USDA
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Tahoe National Forest

Managing Naturally Ignited Wildfire for Resource Benefits

Proposed Forest Plan Amendment

Forest Service

Tahoe National Forest

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Introduction

Fire is a vital ecological process within the Tahoe National Forest and across the Sierra Nevada. As with other ecological processes, for example nutrient and water cycles, the Tahoe National Forest's meadows, shrublands, forestlands and riparian areas have evolved with fire: they rely on fire to remain healthy and resilient.

Historically, low- and mixed-severity wildfires occurred frequently across the Tahoe National Forest. These wildfires reduced surface and ladder fuels and, because of their frequency, wildfires often reburned areas before forest fuels could accumulate too much. In this way, wildfires provided important ecosystem benefits by recycling valuable nutrients into the soil, creating and maintaining wildlife habitat, and maintaining soil moisture for healthy forests and flowing streams. Over the past century, an emphasis on wildfire exclusion, coupled with other management decisions, altered fire's historic ecological role, and, as a result, has led to numerous unintended consequences (Stephens et al. 2018). The lack of more frequent, low- and mixed-severity fire across the Tahoe National Forest has resulted in extensive areas of overly dense forest stands, which are highly susceptible to mortality from insects, drought, and high-severity wildfire. The Forest's vulnerability to fire has been exacerbated by historic timber management up through the early 1990s that removed the largest, most fire-resistant trees (Earles et al. 2014). Wildfire reporting and suppression activities have become increasingly technologically advanced and coordinated so most wildfires are effectively suppressed. When wildfires do escape initial attack, they burn at intensities and severities outside historic norms, making them increasingly difficult and costly to control (North et al. 2015). This means wildfires burn larger areas with more severe impacts on soils, water quality, vegetation, wildlife habitat, recreation opportunities, and scenery. These large, uncharacteristic wildfires generate massive amounts of uncontrolled smoke and greenhouse gas emissions, adversely impacting human health as well as contributing to climate change. Ultimately, all of these factors combine to increase wildfire risks to communities, infrastructure, and public health and safety.

To protect our forests, restore resilience, and safeguard public safety, we need to expand our current efforts to restore fire back into the Tahoe National Forest's ecosystems. To accomplish this, we are proposing to amend the *Tahoe National Forest Land and Resource Management Plan* (LRMP 1990) to provide fire managers and decision-makers with greater opportunities to manage naturally-ignited (lightning) wildfires, under appropriate conditions, for ecological and societal benefits. This proposed amendment addresses many of the unintended consequences associated with immediately suppressing all wildfires on the Tahoe National Forest. We believe this amendment would contribute to the Forest's ability to increase the pace and scale of ecological restoration and help reduce the risk of uncharacteristic wildfires and their adverse effects on ecosystem health, public health, and public safety.

Need for Action

Forest Setting

The Tahoe National Forest lies in the northern Sierra Nevada Range, with elevations ranging from approximately 1,500 feet on the lower west side of the Forest to over 9,000 feet along the Sierra Nevada crest. On its eastern side, the Forest encompasses broad high valleys, many of which have been sites of extensive agricultural activity since the Gold Rush. The west side of the Forest is laced with steep, rugged canyons drained by three major river systems: American, Bear, and Yuba. The eastside of the Forest drains primarily into the Truckee River with a small portion draining into the Feather River Basin.

A wide variety of vegetation types occupy the Tahoe National Forest based on the Forest's broad range of elevations and the differences in weather and precipitation along this elevational gradient. Major vegetation types include oak woodland, riparian, chaparral and the following forest types: mixed conifer, red fir, lodgepole pine, subalpine, and eastside pine. The westside of the Forest has some of the most productive forestland in the United States due to its geographic location in the northern Sierra Nevada and accompanying relatively wet, cool winters and warm, dry summers.

The Tahoe National Forest sits astride Interstate Highway 80 partway between Sacramento, California and Reno, Nevada. The Forest, which is less than an hour's drive from Sacramento or Reno and about three hours from the San Francisco Bay Area, offers high mountain scenery, beautiful river canyons, and numerous campgrounds and trails for the visiting public. The Forest's close proximity to urban areas, combined with its year-round attractive recreation opportunities, means the Forest receives millions of visitors annually. The Tahoe National Forest repeatedly ranks among the top 20 most visited national forests in the Nation.

In addition to providing scenic and recreational opportunities, the Tahoe National Forest has a rich array of natural and cultural resources. The Forest's watersheds are the source of clean drinking water to millions of people in California and Nevada, irrigation water for agriculture, and water for hydroelectric power. The Forest is home to many rare plants, animals and fish, and has numerous valuable cultural and historic sites. The Forest also provides opportunities for commercial and commodity uses, including timber harvesting and livestock grazing. Major utility lines and pipelines are located on the Forest, particularly along the Interstate 80 corridor, and the Forest Service provides permits for electronic communications as well as other commercial needs.

New Information and Changed Conditions

As previously described in the *Introduction* section, the role of fire as a key ecological process in the Forest's ecosystems has been significantly altered as a result of a century of fire exclusion coupled with other management actions. This has led to numerous unintended consequences, as described in the sections below.

Altered Forest Ecosystems at Heightened Risk of Severe Disturbances

Wildfire has been largely absent in its historic role as a frequent, widely-occurring ecological process on the Tahoe National Forest. The lack of wildfire, combined with human activities and management, has resulted in existing forest ecosystem conditions that are highly departed from historic conditions. The average time period since last fire on the Tahoe National Forest is 86 years (Safford and Van de Water 2014). This means that the majority of the Forest's landscapes have not experienced fire for nearly a century. Compared to historic fire return intervals, which ranged from a mean of 11 years in dry mixed conifer and yellow pine forests to 40 years in red fir forests, the Tahoe National Forest has missed several rotations of fire, particularly at the low to middle elevations (Van de Water and Safford 2011).

These alterations in fire regime have led to a homogenization of forest stands across the Forest. Tree densities, particularly in small- to medium-sized trees, are higher compared to historic conditions; overall tree species composition has shifted to more shade tolerant, less fire-resilient species; forest canopy covers are more dense; and openings in the canopy are largely absent (Knapp et al. 2013, Safford and Stevens 2017, Stephens et al. 2018). The amount of dead and down woody material on the forest floor has also increased by an estimated 70 percent over the last century, further increasing fuel loading and heightening the risk of stand-replacing wildfires.

The changes in forest structure and species composition have made forested ecosystems on the Tahoe National Forest more susceptible to insects, disease and drought. Dense and young forests are more prone to the impacts of drought (Young et al 2017, Voelker et al 2019). Dense forests are more susceptible to water stress, insect outbreaks and some diseases, which can lead to large-scale tree die offs and conversion to non-forest vegetation (Kolb et al 2016, Guarin and Taylor 2005, Stephens et al 2018). During California's 2012-2016 drought, an estimated 130 million trees died in the Sierra Nevada, including up to 50 percent of the pines in lower and middle elevation watersheds in the central and southern Sierra (Fettig et al 2019, Buluc et al 2017). Intense droughts are predicted to occur more frequently and persist for more prolonged periods as climate changes. These conditions set the stage for high severity wildfires, putting human communities, watersheds, and forest ecosystems at significant risk (Stephens et al. 2018).

Larger, More Severe Wildfires

Changes in forest structure and tree species composition across the Tahoe National Forest have increased the risk of large, uncharacteristically severe wildfires. Today's wildfires are burning larger areas at high intensities, killing the majority of trees and changing the role of wildfire from forest maintenance to forest conversion (Safford and Stevens 2017). While the region has seen increases in warming and longer fire seasons, fire severity has not increased in places where wildfire managed for resource benefits has been allowed (Steel et al. 2018), indicating the role of unhealthy forests in current fire behavior.

Large wildfires have occurred on the Tahoe National Forest during the past decade, most recently the American River Fire Complex (2008) and American Fire (2013). The 2014 King Fire, which largely occurred on the Eldorado National Forest (but did overlap slightly onto the Tahoe National Forest), was human-caused and burned tens of thousands of acres (over 47 percent of the landscape) at high severity (Estes et al. 2016). Extensive areas of high severity fire effects, as occurred in the King Fire, are not consistent with historic fire patterns (Meyer 2015). The uniformity of severe burn effects over such large areas reduces habitat complexity (Jones et al. 2016) and leads to significantly higher costs for the Forest Service for burned area rehabilitation and restoration. Large areas of severely burned forest stands could take a century or more to return to forested conditions because the conifer trees that could have provided the seed source for the next generation of tree seedlings were killed. Additionally, these burned stands can reburn at high severity in successive fires, prolonging and, in some cases, arresting forest succession, converting previously forested areas to shrub-dominated vegetation types (Coppoletta et al. 2015).

Climate science indicates that the ongoing trend of warmer temperatures and protracted droughts is increasing the risk of higher severity wildfires. California is on track to exceed a 2˚C increase in average temperature by 2050 and to experience more intense droughts (Bedsworth et al. 2018). This may push many forests outside the climatic envelope into a climate regime they have not experienced for millennia, if ever (Thorne et al. 2017), and intensify already observed fire and tree mortality trends in Sierra Nevada forests (Restaino et al. 2019, Dettinger et al. 2018). Increasingly early snowmelt is likely to increase fire frequency and lengthen the fire season (Westerling 2016). Our current understanding is that restoring the health of our forests will help reduce the risks, damage, and extent of wildfires in the future, protecting watersheds, forest ecosystems and the animals that rely on them.

Increasing Risks to Communities and Infrastructure

Over the past 25 years, increasingly greater numbers of people have moved into wildland urban interface areas, where human habitation is mixed in with areas of flammable wildland vegetation. Communities in and around the Tahoe National Forest lie within this interface, including the communities of Nevada City/Grass Valley, Foresthill, Camptonville, Downieville, Sierra City, Truckee, and Sierraville. Numerous smaller concentrations of residences and businesses as well as mining claims, organizational camps, developed recreation sites (picnic areas, campgrounds, boat ramps, etc.), and resorts lie within or adjacent to the Forest's administrative boundary. Hydroelectric facilities and reservoirs, water/irrigation canals, radio and microwave towers, gas pipelines, electric powerlines and telephone lines, railways, and highways, including one of the Nation's major interstates (I-80), are also located within the Tahoe National Forest. The increased risk of uncharacteristically large, severe wildfire events due to altered forest conditions and high fuel loading, along with the potential for human-caused wildfire ignitions, is placing communities, infrastructure, and human lives at risk.

Public Health Impacts from Wildfire Smoke

Public health impacts associated with mega-emission fires are increasing (Long et al. 2017; Schweizer et al. 2017). Recent large fires in the Sierra Nevada, such as the Rim Fire (2013), King Fire (2014), and Camp Fire (2018), have produced mega-emissions that have overwhelmed public health and greatly exceeded air quality standards for particulate matter (PM) 2.5 and other air pollutants. Adverse health impacts from the Rim Fire alone reached 7 million person-days of unhealthy air (Long et al. 2017). During some burn periods, air quality was very unhealthy for all risk categories. The 2018 Camp Fire led to closures of the University of California, Davis and Sacramento State University to protect faculty, students, and others. Based on research (Richardson et al. 2012) about how much is the public willing to pay to avoid smoke, Long et al. 2017 estimated that the cost of the Rim Fire's smoke impacts may have been nearly $600 million.

Smoke from megafires not only adversely impacts public health in and around the burn area, it can impact extensive areas of California, Nevada, and beyond. Figure 1 shows cumulative air quality (PM 2.5) in Stockton, California from June through December, with the 2017 and 2018 trends highlighted. The lingering adverse impacts from the distant 2018 Ferguson and Camp Fires on Stockton's air quality are clearly evident. Given the Tahoe National Forest's central location in California and proximity to high population centers, severe air quality impacts would be expected from a mega-fire on the Forest.

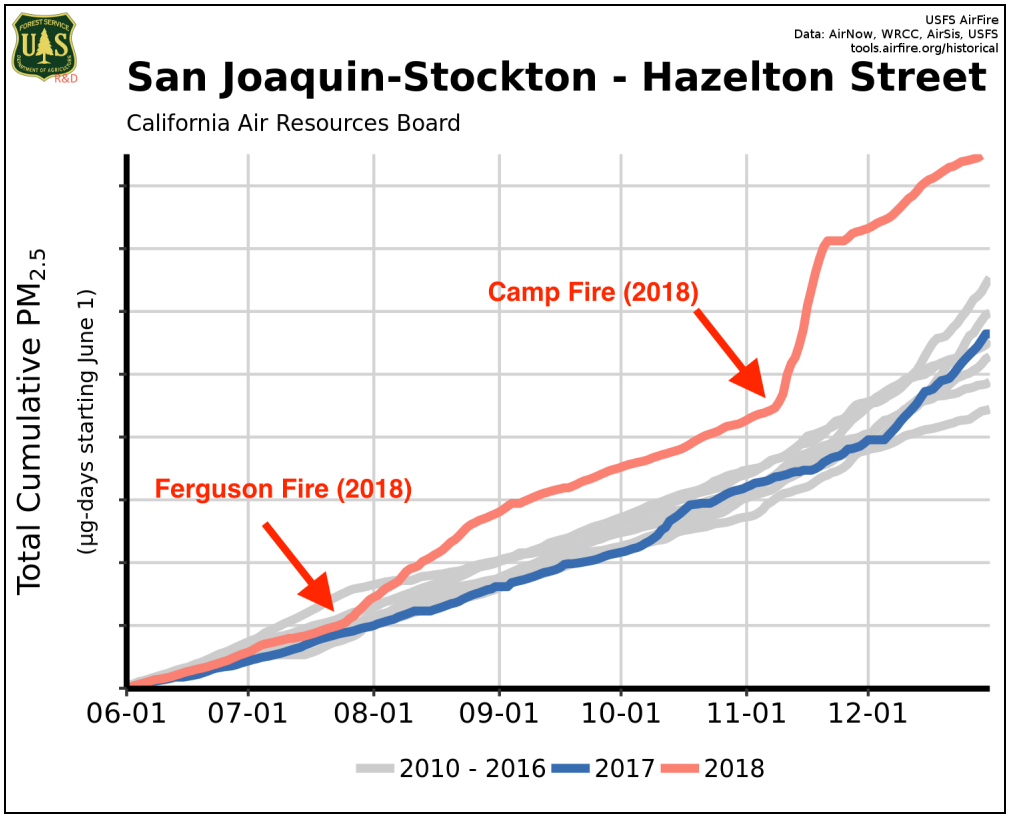

Figure 1. Cumulative annual air quality (PM 2.5) in Stockton, CA through summer and fall (2010 – 2018).

Increased Greenhouse Gas Emissions

Until recently, it was commonly believed that Sierra Nevada forests, if left unmanaged and untouched by fire, were actively storing and sequestering carbon from the atmosphere. Recent observations suggest that this may not be the case. Studies (Wiechmann et al. 2015, Dore et al. 2012, and Hood et al. 2018) indicate that untreated forests may not be pulling carbon from the atmosphere as expected and that restoring forests back to health boosts carbon sequestration. In the absence of fire, unmanaged forests may be carbon neutral or even carbon emitters.

A broader look by Gonzalez et al. (2015) at carbon storage in California from 2001 to 2010 found significant losses in live carbon storage, largely attributable to the effects of wildfire. Compounding this loss, the unnaturally large high severity burn patches resulting from some recent wildfires have been slow to regenerate with trees, if they do at all. Sampling of high severity burned areas 5 to 7 years after wildfire found that 43 percent of the plots still had no tree regeneration (Welch et al. 2016). These areas may instead regenerate as shrubland, which can experience a return of high-severity fire effects within 10 to 20 years, reducing the likelihood that the forest will be able to regrow (Coppoletta et al. 2016). This can lead to a cycle of high- severity fire that is difficult to manage (Van Wagtendonk et al. 2012, Lydersen et al. 2017). In addition, shrublands store less than 10 percent of the amount of carbon stored by forests (Battles et al. 2014).

Need to Change the Forest Plan

Mechanical thinning to reduce forest stand densities is one tool that can be used to enhance forest resiliency to severe disturbances; however, mechanical thinning alone will not get the Tahoe National Forest's landscapes to an ecologically resilient condition. Approximately 40 percent of the forested (productive) acreage on the Tahoe National Forest is accessible for mechanical treatment (North et al. 2015). Fire could be a key tool for treating the remaining 60 percent of the forested landscape to reduce fuel loading and enhance forest resiliency to severe disturbances. North et al. (2012) identifies a scale of treatment need based upon existing fire regimes and vegetation-fire frequency for different vegetation/forest types. The North et al. (2012) study indicates the annual fire deficit in the Sierra Nevada to be between 400,000 and 450,000 acres with the backlog being much greater. On the Tahoe National Forest, wildfires would have historically burned an average of 49,350 acres per year (about 6 percent of the Forest) in the Forest's four major forest types (yellow pine, moist mixed conifer, mixed conifer/hardwood, and red fir). This estimate is based on a mean historic fire return interval of 24 years. (The historic range is 11 years in yellow pine and 40 years in red fir). Between 2000 and 2018, treatments (mechanical and prescribed fire) on the Tahoe National Forest were conducted on an average of 8,750 acres per year, leaving an estimated annual fire deficit of 40,600 acres. Managing naturally-ignited wildfires for resource benefits is a way the Forest Service can begin to address this deficit.

The ecological benefits of wildfire managed for resource objectives are numerous and well documented and managing wildfires for resource benefits can help to reduce the risk of

uncharacteristic wildfire. Forest Service fire managers in the southern Sierra Nevada national forests have been managing lightning ignitions for resource benefits over the past several decades. They have found that managing these wildfires typically produces favorable forest stand conditions aligned with the natural range of variability (Meyer 2015). This translates into low severity fires that predominately remain on the ground (rather than in the tree crowns), occasionally flaring up in small high-severity patches. The regular occurrence of low to mixed severity wildfires reduces the amount of fuel build-up, thereby lowering the likelihood of a potentially large uncharacteristic wildfire while creating heterogeneous stands that are healthier and more resilient to severe disturbances.

Low- to moderate-severity fire often removes non-native, invasive plants that compete with native species for nutrients and space, removes undergrowth, and opens small holes in the canopy, which allow sunlight to reach the forest floor, thereby supporting the growth of native species. This slower fire also releases nutrients stored in logs and dead trees to the soil, enhancing the health of trees and other vegetation. Lower and more moderate intensity fire can also serve as a means for controlling insect pests by opening gaps in the forest to increase airflow and increase spacing between trees of the same species, making it harder for the insects to attack (Fettig and Hilzzczanski 2015) Furthermore, stress from low intensity fire can trigger sap production, enhancing the trees' ability to repel bark beetle attacks (Hood et al. 2015). There is some evidence to suggest that lower/more moderate intensity fire also improves soil moisture conditions for wildflowers and trees and may increase available surface water and runoff (Boisrame et al. 2017). In addition to all of the above-mentioned benefits, the small patches of high severity fire common in historic fire behavior leave behind fire-killed trees that provide habitat for nesting birds, homes for mammals, and a nutrient base for new plants. When burned trees decay, they return even more nutrients to the soil. Overall, lower and more moderate intensity fire is a catalyst for promoting biological diversity and healthy ecosystems.

Managing naturally ignited wildfire to promote a greater proportion of low- and moderate-severity fire behavior is a particularly critical tool in remote areas that are difficult to access. As a fire-mosaic builds at the landscape level, and the fuels across the landscape are broken up into smaller, less continuous blocks, the landscape becomes more resistant and resilient to fire. The reduced fire risk and more moderate fire behavior across such landscapes allow fire managers to expand the use of naturally-ignited wildfire for resource benefits over space and time, further reducing risk and breaking up fuelbeds in a virtual cycle. Such a landscape also provides greater opportunities to successfully and more immediately suppress a wildfire that starts under the wrong conditions or that is threatening infrastructure, air quality, public health, and life. Achieving this fire mosaic at the landscape scale is an incremental, gradual process that will likely take decades, with forest managers using both mechanical treatments/prescribed fires and wildfires managed for resource benefits.

Numerous cases demonstrate the effectiveness of such proactive fire and fuels management. Notably, in Arizona's Wallow Fire of 2011, treatments completed before the fire were credited with saving the town of Alpine from the approaching fire. Similarly, treated and restored forests around Lake Tahoe saved structures when the Angora Fire transitioned from crown to surface

fire as it entered treated areas, allowing firefighters to more safely protect structures. Restoring natural fire to the Tahoe National Forest would help decrease wildfire intensity, aiding firefighters' ability to slow or stop approaching fire, thereby protecting infrastructure and communities. Slower fire spread also often equates to less daily smoke, which in turn often reduces the duration and intensity of smoke impacts.

Under the existing *Tahoe National Forest Land and Resource Plan* (LRMP 1990) as amended (referred to as the Forest Plan), Forest Service managers have very limited opportunities for managing naturally-ignited wildfires to achieve resource benefits. (Appendix A of this scoping document displays existing Forest Plan direction pertaining for fire management.) The Forest Plan needs to be amended to expand the Forest Service's ability to manage naturally-ignited wildfires under carefully prescribed conditions to achieve resource benefits and reduce fire risk. Based on new scientific information and changed circumstances, expanding opportunities for using natural fire ignitions to achieve multiple resource benefits, where and when appropriate, would enhance forest resilience, improve carbon stability, increase watershed health, and better protect public health and safety. Current national policies, including *Guidance for Implementation of Federal Wildland Fire Management Policy* (February 13, 2009) https://www.nifc.gov/policies/policies_documents/GIFWFMP.pdf and the 2014 National Cohesive Wildland Fire Management Strategy https://www.forestsandrangelands.gov/strategy/thestrategy.shtml, support managing wildfires for ecological and societal benefits. An amendment to the *Tahoe National Forest Land and Resource Management Plan* (1990) is needed to incorporate the intent of these forward-looking authorities into the Forest Plan.

Proposed Action

The Forest Service is proposing to replace existing *Tahoe National Forest Land and Resource Plan* (LRMP 1990) direction pertaining to wildfire management (Appendix A of this scoping document) with the following forest-wide management direction:

Desired Conditions

When and where appropriate, wildfires burn within a range of intensities, severities, and frequencies that facilitate ecosystem resilience to severe disturbances, including uncharacteristic wildfire. Low to mixed severity fires, informed by the natural range of variation and the uncertainties of future climate, should predominate over most of the landscape. Naturally-ignited wildfires managed for beneficial outcomes should reduce smoke from larger fires, provide added protection for communities and infrastructure, and support sustainable recreation, in particular maintaining scenic attractiveness, integrity, and character.

Wildfires do not endanger human life or destroy homes or communities. Forest landscape conditions serve to slow fire spread and limit extreme fire behavior, thereby protecting communities and infrastructure. Wildfire threat is lessened in areas where fuel conditions currently pose the highest threat to communities and infrastructure, such as powerlines, communication towers, and developed recreation sites.

Standard

Fire management activities will minimize the risk of loss of life and damage to property or ecosystem function. Firefighter and public safety are the first priorities in every fire management activity, with decisions aimed at minimizing the risk of loss of life and damage to property or ecosystem function.

Guideline

Use naturally- (lightning-) caused wildfire ignitions to meet multiple resource objectives when and where conditions permit and risk is within acceptable limits. Multiple resource objectives include: re-introducing fire as a necessary ecological process; enhancing plant and wildlife habitat, including critical habitat for threatened and endangered species; improving forest health, conserving ecosystem services; managing smoke emissions; reducing fuel loading; and/or protecting communities and infrastructure.

Potential Management Approaches

When determining the appropriate wildfire management strategy, use spatial support tools such as wildfire risk assessments, fire management operating plans, and the current Forest Service decision support system for wildfire management. To provide best available information to fire managers during wildfire incidents, annually update the following spatial data on a forest-wide basis:

- Locations and types of recent vegetation treatments
- Locations and severity of recent wildfires and prescribed fires
- Land use and land ownership changes
- New infrastructure, e.g. roads, powerlines, etc.
- Drought conditions
- Tree mortality

Implementation of the Proposed Amendment

If the proposed forest plan amendment was adopted, this would not mean that every naturally-ignited wildfire would be managed for resource benefits. Rather, each naturally-ignited wildfire would be carefully evaluated to determine the best management strategy relative to fire management objectives and related factors, including, but not limited to, current weather patterns and personnel. After first providing for firefighter and public safety, fire managers would then consider the wildfire's potential risks and benefits to infrastructure and natural and cultural resources. Resource specialists would be consulted regarding locations and protection of sensitive resources. Fire management decisions would also take into account the location of the fire, the condition of the fuels, current and predicted weather, and topography. The Tahoe National Forest Wildfire Management Decision Tool (Appendix B) outlines the key factors that a decision maker would consider in deciding whether to manage a naturally ignited wildfire for resource benefits. Wildfires managed for resource benefits would spread gradually with overall

lower flame lengths to meet objectives for enhancing plant and wildlife habitat; improving forest and watershed health and resiliency; and reducing fuel loading.

While fuel continuity, favorable meteorology, and adequate staffing would be key factors in managing a wildfire to meet resource objectives, these factors alone would not determine the extent of the fire. Fire managers would conduct an ongoing, dynamic risk assessment continually throughout the duration of the fire incident to inform real-time adjustments to response actions, allowing decision makers to limit the wildfire at key management action points on the landscape and/or take more aggressive and direct suppression actions as needed. Fire risk would be continually be re-assessed throughout the incident based on the following factors:

- Wildfire location relative to existing landscape conditions, including:
    - Natural Environment - topography, recent fuels reduction treatments, previous fire footprints, ridgelines, etc.
    - Special Areas - wilderness, wild and scenic rivers, inventoried roadless areas, research natural areas, special interest areas, experimental forests, etc.
    - Built Environment – communities, WUI, infrastructure (including utility corridors), roads, developed recreation sites, etc.
- Fire weather
- Fuel conditions
- Likely burn progression
- Control points
- Staffing requirements
- Back up availability for staff assignments
- Nearby wildfire activity, draw-down issues
- Design features and resource protection measures

Further, wildfires managed for resource objectives would be strategically located on the landscape, tiering off and building out from, a mosaic of previous fire footprints and natural barriers across the landscape. Random use of resource objective fires without a landscape strategy component is not as effective because there are simply too many acres that need ecological fire restoration (Moghaddas et al. 2018). Fire managers would try to identify key parts of the landscape that would be a high priority for achieving resource objectives during a wildfire, whenever possible.

Ultimately, fire managers would apply the best fire management strategy based on fire location, time of year, current and expected weather, and fire behavior while mitigating the risk to the public and firefighters, meeting protection priorities, and achieving natural resource management objectives.

Substantive Planning Rule Provisions Directly Related to the Amendment

The proposed forest plan amendment would adhere to the requirements of the Forest Service's 2012 Planning Rule (36 CFR 219). In accordance with 36 CFR 219.13(b)(2), initial notice of the proposed amendment must include information about which substantive requirements at 36 CFR 219.8 through 219.11 (which address sustainability, diversity of plant and animal communities, multiple use, and timber requirements based on the National Forest Management Act (NFMA)) are likely directly related to the amendment. Determining which of the Planning Rule's substantive requirements are directly related to the amendment is based on the amendment's purpose and effects (beneficial or adverse) as informed by best available scientific information, scoping, effects analysis, monitoring data, or other rationale (36 CFR 219.13(b)(5)(i)).

Unlike a plan revision, a plan amendment does not create a new plan; it results in an amended plan, with the underlying plan retained except where changed by the amendment. Therefore, the amended plan will have plan direction changed by the amendment and plan direction that has not been changed. When amending a plan under the 2012 Planning Rule, a responsible official may choose not to change portions of the plan, even if those portions are inconsistent with a substantive requirement within §§ 219.8 through 219.11, when such portions are not directly related to the purpose or effects of the amendment (81 FR 90725).

The purpose of this proposed amendment is to enable the Forest Service to more effectively manage wildfires. Taking advantage of opportunities to manage naturally-ignited (lightning-caused) fires, under the appropriate conditions, would provide a host of ecological and societal benefits, including re-introducing fire in fire-adapted ecosystems; enhancing plant and wildlife habitat; improving forest health; conserving ecosystem services; and providing for public safety and health by managing smoke emissions, reducing fuel loading, and protecting communities and infrastructure. While the amendment could have short-term adverse effects on certain resources, for example, air quality, its effects would be largely beneficial by restoring the ecological role of fire and protecting forests and communities from the significant adverse effects of large-scale, uncharacteristic wildfire.

Based on the proposed amendment's purpose and anticipated effects, the following substantive provisions are likely to be directly related to the proposed amendment for the reasons described below:

Sustainability: Consider wildland fire and opportunities to restore fire adapted ecosystems.

The proposed amendment would support ecological integrity of the Tahoe National Forest's terrestrial and aquatic ecosystems by providing increased opportunities for restoring fire adapted ecosystems (36 CFR 219.8 (a)(1)(v)). The amendment would allow, where appropriate, naturally ignited fires to be managed to achieve multiple resource benefits. These benefits would include restoring forest ecosystems that evolved with more frequent, lower intensity fires to a more resilient, sustainable condition.

The proposed amendment is aimed at restoring air quality (36 CFR 219.8(a)(2)(i) by serving to offset smoke emissions from large, uncharacteristic wildfires. Restoring natural fire to the Tahoe National Forest would help decrease wildfire intensity, aiding firefighters' ability to slow or stop approaching fire. Slower fire spread also often equates to less daily smoke, which in turn often reduces the duration and intensity of smoke impacts.

Diversity: Maintain or restore the diversity of ecosystems and habitat types.

The amendment to provide opportunities for using naturally ignited fire, when and where appropriate, to achieve resource benefits would contribute to maintaining and restoring the diversity of ecosystems and habitat types as well as the diversity of native tree species throughout the Tahoe National Forest (36 CFR 219.9 (a)(2)(i) and (iii)). Fire restoration is a key contributor to ecosystem diversity, as fire can create patchy, heterogeneous landscapes that are resilient to frequent disturbance. Providing opportunities for using naturally ignited fire for resource benefits would help land managers reduce forest fuel accumulations and stand densities (particularly high densities of smaller trees). In addition, fire would promote more shade intolerant, more fire-resilient conifer species, which historically occurred in greater numbers in the Tahoe's forest ecosystems. Fire is an important tool in reversing the currently increasing trends in large, high severity wildfires. Decades of significant fire suppression on the Tahoe National Forest (and elsewhere in the Sierra Nevada) have resulted in fire being excluded from large areas of the landscape, ultimately contributing to uncharacteristically intense fire behavior and the resulting extensive resource damage. Expanding fire restoration through use of naturally ignited wildfire is a science-based management approach aimed at restoring ecosystem diversity in the Tahoe National Forest's plant and animal communities.

Multiple Use: Provide for ecosystem services and multiple uses.

The proposed amendment would foster integrated resource management for multiple use by providing opportunities to coordinate wildfire management for resource benefits with neighboring landowners, taking into account joint management objectives where feasible and appropriate (36 CFR 219.10(a)(4)).

The proposed amendment responds to reasonably foreseeable future risks to ecological, social, and economic sustainability associated with uncharacteristic wildfires on the Tahoe National Forest (36 CFR 219.10(a)(7)). The amendment is aimed at: (1) reducing fire risk to communities and infrastructure; (2) protecting forest ecosystems and ecosystem services, including soil, water, and air quality; (3) sustaining recreational opportunities; and (4) contributing to the economic well-being of local communities by sustaining opportunities associated with forest management for resilience and restoration, recreation and tourism-oriented businesses, and the scenic beauty of the Tahoe National Forest landscape.

Administrative Review Opportunity

When it becomes available, the draft decision for the forest plan amendment will be subject to the objection regulations at 36 CFR 219, Subpart B. Individuals or entities who have submitted

substantive formal comments related to the plan amendment during the opportunities for public comment, including during the scoping period, will be eligible to file an objection on the forest plan amendment (36 CFR 218.5).

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APPENDIX A

The following *Tahoe National Forest Land and Resource Management Plan* (LRMP 1990) plan components would be removed and replaced by the proposed plan amendment components on pages 8 – 9 of this scoping document:

Forest-wide Fire Management Direction

1982 Rule Plan Component	Management Direction	Reference
Goal	Protect resources from wildfire, commensurate with resource values, through fire management: treat fuels primarily through utilization and the use of prescribed fire.	LRMP, pg. V-12
Desired Future Condition	Fire and fuel management activities will have minimal cost and cause the least net value change on all management areas, except where management direction requires a more intensive level of protection (i.e., urban/rural/wildland interface). The fire program will result in improved protection, but there will still be situations where structures are lost under extreme burning conditions. Prescribed fire will be used to meet wildlife and timber management objectives and will create improved vegetative conditions.	LRMP, pg. V-12
Forest-wide Standard and Guideline	Fire suppression strategy is control (with fast, aggressive initial attack) except where the contain strategy is authorized for specific management areas at fire intensity levels described under the practice description. Strength of attack will be based on hazard rating, fire weather, and values at risk.	Standard and Guideline #84 LRMP, pg. V-45
Forest-wide Standard and Guideline	Due to intermingled private lands, high resource values, and/or continuous fuels, the confine suppression strategy is not an appropriate suppression action at this time and will not be utilized unless the following occurs: 1. Through analysis it is determined that resource and management objectives can be met through the use of the confine suppression strategy, and 2. Guidelines for the use of this suppression strategy are developed and approved for specific areas; and 3. Where necessary agreements with private landowners are executed to allow the confine strategy to be used on private lands (Tahoe NF LRMP, Forest-wide Standard and Guideline, pg. V-46).	Standard and Guideline #84 LRMP, pg. V-46

Management Area-Specific Fire Suppression Strategy Standards and Guidelines

	P1 Fire Protection - Continuous Fuels	P2 Fire Protection - High Country Non-continuous Fuels	P3 Fire Protection - improvements	P4 Fire Protection - Research Natural Areas	P5 Fire Protection - Visual, High Use, Reservoirs, Improvements	P6 Fire Protection - Wilderness, Wild River
Management Areas	**001, 003, 004, 005, 006, 008, 010, 011, 012, 018, 020, 021, 023, 024, 028, 031, 036, 038, 040, 042, 043, 046, 058, 059, 062, 065, 067, 068, 070, 073, 075, 078, 081, 083, 084, 087, 090, 091, 092, 095, 098, 101, 102, 103, 105, 106, 107, 108, 109**	**005, 008, 009, 041, 044, 048, 049, 071, 076, 086,**	**002, 005, 020, 022, 023, 024, 026, 029, 030, 040, 054, 055, 074, 077, 088, 093,**	**016, 085, 100**	**007, 009, 013, 014, 015, 019, 023, 025, 032, 033, 034, 035, 037, 039, 045, 047, 050, 051, 052, 053, 056, 057, 060, 061, 063, 064, 066, 069, 072, 079, 089, 090, 094, 096, 097, 099, 104,**	**080, 082,**
Suppression Strategy	Contain: Fire intensity Level 1 Control: Fire intensity Levels 2-6	Contain: Fire Intensity Levels 1-2. Control: Fire Intensity Levels 3-6 The Contain suppression strategy may be approved and extended to Fire Intensity Levels 3-4 if all of the following conditions are met: (1) The fire is in an isolated fuel bed of 5 acres or less; and (2) It is very unlikely that the fire can escape from this isolated area; and	Control: Fire intensity Levels 1-6. This suppression strategy is to protect improvements	Contain: Fire intensity Level 1 Control: Fire Intensity Levels 2-6 The contain suppression strategy may be approved and extended to Fire intensity Level 2 if an analysis has shown that a fire at this intensity level does not threaten persons or property outside the area, or the uniqueness of the RNA.	Control: Fire Intensity Level 1. (1) This strategy is extended within 300 feet of improvements, reservoirs, and areas of concentrated use. (2) Fire Intensity Levels 2-6 is extended throughout the remainder of the Management Area. Contain. Fire Intensity Level 1. (1) This strategy is extended over 300 feet away from improvements,	Contain. Fire intensity Levels 1-2 Control Fire intensity Levels 3-4 The contain suppression strategy may be approved and extended to Fire intensity Levels 3-4 if all of the following conditions are met: (1) The fire is in an isolated fuel bed of five acres or less, and (2) It is very unlikely that the fire can escape from this isolated area, and

	P1 Fire Protection - Continuous Fuels	P2 Fire Protection - High Country Non-continuous Fuels	P3 Fire Protection - improvements	P4 Fire Protection - Research Natural Areas	P5 Fire Protection - Visual, High Use, Reservoirs, Improvements	P6 Fire Protection - Wilderness, Wild River
		(3) No improvements are threatened: and (4) It is 1,000 feet or more from a lake or reservoir. Tractors will not be used for fire suppression unless approved by the Forest upervisor.			reservoirs, and areas of concentrated use (2) The contain suppression strategy may be approved and extended to portions of some management areas, such as 009,025.034, 047, and 089, which are further removed from improvements and reservoirs at Fire Intensity Level 2. The strategy should be extended only if analysis shows that a fire at this intensity level will meet management objectives. Conduct suppression activities with care to protect improvements, visual quality, and water quality. Close supervision will be needed to ensure compliance if tractors and other heavy equipment are used. Air tanker use will also be closely managed to prevent retardant being dropped directly into reservoirs.	(3) there are no improvements threatened, and (4) It is 1,000 feet or more from a lake or reservoir. Confine: Unplanned Ignition - The confine suppression strategy may be approved and extended at any Fire Intensity Level as long as analysis (in the form of an approved Wilderness Management Plan) indicates that resource end management objectives can be met and guidelines have been developed and approved. At this time no such plan has been developed and approved Fire suppression will meet Forest Service policy direction for wilderness as identified under FSM 2326.11, which requires Forest Supervisor approval to use motorized equipment for fire suppression

APPENDIX B. Tahoe National Forest Lightning-Caused Wildfire Management Decision Tool

The Tahoe National Forest (TNF) Lightning-Caused Wildfire Management Decision Tool would be used to inform decisions about potentially managing naturally-ignited wildfires for resource benefits. Wildfire management decisions related to unplanned, natural ignitions would be guided by the Forest Supervisor, Line Officers (District Rangers), and Fire Staff as well as geographic, temporal and other relevant intelligence.

Decision Making Approach and Relevant Factors

TNF Forest Leadership and Fire Staff would seek to take advantage of unique seasonal conditions in establishing opportunities and priorities for managing unplanned, natural lightning ignitions for resource benefits. The Forest's Fire Management Officer (FMO), Deputy FMO, Fire Chiefs/Duty Officers, in conjunction with Forest Leadership, would be the principle communicators and have delegated authority for deciding which potential candidate fires could be managed for resource benefits. This group would serve as the critical link in information sharing and decision making within their roles and functions so that the Forest FMO could best manage the overall goals and objectives of the fire management program. This group, through its interdivisional representation and subject matter expertise, would participate in shared risk decision making.

Under the proposed amendment, the *Tahoe National Forest Land and Resource Management Plan* (Forest Plan) would allow, under the appropriate conditions, naturally-ignited wildfire to be managed for resource benefits. However, there would be times when ignitions would compete for limited Forest and outside firefighting resources and/or conflict with other Forest resource or social/political concerns.

Standard wildfire size-up elements, including, but not limited to, fire behavior, vegetation, elevation, slope, aspect, access, etc. would be applied to decisions about managing all wildfires, including naturally-ignited wildfires. In addition, the following situational awareness elements would need to be considered prior to deciding whether to manage a wildfire for resource benefits. These situational awareness elements have been developed to guide Fire Staff and Line Officer(s) through the many internal and external factors that need to be considered. These elements are not meant to quantitatively score each ignition, but to blend both quantifiable information and qualitative information to inform decisions about managing naturally-ignited wildfires. The resulting conversation should mimic relative risk analysis.

Situational Awareness Elements Considered:

- Fire Situation
- Drought
- Fire return interval
- Seasonality
- Number of firefighting resources needed
- Barriers to fire spread
- Visitor disturbance (smoke, traffic, closures)
- Proximity to infrastructure
- Cultural and natural values at risk
- Regional smoke impacts from other fires
- Special events that could be impacted
- National and Regional fire preparedness level
- Potential to impact other ownership and/or administrative boundaries
- Other fuels projects or wildfires on the TNF