

**Fourmile Fuels Reduction Project**  
**Silvicultural Prescription**

USDA Forest Service  
Pagosa Ranger District, San Juan National Forest  
Archuleta County, Colorado

**Prepared by:** Craig K. Sullivan, Certified Silviculturist, Headwaters Timber Zone.

**Location:** Township 36 North, Range 2 West, Sections 7, 8, 9, 12, 13, 15, 16, 17, 18, 20 and 21.  
Archuleta County, Colorado.

**NEPA Document:** Categorical Exclusion. Decision Memo signed 03/24/2008.

**Purpose and Need:** The Fourmile Fuels Reduction project was initiated under the direction of the National Fire Plan and the Healthy Forest Restoration Act. The purpose of this project is to decrease fuel continuity within the Project Area in order to change potential wildland and prescribed fire behavior to reduce the risk to adjacent private lands and reduce the risk of loss of key ecosystem components. Since the forest and shrub ecosystems within the Project Area are outside of the historical range of variation as a result of past management and fire exclusion, there is a need to mechanically alter fuel loading and structure. This area is within the Wildland Urban Interface and a municipal watershed and is at high risk of high intensity crown fire potentially leading to increased runoff and erosion, affecting the municipal water supply.

**Project Objectives:**

1. Modify the fuel load and fuel profile to change fire intensity and rate of spread.  
Specifically:
  - a. Reduce crown bulk density in order to reduce crown fire spread in Gambel oak.
  - b. Reduce average crown base heights and remove ladder fuels in order to lessen the probability of crown fire initiation within pine or dry warm mixed conifer cover types.
  - c. Move and/or modify fuels from the canopy to more compact surface fuels (chips).
2. Reduce risk of fire spread and insect caused mortality in the Wildland Urban Interface and municipal watersheds.
3. Begin to restore ponderosa stands by removing white fir and Douglas-fir and thinning the small dense ponderosa pine.
4. Create conditions that allow for re-introduction of fire into the ecosystem.

**Treatment Units:** Seven units have been identified for treatment that fall under a task order administered under the Long Term Stewardship Contract (LTSC). These units include Unit 4, 5, 6A, 6B, 6C, 6D and 6E.

**Management Area:** The Treatment Units are mostly in Management Area 7E – emphasis on wood fiber production and utilization with some overlap in Management Areas 6B – emphasize on livestock grazing, and 4B – emphasis on habitat for management indicator species. The proposed treatment units are not within any *Colorado Roadless Areas*. The treatments to be implemented by this Decision Memo are consistent with the management guidelines and direction of the San Juan National Forest Land and Resource Management Plan, 1983, amended 1992. The following standards and guidelines apply:

1. Protect and/or provide 20 snags per 10 acres in all forested types. Also provide for snag replacement.
2. Control understory Gambel oak vegetation to favor tree species in stands on slopes less than 30% at 10-year intervals starting at age 30.

### **Description of Stands**

**Vegetation Type:** All units are predominantly ponderosa pine/Gambel oak (PIPO/QUGA) cover type with pockets/stringers of Douglas-fir (PSME), white fir (ABCO), aspen(POTR) and Rocky Mountain Juniper (JUSC) encroaching into the treatment units from the north facing slopes/drainages.

**Stand Exam Data:** No stand exam data was available. Multiple reconnaissance trips were made to quantify stand conditions.

**Past Activities:** The majority of the area within the treatment units was logged in the 1970's. Some isolated fingers of vegetation showed no logging activity. Approximately 30 to 50% of the overstory was removed. The area was also probably heavily used for firewood gathering which removed many of the standing snags and pole sized timber. Other uses include hunting, hiking, etc.

**Current Condition/Structure:** Units identified for treatment are predominantly ponderosa pine stands transitioning into the mixed conifer zone (warm dry mixed conifer). Historically, most units were probably dominated by large diameter trees that were exposed to a fire regime of frequent, low intensity fires. Management and environmental factors such as grazing, logging, climate, etc., have changed the structure of the stands resulting in an increase in small diameter trees (less than 18" dbh) and a decrease in larger diameter trees (over 23 " dbh). The understory throughout all units consists of 5 to 25 ft tall Gambel oak which represents 60 to 70% of the canopy cover. Topography across the majority of the project area is relatively flat with some shallow draws and gentle slopes (5 to 10%). There are portions of some units, particularly Unit 6E, that include moderate slopes (up to 35%) bearing off of, or between, gentle slopes or benches.

**Fire (Fire Regime Condition Class):** The entire area is Condition Class 3. It is within Fire Regime Group I, characterized by low intensity, high frequency fires. The area has missed

numerous fire return intervals and the forest structure has been significantly altered by past harvest activities. It is at high risk of loss of key ecosystem components as a result of disturbance outside the range of historic variation. Overall fire potential is high with moderate to high difficulty of control.

**Watershed:** The project area partially lies within a municipal watershed that serves the Pagosa Area Water and Sanitation District (PAWSD). The Dutton Pipeline, which carries municipal water from Fourmile Creek to Stevens and Hatcher Reservoirs, runs through Unit 6E. The Dutton Ditch also runs through Unit 6. PAWSD constructed the pipeline around 2005 and diverted its authorized water into the pipeline, out of the ditch. The pipeline enters the project area at the northern tip of Unit 6, buried in the cut slope of the Plumtaw Road, then crosses the road and is buried beneath NFSR 634H, exiting the project area on the western edge of Unit 9. The ditch is still used by private landowners to the south of the project area. Both water transport structures are used during part of the year, mostly late fall through spring). The District Hydrologist has determined based on past experience with similar projects, in similar vegetation types, that there would be no negative impacts (i.e., increased erosion, or adverse effects to water quantity or quality) to this watershed. It is predicted that the proposed project will benefit municipal watershed values in the event of a wildfire event by significantly reducing the amount of watershed impacts that typically follow large scale wildfires.

**Soils:** Minimize soil erosion. Leave adequate vegetation to minimize impacts to Dutton Ditch and any perennial water drainages within the project area. In particular, no trees should be designated for removal that may provide stability to the banks on either side of Dutton Ditch.

**Archeology:** In compliance with Sec. 106 of the National Historic Preservation Act a heritage resource inventory and archeology survey have been conducted within the treatment units of the Fourmile Fuels Reduction Project. No sites were found.

**Plants:** There is no habitat present in the Project Area for threatened or endangered species. The project record documents that the proposed action will have **no effect** on any federally listed threatened or endangered species.

**Wildlife:** A Wildlife Review was conducted and the analysis determined that the proposed project will not contribute to, or involve any extraordinary circumstances that would affect the viability of any San Juan National Forest Management Indicator Species, U.S Fish and Wildlife Service Birds of Conservation Concern for the Colorado Plateau/Southern Rockies Geographic Area, or birds listed in the Colorado Partners in Flight Bird Conservation Plan for the Southern Rocky Mountains. The Forest Plan provides for viability, in part by providing 4b Management Areas well distributed across the forest to ensure protection of MIS habitat.

**Noxious Weeds:** Pre-treatment of noxious weeds will be administered before project implementation if needed. All equipment brought into the project area will be cleaned and inspected prior to operating. Follow up treatment of noxious weeds will be administered as needed. Musk thistle (*Carduus nutans*) and Yellow Toadflax (*Linaria vulgaris*) was observed along the road that dissects Unit 6E, and along Dutton Ditch and in some of the grassy openings.

**Silviculture:** The immediate objective of this treatment is reduction of fire hazard through treatments that favorably alter forest stand structure, composition, and density. Accomplishment of long-term forest restoration objectives will enhance the desired fuel reduction, create more favorable and manageable fire regimes, and improve overall forest health and sustainability. These restoration objectives include developing a multi-aged structure, a more clumpy distribution, reducing insect and disease risk, creating openings for future regeneration and stand structure diversity, reducing size and extent of Gambel oak occurring beneath overstory ponderosa pine, and increasing diversity and density of understory grass/forb vegetation.

### **Desired Conditions**

Ponderosa pine forest restoration principles include: retention of all pre-settlement trees; emphasis on removal of smaller, highly defective trees; variable density spacing of residual trees; creation, expansion, or maintenance of existing canopy openings; increasing clumpiness of the residual forest trees; application of prescribed fire to reduce activity and natural fuel accumulations, manage Gambel oak, reduce duff and litter layers, recycle nutrients, and encourage establishment and growth of herbaceous understory vegetation. All treatment areas should be prescribed burned within 3-5 years of treatment to manage re-growth of the oak and/or to re-establish desirable fire effects into these stands.

### **Ponderosa Pine Stand Structure**

- Stand composition, structure and density are more closely aligned with those found under pre-settlement conditions, such as;
  - Large, yellowbark trees are abundantly represented.
  - Sufficient cohorts are represented to provide good age/size class diversity to sustain the stand. Seedlings, saplings, poles, and medium sized/aged trees are all found throughout the forest in sufficient numbers to ensure replacement of the dominant yellowbark element.
  - An “open” forest condition promotes diversity of grassy and herbaceous ground cover.
  - The forest retains its characteristic clumpiness.
- There is less competition between trees, resulting in decreased stress and increased vigor and resilience.
- Understory encroachment of Rocky Mountain juniper and white fir is controlled.
- There is little competition-induced mortality, particularly in larger, older trees.
- The risk of epidemic insect attack, disease infection, and animal damage is low.

**Prescribed Treatment:**

- Cut all post-settlement Rocky mountain juniper Less than 14 inches DRC (diameter at root collar)
- Cut all white fir trees less than 10 inches DBH.
- Cut majority of Douglas-fir trees less than 10 inches DBH (Dependent on what is available on site).
- Cut ponderosa pine, Douglas-fir, and white fir tree less than 18 inches DBH to a desired basal area of 50 to 70 sq.ft of basal area per acre. Preferred species to cut would be white fir that are suppressed, damaged, diseased, and/or impeding the growth and vigor of desirable overstory trees.
- Rx burn 60 to 80% of Gambel oak and all activity fuels.