

**Management Indicator Species Review
First 48 Roadside Fuelbreak Collaborative Project
Mad River Ranger District
Six Rivers National Forest
November 14, 2017**

Under the National Forest Management Act (NFMA), the Forest Service is directed to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives” (PL 94-588, Sec 6 (g) (3) (B)). The 1982 regulations implementing NFMA require that “Fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.” (36 CFR 219.19) Management Indicator Species (MIS) is a concept used by the agency to serve as a barometer for species viability at the Forest level. Population changes of MIS are believed to indicate the effects of management activities.

The Forest Land Management and Resource Plan for the Six Rivers National Forest uses Management Indicator Species (MIS) to assess potential effects of project activities on the various habitats and habitat assemblages with which these species are associated. Forty-one fish and wildlife species have been selected as MIS or assemblages for a variety of habitats that are potentially affected by resource management activities on the Forest (LRMP IV-97). For the analysis associated with this project, specific MIS were addressed based on their potential to occur within the project area and the potential for suitable habitat to be affected by project activities. Table 1 lists the MIS and assemblages occurring on the Six Rivers National Forest, and those known or thought to occur within the project area based on habitat suitability, survey results, or incidental sighting records. Habitat suitability evaluations were made using the California Wildlife Habitat Relationships System, Version 8.2 software, developed by the California Department of Fish and Wildlife. In addition habitat evaluations were made utilizing Six Rivers National Forest Wildlife Sighting Database, Six Rivers National Forest Vegetation Layer, field reviews, and Forest GIS Vegetation Layers.

Table 1. Management Indicator Species and Habitat Assemblages – Six Rivers NF

MIS Species and Habitat Assemblages	Habitat is Affected by the Project	Habitat is in or adjacent to the project areas, but is not directly or indirectly affected by the project	Habitat is not in or adjacent to the project area and is not directly affected by the project
<i>Individual Species</i>			
Northern Spotted Owl	Suitable habitat - No adverse affects		
Pileated woodpecker	Suitable habitat - No adverse affects		
Black Bear	Suitable habitat - No adverse affects		
American marten			No Detections of American Marten on MRRD
Fisher	Suitable habitat - No adverse affects		

MIS Species and Habitat Assemblages	Habitat is Affected by the Project	Habitat is in or adjacent to the project areas, but is not directly or indirectly affected by the project	Habitat is not in or adjacent to the project area and is not directly affected by the project
Black-tailed deer	Suitable habitat - No adverse affects		
Southern torrent salamander		Habitat is in or adjacent to the project area, but will not be directly or indirectly affected	
<i>Marsh/ Lake/ Pond/ Assemblage</i>			
California red-legged frog			No suitable habitat present in project area
Western pond turtle			No suitable habitat present in project area
Wood duck			No suitable habitat present in project area
<i>River/Stream/Creek Assemblage</i>			
Cutthroat trout			No suitable habitat present in project area
Steelhead/rainbow trout	Suitable habitat for resident rainbow trout – minor sedimentation but no adverse effects.		
Tailed frog			No suitable habitat present in project area
Summer steelhead			No suitable habitat present in project area
Common merganser			No suitable habitat present in project area
Ruffed grouse	Suitable habitat - No adverse affects		
Winter wren (now known as the pacific wren)	Suitable habitat - No adverse affects		
American dipper		Habitat is in or adjacent to the project area, but will not be directly or in directly affected	
Yellow-breasted chat		Habitat is in or adjacent to the project area, but will not be directly or in directly affected	
<i>Tanoak/Madrone Assemblage</i>			
Hammond's Flycatcher	Suitable habitat - No adverse affects		
Western Tanager	Suitable habitat - No adverse affects		
Black-headed grosbeak	Suitable habitat - No adverse affects		
<i>Snag Assemblage</i>			
Flammulated Owl	Suitable habitat - No adverse affects		
Western screech owl	Suitable habitat - No adverse affects		
Red-breasted sapsucker	Suitable habitat - No adverse affects		
Downy woodpecker	Suitable habitat - No adverse affects		
Hairy woodpecker	Suitable habitat - No adverse affects		

MIS Species and Habitat Assemblages	Habitat is Affected by the Project	Habitat is in or adjacent to the project areas, but is not directly or indirectly affected by the project	Habitat is not in or adjacent to the project area and is not directly affected by the project
White-headed woodpecker	Suitable habitat - No adverse affects		
Vaux's swift	Suitable habitat - No adverse affects		
Brown creeper	Suitable habitat - No adverse affects		
Western bluebird	Suitable habitat - No adverse affects		
Douglas squirrel	Suitable habitat - No adverse affects		
<i>Down Woody Debris Assemblage</i>			
Arboreal salamander		Habitat will not be affected by the project	
Clouded salamander		Habitat will not be affected by the project	
Blue grouse	Suitable habitat - No adverse affects		
Dusky-footed wood rat	Suitable habitat - No adverse affects		
Western fence lizard	Suitable habitat - No adverse affects		
<i>Black Oak/White Oak Assemblage</i>			
Acorn woodpecker	Suitable habitat - No adverse affects		
Scrub jay	Suitable habitat - No adverse affects		
Lazuli bunting	Suitable habitat - No adverse affects		
Western gray squirrel	Suitable habitat - No adverse affects		

The majority of the project area is forested habitat. Seral stages range from pole to mid-mature stands with small patches of late-mature and old growth.

Project Summary

Approximately **821** acres of conifer/hardwood stands, through hazard fuel reduction, oak woodland restoration, and plantation thinning. Specifically, this project consists of approximately **215** acres of fuel reduction treatments (unshaded fuelbreak); **461** acres of shaded fuelbreak, **37** acres of oak woodland maintenance; and **108** acres of plantations.

The Proposed Action represents an opportunity for the Forest Service and members of the Trinity County Collaborative (TCC) to co-develop, establish, and maintain shaded roadside fuelbreaks along Forest Service roads (FSRs) classified as Maintenance Level (ML) 2 and 3, open to the public, visitors, and firefighters during a wildfire.

The Proposed Action would alter live and dead surface, ladder and crown fuels on approximately 821 acres on national forest land over the next 15 years. Implementation would be phased beginning with application of mechanical treatments (thin from below and mastication),

following by manual (hand) cutting and piling, pruning, and/or lopping and scattering woody debris, periodic prescribed jackpot burning and underburning in oak woodlands between three (3) to five (5) years apart. Fuelbreak maintenance using primarily mastication would occur as needed to cut and shred vegetative sprouting, accumulated forest litter, and natural regeneration (tree seedlings).

The fuelbreak treatments would primarily occur within 150 feet on each side of National Forest Transportation System (NFTS) roads (02S02, 2S47, 2S48, 2S49, 2S50, 2S51, 2S52, and 2S53) and one motorized trail (8E20); and within 300 feet of FSR 1S23 on the SRNF side of South Fork Mountain, the boundary between the SRNF and Shasta-Trinity National Forest (STNF). Width of the buffer on either side of the road may vary based on topography, vegetative types and distribution and recent fire history, but generally would not exceed 300-feet total width (e.g., if conditions lend to a wider treatment on the uphill side, the uphill side may be treated up to 275 feet from the road and the downhill side would be treated 25 feet from the road). The minimum treatment area along either side of the road would be 25 feet.

In areas where the roadside fuelbreaks intersect plantations and oak woodland stands, treatments would be applied to the entire oak woodland and plantation stands. As high tree densities in plantations tend to torch at high intensities, an additional 150-foot fuelbreak buffer or flank treatment would be established around them.

In the areas burned by high-intensity wildfire in 2011, proposed treatments target hazardous fuels reduction to decrease post-fire, jackstraw snags and dead woody material.

The proposed treatments considered in this project are designed in accordance with the TCC's "proof of concept" criteria as follows:

- Thin existing stands to retain the best, healthiest trees that have a high canopy capacity (those with the strongest crown to bole ratio, have the highest needle or leaf cover and provide the most shade to the forest floor), capable of maintaining those objectives for a long period of time.
- Designate for removal suppressed, intermediate, and codominant conifer trees that compete with the best, healthiest trees that have a high canopy capacity, retaining trees per acre (TPA) objective by stand type.
- Reduce fuel loading to consistent with the Six Rivers National Forest (SRNF) Land and Resource Management Plan (LRMP or forest plan), including brush and down logs, maintaining largest downed wood to meet soil and terrestrial wildlife standards and guidelines incorporated into the project design features (PDFs).
- Outside the dripline of larger trees designated for retention, provide for crown separation to prevent torching, while retaining vigorous clumps of healthy intermediate mixed conifer trees to provide for more complex stand diversity and a source of future mature trees.

- Retain hardwood trees. Thin hardwood clumps to one to three dominant stems where appropriate.
- Trees that provide valuable wildlife structures would be considered as part of the shade retention objective.
- No new temporary road construction is permitted. Reuse of existing skid trails, temporary roads and Forest Service roads classified ML 1, closed roads opened temporarily to expedite operations, would be prioritized.
- Directional tree felling and cable end lining would occur in areas requiring limited skidding.
- Where fuel reduction prescriptions result in utilizable material, products such as sawlogs, post and poles, commercial and personal firewood would be offered.
- Roadside decking and reuse of existing landings and turnouts would occur. New landings on roads would be considered on a limited basis, but would not be located in riparian reserves.
- Retain all snags greater than 20-inch dbh (diameter at breast height), unless the snag would jeopardize the effectiveness of the fuelbreak or could be considered a hazard tree. Hazard trees that meet the Region 5 Hazard Tree Guidelines (April 2012 Report # RO-12-01) would be felled and removed or, if unmerchantable, would be left on-site for coarse down wood retention. Snags not considered a hazard that are located greater than 100 feet from a road may be left standing to be utilized by wildlife, or felled and left onsite limbed with bole unbuckled.

Developing, Establishing and Maintaining Shaded Fuelbreaks

The proposed treatments apply to a diverse range of fuel conditions associated with variable fuel profiles, vegetative types, tree densities and age, and crown classes. The following presents the proposed treatment methods under two overarching categories—shaded fuelbreaks and unshaded fuelbreaks.

Project Design Features, Wildlife:

- Shaded fuelbreak construction may occur in suitable threatened, endangered and sensitive species habitat. All predominant or dominant trees would be retained. Canopy closure would be maintained at 60 percent or greater in all treatment areas.
- The project would not remove potential threatened, endangered, and sensitive species nest trees (predominant or dominant trees) or affect the canopy around potential nest trees in suitable nesting/roosting habitat.
- Treatments in suitable NSO habitat within 0.5 miles of AC 347 will maintain all overstory trees, existing snags (20" dbh or greater) unless they pose a safety hazard, and downed logs (20" dbh or greater and 10 feet long). Only understory brush and small diameter trees less

than 8-inch dbh maybe manually cut. Snags felled for safety reasons would be left on site. These restrictions apply to the following units: 413, 414, 415, 416, 419, the eastern half of 420 and the southern half of 806.

- Directional falling away from “leave trees” would be required to protect them from incidental breakage during felling operations.
- Snags and logs would be retained as per SRNF LRMP, S&Gs Table IV-8, and Appendix L (Treatments within Late Successional Reserves (LSRs)), riparian reserves, units within Critical Habitat, and suitable northern spotted owl habitat (regardless of land allocation) would maintain snags (20-inch dbh and greater or the largest available in younger seral stages) and downed logs (20 inches and greater and at least 10 feet long or the largest available) at the 80 to 100 percent level, unless they pose a safety hazard or would not meet fuel treatment objectives.
- Surveys for the northern spotted owl (NSO) have been conducted to determine occupancy and nesting status. Prohibit all timber harvest, heavy equipment use, chainsaw use, and smoke producing activities within 0.25 miles of known NSO activity centers (AC) from February 1 through July 31 (Appendix A). Surveys to protocol would continue for the life of the project or additional seasonal restrictions would be imposed on any treatment in or within 0.25 miles of nesting/roosting habitat. A September 15 LOP would be used in occupied (breeding pair) or nesting/roosting habitat if no surveys are conducted.
- One mapped NSO AC, #237, within this project occurs near FSR 2S48, where a nest tree is located approximately 75 feet outside the treatment unit. Although no NSO detections have been recorded since 1992, in order to protect the nest tree and maintain the effectiveness of the fuelbreak, hazardous fuel reduction treatments would be limited to within 50 feet of the road, following the standard fuelbreak prescription described above.
- Surveys for goshawk in the project have been conducted, with no detections. If nesting goshawks are subsequently found within 0.25 miles of any treatment units, prohibit all timber harvest, heavy equipment use, chainsaw use, and smoke producing activities within 0.25 miles of the occupied site between March 1 and August 31.
- Surveys for fisher, marten and wolverine have been conducted and fishers have been detected in three (3) areas. Although no den sites have been located, prohibit all timber harvest activities including heavy equipment use, chainsaw use, and smoke producing activities within 0.25 miles of fisher suitable denning habitat around detection areas from February 1 to May 31 (Appendix A).
- In early seral-stage stands lacking downed woody debris (shrub and pole seral stages), small diameter slash would be piled and left on site to provide cover for small mammals, birds, reptiles and amphibians. The size of the piles would vary depending on the availability of slash; however, the preferred size is at least 6 feet in diameter and 4- to 6-feet tall. Small diameter debris decomposes quickly, so large piles may have greater longevity. The number of piles per acre would be dependent on the location and potential fire risk. In high public-

use areas, only one (1) or two (2) piles per acre would be left in the stand. In other areas, three (3) to four (4) piles per acre would be left in the stand. No piles would be left within 100 feet of roads.

Effects of the Proposed Action on MIS

The project will not adversely impact MIS. The project is designed to improve habitat conditions through the acceleration of late-successional habitat characteristics, while still maintaining current functional habitat. Potential impacts to MIS species would be minimized through the Design Features listed in this document and adherence of LRMP Standards and Guidelines including: 1) Retention of snags and downed logs would be retained at 80-100% of the average numbers found within mature and old growth stands within the Forest; any snag felled for safety reasons will be left on site as downed woody debris; 2) limited ground disturbance; 3) canopy closure will be maintained at 60% or greater in late-successional habitat; and 4) vegetation species diversity and composition will be maintained.

Reduction in canopy density in may result in small local changes in microclimate in the short term prior to remaining tree crown improvement, but the changes will not increase overall stream and ambient air temperatures. Removal of a portion of the conifer stand is expected to result in the establishment of hardwoods and a multi-story canopy in the even-aged conifer stands, improving the canopy density and shade for MIS. These indirect effects will lead to improved habitat function in the riparian and upland habitat areas.

Because of the projects proximity on ridge tops the “riparian areas” are predominantly intermittent and ephemeral stream courses and do not have true riparian habitat; therefore, there is limited habitat for riparian obligates within the project with the exception of the lower reaches of Littlefield and Johnathon creeks which provided intermittent habitat to aquatic species. Due to limited project activities in riparian reserves and 60-plus percent canopy outside of riparian reserves, stream temperature would not be affected. Some small amount of sediment may be generated by road maintenance and decommissioning activities during project implementation, but these activities are expected to reduce sediment production in the long term thereby maintaining and slightly improving stream habitat for resident rainbow trout.

In addition, although the winter (Pacific) wren is listed within the riparian assemblage; suitable habitat also exists outside the riparian. There will be minor habitat degradation for understory species within the project areas through the removal of brush and small diameter (less than 8” dbh) trees; however in the long term, reduction of fuel ladders in these areas will improve adjacent habitat areas resilience to fire disturbance. Canopy closure will be maintained at 60-70% or greater, vegetation species diversity and composition will be maintained, and retention of snags and downed logs would be retained at 80-100% of the average numbers found within mature and old growth stands within the Forest.

Jackpot burning may also cause short-term habitat degradation through the loss of small woody debris; however, burning will occur under specific weather and moisture condition designed to minimize damage to the residual stand, maintain large woody debris, and maintain at least 50% of the duff layer. Some minor local increases in fuels may occur from slash, but due to the low

level of harvest and proposed post-harvest fuel treatments, fuel loading will not be a threat to the RRs or upland areas.

Historical records and fire evidence show that fires regularly occurred in this area with a variety of fire frequencies and intensities. Both wildfires and their exclusion through aggressive suppression affect plant and animal habitat, including stand structure, number of standing snags, amount of large woody debris, soil organic matter content, nutrient availability, and erosion hazard.

The dramatic reduction in wildfire burn acreages over the last 80 years appears to have resulted in unnatural fuel profiles that are more continuous, both horizontally and vertically. Given this increased conifer density, future wildfires could become larger and more destructive than in the past.

The high stem densities in plantations and younger stands also results in greater fire risk. Fire suppression activities have significantly reduced the amount of fire over the past 80 years leaving high fuel loads in places which threaten the resiliency of the upland and riparian habitats in the event of a wildfire. In addition to these past activities, road building has cut across numerous riparian reserves and fragmented habitat in multiple locations throughout the project area which has the potential to alter the sediment routing within the riparian reserve.

Post treatment monitoring was conducted on the Beaverslide Vegetation Management Project, as well as on similar projects elsewhere on the Forest. All the units exceeded canopy closure requirements, and protected predominant trees, snags, and downed logs. The units are still functional habitat and should respond well to the treatments. It was determined that these types of treatments will have a beneficial effect on the future habitat conditions of the area.

All treatment areas in all vegetation management projects in the action area will remain suitable immediately post project. Although treatments may cause short-term habitat degradation, in the long-term the project is expected to improve habitat conditions for MIS release of conifer and hardwoods/shrubs through thinning prescriptions, generating a secondary canopy, and protecting existing habitats from stand-replacing fire. Treatments were designed to maintain and restore habitat function in low to moderate quality habitat in all project areas.

Cumulative Effects:

Timber harvest activities and the suppression of wildfire in Mad River RD have led to changes in seral stages and increases in fuels. This shift in seral stage distribution is highest in the tanoak and Douglas-fir series, due to harvest of commercially valuable old growth Douglas-fir stands that began in the late 1950s. There has been a reduction in old-growth forests and an increase in shrub, pole, and early mature forests.

The First 48 Project will improve habitat conditions through thinning even-aged plantations as well as protect existing habitat through fuels reduction. Accelerating the development of late-successional characteristics, and protecting existing habitat, will move the area toward the historic range of variability of seral stages and reduce fragmentation of habitat, improving habitat conditions for MIS species.

Regarding all the past impacts from land uses (mining, timber harvest, and road constructions), the 1st 48 Project will facilitate restoration by thinning plantations and young natural stands, and reduce hazardous fuels. The beneficial cumulative effects include the reduction of habitat fragmentation and the development of late-seral conditions and protection of existing late successional habitat.

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