

SILVERADO FIRE BAER – BIOLOGICAL RESOURCES

Threatened, Endangered, and Sensitive Wildlife and Plants And Vegetation Recovery

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I. Resource Condition Assessment

A. Resource Setting

The Silverado Fire burned 960 acres in eastern Orange County. The majority of the fire was on National Forest System lands. The fire started on September 12, 2014 and was contained on September 20, 2014. The fire was not wind-driven and primarily burned up slope in light to medium chaparral cover.

B. Findings of the On-The-Ground Survey

The following values were determined to be potentially at risk:

1. Endangered Species – Arroyo Toad occupied and critical habitat in Silverado Creek, immediately downslope from the fire.
2. Sensitive Plant Species - Several Species are potentially present. These are discussed below
3. Sensitive Wildlife Species – Several species are potentially present, these are discussed below.

C. Identify Values At Risk/Condition of Values at Risk

Endangered Species:

For Arroyo Toad no emergency is expected. Although effects on habitat are very likely, the expected magnitude of the effects is low as this species is resilient to fire. Erosion will occur during the winter months when the toads are not active, and will have minimal effects on their breeding activity during the spring and summer.

Sensitive Plant Species:

Intermediate Mariposa Lily is a perennial bulb in the Lily family. It blooms from May to July, and occurs in the San Jose Hills, Puente Hills, and Santa Ana Mountains of Orange, Riverside, and Los Angeles counties. This mariposa lily grows on dry, open rocky slopes in chaparral and coastal scrub at elevations of 400 to 2,800 feet, commonly occurs in open coastal sage vegetation along ridgelines, and on calcareous soils. The majority of the 45 total occurrences are on private lands, and as such, this species

is threatened by development, nonnative species invasions, grazing, mining, and repeated fires. More frequent burning can help convert native grasslands into nonnative grasslands.

Heart-leaved pitcher sage is a perennial shrub that blooms April to July and is a dicot in the mint family. It occurs in closed-cone coniferous forests (Tecate cypress), chaparral, and cismontane woodlands. Heart-leaved pitcher sage is found primarily in the Santa Ana Mountains of Orange and Riverside counties. The species is a fire-follower and burned areas contain a significantly higher number of heart-leaved pitcher sage plants than unburned area.

Based on the fire ecology of this lily and pitcher sage, the fire will have a neutral or beneficial effect on plant vigor and regeneration.

Sensitive Wildlife Species :

Several sensitive wildlife species are potentially present within the fire perimeter, including San Diego Horned Lizard, Red Diamondback Rattlesnake, San Diego Mountain Kingsnake, and Coastal Rosy Boa. These species are generally resilient to fire and most live in burrows or underground where they may have been sheltered from the fire.

Vegetation Recovery :

The Silverado Fire burned mostly through chaparral habitat. The dominant shrub species include California Sagebrush (*Artemisia californica*), Buckwheat (*Eriogonum fasciculatum*), Chamise (*Adenostoma fasciculata*), Manzanita (*Arctostaphylos glauca*, *A. greggii*), and Scrub Oak (*Quercus berberidifolia*). The primary vegetation types within the fire area are chamise chaparral, mixed montane chaparral, and coastal sage scrub with a small amount of coast live oak/sycamore riparian woodland. The following table shows the types of vegetation burned in the fire. Private lands were not included in the vegetation analysis as they were less than 3% of the burned area.

Vegetation Type	Acres
Buckwheat	51
California Sagebrush	125
Canyon Live Oak	11
Chamise	334
Coast Live Oak	22
Lower Montane Mixed Chaparral	386
Scrub Oak	6

These plant communities recover quickly after fire. Chaparral shrubs, forbs, and grasses are well adapted to regenerate rapidly after fire through seed germination and/or re-sprouting (Keeley, 1977). Fire usually kills any seed on the ground surface. However, buried seed and bulbs remain insulated from extreme temperatures. Some seeds, especially those of ceanothus, manzanita, and fire-following herbs, only germinate after fire. California chaparral has numerous species which are obligate seeders after fire. Some of these species can endure fire-free intervals of more than 100 years (Keeley, 1976). The seeds of these species only germinate when soil heating and/or certain unique chemicals in the leachate

of charred wood break the seed coat dormancy.

Moreno and Oechel (1991) investigated the effect of fire intensity on the germination of shrubs and herbs in chaparral. They piled various amounts of brush onto different plots to achieve different intensities. More severe burn severity favored germination of cupleaf ceanothus, but resulted in decreased germination of chamise. Additionally, germination of fire-following herbs such as *Phacelia brachyloba*, increased with greater burn intensity. Deerweed (*Lotus strigosus*) germinated equally well at all levels of burn intensity.

Based on the above information, the probability that the vegetation will recover rapidly, without any treatment, is high. Additionally, natural re-vegetation of plants and deposition of litter on the soil surface is expected to reduce overland flow and erosion by providing live vegetation canopy and litter cover.

The above information was derived from the Fire Effects Information System (FEIS, 2014) except where otherwise noted.

Effects of Seeding in Relation to Vegetation Recovery

Due to the steep and rocky nature of the slopes in the burned area, seeding of the slopes is unlikely to be an effective treatment for maintaining slope stability. In the event that a seeding treatment is selected, adverse effects on the recovery of native vegetation are to be expected. In a review of existing studies on seeding, few studies demonstrate statistically significant decreases in sediment movement (Beyers, 2004). In addition, seeding rarely provides any effective cover the first year after the fire. This is especially true in areas of low rainfall and poor soils.

Values at Risk :

Sensitive Wildlife, Plants and Vegetation recovery – These resources are threatened by OHV activity due to loss of the wooden barriers and the loss of chaparral that was a natural barrier to OHV activity. There is an extremely high risk of unauthorized OHV activity following the fire. Unauthorized OHV activity will greatly disturb the natural landscape, visual quality, recreational opportunity expectations of forest users, and the ability of the vegetation to regenerate. Past experience shows administrative closures are ineffective in preventing unauthorized OHV activity. The Silverado Fire is adjacent to highly urbanized areas with an extremely large number of OHV users in the area. Physical barriers plus signage and OHV regulation enforcement by patrol personnel are the only proven effective methods of reducing unauthorized OHV activity.

II. Emergency Determination –

For Arroyo Toad no emergency is expected. Although effects on habitat are very likely, the expected magnitude of the effects is low as this species is resilient to fire.

Emergencies exist for the following Values at Risk:

Sensitive Species and Vegetation Recovery

The fire burned wood barriers and natural barriers created by chaparral. This exposed areas to potential OHV activity along North Main Divide and other roads. Gates and barriers will be needed to prevent unauthorized OHV use in the burned area. The sensitive plant and animal species are generally resilient to fire; however sensitive plants and wildlife are vulnerable to OHV activity that is likely to occur due to loss of existing wood barriers and areas that are newly opened up by the fire. For vegetation recovery and sensitive plants and wildlife, the expected effects on habitat are very likely and the magnitude of effects is moderate to major, as OHV activity within the burn area could kill or remove sensitive plants and preclude vegetation recovery.

III. Treatments to Mitigate the Emergency

A. Treatment Type (including monitoring if applicable)

To protect recovering vegetation and sensitive plants and wildlife, treatment is to install two gates and 150 feet of barriers along North Main Divide ; this will allow the forest to implement effective closures to protect habitat from OHV activity.

B. Treatment Objective

Gates and Barriers, Signs and Patrols to close the burned area. This will protect recovering vegetation and sensitive plants and wildlife from OHV activity

C. Treatment Description

Approximately 150 feet of pipe-rail barrier and two gates would be installed to protect sensitive plants, wildlife, and vegetation recovery. Closure signs are needed to inform visitors of the closure areas. In addition, storm patrols would be needed to maintain the closure and address excessive sediment deposited on roads.

D. Treatment Cost

Item	Unit Cost	Units	Total
Two gates	5,000	2	\$10,000
Barrier	50/lf	150	\$7500
Closure signs for roads and trails	500/ea	10	\$5000
Contracting Officers Rep	500/day	5	\$2500
Storm patrols for closure area	500/ea	20	\$10,000
Equipment costs for clearing road	1500/day	10	\$15,000
Total			\$50,000

IV. References

Beyers , J.L. 2004. Postfire seeding for erosion control: effectiveness and impacts on native plant communities, *Conservation Biology* 18 (4), 947-956.

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