



United States Department of Agriculture

Draft Environmental Impact Statement for Revision of the Inyo, Sequoia, and Sierra National Forests Land Management Plans

Summary



Forest Service

Pacific Southwest Region

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Cover Photo: Two bristlecone pines on the Discovery Trail in the Ancient Bristlecone Pine Forest, Inyo National Forest

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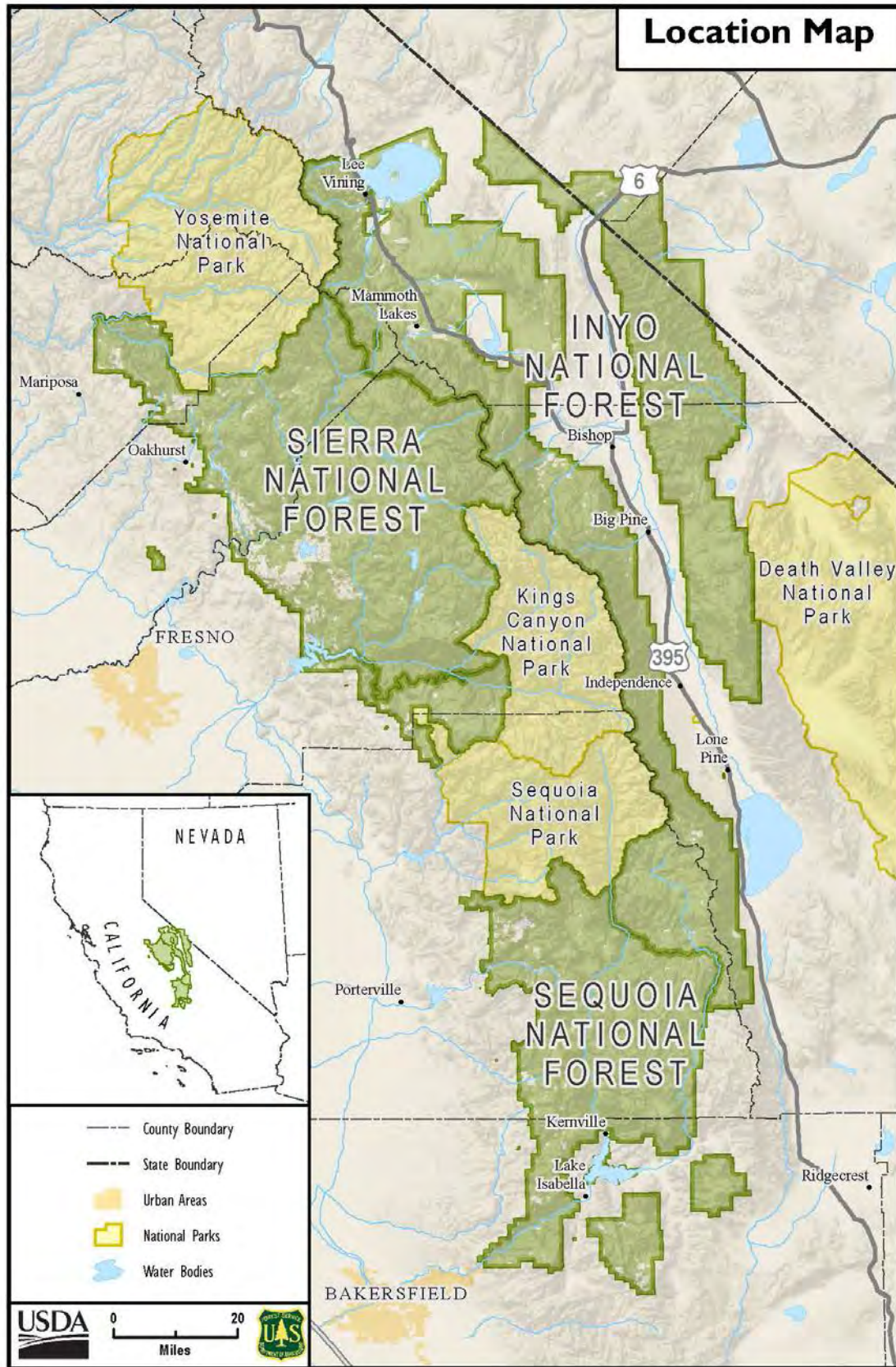


Figure S-1. Vicinity map for the Inyo, Sequoia, and Sierra National Forests

Summary

Introduction and Background

The Inyo, Sequoia, and Sierra National Forests are managed by the Forest Service, an agency of the U.S. Department of Agriculture (USDA). Together, the three national forests encompass nearly 4.6 million acres of National Forest System lands located at the southernmost extent of the Sierra Nevada mountain range of California (Figure S-1). Every national forest managed by the Forest Service is required to have a land management plan (also called a “forest plan”) that is consistent with the National Forest Management Act of 1976.¹

Each national forests is currently being managed under its respective plan: the 1988 Inyo National Forest Land and Resource Management Plan, the 1988 Sequoia National Forest Land and Resource Management Plan, and the 1992 Sierra National Forest Land and Resource Management Plan. The current plans have incorporated several amendments, including the 2001 and 2004 Sierra Nevada Forest Plan Amendments, the 2007 Sierra Nevada Forests Management Indicator Species Amendment, and other local amendments. These three southern Sierra Nevada national forests began efforts to revise their forest plans in 2012 as part of a set of “early adopters” of the newly approved 2012 planning regulations.² For the Sequoia National Forest, the Giant Sequoia National Monument management plan, approved in 2012, will remain unchanged in the forest plan revision and is not analyzed in this draft environmental impact statement.

Purpose and Need for Revising the Forest Plans

The existing forest plans are over 20 years old. Economic, social, and ecological conditions changed during that time; new laws, regulations and policies are in place; and new information based on monitoring and scientific research is available. The Inyo, Sequoia, and Sierra National Forests are revising their existing forest plans to meet the legal requirements of the National Forest Management Act of 1976; to address changed conditions and provide consistent management direction (as appropriate) across the three national forests; to incorporate changes in law, regulation, and policy; and to use new scientific information.

Through engagement with the public, tribes, and local, State and Federal agencies, we identified six emphasis areas as a focus for the need to change in revising the forest plans. Each emphasis area was considered as a potential revision topic. Revision topics are used in the environmental impact statement to organize the features of the alternatives and to compare and contrast the differences between alternatives. Three of the six emphasis areas dealing with acquired lands on the Inyo National Forest, tribal relations and uses, and benefits to people and communities were not considered as revision topics because plan direction did not change to respond to them across alternatives. We address the following revision topics because plan direction could change to respond to them across the alternatives.

¹ 16 U.S.C. 1604

² 36 CFR 219

Revision Topic 1: Fire Management and Smoke

To reduce the risk of large high-intensity wildfires to communities and assets such as recreation sites and infrastructure; increase the ability to manage wildfires to meet resource objectives; and reduce smoke impacts to communities.

Revision Topic 2: Ecological Integrity

To restore the resilience of vegetation and aquatic and riparian ecosystems to fire, drought, and climate impacts; restore wildlife and plant habitat and diversity; and reduce the risk of large high-intensity wildfire impacts to species and wildlife habitat.

Revision Topic 3: Sustainable Recreation and Designated Areas

Provide sustainable and diverse recreation opportunities that consider population demographic characteristics; reflect desires of local communities, avoid overcrowding and use conflicts, and minimize resource damage; protect cultural resources; update direction for management of wilderness and wild and scenic rivers; and protect the values of the Pacific Crest National Scenic Trail.

Issues and Alternatives

The proposed action was distributed for public review in August of 2014, and the following issues were used for analysis to respond to public concerns expressed during development of the draft environmental impact statement.

Issue 1: Ecological Resilience, Wildlife Habitats, and Wildfire

Issue Statement 1: *The amount, type, and location of thinning to improve ecosystem resilience to large, high-intensity wildfires and to reduce the threat of wildfires to communities may not provide adequate habitat for wildlife species that use forests with large trees and dense canopy cover.*

There is concern about the methods we propose to manage the forest (the type and extent of management activities), particularly mechanical thinning, for restoring ecological resilience that are included in the proposed action. Based on perceptions of current vegetation conditions and resilience, some people stated the proposal is too aggressive, while others stated the restoration proposal is not aggressive enough. Some believe the more active management approach using thinning of trees and removing fuels to restore ecological resilience will impact too much of the dense forest that provide wildlife habitats in the short-term. They prefer to use more prescribed burning and more carefully managed wildfires instead of mechanical thinning, and limit mechanical thinning to only when needed closest to communities. Others think only a more active management approach that substantially increase the areas thinned will reduce the impacts from large, high intensity wildfires and ensure that the forests are resilient to climate change. They believe that active management may have short-term impacts but is needed to provide long-term sustainability of wildlife habitat and other ecosystem services.

Issue 2: Forest Resilience and Forest Density

Issue Statement 2: *The limitations on effectively treating enough areas to reduce the density of trees and the level of fuels because of concerns for wildlife habitats will leave too much of the forest at risk of loss or unacceptable damage from wildfires or insect attacks during droughts exacerbated by climate change.*

There is a concern that there are too many tightly packed trees in much of the current forests, which makes them susceptible to being attacked and killed by bark beetles and other insects when trees are stressed by droughts. The density of trees and high level of fuels that have accumulated also makes it easier for fire to spread quickly into tree crowns where it can kill more trees than would be expected under more natural conditions. Public concern is that overemphasizing wildlife habitat needs conflicts with the need to improve resilience and sustainability of the forest.

Issue 3: Fuels Treatments and Fire Management

Issue Statement 3: *The amount of prescribed fire and managed wildfire used to meet resource objectives may not be sufficient to restore fire in frequent fire ecosystems. The amount of fire restored to the landscape may not be achievable without reducing existing fuels before treatment.*

There is general agreement by the public about the need to restore fire as an ecosystem function more widely on the forests. There is a concern that in most areas, unless existing fuels are reduced beforehand, it will be difficult to conduct prescribed burning because the fire will burn hotter than desired and will have too great a potential to escape control. There is also a concern that many prescribed burns may not be accomplished because fire managers would need to wait for optimal weather where the conditions for burning and risks are acceptable. Similarly, the concern is that wildfires that could be managed to meet resource objectives will continue to be suppressed unless there are strategic pre-treated locations to provide confidence that the fire can be safely managed without undue risks to communities or unacceptable impacts to resources.

Issue 4: Watershed Restoration

Issue Statement 4: *The amount of watershed restoration in the proposed revised plans may not keep pace with the increased stresses to aquatic and riparian systems from drought and climate change.*

Many people are concerned that with climate change and drought, aquatic and riparian ecosystems are under increasing stress and in need of restoration to increase their resilience. Stresses include:

- the threats of uncharacteristically large wildfires that affect large portions of watersheds and riparian areas,
- decreases in available water and a resulting increase in water temperature due to increased forest density where more trees draw water to grow, and
- drying of meadows and unique features like fens and springs.

Since aquatic and riparian systems are an essential component to sustain ecosystem integrity, the concern is that without an increased pace and scale of restoration to address these stressors (the rate at which we actively manage resources across a given landscape), aquatic ecosystems will continue to degrade with less water and warmer water temperatures that may make it difficult or impossible for aquatic organisms to survive.

Issue 5: Protecting Aquatic Diversity

Issue Statement 5: *The proposed revised plans may not adequately protect areas of high aquatic species diversity.*

We heard concerns that if we don't identify and provide additional protection to areas of high aquatic species diversity, the areas may be adversely affected by the pace and scale of restoration. Maintaining and improving the resilience of these areas is an important adaptive strategy to address climate change.

Issue 6: Recommended Wilderness

Issue Statement 6: *The proposed revised plans offer an opportunity to manage more areas as recommended wilderness to protect them from development for future generations. However, recommending additional wilderness areas in the proposed revised plans might unnecessarily prohibit and further geographically constrain management activities and uses, including tribal uses that would otherwise be allowed.*

The 2012 Planning Rule and Forest Service manual and handbook provide direction for inventorying and evaluating lands that may be identified as recommended for inclusion in the National Wilderness Preservation System. When we received comments on our proposal to revise the three forest plans, some individuals and groups identified areas to consider in the wilderness inventory and suggested they become recommended wilderness areas. The commenters asked that these or other additional areas be recommended for wilderness designation to protect the values that they attach to wilderness areas. Other people requested that no additional areas be proposed for wilderness designation because designation would prevent them from participating in the activities that they currently enjoy within those areas. Tribal groups, and traditional cultural practitioners expressed concern that their access may be restricted to sites where they gather resources and hold ceremonies if areas are managed as wilderness. There is also a concern that sacred sites and cultural resources may be damaged or vandalized if recreation use increases as a result of wilderness designation. Some commenters felt wilderness designation could limit management activities such as other forms of recreation that provide economic benefits to local communities or mechanical treatments to reduce the risks of uncharacteristic wildland fire, insect, and disease.

Issue 7: Smoke

Issue Statement 7: *Increasing the amount of prescribed burning, and allowing the management of wildfires to meet resource objectives would produce more smoke that might impact human health and affect the tourism-based and resource-based economies of counties and rural communities.*

In recent years, very large wildfires in Sierra Nevada national forests have demonstrated that smoke can affect not only local communities but also communities far from the fire. Smoke can affect human health and recreation opportunities. These impacts may affect other uses of the forest and can be substantial for communities dependent upon a recreation-based economy. There is public concern that increasing the amount of prescribed burning and managing more wildfires to meet resource objectives will produce too much smoke that will affect human health and, if not carefully planned and managed, could affect local economies.

Issue 8: Forest Products

Issue Statement 8: *The amount of forest management activities and forest product outputs may not adequately contribute to sustaining local and regional industry infrastructure needed to accomplish restoration objectives.*

Many commenters emphasized the importance of economic and social contributions of the national forests to the surrounding communities. One concern is the importance of maintaining infrastructure (such as mills, roads, equipment, and skilled labor force) in local communities, so that the Forest Service can draw upon that infrastructure to accomplish restoration goals as well as contribute to the economic and social well-being of communities.

Alternatives Analyzed

We developed four alternatives to address the range of issues the public raised throughout the public involvement process. Alternative A would continue current management direction. Alternatives B, includes modifications to the original proposed action in response to the issues and alternatives C and D were developed around the issues to emphasize a more cautious approach and a more active approach. Alternatives B, C, and D include desired conditions, objectives, standards, guidelines, suitability of lands, management areas, and designated areas—elements that are outlined and required by the 2012 Planning Rule and Forest Service directives. The three draft forest plans also identify goals and potential management approaches and include a forest plan monitoring program.

Below we summarize the key concepts used in developing the alternatives. Table S-1 also provides a comparison of how the issues are addressed by alternative. The desired conditions are the same for alternatives B, C, and D. For vegetation, which has a range within the desired conditions, the alternatives would move toward different desired condition outcomes at different paces and scales.

Alternative A: Existing Plan Direction

Under alternative A, the forest plans for the Inyo National Forest (1988), the Sequoia National Forest (1988), and the Sierra National Forest (1992) and their amendments would continue to guide management with no changes.

Alternative B: Proposed Revised Plans

This alternative represents our proposal for revising the forest plans and focuses on restoring natural resources and ecosystem health, and improving ecosystem resilience to climate change. We revised it from the original proposed action based upon our specialist knowledge and expertise to address public comments we received on our proposal to revise the plans and during our other public engagement activities. Alternative B responds to the issues, which are organized by revision topics as follows:

- **Fire Management.** Alternative B replaces the wildland-urban intermix defense zone and threat zone with a risk-based community wildfire protection zone and general wildfire protection zone consistent with the National Cohesive Wildland Fire Management Strategy.³ It classifies the non-wildland-urban intermix area into a risk-based wildfire restoration zone and wildfire maintenance zone. Strategically located fuel reduction treatments along roads, ridgelines and connecting areas with lower fuels would support larger landscape-scale prescribed burning.

³ The National Cohesive Wildland Fire Management Strategy is guidance for agencies to work collaboratively across all landscapes, using best science, to make meaningful progress towards three goals: resilient landscapes, fire-adapted communities, and safe and effective wildfire response.

Resource objectives are defined when wildfires may be managed to maintain or move toward desired conditions. It includes forest plan components to conserve key characteristics associated with the ecological integrity of complex early seral habitat.

- **Ecological Integrity.** Alternative B replaces many prescriptive and restrictive activity-based standards and guidelines with descriptive vegetation-based desired conditions that describe resilient and sustainable vegetation conditions by major vegetation types and incorporates forest plan direction consistent with relevant findings and recommendations of the Fisher Conservation Strategy, Interim Recommendations for the Management of the California Spotted Owl and recently developed Sierra marten core habitat maps. On the Sequoia and Sierra National Forests, alternative B encourages concentrating treatments within larger areas called “focus landscapes.” The existing direction for the old forest emphasis area management area is replaced with forestwide old forest desired conditions to provide for the density and number of large and old live trees, snags, and down logs across the entire forest rather than in specific areas.

In the wildfire restoration and wildfire maintenance zones there are restrictions on removing large trees (pine trees greater than 27-inch diameter and other trees greater than 30-inch diameter) for projects designed to reduce fuels or manage timber growth, with limited exceptions allowed for safety and equipment operability. Within the community and general wildfire protection zones, large trees may be removed as needed to address wildfire risks to communities and assets while still considering the overall desired conditions for large and old trees. This alternative includes forest plan components to conserve key characteristics associated with the ecological integrity of complex early seral habitat but considers the need to restore old forest and forest connectivity.

Alternative B emphasizes restoration and resilience of sagebrush habitats important to greater sage-grouse on the Inyo National Forest. It continues management of riparian conservation areas and critical aquatic refuges and recognizes priority watersheds as areas to focus restoration and maintenance efforts. It adds new critical aquatic refuges on the Inyo and Sierra National Forests in watersheds with high aquatic diversity that complements the existing critical aquatic refuges. It continues to address habitat needs and contributes towards recovery of federally listed species managed under the Endangered Species Act. Alternative B replaces plan direction for Forest Service sensitive species with plan direction addressing ecological diversity and integrity to provide for the persistence of species of conservation concern. It recognizes the importance of partnerships and encourages more partnerships to support ecological restoration.

- **Sustainable Recreation and Designated Areas.** Alternative B updates the recreation opportunity spectrum for changes in land ownership, to reflect existing management and to consider recommended wilderness areas and eligible wild and scenic rivers. It applies the scenery management system to replace the visual management system. It integrates consideration of recreation opportunity spectrum and desired scenic integrity objectives into restoration desired conditions and design criteria. This alternative identifies four additional areas (37,029 acres) as preliminary administrative recommendations for inclusion in the National Wilderness Preservation System on the Inyo National Forest. It also identifies new segments as eligible for consideration as wild and scenic rivers on the Inyo National Forest (44 rivers or segments), Sequoia National Forest (12 rivers or segments), and Sierra National Forest (133 rivers or segments). It defines the management area for the Pacific Crest National Scenic Trail to be up to one-half mile from the centerline of the trail. It recognizes the importance of partnerships and encourages more partnerships to support recreation opportunities.

Alternative C

This alternative addresses the issues of increased amount of recommended wilderness areas, protecting aquatic diversity, and improved ecological resilience by emphasizing the role of natural processes in forest restoration. Achieving desired conditions would rely more on restoring fire as a natural processes, such as using unplanned wildfire ignitions managed to meet resource objectives, as well as prescribed burning. Mechanical treatments (such as mechanical thinning, timber harvest, and fuels reduction) also occur in order to move towards social, economic and ecological sustainability, but acres suitable for timber productions would be less than those available in alternatives A, B, and D. Alternative C responds to the revision topics as follows:

- Fire Management.** The wildland-urban intermix defense zone of the current forest plans is retained and this alternative uses the same wildfire maintenance zone as alternative B. Alternative C combines the remaining forest area into a general wildfire zone. It emphasizes treatments close to structures in the wildland-urban intermix defense zone and limits strategic mechanical treatments to support increased amounts of prescribed burning. Resource objectives are defined when wildfires may be managed to achieve ecological restoration. Alternative C includes forest plan components to conserve key characteristics associated with the ecological integrity of complex early seral habitat.
- Ecological Integrity.** The Interim Recommendations for the Management of the California Spotted Owl are implemented in full as are the relevant findings and recommendations of the Fisher Conservation Strategy and providing for the core habitat for Sierra marten. Alternative C retains and adds prescriptive standards and guidelines that guide projects to reduce potential short-term impacts to habitats for the California spotted owl, Sierra marten and Pacific fisher.

Hand treatments and prescribed burning are preferred methods of reducing fuels and treating vegetation. Mechanical treatments are generally limited to removing small trees. Limitations are placed on the amount of treatment in fisher habitats that can occur in any 5-year time period to reduce the potential impacts of treatment on breeding fishers. The old forest emphasis area management area would be replaced with forestwide old forest desired conditions to provide for the density and number of large and old live trees, snags, and down logs the same as alternative B. Restrictions on the removal of large trees (trees greater than 30-inch diameter) would be retained similar to the current forest plans, but expanded to include pine trees greater than 27-inch diameter and with clarified exceptions regarding removal of trees to provide for human safety and additional limited exceptions when needed to improve ecological conditions for at-risk species. This alternative includes more forest plan components to conserve key characteristics associated with the ecological integrity of complex early seral habitat than alternative B.

Alternative C emphasizes restoration of sagebrush habitats like alternative B. It continues protection of riparian conservation areas like alternative B and increases the number of critical aquatic refuges by adding additional areas recommended by the public located in watersheds with high aquatic species diversity. It addresses the ecological conditions for at-risk species using primarily prescribed burning and management of wildfires to meet resource objectives instead of mechanical treatments. It replaces plan direction focused on Forest Service sensitive species with plan direction addressing ecological diversity and integrity to provide for the persistence of species of conservation concern like alternative B. It recognizes the importance of partnerships and encourages more partnerships to support ecological restoration like alternative B.

- **Sustainable Recreation.** This alternative updates the recreation opportunity spectrum as in alternative B accommodating additional adjustments for additional preliminary recommended wilderness areas. It applies the scenery management system as in alternative B. It integrates consideration of recreation opportunity spectrum, scenic character, scenic stability and desired scenic integrity objectives into restoration desired conditions and design criteria like alternative B, but relies upon less mechanical treatments and more hand treatment methods and prescribed burning to move towards desired conditions. Alternative C identifies 24 additional areas (315,531 acres) as preliminary administrative recommendations for inclusion in the National Wilderness Preservation System on the Inyo National Forest; 18 polygons (206,904 acres) on the Sequoia National Forest; and 17 polygons (220,641 acres) on the Sierra National Forest. It identifies the same rivers or segments as eligible for consideration as Wild and Scenic Rivers as alternative B. It defines the management area for the Pacific Crest National Scenic Trail to be up to one-half mile from the centerline of the trail as in alternative B but expands to include areas within iconic viewsheds along the trail up to 4 miles from the centerline of the trail. It recognizes the importance of partnerships and encourages more partnerships to support recreation opportunities similar to alternative B.

Alternative D

This alternative addresses the issues of increasing the pace and scale of treatments to actively improve ecological resilience to wildfire and reduce smoke from future wildfires. It is designed to reduce forest density and increase forest resilience to drought, improve the sustainability of recreation, and increase the amount of forest products produced to better contribute to economic and social well-being.

- **Fire Management.** Alternative D uses the same four risk-based wildfire management zones as in alternative B. It increases strategic treatments along roads and ridgelines to support larger landscape prescribed burning and to increase the opportunity to use these treated areas to manage wildfires to meet resource objectives. Resource objectives are defined when wildfires may be managed to achieve ecological restoration and over time the same as alternative B. The same direction to consider smoke impacts to communities applies here as in alternative B.
- **Ecological Integrity.** Alternative D applies similar direction as alternative B but generally doubles the amount of areas treated, treating more focus landscapes and more area within focus landscapes. It includes the same forestwide old forest desired conditions as alternative B. Some large trees (greater than 30-inch diameter) may be removed in any areas as needed to move towards desired conditions. Some additional flexibility is added to treatment more acres during the summer by changing the limitations on equipment use near California spotted owl nests. To accommodate the increased amount of areas treated in focus landscapes, additional flexibility is added to allow more target fisher habitats to be treated in any 5-year period than alternative B allows. More prescribed burning would occur compared to alternative B, especially to maintain previously treated areas. Combined with more opportunity to manage wildfires to meet resource objectives, fire would be restored as an ecological process on more areas than any of the other alternatives. This alternative includes forest plan components to conserve key characteristics associated with the ecological integrity of complex early seral habitat but balances the need to ensure long-term restoration of old forests more than alternative B. It recognizes the importance of partnerships and encourages more partnerships to support ecological restoration like alternative B.

- **Sustainable Recreation.** Alternative D updates the recreation opportunity spectrum as in alternative B, but does not include new preliminary administrative recommendations for inclusion in the National Wilderness Preservation System. It applies the scenery management system as in alternative B. It integrates consideration of recreation opportunity, scenic character and scenic character stability into restoration desired conditions and design criteria as in alternative B with more consideration of recreation opportunities and settings due to the increased pace and scale of restoration. Alternative D identifies the same rivers or segments as eligible for consideration as wild and scenic rivers as alternative B. It defines the management area for the Pacific Crest National Scenic Trail to be up to one-quarter mile from the centerline of the trail. It recognizes the importance of partnerships and encourages more partnerships to support recreation opportunities similar to alternative B.

The Preferred Alternative

Alternative B (the draft forest plans) has been identified as our preferred alternative for revising the Inyo, Sequoia, and Sierra National Forests land management plans. This is based on public input, our analysis of the alternatives, and what we think responds best to the issues. The preferred alternative is not a decision, but it's what we consider the best approach based on our analysis to date.

Decision to be Made

Based upon the potential effects of the alternatives, each Forest Supervisor for the Inyo, Sequoia, and Sierra National Forests will decide whether to implement one of the alternatives as described above, to refine an alternative, or develop and use an alternative that combines the plan content of other alternatives to meet the purpose and need, or to take no action at this time. Each National Forest Supervisor will make an independent decision for their respective national forest.

Comparing Alternatives

Table S-1. Comparison of how each alternative addresses the revision topics

Revision Topic	Alternative A	Alternative B	Alternative C	Alternative D
Fire Management	Two distance-based zones around the wildland urban intermix: wildland-urban intermix defense zone; wildland-urban intermix threat zone	Four risk-based fire management zones: community wildfire protection zone, general wildfire protection zone, wildfire restoration zone, wildfire maintenance zone	One distance-based zone around the wildland urban intermix: wildland-urban intermix defense zone; 1 risk-based fire management zone: wildfire maintenance zone; remainder in general wildfire zone	Same as alternative B
Ecological Integrity	Prescriptive vegetation management emphasis on short-term retention of habitat for California spotted owl, Pacific fisher and Sierra marten. Vegetation and fuels management treatments prioritized in the wildland-urban intermix and elsewhere in a roughly geometric pattern of strategically placed area treatments;	Emphasis on restoration towards specific desired conditions based on natural range of variation and habitat, concentrated in focus landscapes; strategically located treatments to support larger landscape-scale prescribed burning and greater opportunity to manage wildfires to meet resource objectives. Focused restoration of sage-grouse habitat. Adds some critical aquatic refuges.	Emphasis on short-term habitat protection for California spotted owl, Pacific fisher, and Sierra marten. Vegetation and fuels management treatments focused on the wildland-urban intermix defense zone; limited mechanical treatment elsewhere; emphasis on managing wildfires to meet resource objectives where feasible. Increased restoration of sage-grouse habitat. Adds most critical aquatic refuges.	Same approach as alternative B, but more focus on increasing the area treated to improve the long-term sustainability and resilience of forests and watersheds.
Sustainable Recreation and Designated Areas	No additional recommended wilderness areas	Additional recommended wilderness areas identified on the Inyo National Forest only.	Additional recommended wilderness areas identified on all forests	No additional recommended wilderness areas

Comparison of Key Indicators

Based on proposed objectives, tables S-2 through S-5 on the following pages display the projected accomplishments for some key indicators for each alternative. The figures displayed for alternative A represent the existing condition that reflects the current forest plans, as amended. See volume 3 for maps of various indicators by alternative for each national forest.

Table S-2. Key indicators for each alternative at the landscape level, all national forests

Key Indicator	Alternative A	Alternative B	Alternative C	Alternative D
Projected large fire size (percent change)	23 percent increase	12 to 17 percent increase	Similar to alternative A	3 to 12 percent increase
Vegetation outside of the natural range of variability (low and mid-elevations)	Very high	Moderate (restored areas) to high	High	Moderate
Overall resilience to climate change to maintain or enhance watershed conditions	Trend to worse conditions than present	Trend to slightly worse condition than present	Trend to worse conditions than present	Trend to slightly better condition than present
Smoke Emissions	60 to 90 percent increase	49 to 60 percent increase	49 to 90 percent increase	23 to 49 percent increase
Air Quality	Adverse long-term and short-term effects	Beneficial long-term effects/Adverse short-term effects	Beneficial long-term effects/Adverse short-term effects	Beneficial long-term effects/Adverse short-term effects

Table S-3. Key indicators for each alternative for the Inyo National Forest

Key Indicator	Alternative A	Alternative B	Alternative C	Alternative D
Mechanical treatments (acres per decade)	20,000	20,000 – 25,000	10,000 – 15,000	25,000 – 30,000
Prescribed burning (acres per decade)	18,000	20,000 – 25,000	15,000 – 35,000	20,000 – 25,000
Estimated wildfires managed to meet resource objectives (acres per decade)	10,300	49,000	18,000	93,000
Riparian vegetation improved (acres per decade)	300 – 400	400 – 500	400 – 500	500 – 600
Meadows maintained, improved, or restored (number per decade)	3 – 5	5 – 10	20 – 25	5 – 10
Critical Aquatic Refuges (acres)	170,600	191,567	322,518	191,567
Sage-grouse habitat maintained, improved, or restored (acres per decade)	1,500 – 7,450	1,500 – 14,900	7,450 – 22,350	7,450 – 22,350
New Recommended Wilderness (acres)	0	37,029	315,531	0
New Eligible Wild and Scenic Rivers (miles)	0	159.8	159.8	159.8
Pacific Crest National Scenic Trail Management Area (acres)	116	39,973	130,350	22,052
Projected 10-year timber harvest volumes (MMCF), Sawtimber	1	1 – 1.5	<1	1 – 5.3
Projected 10-year timber harvest volumes (MMCF), Fuelwood	6 – 8	6 – 9.5	4 – 7	9.5 – 14

Table S-4. Key indicators for each alternative for the Sequoia National Forest

Key Indicator	Alternative A	Alternative B	Alternative C	Alternative D
Mechanical treatments (acres/decade)	9,000	9,000 – 15,000	2,500 – 4,500	20,000 – 30,000
Prescribed burning (acres/decade)	8,000	5,000 – 15,000	2,000 – 6,000	10,000 – 15,000
Estimated wildfires managed to meet resource objectives (acres/decade)	31,000	83,000	41,000	145,000
Riparian vegetation improved (acres/decade)	300 – 400	500 – 1,000	300 – 400	1,000 – 1,500
Meadows maintained, improved, or restored (number/decade)	3 – 5	10 – 15	20 – 25	15 – 20
Critical Aquatic Refuges (acres)	188,843	188,843	248,393	188,843
New recommended wilderness (acres)	0	0	206,904	0
New eligible wild and scenic rivers (miles)	0	75.9	75.9	75.9
Pacific Crest National Scenic Trail Management Area (acres)	61	20,883	46,384	12,261
Projected 10-year timber harvest volumes (MMCF), sawtimber	8	8 – 16	2 – 4	16 – 28
Projected 10-year timber harvest volumes (MMCF), fuelwood	3 – 5	3 – 5	3 – 5	3 – 5

Table S-5. Key indicators for each alternative for the Sierra National Forest

Key Indicator	Alternative A	Alternative B	Alternative C	Alternative D
Mechanical treatments (acres/decade)	35,000	35,000 – 70,000	9,000– 17,500	70,000 – 105,000
Prescribed burning (acres/decade)	15,000	50,000 – 60,000	20,000 – 40,000	100,000 – 150,000
Estimated wildfires managed to meet resource objectives (acres/decade)	5,000	170,000	14,000	297,000
Riparian vegetation improved (acres/decade)	300 – 400	500 – 1,000	500 – 1,000	1,000 – 1,500
Meadows maintained, improved, or restored (number/decade)	3 – 5	5 – 10	10 – 15	15 – 20
Critical Aquatic Refuges (acres)	42,440	154,275	199,367	154,275
New Recommended Wilderness (acres)	0	0	220,641	0
New eligible wild and scenic rivers (miles)	0	633.5	633.5	633.5
Pacific Crest National Scenic Trail Management Area (acres)	42	15,033	86,631	8,084
Projected 10-year timber harvest volumes (MMCF), sawtimber	25	25 – 50	5 – 10	50 – 80
Projected 10-year timber harvest volumes (MMCF), fuelwood	5 – 7	5 – 7	5 – 7	5 – 7