

# **Caples Ecological Restoration Project**

March 19, 2015

The Caples Creek 6th field watershed is located 30 miles east of Placerville California and encompasses portions of Alpine, Amador and El Dorado counties. It is more than 20,000 acres in size and primarily managed by the Eldorado National Forest (ENF). The watershed elevation ranges from approximately 5,800 feet in elevation to 10,080 feet at the highest peak. With this vast range in elevation, there too are significant changes in vegetation type predominantly composed of Sierran mixed conifer, red fir and subalpine and interlaced with meadows, lakes and barren rock. This watershed is the primary water supply for more than 110,000 people and businesses that rely upon El Dorado Irrigation District for water; and provides high quality back country recreation and fisheries in an area recommended for wilderness designation. The ENF identified the Caples Creek watershed as a priority watershed targeted for restorative actions. The three main actions associated with the restoration of the watershed are the gradual reintroduction of fire, management of fire-adapted ecosystems and meadow restoration.

## **Purpose and Need**

Fire suppression over the past century has resulted in fuel accumulation, decreased forest health and resilience in the Caples Creek watershed. Heavy fuel loading is a concern where historic (pre 1900) fire return intervals were 11 years in mixed conifer, 40 years in red fir and 133 years in subalpine forests with generally low to mixed severity. Due to active fire suppression, the area has not experienced any active fire since 1916, despite numerous natural ignitions by lightning that were quickly extinguished.

Departure from historic fire return intervals is observed in the Caples Creek watershed where mixed conifer is the dominant vegetation type; while the areas dominated by higher elevation conifers (subalpine) is less departed because these areas tend to have a longer time period between fires.

This lengthening of fire return intervals has led to significant increases in fuel loading, tree density, canopy cover, and snag density as well as shifts in species composition and reduced regeneration particularly of desirable deciduous and hardwood trees and reduced shrub cover. These conditions have greatly increased the risk of high intensity wildfires that could have significant effects on water quality during a post-fire recovery period.

Meadows in the watershed are dominated with healthy riparian vegetation, but several have been heavily impacted by past and present activities such as grazing, fire exclusion, and unauthorized trails. These disturbances have compromised the condition of some aspen stands, meadows and streamside corridors. Multiple

locations in the Caples Creek watershed have been identified where aspen are currently declining due to conifer encroachment, shading and competition. Conifer encroachment, fire suppression, and livestock/wildlife browsing have resulted in an overall decline in the health of these deciduous stands. Aspen is shade intolerant, needs full sunlight for successful establishment and growth, and needs fire to stimulate regeneration through sprouting. Aspen are being shaded out by conifer encroachment throughout the northern Sierra Nevada, and the aspen clones in the project area are also declining. This decline is observed in the Caples Creek watershed by overtopping of conifers, resulting in a lack of successful regeneration and declining stand health. Removing competing conifers to maximize sun exposure and reducing the insulating surface fuel layer to stimulate potential for sprouting to create conditions conducive to restoring or expanding these remnant clones of aspen have proven successful on aspen restoration projects elsewhere in California.

### **Proposed Action**

The proposal is to re-introduce fire as an ecological process through prescribed burning approximately 8,800 acres of the Caples Creek watershed using manual and aerial ignition methods. Multiple entries within a 15 year timeframe would be necessary to meet multiple resource objectives and would be prescribed based on monitoring results. Approximately 4,400 acres would be understory burning in the lower elevations. Burning within vegetative islands (separated by barren rock) would be done on approximately 4,200 acres in the higher elevations, red fire and subalpine vegetation types. (See map)

In preparation for prescribed burning, perimeter line construction would be needed where roads, trails, or natural barriers are absent. This may involve hand cutting of vegetation including trees up to 9-inches d.b.h., pruning, and scraping a bare soil line. Within the Inventoried Roadless Area (IRA) and Caples recommended wilderness area, line construction would be implemented with “light on the land” concepts and restoration would be done, as needed. Line construction with a D-6 or smaller dozer may be used outside the IRA and Caples recommended wilderness. Handline construction within the project area may be needed during pile burning, understory burning or to protect certain wildlife habitat structures and forest infrastructure such as bridges, trail markers and “at risk” historic properties.

Where fuel loading would have adverse fire effects, pockets of continuous ladder fuels and dense fuel loading would be hand cut, piled and burned prior to understory prescribed burning. Measures (such as raking forest litter accumulations) would be taken to protect the largest and oldest trees to the extent practical.

### ***Aspen Restoration***

Aspen restoration activities would occur on approximately 25 acres within and surrounding (within 150 feet) existing aspen stands. Conifers less than 9” d.b.h would

be felled, while conifers 9" to 30" d.b.h. may be girdled. The falling would be done with chainsaws and handtools. Conifers would be limbed and material 8" and below would be piled and burned or lopped and scattered. The larger material, boles primarily, would be left in place to provide woody debris. There would be no removal of timber from the Caples recommended wilderness area as part of this project. If monitoring indicates unacceptable levels of browse on new sprouts, construct temporary fencing around aspen treatment areas as needed to prevent damage to young aspen sprouts from browsing animals. Fencing would use native materials and be located to minimize visual impacts for forest visitors.

### ***Meadow Restoration***

Meadow restoration activities would occur on approximately 25 acres (some of which overlaps with aspen stands) within and surrounding existing meadows. Conifers (the majority of which are lodgepole pine) from seedling size to pole size trees up to 9" d.b.h. would be felled, while conifers 9" to 30" d.b.h. may be girdled. The falling would be done with chainsaws and handtools. Conifers would be limbed and material 8" and below would be lopped and scattered or piled and burned. Pile burning would not occur within the meadow interior. The larger material, boles primarily, would be left in place to provide woody debris.

Reroute approximately a half mile of the existing hiking trail that crosses through Jake Schneider Meadow to the north side of the meadow along the tree line. (See map)

## **Design Criteria**

Smoke emissions would be minimized by following Best Available Control Measures (BACM). A smoke permit administered by El Dorado County Air Quality Management District would accompany burn plans.

To reduce impact to natural resources during prescribed burn implementation, where possible Minimum Impact Suppression Tactics (MIST) would be followed when determining where and what containment lines are necessary. The intent of MIST is to manage fire with the least impact to natural and cultural resources. Fire fighter safety, fire conditions and good judgment would dictate actions taken. Any adverse impacts or visual impacts near trails would be mitigated after burning.

Understory prescribed burning within American Marten, California Spotted Owl and Northern Goshawk habitat: prescriptions would be designed to result in a 5% reduction or less in canopy cover, averaged over the treatment unit. Snags (15" d.b.h. and greater) would not be targeted for active lighting. Prior to ignition, current fuel conditions surrounding trees > 30" d.b.h. would be assessed to determine need for pre-treatment or exclusion from burning. Where mortality of dominant and co-dominant trees greater than 30"d.b.h. is expected to exceed 5% then the habitat would be excluded from burning or measures taken to prevent the mortality by raking

around the base of trees and/or cutting and pile burning of latter fuels and/or larger material.

Prescribed burn prescriptions would attempt to limit high mortality burn patches (greater than 80% dominant and co-dominant conifer of existing or projected mortality resulting from burning) to less than 10 acres.

Ground based equipment or mechanical (dozer) line construction would be excluded within 25 m (82 ft.) of perennial and intermittent streams, meadows, or lakes / ponds within the project area. Perimeter lines will not be constructed in riparian vegetation or through meadows. No riparian vegetation would be cut during project activities.

To minimize direct impacts to Sierra Nevada Yellow Legged Frog (SNYLF), fire crews would avoid lighting piles located within 25 m (82 ft.) of perennial and intermittent streams, meadows, or lakes and ponds, unless occurring within designated aspen or meadow restoration areas. Where igniting piles within the aspen and meadow restoration areas, ignite only one side, not to exceed half the circumference of the pile, on the side furthest from the nearest aquatic feature.

During understory prescribed burning, active ignition within meadows or within or immediately adjacent to riparian vegetation would not occur, except if needed to maintain control of the fire. Fire would be allowed to back into meadow and riparian vegetation. To protect existing coarse woody debris (CWD) in upland habitats and large woody debris (LWD) in aquatic habitats, down logs that lie in or across all stream channel types or within 25 m (82 feet) of perennial and intermittent streams would not be intentionally ignited.

The botanist and archaeologist would be consulted on the location of staging areas, including campsites and pack stock holding areas to avoid impacts to sensitive plants and cultural resources.