

**Forest Service Handbook
National Headquarters - Washington Office
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**Forest Service Handbook 2409.13 – Timber Resource Planning Handbook
Chapter 40 - Planning Documentation**

Amendment: 2409.13-1996-2

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Approved by: Jack Ward Thomas, Chief

Date approved:

Responsible Staff:

Last Change: Amendment 2409.13-96-1 to FSH 2409.13,40 Contents

Superseded Document(s): 2409.13,40, Amendment 2409.13-92-1

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

42: Removes improper use of "shall" in 1st sentence and corrects cross reference to sections 42.1 and 42.8.

42.7: Removes entire section relating to timber sale schedule. This language is redundant of 36 CFR 219.16. Redesignates section 42.8 as 42.7.

44: Removes Exhibit 07 relating to 10 year timber sale schedule to conform to removal of timber sale schedule direction at section 42.7.

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41 - Regional Guide Content

The Regional guide includes: (1) a summary of the analysis of the management situation; (2) management direction, including programs, goals, and objectives; (3) tentative timber objectives for each forest planning area; and (4) management standards and guidelines, in accordance with 36 CFR 219.9.

The management standards and guidelines address: (1) appropriate harvest cutting methods; (2) maximum size, dispersal, and size variation of tree openings created by even-aged management, and the state vegetation must reach before a cut-over area is no longer considered an opening; (3) management intensities; and (4) utilization standards. Where appropriate in the narrative, include references to publications and other sources that support and provide background information for the proposed standards and guidelines.

42 - Forest Plan Content

The forest plan contains: (1) a brief summary of the analysis of the management situation; (2) timber production and other wood outputs, including a description of the timber-related condition of the desired future forest; (3) management prescriptions and associated standards and guidelines for each management area, including silvicultural practices such as the planned timber sale program; and (4) monitoring and evaluation requirements, in accordance with 36 CFR 219.11.

To help meet these requirements, include in the forest plan the information specified in FSH 2409.13-sections of 42.1-42.8. Compile the data consistent with the Timber Management Information System (TMIS) reporting requirements, where applicable. Although the information should be in the format prescribed in the exhibits in section 44 of this chapter, the formats may be modified to accommodate local needs. However, include the information specified to permit aggregation to a Regional and national level. Where indicated, also display certain of the information in the environmental impact statement (EIS) for each alternative considered in detail.

42.1 - Land Classification

Using the format shown in exhibit 01 at the end of this chapter, display the land classification areas, developed in accordance with the procedures described in FSH 2409.13, chapter 20. If additional and more detailed stratifications are desirable, the format may be modified or footnoted. Also include the data in the environmental impact statement for each alternative considered in detail.

42.2 - Vegetation Management Practices

Describe the reasons for the choice of a vegetation management practice, such as clearcutting (36 CFR 219.15). Include a brief narrative summary for each practice or related group of practices, with a reference to the Regional guide, environmental impact statement (EIS), planning records, and other sources for supporting analyses. Include in the EIS a comparison of the potential environmental effects of those practices that are issue-related or controversial.

Using the format shown in exhibit 02 at the end of this chapter, display the average annual acreage to which the vegetation management practices shall apply for suitable lands during the first decade. See FSM 2471 for definitions of listed practices. Also display data for issue-related practices in the EIS for the alternatives considered in detail.

42.3 - Timber Productivity Classification

Display the acreage of land suitable for timber production by the cubic feet productivity classes shown in exhibit 03 at the end of this chapter. Base productivity on the potential biological growth of natural stands. Do not consider stocking control or other intensive management practices. Show productivity acreages for unsuitable lands in the forest plan when the information is available. Footnote extrapolations when used to develop the data for unsuitable lands.

42.4 - Allowable Sale Quantity and Timber Sale Program Quantity

Display the planned output of sawtimber and other products in the format as shown in exhibit 04 at the end of this chapter. Express production as the average annual output during the first decade as follows:

1. The data to enter under allowable sale quantity shall include only chargeable volumes planned for sale on lands suitable for timber production.

Sawtimber volume includes all sawlogs and veneer bolts that meet the utilization standards specified in the Regional guide. Volume of other products, if applicable, includes material such as pulpwood (does not include fuelwood). The data may be displayed by softwoods and hardwoods, if desired.

2. The data to enter under Additional Sales, if applicable, includes any nonchargeable volumes planned for sale from suitable and/or unsuitable lands. If there are plans to sell from suitable lands volumes not included in the allowable sale quantity include the amount and footnote it. Often, these volumes are estimates made at the time of development of a forest plan. Consequently, do not view these volumes as fixed outputs that may not be changed during the plan period to reflect unforeseen events or conditions.

In the breakdown between sawtimber and other products under additional sales follow the same guidelines as described for the allowable sale quantity above, except that other products include any planned fuelwood volume sales.

42.5 - Allowable Sale Quantity and Long-Term Sustained Yield Capacity

Quantify the allowable sale quantity in units of cubic feet, as an annual average for each of the first 5 decades in the planning horizon and at selected periods thereafter, until it approximates the long-term sustained yield capacity. Also quantify the allowable sale quantity in units of board feet (local board foot measure used in timber sales program) as an annual average for each of the first 5 decades in the planning horizon. Express the long-term sustained yield capacity in units of cubic feet. Use a format similar to exhibit 05 at the end of this chapter to display the foregoing information, or show it in tabular form. Also display this information in the environmental impact statement for each alternative considered in detail.

42.6 - Present and Future Conditions

In the forest plan, provide the data listed in exhibit 06 at the end of this chapter for suitable lands. As indicated, also provide certain of these data (if available) for unsuitable lands.

The data for the present forest include volumes of growing stock, live cull, salvable dead timber, annual net growth, and annual mortality for suitable and unsuitable lands. Base these data on existing inventories and planning model outputs, to reflect the current condition of the forest. If necessary, estimates or extrapolations may be used for unsuitable lands; footnote these accordingly.

The data for the future forest apply only to suitable lands and include rotation ages, annual net growth, and growing stock volume. Base these data primarily on planning model outputs for the last decade of the planning horizon to reflect the future condition of the forest. Express rotation ages as a range from the lowest (average for lands with timber emphasis) to the highest for regenerated stands by major forest types.

Express age class distribution for the present forest and the forest at the end of the planning horizon in acres by 10-year or other classes, up to age 190 and in total for age classes 200 and above or other maximum age classes appropriate to the forest.

42.7 - Timber Management on Unsuitable Lands

Include a discussion of any timber management activities planned for unsuitable lands. This discussion provides an opportunity to address the future management of those forest lands classified as unsuitable for timber production. The discussion may include, but need not be limited to:

1. Salvage or sanitation harvesting of trees or stands substantially damaged by fire, windthrow, or other catastrophe or which are in imminent danger from insect or disease attack.
2. Cutting of individual trees or stands to test logging systems, to conduct experiments, or for the purpose of gathering information about tree growth, insect or disease organisms, or the effect of such harvesting on other resources.
3. Cutting of trees to promote the safety of forest users. This includes hazard tree removal in camp and picnic grounds, in administrative sites, and along roads open to the public.
4. Harvesting to meet habitat objectives for threatened or endangered animal or plant species or to maintain or improve habitat for other wildlife or fish management indicator species.
5. Harvesting to meet forage production objectives for livestock.
6. Harvesting to improve the scenic resource by opening scenic vistas or by improving visual variety.
7. Harvesting of fuelwood and Christmas trees.
8. Harvesting to provide for access, for example road construction.

43 - Planning Records

Document the information described in FSH 2409.13-43.1-43.4 in the planning records.

43.1 - Inventory Data

Documentation of the timber resource shall include the inventory plan, which constitutes the source of the utilization standards and volume equations used in the inventory. In establishing the allowable sale quantity, identify any differences between inventory utilization standards and standards used for growth and yield projections. Show tabular data, such as peracre and total volumes by stratum, as well as stratum weights and associated statistical error terms. Where stand or compartment examination data are the source of timber data for the plan, the field instructions and the stand data constitute part of the planning records. Document the permanent inventory record in accordance with FSH 2409.13-13.4.

43.2 - Analysis Area Formulation

Combine or aggregate timber stands or inventory strata to develop a set of analysis areas that are responsive to planning objectives. Include the rationale for these aggregations in the planning records.

43.3 - Yield Projection

Managed yield tables, regression equations, and growth processors are all acceptable tools for projecting future yields. Where a choice of projection techniques is available, the Regional Forester shall determine the circumstances where each method is appropriate and shall provide additional direction by supplement to this section.

In some instances, projection methods based on local data may not be available. In these circumstances, review available local inventory records to determine if adequate data are available to develop locally applicable projection methods within the limits of the planning time frame. Document the review to show (1) the data available and why they are not suitable for growth projection, or (2) that the data are suitable, but the estimated development schedule exceeds the time available.

File original computer printouts of yield processors in an orderly manner in the planning records or retain them on microfilm or tapes. Retain yield projections tested but not used in the plan until the time available for review expires.

It may be necessary to adjust projected yields for one or more of the following reasons before input into the forest planning model:

1. Utilization standards of the source data for the yield processor differ from those specified in the Regional guide.
2. Yield projections, particularly for regenerated stands, do not reflect reductions due to nonstockable areas.
3. First decade projections differ from experienced yields because of defect losses or stocking differences.

Where yields are adjusted, include in the planning record the rationale for the adjustment as well as supporting data.

Include growth and yield data for management prescriptions in the planning records. These data may include: volume, basal area, number of trees, and average diameter at breast height (d.b.h.), by age-class per acre.

43.4 - Area Constraints

The objectives for resources other than timber may require limitations on the number of acres or proportion of an analysis area to which a prescription applies. Rationale and justification for the limitation in area is part of the planning records. Normally, this restriction results from such objectives as minimizing soil loss, maintaining or improving water quality or quantity, habitat diversity requirements, or spatial arrangement. Where other resource needs require stocking at levels above or below optimum, include the yield reductions, if any, in the prescription and the yield projection process.

44 - Exhibits

1. Exhibit 01. Land Classification
2. Exhibit 02. Vegetation Management Practices
3. Exhibit 03. Timber Productivity Classification
4. Exhibit 04. Allowable Sale Quantity and Timber Sale Program Quantity
5. Exhibit 05. Display of Long-Term Sustained Yield and Allowable Sale Quantity
6. Exhibit 06. Present and Future Forest Conditions

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44 - Exhibit 01

LAND CLASSIFICATION

<u>Classification</u>	<u>Acres</u>
1. Non-Forest land (includes water)	_____
2. Forest land	_____
3. Forest land withdrawn from timber production	_____
4. Forest land not capable of producing crops of industrial wood	_____
5. Forest land physically unsuitable: --irreversible damage likely to occur --not restockable within 5 years	_____
6. Forest land--inadequate information <u>1/</u>	_____
7. Tentatively suitable forest land (item 2 minus items 3, 4, 5, and 6)	_____
8. Forest land not appropriate for timber production <u>2</u>	_____
9. Unsuitable forest land (items 3, 4, 5, 6, and 8)	_____
10. Total suitable forest land (item 2 minus item 9)	_____
11. Total national forest land (items 1 and 2)	_____

1/ Lands for which current information is inadequate to project responses to timber management. Usually applies to low site lands.

2/ In the Forest plan, disaggregate the acreage of lands identified as not appropriate for timber production by: (a) minimum management requirements; (b) multiple-use objectives; and (c) cost efficiency (FSH 2409.13-23).

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44 - Exhibit 02

VEGETATION MANAGEMENT PRACTICES
(ANNUAL AVERAGE IN FIRST DECADE FOR SUITABLE LANDS)

<u>Practice</u>	<u>Acres</u>
Regeneration harvest:	
Clearcut	_____
Shelterwood and seed tree	
- Preparatory cut	_____
- Seed cut	_____
- Removal cut	_____
Selection	_____
Intermediate harvest:	
Commercial thinning	_____
Salvage/sanitation	_____
Timber stand improvement	_____
Reforestation <u>1</u> /	_____

1/ Includes natural and artificial.

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44 - Exhibit 03

TIMBER PRODUCTIVITY CLASSIFICATION

<u>Potential Growth</u> (cubic feet/acre/year)	<u>Suitable Lands</u> (acres)	<u>Unsuitable Lands ^{1/}</u> (acres)
Less than 20	_____	_____
20-49	_____	_____
50-84	_____	_____
85-119	_____	_____
120-164	_____	_____
165-224	_____	_____
225+	_____	_____

^{1/} Estimate productivity for lands, such as wilderness, where data are not available.

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44 - Exhibit 04

ALLOWABLE SALE QUANTITY AND TIMBER SALE PROGRAM QUANTITY 1/
(ANNUAL AVERAGE FOR FIRST DECADE)

<u>Harvest Method</u>	Allowable Sale Quantity <u>2/</u>	
	<u>Sawtimber</u> (MM CF)	<u>Other Products</u> (MM CF)
Regeneration harvest:		
Clearcut	_____	_____
Shelterwood and seed tree		
- Preparatory cut	_____	_____
- Seed cut	_____	_____
- Removal cut	_____	_____
Selection	_____	_____
Intermediate harvest:		
Commercial thinning	_____	_____
Salvage/sanitation	_____	_____
	=====	=====
Totals	_____	_____

	Additional Sales <u>3/</u>	
	<u>Sawtimber</u> MM CF)	<u>Other Products</u> (MM CF)
Total for all harvest methods	_____	_____

Allowable sale quantity _____ (MMCF) _____ (MMBF) 4/ Timber sale program 5/
(MMCF) _____ (MMBF) 4/

1/ To be expressed to nearest .1 MM board and cubic feet.

2/ Only includes chargeable volumes from suitable lands.

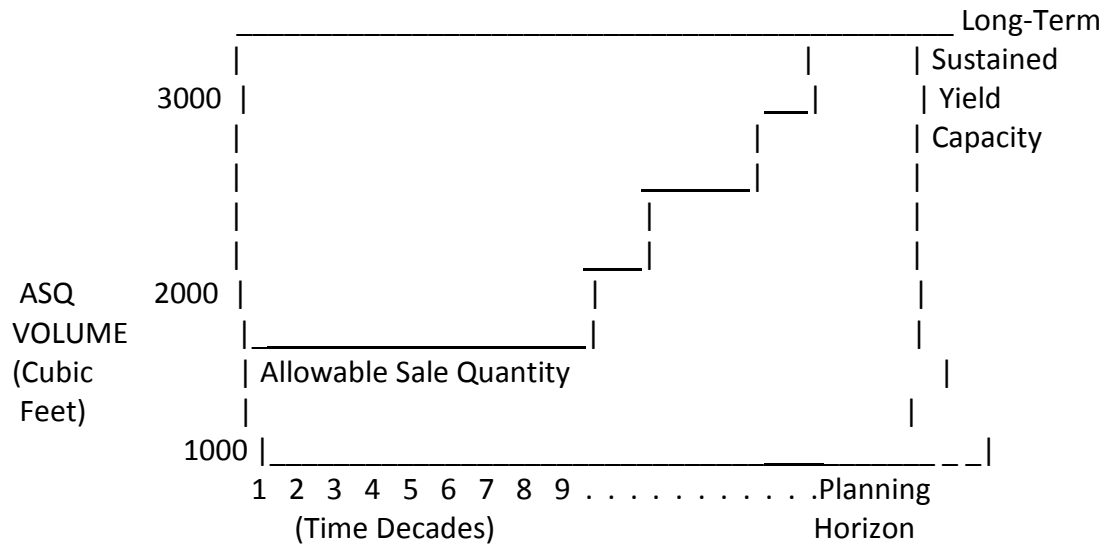
3/ Only includes nonchargeable volumes from suitable and/or unsuitable lands.

4/ Based on local unit of measure.

5/ Total of allowable sale quantity and additional sales.

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44 - Exhibit 05

DISPLAY OF LONG-TERM SUSTAINED YIELD CAPACITY
AND ALLOWABLE SALE QUANTITY



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44 - Exhibit 06

PRESENT AND FUTURE FOREST CONDITIONS

	<u>Unit of Measure</u>	<u>Suitable Land</u>	<u>Unsuitable Land</u>
Present forest:			
Growing stock	MMCF	_____	_____
	MMCF	_____	_____
Live cull	MMCF	_____	_____
	MMCF	_____	_____
Salvable dead	MMCF	_____	_____
	MMCF	_____	_____
Annual mortality	MMCF	_____	_____
	MMCF	_____	_____
Future forest:			
Growing stock	MMCF	_____	_____
	MMCF		
Annual net growth	MMCF		
Rotation age	Years	_____ <u>1/</u> to	_____
	<u>Age Class</u>	<u>Present Forest</u>	<u>Future Forest</u>
Age class distribution acres	_____	_____	_____
(suitable lands)	_____	_____	_____
	_____	_____	_____

1/ Average rotation age for regenerated stands on lands with timber emphasis by major forest types.