



Desired Future Conditions by Zone

November 6, 2017

OVERVIEW

The purpose of this table is to define the desired future conditions for the SOFAR landscape by zone or landscape characteristics. The Landscape Vision Committee formed a subgroup to focus on defining the desired conditions in zones. Once the Committee has a proposal, the SOFAR Collaborative will review and refine.

Zone Purpose and Descriptions

Resources at risk to wildfire and fire management objectives are not uniformly distributed across the SOFAR landscape. To help guide wildfire management decisions within the SOFAR landscape, four management zones have been created: Built Community Zone, Defense Zone, Threat Zone, and General Forest Zone. Areas within each zone have similar levels of risk to human infrastructure, desired future conditions, and fire management objectives.

Built Community Zone

The Built Community Zone is the space needed to slow or stop the spread of wildfire to protect valuable infrastructure from being irreparably damaged from radiant heat or direct flames and to provide protection for firefighters defending infrastructure. Typically, the Built Community Zone corresponds to the area within 100 - 200 feet from valuable infrastructure that is susceptible to damage by wildfire flames or radiant heat.

Defense Zone

The Defense Zone is a buffer in closest proximity to the Built Community Zone. The Defense zone generally extends roughly ¼ mile out from Built Community Zone and valuable infrastructure that is susceptible to damage from radiant heat or direct flames. Defense zones are of sufficient extent that fuel treatments within them will reduce wildland fire spread and intensity to allow for suppression forces to succeed in protecting human life and property.

Threat Zone

The Threat Zone typically buffers the Defense Zone. The Threat Zone generally extends approximately 1¼ miles out from the Defense Zone boundary; however, the actual Threat Zone boundaries should be based on fire history, local fuel conditions, weather, topography, existing and proposed fuel treatments, and natural barriers to fire. Fuel conditions in the Threat Zone should moderate fire spread and intensity. Strategic landscape features, such as roads, changes in fuels types, and topography may be used in delineating the physical boundary of the threat zone.

General Forest Zone

The General Forest Zone corresponds to all areas outside of the Built Community, Defense, and Threat Zones. Forests conditions within this zone are resilient to most disturbance events and pose a low threat to valuable human infrastructure under most fire weather conditions.

Table Summarizing Desired Future Conditions by Zone

<i>Desired Future Condition Theme</i>	ZONE: Built Community	ZONE: Defense	ZONE: Threat	ZONE: General Forest
1. Vegetation structure: amount and distribution (structure and composition)	<ul style="list-style-type: none"> Species distribution and composition are commensurate with surrounding forested communities favoring large fire resilient pines and oaks when ecologically feasible; Density of small diameter trees and woody (shrub) species may be highly reduced in strategic areas (e.g. fuel breaks) relative to the general forest. Brush/shrub cover should be reduced by creating a mosaic of treated and untreated shrubs. 		<ul style="list-style-type: none"> Each vegetation type contains a mosaic of vegetation conditions, densities and distributions. These conditions are resilient to the frequency, extent and severity of ecological processes (e.g., fire, drought, flooding, insect mortality). This mosaic occurs at a variety of scales across landscapes and watersheds and reflects conditions that provide for ecosystem integrity and ecosystem diversity; Forest patches are a complex mosaic of groups of trees, shrubs, and herbaceous plants. Within forest patches, trees are highly irregular in spacing and size. Individual trees, small clumps, and groups of trees are interspersed with grass, herbaceous plants, and shrubs, in variably sized openings that vary by forest type. A mosaic of moderate to dense shrubs, tree litter, down wood and bare ground occurs between groups of trees. Vigorous understories of heterogeneous, patchy, and diverse native shrubs, herbs, and grass species. 	
2. Fire behavior and fire effects	<ul style="list-style-type: none"> Vegetation structure and composition in this zone result in zero probability of crown fire ignition due to sufficient horizontal and vertical spacing between grasses, shrubs, and trees. 	<ul style="list-style-type: none"> Fires that ignite in this zone will result in less intense fire with low likelihood of crown fire ignition or a sustained crown fire; Spacing and density of canopies stops the progression of crown fire beginning outside of this zone; typically constructed as a linear feature 300 to 500 ft. 	<ul style="list-style-type: none"> Areas in the threat zone are characterized by a variety of fuel conditions that have reached a balance of reduced excessive fuel loading while maintaining vegetation desired conditions (see above); The Threat Zone is resilient and can tolerate varying effects of fire. Risk to communities is reduced sufficiently in the Threat Zone to allow some areas to be placed in a lower risk zone. The landscape is resilient 	<ul style="list-style-type: none"> The landscape is resilient to a range of fire effects, and wildland fire has a predominately positive benefit to ecosystems and resources.

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			<p>to a range of fire effects, and wildland fire has a predominantly positive benefit to the ecosystem and resources.</p> <ul style="list-style-type: none"> • Fire behavior is modified to allow some areas to be placed in the general forest zone. 	
3. Fuels Condition	<ul style="list-style-type: none"> • Horizontal (up to 15-20 feet) and vertical (10 feet for conifers and up to 6 feet hardwoods with 1/3 live crown)) fuels are discontinuous across the zone. The number of trees less than 10 inches dbh is sufficient to meet the horizontal vegetation spacing requirements. • Surface fuels are reduced to keep fire on the ground. 	<ul style="list-style-type: none"> • Fuels are strategically reduced to provide for the safe ingress of emergency personnel and egress of evacuees. • Fuels are sufficiently reduced to provide safety zones within communities; schools, parks, meadows, reservoirs, etc. • Fuels are modified along ridgelines to provide a secure location to conduct suppression activities. 	<ul style="list-style-type: none"> • Fuels conditions maintains flame lengths at the head of the fire at less than 4 feet under 90th percentile fire weather conditions and minimizes the likelihood of sustained crown fire; 	<ul style="list-style-type: none"> • A variety of fuel conditions occur, with small patches exhibiting excessive fuel loading.

<p>4. Species of Concern</p>	<ul style="list-style-type: none"> • When compatible with defensible space requirements around structures and important human infrastructure, ecological conditions necessary to support at-risk plants and wildlife species are provided and help support population stability, species viability, and habitat connectivity. 	<ul style="list-style-type: none"> • When compatible with desired wildfire behavior objectives (e.g., rate of spread, intensity, firefighter safety, canopy base height, etc.) adjacent to the Built Community, ecological conditions necessary to support at-risk plants and wildlife species, including species associated with mature dense forests, are provided and help support population stability, species viability, and habitat connectivity. 	<ul style="list-style-type: none"> • Within the plan area, ecological conditions support resilient, well-distributed, and viable populations of at-risk species. • Necessary ecological conditions for species that rely on mature dense forests are appropriately distributed, commensurate with high quality growing sites, lower slope positions, and/or cold air pools that would have likely supported mature dense forest habitat under the natural disturbance regime. • Mature dense forest habitat is resilient to disturbances, with the frequency, severity, and extent of wildfire, drought, and insect and disease events being consistent with the natural range of variation. • For species that rely on habitat conditions created by periodic high severity disturbance events, such events occur outside of strategic fuel breaks and exhibit results that are within the range of natural variation and provide a range of fire severity patch sizes that support viable populations of wildlife that thrive in these habitats (e.g., black-backed woodpecker and pyrophytic plants).
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5. Wildfire response	<ul style="list-style-type: none"> • Fire safe clearance around structures complies with Public Resource Code 4291 • All unplanned ignitions are aggressively suppressed. • Access routes, including driveways, lanes, roads and highways allow for safe evacuation of public and deployment of fire suppression personnel. • Prescribed fire may be used to reduce fuel loads or to provide other resource benefits. 		<ul style="list-style-type: none"> • Lightning caused fires and prescribed fires may be used to reduce fuel loads or to provide other resource benefits. • Suppression response options include “confine, contain, control” where appropriate and aggressive suppression, consistent with public and firefighter safety and commensurate with values at risk based on expected fire behavior. • Within proposed and designated Wilderness, fire frequency and fire effects are within the natural range of variation, helping to restore and maintain historical fuels and vegetation conditions. • Highways and major forest roads (including adjacent vegetation) are well maintained and provide for safe evacuation of public, deployment of suppression personnel and, when appropriate, anchor points to manage fire for resource benefits. • A cost-effective and well maintained system of lookouts, cameras and over flights allow for rapid detection and reporting of new ignitions. • Fire managers employ strategies to reduce the amount of land burned at high intensity and increase the proportion of low to moderate intensity to the point that fire effects and vegetation patterns are within the natural range of variation. 	
	<ul style="list-style-type: none"> • Employ strategies to manage wildland fires that provide for firefighter and public safety, minimize cost and resource damage, and are consistent with values to be protected and management objectives. • WUI Evacuation Plans and Facility, infrastructure, structure protection plans are in place and shared among all responding agencies. 			
6. Social and economic values and benefits	<ul style="list-style-type: none"> • Social and economic systems are diverse and resilient in the event of catastrophic disturbance. • Homeowners understand the components of a Fire Adaptive Community, manage vegetation for defensible space, and know what products make their homes ember resistant. • A sustainable biomass infrastructure is appropriately located to maximize woody debris removal and economic benefits (e.g., alternative renewable energy production; biochar production and distribution; job creation; and a small log mill). • Recreation, fuel management, and related activities contribute to local economies. 			

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7. Hydrologic Function	<ul style="list-style-type: none"> • Adequate quantity and timing of water flows and sustained water quality to support ecological structure and functions, including aquatic species diversity and riparian vegetation • Soil cover and porosity is maintained so that infiltration is favorable and accelerated erosion is minimized. • Transportation facilities, including system, non-system, and timber related logging systems such as skid roads and landings, are maintained and improved so that hydrologic disconnection and sediment delivery associated with those transportation facilities is minimized. • Soil moisture regime of meadows, fens and floodplains are maintained at, or restored to, natural conditions. • Sediment filtering capacity of near stream and meadow systems is maintained or improved. • Surface fuel loads are maintained to avoid damage to soils during a wildfire. 			
8. Water, power, and communication infrastructure	<ul style="list-style-type: none"> • Assets are maintained such that they may be used for accessing and suppressing fire whenever possible. • Free of diseased, weakened, or dead trees that may damage assets or increase risk of fire. 		<ul style="list-style-type: none"> • Risk to priority assets are minimized. • Linear infrastructure assets are maintained to function as fuel breaks and/or contingency lines. • Temporary interruption of service through powerlines and above ground water conveyance infrastructure (flumes, penstocks, etc) are minimized but may occur due to firefighter safety concerns. 	
9. Industrial Forest Lands (e.g. SPI) <i>Forthcoming</i>				
10. Non-industrial Private Forest Lands	<ul style="list-style-type: none"> • Stem density and canopy cover are heterogeneous across a watershed scale, where in general, tree densities would be higher on northeast aspects as compared to southwest aspects. Likewise, stem densities and canopy cover would be highest in the drainages and riparian areas, and then decrease over the mid slopes with lower densities on ridge tops. • Species distribution and composition are commensurate with surrounding forested communities favoring large fire resilient pines and oaks when ecologically feasible. • Surface and ladder fuels structure and composition reduce the likelihood of crown fire ignition due to sufficient horizontal (potentially 20 feet between boles) and vertical (limb 10 feet above ground) spacing between grasses, shrubs, and trees. • Brush/shrub cover should be reduced by creating a mosaic of treated and untreated shrubs. 			

Desired Future Conditions: 7 Themes for the SOFAR Landscape

Seven themes for desired future conditions capture three points of the cohesive strategy: (1) resilient landscape, (2) adapted communities, and (3) fire response. Each management zone would have a desired condition for all 7 themes.

Themes

1. Vegetation structure: amount and distribution (1)
2. Fire behavior (fuel structure) and fire effects (fire return interval, severity) (1)
3. Fuels Conditions (fuel reduction areas) (2,3)
4. Species of Concern (1)
5. Wildfire response (suppression vs. management, evacuation plans, incident management) (3)
6. Social and economic values and benefits (recreation, utilities) (3)
7. Hydrologic function (water quantity and quality) (soil stability and productivity) (1)
8. Water, Power, and Communication Infrastructure (2,3)
9. Industrial Forest Lands (1)
10. Non-Industrial Forest Lands (1)