Hazard Tree Abatement Plan

Mosquito Fire

Tahoe National Forest &

Eldorado National Forest

CA-TNF-001371

September 29, 2022

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Approved by:_____ Date: _____

Agency Administrator
Eldorado and Tahoe National Forest

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Incident Commander

Overview

The Mosquito Fire started on September 6, 2022 and has spread into the Middle Fork American and Rubicon rivers on the Tahoe (TNF) and Eldorado (ENF) National Forests. Hazard tree abatement along roads used by emergency personnel associated with this incident is considered an emergency in need of emergency response under National Environmental Policy Act general requirements (36 CFR 220.4 (b) and (b)(1)).

This plan outlines the strategy that the TNF and ENF will utilize to abate hazard trees that could impact designated travel routes on National Forest System lands as a result of the Mosquito Fire. Post-fire, hazard trees present an immediate and ongoing threat to life and property. Hazard trees (as defined in Hazard Tree Removal Guidelines: Mosquito Fire) are trees that could strike a designated road. Hazard trees can be abated (felled) near designated features to provide for immediate firefighter and/or public safety. Once trees are felled they become a fuels hazard emergency and should be removed from the immediate area.

Road Prioritization

Roadways were identified as priority for treatment if they were main arterial roads or received a consistent flow of firefighter traffic during the incident. Roads outside of the burned area that include drought stressed or beetle killed trees and were primary access routes to the burned area were also prioritized. Subject matter experts trained in the evaluation of hazard trees, using the Hazard Tree Removal Guidelines: Mosquito Fire document will use maps of these roads to further refine the areas where emergency response hazard tree abatement occurs.

Hazard Tree Identification and Removal

Timber Fire-line Resource Advisors (T-REAFs)

T-REAFs are subject-matter experts who hold fire line qualification AND are skilled at identifying hazard trees and experienced working with heavy equipment specialized in tree cutting, skidding, processing, and removal (ex: Senne-boggens, feller buncher, rubber-tired and tracked skidders, processors, grapple loaders, tub grinders, four-wheel drive dump trucks, skid steers, etc.).

T-REAFs may be Timber Sale Administrators, Forest Service Representatives, Harvest Inspectors, Silviculturists, Foresters, etc., who regularly oversee 1-3 Logging Sides at a time as a part of their normal work duties. T-REAFs will be using technical specifications described in the “Hazard Tree Removal Guidelines: Mosquito Fire“ document and this Plan to work with equipment operators during hazard tree abatement operations.

Logging Side

A logging side is a group of equipment that works as one unit, for example: 1 feller buncher, 1-2 skidders, 1 processor, and 1 grapple loader = 1 Side. Timber REAFs have experience safely working with multiple Sides at one time. Additionally, if working with timber that is 24” DBH or larger, a Side would also include 1 felling module.

Specifications

To implement this strategy all trees that are 100% dead or have a probability of mortality (Pm) of 0.7 or higher will be removed. In addition, any tree that does not meet the probability of mortality guidelines but has significant visible mechanical damage or defect within the bole that is anticipated to result in tree failure would be felled. Significant is defined as damage that affects 50% or more of the cross-sectional area at point of damage.

Table 1: Hazard Tree Size Class Definitions and Guidelines for Distance from Target Road

Size Class	**Size Class Definition**	**Baseline Slope Distance (feet above/flat/below road)***	**Maximum Slope Distance (feet above/flat/below road)***	**Minimum Slope Distance (feet above/flat/below road)***
Small	< 14.0 inch stump diameter	100/100/75	200/200/150	75/75/50
Large	≥ 14.0 inch stump diameter	200/150/150	250/250/200	125/125/75

**Distances above are approximately one times the tree height from the target feature at risk above the road and on flat ground and one times the tree height below the road. Distances will be determined on a per half-mile basis based on an ocular estimate of the average tree height.*

Tree Marking

In areas where trees are 100% scorched or crown-killed, flagging individual trees is not needed. In areas where there is a mix in the level of impact to trees, T-REAFs will be working on site with the operators - observing, using the crown scorch parameters and threat/distance to the roads to identify and communicate trees to be removed. There will be a T-REAF on site during operational periods to identify trees. T-REAFs may also use marking paint or flagging to identify trees ahead of operations. However, T-REAFs will not be marking each individual tree, especially in steep areas. GPS and mapping will be used to identify work areas, and avoidance flagging will be used as noted in this plan. T-REAFs will work with the Situation Unit to integrate GPS data into Field-Maps for operational status updates and tracking.

Flagging/Paint Colors

- *Red Flagging:* Property boundary
- *Pink and Black Checkered Flagging*: Avoidance area (No operations permitted within areas posted)
  - Exceptions: work with Timber Sale Administrator for special circumstances
- *Blue and White candy Stripe Flagging*: Riparian Buffer Area (No ground-based operations permitted within areas posted)
  - Exceptions: work with Timber Sale Administrator for special circumstances
- *Blue Paint:* Take Tree (when marked/optional)
- *Orange Paint or Flagging: Keep Tree*

Stump Height

Final cut height of stumps will be not more than **12 inches** from the high side of the stump, unless approved in writing by the Agency Administrator Representative or their designee.

Disposal Options

To reduce the potential of on the ground fuel hazard resulting from the removal of hazard trees persisting on the landscape, a suite of disposal options will be utilized including chipping, grinding, burning and future sale of forest products.

Decking of Material

Removal of larger material may be through service contract or deck sale. Larger material will be skidded to, processed, and decked at pre-approved decking locations. Trees meeting the merchantability specifications will be decked at approved landing locations (Table 2).

Table 2. Merchantability Specifications of Hazard Trees.

	Merchantable Tree		Minimum Piece Requirements	
Product and Species	**Minimum DBH (inches)**	**Minimum Number of Pieces Per Tree**	**Length (Feet)**	**Diameter Inside Bark Small End (inches)**
ALL	10.0	1	10	8.0

To facilitate removal of the material, boles will be processed and sorted into lengths as specified in Table 3. Ground-based, mechanical whole tree yarding will occur where terrain and timber size permits. Where appropriate and/or necessary hand falling, and bucking will occur to facilitate whole tree yarding and processing. Unless otherwise specified during operations, each piece less than or equal to 20 feet will have a trim allowance of 6 inches. All logs 22-40 feet will have a 12-inch trim allowance. All logs 42 ft and longer will have an 18-inch trim allowance.

Table 3. Preferred Piece Lengths

Species	**Preferred Length**
Fir Species	41-feet with a two-foot multiple
Pine Species	33-feet with a two-foot multiple
Incense Cedar	37-feet with a 6-foot multiple

Slash Management

Slash resulting from hazard tree removal and fuel hazard processing will be chipped, lopped, scattered, or machine/hand piled. When lopped and scattered, all branches must be cut from main stem when main stem exceeds 3 inches in diameter. All piles will be reasonably compact and free of soil to facilitate burning and will be constructed of such size and at such distance from trees so that burning will not result in unnecessary damage to residual trees.

Resource Protection Measures

- Ground based equipment will be limited to slopes of less than 50%.
- Where slopes exceed 50%, hazard trees will be fell and end-lined, removed by tethered logging systems, or left in place for potential later removal by aerial logging systems.
    - No equipment entry within “riparian buffers,” defined as 25 feet along each side of perennial streams and 10 feet along each side of intermittent streams in burn areas with a high-burn severity areas and 80 feet along perennial and intermittent streams in low to moderate severity burn areas.
- Material extending 3 feet or more outside the edge of a pile will be trimmed.
- An 8-foot slash bay will be cleared of all larger materials around each machine pile, leaving fine material.
- When necessary, a fire line will be cleared to mineral soil around the outer ring of the slash bay.
- Slash or chips must be spread to a depth of not more than six (6) inches.

- Tree stems will be bucked, as necessary, to meet this height requirement and to avoid “jack-strawing” trees on top of one another.
- Avoid flagged areas (property boundary, other avoidance areas) **Do not cut trees on private property.**
- Do not walk equipment across private property unless given permission from the landowner.
- Minimize walking equipment across chip sealed or asphalt surface. Use rubber mats or tires when crossings are required.
- Treat skid trails as dozer lines follow rehab guidelines (back blading and water baring).
- Any woody material generated by the falling of Hazard Trees with a diameter greater than 1" and longer than 1 foot, or equivalent dimensions, that becomes deposited in ditches or on the road surface shall be disposed of by scattering outside of the road surface and outside of ditches.

References

US Forest Service. 2011. Marking Guidelines for Fire-Injured Trees in California. RO-11-01
Hazard Tree Removal Guidelines: Mosquito Fire