Identification of Suitability of Lands for Timber Production and Plan Components for Timber Harvest

Helena and Lewis & Clark National Forest Plan Revision Process Whitepaper

Introduction and Background

The Helena and Lewis & Clark National Forests (HLC NFs) are in a forest plan revision process to develop one forest plan, in accordance with the 2012 planning rule and associated directives (FSH 1909.12, 2015). Chapter 60 of the directives provides detailed guidance regarding forest vegetation resource management, including the identification of lands as not suited and suited for timber production. The directives state that when developing or revising a land management plan, the Responsible Official shall review lands within the plan area to identify their suitability for timber production.

Suitability was assessed in the 1986 forest plans. The process used to determine lands as tentatively suitable were similar for both forests, as stated in the Appendix B for each plan (1986):

- On both units, forest habitat types and legal status were used to identify areas considered tentatively suitable for timber management. Non-forested lands included water and grasslands, and lands not capable of producing industrial wood were determined before 1982 and a breaking point of 20 ft^3/acre/year was one criteria used.
- On the Helena National Forest, forested lands withdrawn from timber production include the Scapegoat and Gates of the Mountain Wilderness Areas and W1610 Big Log which was recommended for wilderness.
- On the Lewis & Clark National Forest, forested lands withdrawn from timber production included the Scapegoat and Bob Marshall Wildernesses and the Tenderfoot Experimental Forest.

There is a need to re-assess suitability for timber production using the best available data in a consistent manner across the HLC, based on the detailed guidance provided in the 2015 directives (FSH 1909.12.61).

Harvest of timber on National Forest System lands occurs for many reasons, including restoration, community protection, protection of municipal water supplies, and contributing to economic sustainability through the production of timber products and fuel as a renewable energy source.

- *Timber harvest* is the removal of trees for wood fiber use and other multiple-use purposes.
- *Timber production* is the **purposeful growing, tending, harvesting, and regeneration of regulated crops** of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 CFR 219.19).

Plan components must be developed to address (FSH 1909.12.60):

1. Identification of lands as not suited and suited for timber production;
2. Timber harvest for purposes of timber production,
3. Timber harvest for purposes other than timber production
4. Limitations on timber harvest; and
5. Land management guidance including display of forest vegetation management practices and timber harvest levels.

To identify lands not suited for timber production, the following 2-step approach is prescribed in the directives, which is based on 6 technical factors identified in the National Forest Management Act (NFMA, 36 CFR 219.11(a) i, ii, iii, iv, v, i).

1. Identify lands that are not suited based on *legal and technical factors*. **These lands do not vary by alternative and are identified in the assessment or prior to development of alternatives**. After subtracting the lands not suited in this step, the remaining lands are lands that **may be suited** for timber production, and are considered in step 2. *This is a preliminary classification*. The NFMA factors to be used to identify lands as not suited for timber production at this stage are:
    - (i) Statute, Executive Order, or Regulation prohibits timber production on the land;
    - (ii) The Secretary of Agriculture or Chief of the Forest Service has withdrawn the land from timber production;
    - (iv) The technology is not currently available for conducting timber harvest without causing irreversible damage to soil, slope, or other watershed conditions;
    - (v) There is no reasonable assurance that such lands can be adequately restocked within 5 years after regeneration harvest; or
    - (vi) The land is not forest land.
2. From the lands that may be suited for timber production (step 1), identify lands that **are suited** for timber production based on the compatibility of timber production with the desired conditions and objectives for those lands. *This is done in the Environmental Impact Statement (EIS) for each alternative* considered in plan revision, as the desired conditions, objectives, management areas and other plan components will vary among alternatives.
    - (iii) Timber production would not be compatible with the achievement of desired conditions and objectives established by the plan.

Identification of Lands as Not Suitable and Suitable for Timber Production (FSH 1909.12.61)

Step 1: Identification of Lands that May be Suited for Timber Production

An analysis has been conducted for the HLC to map lands that **may be** suited for timber production based on the best available data, as described in Step #1. This analysis was conducted to inform development of the proposed action. A detailed description of the analysis and results is available in a separate document.

Table 1 lists the technical factors and definitions used to identify that lands that are not suited for timber production. These lands will be subtracted from the total national forest system land acreage, and the remaining areas are those that **may be** suited for timber production. This preliminary classification is made based on 5 of the 6 factors identified in NFMA (36 CFR 219.11a, i, ii, iv, v, and vi) , and is made prior to the consideration of the last factor (36 CFR 219.11a iii) which identifies suitability based on objectives and desired conditions established by the plan for those lands.

Table 1: Criteria and Process for the Identification of Lands that May be Suited for Timber Production

Technical Factor (36 CFR 219.11(a))	Definition and Description FSH 1909.61.1
(i) Statute, Executive Order, or Regulation prohibits timber production. (ii) The Secretary of Ag or Chief of the Forest Service has withdrawn the land from timber production.	Timber production may be prohibited on certain lands by statute, Executive order, regulation, or where the Secretary of Agriculture or Chief of the Forest Service has withdrawn the land from timber production. Examples include wilderness, eligible and/or designated wild river segments, research natural areas, and other designated areas where timber production is specifically prohibited.
(iv) The technology is not currently available for conducting harvest without causing irreversible damage to soil, slope, or other watershed conditions.	Lands not suited because technology to harvest timber without causing irreversible damage is not currently available may include areas where soils, geology, or other physical site conditions are such that harvest may cause irreversible damage, or where tree regeneration and growth is severely inhibited; for example, shallow or excessively wet soils; excessively steep slopes; avalanche areas; and floodplains. Criteria should take into account information such as landforms, soil conditions, vegetation, and available technology for timber harvest. Relevant information may be used to assess soil vulnerability to physical, chemical, and biological damage.
(v) There is no reasonable assurance that such lands can be adequately restocked within 5 years after regeneration harvest.	The Responsible Official should identify criteria for what constitutes adequate restocking after final regeneration harvests for timber production. Specific land types, soil types, and vegetative conditions should be evaluated for appropriate management systems to assess if reasonable assurance exists that the lands can be regenerated to achieve adequate restocking 5 years after final regeneration harvest. Consider relevant information such as soil maps, geological maps, monitoring results, and other best available scientific information.
(vi) The land is not forest land	Less than 10% occupied by forest trees of any size or that formerly had tree cover and are currently developed for nonforest uses (such as agriculture, pasture, residential areas, improved roads, recreation areas, and powerlines). Lands that were formerly occupied by tree cover, but do not presently have tree cover, should be identified as nonforest unless the land will be naturally or artificially regenerated into forest cover in the near future. Canopy cover of live trees at maturity may be used to estimate if an area is at least 10 percent occupied by trees. *Unimproved roads, trails, intermittent or small perennial streams, and clearings may be included as forestland if < 120' wide.*

Following the subtraction of unsuitable lands identified in Table 1, the remaining national forest system acres **may be suited** for timber production, and are further assessed in Step 2.

Step 2: Identify Lands that Are Suited for Timber Production

The identification of lands that **are suited** for timber production in each alternative will be based on compatibility with desired conditions and objectives (FSH 1909.12.61.2). The lands that are suited will be a subset of the lands identified as *may be suited* in step 1. These lands will be identified based on the desired conditions, goals, and objectives developed for the draft plan and for each alternative.

Table 2: Criteria and Process for the Identification of Lands that Are Suited for Timber Production

Technical Factor (36 CFR 219.11(a))	Definition FSH 1909.61.2	HLC Criteria to Identify Unsuited Areas (layers in HLC FPR GIS library)
(iii) Timber production would not be compatible with the achievement of desired conditions and objectives established by the plan	The Responsible Official should consider the following to determine if timber production is compatible with the desired conditions and objectives of the plan: • Timber production is a desired primary or secondary use of the land. • Timber production is anticipated to continue after desired conditions have been achieved. • A flow of timber can be planned and scheduled on a reasonably predictable basis. • Regeneration of the stand is intended. • Timber production is compatible with the desired conditions or objectives for the land designed to fulfill the requirements of 36 CFR 219.9 to 219.10.	*Determined based upon desired conditions and objectives for each alternative. Possible examples include:* • *Recommended wilderness;* • *Management areas with desired conditions or objectives not compatible with timber production;* • *Other factors related to growing conditions or desired vegetation.*

Areas remaining after exclusions in Tables 1 and 2 are suitable for timber production, and will vary by alternative. For the proposed action and each Alternative, the suitability classification will be displayed as shown in Table 3. The responsible official shall review lands identified in the plan as not suited for timber production at least once every 10 years or as otherwise prescribed by law, to determine whether conditions have changed so that they have become suitable for timber production (FSH 1909.12.61.3).

Table 3: Timber Production Suitability Classification

Land Classification Category	Acres
Total NFS lands in the plan area	A
Lands not suited for timber production due to legal or technical reasons	*B (result of Step 1)*
Lands that **may be suited** for timber production	= A-B
Total lands **suited** for timber production because it is compatible with the desired conditions and objectives established by the plan	C (*result of Step 2)*
Lands not suited for timber production because it is not compatible with the desired conditions and objectives established by the plan	= C-D
Total lands not suited for timber production	=B+E

Information regarding timber suitability should be developed with sufficient detail in the planning record to be compatible with the national land suitability classification system for timber production.

Plan Components on Lands Not Suitable and Suitable for Timber Production

Plan components must be developed to address harvest for purposes of timber production and for purposes other than timber production. Considerations for **suitable** lands include (FSH 1909.12.62):

- Plan components must include statutory and regulatory limitations on timber harvest (Table 4).
- Plan components may be designed to apply to all purposes for timber harvest, including harvest for timber production or harvest to protect multiple use values; or, components may be designed to apply separately as appropriate to each purpose.
- Plan components that apply to harvest to protect multiple use values may apply to lands not suitable for timber production as well, as appropriate.

Where timber harvest will be used as a tool for purposes other than timber production to protect other multiple use values, plans must provide appropriate plan components that allow and control the application of such timber harvest. Considerations on **unsuitable** lands include (FSH 1909.12.63):

- Plan components may only allow timber harvest to occur to protect multiple use values other than timber production and for salvage, sanitation, public health, or safety (36 CFR 219.11).
- The plan must have appropriate plan components (such as desired conditions, objectives, standards, and guidelines) that establish permissible reasons for timber harvest for purposes other than timber production to protect multiple use values.

Limitations on Timber Harvest

The National Forest Management Act (NFMA) requires limitations related to timber harvest to:

- Insure that even-aged cuts are only used on NFS lands consistent with other limitations;
- Insure that prior to harvest, stands must generally have met the culmination of mean annual increment; and
- Insure that the sale of timber from each national forest is limited to a quantity equal to or less than the quantity that can be removed from such forest annually in perpetuity on a sustained-yield basis.

Accordingly, plan components must at a minimum include the limitations in Table 4 (FSH 1909.12.64).

Table 4: Limitations on Timber Harvest (FSH 1909.12.64)

Limitation	Specific Requirements
Limitations Applicable to All Timber Harvest (64.1)	• No timber harvest for purposes of timber production on lands not suited for timber production (64.11) • Timber harvest may not occur if it leads to irreversible damage (64.12) • Timber harvest must be consistent with other resource protection (64.13) • Assurance of adequate restocking within 5 years after harvest (64.14) • Selection of harvesting system (64.15)
Limitations for Even-aged Harvest (64.2)	• Limits on Maximum Size Openings (64.21) • Clearcutting and other even-aged cutting methods (64.22) • Interdisciplinary review (64.23) • Cuts shaped and blended with natural terrain (64.24) • Consistency with resource protections (64.25) • Culmination of mean annual increment of growth (64.26)
Limiting the Quantity of Timber that can be Removed (64.3)	• Sustained Yield Limit (SYL) (64.31) • Projected Wood Sale Quantity (PWSQ), Projected Timber Sale Quantity (PTSQ), and Quantity of Timber Sold (64.32) • Departure from Sustained Yield Limit (64.33) • Utilization Standards (64.64)

The Directives provide detailed definitions, guidelines, and exceptions to each of these limitations. Considerations include but are not limited to:

- These requirements do not preclude plans from having components that allow timber harvest on lands not suited for timber production to protect other multiple-use values, and for salvage, sanitation, public health, or safety.
- Standards should require a site-specific finding that the timber harvest would not cause irreversible damage.

- Plans must have components including standards and guidelines to address protection of streams and other water bodies, soil, watershed, fish, wildlife, recreation, and aesthetic resources.
- Standards related to re-stocking guideless may either have the plan determine what is adequate restocking in different harvest circumstances; or the plan can require that a determination of what is adequate restocking can be made at the project level; or the approach can be mixed.
- Plans should indicate that the harvesting system for a project must not be selected primarily for the greatest dollar return or output of timber.
- Plans must have standards that establish size openings no larger than that allowed by the regulation except as described in the planning rule (40 acres). Plan standards may allow for larger openings to help achieve desired ecological conditions. If so, standards for exceptions shall include the particular conditions under which the larger size is permitted and must set a maximum size permitted. Maximum size openings shall not apply to openings harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm.
- Requirements related to determining when clearcutting is the optimum method may be provided through standards that identify specific situations; through a standard that requires that the responsible official make a site-specific finding that clearcutting is the optimum method for each project; or a mix of those approaches.
- A stand that has generally reached culmination of mean annual increment (CMAI) of growth is at the age which the stand achieves at least 95% of cubic foot volume at culmination; this limitation does not apply to thinning, uneven-aged systems, salvage or sanitation harvesting, or harvesting on lands not suited for timber production. The plan may provide additional exceptions.
- Limitations on timber quantity removed do not apply to salvage harvesting; may be measured on a decadal basis; and the plan may provide for departures after public review and comment. Neither the SYL nor departure limit apply to the sale of volume from salvage or sanitation harvesting of timber stands substantially damaged by fire, windthrow, other catastrophe, or that are in imminent danger from insect or disease attack. All volumes are measured in cubic feet and do not include volumes from salvage or sanitation harvests. Further:
    - **Sustained Yield Limit (SYL)**: The amount of timber meeting applicable utilization standards which can be removed from a forest annually in perpetuity on a sustained yield basis <u>on lands that may be suitable</u> for timber production. The calculation is a single constant for the forest. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of SYL is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The SYL is not a target but <u>is a limitation</u> on harvest, except with the plan allows for a departure.
    - **Projected Timber Sale Quantity (PTSQ)**: The estimated quantity of timber meeting applicable utilization standards that is expected to be sold during the plan period. As a subset of the PWSQ, the PTSQ includes volume from timber harvest for any purpose from all lands in the plan area based on expected harvests that would be consistent with the plan components. The PTSQ is also based on the planning unit's fiscal capability and organizational capacity. PTSQ is <u>not a target nor a limitation</u> on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.
    - **Projected Wood Sale Quantity (PWSQ)**: The estimated quantity of timber and all other wood products that is expected to be sold from the plan area for the plan period. The PWSQ consists of the PTSQ as well as other woody material such as fuelwood, firewood, or biomass that is also expected to be available for sale. The PWSQ includes volume from timber harvest for any purpose from all lands in the plan area based on expected harvests that would be consistent with the plan components. The PWSQ is also based on the planning unit's

fiscal capability and organizational capacity. PWSQ is not a target nor a limitation on harvest, and is not an objective unless the responsible official chooses to make it an objective in the plan.

- The Responsible Official may increase the expected sale of timber above the SYL for the first and second decade of the plan if necessary. Departure must be designed for achieving the multiple-use management objectives of the plan. The rationale must be explained and departures are expected to be rare.
- The plan must identify or reference the appropriate utilization standards.

Forest Vegetation Management Practices

The directives also describe requirements to display forest vegetation management practices planned to achieve the outcomes described in the plan's desired conditions and objectives, consistent with the other plan components during the plan period.

At a minimum, this identification must display or describe practices of even-aged and uneven-aged management systems planned for the plan area, and display the estimated annual acreage of these practices planned for the first and second decades in the plan area.

The estimated practices must be based on the fiscal capability of the planning unit, and are not a commitment to take an action or a proposal for action (FSH 1909.12.65.1).

Timber harvest levels (SYL, PTSQ, and PWSQ) should be displayed as annual averages.

The departure schedule, if applicable, should also be displayed.