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Forest Service Handbook 2409.13 – Timber Resource Planning Handbook

Chapter 20 - Timber Resource Land Suitability Process

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

This amendment is a reissuance of FSH 2409.13 to conform the format and structure of the Handbook to the requirements of electronic directive issuance.

This amendment makes no substantive changes to the text. The only changes made are those necessary to meet new format requirements or to correct spelling, punctuation, or unit names.

This Handbook is now available electronically in the National Information Center in the same format as the paper copy. Henceforth, amendments to this Handbook will be issued to Forest Service units electronically on a document basis.

Table of Contents

21 - Tentatively Suitable Forest Land Classification Process	4
21.1 - Forest Land	4
21.2 - Forest Land Withdrawn from Timber Production	4
21.3 - Forest Land Incapable of Producing Industrial Wood.....	4
21.4 - Physically Suitable Forest Land	4
21.41 - Irreversible Resource Damage.....	5
21.42 - Reasonable Assurance of Adequate Restocking.....	5
21.5 - Inadequate Response Information.....	5
21.6 - Tentatively Suitable Forest Lands	6
22 - Management Prescriptions	6
22.1 - Management Emphasis	6
22.2 - Management Intensity	6
22.3 - Financial Analysis	7
22.31 - Supply Potentials	7
23 - Lands Not Appropriate for Timber Production	8
23.1 - Minimum Management Requirements	8
23.2 - Multiple-use Objectives.....	8
23.3 - Cost Efficiency	8
24 - Suitable Forest Lands	9

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Suitable lands in a Forest plan constitute the land base for determining the allowable sale quantity (ASQ) and the vegetation management practices associated with timber production. (Exhibit 01).

20 - Exhibit 01

Process for Identification of Lands Suitable for Timber Production

Is land forested (FSH 2409.13-21.1)	NO Unsuitable (nonforest) YES
Is land withdrawn from timber production (FSH 2409.13-21.2)	YES Unsuitable (withdrawn) NO
Is land capable of producing crops of industrial wood (FSH 2409.13-21.3)	NO Unsuitable (nonin- dustrial wood) YES
Is irreversible damage likely to occur (FSH 2409.13-21.41)	YES Unsuitable (irreversible damage) NO
Can area be restocked within 5 years (FSH 2409.13-21.42)	NO Unsuitable (restocked) YES
Is adequate response information available (FSH 2409.13-21.5)	NO Unsuitable (no information) YES
Then land is tentatively suit- able for timber production (FSH 2409.13-21.6)	
Is land selected in an alterna- tive for timber production (FSH 2409.13-23)	NO Not appropriate (unsuitable in preferred alternative and Forest plan) YES
Then land is suitable for timber production (FSH 2409.13-24)	

21 - Tentatively Suitable Forest Land Classification Process

Follow the sequential steps in this section to determine which lands are tentatively suitable for timber production.

21.1 - Forest Land

Consider all lands meeting the definition of forest land as initially suitable for timber production.

Measurement for the term "occupancy," when used to define forest land, shall be by canopy cover of live forest trees at maturity. The minimum area for classification of forest land is 1 acre or greater, consistent with Regional mapping standards. Classify unimproved roads, trails, streams, and clearing in forest areas as forest, if they are less than 120 feet in width.

21.2 - Forest Land Withdrawn from Timber Production

(36 CFR 219.14(a)(4)). Identify as unsuitable those lands designated by the Congress, the Secretary, or the Chief for purposes that preclude timber production. Examples are units of the National Wilderness Preservation System and Research Natural Areas.

Obtain management objectives for Experimental Forests from the appropriate Station Director. Where objectives preclude timber production on a regulated basis, consider the areas as withdrawn.

21.3 - Forest Land Incapable of Producing Industrial Wood

Identify lands that are not capable of producing crops of industrial wood as unsuitable for timber production. The primary criterion for assigning lands to this category, is the fact that the species of trees involved are not currently utilized nor likely to be utilized within the next 10 years. However, this does not preclude formulating an alternative to display management opportunities should a demand develop.

21.4 - Physically Suitable Forest Land

Forest lands physically suitable for timber production are lands for which technology is available to ensure timber production without irreversible resource damage to soils productivity, or watershed conditions, and lands for which the possibility of adequate restocking within 5 years is reasonably sure. In making these determinations, consider the latest developments in technology documented in current research and experience. Do not consider speculation about current untested technology or future developments of new technology in these determinations. Cost efficiency is not a factor in the determination of physical suitability.

21.41 - Irreversible Resource Damage

An interdisciplinary team performs the test on irreversible resource damage. The team determines whether or not it is possible to carry out the activities involved in timber production on forest land without irreversible resource damage to soil productivity or watershed conditions. As a minimum, activities considered include access, harvesting, slash disposal, and regeneration.

If it is possible to accomplish these activities with available technology and without impairment to the site or drainage, identify the land as tentatively suitable. Available technology is technology that is in use or that current research and experience indicates is feasible to use. Current research and experience must indicate that the technology is feasible to use successfully for the site, species, and other factors involved. Current use need not be within the Forest or Region. Cost efficiency is not a factor in this determination.

21.42 - Reasonable Assurance of Adequate Restocking

The second test of suitability is to determine whether or not there is reasonable assurance that it is possible to restock the remaining forest lands adequately within 5 years of final harvest, based on existing technology and knowledge. Current research and experience provide the basis for determining whether or not the planned practices are likely to be successful at the time final harvest is planned. If existing knowledge is not adequate for determining which practices will be successful on certain lands, but ongoing research should resolve this question before the scheduled final harvest, then, include the applicable lands as tentatively suitable, but maintain them as a separate, noninterchangeable component of the allowable sale quantity. For the purposes of this test, final harvest is defined in 36 CFR 219.27(c)(3). Such assurance applies to normal conditions for the site and does not constitute a guarantee. Abnormal conditions, such as drought, disease, or other unplanned events, may preclude meeting this requirement. Identify forest lands failing to meet this test as unsuitable for timber production. Cost efficiency is not a factor in this determination.

21.5 - Inadequate Response Information

Identify forest land as unsuitable for timber production if there is not adequate information available, based on current research and experience, to project responses to timber management practices.

Until such time as adequate response data are available, identify these lands as needing further inventory, research, or information and do not consider them as part of the tentatively suitable land base. These lands may include forest types, such as pinyon-juniper, mesquite, and so forth which occupy low sites.

Give special attention to lands classified as incapable of producing 20 cubic feet/acre/year if they formerly met this criterion and were previously part of the timber base. In those situations involving significant acreages, consider the lands as tentatively suitable for timber production. Where response data to intensive management practices is inadequate, limit the yield projections

for these lands to regeneration harvest practices during the development of management prescriptions in accordance with FSH 2409.13-22.

21.6 - Tentatively Suitable Forest Lands

Tentatively suitable lands, identified in accordance with the process set forth in FSH 2409.13-21, are a fixed input to the forest planning model in the establishment and evaluation of benchmarks and alternatives.

22 - Management Prescriptions

Develop management prescriptions, including timber production functions, on a per acre basis for all forest land that is identified as tentatively suitable. In accordance with 36 CFR 219.27, integrate all prescriptions for tentatively suitable lands to meet one or more resource emphases and intensities for a unit of land. Complete prescription development before evaluating benchmarks and forest plan alternatives to ensure consideration of an adequate range of prescriptions in meeting forest plan objectives.

22.1 - Management Emphasis

Design each prescription to meet one or more resource goals for a unit of land. The management emphasis depends on issues, concerns, the capability of the land to produce resources, and the type of analysis undertaken.

22.2 - Management Intensity

Consider regeneration harvest and reforestation to be the minimum intensity for providing a periodic output of timber. In addition, prescriptions encompass a range of intensities composed of two parts:

1. Management Practices. Consider a range of management practices that provide significant differences in total or periodic timber outputs and costs above the minimum intensity level. Appropriate practices include: a) precommercial thinning at appropriate times in various degrees; b) commercial thinning, where a market is likely to exist; c) fertilization, and use of genetically improved stock; d) animal damage control; e) vegetative competition control; f) slash disposal; g) and site preparation.

2. Rotation Length. In the analysis, use a range of rotation lengths (or timing options for regeneration harvests) that will be available for selection, based on the management goals for each prescription. The range shall center around the optimum rotation for the analysis area, yet vary enough to provide significantly different choices and flexibility for the harvest scheduling model. See also FSH 2409.13-32.1 for regeneration harvest age requirements.

22.3 - Financial Analysis

The purpose of the financial analysis is to identify the direct costs and benefits for the range of timber management intensities developed in FSH 2409.13-22.2, in accordance with the requirements of 36 CFR 219.14(b). Do not use the financial analysis to determine suitability of forest lands for timber production. These determinations occur later in the forest planning process and are based on the multiple-use objectives established in the forest plan (36 CFR 219.14(c) and 36 CFR 219.12(f)).

For the financial analysis, stratify the forest into land categories, based on factors that influence and lead to similar timber management costs and returns. Examples include: a) site condition and productivity, b) age/size class, c) species mix, and d) transportation requirements. If possible, these categories shall correspond to timber working groups (FSH 2409.14), planning analysis areas, or groups of analysis areas where similar vegetative management prescriptions would apply.

Express direct benefits in terms of dollars, based on such values as expected stumpage prices and payments-in-kind, for example, purchaser credit roads, when appropriate. Where appropriate, projected stumpage prices shall reflect expectations of price trends and variations in values associated with differences in product size and quality resulting from different management prescriptions. Do not assign benefit values to timber outputs for which there is no market or projected demand. (FSM 1971.63).

Express direct costs in terms of dollars for activities attributable to timber production. These include such costs as timber management planning, sales preparation and administration, reforestation, timber stand improvement, construction, maintenance, and mitigation measures necessitated by the impacts of timber production. Do not include costs associated with required wood residue removal on timber sales included in the 5-year program authorized under the Wood Residue Utilization Act of 1980 (16 U.S.C. 1681-87) in the timber management costs. This program includes pilot projects and demonstrations that are not normal practice at present.

Calculate the present net value (discounted benefits less discounted costs) for each management prescription. For each land category, identify the management prescription that maximizes the difference between discounted direct timber benefits and costs.

22.31 - Supply Potentials

Develop one prescription that maximizes timber output as expressed on a per-acre basis. This maximum timber emphasis prescription will be integrated in that it identifies and, where possible, quantifies other outputs. The maximum timber emphasis prescription must meet the minimum management requirements for other resources. Area management requirements, such as viable populations of wildlife species, do not affect per-acre maximum timber yields, but are met by the amount of acres not assigned to the maximum timber emphasis prescription. For this prescription, use timber outputs that meet minimum utilization standards as provided by the Regional guide (FSM 1920). Regions also may analyze the output supply potential for wood

fiber. In this analysis, total cubic foot volume must be the output regardless of current utilization standards.

23 - Lands Not Appropriate for Timber Production

The objectives of the benchmarks and alternatives are the basis for determining which tentatively suitable lands are not appropriate for timber production (36 CFR 219.14(c)). Consequently, the amount of land not appropriate for timber production usually varies among the benchmarks and alternatives because of the conditions discussed in FSH 2409.13-23.1-23.3. It is often difficult to determine in FORPLAN outputs if one or a combination of these conditions cause some tentatively suitable lands to be identified as not appropriate. For the forest plan alternative, review model constraints and solutions and make a reasonable effort to determine why tentatively suitable lands are not appropriate for timber production. This information will be important when unsuitable lands are reviewed for suitability at the required intervals (36 CFR 219.14(d)). Disaggregate this information and display in the forest plan (FSH 2409.13-44, exhibit 01).

23.1 - Minimum Management Requirements

Identify lands as not appropriate for timber production if other management objectives for the alternative limit timber production activities to the point where the minimum specific management requirements of 36 CFR 219.27 cannot be met. These include requirements for resource protection, vegetative manipulation, silvicultural practices, even-aged management, riparian areas, soil and water, and diversity. Base planned silvicultural treatments on technical or scientific literature or practical experience to meet the requirements of 36 CFR 219.27(c).

23.2 - Multiple-use Objectives

Identify lands as not appropriate for timber production if, based upon a consideration of multiple-use objectives for the alternative, the land is proposed for resource uses that preclude timber production, such as wilderness, developed campgrounds, and so forth. In addition, management objectives that extend beyond minimum management requirements to provide nontimber benefits may preclude timber production. Examples might be providing mule deer habitat beyond that needed to meet viable population requirements, or managing a trail corridor for preservation of existing scenic qualities.

23.3 - Cost Efficiency

Management objectives for the alternative or benchmark provide the basis for determining cost efficiency of timber production activities. Lands assigned timber production prescriptions in a FORPLAN solution that maximizes present net value (PNV) are the most cost efficient lands for timber production in meeting the objectives of that particular solution. Lands not assigned a timber production prescription may still be capable of achieving a positive PNV under such a prescription. However, these lands are not appropriate for timber production since they are not the most cost efficient in terms of meeting the objectives of a benchmark or alternative.

24 - Suitable Forest Lands

Identify tentatively suitable lands screened out as not appropriate in each alternative as unsuitable for timber production. Conversely, identify those forest lands not screened out during the various steps in the foregoing process as suitable for timber production.

As provided in 36 CFR 219.14(d), Regions and Forests must be aware of changes in conditions during the plan period that may have an effect on the suitability classification under the plan. As examples, if there is new market interest in a previously unmarketable species and that species is on unsuitable lands, or the development of new technology makes it possible to ensure adequate restocking of unsuitable lands within 5 years after final harvest, perform an analysis of the classification and amend the plan. If the amendment is significant, redo the entire suitability process (36 CFR 219.10(f)).

Review lands unsuitable for timber production at least every 10 years. These lands may be redesignated as suited for timber production, according to the criteria in 36 CFR 219.14(a) and (c).