

**Finding of No Significant Impact
Fire Management Plan
Redwood National Park
Del Norte and Humboldt Counties, California
April 2010**

Introduction

This Finding of No Significant Impact (FONSI) should be attached to the Redwood National Park 2010 Fire Management Plan Environmental Assessment (FMP EA) dated March 2010. This FONSI together with the EA constitute a full and complete record of the conservation planning and environmental impact analysis process for this proposal.

The 2010 Fire Management Plan is tiered off the Redwood National and State Parks 1999 Final General Management Plan/General Plan Environmental Impact Statement / Environmental Impact Report (GMP/EIS). The 1999 GMP/FEIS describes a program for fire management that includes suppression of wildfires; restoration of fire as a natural process in park vegetation communities through prescribed fires, especially prescribed fire in the Bald Hills area to achieve natural and cultural resource management objectives; and management of fuels to reduce fire hazards to natural and cultural resources and human life and safety. The 2010 FMP provides site-specific details for planned fires (prescribed fire) and strategies for managing unplanned fires (wildfires) in Redwood National Park and is consistent with Federal wildland fire management policy and 2006 NPS Management Policies for fire management. The EA is tiered off the 1999 GMP/FEIS.

Purpose and Need for Fire Management

Redwood National Park was established by Congress in 1968 to "preserve significant examples of the coastal redwood ... forests and the streams and seashores with which they are associated for purposes of public inspiration, enjoyment, and scientific study." (Public Law 90-545).

In 1978, Congress expanded the national park to encompass 50,000 acres, much of which had been privately owned timber lands in the lower one-third of the Redwood Creek watershed. The 1978 expansion area included approximately 38,000 acres that had been logged between 1950 and 1978.

The purpose of managing fire is to reduce the threat from wildfire to human life and property within and outside park boundaries and to park natural and cultural resources, and to use fire as one tool for restoration in ecosystems and plant communities that evolved with fire as an ecological process. One of the primary purposes of a fire management plan is to develop an overall approach to fire management that focuses on the safety of firefighters and the public. The fire management plan also provides the outline of park actions used for coordination and collaboration with other local, state, and federal fire management agencies.

Hazardous fuel buildups need to be reduced around park buildings, especially historic structures, and in areas where a fire could either enter the parks or move outside park boundaries. Suppression strategies and tools need to be identified and developed, including water sources,

access routes, and personnel and equipment resources, and tactics need to be planned for safe and efficient actions in case of wildfire and for prescribed fires.

A history of fire suppression, along with the development of effective fire suppression techniques, has interrupted the fire regimes in park ecosystems. A better understanding of these fire regimes is needed to determine the extent to which fire should be restored in park ecosystems and how this would be accomplished.

Fire is needed as a management tool to restore cultural landscapes that were created by intentional ignitions set by American Indians and early settlers, to restore native plants in grasslands that have been invaded by alien species, and to ensure the perpetuation of park ecosystems and ecological communities, especially those identified in the park's enabling and expansion legislation as significant resources.

Selected Action and Alternatives

Three alternatives for fire management on federal lands within RNSP were analyzed in the EA:

- Alternative 1: 2010 Fire Management Plan actions (the proposed action in the EA)
- Alternative 2: No Action (2005 Fire Management Plan actions)
- Alternative 3: Full Suppression Only

The approved action selected for implementation is the same as that described and analyzed in the EA as the proposed action (Alternative 1, 2010 FMP). There are no changes in the approved action, mitigations, or other key elements as a result of public comment.

Safety of firefighters and protection of human life are the paramount concerns of fire management. Fire management actions that will occur throughout the parks include suppression of all wildfires, especially those that threaten historic structures, residences, and other occupied structures; and safety precautions for personnel involved in fire management. No alternatives that would increase hazards to firefighters or reduce protection of human life or occupied structures were analyzed.

The selected action (Alternative 1, 2010 FMP actions) includes fuel management; historic structure protection; preparation for suppression; prescribed fire; and suppression of wildfires.

Under the selected action (Alternative 1, 2010 FMP), preparations for fire management actions focus on establishing safe and effective suppression actions with minimal adverse effects on sensitive resources from both wildfire and suppression. These actions include identifying access roads and water sources, preparing roads for access by equipment, installing water tanks, and clearing vegetation from around ponds to provide safe access by helicopters, fire engines, and water tenders. Preparations for prescribed fire include preparing the burn units by reducing excess fuels and constructing fire lines, establishing a monitoring program, monitoring pre-burn conditions, and ensuring that adequate fire personnel are available and trained to conduct prescribed burns.

Actions that will be used to manage fire throughout RNSP under the selected action (Alternative 1, 2010 FMP) include

- safety for fire fighters, park visitors, adjacent communities, and the general public

- communication, information, and public education
- preparation for suppression of wildfires and for implementing prescribed fires
- use of minimum impact suppression tactics (MIST)
- post-fire restoration or rehabilitation, including burned area emergency rehabilitation (BAER) and burned area rehabilitation (BAR)
- water quality and soil protection measures
- protection of sensitive plants and animals
- protection of cultural resources
- monitoring.

Minimum impact suppression tactics (MIST) will be employed during suppression actions in the most sensitive resource areas to reduce adverse effects on resources that result from the suppression actions rather than from the fire itself. MIST are part of the selected action (Alternative 1, 2010 FMP), no action (Alternative 2, 2005 FMP), and Alternative 3 (suppression only).

Five shaded fuel breaks will be created or maintained over the life of the 2010 Fire Management Plan to provide more secure and defensible park boundaries, defensible spaces around park developments, and escape routes from facilities and areas frequented by park staff and visitors in the event of a wildfire. Fuel breaks totaling 468 acres will be located

- along Holter Ridge Road (aka Lost Man Creek Trail)/B Line Road from the Bald Hills Road north to US Highway 101 (368 acres);
- along the Bald Hills Road from the Holter Ridge Road junction to Elk Camp Prairie (75 acres);
- along the Wolf Creek Outdoor School Access Road and housing complex/fire cache (15 acres);
- around the Hiouchi park housing and fire cache complex (15 acres); and
- around the Howland Hills Outdoor School access road and complex (25 acres).

In locations where there is road access and a suitable staging area, NPS personnel will cut some of the wood generated by fuel reduction projects into firewood lengths and move it to staging areas along existing roads. The NPS will issue free permits to pick up limited quantities of firewood and remove it from the park.

Overgrown brush and grass will be cleared annually from within 40 feet of historic structures in the Bald Hills—Elk Camp Barn, Dolason Barn, Lyons Ranch Barn and Bunkhouse, Dooleyville Line Shack, Long Ridge Sheep Shed, Coyote Creek Barn, and Coyote Creek Cabin—to protect structures from wildfires.

Under the selected action, prescribed fire will be used to treat approximately 6,800 acres in 36 burn units of grassland, oak and Jeffrey pine woodlands, coastal grassland and shrubland, and second growth coniferous forest adjacent to grassland or oak woodlands.

To prepare water sources for suppression for wildfire emergencies under the selected action, existing ponds at Coyote Creek, Elk Camp, upper B Line, and the M Line will be maintained by removing vegetation that impedes access by fire vehicles and three 2,500-gallon water tanks will be placed along the southeast portion of the Little Bald Hills Trail; at mile 3.5 on Bridge Creek Ridge Road; and on Holter Ridge Road near Bald Hills Road.

Alternative 2 (no action, 2005 Fire Management Plan): The no action alternative (Alternative 2) is the fire management program that has been implemented since 2005. These actions are suppression of all wildfires; fuel management through shaded fuel breaks at Hiouchi, Wolf Creek Outdoor School, and East Side (along boundary between Redwood NP and Green Diamond Resource Company timber lands); annual fuel reductions around the historic structures; preparation for suppression including installation of an additional water tank and preparation and maintenance of ponds; and prescribed fire with broadcast burns on 4,400 acres in 27 units and pile burning to reduce excess fuels in prescribed fire units and along shaded fuel breaks.

Differences Between Selected Action (2010 FMP, Alternative 1) and Alternative 2 (2005 FMP, No Action Alternative)

The fire management program under the selected action (2010 FMP) includes the same types of actions as the 2005 FMP action. Many of the elements of the selected action are continuations of actions initiated under the 2005 FMP or actions that will be repeated during the next five years, such as prescribed fires that in some burn units where repeated burning is needed to achieve the resource management goals. Fuel breaks around the Wolf Creek and Hiouchi fire caches and park housing areas that were initiated under the 2005 FMP will be completed under the selected action in the 2010 FMP. All existing fuel breaks will be maintained under both the selected action and Alternative 2 (no action, 2005 FMP).

New projects for the fire management program under the selected action in the 2010 FMP that were not in the 2005 FMP (Alternative 2, no action) include 8 new prescribed fire units; a new shaded fuel break; and 2 new locations for water tanks. Several actions in the 2005 FMP that were not completed by 2010 are being carried over as elements of the selected action that will guide fire management through 2015. Three actions from the 2005 FMP will not be completed because they were determined to be unnecessary (Flint Ridge prescribed fire); too costly for the resource benefit obtained (Monterey pine fuel reduction); or the location was changed (K&K water tank).

Alternative 3 (Suppression Only)

Under Alternative 3 (suppression only), fire management on federal lands within RNSP would be limited to immediate suppression of all wildfires. Existing ponds and roads that have been used primarily for access for fire equipment and personnel for wildfire suppression would be maintained. Alternative 3 (suppression only) does not include active management of fuels including construction of shaded fuel breaks or fuel reduction around historic structures, or preparation for suppression actions such as installation of water tanks.

Environmentally Preferred Alternative

The environmentally preferred alternative is the one that best meets the criteria identified in Section 101 of the National Environmental Policy Act as outlined below.

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.

- Preserve important historic, cultural, and natural aspects of our national heritage.
- Enhance the quality of renewable resources.

The NPS has determined that the selected action (Alternative 1, the proposed action in 2010 FMP EA) is the environmentally preferred alternative.

The selected action includes

- prescribed fire to reduce conifer encroachment into oak woodlands and grasslands that are identified as significant park resources; to restore fire into a rare vegetation community where fire was a major ecological process; reduce fuel levels to reduce the threat of catastrophic wildfires that could cause significant damage to park watersheds, rare vegetation types, threatened and endangered species and their designated critical habitats, and historic structures; and to restore and maintain significant cultural landscapes created historically by human-set low-intensity fires.
- fuel management projects to reduce high fuel levels along the park boundary and in areas where human safety and property are at risk.
- fuel management to reduce fuels around historic structures to protect the structures.
- preparations to suppress wildfires that threaten human life and safety with minimal impacts to park resources.

These actions provide the greatest long-term protection to significant park resources including old growth redwood forests, streams, threatened and endangered species and their designated critical habitat, oak woodlands and grasslands, and cultural resources that are listed on or eligible for listing on the National Register of Historic Places. These actions have some direct adverse effects, primarily from smoke and burned vegetation associated with prescribed fire, but the adverse effects are very short-term and localized. The long-term effect of fire suppression has been to allow fuels to build up to levels that could create a large intense wildfire. Although suppression of wildfires will continue under the selected action, the selected action includes more prescribed fire projects to reintroduce fire to areas where fire has been excluded and to reduce heavy fuels in more areas where wildfires would cause environmental and property damage.

The selected action will provide the best protection for park resources from wildfires by mechanically reducing fuels where prescribed fires cannot be used because fuel loads are currently too high or where a wildfire would move quickly into or out of the parks before an effective suppression effort can be initiated. Prescribed fire will also be used to reduce excess fuels but its focus is on restoring a major ecological process to plant communities whose native species evolved with more frequent and less intense fires. Prescribed fire in the Bald Hills will also restore and maintain the cultural landscape created over centuries from intentional burning by local American Indians, as well as begin to restore populations of plants traditionally used by these peoples.

The no action alternative (Alternative 2, 2005 FMP) is not the environmentally preferred alternative because it would not achieve fire management goals to as great an extent as the proposed action. Under the no action alternative, there are eight fewer prescribed fire units covering 2,200 fewer acres. In particular, the Little Bald Hills prescribed fire unit under the no action alternative is not as large as under the proposed action. Low-intensity fire is needed in the Little Bald Hills to restore and maintain the unique Jeffrey/knobcone/Idaho fescue plant

community that is also the only habitat in the park for the rare Mardon skipper butterfly, whose southernmost known location is the Little Bald Hills.

Alternative 3 (suppression only) is not the environmentally preferred alternative because it does not include actions to be taken to reduce the chance of wildfires, reduce the risk of a major or catastrophic wildfire, or manage the ecological communities in the park as an interrelated complex of natural and cultural resources. The following actions that are included in the selected action (Alternative 1, 2010 FMP) would not be undertaken under Alternative 3:

- mechanical reduction of fuels to reduce the hazard from excessive high fuel build-up;
- preparation for suppression by providing water sources or ensuring that strategic roads can be used for equipment on short notice;
- prescribed fire in ecological communities and vegetation types where fire was an ecological process that shaped the community structure and composition;
- prescribed fire as a cultural or historical component needed to sustain important cultural traditions and food sources.

Public Involvement

In September 2009, the two local newspapers of record, the Eureka Times-Standard (Humboldt County) and the Del Norte Daily Triplicate (Crescent City, Del Norte County) published front-page articles on prescribed burns conducted under the 2005 FMP (Alternative 2). A scoping letter announcing that a plan was being prepared was sent on October 9, 2009 to 109 recipients including elected officials, individuals, organization, and agencies, and eight local tribes and tribal representatives. The NPS received two requests for clarification of the timeline for the plan and one additional request for a copy of the plan.

A copy of the FMP and EA on CD-ROM was sent to 56 agencies, tribes, organizations, and individuals. Letters announcing that the EA was available at park offices and on the Internet on the NPS planning site (parkplanning.nps.gov) were mailed to 60 other organizations and individuals. Two other individuals were notified via electronic mail that the plan and EA were available.

The NPS issued a press release to the standard mailing list of print, television, and radio media on March 4, 2010 announcing the availability of the EA for public comment. Copies of the EA were provided to the local newspapers in Eureka, Arcata, McKinleyville, and Crescent City. The two local newspapers of record, the Eureka Times-Standard and the Crescent City Daily Triplicate published articles on March 11 and April 1, respectively, describing the main proposals in the plan and provided information that copies were available in local libraries and park offices, and at the Internet address for the NPS planning site.

The NPS received four letters commenting on the project, one from an individual and three from agencies or tribes. There were no substantive comments that raised new issues or concerns or required changes to the approved action or to the EA. Three letters expressed support for or concurrence with the selected action. The North Coast Regional Water Quality Control Board (Water Board) suggested that certain actions that might be undertaken for fire management could be subject to state water quality permit requirements that apply to similar actions that are permitted in association with timber harvest. The NPS will continue to discuss applicable permit requirements with the Water Board as site-specific projects are planned and implemented.

Endangered Species Consultations

Consultation for the 2010 FMP was initiated at the quarterly RNSP interagency consultation team meeting on February 10, 2009. National and state park resource management and fire personnel met with USFWS, NMFS, and California Department of Fish and Game resource management personnel to review the proposals for fire management and outline preliminary determinations.

Consultations with NMFS for Effects on Fish from Fire Management Actions—On September 4, 2009, the NPS sent a letter to NMFS requesting formal consultation for effects on fish from proposed fire management actions. NMFS concluded (2009/14519 dated February 9, 2010; File No. 151422SWR2009AR00052) that the action is not likely to jeopardize the continued existence of California Coastal Chinook salmon, Southern Oregon/Northern California Coastal coho salmon, or Northern California steelhead trout, and is not likely to result in the destruction or adverse modification of designated critical habitat for these species. NMFS determined that prescribed burning in Pig Pen and Wildcat prescribed fire units in lower Copper Creek, a tributary of Redwood Creek, will result in incidental take of an unknown and unquantifiable but presumably small number of juvenile northern California steelhead trout in Copper Creek, and juvenile and adult California coastal Chinook salmon and southern Oregon/northern California coastal coho salmon within one-half mile of Redwood Creek adjacent to the Pig Pen unit due to minor amounts of short term ash sedimentation for one season after the burn.

Consultations with the USFWS for Effects on Terrestrial Species from Fire Management Actions—The potential effects on terrestrial species of many of the projects in the selected action have been assessed in consultations for other activities.

Helicopter use for ignition is covered under a specific consultation for which USFWS issued a letter of concurrence and a biological opinion on March 29, 2001 (reference number 1-14-01-934) and June 27, 2001 (reference number 1-14-01-888), respectively. That consultation is valid through June 2011. Helicopter use for a wildfire emergency will be addressed in an individual consultation after the emergency.

Portions of the selected action involving maintenance activities near historic structures and the periodic maintenance of existing roads were analyzed in separate consultations in 1998 that have since been renewed under a new consultation entitled “A Biological Assessment of the Impacts to Terrestrial and Non Anadromous Federal and State Threatened, Endangered and Candidate Species from Maintenance Programs At Redwood National and State Parks.” (USFWS reference number 8-14-1998-24). This consultation is valid through 2019.

The NPS received a letter of concurrence from the USFWS with the NPS determination of effects on terrestrial species from proposed fire management actions on September 15, 2009 (USFWS reference no. 8-14-2008-3562 81331-2009-I-0070). The USFWS concurrence is valid through December 2015. The NPS determined, and the USFWS concurred, that the selected action will not affect the Oregon silverspot butterfly, and that the selected action may affect but is not likely to adversely affect marbled murrelets or their designated critical habitat, northern spotted owls, or western lilies.

Cultural Resource Consultations

On August 19, 2009, the NPS initiated consultation on the fire management plan with the California State Historic Preservation Officer (SHPO) and on October 8, 2009 with the Tribal Heritage Preservation Officers (THPO) for the Elk Valley Rancheria, the Smith River Rancheria, and the Yurok Tribe. On October 13, 2009, the NPS initiated government-to-government consultation on the fire management plan with the Big Lagoon Rancheria, Elk Valley Rancheria, Hoopa Valley Tribe, Resighini Rancheria, Smith River Rancheria, Tolowa Nation, Trinidad Rancheria, and the Yurok Tribe. On March 8, 2010, the NPS notified the SHPO, three affiliated THPOs, and the tribes that the FMP and EA had been completed and sought concurrence for use of the Section 106 compliance process outlined in the notification for proposed undertakings described in the 2010 FMP. The NPS received a letter of concurrence for the process for compliance with Section 106 of the NHPA as outlined in the FMP from the Elk Valley Rancheria on April 20, 2010. In a letter dated April 27, 2010, the SHPO concurred with the NPS proposal to use the streamlined process for consultation as outlined in the 2008 Programmatic Agreement among NPS, the National Conference of State Historic Preservation Officers, and the Advisory Council on Historic Preservation as applicable. When the conditions outlined in the 2008 Programmatic Agreement are not met for particular undertakings, NPS will comply with the standard consultation process as outlined at 36 CFR 800. NPS is currently drafting a new Programmatic Agreement that will address fire management actions across California and possibly the entire Pacific West Region of the NPS that will provide further opportunities to streamline consultation for these types of undertakings. If this agreement is executed during the 2010 – 2015 period, the NPS may adopt its new streamlined process for Section 106 consultation at Redwood National and State Parks.

Why This Project Will Not Have a Significant Effect on the Environment

This section summarizes effects on resources in the context of the project areas and RNSP as a whole, and documents that none of these effects is significant, highly controversial, or uncertain, nor will the selected action adversely affect public health and safety. Further, the selected action is not part of a larger action and will not establish a precedent for future actions.

The effects under the no action alternative (Alternative 2, 2005 FMP) are essentially the same as under the selected action (2010 FMP), because the actions would occur in the same locations or are of a similar type. There would be greater short-term adverse effects and greater long-term benefits to park vegetation communities under the selected action than under the no action alternative because the acreage of prescribed fire is larger (6,800 ac under the selected action compared to 4,400 acres under the 2005 FMP) and an additional fuel break will be constructed under the selected action.

The FMP, the Cultural Resource Element for the FMP, and the biological opinions issued by the USFWS and the NMFS for the 2010 FMP contain detailed descriptions of the mitigation measures to protect natural and cultural resources during planned fire management actions and to minimize long-term adverse effects to these resources during emergency wildfire suppression actions. The EA summarizes these mitigation measures.

Potential effects to natural and cultural resources from adverse effects from planned fire management activities have been determined to be negligible or minor and will not require additional mitigation on the part of the NPS to avoid or reduce the effects discussed below.

Air Quality—There will be short-term localized adverse effects on air quality from smoke from prescribed fires (broadcast and pile burns) under the selected action. Potential adverse effects on air quality from prescribed fires are negligible to moderate. The ignition technique and number of acres to be burned will be modified as needed to obtain a burn clearance from North Coast Air Quality Management District (NCUAQMD) and a Smoke Management Plan will be filed with district as part of the prescribed fire plan for each unit.

The only potentially significant source of air pollution is from wildfires, which could have significant adverse effects on air quality in the park for the duration of a fire depending on meteorological conditions. After a wildfire is extinguished, air quality in the parks and the region will quickly return to very good to excellent over the long-term.

Cumulative Effects on Air Quality—The cumulative effect on air quality in the parks from prescribed fires conducted on adjacent private timber lands to reduce logging slash will be short-term, adverse, localized and could range from negligible to moderate depending on wind conditions and how close the prescribed fires are to park boundaries. The NCUAQMD coordinates planned ignitions in Humboldt, Del Norte, and Trinity Counties to minimize cumulative adverse smoke effects on sensitive areas (local communities and highways).

Effects on Soils and Topography—Most of the soils affected by fire management actions are previously disturbed from road construction and logging prior to park establishment and expansion. Construction of fire lines and use, maintenance, and minor upgrades of existing roads for access will have no new direct effects on soils and topography. The selected action will affect up to 9 acres of soils over the 5-year life of the plan for construction of fire lines around 36 prescribed fire units covering 6,800 acres. Patches of soil will be affected by pile burning associated with shaded fuel breaks on 468 acres. Planned fire management actions will have minor localized short-term adverse effects and negligible long-term adverse effects on soils and topography.

Cumulative Effects on Soils and Topography—Timber harvest, associated road construction, and subsequent soil erosion and slope failures in what is now the park had significant direct widespread adverse effects to topography and soils in the park. The additional effects on soils and topography associated with fire management actions will be undetectable.

Effects on soils in the event of wildfires will vary depending on the size, location, and intensity of the wildfire and the level of suppression required. Intense wildfires have the potential for significant adverse effects on soils from destruction of the organic matter (soil sterilization) and subsequent erosion. In the long-term, the effects of fire management actions on soils will be beneficial due to the reduced potential of a catastrophic fire.

Effects on Water Quality, Floodplains, and Wetlands—There are no planned actions that will directly affect floodplains or riparian wetlands under the selected action. Impacts on water resources from fire management actions are primarily effects from suppression of wildfires on water quality of park streams. Construction of fire lines for prescribed fires will generally occur in areas where perennial streams will not be affected. There is a potential for decreased water quality within the one-half mile segment of Redwood Creek adjacent to the Pig Pen prescribed fire unit due to minor amounts of ash sedimentation for one season after the burn following a rain event of sufficient magnitude to mobilize sediment and cause run-off. The terms and conditions

of the NMFS biological opinion require a water quality monitoring program be undertaken as part of the prescribed fire plans for the Pig Pen and Wildcat units. Effects on water quality from maintenance of administrative roads will occur in streams where water quality is already adversely affected from timber harvest and road construction. Best management practices to protect water quality and riparian wetlands will be implemented in any location where a perennial stream might be affected, either for a planned action or a wildfire. Planned fire management actions will have negligible, indirect, localized, short-term, adverse effects on water quality.

Depending on the location of a wildfire in relation to perennial streams or riparian areas, and the intensity of the fire, the fire and associated suppression actions have the potential for significant adverse effects on water quality and riparian zones related to soil erosion and run-off from burned areas in the first rainy season following the fire. MIST and BAER techniques will be used in all suppression actions to reduce adverse effects on water quality, floodplains, and riparian wetlands from suppression actions.

Cumulative Effects on Water Quality, Floodplains, and Wetlands—There have been long-term significant cumulative adverse effects on water quality, floodplains and riparian wetlands in the park due to past logging and road building practices that are no longer allowed under current state law and regulations because of the damage caused to watersheds. The cumulative effect on water quality, floodplains, and riparian wetlands from fire management activities is negligible compared to the adverse effects from past logging and associated road construction both within and outside the park.

A catastrophic wildfire could have severe consequences on a watershed if vegetation cover is removed and heavy rains fall on steep slopes with highly erodible soils or in geologically unstable areas. The long-term effect of catastrophic wildfires on watershed structure and function in some locations in the park would be significantly adverse.

Effects on Vegetation—There will be no direct effects on old growth forest in the national park from planned fire management activities. Effects on vegetation from planned fire management activities include direct effects on 6,800 acres of vegetation from prescribed burns in 36 units over the 5-year life of the plan and from preparation for the prescribed burns; on 468 acres from construction and maintenance of shaded fuel breaks; from fuel reduction in a four-foot-wide area around 8 historic structures in the Bald Hills; from wildfires; and from suppression of wildfires.

Prescribed fires are planned for 15 acres of grassland; 250 acres of pine woodland in the Little Bald Hills; 4,900 acres of oak woodlands mostly in the Bald Hills; 184 acres of coastal grass and shrub; and 1,438 acres of second growth forests in the Bald Hills area.

Effects on vegetation from suppression of wildfire result from construction of fire lines, from fire camps, and from the fire itself. It is not possible to predict the acreage of vegetation that might be affected by wildfire and associated suppression actions.

Effects on vegetation from planned fire management actions are short-term, localized in the areas where these actions occur, adverse to the extent that vegetation is disturbed or consumed by fire, and negligible to minor because the vegetation has been previously disturbed by fire, logging, or ranching activities or includes a large component of non-native invasive plants.

There will be a long-term benefit to native plant communities from prescribed fire that enhances the survival of native species and removes non-native species. The intensity of beneficial effect on the native plant species composition would be minor for a few decades. Over the long-term, planned fire management actions are moderately beneficial from reducing conifer encroachment into the Bald Hills oak woodlands and prairies that are identified as a significant ecological community and a significant cultural landscape created and maintained by low-intensity frequent fire; from restoration of the Little Bald Hills Jeffrey/knobcone/Idaho fescue plant community that is rare in the park and is the only habitat for a rare butterfly whose southernmost known location is that plant community in the park; and from reducing hazardous fuel levels around historic structures and where human safety and property could be threatened by wildfires.

Effects on vegetation from reduction of hazardous fuels and preparation for suppression actions are intended to reduce the long-term potential for wildfire, particularly catastrophic wildfire, and to prepare for more effective suppression in a short a time as possible. Without these actions, the long-term potential for wildfire will continue to increase. Catastrophic wildfire will have adverse effects on vegetation that would range from moderate to severe, depending on the extent of the fire. A wildfire in the Bald Hills grasslands and oak woodlands or the Little Bald Hills will have a greater short-term and long-term adverse effect on vegetation because a wildfire is likely to become much larger than any prescribed fire unit and will destroy a much larger area of a plant community that is uncommon in the park and the region. The adverse effect of a wildfire on the Bald Hills grasslands and oak woodlands or the Little Bald Hills would be moderate to significant.

Cumulative Effects on Vegetation—Cumulative adverse effects on vegetation in the parks and the surrounding region result from logging and associated road construction, and residential, commercial, industrial, agricultural, and transportation development and use. Logging of about 50,000 acres of original coniferous forest mostly in the Redwood Creek watershed prior to park establishment and expansion had a significant adverse effect on old growth redwood forest communities in the park. The 48,300 acres of second growth forests that are not treated under the second growth management program to be completed on 1700 acres in 2010 will remain in a degraded condition for centuries. Areas of the park with Port-Orford-cedar are being managed to reduce the spread of Port-Orford-cedar root disease, in cooperation with the U.S. Forest Service and the Bureau of Land Management throughout the range of Port-Orford-cedar. Sudden Oak Death, caused by a pathogen closely related to the root disease agent, is also expected to adversely affect park vegetation but the degree of effect is not yet known. Sudden Oak Death is not known to occur in the parks at this time. The NPS will continue efforts to plan for protection of native plant communities from introduction of non-native plants and introduced plant pathogens such as SOD and Port-Orford-cedar root disease that are spread by human activities, especially along transportation routes and other developments adjacent to the park.

The lack of fire in old growth redwood forests may be causing subtle changes to species composition and stand structure; the changes may be occurring more rapidly on ridges and near ethnographic landscapes because fire was used more frequently in these locations than on alluvial flats or interior forests. Given the long intervals between naturally ignited fires in redwood forests, it is unlikely that fire suppression since the 1930s has had a significant effect on alluvial redwood stands within the park where flooding has been a more common occurrence than fire. However, the natural fire return interval has been exceeded in upland interior stands.

Effects on Wildlife—The effects on wildlife from fire management actions in the short-term will be adverse, localized, negligible for most actions, and minor in prescribed burn units. Measures to protect endangered species from fire management activities, including suppression, will protect other wildlife in the vicinity. The greatest potential for adverse effects to wildlife from planned fire management activities will result from prescribed burns of several hundred acres in the Bald Hills. Direct effects on any wildlife population will be negligible because only a small number of sedentary animals will be killed and adjacent unburned areas provide refugia for mobile wildlife to move into.

In the long-term, the effect on wildlife from fire management actions will be beneficial to the extent that the actions prevent or reduce the intensity of wildfires and maintain or restore native plant communities.

The effects of wildfire on wildlife will vary from minor to severe depending on the size and intensity of the fire and the species affected. Wildfires, particularly catastrophic fires, will have direct long-term adverse effects on smaller wildlife species within the fire perimeter depending on how quickly a particular habitat type regenerates. Wildfires in old growth forest are more likely to be less intense and smaller than in dry dense second growth stands. Some overstocked second growth forests that were never thinned following commercial timber harvest are not good quality wildlife habitat. Catastrophic wildfire in these forests will have a less severe effect on wildlife than in other second growth forests that have greater tree and plant species diversity and forest structure that more closely resembles unharvested forest.

Less severe wildfires will have a short-term benefit for a few decades on some species of wildlife such as cavity-nesting birds that use burnt snags, elk and deer that browse on new growth that resprouts from some plants after fires, and some animals such as chipmunks that favor more open habitats over dense forests. Catastrophic wildfires have the potential for significant short-term adverse effects on park wildlife populations from direct effects due to loss of many individuals and long-term indirect effects due to loss of habitat. The adverse effects of catastrophic wildfire will be greater than the benefits to some wildlife species in the decades following a catastrophic fire from the loss of habitat. A wildfire in the Bald Hills grasslands and oak woodlands or the Little Bald Hills will have a greater short-term and long-term adverse effect on wildlife because a wildfire is likely to become much larger than any prescribed fire unit and would destroy a much larger area of a habitat type that is uncommon in the park and the region. The adverse effect of a catastrophic wildfire on small wildlife species in the Bald Hills grasslands and oak woodlands or the Little Bald Hills will be moderate to significant. Elk and deer would benefit over the long-term from a wildfire in the Bald Hills after grass and browse regrow; a catastrophic fire that sterilizes the soil would have moderate long-term adverse effects on elk and deer that occupy the Bald Hills prairies.

Long-term benefits to wildlife from fire management activities that reduce the likelihood of catastrophic wildfires will be significant and minor to moderate from restoration and maintenance of natural vegetation communities.

Cumulative Effects on Wildlife—Cumulative adverse effects on wildlife in the parks relate primarily to activities outside the parks including loss or conversion of habitat for agricultural, residential, commercial, and transportation development; mortality from vehicle collisions along U.S. Highway 101 and other high-speed roads; and illegal poaching of elk and deer. These effects are negligible to significant, depending on the species, its degree of mobility and its

tolerance of human presence and disturbance. Some individual animals benefit in the short-term from the presence of humans who leave trash that serves as a food source, and from disturbance due to logging, which increases forage for some species as vegetation regrows. However, in the long-term, human food sources have a moderate to significant adverse effect on individual animals that become accustomed to unhealthy food sources or are killed if they become a nuisance or cross highways to get to or search for food. Other park actions that affect wildlife include watershed restoration, control of non-native plants, and maintenance of facilities. The cumulative effects on wildlife from park actions such as watershed restoration, control of non-native plants, and maintenance of facilities tends to be adverse, localized, and negligible in the short-term because much wildlife habitat is still recovering from the adverse effects of logging and road construction prior to park expansion. Park resource management projects have long-term minor to moderate benefits on wildlife species from restoration of habitat and because the parks serve as a refugium from disturbance.

Effects on Rare, Sensitive, Threatened, and Endangered Species—Western lilies, Oregon silverspot butterflies, Mardon skippers, northern spotted owls, marbled murrelet, Pacific fishers, Coastal California Chinook salmon, Southern Oregon/Northern California Coastal coho salmon, and Northern California steelhead are listed threatened or endangered species or are candidates for listing that occur in areas that will be affected by or occur in habitats that will be affected by planned fire management activities.

The selected action will not affect the Oregon silverspot butterfly, and may affect but is not likely to adversely affect marbled murrelets or their designated critical habitat, northern spotted owls, or western lilies. Pacific fishers occur in the same habitat as northern spotted owls. Measures to protect northern spotted owls will protect fishers. Mardon skippers will be protected by timing of prescribed burns in the Little Bald Hills to avoid sensitive life stages and by burning small blocks to provide unburned refugia.

Short-term adverse effects to owl and fisher habitat from removal of brush and small trees and consumption of vegetation by fire will be localized and negligible. There will be a minor long-term benefit to owl and fisher habitat from removal of small trees for prescribed fires, preparation for these fires, and construction or maintenance of shaded fuel breaks that will promote faster growth of larger trees.

The action is not likely to jeopardize the continued existence of California Coastal Chinook salmon, Southern Oregon/Northern California Coastal coho salmon, or Northern California steelhead trout, and is not likely to result in the destruction or adverse modification of designated critical habitat for these species. An unknown and unquantifiable but presumably small number of individual fish, and their designated critical habitat, may be affected and are likely to be adversely affected due to minor amounts of short-term ash sedimentation for one season following prescribed burning of the Wildcat and Pig Pen burn units. The effect would be localized and minor.

Effects of emergency suppression actions will be analyzed through incident-specific consultations with the USFWS or NOAA Fisheries after the fire emergency has passed.

To protect endangered species, the NPS, USFWS, and NMFS have agreed on mitigation measures to reduce adverse impacts from actions that have the potential to adversely affect listed

species. The most common mitigation measures include surveys to determine the presence or absence of a species, restrictions on when certain actions can occur, the distance between an action and suitable habitat, and how an action is undertaken. Surveys are done for terrestrial plants and wildlife. Restriction periods are established for wildlife and fish.

Best management practices will be used to avoid sediment delivery into perennial streams that might be affected by fire management activities. These practices include use of silt screens, work only during dry periods or when the soils are not saturated, no refueling of equipment within 150 feet of a stream, a fuel spill prevention plan for fueling and for on-site equipment, use of weed-free straw on exposed soils until revegetation is complete, and stabilization of any structures within the inner gorge of streams to prevent bank erosion. Work occurring near anadromous fish-bearing streams during the breeding season will have visual disturbance restrictions in place to prevent the disturbance of spawning salmon and trout. No piles will be burned within 300 feet of any intermittent or perennial stream.

Cumulative Effects on Rare, Sensitive, Threatened, and Endangered Species—On-going and planned projects and activities for which the NPS consults with either USFWS or NMFS for potential effects on listed, proposed, and candidate species include road, trail and facility use, maintenance, and construction; watershed restoration; non-native plant management; management of vegetation in the Bald Hills; helicopter and off-road vehicle use; and beach management. The NPS has been authorized incidental take of listed species, primarily northern spotted owls, marbled murrelets, and juvenile anadromous salmonids, by the USFWS and/or NMFS for some of these activities. On-going and reasonably foreseeable NPS actions will not jeopardize the continued survival of any listed threatened species.

Outside the parks, the primary activities that affect listed threatened and endangered species are loss of habitat from logging, residential, industrial, and agricultural development; dams for power development, flood control, and water supply for domestic, industrial, and agricultural activities; and residential, commercial, industrial, agricultural, and recreational development projects that reduce the quality of habitat or decrease the quantity of habitat. Sport and commercial fishing also affect anadromous fish over both the short- and long terms. These activities have occurred over a large geographic region for many years. In most cases, these activities took place prior to current environmental laws and regulations. The cumulative effects on some species and their habitat are widespread, adverse, long-term, and significant, and have resulted in the listing of these species as threatened.

Most private timber company land immediately adjacent to park boundaries is slated for future timber harvest, including some post-harvest prescribed burning in preparation for reforestation. Timber harvest and prescribed burning has occurred, and will occur in the future, in stands adjacent to the park. However, this activity has been and most likely will continue to be outside the breeding seasons of the spotted owl, marbled murrelet and fisher if the activity would occur within the park's Special Treatment Areas, under the current California Forest Practice Act regulations. Additionally, the local North Coast Unified Air Quality Management District controls the timing of prescribed burns to reduce the amount of smoke generated in any one location.

Effects on Cultural Resources—Planned actions that have the potential to affect cultural resources include prescribed fire, and any ground disturbing activities associated with preparation, suppression, and staging of fire management actions. These planned actions will incorporate the

cultural resource protection measures outlined in the FMP, the Cultural Resource Element, and the EA to avoid significant adverse effects.

Fire program activities have the potential to adversely affect cultural resources directly and indirectly. Adverse effects will be mitigated by taking appropriate steps to inventory, pre-treat, protect, monitor, and report information about historic properties located within the area of potential effect for fire management activities, and conduct post-burn site assessments.

Direct operational impacts of planned fire management actions on cultural resources will be adverse in most cases. However, the degree of impact depends on the nature of the operation and the cultural resource affected. Operational impacts during and after wildfire events are more likely to be adverse.

In all locations where actions are planned that will disturb soils, qualified park cultural resource specialists will conduct surveys prior to disturbance. Direct adverse effects on cultural resources from planned fire management actions will be avoided through identifying the resources prior to disturbance and avoiding or protecting the resources. Park cultural resources specialists will survey areas where burn piles and fire lines for prescribed fires will be located and direct crews to construct burn piles or fire lines in locations that avoid cultural resources. Most planned fire management actions will occur in areas that are of low cultural sensitivity or that were previously disturbed by timber harvest or construction of roads.

A catastrophic wildfire in the Bald Hills could destroy barns and other structures that are contributing elements to the Lyons' Ranches Historic District. Loss of any structure identified as a contributing element to the District will be a significant irretrievable adverse effect. To the extent that fire management actions reduce the potential for wildfires, particularly catastrophic wildfires, planned fire management actions (fuel reduction, historic structure protection, prescribed fire) reduce the potential for adverse effects to cultural resources that result from a wildfire.

Cumulative Effects to Cultural Resources—Cumulative impacts are the combined effect of direct and indirect impacts that can eventually result in an adverse effect to historic properties. The effectiveness of management actions can only be assessed with post-burn site assessments and monitoring. This is especially important for management units that are mechanically treated or burned in prescription on a regular cycle. Cumulative impacts may not be apparent during one treatment of a management unit within a cycle. They may only become apparent, after repeated monitoring over a period of many treatments.

Other NPS activities that might affect cultural resources in the park include watershed restoration, management of second growth forests and exotic plants, maintenance and repairs to roads, trails, and other facilities, and development of new facilities. All of these activities are conducted under the same general guidelines for identifying and protecting cultural resources so that long-term adverse effects are avoided to the greatest extent practicable. The cultural sensitivity of the coniferous forest areas where watershed restoration and second growth management occurs is very low because these areas were logged or affected by road construction, which very likely damaged or destroyed any cultural resources originally present. Invasive non-native plants occur primarily in areas affected by recent human disturbance.

Cultural resource surveys are conducted prior to any work involving ground disturbance. Cultural resources in areas of known cultural sensitivity are protected by avoiding or minimizing ground disturbance.

Effects on Visitor Experience and Visual Quality—Prescribed fire will adversely affect the visitor experience and visual quality in the short-term. The degree of effect is greatest in the Bald Hills compared to other areas in the parks because the prescribed fire units are largest and most numerous in the Bald Hills, because the prescribed fire units are close to the primary visitor access route (Bald Hills Road), and because the open vistas will be more affected by poor visibility from smoke than from prescribed burns conducted in forested or hilly areas. Short-term closures, reduced visibility from smoke, and the appearance of burned vegetation following a prescribed fire will have different effects on a visitor's experience. Whether a prescribed fire has a negative or a positive effect on visitors and their experience depends on the attitude of visitors and their knowledge and understanding of the role of fire in ecosystems.

Many planned fire management actions are intended to reduce the risk of wildfire, particularly a catastrophic wildfire. Wildfires will have short-term adverse effects on visitor use and enjoyment from smoke that reduces visibility and causes health problems, from closures of areas of the parks for safety, and from the destruction of vegetation. The effect on visual quality following a wildfire will persist for different lengths of time depending on the vegetation type that was burned and the severity of the fire. Dense second-growth forests in many areas of the park are of low visual quality. The Bald Hills oak woodlands have high visual quality that will be adversely affected by a wildfire that consumes oak trees.

The overall effect on visual quality from prescribed burns will be temporary for several weeks or months following the burn until rains cause regrowth of grasses, localized in the burned units, adverse, and negligible. Effects on visual quality will be beneficial and moderate in the long-term from maintenance of ecological communities in grasslands and rare forest types (Bald Hills, Little Bald Hills, coastal grasslands) and open vistas in the Bald Hills. There is a potential for a short-term significant benefit to visual quality from a display of blooming lupines in some prescribed burn units in the Bald Hills one to two (spring) seasons following the burns.

Effects on visitor experience and scenic quality in the event of a catastrophic wildfire will be minor to major, depending on the location of the fire and whether winds create areas of dense smoke in the park.

Cumulative Effects on Visitor Experience and Visual Quality—Opportunities for hiking, mountain biking, equestrian use, and primitive camping in the national park are being developed under a trail plan approved in 2009. Other recreational opportunities in the vicinity include sport fishing in Redwood Creek, the Smith and Klamath Rivers, and the ocean; sea kayaking and surfing; whitewater boating on the Smith River; the Smith River Rancheria casino on Highway 101 north of Crescent City; the Gold Bear Casino on the Resighini Rancheria at Klamath; and the Elk Valley Rancheria Casino on Howland Hill Road that will be replaced by a casino resort along Highway 101 south of Crescent City; camping and hiking in RNSP, Six Rivers National Forest, and the Smith River National Recreation Area (NRA); scenery and wildlife viewing and photography in RNSP, Tolowa Dunes State Park, the national forest, the NRA, and Pelican Bay State Beach and other beaches in Del Norte County; and many additional recreational activities available in Crescent City, Del Norte County, and southern Oregon. None of these activities will be adversely affected in the long-term by planned fire management activities in the national park.

Effects on Adjacent Communities—Several communities identified as communities at risk from wildfire are within 20 miles of the parks and could be affected by large wildfires. These communities include Big Lagoon along US Highway 101 south of the park in Humboldt County, Hoopa and the Hoopa Valley Indian Reservation on Highway 96 east of the park in Humboldt County, Hiouchi on US 199 in Del Norte County, Gasquet on US Highway 199 northeast of the parks in Del Norte County, Douglas Park on Howland Hill Road, and Rock Creek on South Fork Road northeast of the Little Bald Hills in Del Norte County.

Planned fire management actions will have no direct adverse effects on adjacent communities. The fire management program will have minor to moderate benefits to adjacent communities from prescribed fires that reduce the potential for large wildfires, from fuel reduction projects such as shaded fuel breaks, and from preparations for suppression that enable the park fire management staff to prevent the spread of wildfires across park boundaries. Shaded fuel breaks in Hiouchi and along Howland Hills Road will have the greatest benefits to adjacent communities because these breaks are closer to these communities than other planned fire management actions. Hiouchi is located in an especially fire-prone area and residents have been warned to prepare for evacuation due to wildfire in the past 10 years.

Cumulative Effects on Adjacent Communities—Adjacent communities will be affected by smoke and reduced visibility from large wildfires in the vicinity of the park, with prevailing winds that move the smoke into coastal communities (Trinidad, Big Lagoon, Orick, Requa, Klamath, Crescent City) or interior communities (Hiouchi, Gasquet, Hoopa, Weitchpec, Willow Creek). The health effects and reduced visibility from smoke range from negligible to severe, depending on the location, size, and duration of the wildfire. The effects of a large wildfire on health and visibility from wildfire will be greater than the smoke impacts from any planned park fire management action, including prescribed fires. The short-term and long-term health risks to members of adjacent communities from planned park fire management actions are negligible.

CAL FIRE sets the “fire season” dates when regulations prohibiting open fires take effect for private lands. The NCUAQMD can further restrict open fires to protect air quality. The Del Norte and Humboldt County Fire Safe Councils and CAL FIRE conduct inspections and fuel reduction projects to protect private properties in fire-prone areas. These programs have moderate long-term benefits.

Conclusions: Effects on Natural and Cultural Resources, Visitors, and Adjacent Communities

As summarized above, the effects of the selected action have been considered and determined to be less than significant. These effects have also been considered under the criteria for significance listed in the Council on Environmental Quality regulations (40 CFR 1508.27) and found to be less than significant. Actions for which mitigation can be prescribed, the prescribed mitigation, and the responsible party are summarized in the following table.

**Summary of Effects and Mitigation for 2010 Fire Management Plan
Implementation**

Resource & Effect	Mitigation	Responsible Party: local NPS fire management team
Air Quality: short term adverse effects from prescribed fire	Obtain burn permit from NCUAQMD prior to ignition; develop burn prescriptions to minimize smoke production and maximize dispersal	Obtain permits from NCUAQMD prior to planned ignitions
Soils: disturbance from fireline construction	All soils previously disturbed by logging and road construction	Construct firelines to reduce post-fire erosion; use MIST and BAER for suppression
Water Quality: minor effects from ash sedimentation in Pig Pen prescribed fire in	Best management practices prescribed in NMFS BO terms and conditions; establish monitoring program	Comply with BMPs; conduct monitoring program; use MIST and BAER for suppression
Wetlands: generally avoided	No mitigation needed for planned actions	Actions have been planned to avoid riparian wetlands
Vegetation: disturbance from preparation and prescribed fire	Establish prescriptions to achieve resource management goals	Comply with all prescriptions; use MIST and BAER for suppression
Wildlife: day-time disturbance	Actions have been planned to minimize long-term adverse effects to any populations	Prescribed fires ignited outside breeding seasons for sensitive species; remove all food scraps and trash from fire camps
Sensitive Species: short-term effects to birds from habitat degradation, long-term benefits from faster regrowth; short-term sedimentation affects fish in Redwood Creek	Actions have been planned to minimize long-term adverse effects	Comply with terms and conditions of USFWS, NMFS biological opinions
Cultural Resources: Direct and indirect effects from planned actions and wildfires	All ground-disturbing activities monitored; work will cease if resources encountered until resources can be evaluated; known sensitive areas protected from planned actions	Cultural resource specialists survey, identify cultural sites prior to planned actions and monitor ground-disturbing work or prescribed burns; fire crews cease work if unexpected cultural resources encountered
Visitor Experience: Short-term trail closures; reduced visibility from smoke	Press releases and trailhead postings to announce trail closures;	press releases announce closures and wildflower displays; traffic control along Bald Hills Road during prescribed fire activity

Non-Impairment of Park Resources and Values

Potential for Impairment under the Selected Action

The selected action includes prescribed fire, preparation for prescribed fire, fuel reduction, preparation for suppression actions, and suppression of wildfires. These same activities have taken place since 2005 under the 2005 FMP (Alternative 2, no action). The selected action and Alternative 2 are essentially the same with respect to the potential for impairment that would result from implementation of fire management actions. The short-term potential for impairment to park resources from suppression actions that might occur over the 5-year life of the 2010 FMP under the selected action is essentially the same as the potential under the current 2005 FMP (Alternative 2).

A catastrophic wildfire has the potential to impair all park resources, with impairment resulting from both the fire itself and from associated suppression activities, even after rehabilitation following the catastrophic fire. The likelihood of a catastrophic wildfire occurring within the 5-year life of the fire management plan (2010 through 2015) is small, given the vegetation types, fire regimes, and fire history in the park. Small wildfires and associated suppression actions are not expected to impair park resources because of the limited area that is likely to burn before the fire is contained, controlled, and extinguished.

Non-Impairment of Air Quality

The selected action will not have long-term adverse effects on air quality or air quality related values in the parks. Short-term adverse effects on air quality from all fire management actions will be negligible except for smoke from some prescribed fires. Prescribed fires are permitted by the local air quality management district only under conditions that minimize smoke production and maximize smoke dispersal. Smoke from pile burning will have very localized short-term negligible adverse effects. Adverse effects on air quality from broadcast burns will be moderate because burn units could be several hundred acres. Adverse effects on air quality from smoke from wildfires are likely to be more severe than adverse effects on air quality under prescribed fires that are only ignited under specific conditions. Air quality returns to good to excellent several days after planned fires or wildfires are extinguished.

Therefore, the selected action will not impair air quality or air quality related values in the park.

The adverse effects on air quality from prescribed fire under the selected action will be localized, short-term, and negligible to moderate. The prescribed fire program is needed to achieve the goals and objectives of the 1999 GMP/EIS, and to restore and maintain prairies identified in the 1999 GMP/EIS as a significant resource. Therefore, short-term moderate localized adverse effects on air quality are acceptable.

Non-Impairment of Soils, Topography, and Geological Resources

Under the selected action, there will be no new effects on topography or geological resources from the fire management program.

Extensive areas of soils and topography in forested areas, and in some Bald Hills prairies and oak woodlands, were impaired by the original logging and road construction prior to park establishment and expansion. Impairment to soils is gradually being reduced as vegetation regrows and soil formation processes act over the long-term. Topography in logged or roaded areas will remain altered and in some areas impaired by the original clearcut tractor logging and road construction until watershed restoration treatments are completed.

There will be negligible short-term adverse effects to localized areas of soils from construction of firelines under all alternatives. Firelines will be rehabilitated after the fire is extinguished.

Minimum impact suppression tactics (MIST) and burned area emergency rehabilitation (BAER) actions will reduce adverse effects to soils from suppression of wildfires.

Therefore, the selected action will not cause further impairment to soils or topography.

Adverse effects to localized areas of soils from construction of hand lines, either for prescribed fire or suppression of small wildfires, are acceptable because the hand lines are needed to prevent more extensive damage from a larger fire. Rehabilitation of firelines after either prescribed fire or a wildfire will reduce or prevent long-term damage to soils.

Non-Impairment of Water Quality, Floodplains, and Wetlands

Adverse effects on water quality, floodplains, and riparian wetlands in the park from logging and road building were significant and widespread. Water quality in many park streams, the Redwood Creek floodplain, and riparian wetlands in logged and roaded areas were impaired by logging and road construction prior to park establishment and expansion. This impairment to watersheds was a primary reason for park expansion. The effects on watersheds in the park from past logging and the resulting park expansion legislation are directly responsible for the definition of impairment and the “no derogation” standard that applies to management of all units in the national park system (NPS 2006 Management Policies). If major storms cause remaining roads and stream crossings to fail, and eroded sediment enters a perennial stream, water quality and riparian wetlands associated with that stream might again be impaired in some areas depending on the intensity of the storm and the extent of erosion. The existing impairment to water quality, floodplains, and riparian wetlands in areas affected by logging and road building is gradually decreasing over the very long-term as watershed restoration projects are completed and as watersheds recover with regrowth of vegetation.

There will be no direct effects on floodplains and riparian wetlands from planned fire management actions under the selected action. Actions have been planned to avoid these areas.

Effects on water quality under the selected action from runoff of soils disturbed for fire line construction are negligible because most fire lines will be constructed high in drainages, well above perennial reaches of streams and will be rehabilitated after the fire. Runoff of disturbed soils from suppression actions will be minimized by MIST and BAER techniques. Adverse effects on water quality in Redwood Creek from prescribed fire in the Wildcat and Pig Pen units under the selected action are anticipated to be short-term for one season following the burn, and negligible in comparison to adverse effects from upstream sediment sources outside the park that will be mobilized in the same storms. Therefore, water quality will not be further impaired under the selected action.

The indirect adverse effects on water quality from minor soil disturbance from planned fire line construction and potential short-term effects from ash sedimentation from the prescribed burns in the Wildcat and Pig Pen units are negligible under the selected action. These adverse effects are acceptable because fire is needed to manage exotic plants and conifer encroachment that reduces the extent of oak woodlands and prairies; to restore and maintain cultural landscapes; and to

reduce potential for more severe adverse effects on water quality that would result from increased risk of catastrophic fires over the long-term.

Non-Impairment of Vegetation Resources

Clearcut logging prior to park establishment and expansion impaired old growth forest communities. The effects on old growth forests from past logging and the resulting park expansion legislation are directly responsible for the definition of impairment and the “no derogation” standard that applies to management of all units in the national park system (2006 NPS Management Policies). The impairment to vegetation on about 850 acres is being reduced through the second growth management program by shortening the time for these forests to regain old growth forest characteristics, structure, and function. The impairment to park forests will continue for centuries on the 48,300 acres of second growth forest unless treatments are undertaken to reduce the impairment.

Oak woodlands and grasslands in the Bald Hills are identified as significant resources in the 1999 GMP/EIS. Prescribed fires in the Bald Hills under the selected action are intended to restore and maintain the oak woodlands and prairies.

Issuing permits to remove woody debris generated by fuel reduction activities under the proposed action is acceptable because this decreases the fuel loading and fire hazard from fuels left on the ground. This action is consistent with the disposal of woody debris generated by second growth management program begun in summer 2009.

The selected action will not reduce the impairment to park forests caused by clearcut logging but it will reduce the fire hazard and the potential for catastrophic fire by constructing shaded fuel breaks and reducing fuels adjacent to some of these forests. The selected action will have long-term benefits to park vegetation communities by reducing encroachment of conifers into oak woodlands and prairies, and restoring coastal grasslands. Therefore, the selected action will not further impair park forests or vegetation communities.

Short-term adverse effects on vegetation that is consumed by fire in prescribed burn units under the selected action are acceptable because that is the purpose of prescribed fire and is needed to achieve the goals of fire management and oak woodland/prairie restoration outlined in the 1999 GMP/FEIS.

Non-Impairment of Wildlife Resources

Adverse effects on fish and aquatic biota in Redwood Creek from prescribed fire in the Wildcat and Pig Pen prescribed fire units under the selected action have been determined to be short-term and minor from a slight decrease in water quality if there is a large rain event in the first season following the prescribed burn. Other fire management actions do not occur near perennial streams.

There will be adverse effects from large broadcast burns in the Bald Hills on some individual animals that are unable to escape the burn units but there will not be any long-term effect on any wildlife population because a single burn unit is only a small portion of the total area of oak woodland and prairie. Removal of habitat for other fire management projects such as shaded fuel breaks and fuel reduction occurs in smaller areas, most of which are low quality wildlife habitat.

The impairment to fish populations and aquatic biota in park streams caused by logging and road-related erosion will continue until the habitat recovers, and is lessening as watershed management practices outside the parks improve, and watersheds are restored both in and outside the park. The original logging caused an impairment to park wildlife populations from destruction and degradation of habitat but that impairment is gradually decreasing as forests regrow. Adverse effects on wildlife from prescribed fire and preparations for fire are localized, short-term, and negligible. Prescribed burn units have been planned to provide unburned areas to serve as refugia for wildlife. Terms and conditions in the USFWS and NMFS biological opinions to protect threatened and endangered fish, wildlife, and plants will also protect other species in the project areas. Therefore, there will be no impairment to fish or wildlife resources under the selected action.

Adverse effects on wildlife are acceptable because the loss of habitat from prescribed fire, fuel reduction, and construction of shaded fuel breaks is short-term, localized, and negligible, and these projects are needed to reduce the chance of a catastrophic wildfire.

Non-Impairment of Sensitive, Threatened, and Endangered Species

Prescribed burning in Pig Pen and Wildcat prescribed fire units in lower Copper Creek, a tributary of Redwood Creek, will result in incidental take of an unknown and unquantifiable but presumably small number of juvenile Northern California steelhead trout in Copper Creek, and juvenile and adult California Coastal Chinook salmon and Southern Oregon/Northern California Coastal coho salmon within one-half mile of Redwood Creek adjacent to the Pig Pen unit due to minor amounts of short term ash sedimentation for one season after the burn. The effect will be localized, temporary, and minor, and will not jeopardize the survival of these species.

The proposed action will not affect the Oregon silverspot butterfly. The selected action may affect but is not likely to adversely affect marbled murrelets or their designated critical habitat, northern spotted owls, or western lilies. Adverse effects on these species are indirect short-term localized effects from changes to habitat; these effects are minor. Long-term effects are related to habitat improvement and are localized, beneficial, and minor.

Therefore, the selected action will not result in impairment to populations of any listed threatened or endangered species in the park.

Adverse effects on listed species under the selected action have been determined to be short-term, localized, and negligible to minor. Potential adverse effects on listed fish from short-term decreases in water quality in Redwood Creek under the selected action will be negligible to minor because number of fish that will be affected is presumed to be very small and there will be no effect on overall population of any listed fish species. Therefore, this minor impact is acceptable.

Adverse effects on other listed species from habitat degradation have been determined to be minor and short-term. There will be long-term benefits to the same species from long-term improvement of habitat under the selected action. Therefore, the short-term adverse effects are acceptable.

Non-Impairment of Cultural Resources

Planned actions under the selected action that have the potential to affect cultural resources include prescribed fire, and any ground disturbing activities associated with preparation, suppression, and staging of fire management actions. Direct adverse effects on cultural resources

from planned fire management actions will be avoided through identifying the resources prior to disturbance, protecting the resources, and applying other protection measures outlined in the EA.

The selected action includes historic structure protection through removal of excess fuels around structures. Some prescribed fire in some units in the Bald Hills are intended to maintain and restore vegetation communities and plants that are contributing elements to the rural historic landscape district or have ethnographic significance to local American Indians.

Fuel reduction projects and shaded fuel breaks generally occur in areas that are of low cultural sensitivity or that were previously disturbed by timber harvest or construction of roads.

There have been no adverse effects on significant cultural resources from implementation of planned fire management activities under the 2005 FMP (Alternative 2). Therefore, none of the planned fire management actions under the selected action are expected to cause an impairment to cultural resources.

To the extent that fire management actions (prescribed fires, fuel reductions around historic structures, shaded fuel breaks) under the selected action reduce the potential for wildfires, particularly catastrophic wildfires, these actions reduce the potential for impairment to cultural resources that will result from a catastrophic wildfire. Loss of any structure identified as a contributing element to the Lyons' Ranches Historic District in the Bald Hills would be a significant irretrievable adverse effect.

Non-Impairment of Scenic Values and Opportunities for Enjoyment

There would be short-term localized adverse effects on scenic quality from burned vegetation after prescribed fires under the selected action. These effects are temporary and disappear within several weeks as rains bring on a flush of new growth. In the first or second spring following a prescribed burn, spectacular wildflower displays bloom in the Bald Hills. Other fire management actions such as fuel reduction and shaded fuel breaks occur along roads or in areas affected by logging that have no important scenic values to be protected.

Therefore, fire management actions under the selected action will not impair scenic quality in the park.

Short-term adverse effects on scenic values immediately following prescribed burns are acceptable because the fires are needed to preserve the oak woodlands and prairies that are a significant resource identified the 1999 GMP/FEIS, and to reduce the potential for severe impacts on scenic values that would result from large wildfires. Further, the wildflower displays following prescribed burns in some Bald Hills units are a significant but localized and very short-term scenic value.

Basis for Decision

Based on the environmental assessment, analyses of issues and alternatives, together with consideration of public interest and the relation between public interest and laws, statutes, and regulations for managing NPS units, the ability of the mitigation measures to reduce or eliminate adverse impacts, and the concurrence of agencies and affiliated American Indian tribes that were consulted, the NPS is selecting to implement as its selected action the alternative described as the proposed action (Alternative 1, 2010 FMP) in the 2010 Redwood National Park Fire Management Plan Environmental Assessment, dated March 2010.

It is the determination of the National Park Service that the selected action in Redwood National Park to manage fire and remove woody biomass for fuel reduction does not constitute a major federal action significantly affecting the quality of the human environment, nor is this project without precedent or similar to ones that normally require an environmental impact statement. Therefore, in compliance with the National Environmental Policy Act, the National Park Service will not prepare an environmental impact statement, and will proceed with implementation of the selected action as soon as practicable.

Recommended:

James D. Hoffman
Acting for

Steve W. Chaney
Superintendent
Redwood National Park

4/28/10

Date

Approved:

George J. Turnbull

George J. Turnbull
Acting Regional Director
Pacific-West Region

7/30/10

Date