

**Forest Service Handbook
National Headquarters (WO)
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Forest Service Handbook 2090.11 – Ecological Classification and Inventory Handbook

Chapter 4 - Interpretations and Applications

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Approved by: F. Dale Robertson, Chief

Date approved:

Responsible Staff:

Last Change: This amendment is the first in a new numbering series corresponding to the year in which material was amended. Since this amendment replaces all text except Interim Directives (ID), do not check for the last transmittal received for this title. Replace the entire title text except ID's.

Superseded Document(s): Entire Title except ID's, 00--1 thru 2.81; Transmittal, 2/86; and Amendment 1, 5/86.

Digest: Following is an explanation of the changes throughout the directive by section.

This amendment changes the title of the handbook to include direction for inventory, eliminates the reserved chapter for field procedures, renames and rewrites the text for chapter 1 (formerly chapter 2) on Classification of Ecological Types, retitles chapter 2 (formerly chapter 1) Classification of Potential Natural Communities and deletes section on interrelationships and making interpretations. It also adds text for chapter 3 (Ecological Unit Inventories) and chapter 4 (Interpretations and Applications). It also incorporates direction previously issued in FSM 2060.5 through 2062.9.

Table of Contents

4.1 - Interrelationships and Making Interpretations	3
4.2 - Integration	3
4.3 - Resource Value Ratings	3
4.31 - Ecological Status.....	4
4.4 - Resource Values for Vegetation.....	4
4.41 - Desired Future Vegetation	4
4.42 - Present Vegetation Status	5
4.43 - Present Vegetation Trend	5
4.43a - Apparent Trend.....	5
4.43b - Long-Term Trend	5
4.44 - Interpreting Trend Data	5
4.45 - Application to Management Objectives	6
4.5 - Resource Values for Soil	6
4.51 - Desired Soil Condition	6
4.52 - Present Soil Condition	7
4.53 - Present Soil Condition Trend.....	7
4.54 - Application to Management Objectives	7
4.6 - Scorecards	7

4.1 - Interrelationships and Making Interpretations

Identify basic resource use interpretations to be made and develop criteria according to management needs prior to ecological type classification and ecological unit mapping. The process of developing and making interpretations is interdisciplinary and requires the use and interaction of individuals with appropriate skills, and a system of database management. Follow FSH 2509.18, chapter 1 and the National Soils Handbook for soil interpretations. Additional study and data collection may be necessary to meet all the needs of the kind and intensity anticipated by management. Different levels of soil and vegetation taxonomy may be combined for specific management needs.

See sections 1.47, 3.24, and 3.26 of this handbook.

4.2 - Integration

In most inventories conducted by the Forest Service, each functional unit inventories and maps the landscape according to its specific needs and specific purposes, such as stand condition, cover type, or wildlife habitat capability. Ecological type information can be incorporated by obtaining sufficient data on species composition or environmental characteristics to identify the types as a part of the inventory. The type and its description aid data integration by providing a common identifier that relates existing vegetation to potential vegetation and identifies additional communities on various successional pathways. Hence, ecological type provides a first step toward information integration. See FSH 1909.14 for direction on inventory integration. Another way integration can be accomplished is by obtaining the ecological unit information from existing maps and descriptions or by collecting additional data.

4.3 - Resource Value Ratings

Base Resource Value Ratings (RVR's) on ecological type or ecological unit characteristics that are important for evaluating a particular use or benefit. Develop resource value ratings utilizing appropriate functional expertise and express them on a scale of 0-100, where 100 represents the maximum potential resource value of the ecological type or ecological unit. Adjective ratings such as low, moderate and high are appropriate as an alternative. A category of not applicable may be used for sites where the concepts of the rating do not apply.

To express how present resource value relates to potential resource value for a particular use on a site, judge the present resource value ratings relative to the highest resource value actually measured within the ecological type or unit. In the absence of areas that could represent the potential, estimate the resource value ratings based on measurements from similar ecological type or units. Aggregation

is permitted, if it can be demonstrated that the ecological types or units have similar capabilities for that resource value ratings.

A standard reference site expressing the maximum resource value shall be identified and characterized for comparison.

4.31 - Ecological Status

Ecological status is rated irrespective of management objectives. Therefore, do not use ecological status to rate the success of management. However, it is appropriate to use ecological status as a measure of achieving a desired future vegetation and desired soil condition (FSM 2060). Base ratings on the floristic similarity of the current vegetation to the potential natural community. Express the similarity on a relative scale ranging from 0 to 100 with adjective ratings assigned as low, moderate, or high similarity.

4.4 - Resource Values for Vegetation

The amount and kind of resource value rating for vegetation which may be developed are many and varied depending on issues, concerns and management objectives and must involve the appropriate functional expertise. Develop a minimum of three resource value ratings for vegetation:

1. Present vegetation status.
2. Present vegetation trend, and
3. Compliance with the objective for desired future vegetation in terms of the composition and structural characteristics of the plant community of a site or ecological unit which meets forest plan or other management objectives.

4.41 - Desired Future Vegetation

Make three ratings for each site:

1. Present vegetation status.
2. Present vegetation trend, and
3. Compliance with management objectives.

4.42 - Present Vegetation Status

Base the present vegetation status on floristic similarity to the desired future vegetation on a scale of 0-100, where 100 represents the desired future vegetation. Express adjective ratings in four equal classes:

1. Low similarity (0-25).
2. Moderate similarity (26-50).
3. High similarity (51-75), and
4. Desired future vegetation (76-100), or other appropriate classes.

4.43 - Present Vegetation Trend

Determine present vegetation trend as outlined below. Trend should be expressed as: toward, away from, or not apparent in relation to the desired future vegetation. Trend in this case will indicate direction toward or away from management accomplishment rather than direction toward or away from the potential natural community.

4.43a - Apparent Trend

Apparent trend may be inferred from indicators based on observations at a single point in time. Knowledge of apparent trend will help determine if current practices are sound or if corrective actions are needed. Estimate apparent trend of reference sites when they are established.

4.43b - Long-Term Trend

Determine long-term trend from observations and measurements made on permanently established reference sites and on permanently established monitoring sites. Select monitoring sites in areas sensitive to change in management practices. Sample reference and monitoring sites periodically by methods appropriate to the site. Procedures for remeasurement must be identical to those used for the previous measure. The number of measurements to make at each site depends on the sites inherent variability. An acceptable level of sample reliability and monitoring frequency shall be determined according to management need.

4.44 - Interpreting Trend Data

Evaluate existing records and other pertinent data and use the results for interpreting trend. Evaluation of trend information should attempt to isolate and

identify all significant factors. Differentiate the effects of management from those of weather or other environmental factors.

To aid in interpreting trend, establish at least one photo station at each reference and monitoring site. Repeat the photographs at each remeasurement, and if possible, each year when major plant species are in the same phenological stages.

4.45 - Application to Management Objectives

This can be based on status and trend, and reported by acres in two classes (Table 1). The site meets or does not meet forest plan requirements for the desired future vegetation. A site not at the desired future vegetation status, but with trend toward the desired future vegetation should be rated as meeting forest plan requirements.

Table 1. Classification of compliance with management objective on present vegetation status and trend in relation to the desired future vegetation (DFV):

<u>Vegetation Status and Trend</u>		
<u>Trend</u>	<u>At DFV</u>	<u>Not at DFV</u>
Toward		
Rate acceptable	NA	Yes
Rate unacceptable	NA	No
Not apparent	Yes	No
<u>Away from</u>	<u>Yes</u>	<u>No</u>

NA = Not applicable
 Yes = Meets management objectives
 No = Does not meet management objectives

4.5 - Resource Values for Soil

Resource values for soil include the soil interpretations developed for resource production potential and management (FSM 2550 and FSH 2509.18).

4.51 - Desired Soil Condition

Develop soil quality standards and evaluation techniques that relate to soil productive capacity and hydrologic function (FSH 2509.18). Provide management guidelines that will prevent soil degradation such as excess erosion, compaction, lowering or raising of the water table, that would result in a change in a ecological

type or ecological unit to a lower site capability. Apply monitoring results to modify management activities as needed.

4.52 - Present Soil Condition

Rate the present soil condition as meeting or not meeting the desired soil condition.

4.53 - Present Soil Condition Trend

Rate present soil condition trend where applicable as toward, away from, or not apparent relative to the desired soil condition.

4.54 - Application to Management Objectives

This evaluation should be based on soil condition and trend and reported in two classes (Table 2).

Table 2. An Example of Rating Soil Condition and Trend.

<u>Soil Condition and Trend</u>		
<u>Trend</u>	<u>At DSC</u>	<u>Not at DSC</u>
<u>Toward</u>		
Rate acceptable	NA	Yes
Rate unacceptable	NA	No
Not apparent	Yes	No
<u>Away from</u>		
Rate acceptable	Yes	No
Rate unacceptable	No	No

NA = Not applicable
 Yes = Meets management objectives
 No = Does not meet management objectives

4.6 - Scorecards

Develop scorecards to ensure consistent methods of assigning a relative value to evaluate ecological status or resource values of an ecological type. One use of a scorecard would be to determine floristic similarity of a site to either potential natural community or desired future vegetation. Scorecards may be developed with a scale of 0 - 100 or as general categories. Allow for the natural variability of the type.