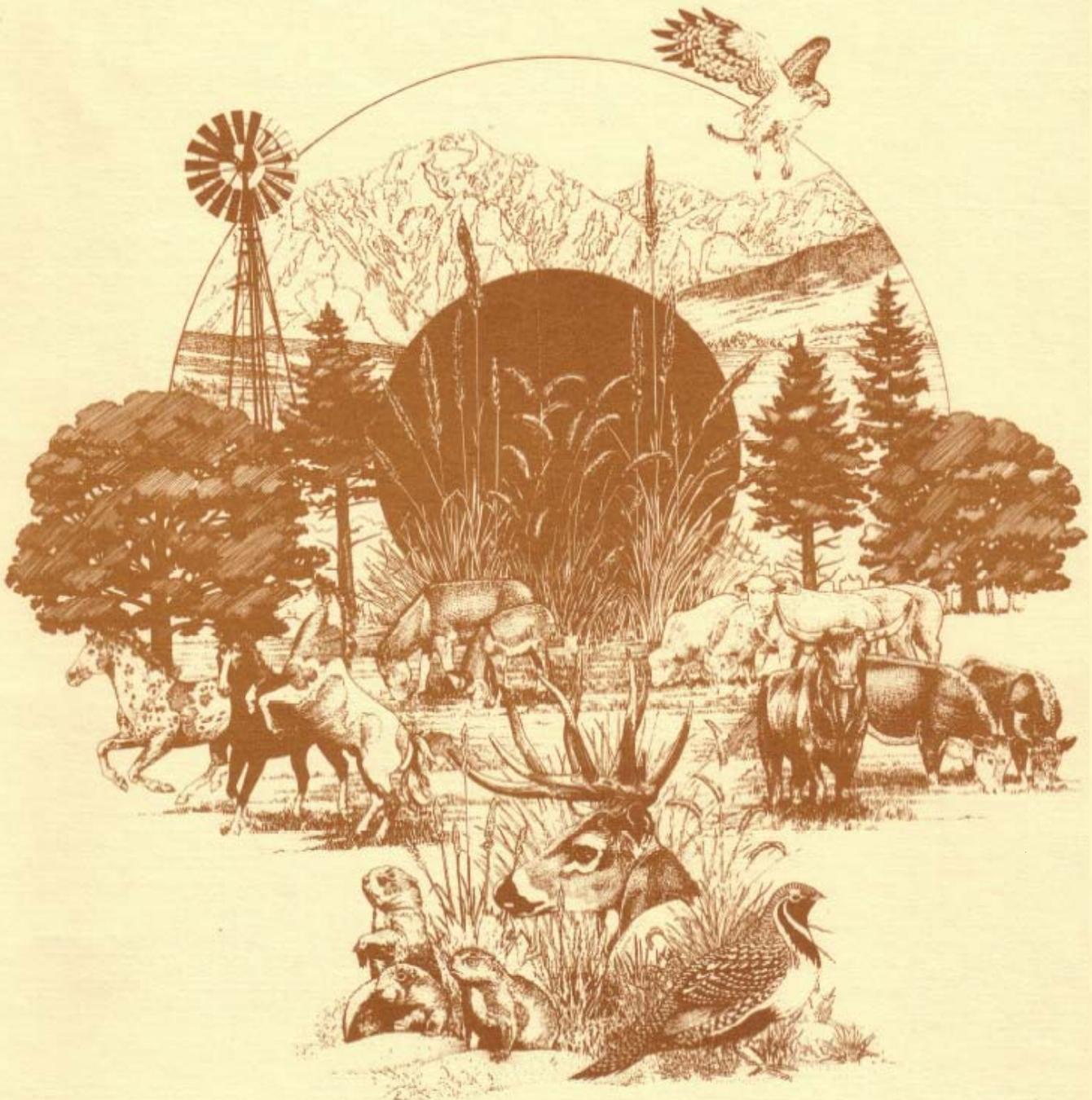
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# New Criteria for Measuring Range Management Activities

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## Abstract

**Quigley, Thomas M.; Dillard, David S.; Reese, Jerry B.; Free, James C.; Henke, Gerald; Wasser, Allyn S.; Feakes, Nancy. 1989.** New criteria for measuring range management activities. Gen. Tech. Rep. PNW-GTR-248. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 27 p.

The USDA Forest Service national range program is currently evaluating its information needs at the national level. A Range Measurement Task Group of Agency personnel was assembled in January 1988 to evaluate the information needs and recommend appropriate measures and reports. This document is the final recommendation of the task group. The recommendation includes measuring and reporting five broad areas of range management: range vegetation management, riparian vegetation management, grazing management, noxious weed management, and wild horse and burro management. Each area is directly linked to accomplishment of Forest plan objectives. The recommendation of the task group will be evaluated by the Chief of the Forest Service and his staff for possible implementation as new policy direction.

Keywords: Range management, range policy, measurements.

## Summary

The status of range resources is not being adequately portrayed to the Agency, Department, Congress, or constituent groups by the existing methods of measuring range management. The measures traditionally used have been range condition and numbers of animal unit months (AUMs) of livestock grazing. Range condition is slow to change, often taking decades; and the number of AUMs of authorized grazing does not accurately reflect the work being accomplished on the ground.

These problems are further complicated by effective range resources management creating a flow of outputs that go beyond those traditionally associated with range programs. Multiple products flow from range management, yet traditional budget and accounting constraints force separation of the benefits and costs into functional program areas. Legislation and General Accounting Office (GAO) reports have emphasized integrated resource management and the need to consider all outputs in resource decisionmaking.

The Range Measurement Task Group of Agency personnel was assembled in January 1988 to evaluate and recommend methods of measurement that would best reflect the various jobs involved in managing range 'vegetation resources—their ecological status and interrelations. The overriding principle guiding the effort was that range management is broader than mere livestock grazing. Recreation, water quality and quantity, soil stability, wildlife habitat, and timber are other outputs associated with range management. Measurements of all products are needed to accurately describe the range program when budget decisions, project selections, and program justifications are prepared.

The Range Measurement Task Group recommended that the tasks and outputs of range managers be summarized in five broad areas. Each area has methods of measuring that are useful in assessing progress toward goals and relating the area's status. The five areas are range vegetation management, riparian vegetation management, grazing management, noxious weed management, and wild horse and burro management. Separating riparian vegetation is done only to put emphasis on that portion of range vegetation. Managing and monitoring range resources require tracking many elements other than those highlighted here; however, these five have been identified for reports to the National level. Regions, National Forests, and Ranger Districts can use additional measures as necessary.

In the task group proposal, vegetation management objectives of Forest plans are the yardsticks for measuring the effectiveness of range vegetation management. Measurements are in acres and describe whether range vegetation is being managed to meet Forest plan objectives: A similar measure is used for riparian vegetation. Noxious weed management is measured in acres treated or untreated and is reported annually. A status report showing the acres of infestation is suggested at 5-year intervals. Grazing management measures will reflect the status of allotment management plans being used to meet Forest plan objectives. Statistical information to reflect numbers of authorized AUMs by kind of livestock will continue to be measured. Measure of wild horses and burros will reflect the number of territories managed, the number of animals removed, and population levels.

The goal is to broaden the measurements of range management beyond livestock use to include a full range of vegetation values. This shift can be accomplished only by educating all those affected, including Forest Service personnel, the Department, other agencies, interest groups, range users, and Congress.

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## Introduction

Forest Service personnel responsible for management of range resources believe that the status of the range resource is not being adequately portrayed to Congress and constituency groups, because the existing measures of range management do not adequately reflect what is happening to the resource. This problem is complicated by outputs produced from managed range resources no longer being restricted to those traditionally associated with the Forest Service range program. (Range resources as used here is a broad term including range resources under timber canopies and in areas not managed for domestic livestock forage). Multiple products flow from range management; yet traditional budget and accounting procedures force separation of the benefits and costs into functional program areas.

Legislation (for example, the Forest and Rangeland Renewable Resources Planning Act [1974], National Forest Management Act of 1976 [U.S. Laws, Statutes, etc.; Public Law 94-588], and Federal Land Policy and Management Act of 1976 [U.S. Laws, Statutes, etc.; Public Law 9-2743]) directs the Agency to integrate the management of all resources into one consistent Forest management plan with public involvement. The Forest planning process and recent input from the Government Accounting Office (GAO) on resource accounting systems are attempts to integrate resource uses and provide meaningful information to make informed decisions and resolve issues and demands.

A task group of Agency personnel assembled in January 1988 to evaluate this problem and make recommendations on measurements that would reflect the jobs being performed through range resource management. The work of the task group was part of the continuing process of refining Forest Service policy. Numerous workshops have been held, beginning in 1983, to address this and other range-related issues (USDA Forest Service 1987a). The recommendations from these workshops provided valuable input to the task group.

## Background

The perception that range resource management is synonymous with livestock grazing predates the Forest Service. Tradition inside and outside the Agency holds to this theme. In his book, **The Forest Service**, Robinson (1975) describes the range resource strictly by livestock grazing. Even the early textbooks on range management were heavily oriented to livestock management. This orientation seemed to meet the needs of the Agency and the range management profession during the first half of the 20th century.

Traditional measures used to report to Congress and the public reflect this strong emphasis on livestock grazing. Numbers of permitted livestock, actual use by livestock, grazing fees collected, wild horse and burro use, noxious weed infestations, and range condition were the primary outputs measured. A review of the section of the Forest Service Manual pertaining to range shows these as the areas of emphasis and describes how and when to report (USDA Forest Service 1988). Congress, interest groups, and the Agency have formulated opinions and made decisions on range management budgets and allocations based on these data.

Do these measures accurately depict the range resource and its management today? Do the measures reflect range resource program budgets? The ideal measures would convey to Congress and all interested publics the current ecological status of the range resource, any changes occurring, and an assessment of management practices. The measures would also reflect how resource management changes when budgets change. The traditional measures fail to do this. A poor correlation exists between budgets received from and outputs reported to Congress. Range budgets have been declining in the last two decades, yet reported outputs have remained nearly static. Is the appropriate conclusion from this that the resource is being managed adequately and that managers are becoming more efficient at management? The consensus of the range management personnel of the Agency is that the measures are not adequate.

Based on the recommendations from the review of below-cost timber sales (USDA Forest Service 1987c), the GAO made it clear that the timber harvesting program on National Forests should compare actual costs and benefits. The resulting Timber Sale Production Information Reporting System (TSPIRS) permits the inclusion of more than just timber receipts in the benefits of the timber sale program. As a first step toward integrated management, TSPIRS has caused questions to be asked about whether other resources, such as range, watershed, and wildlife, should each have similar information reporting systems.

Starting at a National Range Directors Meeting in 1983, the Agency began critically examining its need to measure the important elements of range management. This continuing process achieved one milestone with the publication of **Changing Times, Changing Values, New Directions: Report of the National Range Workshop, March 23-27, 1987** (USDA Forest Service 1987a), which documents the need for change in measurements and reporting.

The task group used a set of criteria to develop the recommended measures and make them useful and responsive to the issues raised by the Agency, Congress, and others. The criteria reflect concerns about the availability of information, compatibility, consistency, and impact on the Agency. Each measure was evaluated according to the following criteria:

1. Measurements should be of resources under the control of the Forest Service and reflect work accomplished as a direct result of Forest Service activities.
2. Measurements should represent the work and objectives of the Forest Service range management program.
3. To the extent possible, measurements should be easily obtained and verifiable.
4. Measurements and their units should be easily understood both inside and outside the Agency.
5. Measurements should directly correlate with funding; that is, they should be responsive to and adequately reflect changes in funding.
6. Measurements should respond to and reflect the public's interests.

7. Measurements should have standardized definitions throughout the Forest Service (and be reasonably compatible with those used by other agencies and organizations).
8. To the extent possible, measurements should be directly linked with existing measurements and outputs to provide continuity.
9. Measurements should respond to efforts for integrated management; that is, be suitable for or complementary to information used for budget, Resources Planning Act (RPA), resource management, and land management planning at all levels of the Agency.
10. Measurements should not be restricted to those with economic values established in existing markets; both market and nonmarket values should be considered.

## **Description of Range Resource Management**

Range resource management depends on several inputs, outputs, and related efforts. The inputs to range resource management include precipitation, solar radiation, vegetation species, use by grazing animals, fire, fertilizer, herbicides, seeding, and water developments. The application of knowledge and the use of inputs constitute the management effort.

The intended outputs from range resource management include desired vegetation, watershed protection, wildlife habitat, forage for wildlife and livestock, recreation, sustained population levels and diversity of animal and plant species, water production and quality, protection of riparian areas, noxious weed management, and desired ecological status of plant communities.

The related effects of range resource management are as diverse as the outputs themselves. The ecological maxim that everything is related to everything else holds true for range resources. Grazing animals affect watershed values, timber resources, recreation, and other resources and outputs in addition to their more obvious effect on plant diversity, wildlife habitat, vegetative condition, riparian values, and the livestock industry. These related effects are neither well understood nor defined, but complementary as well as competitive relations exist. In recognition of these interactions, Congress and the public are now demanding an accounting of Agency costs and benefits for managing range resources.

Because the outputs and effects of range resource management cross traditional boundaries of responsibility, demonstration of changes resulting from different management scenarios must include measuring water, timber, recreation, wildlife, vegetation, and livestock. The need for such measurements should not be viewed by range management personnel either as encroachment into the areas of responsibility of other professions or as a competitive stance to gain budgets and personnel. Rather, including the measurements is recognition that joint production processes are occurring. Competition for budgets and personnel are counterproductive to accomplishing the objectives of integrated management of all resources.

## **Measures for Managing Range Resources**

Having highly skilled personnel available to work in specialized areas will continue to be critical to the accomplishment of the overall mission of the Agency. It is not appropriate for range personnel to establish the measure to be used to report the changes in timber resources; nor is it appropriate for timber personnel to establish the measure to be used to report changes in range resources. Establishment of appropriate and adequate measures for each program area must come from the personnel of that program. This is true even when joint production is recognized and integrated resource management becomes a reality.

The major tasks of range managers can be summarized in five broad areas:

1. Range vegetation management.
2. Riparian vegetation management.
3. Grazing management.
4. Noxious weed management.
5. Wild horse and burro management.

These major responsibilities clearly open the door to broadening the image of range management to embrace more than livestock grazing.

Management of vegetation becomes the major responsibility of range managers. The range vegetation management objectives of each Forest plan would become the yardstick for monitoring the effectiveness of actions designed to accomplish this task. Reporting the land area that was managed to achieve the range vegetation objectives of the Forest plans would provide the Congress and public with information on the status of range vegetation, its management, and progress in achieving the desired vegetation condition. A Forest does not need to have livestock grazing to establish range and riparian vegetation management objectives. The explicit expression of such objectives for Forests where no livestock are present will help to dispel the myth that range equals livestock.

Riparian vegetation management is really no different than range vegetation management; it is separated only to provide emphasis to that portion of range vegetation.

Grazing management remains an important portion of the overall Agency program, but with new emphasis on the interaction of the grazing animal and management of vegetation. Livestock grazing is a tool available for range vegetation management and is also an output in itself. The typical reports forwarded as statistical grazing records may need only minor modifications to meet the needs of the Agency.

Management of noxious weeds is also a vegetation management concern. It has been separated from the range vegetation management task only for emphasis and reporting. Traditional measures with some modifications to clarify definitions and provide uniformity may be adequate to measure this area.

Management of wild horses and burros remains an important portion of range management within the Agency. Reports outlining population levels and results of capture programs may require only minor modifications to meet Agency needs at the National level.

Each of the broad tasks has measures useful in assessing accomplishments and relating the status. Justifying range budgets by describing benefits or outputs for only these five main areas is not the intent. These five main areas describe the major responsibilities and outputs associated with range resource management that fall primarily under the jurisdiction of the Forest Service range management program. All outputs must be considered when budgets, programs, and projects are being justified. The measures appropriate to describe changes in timber, water, recreation, and other resources resulting from range resource management will be defined by their respective resource specialists.

## **Proposed Measures**

### **Range Vegetation Management**

**Definition**—Range vegetation is vegetation on all land with range resource objectives or range resource values, including riparian areas. The range resource part of the overall vegetation management job in the National Forests and National Grasslands is defined by Forest plan objectives. Generally, the focus is on land supporting grasses, grasslike plants, forbs, or shrubs during one or more ecological stages. Forested and nonforested sites providing forage and habitat for many wild and domestic animal species are included. Manipulating overstory vegetation primarily to produce range resources such as forage and wildlife cover is included as a duty for the range resource manager under this definition.

**Background**—Range vegetation management is defined by the task group as the actions necessary to meet the objectives outlined for range vegetation in a Forest's land management plan. This definition includes management of vegetation on all land with range resource objectives or range resource values, including riparian areas. This is broader than the traditional definition, which focuses only on the range vegetation areas where livestock graze. The broad definition is needed because range vegetation is managed for many more outputs and values than livestock grazing. Forest plans have recognized this and include many integrated outputs from range vegetation; for example, desired wildlife habitats, livestock and wildlife forage, desired recreation settings, soil protection, and enhanced water quality.

By the broad definition, range vegetation management is a major task that must be measured to represent the range management job. Previously used measures have focused on range condition and use terms like good, fair, and poor for descriptors. These measures have been used almost exclusively for livestock grazing areas and have not been applied in the integrated, ecological sense needed to implement current Forest land management plans.

The categories of good, fair, poor provide a mental picture of the health of the range. These condition classes can be misleading, however, and the ratings can differ depending on management objectives; for example, the ecological status of vegetation that is in good condition for livestock grazing may be in poor condition for certain wildlife populations. In addition, range condition typically responds slowly to actions taken to improve it. Investments in improved management made today might require 10-20 years to change a range condition from poor to good. When short-term Congressional budget negotiations are what must be dealt with, it is difficult to make the tie between today's investments and tomorrow's returns: it is difficult to display results that will occur 10-20 years in the future. These measures of condition have not been reported at the National level in recent years.

Even though range condition can be misleading as presently reported, it still is important for the public and Congress to know whether the range is healthy and is being managed correctly; therefore, measures are needed both to express range "health" and to express any progress in achieving healthy range vegetation through management. In the opinion of the task group, these are the most important measures of the overall range management job and the ones best representing the workload of the Forest Service range manager.

The actual measurement item or items used to represent the range vegetation management job must:

1. Show accomplishment in response to annual budgets.
2. Be easily understood by Congress and the public.
3. Be consistent to allow District reports to be easily aggregated to the National level.
4. Correctly depict the success of management in protecting the range health.
5. Reflect proper implementation of Forest plans.

**Description of job**—This particular workload area includes the inputs and outputs associated with maintaining vegetation communities in the appropriate ecological status to meet Forest plan objectives for management of range resources. The range resource part of the overall vegetation management job for National Forests and National Grasslands is defined by Forest plan objectives. Generally, however, the focus is on land supporting grasses, grasslike plants, and forbs or shrubs during one or more ecological stages. This includes forested and nonforested sites providing forage and habitat for many wild and domestic animal species. Manipulation of over-story vegetation to produce range resources such as forage and wildlife cover are included as duties for the range resource manager under this definition.

**Inputs**—The inputs of range vegetation management (land, labor, and capital) result in two basic activities: planning and application of management practices. Planning includes all activities leading to the implementation of a management practice. This includes inventorying to determine the current status of the land. Once inventories are obtained, objectives for the management of the land can be defined.

The other major activity is applying management practices to achieve a desired future condition. The set of practices available to the manager ranges from those actively manipulating vegetation (such as grazing, prescribed burning, and herbicides) to those basically allowing desirable successional processes to continue.

**Outputs**—As a result of correctly applied inputs, certain desired outputs are realized. The outputs can be direct or indirect results of striving to meet the management objectives placed on the land. There are many possible outputs from range vegetation management; the primary ones are:

1. Desired ecological status of vegetation.
2. Species diversity (both plant and animal).
3. Desired wildlife habitats.
4. Forage (for both livestock and wildlife).
5. Desired quantity and spatial distribution of fuels.

Four additional outputs resulting from proper vegetation management are soil protection, water quality improvement, improved water yields, and dispersed recreation settings.

**Measures**—The following measures were developed to represent the vegetation management job. They are displayed in the Management Information Handbook (MIH) format (USDA Forest Service 1983), including a definition of the work, the unit of measure, and the interval for reporting. Only areas with specific Forest plan objectives for range vegetation management are measured. The intent is not to measure the entire National Forest land base, but to measure only those areas with specific range vegetation management objectives. Examples of areas that might have specific Forest plan objectives for range vegetation management are range allotments, mapped wildlife winter ranges with specific vegetation objectives, and wild horse and burro territories. Riparian vegetation acres are reported separately, but are also included in these measures.

The rationale for selecting these particular items to represent the range vegetation management job is presented after the description of the measures themselves.

1. *Range vegetation meeting forest plan management objectives* *Thousand acres*  
Acres being managed in accordance with Forest plan objectives that are currently meeting the desired vegetation condition.  
  
Report annually.
- 1a. *Verified by monitoring.* *Thousand acres*  
Acres that currently meet Forest plan objectives and that have been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 1 b below must total the acres in item 1 above.  
  
Report annually.
- 1b. *Estimated* *Thousand acres*  
Acres that currently meet Forest plan objectives but that have not been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 1a must total the acres in item 1 above.  
  
Report annually.

2. *Range vegetation moving toward forest plan management objectives* *Thousand acres*  
Acres being managed to meet Forest plan objectives but that have not yet reached the desired future condition. Included are areas that do not currently meet Forest plan objectives but have appropriate, site-specific management actions being implemented that will meet the Forest plan objectives in a reasonable time. An example would be an allotment management plan (AMP) that has been implemented, but the vegetation has not yet reached the desired ecological state.

Report annually.

2a. *Verified by monitoring* *Thousand acres*  
Acres being managed and moving toward meeting the management objectives that have been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 2b below must total the acres in item 2 above.

Report annually.

2b. *Estimated* *Thousand acres*  
Areas being managed and moving toward meeting the management objectives that have not been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 2a above must total the acres in item 2 above.

Report annually.

3. *Range vegetation neither meeting nor moving toward Forest plan management objectives* *Thousand acres*  
Acres that are not being managed to meet Forest plan objectives and that have no site-specific management actions being implemented that would help to meet the desired future condition.

Acres are included if they have Forest plan objectives for range vegetation management but have no current vegetation inventory or have no specific management program being implemented to meet Forest plan objectives in a reasonable time.

Report annually.

3a. *Verified by monitoring* *Thousand acres*  
Acres not being managed to meet Forest plan objectives that have been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 3b below must total the acres in item 3 above.

Report annually.

3b. *Estimated* *Thousand acres*  
Acres not being managed to meet Forest plan objectives, and that have not been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 3a must total the acres in item 3 above.

Report annually.

**Rationale and discussion**—These measures were selected because they clearly reflect the quality of management and the status of rangelands. The terms chosen are easily understood and can be used to discuss the status of range management internally and externally.

The task group felt it was extremely important to retain a measure of range health because range vegetation in healthy condition is fundamental to all other outputs from range resource management. Maintaining healthy rangelands is the major concern of much of the public interested in range resource management. Because of this interest, it is important that measures of range health be conveyed in nontechnical language understandable to most people. Most of our current vegetation terms reflecting range health are either too complex for many lay persons to understand or are misleading (as discussed earlier about range condition). Ecological terms or other technical terms do not meet the need for an understandable measurement regime. On the other hand, the technical, ecological measurements are necessary for people on the ground to do the professional management job. These include measurements for habitat types, successional status, ecological scorecards, and forage value ratings for different species.

The task group envisioned the measurement reporting as a funnel. Into the large end of the funnel would go the actual measurements made on the ground. Once these measurements were in the funnel, they would be categorized into measurements understandable by lay persons. Thus, more easily understood measurement terms would come out the small end of the funnel and be reported to Congress and the public. This approach provides for appropriate technical measurements on the ground but converts them into some understandable categories for reporting.

Three basic measures are needed to express the workload of range vegetation management. The measures reflect the status of management and the condition of range vegetation itself. The measures chosen can be used to show accomplishments in the annual budgeting process and to display progress in meeting Forest plan objectives for healthy rangelands. To be effective in reflecting proper range vegetation management, the measures must show:

1. The number of acres currently meeting Forest plan objectives (and budgets must reflect the cost of maintaining these acres in the appropriate ecological status).

2. The number of acres where actions have been implemented to meet the Forest plan objectives, but where the desired vegetation condition has not yet been reached. This is needed because in many range vegetation ecosystems the actual vegetation response to management occurs several years after changes are made.

3. The number of acres not meeting Forest plan objectives or where no improved management program has been implemented to meet the Forest plan objectives.

It is also necessary to understand whether the acres in each category have been verified by appropriate monitoring on the ground or whether the vegetation status has been estimated.

The measurement items selected will meet these needs and are reported annually. The assumption is that if programs are followed to meet the objectives in the Forest plan, then the effects of management will show up in proper range health over time and can be verified by monitoring. If only one line item measurement is allowed for range management in the RPA and Congressional budget process, it is recommended that measurements 1 and 2 (above) be combined at the Washington Office (WO) level for target purposes. The target would then be "thousand acres," either meeting or moving toward meeting Forest plan management objectives. Explanatory notes and other similar information supplied to Congress should include, however, all the measurement items chosen. This gives the correct overall picture of success in achieving proper range vegetation management and will help Congress to see the entire picture.

## **Riparian Vegetation Management**

### **Definitions—**

**Riparian area**—Riparian areas are those geographically delineated acres having distinctive resource values and characteristics comprised of the aquatic and riparian ecosystems (USDA Forest Service 1987b). For use in this measuring system, riparian areas and the objectives for riparian area management are as defined in Forest plans. The definition may differ somewhat among Regions and Forests depending on the Forest plan.

**Riparian vegetation**—Riparian vegetation to be measured and reported in range resource outputs includes all riparian vegetation on National Forest System lands with range resource objectives or range resource values. As used here, the term "riparian" can include related vegetation types, such as woody draws in the Northern Great Plains, depending on Forest plan standards. The range resource part of the overall vegetation management job is defined by Forest plan objectives. The focus is generally on riparian areas supporting grasses, grasslike plants, forbs, or shrubs during one or more ecological stage. Included are forested and nonforested sites providing forage and habitat for many wild and domestic animal species. Manipulation of overstory vegetation to produce range resources such as forage, wildlife cover, and fish habitat are included as duties for the range resource manager under this definition.

**Background**—Riparian vegetation management is defined by the task group as the actions necessary to meet the range resource objectives in the Forest plan where riparian vegetation is present. Riparian vegetation as defined here could include related vegetation types such as woody draws in the Northern Great Plains, depending on Forest plan objectives. As stated in the section dealing with range vegetation measurements, this definition does not limit the range manager's job to the riparian areas where livestock graze; rather, it includes all riparian vegetation areas having specific Forest plan objectives for range resource outputs. These might include desired wildlife habitats, forage for wildlife and livestock, water quality enhancement, and improved fishery habitat.

Riparian vegetation management is really a subcategory of range vegetation management, and the acres measured in the riparian category are included in the overall range vegetation measure. The riparian management issue is of great interest to the public and to Congress. The task group therefore recommends that this special category be tracked separately from the overall range vegetation management job. In making this recommendation, the task group recognizes the relation between the riparian areas themselves and their adjacent uplands. Proper riparian vegetation management can occur only if proper vegetation management is practiced on the adjacent uplands as well.

Because this is a special category of range vegetation management, the discussion presented for measures of range vegetation management apply equally to riparian management. The measures recommended are the same as those in the range vegetation management section, so the background discussion will not be duplicated here.

**Description of job**—This particular workload area includes the inputs and outputs for maintaining riparian vegetation communities in the appropriate ecological status to meet Forest plan range resource objectives. The range resource part of the overall riparian vegetation management job in the National Forests and National Grasslands is defined by Forest plan objectives. The focus is generally on riparian areas supporting grasses, grasslike plants, forbs, or shrubs during one or more ecological stages. Included are forested and nonforested sites providing forage and habitat for many wild and domestic animal species. Manipulation of overstory vegetation to produce range resources such as forage, and wildlife cover are included as duties for the range resource manager under this definition.

**Inputs**—The inputs of riparian vegetation management (land, labor, and capital) result in two basic activities—planning and application of management practices. Planning includes all the activities leading to the implementation of a management practice. This includes inventorying to determine the current status of the land. Once inventories are obtained, objectives for the management of the land can be defined.

The other major activity in managing riparian vegetation is applying management practices to achieve a desired vegetation condition. The set of practices available to the manager range from those that actively manipulate vegetation (such as grazing, prescribed burning, or herbicides) to those that basically allow desirable successional processes to continue.

**Outputs**—As a result of correctly applied inputs, certain desired outputs are realized. These outputs (or effects) can be direct or indirect results of trying to meet the management objectives placed on the land. Many outputs are possible from riparian vegetation management. The primary outputs are:

1. Desired ecological status of vegetation.
2. Species diversity (both plant and animal).
3. Desired wildlife habitats.
4. Forage (for both livestock and wildlife).
5. Desired water quality.
6. Desired fish habitat.
7. Desired water yield.

Two additional effects resulting from proper riparian vegetation management are soil protection and dispersed recreation settings.

**Measures**—The following measures were developed to represent the riparian vegetation management job. They are displayed in the MIH format, including a definition of the work, the unit of measure, and the interval for reporting. Only riparian areas with specific Forest plan objectives for range vegetation management are measured. The intent is not to measure the entire National Forest riparian area land base, but to measure only those riparian areas with specific range vegetation management objectives. Riparian areas within range allotments, mapped wildlife habitat areas with specific vegetation objectives (such as winter ranges), and wild horse and burro territories are examples of riparian areas included in this measurement.

The rationale for selecting these particular items to represent the riparian vegetation management job is presented after the description of the measures themselves.

1. *Riparian vegetation meeting Forest plan management objectives* *Thousand acres*  
Acres being managed in accordance with Forest plan objectives that are currently meeting the desired vegetation condition.

Report annually.

- 1a. *Verified by monitoring* *Thousand acres*  
Acres that currently meet Forest plan objective and that have been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 1b below must total the acres in item 1 above.

Report annually.

- 1b. *Estimated* *Thousand acres*  
Acres that currently meet Forest plan objectives but that have not been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 1a must total the acres in item 1 above.

Report annually.

2. *Riparian vegetation moving toward Forest plan management objectives* *Thousand acres*  
Acres being managed to meet Forest plan objectives but that have not yet reached the desired vegetation condition. Included are riparian areas that do not currently meet Forest plan objectives but that have appropriate, site-specific management actions being implemented to meet the Forest plan objectives in a reasonable time. An example would be a range AMP that has been implemented, but the vegetation has not yet reached the desired ecological state.

Report annually.

- 2a. *Verified by monitoring* *Thousand acres*  
Acres being managed and moving toward meeting the management objectives that have been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 2b below must total the acres in item 2 above.

Report annually.

- 2b. *Estimated* *Thousand acres*  
Acres being managed and moving toward the management objectives that have not been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 2a must total the acres in item 2 above.

Report annually.

3. *Riparian vegetation neither meeting nor moving toward Forest plan objectives* *Thousand acres*  
Acres that are not being managed to meet Forest plan objectives and that have no site-specific management actions being implemented that would help to meet the desired vegetation condition. Riparian areas are included if they have Forest plan objectives for range vegetation management but have no current vegetation inventory or have no specific management program being implemented that will meet Forest plan objectives in a reasonable time.

Report annually.

- 3a. *Verified by monitoring* *Thousand acres*  
Acres not being managed to meet Forest plan objectives and that have been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 3b below must total the acres in item 3 above.

Report annually.

- 3b. *Estimated* *Thousand acres*  
Acres not being managed to meet Forest plan objectives and that have not been verified by appropriate on-the-ground monitoring techniques. These acres added to those in item 3a must total the acres in item 3 above.

Report annually.

## Grazing Management

**Rationale and discussion**—The rationale for these measurements is basically the same as that discussed in the section dealing with measurements of range vegetation management and will not be repeated here. The measurements recommended will provide a picture of the health of riparian ecosystems and will display the results of management.

### **Definitions**—

**Animal unit month (AUM)**—An AUM is the amount of feed or forage required by one animal unit (one mature, dry 1000-pound [450 kg] cow) for 1 month. This is approximately 780 pounds (350 kg) of dry forage matter, based on an average consumption of 26 pounds (11.7 kg) per day (USDA Forest Service 1986).

**Allotment**—An allotment is a designated area of land available for livestock grazing where a specified number of livestock may graze under permit. It is the basic land unit used in managing livestock grazing on National Forest System lands and associated lands administered by the Forest Service. This includes recreational horse and outfitter allotments and vacant allotments, but does not include special use pastures or administrative pastures.

**Authorized**—Authorized grazing is any livestock grazing occurring as the result of a written document annually approving such use; grazing permits, special use permits, private land permits, livestock use permits, and recreational fee use are included. This is generally the amount of grazing for which the Bill For Collection is issued or for which a document granting free use is given for that year.

**Background**—Grazing management represents the plans and actions necessary to authorize and manage livestock for the National Forest System. This includes developing management plans (Forest, Area, and Allotment) having objectives consistent with the principles of range management. It also includes monitoring for compliance with management plans. This encompasses grazing taking place on lands within the National Forest System that is authorized by term or temporary grazing permits, grazing agreements, livestock use permits, crossing permits, or special use permits, as well as adjacent lands included by agreement with the National Forest Grazing Allotments. An additional important phase of the overall job is the coordination of grazing management with the numerous other resources, uses, users, and activities that are ever present.

Measurements of the tasks accomplished within this broad responsibility should:

1. Reflect the status of management on the allotments.
2. Report statistical information on grazing including animal unit months (AUMs).

**Description of job**—This workload area includes the inputs and outputs for administering livestock grazing on National Forest System lands. This task includes developing plans and monitoring for compliance with prescribed timing, location, and amount of grazing by number and class of livestock.

**Inputs**—The inputs of land, labor, and capital are in the form of four main activities associated with grazing management: livestock management, permit administration, planning, and rangeland improvements.

**Outputs**—The major outputs are the production of forage and a desirable condition of the vegetation in areas grazed by livestock. Other major results include the enhancement of wildlife habitat, opportunities for dispersed recreation, improvement of riparian areas, and protection of fisheries. Biological diversity, reduced fire hazards, and increased stability of the local livestock industry are also effects associated with the grazing program on the National Forests.

**Measures**—The following measures describe grazing management. They are displayed in the MIH format, including a definition of the unit of measure and the interval of reporting.

1. *Allotment status*

1a. *Allotments managed to fully meet Forest plan (and AMP) objectives* *Number of allotments*  
 The number of allotments being managed to meet Forest plan and Allotment management or Area management plan objectives. Allotments in this category have approved plans meeting the management requirements in the Forest plans, state the resource management objectives, and are successfully progressing to meet the resource objectives.

1b. *Allotments with approved AMPs that are written to fully meet the Forest plan objectives, but have not been implemented or appropriate monitoring has not taken place* *Number of allotments*  
 Those allotments needing only funding to implement the provisions of the plan or to monitor the progress toward meeting resource objectives.

1c. *Allotments not managed to fully meet Forest plan (and AMP) objectives* *Number of allotments*  
 This category includes the number of allotments that are not being managed to meet Forest plan and Allotment management plan objectives. Allotments with approved AMPs that cannot meet the objectives when they are fully implemented, allotments with no approved AMP, and those where implementation is so far behind schedule that objectives cannot be met on schedule are included.

Report annually.

2. *Statistical data*

Total number of livestock and AUMs authorized:

Livestock	Number	Class	AUMs
Cattle			
Sheep			
Other			

Report annually.

**Rationale and discussion**—The allotment status measures are recommended because they reflect the adequacy of allotment planning and management. Changes in planning and management activities will result in changes in the Forest plan and AMP compliance that reflect annual budget changes. This also measures success in implementing Forest plans.

The statistical data measures are recommended because they reflect the amount of livestock grazing taking place within the National Forests. This information is also a direct tie to past measurements and provides continuity in reporting programs.

## Noxious Weed Management

### Definitions

**Noxious weed**—Noxious weeds are those plant species designated as such by the Secretary of Agriculture, Secretary of the Interior, or by State law or regulation. Noxious weeds generally will possess one or more of the characteristics of being aggressive and difficult to manage, parasitic, a carrier or host of serious insects or disease, and being native, new to, or not common to the United States.

**Treated acre** —The treated acre is a minimum of 1 acre (0.40 ha) of land where a noxious weed has been treated or retreated by an acceptable method (chemical, biological, mechanical) for the specific objective of controlling its spread or reducing its density. An infested area of land is mapped by drawing a line around the extremities of the infestation, excluding large areas not infested. If this area were treated, the total mapped unit would be counted as treated regardless of the density of the infestation. If regional information needs demand more specific information than required at the National level, Forest Service Regions are encouraged to develop additional information requirements. An acre reported to the National level as treated for a noxious weed infestation will follow the definition provided here.

**Treated and retreated acres** —Treated and retreated acres have been used in the past to help define and clarify a treatment program. Treated acres are those treated for the first time, and retreated acres are those treated subsequent times to treat new plants. An effective noxious weed program must involve long-term monitoring and retreatment. Retreatment is part of the total program and is documented at the Ranger District level to ensure that the initial investment is protected. **Total acres treated will be the combination of treated and retreated acres**, because the expenditure of noxious weed funds would have occurred over both types of treatment areas. The 5-year infestation report will provide an overview of the success of the program and will determine the trend in infestation levels.

**Background**—The Forest Service policy on noxious weeds is stated in Forest Service Manual 2253.03: "Forest officers will cooperate fully with State, county, and Federal officers in enforcing provisions of Regulations 36 CFR 231.8 and Section 1 and 2 of the Carlson-Foley Act, 10/17/68, and Section 9 of the Federal Noxious Weed Control Act of 1974" (USDA Forest Service 1988). The objective is to prevent the reproduction and spread of noxious weeds on National Forest System lands and movement from these lands to adjacent private land. The role of the Forest Service in managing noxious weeds is one of cooperation with local, State, and Federal agencies and private landowners. Planning and implementing noxious weed programs are the responsibility of each National Forest.

The noxious weed program has traditionally been the responsibility of Range and Watershed Management groups within each Forest Service Region. Although funding for the noxious weed program has shifted between functions within National Forest System (NFS) Range Management and Forest Pest Management (State and Private Forestry), objectives of the program have not varied a great deal. Funding for the program is currently within the Range Management function.

The targets for noxious weed control in the current budgeting process are expressed as total acres treated. The accomplishments are reported both in management attainment reports (total acres treated) and in the Forest Service Range Management Information System (total acres treated by species and funding). Many Ranger Districts have an inventory and monitoring system to track their treatment and retreatment programs. The last major effort to report the noxious weed infestations in National Forests was in 1983. The report listed species, their acres of infestation by canopy cover density, and an economic assessment of this infestation.

Documentation of a noxious weed program should:

1. Provide an inventory by levels of infestation by species.
2. Be consistent to allow District reports to be easily aggregated to the National level.
3. Track acres treated by species, by treatment method, and by funding.

**Description of job**—This workload area includes the inputs and outputs associated with monitoring and treating infestations of noxious weeds on National Forest System lands as provided by law and to meet Forest plan objectives. In an integrated sense, it is more than treating areas of known infestations; it also includes planning vegetation manipulation to minimize the introduction of noxious weeds and their spread. Building these objectives into all plans on the forest requires ecological expertise specific to the noxious weeds of any particular locale. The primary workforce for accomplishing this will be the District personnel with specific needs being met by the Forest and Region.

**Inputs**—The inputs of noxious weed management (land, labor, and capital) result in two basic activities: The planning and the application of management practices. Planning includes all activities leading to implementation of a management practice; that is, the inventory of vegetation resources and selection of objectives for infested and noninfested areas. Application of management practices includes following the management plan and might involve chemical, fire, mechanical, or biological treatment of infested areas. Application also includes monitoring land and vegetation treatment specifications to limit infestations and spread.

**Outputs**—As a result of noxious weed management, the level of infestation should be better defined and should decrease. The desired outputs include:

1. Improved productivity of the land.
2. Reduced spread of noxious weeds.
3. Better relations with other landowners near National Forests.

The effects of noxious weed management reach beyond the boundaries of the National Forest. Many landowners in areas near Forests depend on agricultural seed crops. Reduced levels of weed infestations provide benefits to these landowners and improve relations with the public in general.

**Measures**—Two measures were selected to represent the noxious weed management job. They are displayed in MIH format including a definition of the work, the unit of measure, and the interval of reporting. The rationale for selecting these particular items to represent the noxious weed management job is presented after the descriptions of the measures.

1. *Noxious weed infestations treated* *Acres*  
This represents the total number of acres infested with noxious weeds that are treated or retreated. The treatment technique will differ by site and species. The measurement here is of acres treated or retreated by whatever technique is deemed appropriate at the local level.

Report annually.

2. *Noxious weed infestation by species and infestation level* *Acres*  
This measurement represents the acres of noxious weed infestation within each Forest, State, and Region. Infestation levels are low (5 percent canopy cover), moderate (6-25 percent canopy cover), and high (25 percent canopy cover).

Report at 5-year intervals.

**Rationale and discussion**—Noxious weeds infest all types of lands and impact the quality and quantity of all renewable resources. Areas of soil disturbance resulting from any land management practice provide an ideal place for noxious weeds to become established, although many noxious weeds are aggressive enough to become established in healthy plant communities. A plant community in healthy condition with good vigor and ground cover is the best defense against encroachment by undesirable plants and will reduce their spread.

Reporting total acres treated each fiscal year will provide tracking of target accomplishments and data for determining unit costs. A 5-year report on the infestation levels by species will provide information needed to document the trends in noxious weed infestations, their economic impact, and long-term assessment of treatment needs. The loss in forage production, negative impacts on wildlife habitat, rehabilitation of disturbed areas, change in land values, decreases in water quality, and loss in recreation values are several of the negative impacts that noxious weeds have on accomplishing our land management objectives.\_

**Wild Horse and Burro Management**

**Background**—Up-to-date information on the numbers of wild horses and burros is of significant importance to Congress. It is so important that Congress wrote into the Wild Free-Roaming Horse and Burro Act of 1971 a statement requiring administering agencies to prepare a biennial report to Congress documenting activities associated with wild horse and burro administration. This report includes all necessary information about program activities but does not tie into the annual appropriation process; therefore, a measurement must be identified that sufficiently characterizes an important activity to justify the continued allocation of dollars for the program.

**Description of job**—The administration of the wild horse and burro program includes all activities contributing to maintenance of wild horse and burro populations in a thriving ecological balance in the areas of National Forests that they inhabit. Territorial or operational plans describe desired population levels, management practices, necessary interagency coordination, and monitoring requirements for managing each herd.

**Measures**—The following measures were developed to represent the wild horse and burro management job. They are displayed in the MIH format, including a definition of the work, the unit of measure, and the interval of reporting. The rationale for selecting these particular items to represent the wild horse and burro management job is presented after the description of the measures themselves.

1 . <i>Wild horse and burro territories that have approved plans or are in compliance with Forest plans</i>	<i>Number of wild horse and burro territories</i>
	<i>Territories with approved plans</i>

Plans document management objectives of ecological status and range health, appropriate wild horse or burro numbers\_ and -the opportunities for range management improvements.

Report annually.

2. <i>Wild horse and burro populations</i>	<i>Total number of animals</i>
	Horses _____
	Burros _____

Report annually.

3. <i>Wild horses and burros removed</i>	<i>Total number of animals</i>
	Horses _____
	Burros _____

Report annually.

**Rationale and discussion**—The most important measurement describing the wild horse and burro program that should be tracked in the budgeting system is the number of territories with approved plans. Approved plans document herd numbers and desired herd numbers in relation to ecological status and range health, and they outline the opportunities and concerns of management. These figures, used with the biennial report to Congress, will provide information on trends in animal numbers by State and in total.

## **Recommendations**

The need to modify the measurements associated with reporting range resource management goals and accomplishments is apparent. The Range Measurement Task Group recommends measurements that reflect shifts in budgets and realistically portray the status of the range resource and its management. The group consensus is that the term "joint production" best describes range resource management. The description of benefits and outputs associated with range resource management should not be restricted to the traditional output of livestock grazing. Integrated resource management leads to the cooperative atmosphere that can result in accomplishing most of the Agency goals. The shift in emphasis is toward vegetation management where livestock grazing, besides being an output in and of itself, can also be used as a tool just as fire, brush removal, or other management tools are used to manage vegetation.

The shift in emphasis toward vegetation management can be accomplished only through an education process for all those affected. This process must involve people inside and outside the Agency, public interest groups, and Congress. It is entirely possible that new interest groups will become constituencies of the Agency and demand new directions in the management of the Nation's range resources.

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**U.S. Laws, Statutes, etc.; Public Law 94-588.** National Forest Management Act of 1976. Act of Oct. 22, 1976.16 U.S.C. 1600(1976).

## Appendix A

### Application of the Range Vegetation Management Measure

**Purpose**—The purpose of this appendix. is to define the land included in the Range Vegetation Management Measure and describe how land is classified into one category or another for reporting purposes. The method and data involved are described to provide clarification in use of the system for measuring range outputs. The maintenance of databases and how land moves from one category to another are described. To be meaningful, the information must be gathered at the lower levels of the Forest Service and aggregated upward. Thus, Ranger District and National Forest personnel must be familiar with uses of the data.

**Objective of the measure**—This measure has been developed to show the amount of rangeland<sup>7</sup> acres requiring management and the status of these acres in meeting Forest land management plan (FLMP) objectives. The status of the acres is measured by two criteria:

1. Status of management. An allotment management plan (AMP) or other appropriate plan has been approved and meets the Forest land management plan requirements. It specifically states the resource management objectives and spells out what the desired plant community is supposed to be.
2. Health of vegetation. This criteria describes the vegetation or health of the range. Does the present plant community (ecological site) fully meet the vegetation management objective for the desired plant community?

### Possible Approach for Developing the Measure

The determination of the range vegetation measure involves a two-stage approach. The first stage determines the number of acres of range vegetation with range objectives; in the second stage, these lands are divided into three categories.

<sup>7</sup> Rangeland is land supporting grasses, grasslike plants, forbs, or shrubs during one or more of its ecological stages. It includes forested and nonforested sites providing forage and habitat for many wild and domestic animals. The vegetation on these sites is responsive to range management practices.

**Determining acres of range vegetation with specific range objectives**—Defining the acres of range vegetation with specific range management objectives is critical to the accuracy of the range vegetation measure. To determine these lands, the acres of range vegetation (in the broad sense) having specific range management objectives must be obtained. Specific range management objectives could be wildlife goals requiring range vegetation management, lands within municipal watersheds with specific vegetation objectives, upland areas within grazing allotments with objectives for desired plant communities, land designated as critical spring or fall range for wildlife, areas with objectives to manipulate vegetation through livestock use, timber land with specific overstory vegetation requirements, timber land with goals of transitory range during particular growth stages, and many others. The emphasis used in determining which land will be included in the measure is that specific range objectives exist for the area in question.

Land, by virtue of its location within a grazing allotment, does not automatically qualify as having specific range vegetation objectives. Examples of areas within grazing allotments that may have no specific range vegetation objectives might include rock outcrops, areas of steep slope with old growth on the site and no plans to harvest timber, or dense timber stands within wilderness areas. These areas are not to be automatically excluded from consideration, however, because specific range vegetation objectives could exist under these conditions.

Existing databases may not be able to provide the level of information needed, but the advent of geographic information systems at District and Forest levels should enhance the capability to gather the information needed for these measures. Knowledge of the FLMP, existing vegetation conditions, and management practices are essential to determine the extent of these measures. Once determined, the acres with range objectives should remain stable over the life of the FLMP. With the creation of a new or amended FLMP, AMP, or Area analyses, the acres could change. The following list is an example of how to determine these acres:

1. Review management direction for forest plan management areas and select those management areas with range vegetation objectives.
2. Omit portions of management areas identified in step 1 within grazing allotments or territory areas having no range vegetation management objectives (rock and steep and timbered slopes might be examples).
3. Select portions of management areas identified in step 1 outside grazing allotments or territories having specific range vegetation management objectives. These might be critical wildlife seasonal ranges, municipal watersheds with specific vegetation objectives, or rare plant areas. Acres are not included unless management actions are necessary to achieve or maintain the desired vegetation condition in the Forest plan.

**Categorizing range vegetation to meet measurement criteria**—Three categories have been developed to describe the management and health of range vegetation:

1. Acres meeting Forest plan objectives. For most National Forests and Grasslands, large acreages of land should meet the requirements of this category. If available information indicates that the range vegetation is in the desired plant community and seral stage, meets the requirements of the FLMP, and has management direction consistent with the FLMP, this category would apply. This acreage would fall into the estimated category unless site-specific analyses had been conducted to verify the vegetation and management; if so, they could then be categorized as verified.

This category includes the acres of range vegetation meeting the objectives of the FLMP. The objectives could include utilization standards, soil disturbance, and diversity requirements. The decision to include acreage in this category is not based purely on traditional range utilization standards, rather acreage would be included in this category only if all the specific objectives for range vegetation were met.

2. Acres moving toward Forest plan objectives. Determining the number of acres meeting the requirements of this category involves comparing FLMP objectives with the existing vegetation health and management. The areas progressing toward FLMP objectives are the areas of the Forest not currently meeting the plan objectives. The areas have management activities taking place, however, that will likely lead to the desired condition stated in the FLMP. These acres can be either verified, if actual-site specific testing has occurred, or estimated.

If the vegetation of an area is not in the desired seral stage, but tends toward that stage and management is appropriate for maintaining that trend, it would meet the conditions of this category. This category was established to describe the areas where management plans exist and work is being done to achieve the objectives, even though the desired vegetation condition is not yet realized.

3. Acres not meeting Forest plan objectives. This category of range vegetation includes areas not meeting the objectives of the FLMP, and existing management is not resulting in a trend toward the desired vegetation condition. It also contains those acres where range vegetation objectives exist but no plan has been approved to achieve the objectives. Land may be classified in this category because an approved plan is lacking, the plan has failed to achieve the desired vegetation condition, or the vegetation has not responded to existing management. These areas can be estimated or verified through site-specific study.

If the FLMP directs that an AMP be developed and implemented for every allotment on the Forest, then any allotment without an AMP would fit this category. Examples include areas where excessive erosion is occurring and rehabilitation has not occurred as expected, or areas with no plans being implemented to correct conditions where vegetation is in a seral state other than that desired.

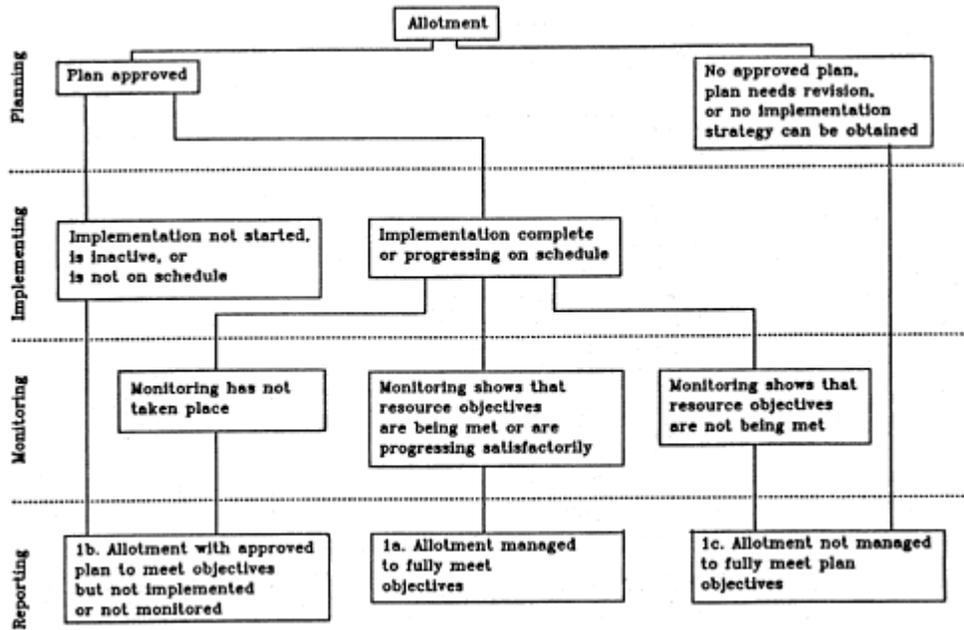


Figure1—Classification of allotments for grazing management reporting.

### Grazing Management Reporting of Allotment Status

Integrally linked to the range vegetation measure is the reporting of allotment status as a measure for grazing management. A decision flowchart depicts the decisions required to categorize allotments into the three categories (fig. 1). Use this chart to classify all grazing allotments.

Determining the number of acres for each of these categories will require professional judgment. Areas verified by site-specific study rely on judgment to a lesser extent than do those areas with no study. This reliance on judgment is acceptable. Some locations may never require a site-specific study, or the investment of resources to conduct analyses may not be necessary to accomplish management objectives. See figure 2 for a summary of this classification scheme.

### Use as a National Reporting Item

The range vegetation measure provides valuable information to the Forest Service manager, the public, and Congress. The measure indicates both the quality of management and the health of the range vegetation as described in Forest plans. This measure can be used to measure accomplishments and to prepare budget requests.

**Accomplishment reporting**—Each National Forest and Grassland annually will determine the acres meeting plan objectives. This information provides a way to compare current management and range vegetation condition with the desired conditions of the FLMP. The more acres in the categories of meeting plan objectives and moving toward plan objectives, the more closely the management vegetation condition reflects that described in the goals of the FLMP. If the acres in the category not meeting plan objectives are increasing, it indicates that management is not following the plan or that natural events have occurred (wildfire, mud slides, drought,) and changed existing conditions. In either case, this information is important to consider in future management actions and budget allocations.

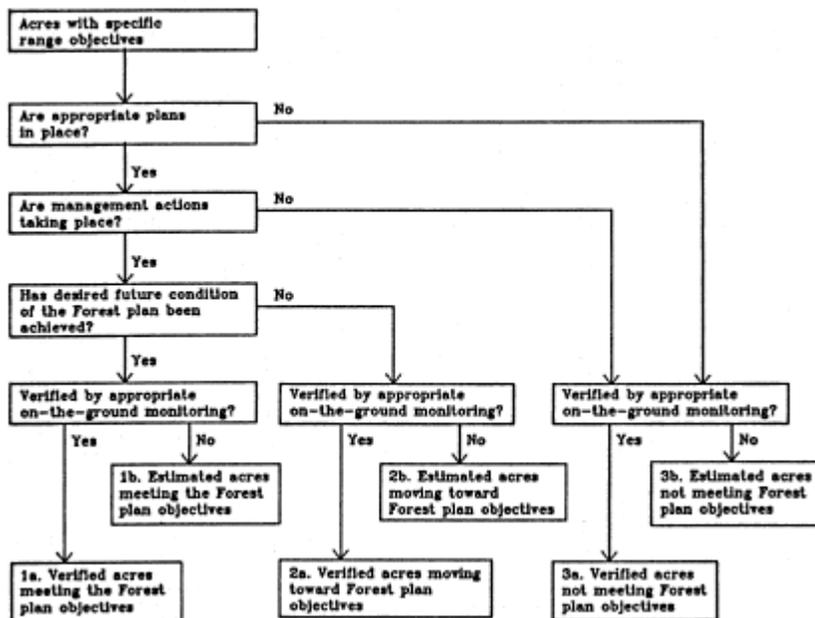


Figure 2—Decision flowchart for classifying range vegetation acres.

**Preparation of budgets**—As part of the budget preparation process, starting at the District level, these new measures can be incorporated. The funding needed to maintain the existing situation first should be determined. Then, targets can be established with enough funding to move acres from one category to another. Generally, the cost of bringing land in line with FLMP objectives will be higher than the cost to keep moving toward the objectives. Start-up costs are typically higher than maintenance costs. As budgets rise, the typical situation would be that fewer acres would remain in the category of lands not meeting FLMP objectives. Conversely, as budgets decrease, more acres would fall into the category of not meeting FLMP objectives.

## Appendix B

### Range Measurements Proposal: Information Reporting. Requirements

**Annual Information requirements**—This information is to be reported via Annual range Reports (FSRAMIS) or directly from Forests and Regions. It will be used in the annual report of the Forest Service, budget explanatory notes, determining compliance with Resources Planning Act (RPA), wild horse and burro biennial report, responses to congressional and public inquiries, and program oversight.

The following outlines the measures to be reported annually.

#### A. Range vegetation management:

##### 1. Range vegetation meeting Forest plan management objectives

- |                            |                |
|----------------------------|----------------|
| 1a. Verified by monitoring | Thousand acres |
| 1b. Estimated              | Thousand acres |

- 2. Range vegetation moving toward Forest plan management objectives
  - 2a. Verified by monitoring Thousand acres
  - 2b. Estimated Thousand acres
- 3. Range vegetation neither meeting nor moving toward Forest plan management objectives
  - 3a. Verified by monitoring Thousand acres
  - 3b. Estimated Thousand acres
- B. *Riparian vegetation management:*
  - 1. Riparian vegetation meeting Forest plan management objectives
    - 1a. Verified by monitoring Thousand acres
    - 1b. Estimated Thousand acres
  - 2. Riparian vegetation moving toward Forest plan management objectives
    - 2a. Verified by monitoring Thousand acres
    - 2b. Estimated Thousand acres
  - 3. Riparian vegetation neither meeting nor moving toward Forest plan management objectives
    - 3a. Verified by monitoring Thousand acres
    - 3b. Estimated Thousand acres
- C. *Grazing management:*
  - 1. Allotment status
    - 1a. Allotments managed to fully meet forest plan (and AMP) objectives Number
    - 1b. Allotments with approved Allotment management plans that are written to fully meet Forest plan and Allotment management plan objectives and that have not been implemented Number
    - 1c. Allotments not managed to fully meet forest plan (and AMP) objectives Number

2. Statistical data.

Total number of livestock and AUMs authorized

Number of cattle  
Number of sheep  
Number of other

D. *Noxious weed management:*

1. Noxious weed infestations treated

Acres

E. *Wild horse and burro management:*

1. Wild horse and burro territories that have approved plans or are in compliance with Forest plans

1a. Number of territories

Number

1b. Territories with approved plans

Number

2. Wild horse and burro population

Number of horses  
Number of burros

3. Wild horses and burros removed

Number of horses  
Number of burros

*Five-year Information requirements*—This information is to be reported by the Forest, Grassland, and Region via FSRAMIS or a memorandum to the Range Staff Director. The information will be used for assessment of RP A compliance and program oversight.

The data to be reported every 5 years is listed in the measure outline as follows:

D. Noxious Weed Management:

2. Noxious weed infestation by species and infestation levels    Acres

**Qulgley, Thomas M.j Dillard, David S.j Reese, Jerry B.; Free, James C.; Henke, Geraldj Wasser, Allyn S.j Feakes, Nancy. 1989.** New criteria for measuring range management activities. Gen. Tech. Rep. PNW-GTR-248. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 27 p.

The USDA Forest Service national range program is currently evaluating its information needs at the national level. A Range Measurement Task Group of Agency personnel was assembled in January 1988 to evaluate the information needs and recommend appropriate measures and reports. This document is the final recommendation of the task group. The recommendation includes measuring and reporting five broad areas of range management: range vegetation management, riparian vegetation management, grazing management, noxious weed management, and wild horse and burro management. Each area is directly linked to accomplishment of Forest plan objectives. The recommendation of the task group will be evaluated by the Chief of the Forest Service and his staff for possible implementation as new policy direction.

Keywords: Range management, range policy, measurements.

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