

Timber Production and Harvest

Lolo National Forest Plan Revision Process Paper

Background

The Lolo National Forest (LNF) is preparing to undergo Forest Plan Revision under the 2012 planning rule and associated directives (FSH 1909.12, 2015). Chapter 60 of the directives provides guidance regarding forest vegetation resource management. There is a need to assess suitability for timber production using the best available scientific data and develop plan components for timber production and timber harvest based on this guidance.

Harvest of timber on National Forest System (NFS) lands occurs for many reasons including but not limited to ecosystem 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. Definitions of timber harvest and timber production are provided by 36 CFR 219.19:

- *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.
- *Lands suitable for timber production* are lands where 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; and timber production is compatible with the desired conditions or objectives for the land designed to fulfill the requirements of 36 CFR 219.9 to 10.

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.

Suitability for timber production was determined for the 1986 forest plan based on guidance specified in the 1982 planning rule; at that time, over 1.2 million acres were determined to be suitable for timber management. The plan drafted in 2006 under the 2005 planning rule, which was never formally adopted, also mapped suitability. That effort determined that approximately 737,231 acres were suitable for timber production and an additional 610,796 acres were suitable for harvest. There are strong similarities across these efforts due to the underpinning criteria in the National Forest Management Act; however, nuances of the requirements in the planning rules and directives along with updated ecosystem conditions, recently acquired lands, changing land management objectives and public expectations, and better available data indicate that the suitability determination process should be done again following the 2012 planning rule and directives. The previous efforts will provide important context to the new mapping effort.

Identification of Lands as Not Suitable and Suitable for Timber Production

To identify lands suited for timber production, a 2-step approach is prescribed, which is based on 6 technical factors identified in the National Forest Management Act (36 CFR 219.11(a)).

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

The first step is to identify lands that are not suited for timber production based on legal and technical factors. These lands do not vary by alternative and are identified in (or prior to) the assessment. After subtracting the lands not suited in this step, the remaining lands **may be suited for timber production**. This is a preliminary classification. Five out of the six NFMA criteria for suitability (36 CFR 219.11a i, ii, iv, v, and vi) are used to identify lands as not suitable for timber production at this stage (

Table 1).

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

Factor (36 CFR 219.11(a))	Definition and Description FSH 1909.12.61.1
(i) Statute, Executive Order, or Regulation prohibits timber production; and (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, inventoried roadless 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.	This factor eliminates lands that are not suitable because technology to harvest timber without causing irreversible damage is not available. This may include areas where soils, geology, or other physical site conditions are such that harvest may cause irreversible damage or tree regeneration and growth is severely inhibited. Examples include shallow or excessively wet soils, excessively steep slopes, avalanche areas, and floodplains. Criteria should take into account data such as landforms, soil conditions, vegetation, available technology, and 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. 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 information such as soil maps, geological maps, monitoring, and other best available scientific information.
(vi) The land is not forest land	Lands less than 10% occupied by trees of any size or that formerly had tree cover but are developed for nonforest uses (such as agriculture, pasture, residential areas, roads, recreation areas, and powerlines) are not forest land. 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% 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 NFS acres **may be suitable** for timber production and are further assessed in Step 2.

Step 2: Identify Lands that Are Suitable for Timber Production

The identification of lands that **are suitable** for timber production is based on compatibility with desired conditions and objectives (FSH 1909.12.61.2). This step addresses the final factor from NFMA (36 CFR

219.11a(iii)). The lands that are suitable are a subset of the lands identified as “may be suitable” in step 1. These lands will be identified based on the desired conditions, goals, and objectives developed for the proposed action and for each alternative (Table 2).

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

Factor 36 CFR 219.11(a)	Definition FSH 1909.61.2 and Description
(iii) Timber production would not be compatible with the achievement of desired conditions and objectives established by the plan	<p>The Responsible Official should consider the following to determine if timber production is compatible with the desired conditions and objectives of the plan:</p> <ul style="list-style-type: none"> • 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. <p>Possible examples of lands not included as suitable for timber production include recommended wilderness and management areas with desired conditions not compatible with timber production.</p>

The suitability classification will be displayed in the revised plan 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	<i>B (result of Step 1)</i>
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	<i>C (result of Step 2)</i>
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

Timber Production & Harvest Plan Content

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 (FSH 1909.12.62, 63).

- Plan components must include statutory and regulatory limitations on timber harvest.
- 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.
- Where timber harvest will be used as a tool for purposes other than timber production, plans must provide appropriate plan components that allow and control the application of such harvest. The plan must have appropriate 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 NFMA requires limitations related to timber harvest. Accordingly, plan components must at a minimum include the limitations in Table 4 (FSH 1909.12.64). The Directives provide detailed definitions, guidelines, and exceptions to each of these limitations. Limitations on timber quantity removed do not apply to salvage harvesting.

Table 4: Limitations on Timber Harvest (FSH 1909.12.64)

Limitation	Requirements
Limitations Applicable to All Timber Harvest (64.1)	<ul style="list-style-type: none"> • 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 protections (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)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • 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)

Key Required Content

The 2012 Planning Rule defines several key metrics for timber volume and anticipated harvest outputs that differ from the metrics used in the 1982 Planning Rule.

- **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 on lands that may be suitable 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 is a limitation on harvest, except with the plan allows for a departure. The Responsible Official may increase the expected sale of timber above the SYL for the first and second decade of the plan if necessary.
- **Projected Timber Sale Quantity (PTSQ) and Projected Wood Sale Quantity (PWSQ):** These metrics represent the estimated volume to be sold during the plan period for any purpose from all lands in the plan area based on expected harvest that would be consistent with plan components. These metrics are based on the planning unit’s fiscal capability and organizational capacity. They are not a target nor a limitation on harvest and are not an objective unless the responsible official chooses to make it an objective in the plan.

- **PTSQ** is a subset of the PWSQ and consists of the estimated quantity of timber meeting applicable utilization standards.
- **PWSQ** is the estimated quantity of timber and all other wood products. The PWSQ consists of the PTSQ as well as other woody material such as fuelwood, firewood, or biomass.

Several other important elements of plan content include the following:

- **Forest vegetation management practices:** The plan must display forest vegetation management practices planned to achieve the outcomes described in the desired conditions and objectives, consistent with the other plan components. At a minimum, this identification must display practices of even-aged and uneven-aged management systems planned and display the estimated annual acreage of these practices for the first and second decades. These practices must be based on the fiscal capability of the planning unit but are not a commitment to take an action or a proposal for action. The departure schedule, if applicable, should also be displayed.
- **Maximum even-aged regeneration harvest openings:** 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.

The development of this plan content utilizes an iterative modeling process (Figure 1). A state and transition model (STSim) is used to estimate the natural range of variation for vegetation and disturbances. This information provides the underpinning for the development of desired conditions. A timber scheduling model (PRISM) is then used to generate timber volume outputs and expected management practices for the proposed action and each alternative. This model utilizes desired vegetation conditions to determine an optimum harvest schedule, given a set of management constraints and selecting from a suite of possible prescriptions. The design for PRISM includes landscape stratification that includes land suitability, and key limitations and assumptions. The projected harvest schedule and results from PRISM are used to analyze the impacts to vegetation over time for alternatives.

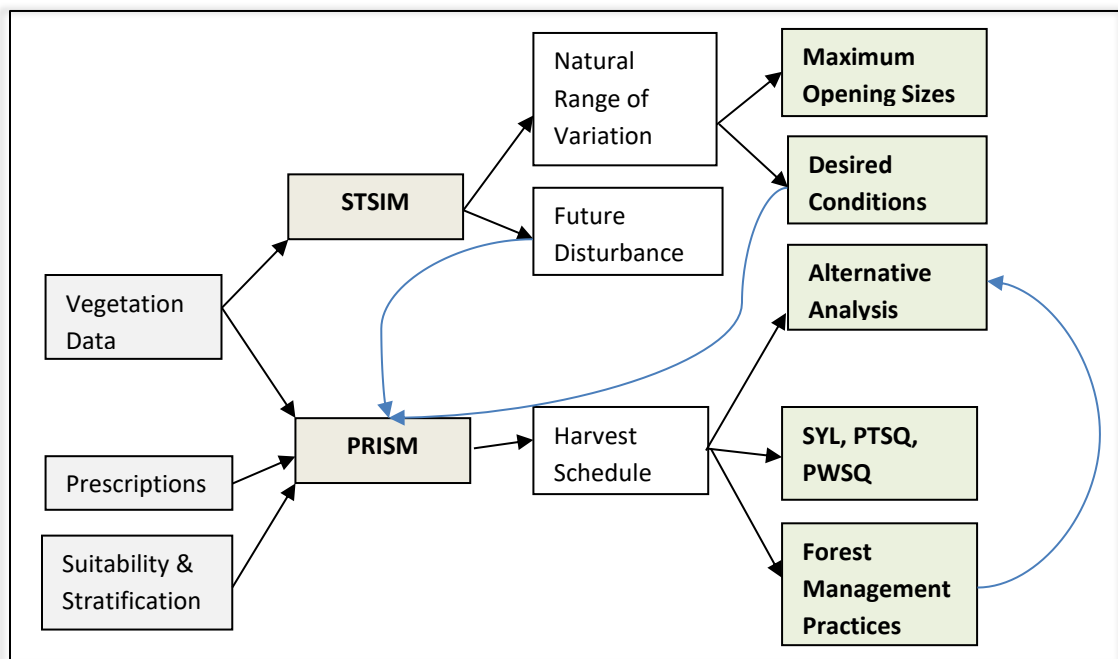


Figure 1: Iterative timber and vegetation modeling processes

Public Engagement

The directives do not prescribe a specific requirement for public engagement for timber processes. However, the following key public engagement checkpoints are anticipated.

- ***Assessment:*** Prior to formally initiating the assessment, a webinar was provided to educate the public on the processes described in this document.
- ***Plan Development:*** Engaging the public to review and understand the “may be suitable” map is a robust starting point for more detailed engagement which can be combined with other key mapping steps such as the wilderness inventory and draft eligible wild and scenic rivers. Prior to the release of the proposed action, another engagement touchpoint can involve a review of the proposed timber suitability layer, along with other key land allocations and key timber metrics.
- ***Scoping:*** The formal scoping period following the release of the proposed action will allow the public to provide input on the proposed timber suitability, key timber metrics, as well as all of the timber limitations found in plan components.
- ***Development of alternatives:*** There will likely be an opportunity to discuss a preliminary array of alternatives, including timber suitability maps and metrics, with key stakeholders.
- ***Formal comment:*** Following the release of the DEIS, the public will have the opportunity to formally provide input on the array of alternatives, including timber suitability, metrics, and plan components.