OVERVIEW

Rangelands are a major component of ecosystems in the western United States. They are lands that include strong representation by herbaceous and graminoid species. Rangelands include, but are not limited to: grasslands, shrublands, open-canopied forests, and associated riparian and aquatic areas. Well-managed rangelands provide forage and cover for wildlife and for domestic livestock, in addition to high quality water and numerous recreational values.

INTRODUCTION

Rangeland analysis is essential for planning Forest Service management activities. This guide provides instructions and standards for conducting rangeland analysis and planning. Rangeland analysis information is used to prepare and maintain Forest Land and Resource Management Plans (LRMP) and project level plans (for example, allotment management plans). Rangeland analysis uses a systematic procedure of collecting, recording, and evaluating data. It also provides permittees, Forest Service officers, cooperating agencies, and the public an opportunity for mutual appraisal of rangelands. The intensity of studies conducted on rangelands will vary dependent on the need for information, and land management and allotment objectives.

OBJECTIVES

Instructions in this guide are supported by direction and guidelines in other documents, including: the Forest Service Manual;[1] the Service-wide Range Analysis and Management Handbook;[2] the Ecosystem Classification, Interpretation, and Application Handbook;[3] and *Sustaining Ecosystems: A Conceptual Framework*, version 1.0, (Manley, et al. 1995). Individuals performing rangeland analysis should be familiar with direction in these documents before starting any analysis project.

DIRECTION

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[1] FSM 2210 and FSM 2060

[2] FSH 2209.14

[3] FSH 2090.11

GENERAL INSTRUCTIONS

Rangeland analysis addresses the systematic collection and evaluation of rangeland resource data. Existing vegetation (plant community) and desired vegetation is mapped and inventoried. Within these map units, plant species, land capable of supporting livestock grazing, and present vegetation status of the rangeland are identified. Analysis provides a baseline for determining resource value ratings, and for periodic measurement of rangeland condition, leading to trend determinations.

The National Forest Management Act of 1976 and its implementing regulations identifies information requirements concerning National Forest System grazing resources. This information is collected through rangeland analysis and/or allotment management planning. The requirements are:

♦ Identify capability and suitability of National Forest System lands for producing forage for grazing animals and for providing habitat for management indicator species.

♦ Determine and monitor status and trend of capable rangelands.

♦ Determine present and potential supply of forage for livestock and wild free-roaming horses and burros, and estimated capability of these lands to produce suitable food and cover for selected wildlife species.

♦ Estimate forage use by grazing and browsing animals.

♦ Identify lands in less than satisfactory condition and prescribe the appropriate action for their restoration.

♦ Develop rangeland management prescription alternatives that provide for the maintenance and evaluation of soil, water, and air quality resources. Give consideration to:

 • grazing systems and facilities necessary to implement the prescription;

 • land treatment and vegetation manipulation practices;

 • evaluation of pest problems;

 • possible conflicts or beneficial interactions among livestock, wild free-roaming horses and burros, and wild animal populations, and methods to regulate them;

 • direction for rehabilitating ranges in unsatisfactory condition; and

 • comparative cost efficiency of prescriptions.

Rangeland analysis will meet or exceed these information requirements. The one possible exception is with respect to wildlife species (see page 2-3). Those species and their habitat requirements should be identified and evaluated as an integral part of rangeland analysis and allotment management planning. Where habitat requirements of plant and animal species are not fully understood, rangeland managers should conduct project planning and implementation using the best information available

from wildlife and botany specialists. Range plans should include schedules for completing surveys to provide an appropriate level of information on threatened, endangered, and sensitive (TES) species and habitat. Project plans can be modified as the additional information becomes available.

ECOLOGICAL CLASSIFICATION

An ecological classification is the integration of landform, topography, geology, soil, vegetation, climate, and other characteristics into products useful to managers.[4] Products include guides and other tools. Data obtained through rangeland inventory and analysis will supplement that used to develop ecological type classifications.

GUIDES

An ecological guide presents quantitative and qualitative information on ecological classification taxa, for example, landtypes, plant associations, and community types. They may relate to either potential natural vegetation or to existing vegetation.

Physical, topographical, and biological characteristics are quantified and described. Successional relationships are predicted and portrayed. Table 1-1 displays the hierarchical framework of ecological units for inventory and mapping of climatic, geologic, topographic, and edaphic characteristics, as well as existing and potential vegetation communities.

Table 1-1. NATIONAL HIERARCHICAL FRAMEWORK OF ECOLOGICAL UNITS

PLANNING AND ANALYSIS SCALE	ECOLOGICAL UNITS[5]	PURPOSE, OBJECTIVES, AND GENERAL USE	MAP SCALE RANGE	GENERAL SIZE RANGE
ECOREGION Global	Domain	Broad applicability for modeling and sampling. Strategic plan and assessment. International planning.	1:30,000,000 or smaller	1,000,000's of square miles
Continental	Division		1:30,000,000 to 1:7,500,000	100,000's of square miles
Regional	Province		1:15,000,000 to 1:5,000,000	10,000's of square miles
SUBREGION	Section	Strategic, multi-forest, statewide, and multi-agency analysis and assessment.	1:7,500,000 to 1:3,500,000	1,000's of square miles
	Subsection		1:3,500,000 to 1:250,000	low 1,000's to 10's of square miles
LANDSCAPE	Landtype Association	Forest or area-wide planning, and watershed analysis.	1:250,000 to 1:60,000	1,000's to 100's of acres
LAND UNIT	Landtype	Project and management area planning and analysis.	1:60,000 to 1:24,000	100's to 10's of acres
	Landtype Phase		1:24,000 or larger	<100 acres

[4] FSM 2060 and FSH 2090.11

[5] Terms are derived from Bailey, 1983 (Domain, Division, and Province) and Wertz and Arnold, 1972 (Section, Subsection, Landtype Association, Landtype, and Landtype Phase)

Information found in ecological guides should address:

- climate,
- physiography,
- hydrology,
- geology,
- soil,
- vegetative community descriptions (seral and potential),
- ecological and successional relationships,
- resource value ratings, and
- management implications.

SCORECARDS

An ecological scorecard is one of several possible tools that may be derived from an ecological classification. A scorecard is normally used to evaluate the status of a specific plant community, estimate resource value ratings, or estimate carrying capacity. The evaluation can be expressed in terms of ecological status[6], or present vegetation status.[7]

OTHER TOOLS

Various other tools and information may be developed from an ecological classification. Possibilities include resource value ratings, successional models, old growth scorecards, riparian evaluation guides, and predictive models. Management needs and availability of information will govern their development.

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[6] The similarity of the seral stage or successional status of a particular plant community with respect to its potential natural vegetation

[7] The similarity of the current plant community to the desired future vegetation as specified by the desired condition