

## Silvicultural Prescriptions

The Last Chance Fuels Reduction project is proposed to establish a system of fuel reduction zones along primary ridges in the Henry's Diggings and Leoni Meadow areas, south of Grizzly Flat in El Dorado County, California. Treatments are designed to strategically connect in with fuel reduction work already accomplished along Caldor Railroad Grade, Plummer Ridge, and in the Clear Creek area. The areas proposed for treatment form the base for establishing contiguous fuel treatments along ridges from the community of Grizzly Flat southeast to Leoni Meadow.

Map locations and acreages are estimates obtained from orthographic photos, maps and field reconnaissance. Actual acres typically change slightly, as final project layout is completed, and adjustments are made for site-specific conditions, although the total area treated is not likely to fluctuate more than 10%.

Silvicultural prescriptions comply with the Eldorado National Forest Land and Resource Management Plan (LRMP) as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) Environmental Impact Statement, as described in the SNFPA Record of Decision (ROD). Specifically, they are designed to meet objectives based on Forest-wide standards and guidelines (ROD, pages A-25 to A-32), as well as land allocation standards and guidelines for northern goshawk and California spotted owl protected activity centers (PACs) (ROD, pages A-33 to 37), Urban Wildland Intermix Defense and Threat Zone standards and guidelines (ROD pages A-46 and A-47) and General Forest standards and guidelines (ROD pages A-49 and A-50).

- *Masticate small trees (1" to 6") and brush, using a variety of machinery to crush and/or shred the brush, on approximately 150 acres (Units: 121,144, 146, 148, 150, 169, 229, 231, 257, 259, and 544)*

Specialized equipment designed to shred or chip small trees and brush would be used to rearrange fuels for a more compact, less flammable condition. Generally this type of equipment is a track laying excavator or smaller tractor with a high speed, rotating disc. Masticated material may be left on site or tractor piled and burned. This equipment is generally limited to slopes less than 35%, and does not operate within sensitive areas such as streamside zones, heritage sites or wet areas.

- *Mechanically thin the understory vegetation, by cutting and removing trees between 8" and 30" diameter using commercial logging methods, on approximately 560 acres (Units: 169, 227, 228, 230, 231, 232, 234, 237, 246, 247, 248, 250, 254, 255, 256, 259, 263, 264, 268, 269, 274, 275, 277, 291, 292, 293, 296, 297, 298, and 299)*

Specialized equipment, such as a feller-buncher or cut-to-length logging system, would be utilized in areas of dense conifers to thin out suppressed or intermediate class understory trees. Selected trees from 8 inches in diameter up to 30 inches would be cut and removed to reduce fuel ladders and the potential for crown fires. This equipment is generally limited to slopes less than 35% and does not operate within sensitive areas. Depending on current stand structure, understory thinning may be the only treatment needed. Where fuels are particularly dense within a unit, or dominated by brush, additional tractor piling may be necessary.

- *Hand thin small diameter trees located within 100 feet of private property (cut trees and branches with a chain saw, pile the debris, and burn the piles) on approximately 50 acres (Units: 144, 146, 169, 228, 229, 232, 237, 246, 254, 257, 291, 292, 296, 297, 298, 299, 302, 544, 616, 623, and 646)*

Small diameter trees would be cut by hand. The resulting slash would be piled by hand for burning. This treatment would occur primarily 100 feet adjacent to private property, along roads, or within sensitive areas or steep areas.

- *Cut small trees (1" to 7"), pile them with bulldozers or similar equipment, and burn the piles, on about 400 acres (Units: 144, 146, 148, 150, 169, 227, 228, 230, 231, 232, 237, 246, 247, 248, 250, 254, 255, 256, 259, 263, 264, 268, 269, 274, 275, 277, 291, 292, 293, 296, 297, 298, and 299)*

Dead and down material, or brush, would be piled by a tractor with a brush rake or grapple attachment, or excavator type machine. Hand felling of small trees prior to piling may be used to eliminate the need for mastication equipment. Piles would be burned during the fall or winter. Tractors are limited to slopes less than 35% and do not operate within sensitive areas.

- *Light low intensity prescribed fires under specific weather and fuel conditions, to achieve underburning on approximately 1255 acres (Units: 290, 300, 301, 302, 303, 304, 616, 623, and 646)*

Prescribed burning is burning forest fuels under controlled conditions. The objective is to reduce the amount of highly flammable smaller sized fuels. Initial underburning tends to consume smaller dead fuels, and kill larger brush and small diameter understory trees. The initial burn would reduce fuel loading, but one to two additional burns may be needed over a 5 to 10 year period to fully achieve the desired condition. Due to the long time frames involved, prescribed burning as a stand alone treatment is generally limited to areas too steep or sensitive for mechanical treatments. Hand cutting with chain saws and hand piling would be utilized in portions of underburned units to reduce the adverse visual impacts along major roads and adjacent to residential areas.

In units: 144, 146, 169, 237, 246, 247, 248, 250, 254, 255, 256, 257, 259, 263, 268, 269, 274, 277, 292, 293, 296, 297, 298, 299, and 544 prescribed burning would be used as a fuels treatment after mechanical treatments have reduced fuel loadings. A single application of underburning would achieve fuels objectives.

- *Close seven roads to vehicle traffic by gates, guardrail barricades, boulders and/or obliteration. These roads would be stabilized by waterbarring or other erosion control measures to assure proper drainage prior to closure. (Roads: 9N57, 9N57A, 9N57B, 9N59B, 9N61A, 9N73B, and 9N73C) (Road Closure Plan, project record)*
- *Rehabilitate two waterholes. (Waterhole located on 9N57 and drafting site on the Steely Fork of the Cosumnes on 9N59) (Road Closure Plan, project record)*

In all stands, silvicultural prescriptions are based on stand specific information and designed to meet SNFPA land allocation guidelines for the amount of the stand treated, residual live crown base height, and diameter limits. Generally, silvicultural goals for this area are to protect large trees, increase growth of medium sized trees, and remove

smaller trees to reduce fuel ladders. Forest-wide stand structure standards and guidelines pertaining to large trees, canopy cover, snags, and large down wood apply in all land allocations, and would be met where they currently exist. Species preference for residual trees in descending order of priority is: sugar pine, ponderosa pine, Douglas-fir, white fir and incense cedar. Black oaks would not be designated for removal although some may be removed to facilitate operations. Snags which pose a hazard to treatment operations would be removed, or felled and left in log deficient areas.

Where necessary, concentrations of existing or activity generated fuels within the units would be treated by a combination of tractor piling with a brush rake, mastication with a brush shredder, and/or hand cutting and piling. Generally these acres occur where fuels have built up from previous tree mortality, but would also include pockets of decadent brush or thickets of suppressed small diameter trees. Tractor piling would also be utilized in smoke sensitive areas where smoke from burning tractor piles would dissipate more quickly than smoke from prescribed burns. Tractor piling would not occur within riparian conservation areas (RCAs), sensitive areas (such as heritage sites and sensitive plant habitat), or on slopes greater than 35%. Residual trees would be protected from mechanical damage. Piles would normally be burned in the fall and winter after adequate time for curing.

Post treatment evaluations of site-specific fuel conditions would be done to determine the need for follow-up prescribed burning. Prescribed understory burning would occur when weather conditions prescribed in the burn plan are met. Prescribed fire would be allowed to back into the RCAs, however, ignition would not occur in RCAs, except as needed to maintain control.

In preparation for prescribed fire some perimeter line construction may be needed where roads, trails, or natural barriers are absent. This would involve hand cutting of vegetation including trees up to 6-inch diameter, pruning, and scraping a bare soil control line. All fire lines would follow the established guidelines for water bar construction as outlined in the watershed Best Management Practices (BMPs). Hand lines visible from roads would be camouflaged by raking duff back to discourage use as a trail after burning.

Ground cover objectives for prescribed burns are determined by the LRMP and through consultation with resource specialists. Several years of BMP monitoring of prescribed fire projects indicate that ground cover objectives are being met by implementation of current burn plans. Post burn observations of ground cover and soil stability would be conducted to determine if additional action is needed.

Burn prescription parameters would be designed to achieve a fire with an average of 4 foot or less flame lengths. Burn objectives also include protection of sensitive features such as archaeological sites, sensitive plant populations, nest trees, specific snags or down logs, oak trees, streamside zones, structures, and other improvements. Site-specific prescriptions would be developed for these areas, and range from keeping fire out completely, to allowing fire to burn through but retaining the important features.

Mechanical treatment units 121, 227, 232, 237, 246, 247, 259, 268, 269, and 277 are fully or partially within California spotted owl (CSO) or northern goshawk PACs. These units are also within the defense zone. Mechanical treatments (to achieve fuels reduction outcomes described for the general forest land allocation) would occur except within the

500' radius buffer around the activity center. Prescribed fire and preparatory hand treatments are allowed in the 500' buffer. Prior to burning, hand treatments, including handline construction, tree pruning, and cutting small trees less than 6 inches in diameter, are allowed within a 1 to 2 acre area surrounding known nest trees as needed to protect these trees (ROD, p. A-35). In CSO PACs that are outside of the defense zone (units 290, 300, 302, 303, 304, 616, 623, and 646) mechanical treatments would not occur. Prescribed fire, with an average flame length of 4' or less, and preparatory hand treatments are planned. Prior to burning, hand treatments (including handline construction, tree pruning, and cutting small trees less than 6 inches in diameter) are allowed within a 1 to 2 acre area surrounding known nest trees as needed to protect these trees (ROD, p. A-35).

**Unit Acreages Proposed for Treatment and Prescriptive Land**

Unit	Total Acres	Masticate or Crush Brush Ac	Mechanical Thin Ac	Hand Thin and Pile Ac	Small Tree Thin & Machine Pile Ac	Under Burn Ac	Defense Ac	Threat Ac	Owl PAC	Goshawk PAC Ac	Owl Home Range Core Area
121	158	74					74	84	6		
144	25	12		X	12	25	9	16			
146	24	12		X	12	24	24				
148	16	8			8		16				
150	7	3			3		7				
169	30	10	15	X	10	30	30				
227	24		11		11		24		19		24
228	61		61	X	30		5	56			60
229	8	8		X			8				
230	28		8		20		28				28
231	9	3	6		3		9				
232	20		17	X	10		18	2		3	17
234	15		15				15				15
237	25		10	X	10	25	25		25		25
246	17		17	X	17	10	17		2		
247	9		5		5	9	9			9	9
248	44		44		11	44	44				40
250	11		6		6	11	11				2
254	54		25	X	25	54	54				
255	3		3		3	3	3				
256	24		16		12	24	24				
257	8	8		X		8	8				
259	30	10	10		10	30	30			6	10

263	25		20		10	25	25				
264	14		7		11		14				
268	14		7		7	5	14			14	7
269	37		18		18	37	37		2		
274	11		6		6	5	11				
275	10		5		5		10				
277	26		26		13	26	26		2		20
290	34					34		34	33		
291	64		64	X	30		64				64
292	48		24	X	24	48	48				
293	22		20		12	22	22				20
296	48		24	X	12	48	48				
297	14		7	X	7	14	14				
298	24		24	X	12	24	24				24
299	44		40	X	20	44	44				40
300	47					47	47		21		
301	21					21	21				
302	155			X		155	104	51	8		
303	110					110	30	80	40	66	
304	66					66		66	50		
544	15	5		X		15	15				
616	56			X		56	40	16	52		
623	55			X		55	28	27	47		
646	101			X		101	73	28	98		
Totals	1711	150	561		402	1255	1251	460	399	97	405

Unit prescriptions incorporate the land allocation objectives from the Sierra Nevada Forest Plan Amendment as follows:

**Protected Activity Centers for Northern Goshawk and California Spotted Owl:**

**Defense Zone:** Manage to maintain suitable owl habitat while addressing the need to reduce fire hazards near human communities (ROD, p. A-3).

**Fuel Treatments:** Allow prescribed fire (no mechanical treatments) within a 500-foot radius buffer around the nest tree. Prior to burning conduct hand treatments within a 1 to 2 acre area surrounding nest trees to protect them and their immediate vicinity. The remainder of the PAC may be mechanically treated to achieve “General Forest” outcomes (ROD, p. A-35 and A-37).

**Outside Defense Zone:** Manage to maintain existing suitable owl habitat (ROD, p. A-3).

Fuel Treatments: reduce surface and ladder fuels through prescribed fire treatments, with average flame lengths of 4 feet or less. Prior to burning conduct hand treatments within a 1 to 2 acre area surrounding nest trees to protect them and their immediate vicinity (ROD, p. A-35 and A-37).

Urban Wildland Intermix Zone: Manage to enhance fire suppression capabilities by modifying fire behavior inside the zone and provide a safe and effective area for possible future fire suppression activities (ROD, A-10).

Fuel Treatments: Design mechanical fuel treatments to remove or manipulate the material (down fuels and vegetation) necessary to achieve the following outcomes:

Land Allocation	Live Crown Base Height (avg. minimum feet) by Canopy Cover			Flame Length (Avg. max. in feet)
	< 40%	40-70%	> 70%	
Defense Zone & Owl Core	15'	20'	25'	4'
Defense Zone & PAC	15'	20'	25'	6'
PAC & Threat Zone (outside Defense)	Rx fire only	Rx fire only	Rx fire only	Rx fire only

**Activity-Related Standards and Guidelines for SNFPA land allocations:**

<b>Land Allocation</b>	<b>Mechanical Treatments</b>	<b>DBH limit (inch)</b>	<b>Canopy Cover Reduction Limit % (Dominant &amp; co-dominant)</b>	<b>Canopy Cover Minimum %</b>	<b>Snags/acre (Evaluate on a 10 acre basis)</b>		<b>Down wood Tons/acre (Logs greater than 12" midpoint)</b>	
<b>Defense Zone Units:</b> 146, 148, 150, 169, 229, 230, 231, 234, 246, 248, 250, 254, 255, 256, 257, 263, 264, 269, 274, 275, 277, 291, 292, 293, 296, 297, 298, 299, 544	To 90% of stand	30"	Exempt	Exempt	Exempt (A-28) 2 (pg A-11)		Exempt	
Defense & Owl or Goshawk PAC <b>Units:</b> 121, 227, 232, 237, 247, 259, 268	To 75% of stand Excluding 500 ft Nest/roost buffer	20" excluding nest/roost buffer	20% excluding nest/roost buffer	50% excluding nest/roost buffer	4 excluding nest/roost buffer		10-20 tons excluding nest/roost buffer	
Threat Zone & Owl Core	To 85% of stand	20"	20%	50%	3		10-20	
Threat Zone Unit: 144,228	To 85% of stand	20"	20%	50%	3		10-20	
	<b>Mechanical Treatments</b>			<b>DBH limit (inches)</b>	<b>CC%</b>	<b>CC%</b>	<b>Snags</b>	<b>Logs</b>
PAC's (Owl or Goshawks) <b>Units:</b> 290, 300, 301, 302, 303, 304, 616, 623, 646	RX fire only outside of defense zone. (A-35)			6" by hand to protect nest/roost center (A-35)	N/A	N/A	N/A	N/A