

Amador County Fire Hazard Reduction Plan

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EXECUTIVE SUMMARY

Problem Overview

Amador County, like most Sierra Nevada counties, is at very high risk of experiencing catastrophic wildfires. Many areas in the county are rural, or in the wildland/urban interface, and have high levels of fuel loadings due to aggressive fire suppression activities over the past 50 years by state and federal agencies. These high fuel loads have increased the potential for large catastrophic wildfires that could destroy millions of dollars of private and public property if they were to occur. The problem of fuel loading continues to grow with each passing year as chaparral and forest stands become more dense and as fire suppression continues to exclude fire from the natural ecosystem. This problem has been substantially increased by the rapid population growth and residential building in the County's Wildland Urban Interface (WUI) areas. The Amador County Fire Hazard Reduction Plan (Fire Plan) was developed to provide the Amador Fire Safe Council (AFSC) a foundation for justifying and prioritizing future fuel reduction projects.

Process Overview

Recognizing the urgent need for a countywide fire hazard reduction plan, the Amador Fire Safe Council applied for a United States Forest Service planning grant, funded by the National Fire Plan, to fund its development. The one-year grant was approved in June 2003. EIP Associates was contracted by the Amador Fire Safe Council to prepare the Fire Plan with monthly oversight reviews conducted by the AFSC Fire Hazard Reduction Committee.

Objective and Goals

The objective of the Amador County Fire Hazard Reduction Plan is to provide the Amador Fire Safe Council a foundation to identify, prioritize, and link fuel modification treatment areas in order to create a Fire Safe community. The Fire Plan was prepared under the following guidelines:

- The Fire Plan would be a “high level” or “Landscape” document, requiring detailed field review and project planning by professional fire management personnel or a Registered Professional Forester (if necessary), before the implementation of any of the proposed fuel reduction projects. This detailed project planning would address specific locations, treatments, and prescriptions.
- The Fire Plan would be a working document that would be periodically updated as additional information became available and as detailed planning progressed.
- The Fire Plan would focus on the “lower” eight administration units based on the assumption that the Up-Country Administration Unit was currently managed by professional fire management personnel (USFS/SPI).

- The Fire Plan would prioritize proposed fuel reduction projects by administrative unit to facilitate countywide distribution of project work resulting from community interest and participation.
- The Fire Plan would provide a handy source of fire-related background information about Amador County that would be useful to the AFSC in preparing grants and other documents.

Based on the Fire Plan’s objective and guidelines, the following major goals were proposed by EIP Associates:

- Identify and prioritize the most critical fuel reduction projects.
- Provide the AFSC with planning and background information to obtain grants and secure funds for future fuel reduction projects or other project work.
- Provide a summary of alternatives that are currently feasible to reduce fuels.
- Create a Property Owners Fire Information package that is suitable for reproduction and dissemination.

Methodology

The methodology used in the development of the Fire Plan consisted of five steps:

1. Collect available fire hazard and related information, in digital GIS format where possible, including information on fuel types, topography, population centers and fire history;
2. Locate existing fuel reduction projects within the county;
3. Obtain input from stakeholders, particularly those with fire protection responsibilities;
4. Assess information and prepare fuel load mitigation project recommendations; and
5. Prepare a Vegetative Fuels Treatment & Utilization report and a Property Owners Fire Information package as appendices to the Fire Plan.

The Fire Plan was developed using the current fire management data obtained from the California Department of Forestry and Fire Protection (CDF), the U.S. Forest Service (USFS), AFSC, the CDF’s Fire & Resource Assessment Program (FRAP) and other public and private parties. Recommended fuel reduction project locations were derived from a combination of analyses using existing geographic information related to fire and also from consultations with experienced fire professionals in the CDF, USFS and County fire departments and fire districts.

Fire Risk Mitigation Strategy Summary

Several locations within each of the eight “lower” administrative units were identified for future fuel reduction and fuelbreak development. Fuelbreak locations were identified through analysis of many factors including, but not limited to, fuel types, topography, elevation, aspect, fuel rank, fire threat, and watershed boundaries. Many of these fuelbreaks are located along roads that provide access into and out of small unincorporated neighborhoods in the County. By reducing fuels along access roads, evacuation routes are less likely to become impassible during fire events. Other potential fuelbreaks were located along several of the major ridgelines, and in areas with high concentrations of dangerous fuels. The top priority fuelbreak locations were identified with assistance from CDF.

Future fuelbreak development will be governed by a variety of factors including:

- Funding source and availability;
- Community participation;
- Changes in fuel conditions due to fire or vegetative growth; and
- The location of other state or federal agency fuel reduction projects.

Each of these factors will play an important part in determining the location and timing for future fuelbreak development. This Fire Plan should be considered a working document that will evolve over time and be reviewed and updated as fuel conditions change and as fuel reduction projects are completed.

Acknowledgements

We are particularly thankful for the help and support of the following organizations in preparing this Fire Plan:

- Amador Fire Safe Council
- California Department of Forestry & Fire Protection, Amador/Eldorado Unit
- California Department of Forestry & Fire Protection, FRAP
- United States Forest Service, Amador District/Eldorado National Forest
- Amador Fire Protection District
- Amador County Planning Department
- Amador County Assessor's Office
- Sierra Pacific Industries (SPI)
- Pacific Gas & Electric Company (PG&E)
- Central Sierra Resource Conservation & Development District
- Bureau of Land Management

1. INTRODUCTION

1.1 Background

The AFSC began meeting in the fall of 2001 as a small group of homeowners and agency personnel who were concerned about fire hazard reduction and safety in the central Sierra foothill county of Amador. In 2002, the AFSC was formed into a non-profit corporation based on partnerships between public and private interests. The mission statement of the AFSC was established “to protect the people of Amador County and their property from the effects of catastrophic wildfire through education, cooperation, motivation, and action.” This mission was to be accomplished through strong public and private partnerships and cooperation focusing on public education, wildland fuel reduction, and community fire hazard reduction projects and programs. Initial accomplishments by the AFSC focused on increasing public awareness of the fire risks and risk reduction methods using printed materials, public meetings and demonstration projects. Community help projects were also implemented such as a Senior Citizen Assistance Program, Community Chipper Program and the development of a Community Evacuation Plan preparation kit. In order to proceed into more extensive fuel modification work, it was determined by the AFSC that the development of a fuels management plan was needed to help identify, prioritize and coordinate future fuel and fire hazard reduction programs. In June 2003, the AFSC was awarded a Community Bio-Mass Regeneration Planning Grant from the Forest Service, through the National Fire Plan, to produce this Amador County Fire Hazard Reduction Plan.

1.2 Fire Plan Development

This Fire Plan was developed using the Basic Fire Plan Template Outline (Template) as a guide. This Template was designed by the California Fire Plan Workgroup, an effort of the California Fire Alliance and the California Fire Safe Council, to create fire hazard mitigation plans that meet Federal Emergency Management Agency’s (FEMA) compliance criteria for the Disaster Mitigation Act (DMA) 2000 and State and National Fire Plans. The Template was adjusted to better address the specific purposes and scope of this Fire Plan, and also includes two appendices covering localized information on the current state of bio-mass treatments and utilization, and a property owner Fire Safe information package.

1.3 Purpose & Scope

This Fire Plan has been prepared with the purpose of identifying high priority fuel reduction projects which will be undertaken by the AFSC during the next five years and to provide the basic information needed to establish priorities. The scope of this Fire Plan is county-wide and covers approximately 600 square miles. Though detailed planning at the community level is not

part of this Fire Plan, the AFSC will develop community plans to address individual fuel reduction projects as funding becomes available.

2. PLAN AREA DESCRIPTION & COMMUNITY ASSESSMENT

2.1 Geographic and Environmental Conditions

Amador County is located in the western foothills of the Sierra Nevada Mountains of California and occupies approximately 600 square miles (Figure 1). The terrain ranges from gently rolling hills in the west to rugged mountain terrain in the east. The north-south orientation of the Sierra Nevada mountain range, which is nearly perpendicular to the direction of seasonal storms, creates climatic variations that are primarily driven by changes in elevation. Elevations in Amador County range from less than 500 feet in the west to over 9,000 feet in the east. At the lower elevations, the climate is characterized by hot dry summers with annual precipitation averaging 20 inches or less. In the eastern portion of the County, summer temperatures are generally moderate, with lower average summer temperatures as you increase in elevation. Rainfall and snow remain concentrated in the winter months with annual precipitation averaging 75 inches or more at the higher elevations. These patterns of precipitation and temperature result in four broadly defined vegetation and climatic zones: Grasslands; Oakwoodlands; Mixed Conifer Forests; and Sub-alpine and Alpine Forest.

Grassland

The west side of the County is adjacent to the great Central Valley of California where grasslands, and Oak woodlands dominate the landscape. Elevations range from approximately 300 feet to 1,000 feet above sea level. The area experiences characteristically hot, dry summers and cool moist winters. During the summer months the annual grasslands on the valley floor and in the foothill areas become large fields of dead vegetative fuels that are prone to wildfire. Chaparral vegetation in this region is relatively old (>40 years) and mostly “decadent” with concentrations of dead materials that will burn readily during the summer, given an ignition source and some winds.

Oak Woodlands

At slightly higher elevations annual rainfall amounts increase and the annual grasslands become interspersed with oak woodland and pine forests. This climatic zone, while experiencing greater precipitation, is also noted for hot dry summers and cool moist winters. Elevations range from approximately 1,000 feet to 2,300 feet. Thick hardwood stands in this region are highly susceptible to wildfire during the summer months.

Mixed-conifer Forests

Mixed-conifer forests dominate the mid-elevation region of the County from about 2,300 feet to 6,500 feet. This area experiences more winter precipitation than the areas to the west, and receives snow during the winter in higher elevations. Thick stands of Douglas-fir, white fir and

ponderosa pine in this region are susceptible to large stand replacement fire due to the overcrowding of trees and the amount of dead standing material associated with these types of forest stands.

Sub-alpine/Alpine Forests

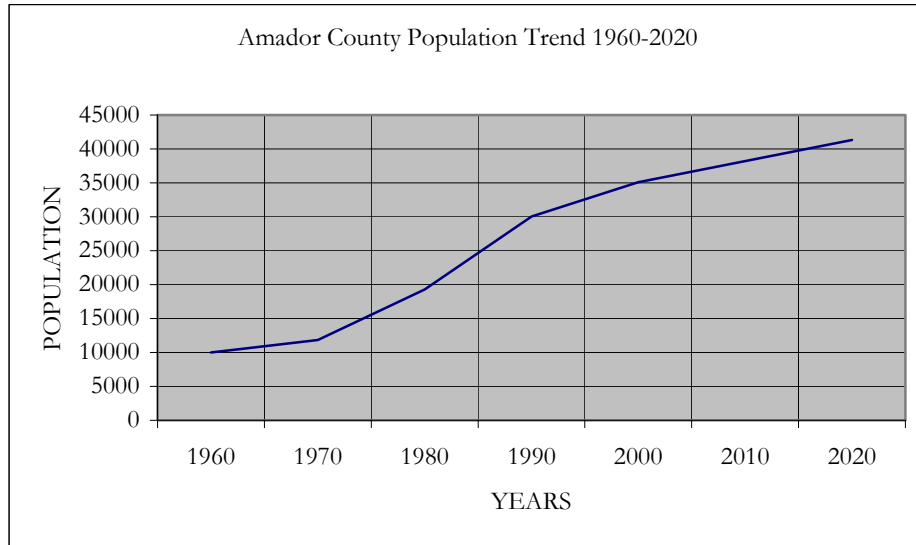
At the highest elevations, red fir and lodgepole pine forest form the primary tree cover. Large barren areas of exposed granite are scattered throughout this area. In this climatic zone, temperatures throughout the season are generally colder and most of the precipitation falls as snow. Concentrations of fuels occur in the montane chaparral and mixed conifer stands scattered throughout the region. Elevations in this region range from 6,500 feet to 9,100 feet above sea level.

2.2 Demographics

According to the 2000 Census data, Amador County’s population was approximately 35,100, an increase from the 1990 Census data of 5,000 new residents, or almost 17 percent. California’s population increased 13.6 percent for the same period, which was the largest increase of all fifty states. California’s 33.9 million residents make it the most populace State in the country. Within Amador County, the largest population centers are found in the cities of Ione with 7,129 residents, Jackson with 3,989 residents and Sutter Creek with 2,303 residents. Amador County’s population is expected to reach 41,300 by the year 2020, an increase of close to 18 percent over the current population. The population projections presented below are from the County Snapshot produced by the California EDD; the source for all other data is the California Department of Finance, Demographics Research Unit.

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Amador City	200	200	200	200	200	210	210	210	196
Ione	7025	7075	7050	7000	7100	7125	6900	7150	7129
Jackson	3660	3710	3770	3720	3730	3740	3780	3830	3989
Plymouth	820	810	820	800	800	800	800	810	980
Sutter Creek	1870	1920	1960	1970	1970	2000	2030	2060	2303
Unicorp. Areas	17900	18250	18600	18800	19000	19300	19550	20000	20503
Total Population	31475	31965	32400	32490	32800	33175	33270	34060	35100

Source: California EDD



Source: California EDD

Graph 1 – Amador County Population Trend 1960-2020

2.3 Land Use and Development Trends

Current land use and development in Amador County is shaped by customs and cultures, as defined in the Land Use Element of the General Plan and the Forest Reserve Act of 1891. The noted customs and cultures are mining, timber, agriculture, grazing, hunting, fishing, federal leaseholders, transportation, tourism, and watershed management. The Forest Reserve Act of 1891 created our national forests by authorizing the President of the United States to reserve timberlands on the public domain and prevent them from passing out of the possession of the Government. Today, the Eldorado National Forest covers about 22 percent of Amador County. Together, the customs and cultures and the establishment of the national forest land in Amador County provide the mold for today's land use and development trends.

Land Use	Acres	%
Urban & Suburban (Residential, Commercial & Manufacturing)	108,619	29
General Agriculture (<i>Williamson Act - 1 Resident/40 ac.</i>)	94,028	25
Other Agriculture (<i>EBMUD, JVID, Non-Williamson Act</i>)	43,582	11
Timber Production (<i>Non-USFS/BLM</i>)	29,524	8
Federal Lands (<i>USFS, BLM & Mokelumne Wilderness</i>)	100,328	27
Total County	376,081	100

Source: Amador County Planning Department files, September 2003.

In over 70 percent of the County, residential growth is either prohibited (e.g. federal lands), or limited to large acreages. However, the major development trend is toward greater densities of homes where development is permitted. This is being driven by many factors including Amador County's desirable climate and rural ambiance, proximity to major job markets, and

general population growth. The growth of residences is particularly noticeable in and around the incorporated cities and in the urban/forest intermix zone. The Amador County Development Policy states that “Future residential development will be encouraged to take place in the form of farms, ranches, and estates throughout the county or through expansion of existing towns and villages...” The increasing density of residences in the intermix zone is particularly important due to the extreme wildfire hazard in this area. Figure 2 shows the zoning districts within the unincorporated areas of the county.

2.4 Administration Units

The County was divided into nine administrative units for the purpose of developing locally usable detail and project development in the Fire Plan. Each of these Units encompasses a population center except Unit 9, which covers the largely unpopulated eastern end of the County (Figure 1). Table 3 lists the towns located in each unit.

Unit Name	Unit #	ZIP	Cities/Towns/Area
Plymouth	1	95669	Plymouth Shenandoah Valley
Ione	2	95640	Ione
Comanche	3	95640	Jackson Valley Lake Comanche
Jackson	4	95642 95654	Jackson Martell
Sutter/Amador	5	95685 95601	Sutter Creek Amador City
Fiddletown	6	95629	Fiddletown
Pine Grove	7	95665	Pine Grove
Pioneer/Volcano	8	95666 95689	Pioneer Volcano
Upcountry	9	95666	SPI Land USFS Land
Source: AFSC			

2.5 Stakeholders and Land Ownership Distribution

Stakeholders in the Fire Plan are defined as those individuals, agencies or business entities that could be directly impacted by a catastrophic wildfire. Figure 3 shows the landownership distribution within the County. Impacts to stakeholders could range from increased demands on administrative and fire fighting resources, to direct loss of life and assets. Stakeholder risks are summarized as follows:

Stakeholders	Primary Interests At Risk	Estimated Acres At Risk	Acreage (%)
USDA, Forest Service	Natural Resources & Recreation	78,000 ¹	21
USDI, Bureau of Land Management	Natural Resources & Recreation	8700 ²	2
Pacific Gas & Electric	Constructed Assets	1700 ³	0.5
Sierra Pacific Industries	Timber Resources	26,000 ⁴	7
State of California	Natural Resources, Recreation, & Constructed Assets	1,850 ³	0.5
County of Amador	Public Safety	All County	Not Applicable
California Department of Forestry & Fire Protection	Public Safety, Constructed Assets & Natural Resources	294,545 Acres SRA Lands ⁵	Not Applicable
East Bay Municipal Utility District	Water Quality	11,000 ⁶	3
Miscellaneous and Small Private Property & Business Owners	Personal Safety & Constructed Assets	248,831 ⁷	66
Total County		376,081⁶	100
Acreage Sources & Comments: 1. Judy Yandoh, Amador Ranger District, USFS 2. Based on 2% of county as listed in 1999-2000 Sierra Nevada Wealth Index & verified with BLM's Folsom Office 3. Estimate derived from Parcel Quest Program 4. Craig Ostergaard, Sierra Pacific Industries 5. State Responsibility Lands means areas of the County in which the financial responsibility of preventing and suppressing fires has been determined pursuant to PRC 4125, to be primarily the responsibility of the State. SRA land in Amador County comprises 294,545 acres. 6. Susan Grijalva, Amador County Planning Department 7. This is the residual value required to balance to total County acreage			

2.6 The Wildland Urban Interface & Communities At Risk

The wildland urban interface (WUI) is commonly described as the zone or area where structures and other human development meet and intermingle with undeveloped wildland or vegetative fuels. Wildfires in the WUI pose great risks to life, property, and infrastructure and is one of the most dangerous and complicated situations firefighters encounter. Because of the extensive distribution and quantities of wildland vegetation in Amador County, most of the County is considered to be in a WUI zone as shown on the map in Figure 4.

Both the *National Fire Plan* and the *Ten-Year Comprehensive Strategy for Reducing Wildland Fire Risks to Communities and the Environment* have placed a priority on working collaboratively within communities in the WUI. A major component of the National Fire Plan is funding for projects designed to reduce fire risks to people and their property. A fundamental step in realizing this goal is the identification of areas that are at high risk of damage from wildfire. Federal fire managers authorized State Foresters to determine which communities, adjacent to Federal lands, were exposed to a significant risk from wildland fire on Federal lands. The California Department of Forestry and Fire Protection undertook the task of generating the State's list of Communities at Risk. The CDF assessed all areas of the State regardless of ownership. Because of California's extensive WUI areas on private land, the State's list extends beyond those on Federal lands. Three main factors were used to determine wildland fire threat to WUI areas of California:

- Ranking Fuel Hazards (ranking vegetation types by their potential fire behavior during a wildfire).
- Assessing the Probability of Fire (the annual likelihood that a large damaging wildfire would occur in a particular vegetation type).

- Assessing Housing Density in WUP's (areas of intermingled wildland fuels and urban environments that are in the vicinity of fire threats).

The following communities have been identified by the State as Communities at Risk in Amador County:

TABLE 5		
COMMUNITIES-AT-RISK IN AMADOR COUNTY		
State List	Federal List	Hazard Level¹
Amador City	Yes	3
Fiddletown	Yes	3
Ione	No	3
Jackson	Yes	3
Pine Grove	Yes	3
Pioneer	Yes	3
Plymouth	Yes	3
River Pines	No	3
Volcano	Yes	3
Note: 1. Community's fire threat level with 3 indicating the highest threat.		

3. FIRE RISK ENVIRONMENT

3.1 Fire History

Prehistoric

Periodic wildfires are a natural phenomenon in Amador County and throughout the western United States. It is one of nature's ways of recycling nutrients, stimulating new growth and removing dead and unhealthy vegetation. For thousands of years, the Sierra Nevada ecosystem was shaped by periodic wildfires that burned unchecked through the foothills and mountain areas. Long before humans knew how to kindle a fire, wildfires of natural origin burned extensive areas in the Sierra Nevada mountain range. Giant redwoods bare fire scars that give testimony to forest fires over 1,000 years before the Europeans discovered America (Hartman 1964). The ecosystem evolved with tree and plant species that exhibited specific fire-adapted traits such as serotinous cones, thick bark and fire-stimulated flowering, sprouting, and germination. Some species found in the Sierra Nevada depend on periodic burning to maintain their vigor or dominance on a site and several species need fire in order to eliminate competitors that otherwise would crowd them out. During the summer months, with high air temperature, low relative humidity, frequent winds and little rain, conditions in the Sierra's are ideal for wildfires to ignite and spread.

Prior to European settlement, fire intervals were generally less than 20 years (McKelvey, K. et al. 1996) and averaged around eight to nine years (Whitney 1979). Most of the fires were ignited by lightning strikes. However, it is known that Native Americans commonly burned areas in order to create better hunting, food gathering, living conditions and basketry material (Anderson and Blackburn 1996). Miwok Indians in the foothills of the central Sierra typically burned off dry brush in August to prevent the buildup of fuels that could, if ignited, destroy the acorn oaks on which they depended (Johnson 1970) Many of the fires during this period were cool ground fires that consumed the underbrush and dead tree material.

Historic

The westward expansion of the United States and California gold rush resulted in changes in land use and the introduction of the resource extraction industry in Amador County. Mining, logging and grazing operations would change the face of Amador County forever. The discovery of gold in the western foothills and the resultant inrush of miners precipitated one of the most frenzied digging sprees in human history. This mass movement of humanity to the streams and mines in Amador County was accompanied by the cutting of timber for houses, for mines, and for fuel, and also accompanied by the introduction of cattle and sheep. Erosion was also a significant by-product of European settlement.

Fires were commonly used during this period to remove logging slash, prepare areas for development and to create more grass and rangeland for livestock. It was the habit of many herders to set fire to the undergrowth as they passed out of the mountain forest in the autumn en route to the valleys below, in order to ensure an abundant growth of tender sprouts on their return the following spring (Johnson, 1970). These frequent fires over the landscape, without effort of rapid suppression, caused catastrophic wildfires to be less common than we see today because the fuels were not allowed to accumulate.

What were these fire-pruned forests like in the 1800's? No one knew them better than John Muir as written in his book *The Mountains of California*,

The inviting openness of the Sierra woods is one of their most distinguishing characteristics. The trees of all of the species stand more or less apart in groves, or in small irregular groups, enabling one to find a way nearly everywhere, along sunny colonnades and through openings that have a smooth, park-like surface, strewn with brown needles and burs. One would experience but little difficulty in riding on horseback through the successive belts all the way up to the storm-beaten fringes of the icy peaks.

Recent History

Fire suppression policies of the 20th century have played a primary role in modifying many of the fire-type environments found today in the Sierra Nevada, and in creating the high tonnage of fuels now prevalent. Prior to the 20th century, vegetation fires were generally allowed to occur without significant suppression efforts and were often encouraged to help maintain open ground for hunting, forage and farming. Beginning in the early part of the 20th century the increasing presence of people and associated improvements in Amador County road and water supply infrastructure allowed fire suppression activities to become more common. The success of these fire suppression efforts eliminated most of the small periodic fires that previously maintained the ecosystems and resulted in the accumulation of highly flammable dry and dead vegetation with the potential to fuel catastrophic wildfires. Wildfires that occur today are more likely to be catastrophic and burn much larger areas than the wildfire of pre-European settlement times because of the massive amounts of fuels that have accumulated as a result of decades of fire suppression.

Figure 5 illustrates the recent fire history in Amador County. The information presented in the maps includes CDF administered fires 300 acres and greater in size, and USFS administered fires 10 acres and greater, that occurred from 1950 to 2002. Some fires that occurred before 1950 and some CDF fires smaller than 300 acres are also shown. In 2002, CDF's criteria expanded to include timber fires 10 acres and greater, brush fires 50 acres and greater, and grass fires 300 acres and greater, wildland fires destroying three or more structures, and wildland fires causing \$300,000 or more in damage. The following table, Table 6, shows the acres burned within Amador County and within each administrative unit.

Unit	Acres Burned
#1 - Plymouth	5,238
#2 - Ione	9,609
#3 - Comanche	4,529
#4 - Jackson	1,130
#5 - Sutter/Amador	2,2820
#6 - Fiddletown	5,540
#7 - Pine Grove	4,948
#8 - Pioneer/Volcano	9,927
#9 -Upcountry	20,445
Total Acres	84,186
Source: CDF(FRAP) 2003	

3.2 Overview of Amador County Fire Protection Organizations & Programs

Fire fighting responsibilities in Amador County are divided up into organizational entities composed of districts, departments and agencies. The areas within the County that each entity is responsible for are shown in Figure 6. These organizations are identified as follows:

Amador Fire Protection District

Responsible for emergency fire, rescue and medical aid service in 85% of the unincorporated area of the County. The District operates seven fire stations. The Amador Fire Protection District (AFPD) provides service to the communities and surrounding areas of Amador Pines, Pioneer, Pine Grove, Pine Acres, Volcano, Martell, Drytown, Willow Springs, Fiddletown, River Pines, and the City of Plymouth.

Ione City Fire Department

Primary responsibility is for the Ione City area. The Department operates one fire station.

Jackson City fire Department

Primary responsibility is for the Jackson City area. The Department operates two fire stations.

Jackson Valley Fire Protection District

Primary responsibility includes a large area in the southwest corner of Amador County lying north of Lake Comanche and northwest of Pardee Reservoir. The District operates two fire stations.

Lockwood Fire Protection District

Primary responsibility is an area along Shake Ridge Road, in north central Amador County, extending from Quartz Mountain Road to the CDF Fire Station at Dew Drop. The District operates two fire stations.

Plymouth Fire Protection District

This District is operated under contract with the Amador Fire Protection District. The District includes one fire station but it is leased for \$1.00 to AFD under a contract that provides service to the District.

Sutter Creek Fire Protection District

Primary responsibility includes the city of Sutter Creek and Amador City. The District operates three fire stations.

Kirkwood Meadows Fire Department

Primary responsibility is for the Kirkwood Resort area at the eastern end of the County. The Department operates one fire station.

California Department of Forestry & Fire Protection

Primary responsibility is for controlling wildland fires on 283,778 acres of State Responsibility Areas (SRA's) throughout the County (*Direct Protection Areas*) and fiscal responsibility for an additional 10,767 acres of SRA land which is directly protected by the USFS. The State Board of Forestry identifies SRA lands within the State, without regard to any ownership classification, for the purpose of determining areas in which the financial responsibility of preventing and suppressing wildland fires is primarily the responsibility of the State. The prevention and suppression of wildland fires in all areas not classified as SRA is primarily the responsibility of local or federal agencies (PRC 4125). Every 5 years, the CDF reissues maps identifying the boundaries of the SRA with any modifications approved by the Board of Forestry. The CDF operates four fire stations in Amador County and has substantial additional resources in neighboring counties including aerial resources. The California Youth Authority Camp (CYA) at Pine Grove, operated by the CDF, also provides significant hand crew support for fire fighting and prevention.

U.S. Forest Service

Primary area of responsibility is wildland fire (*not structural fires*) on federal land in the eastern portion of the County. The Eldorado National Forest operates one fire station during the season in Amador County cooperatively with CDF at the Dew Drop Fire Station and a second station, technically in El Dorado County, on the Highway 88 corridor at Lumberyard. The Forest Service has access to substantial fire fighting resources in the region. During the fire season, some fire fighting assets are deployed upcountry to the USFS's Lumberyard facility.

Mule Creek State Prison Fire Department

Primary area of responsibility is on the prison property, however, the department often responds to incidents in the vicinity of the prison as needed. The Department has one fire station.

Because wildland fires ignore civil boundaries, it is necessary that cities, counties, special districts, state agencies and federal agencies work together to mitigate the adverse impacts of wildfires. All Amador County fire fighting organizations are coordinated through automatic and mutual aid agreements to assist each other as needed and are dispatched by the Amador/El Dorado Emergency Command Center (ECC) in Camino in El Dorado County according to a Standard Response Plan (SRP). The ECC will dispatch fire engines, other equipment, and personnel from the closest resources available to fill the requirements of the SRP regardless of jurisdiction. All of the fire fighting personnel in the fire districts and community fire departments are volunteers and most serve without compensation.

TABLE 7

FIRE STATIONS IN AMADOR COUNTY

Manning	Department Name	Station #	Address	City	Comments
Volunteer	Amador Fire Protection District	Station 111	26517 Meadow Drive	Pioneer	Type 3 Engine/1500 gal Water Tender
Volunteer	Amador Fire Protection District	Station 112	23770 Van de Hei Ranch Rd.	Pioneer	Type 2 Engine (750 gal) & 3500 gal Water Tender
Volunteer	Amador Fire Protection District	Station 114	19840 Highway 88	Pine Grove	Type 2 Engine (800 gal) & Type 3 Engine/1500 gal Water Tender
Volunteer	Amador Fire Protection District	Station 115	18655 Ridge Road	Pine Grove	Type 2 Engine (500 gal)
Volunteer	Amador Fire Protection District	Station 121	16850 Demartini Road	Plymouth	Type 2 Engine (750 gal), Type 4 Engine & Type 1 Water Tender (3500 gal)
Volunteer	Amador Fire Protection District	Station 122	18534 Sherwood Street	Plymouth	Type 2 Engine (800 gal), Type 3 Engine & Telesquirt/50 ft.
Volunteer	Amador Fire Protection District	Station 123	14410 Jibboom Street	Fiddletown	Type 2 Engine (500 gal), Type 3 Engine & Type 1 Water Tender (3500 gal)
Full Time	Ca. Dept. of Forestry (CDF)	Dew Drop-St. 10	29300 Dew Drop Bypass	Pioneer	
Part Time	Ca. Dept. of Forestry (CDF)	Mt. Zion-St. 80	19597 Highway 88	Pine Grove	
Full Time	Ca. Dept. of Forestry (CDF)	Pine Lodge-St. 30	15035 Shenandoah Road	River Pines	
Full Time	Ca. Dept. of Forestry (CDF)	Sutter Hill-St. 60	11660 Highway 49	Sutter Creek	
Volunteer	Ione Fire Department	Station 161	22 Jackson Street	Ione	Type 1 Engine, 2 x Type 2 Engines, Type 3 Engine/Water Tender (1200 gal) & Telesquirt
Volunteer	Jackson Fire Department	Station 131	Main Street & Highway 49	Jackson	Type 2 Engine (500 gal) & Type 3 Engine (500 gal)
Volunteer	Jackson Fire Department	Station 132	10600 Argonaut Lane	Jackson	Type 1 Engine (500 gal), Type 2 Engine (500 gal) & Telesquirt/75 ft.
Volunteer	Jackson Valley FPD	Station 171	2480 Quiver Drive	Ione	2 x Type 2 Engines & Type 1 Water Tender (2200 gal)
Volunteer	Jackson Valley FPD	Station 172	5700 Buena Vista Road	Ione	Type 2 Engine
Volunteer	Kirkwood Fire Department	Kirkwood Meadow	Kirkwood Meadows	Kirkwood	
Volunteer	Lockwood FPD.	Station 151	23141 Shake Ridge Road	Volcano	2 x Type 2 Engines & Type 1 Water Tender (3500 gal)
Volunteer	Lockwood FPD.	Station 152	Hale Rd & Shake Ridge Rd.	Volcano	
Full Time	Mule Ck. State Prison FD	n/a	4001 Highway 104	Ione	
Volunteer	Sutter Creek FPD	Station 141	350 Hanford Street	Sutter Creek	3 x Type 1 Engines & Type 1 Water Tender (3000 gal)
Volunteer	Sutter Creek FPD	Station 142	Highway 49 & Church Street	Sutter Creek	Type 2 Engine
Volunteer	Sutter Creek FPD	Station 143	10791 Water Street	Amador City	Type 3 Engine
Full Time	US Forest Service	Amador Ranger Sta.	26820 Silver Drive	Pioneer	

Fire Prevention and Education Programs

Amador Fire Safe Council

The AFSC maintains an office in Pine Grove with a paid coordinator and a staff assistant. The mission of the AFSC is to protect the people of Amador County and their property from the effects of catastrophic wildfire through education, cooperation, motivation and action. The AFSC provides a convenient source for local information and general publications regarding fire protection and prevention for the residents of Amador County. The AFSC operates in close coordination with all fire fighting and fire protection organizations, governmental agencies, natural resource groups, businesses and private landowners acting as a hub that brings various fuel reduction and fire protections programs together for development and implementation. Significant efforts to date include numerous public education presentations on the importance of defensible space around homes, several fuel reduction demonstration projects, the implementation of a senior citizen assistance/chipper program, the preparation of a format for developing a community evacuation plan, grant acquisitions for fuel reduction work and the development of this Amador County Fire Hazard Reduction Plan. A brief description of these programs is given below.

The Senior Assistance Program

The Senior Assistance Project is intended to aid seniors in making their property Fire Safe. A demonstration of what can be done to help seniors and all residents living in the community to be more Fire Safe was undertaken. The work completed by a local contractor includes tree thinning and brush mastication with a forestry mower to reduce fuels and to create a clear defensible space.

Pioneer/ Volcano Fuel Reduction Project

This is a fuel reduction project is located along Shake Ridge near Highway 88 in Amador County. This project is discussed in more detail in section 3.2.4 Recently Completed and Ongoing Fire Hazard Reduction Projects.

Chipper Program

This program is an ongoing project that provides chipper services to individual in the community that remove vegetative materials around their homes.

Community Evacuation Manual

This Evacuation Manual has been prepared to assist in educating and preparing Amador residents for any emergency that may arise. The document provides a guide for developing community evacuation plans and also provides guidance for organizing volunteers within the community.

California Department of Forestry & Fire Protection

The CDF provides invaluable fire prevention and fire education expertise and materials in Amador County communities through interaction with individual citizens, public forums, publications and project work. The CDF's Vegetation Management Program (VMP) has been particularly beneficial in fire prevention by reducing the fuel loads around community developments. This program frequently uses the CYA wards from the Pine Grove Camp for the labor that is needed in building fire lines and fuelbreaks.

The California Fire Plan was prepared by the State Board of Forestry and the CDF and provides a framework to assist communities in the funding, development and implementation of Fire Safe plans and Defensible Fuel Profile Zones (DFPZ). The overall goal of the California Fire Plan is to reduce total costs and losses from wildland fire in California by protecting assets through pre-fire management activities and increasing initial attack success. The California Fire Plan has five strategic objectives:

- To create wildfire protection zones that reduce the risks to citizens and fire fighters;
- To assess all wildlands throughout the State, including all SRA. Assessments will include an analysis of all wildland fire service providers – federal, state, local government, and private. The analysis will identify high risk/ high value areas, and determine who is responsible, who is responding, and who is paying for wildland fire emergencies;
- To identify and analyze key policy issues and develop recommendations for changes in public policy. Analysis will include alternatives to reduce total costs and losses by increasing fire protection system effectiveness;
- To have a strong fiscal policy focus, and to monitor the wildland fire protection system in fiscal terms. This will include all public and private expenditures and economic losses; and
- To translate the analyses into public policies.

Federal Programs

The Federal Government has a significant presence in Amador County. The US Forest Service, Eldorado National Forest (ENF), with land management responsibility for 21% of the County, provides valuable fire prevention and fire education expertise and materials primarily through interaction with individual citizens, public forums, public events, schools, publications, and grants. The Bureau of Land Management (BLM), with land management responsibility for about 2% of the County, also contributes some in these efforts – most recently through fuel hazard reduction implementation and planning grants. Prior to 1995 congressional money for fire management on the Federal lands in the western states focused on funding fire suppression. At that time the ENF fire suppression capabilities were less than optimal in terms of numbers of personnel and equipment. The focus on fire suppression did little to address the larger issue of ecosystem health, which continues to suffer today because of conditions which are beyond the natural range of variability with regards to stand density, species composition and hazardous fuel accumulation. The tragic death of 14 firefighters on the South Canyon Fire in Colorado, 1994, led Federal land managers to reexamine their fire policies and procedures and began a series of changes that have refocused fire management on Federal lands. Several major policies and programs that are significant in the prevention and control catastrophic wildland fire, resulted

from these changes and are currently being implemented and administered by the USFS and BLM in Amador County.

Federal Wildland Fire Management Policy & Program Review

The 1995 Federal Wildland Fire Management Policy and Program Review, signed by the secretaries of the department of Agriculture and Interior, revises wildland fire suppression and fire use policy and procedures. The 1995 policy also directs federal wildland fire agencies to achieve a balance between fire suppression and fuels management to sustain healthy forests, especially in fire-adapted ecosystems. The 1995 review began a process that redirected some of the allocated dollars from wildland fire suppression to a more proactive fuels management program. Modest increases in budget allocations and the accompanying target of acres to be treated, dictated that the primary treatment method for hazardous fuels reduction would be prescribed fire.

Western National Forest – A Cohesive Strategy

In April 1999, the US General Accounting Office (GAO) issued a report to the subcommittee on Forests and Forest Health, the Committee on Resources, and the House of Representative entitled, “Western National Forest - A Cohesive Strategy is Needed to Address Catastrophic Wildfire Threats”. This report recognized that while the Forest Service in the previous decade had attempted to reduce the threat of catastrophic wildland fire, primarily through the use of timber sales and understory tree removal prescriptions, the agency had failed to make significant progress in reducing the number and severity of large wildfires. The GAO report recognized that the accumulation of vegetation that had little to no commercial value was a critical component fueling destructive wildfires.

National Fire Plan

During the 2000 fire season, wildfires burned millions of acres throughout the United States. These fires dramatically illustrated the threat to human lives and development. In response to these catastrophic fires, President Clinton requested the Secretaries of Agriculture and Interior to submit a September 8, 2000 report, *Managing the Impact of Wildfires on Communities and the Environment, A Report In Response to the Wildfires of 2000*. This report, its accompanying budget request, along with Congressional direction for substantial new appropriations for wildland fire management, and resulting action plans and agency strategy have collectively become known as the National Fire Plan (NFP). The NFP was created as a cooperative, long term effort of the USFS, BLM and the National Association of State Foresters, to protect communities and restore ecological health on Federal lands. A major component of the National Fire Plan was funding for projects designed to reduce fire risks to communities. The NFP provided the foundation and momentum for the Healthy Forest Initiative of 2002 and the Healthy Forest Restoration Act of 2003. The NFP contains five key areas to which funding will be channeled:

1. Firefighting Resources. Increases the level of funding for suppression resources to the Most Efficient Levels (MEL) based on the values at risk and the cost of staffing a fire suppression force to protect them;
2. Rehabilitation and Restoration. Burned Area Emergency Rehabilitation teams (BAER) are formed to respond to large and damaging wildfires to identify emergency projects to protect life, property and key ecosystem components damaged by wildfire;

3. Hazardous Fuel Reduction. Working with area cooperators, projects are identified and implemented to reduce potential wildfire damage;
4. Community Assistance. The NFP directs federal wildland fire managers to work with communities to reduce hazardous fuels, increase local employment with jobs in restoration and fuel reduction projects, provide defensible space information, volunteer and rural firefighting assistance and economic action programs; and
5. Accountability. Establishes a tracking system to monitor progress of acres treated and monies spent.

Sierra Nevada Conservation Framework EIS

In January 2001, the Sierra Nevada Conservation Framework Environmental Impact Statement was released. In response to the decline of late seral species, specifically the California spotted owl, the Land & Resource Management Plans in 11 national forests residing in the Sierra Nevada were amended. A key portion of the Record of Decision, established a definition of WUI where fuels reduction work would be concentrated.

The WUI Definition: The wildland urban intermix zone is an area where human habitation is mixed with areas of flammable wildland vegetation. It extends out from the edge of developed private land into Federal, private, and State jurisdictions. The wildland urban intermix zone extends 1 1/2 mile out from areas that have residences, commercial buildings or administrative sites with facilities. It is comprised of two zones: and inner 1/4 mile wide buffer (the defense zone) and an outer 1 1/4 mile buffer (the threat zone). The actual boundaries of the wildland urban intermix zone are determined locally, based on the actual distribution of structures and communities adjacent to or intermixed with national forest lands. Strategic landscape features, such as roads, changes in fuels types, and topography, are used in delineating the physical boundary of the wildland urban intermix zone. Fuel reduction treatments are designed to protect human communities from wildland fires as well as minimize the spread of fires that might originate in urban areas. The management objective in the wildland urban intermix zone is to enhance fire suppression capabilities by modifying fire behavior inside the zone and providing a safe and effective area for possible future fire suppression activities.

The management objectives for the wildland urban intermix zones are to:

- Determine the distribution, schedule, and types of fuel reduction treatments through collaboration with local agencies, air regulators, groups, and individuals; and
- Place the highest density and intensity of treatments in developed areas within the wildland urban intermix zone.

10 Year Comprehensive Strategy

In August 2001, the *10-Year Comprehensive Strategy* was released. The Western Governors Association, the National Association of State Foresters, National Association of Counties, the Intertribal Timber Council and the Secretaries of the Interior and Agriculture joined to endorse *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: A 10-Year Comprehensive Strategy*. The 10-Year Comprehensive Strategy refined the framework of the NFP and established implementation outcome expectations, performance measures, and

implementation tasks for the four goals of the 10-year Comprehensive Strategy. The four goals are:

1. Improve Fire Prevention and Suppression
2. Reduce Hazardous Fuels
3. Restore Fire-Adapted Ecosystems
4. Promote Community Assistance

Healthy Forest Initiative

In August 2002, President Bush, while visiting the Squires Peak Fire in Oregon, announced the Healthy Forest Initiative (HFI). The HFI is in response to federal agencies concerned with administrative procedures that are delaying the preparation and implementation of hazardous fuel reduction project in critical areas and impeding the implementation of the NFP. The HFI expedites the administrative procedures for certain hazardous fuel reduction projects by issuing new categorical exclusion categories that reduces lengthy environmental and sociological documentation. The new categorical exclusions require both USFS, Department of the Interior (DOI), and the Bureau of Land Management (BLM) to participate in a public collaboration process with State and local governments, Tribes, landowners and other interested persons and community-based groups in order to identify new project areas and treatments.

Healthy Forest Restoration Act

The Healthy Forest Restoration Act of 2003 (HFRA) contains a variety of provisions to expedite hazardous fuel reduction and forest restoration projects on specific types of Federal land that are at risk of wildland fire or insect and disease epidemic. The Federal Register of 8-17-01 (www.fireplan.gov/content/reports) provides the latest listing of communities at-risk of wildfire in the vicinity of Federal lands. Additional communities may have been added since this listing based on later evaluations. The HFRA encourages Federal agencies to involve State and local governments and citizens when developing plans and projects for vegetation treatment on Federal and adjacent non-Federal lands. The HFRA includes provisions to:

- Establish WUP's of ½ mile around at-risk communities or within 1½ miles when mitigating circumstances exist, such as sustained steep slope or geographic features aiding in creating a firebreak. Hazard reduction treatments are given priority within these WUP's;
- Establish WUP's adjacent to evacuation routes for at-risk communities;
- Expedite NEPA review of hazardous fuel reduction projects in WUP's on Federal lands;
- Encourage biomass removal from public and private lands; and
- Require using at least 50% of the dollars allocated to HFRA projects to protect communities at risk of wildfire.

The enactment of the HFRA gives new and unprecedented impetus for communities to engage in forest planning. The legislation includes the first meaningful statutory incentives for the USFS and the BLM to give consideration to the priorities of local at-risk communities as the agencies develop and implement forest management and hazardous fuel reduction projects. In

order for an at-risk community to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan.

Community Wildfire Protection Plans

Community Wildfire Protection Plans (CWPP) are the citizens' opportunity to replace regional and national plans with local plans that meet the concerns and needs of the community. In the CWPP, the at-risk community defines the boundaries of the wildland urban interface (WUI) which supersede the default distance limitations of 1 ½ mile from the community specified in the Healthy Forest Restoration Act of 2003 and the ¼ mile defense zone limitation of the Sierra Nevada Forest Plan Amendment. The CWPP need not be constrained by standards and guidelines such as canopy closure, tree size limitations and basal area retention standards applicable to the Sierra Nevada Framework and neither is the plan subject to the legal challenges that frequently tie-up federal land management plans. Communities with wildfire protection plans will receive priority for funding and its recommendations will be included in the project NEPA documents. Some of the specifics of a CWPP are:

- Identifies one or more at-risk communities within or adjacent to wildlands conducive to large-scale wildland fire resulting in a significant threat to human life or property. A community is:
 - 1) A development of three structures or more per acre with shared municipal services which directly abuts wildland fuels, or
 - 2) A group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to federal land, and
 - 3) Essential infrastructure such as major transportation corridors, bridges, water supplies and community-significant recreational facilities;
- Identifies federal and non-federal areas for hazardous fuel reduction treatments that will protect identified communities;
- Prioritizes fuel reduction treatments;
- Recommends the types and methods of fuel reduction treatments on both federal and non-federal land;
- Recommends measures to reduce structural ignitability throughout the identified communities.
- Is developed within the context of collaborative agreements and in consultation with interested parties and the federal land management agencies managing land within the vicinity of the identified communities;
- Is agreed to by the applicable local government, local fire department, and California Department of Forestry and Fire Protection; and
- It need not be formal, detailed or analysis extensive but must contain these basic elements (stated above).

Detailed information regarding the preparation of a CWPP can be found in the document, *“Preparing a Community Wildfire Protection Plan – A Handbook for Wildland-Urban Interface Communities”*. This handbook can be obtained at www.saf.org/policyand_press/cwpp.cfm, and is also provided in appendix B.

Lookouts

Fire lookouts play a crucial role in preventing small fires from becoming large catastrophic wildfires through early detection, both within and outside of the county. In 2003, five lookouts were operational during the fire season that monitored fire conditions in and around Amador County. They are described in the following table.

LOOKOUTS		
Lookout Name	Managing Agency	Location
Blue Mountain	USFS (CDF & private Prior to 2003)	Calaveras County
Mt. Zion	CDF	Amador County
Leek Springs	USFS	El Dorado County
Bald Mt.	USFS	El Dorado County
Big Hill	USFS	El Dorado County

Fire Prevention Regulations and Enforcement

The laws and regulations concerning fire prevention on private land in Amador County are enforced primarily by CDF and the County. The following list provides a summary of the major laws and regulations currently in force in Amador County that pertain to fire prevention and are available at <http://www.leginfo.ca.gov/calaw.html>.

Public Resource Code (PRC 4291):

A person must maintain a minimum of a 30-foot-wide fuelbreak around all buildings and structures unless the CDF determines that 100 feet is needed for protection. PRC 4291 does not require the removal of individual trees, ornamental shrubbery or similar plants which are used as ground cover if they do not form a means of rapidly transmitting fire from the native growth to a building or structure. Other portions of this regulation address the requirement for 10 feet or more of space between trees branches and chimneys or stovepipes, the need to keep needles and leaves off of the roof, and the requirement to keep a screen over the outlet to a chimney or stovepipe.

PRC 4421

A person shall not set a fire which is on any land that is not his own without the permission of the owner.

PRC 4422

A person shall not allow a fire to burn uncontrolled on land he owns or escape to someone else's property.

PRC 4423

A person must have a permit to burn vegetative material during the fire season. The permits are obtained from the CDF. Open burning during any time of the year can only be done on “permissive burn days” as regulated by the Amador Air District. Burning on non-residential property may also require a permit from the Air District any time of the year and you should call them for guidance.

Amador County Code 15.30.000

This set of regulations are known as the Fire and Life Safety Chapter of the County Code and includes a wide range of information for property owners regarding fire prevention and protection requirement.

Amador County Board of Supervisors Resolution No. 99-273

This resolution adopts the policy pursuant to Division 12, Part 5 of the California Health and Safety Code that vacant parcels in subdivisions, that are ten acres or smaller, will be declared a public nuisance and owner will be noticed to destroy weeds if the CDF or other authorized fire official verifies that the weeds constitute a fire hazard.

Recently Completed and Ongoing Fire Hazard Reduction Projects

The following list and table provides information on the recently completed and ongoing fuel reduction projects in the County.

1. Amador Watershed Improvement Project I
2. Pine Acres Fire Safe Plan
3. Sierra Pacific Industries (SPI) Cooperative Fuelbreak Program
4. CDF Vegetation Management Program
5. Pioneer Trail Shaded Fuelbreak
6. Sutter Highland Fire Safe Plan
7. Rams Horn/Shake Ridge Fuel Modification Project
8. Pacific Gas & Electric Powerline Rights-of-way

TABLE 9				
RECENTLY COMPLETED AND ON-GOING FIRE HAZARD REDUCTION PROJECTS				
Project Name	Type	Manager	Administrative Unit	Status
Amador Watershed Improvement Project I	SFB, RSC, Ed	Amador Resource Conservation District	Pioneer/Volcano	Completed 2003
Pine Acres Fire Safe Plan	SFB, RSC, Ed	CDF	Pine Grove	Plan Completed 2003 – Work in Progress
Sierra Pacific Industries (SPI) Cooperative Fuelbreak Program	SFB	SPI and USFS	Upcountry	On-going
CDF Vegetation Management Program	SFB, RSC, Ed, Rx	CDF	County-wide	On-going
Pioneer Trail Shaded Fuelbreak	SFB, RSC	Amador Resource Conservation District	Pioneer/Volcano	Completed 2000
Sutter Highlands Fire Safe Plan	SFB, RSC, FPZ, Rx, Ed	CDF	Pine Grove	Completed 2000
Rams Horn/ Shake Ridge Fuel Modification Project	SFB, RSC, Ed	Amador Fire Safe Council	Pioneer/Volcano	In Progress
Pacific Gas and Electric Powerline Right-of-Way	Fuel treatment	PG&E	Sutter/Amador, Pine Grove, Pioneer/Volcano, Upcountry	On-going
Notes: SFB – Shaded Fuelbreak RSC – Roadside Clearing Ed – Education Rx -- Prescribed Burning FPZ – Area Fire Protection Zones				

(Brief descriptions are included on the following pages for each of the above projects and a figure depicting the project follows each of the project descriptions)

Amador Watershed Improvement Project I

Project Type:

- Shaded Fuelbreak Development
- Road Side Clearing
- Road Drainage Improvement
- Fire Safe and Water Quality Education

Status:

- Completed 2003

Funding:

- State – SWRCB/Proposition 204 (Delta Tributary Watershed Protection Program, 1996)

Project Administrator or Manager:

- Amador Resource Conservation District

Cooperators:

- CDF
- USFS
- SPI
- Community Property Owners

Comments: Over four miles of fuelbreak was developed along the Antelope Ridge area which exceeded the length expected due to the addition of the Rhodes property and the in-kind work provided by SPI (Figure 7). Over three miles of fuelbreak was completed along Shake Ridge road meeting the expectations for the grant in that area. Approximately 25 miles of roads within and adjacent to the Amador Pines subdivision were treated by hand crews to increase vegetation clearances to increase safety for fire fighting personnel and evacuating homeowners.

Pine Acres Fire Safe Plan

Project Type:

- Fire Hazard Reduction Planning
- Shaded Fuelbreak Development
- Road Side Clearing
- Fire Safe Education

Status:

- Plan Completed 2003
- Implementation – In progress with completion date dependent on funding and CDF resource availability.

Funding:

- Planning – USFS National Fire Plan
- Implementation – CDF resources or future grants

Project Administrator or Manager:

- CDF

Cooperators:

- CDF
- BLM
- PG&E
- USFS
- Property Owners

Comments: The objective of the Pine Acres Fire Safe Plan was to provide increased wildfire protection for the geographic area roughly within one mile on each side of Tabeau Road from Highway 88 to East Clinton Road. This area contains over 700 residences. The Pine Acres Fire Safe Plan was prepared based on a number of sources of information including topographic maps, aerial photos, fuel typing and on-ground reconnaissance. Fuel types and topography clearly indicate that the greatest wildfire threat for the Pine Acres area is from the Mokelumne River canyon situated to the east and south of the Pine Acres area. The Pine Acres Fire Safe Plan recommends four phases or priorities of work and these are shown in Figure 8. The Pine Acres Plan can be obtained from CDF, or Ron Monk (consulting Registered Professional Forester).

Sierra Pacific Industries Cooperative Fuelbreak Program

Project Type:

- Shaded Fuelbreak Development

Status:

- In Progress – A completion date is not applicable for this continuous program.

Funding:

- SPI & USFS

Project Administrator or Manager:

- SPI & USFS

Cooperators:

- CDF
- USFS
- SPI
- Property Owners

Comments: SPI currently owns approximately 26,000 acres in Amador County. This land is defined as industrial timberland and is zoned as TPZ (Timber Production Zone). Much of this land lies between the forest/urban interface within the Eldorado National Forest, and is critical to effective fire management activities. SPI and predecessor companies have been aggressive in planning and implementing fire control strategies on the property including the development of shaded fuelbreaks. In about 1990, a master fuelbreak plan was prepared by staff foresters working for Georgia Pacific (now SPI), CDF and the USFS. The plan area covered mostly SPI property with some intermingled property owned by the USFS and individual private citizens (Figure 9). This plan has been largely implemented and some work continues annually in extending, widening and maintaining the fuelbreaks. Under this cooperative program, shaded fuelbreaks have been constructed on Cooks Station Ridge, Doaks Ridge, Panther Ridge, Beaver Ridge and on a ridge that separates Henley Canyon and Rattlesnake Creek called the Road Fuelbreak.

CDF Vegetation Management Program

Project Type:

- Shaded Fuelbreak Development
- Road Side Clearing
- Prescribed Burning
- Fire Safe Education

Status:

- In Progress – A completion date is not applicable for the continuous program.

Funding:

- Cost Share Between CDF and Property Owner

Project Administrator or Manager:

- CDF

Cooperators:

- Property Owners

Comments: The VMP is a cost-sharing program between private landowners and the CDF that focuses on the use of prescribed fire and mechanical means, for reducing fire-prone vegetation on SRA lands. The CDF has responsibility for 283,778 acres of Amador County SRA lands and fiscal responsibility for an additional 10,767 acres, which is directly protected by the USFS. The VMP allows private landowners to enter into a contract with CDF to use prescribed fire and other means to accomplish a combination of fire protection and resource management goals. Implementation of VMP projects is by local CDF Units. The fuel reduction projects that will be completed first are those that are identified through the CDF's Fire Plan and considered to be of most value to the unit. Through the VMP about 40,000 acres are treated each year in California. The following table summarizes the VMP projects completed in Amador County during the last 20 years (since 1983). Figure 10 shows the locations of the fuel reduction projects conducted by CDF through the VMP.

Project Name	Year	Admin Unit	Acres Burned Within Each Unit
Electra	1983	4	513.691
Howard	1983	2	1319.219
Howling Wolf #3	1983	2	289.792
Arroyo Seco #2	1984	2	543.748
Busi #1	1984	4	238.071
Pardee #2	1984	4	711.209
Arroyo Seco #3	1985	2	133.815

TABLE 10

**AMADOR COUNTY
CDF VEGETATION MANAGEMENT PROGRAM PROJECTS**

Project Name	Year	Admin Unit	Acres Burned Within Each Unit
Arroyo Seco #3	1985	2	85.722
Arroyo Seco #3	1985	2	109.644
Silverlake	1985	6	130.728
Silverlake	1985	6	97.063
Howard	1989	2	245.349
Howard	1989	2	215.003
Howard	1989	2	110.009
Electra	1989	4	269.369
Trunk Handle (Unit1)	1989	2	56.230
Trunk Handle (Unit2)	1989	2	167.358
Howard (Unit 1)	1990	3	580.209
Eagles Nest	1990	2	277.766
Rock Creek	1990	4	113.238
Rock Creek	1990	4	49.706
Dry Creek	1991	2	10.868
Dry Creek	1991	2	24.114
Dry Creek	1991	2	283.719
Jackson Creek	1991	4	758.695
Gold Creek	1993	4	32.165
Gold Creek	1993	4	9.585
Gold Creek	1993	4	6.793
Gold Creek	1993	4	31.737
Gold Creek	1993	4	35.737
Grapevine Gulch	1993	4	241.383
Grapevine Gulch	1993	4	18.964
Ponderosa	1994	4	24.691
Ponderosa	1994	4	43.356
Ponderosa	1994	7	3.478
Big Indian Creek	1995	6	48.313
Little Indian Creek	1995	1	103.333
Seeger	1996	8	36.538
Sutter Creek	1996	5	151.000
Sutter Creek	1996	5	2.622
Sutter Creek	1996	5	8.368
Sutter Creek	1996	5	12.495
Sutter Creek	1996	5	9.559
Shake Ridge	2001	8	47.712
Shake Ridge	2001	5	3.164
Shake Ridge	2001	7	48.452
Hwy 88 Fuelbreak	2001	9	20.785
Shake Ridge	2001	8	26.459
Shake Ridge	2001	9	0.083
Shake Ridge	2001	8	14.745
N. Antelope	2001	8	193.400

TABLE 10

**AMADOR COUNTY
CDF VEGETATION MANAGEMENT PROGRAM PROJECTS**

Project Name	Year	Admin Unit	Acres Burned Within Each Unit
N. Antelope	2001	9	138.985
N. Antelope	2001	8	47.653
N. Antelope	2001	9	28.335
Girard Rx Burn	1985	8	47.653
Girard Rx Burn	1985	9	28.335
Shake Ridge	2002	8	35.168
Shake Ridge	2002	9	1.962
Shake Ridge	2002	8	8.945

Pioneer Trail Shaded Fuelbreak Project

Project Type:

- Shaded Fuelbreak Development
- Road Side Clearing

Status:

- Completed 2000

Funding:

- State – CDF Forest Stewardship Program

Project Administrator or Manager:

- Amador Resource Conservation District

Cooperators:

- CDF
- BLM
- Property Owners

Comments: This project was proposed as a first stage of a comprehensive network of fuelbreaks planned for construction over the next five to seven years in the Upper Sutter Creek Watershed (Figure 11). The purpose of this fuelbreak is to complement the fuel reduction work being done in the Amador Pines Subdivision area and to provide a demonstration project to generate public interest in the larger network of projects. This project tied in with other fire hazard reduction work projects on larger landowners in the area (Oatman and Froman properties).

Sutter Highlands Fire Safe Plan

Project Type:

- Shaded Fuelbreak Development
- Road-Side Fire Protection Zones
- Area Fire Protection Zones
- Prescribed Burning
- Fire Safe Education

Status:

- Completed 2000

Funding:

- Federal Emergency Management Agency (FEMA)

Project Administrator or Manager:

- CDF (Rx 4-045-AEU)

Cooperators:

- CDF
- Property Owners

Comments: The project area is approximately four miles east of Sutter Creek off of Shake Ridge Road and consists of moderately dense stands of manzanita understory with a scattered ponderosa pine, sugar pine and oak overstory (Figure 12). The objectives of the project were:

- Change older and dead chaparral to a young growth and more fire resistant age-class
- Protect the pine and oak overstory
- Enhance wildlife habitat
- Protect current and future homes within the Sutter Highlands subdivision
- Assist property owners in Fire Safe landscaping efforts

Approximately 225 acres of fire protection zone, three miles of Shaded Fuelbreak and seven miles of road-side fire protection zone were developed.

Rams Horn/Shake Ridge Fuel Modification Project

Project Type:

- Shaded Fuelbreak Development
- Road Side Clearing
- Fire Safe Education

Status:

- In Progress – This project will require future grants to complete, and therefore a completion date can not be estimated at this time. The current grant will terminate in 2004.

Funding:

- BLM – Community Based Wildfire Prevention Grants Program (partial funding)

Project Administrator or Manager:

- AFSC

Cooperators:

- BLM
- Property Owners

Comments: This Project will extend the existing Shake Ridge Fuelbreak from approximately Lupin Road to Rams Horn Grade and down Rams Horn to the bottom of the grade near the community of Volcano (Figure 13). Fuel modification work will be implemented on mostly small parcels along roads and major ridges with the goal of providing protection from the spread of wildfires in the Pioneer and Volcano area.

Pacific Gas & Electric Powerline Rights-of-Way

Project Type:

- Fuel treatment

Status:

- In Progress – A completion date is not applicable for this ongoing program.

Funding:

- PG&E

Project Administrator or Manager:

- PG&E

Cooperators:

- USFS
- BLM
- Community Property Owners

Comments: PG&E manages approximately 40 miles of high voltage primary transmission lines in Amador County. These primary transmission lines extend from Salt Springs Reservoir to the Electra Powerhouse and from Electra to Jackson (Figure 14). Right-of-ways average between 100 to 150 feet wide. Within these rights-of-way, vegetation is managed for low growing fire resistant species. Herbicides are used every three to five years where permitted. Mowing and mastication is typically used with entries every 10 to 12 years. These managed rights-of-way are significant fuel treatments and should be strengthened where possible. Opportunities may also exist to coordinate fuel treatments with PG&E along significant secondary transmission lines that run throughout the County.

Eldorado National Forest (ENF) Fuel Reduction Projects

Project Type:

- Fuelbreaks
- Commercial Thinning Sales
- Prescribed Fire

Status:

- Beaver Fuelbreak – Completed in 2000, enhancements and maintenance activities are on going.
- Cat Ridge 88 Commercial Thinning Sale- Surface fuels and non-commercial biomass thinning treatments are currently being implemented.
- Dubear Commercial Thinning Sale- There are surface fuels and non-commercial biomass thinning treatments planned for the units but have yet to be implemented.
- Hams Commercial Thinning Sale- Surface fuels and non-commercial biomass thinning treatments are currently being implemented.
- Heliport and Seven Hazardous Fuels Reduction Project- Completed in 2003
- Panther Fuelbreak- Completed in 1999, enhancement and maintenance activities are on going.
- Sopiago Commercial Thinning Sale- Surface fuels and non-commercial biomass thinning treatments planned for the units have yet to be implemented on the Highway 88 corridor.
- Prescribed Fire Projects. Within the last 12 years, there have been about 2,680 acres of understory prescribed fire projects within the Mokelumne Canyon. Approximately 1650 acres, located near the bottom of the Beaver Ridge Fuelbreak, will be reentered with prescribed fire in approximately 2 to 3 years.

Cooperators:

- Beaver Fuelbreak –SPI, ENF
- Heliport and Seven-ENF, CDF, CYA, and private landowners
- Panther Fuelbreak- ENF, SPI, CDF and CYA
- Sopiago Commercial Thinning Sale- ENF, CalTrans

Comments –

- Beaver Fuelbreak –A co-operatively constructed and maintained fuelbreak between SPI, CDF/CYA and the USFS (Figure 15). Thinning was completed by hand crews removing noncommercial size trees, trees <10”DBH. A commercial thinning sale has been planned to enhance the fuelbreak.
- Panther Fuelbreak- Panther Ridge Fuelbreak. A co-operatively constructed and maintained fuelbreak between SPI, and the FS.
- Heliport and Seven- Two isolated parcels of FS lands completely surrounded by urban development, near the 4,000 feet elevation mark. The existing heliport, developed in

1986 under an MOU with Amador County, is utilized as an upcountry medical emergency helicopter transport site. Area treatments included hand thinning, pile burning and mastication.

- The commercial thinning projects listed were conducted within or directly adjacent to Amador County. The timber stand thinning prescriptions targeted removing trees in the suppressed or intermediate crown positions (thin from below) leaving the large, more fire resistant trees. The height from ground level to the lower branches of the live crown is roughly 25 to 30 feet. Additional treatments of ladder fuels, surface fuels and small diameter trees, are currently being implemented.
- Prescribed fire application is utilized for both understory burn projects and as a clean-up tool for thinning slash. Typically all commercial thinning sales yard the relatively small diameter trees to a landing for delimiting and processing. The resulting large fuel piles are lit during a wet period when the potential for fire escapes is at a minimum and smoke dispersal is most favorable.

3.3 Fire Data

CDF provides fire and other resource information to the public through its Fire Resource Assessment Program (FRAP) website (<http://frap.cdf.ca.gov/>). State law (Public Resource Code 4789) requires the California Department of Forestry and Fire Protection (CDF) to periodically assess California's forest and rangeland resources. The Fire and Resource Assessment Program of CDF performs the assessment in cooperation with federal, state and local agencies, public and private organizations, and California's academic research community. Many FRAP data layers were used to identify the potential locations of future fuel reduction projects. Several of these data layers are described below including: Fire Hazard, Surface Fuels, Fuel Rank, Fire Threat, Condition Class, Fire Regime, and Fire Rotation Class.

FRAP Map Descriptions

Fire Hazard

Figure 16 shows the average hazard rating for areas throughout the county. The process used by CDF in developing the rating zones is described in a publication titled "Instructions for Zoning Fire Hazard Severity in State Responsibility Area in California" (Phillips, Clinton B. 1983). Zones are classified into three different ratings: Moderate, High or Very High. Zones were delineated based on areas with similar vegetative cover, slope and weather. A fuel model for each zone was selected using the National Fire Danger Rating system fuel models. A representative National Fire Danger Rating System slope class and a CDF weather monitoring station were selected for each zone. The FIRDAT computer program was used to estimate the number of days in an average year that each zone could experience a Burn Index of 61 or higher, based on the assigned fuel model, slope class, and weather data. Burn index is a measure of both the rate of spread and energy release. The FIRDAT results were used to assign each zone a rating of Moderate, High, or Very High.

FHSZ mapping was basically a CDF field exercise to carry out the above set of procedures. Examination of the data suggests that little effort was made to standardize zoning procedures between ranger units. There are cases where ranger units that might be expected to have similar hazard characteristics appear to be much different in terms of FHSZs. For example, there are ranger units zoned exclusively as Very High while an adjacent unit has a variety of zones of different ratings. There are also cases where ratings change abruptly at ranger unit boundaries. These inconsistencies are a direct result of a lack of procedural standardization, and could be due to different long-term planning periods, different interpretation of fuel models, or the level of detail used to map the various zones (CDF 2004).

The gross inconsistencies in the data are obvious from even a cursory examination of the statewide FHSZ map. The fact that there was no effort to standardize the mapping effort or review the data for accuracy suggest that the data be used with extreme caution (CDF 2004).

Finally, the zones are designed to give an average hazard rating for the area. This does not necessarily define the exact conditions for all areas within the zone. Variations in fuels, slope, weather, as well as factors not considered in this exercise such as aspect, elevation, and air stability will influence hazard conditions at actual locations within each zone. For an individual structure, the risk of damage from fire also depends on site-specific factors such as access, water supply, clearance, and characteristics of the structure. Since statewide hazard zoning

cannot capture these factors, it should not be used as a measure of the risk faced by individual structures (CDF 2004).

Surface Fuels

Surface fuels are generally described as vegetative materials near the ground through which fire will spread. These materials include downed woody material such as dead branches, logs, and other loose surface litter on the soil surface, and also living plants such as grasses, shrubs, tree seedlings and forbs. The amount, size and moisture content of surface fuel types determines how fast a fire spreads, how hot it burns and how high its flames reach. CDF has developed surface fuels data by translating vegetation data from a variety of sources into several fuel characteristic models used to predict fire behavior. The fuel models are based on vegetation attributes, such as cover type, vegetation type, size and crown closure, as well as other factors, such as slope, aspect, elevation and topography (Figure 17).

The process of converting vegetation data into surface fuels is known as “cross walking” which translates information on plant species, crown cover and tree size into fire behavior models. The following vegetation types are used as general descriptions for the fuel models used in the FRAP maps: Grass; Pine/Grass; Tall Grass; Tall Chaparral; Brush; Dormant Brush; Rough; Hardwood/Lodgepole pine; Mixed Conifer Light; Mixed Conifer Medium; Light Slash; Medium Slash; Heavy Slash; Plantation/Burned last 15 years; Desert; Urban; Agricultural Lands; Water; Barren/Rock/Other. The crosswalk process uses other factors such as watershed boundaries, slope, aspect and elevation to further refine vegetation/fuel model relationships. Annual fire perimeter data is used to update fuel model characteristics based on “time since last burned,” to account for both initial changes in fuels resulting from fuel consumption by the fire and for vegetation regrowth (CDF 2003).

CDF, the USFS and other fire protection agencies can combine regional fuel maps with other geographic information to identify and prioritize projects. CDF combines surface fuels with slope data to rank areas as moderate, high, and very high fuel rank. This initial surface fuel rank is then associated with generalized ladder and crown fuel estimates to derive a final fuel assessment and ranking. The USFS, BLM and NPS use surface fuel maps to implement the Federal Wildland Fire Policy and to identify and plan pre-fire projects that reduce fire hazard and ultimately improve ecosystem health. These data are also used by the USFS in a variety of planning and assessment projects, including environmental impact reports, the Sierra Conservation Strategy and detailed Land Management Planning documents. The following table shows acres of each fuel model type in each of Amador County’s Administrative Units.

TABLE 11

**AMADOR COUNTY
FUEL TYPE ACREAGE WITHIN ADMINISTRATIVE UNITS**

Administrative Unit	Fuel Type	Acres
Plymouth	Grass	15,970
	Pine/Grass	0
	Tall Grass	0
	Tall Chaparral	1,793
	Light Brush	344
	Intermediate Brush	4,446
	Hardwood/Conifer Light	0
	Medium Conifer	0
	Heavy Conifer	177
	Light Slash/Treated Conifer	0
	Medium Slash	12,324
	Urban	394
	Water	16
	Rock/Barren	1,424
Ione	Grass	30,290
	Pine/Grass	0
	Tall Grass	0
	Tall Chaparral	3,736
	Light Brush	69
	Intermediate Brush	1,208
	Hardwood/Conifer Light	0
	Medium Conifer	0
	Heavy Conifer	35
	Light Slash/Treated Conifer	0
	Medium Slash	15,883
	Urban	2,020
	Water	109
	Rock/Barren	2,894
Comanche	Grass	16,960
	Pine/Grass	0
	Tall Grass	0
	Tall Chaparral	2,361
	Light Brush	1
	Intermediate Brush	241
	Hardwood/Conifer Light	0
	Medium Conifer	0
	Heavy Conifer	149
	Light Slash/Treated Conifer	0
	Medium Slash	6,892
	Urban	1,140
	Water	1,991
	Rock/Barren	1,575
Jackson	Grass	17,522
	Pine/Grass	11,143
	Tall Grass	0
	Tall Chaparral	1,720
	Light Brush	3,167
	Intermediate Brush	4,912

TABLE 11		
AMADOR COUNTY		
FUEL TYPE ACREAGE WITHIN ADMINISTRATIVE UNITS		
Administrative Unit	Fuel Type	Acres
	Hardwood/Conifer Light	5
	Medium Conifer	0
	Heavy Conifer	1,479
	Light Slash/Treated Conifer	0
	Medium Slash	0
	Urban	1,324
	Water	379
	Rock/Barren	993
Sutter/Amador	Grass	9,662
	Pine/Grass	0
	Tall Grass	0
	Tall Chaparral	1,284
	Light Brush	1,445
	Intermediate Brush	3,701
	Hardwood/Conifer Light	0
	Medium Conifer	0
	Heavy Conifer	1,458
	Light Slash/Treated Conifer	0
	Medium Slash	11,020
	Urban	524
	Water	15
	Rock/Barren	416
Fiddletown	Grass	5,759
	Pine/Grass	0
	Tall Grass	0
	Tall Chaparral	568
	Light Brush	5,356
	Intermediate Brush	7,639
	Hardwood/Conifer Light	0
	Medium Conifer	0
	Heavy Conifer	3,949
	Light Slash/Treated Conifer	0
	Medium Slash	1,889
	Urban	639
	Water	5
	Rock/Barren	1,390
Pine Grove	Grass	1,764
	Pine/Grass	7,855
	Tall Grass	0
	Tall Chaparral	269
	Light Brush	5,360
	Intermediate Brush	5,775
	Hardwood/Conifer Light	31
	Medium Conifer	0
	Heavy Conifer	7,388
	Light Slash/Treated Conifer	0
	Medium Slash	0
	Urban	1,369
Water	1	

TABLE 11		
AMADOR COUNTY		
FUEL TYPE ACREAGE WITHIN ADMINISTRATIVE UNITS		
Administrative Unit	Fuel Type	Acres
Pioneer/Volcano	Rock/Barren	908
	Grass	641
	Pine/Grass	1,262
	Tall Grass	0
	Tall Chaparral	196
	Light Brush	4,687
	Intermediate Brush	4,664
	Hardwood/Conifer Light	11
	Medium Conifer	26
	Heavy Conifer	10,508
	Light Slash/Treated Conifer	0
	Medium Slash	0
	Urban	515
	Water	5
	Rock/Barren	510
Upcountry	Grass	129
	Pine/Grass	1,601
	Tall Grass	0
	Tall Chaparral	398
	Light Brush	14,484
	Intermediate Brush	9,452
	Hardwood/Conifer Light	19,764
	Medium Conifer	24,041
	Heavy Conifer	27,951
	Light Slash/Treated Conifer	37
	Medium Slash	0
	Urban	103
	Water	2,146
	Rock/Barren	9,294

Source: California Department of Forestry and Fire Protection (FRAP)

The scale and date of vegetation data from local, state and federal agencies often vary and therefore the scale and date of the resulting fuel data vary. The scale of the source data controls the minimum mapping unit (MMU), the smallest area that can be uniquely identified on the map. The MMU for fuels data developed by the California Interagency Fuel Mapping Group (CAIFMG), and ranges from 900 square meters up to 100 hectares. The final data are maintained as raster GIS coverages in an Albers equal area projection with a cell size of 30 meters on a side. Both Fuel Rank and Fire Threat data layers incorporate the surface fuels information to calculate their values, and therefore have the same data limitations and cell size as the Surface Fuels data layer.

Fuel Rank

CDF has developed a Fuel Rank assessment methodology for the California Fire Plan to identify and prioritize pre-fire projects that reduce the potential for large catastrophic fire. The fuel ranking methodology assigns ranks based on expected fire behavior for unique

combinations of topography and vegetative fuels under a given severe weather condition (wind speed, humidity, and temperature). The procedure makes an initial assessment of rank based on an assigned fuel model and slope (CDF 2003).

The ranks were assigned according to the rate of spread and heat per unit associated with each unique fuel model-slope combination. The BEHAVE fire model was used to rank the surface fuels into Moderate, High and Very High categories (Figure 18). Estimates of ladder and crown fuels were used to support the assessment of crown fire potential. The ladder and crown fuel indices estimate the relative abundance of these fuels. These indices measure in a rough manner the probability that individual tree torching and/or crown fire would occur if the stand experienced a wildfire during extreme weather conditions. As part of the California Fire Plan, CDF combines these fuel rankings with weather, community assets and historic level of fire protection service to identify and prioritize fire management projects (CDF 2003). The following table shows the approximate fuel rank acreages within each administrative unit.

Fire Threat

Fire Threat is a combination of two factors: 1) fire frequency, or the likelihood of a given area burning, and 2) potential fire behavior. These two factors are combined to create four threat classes ranging from moderate to extreme (Figure 19). Fire threat can also be used to estimate the potential for impacts on various assets and values susceptible to wildfire. Impacts are more likely to occur and/or be of increased severity for the higher threat classes.

CDF calculated a numerical index of fire threat based on the combination of fuel rank and fire rotation class. A 1-3 ranking of fuel rank was summed with the 1-3 ranking from rotation class to develop a threat index ranging from two to six. This threat index is then grouped into four threat classes. Areas that do not support wildland fuels (e.g. open water, agriculture lands, etc.) were omitted from the calculation, however areas of very large urban centers were left in but received a moderate threat value (CDF 2003). The Table 13 gives the Fire Threat acres within each administrative unit.

TABLE 12

**AMADOR COUNTY
FUEL RANK ACREAGE WITHIN ADMINISTRATIVE UNITS**

Administrative Unit	Fuel Rank	Acres	Percent of Admin. Unit	Percent of County
Plymouth	Non-fuel	1,420	3.8	0.4
	Moderate	11,786	31.9	3.0
	High	21,161	57.4	5.5
	Very High	2,524	6.8	0.7
Ione	Non-fuel	2,967	5.3	0.8
	Moderate	27,532	48.9	7.1
	High	22,021	39.2	5.7
	Very High	3,726	6.6	1.0
Comanche	Non-fuel	3,547	11.3	0.9
	Moderate	16,819	53.7	4.3
	High	8,431	26.9	2.2
	Very High	2,512	8.0	0.6
Jackson	Non-fuel	1,333	3.1	0.3
	Moderate	9,537	22.4	2.5
	High	28,107	65.9	7.3
	Very High	3,667	8.6	0.9
Sutter/Amador	Non-fuel	407	1.4	0.1
	Moderate	3,425	11.6	0.9
	High	22,382	75.8	5.8
	Very High	3,312	11.2	0.9
Fiddletown	Non-fuel	1,315	4.8	0.3
	Moderate	2,908	10.7	0.8
	High	18,461	67.9	4.8
	Very High	4,514	16.6	1.2
Pine Grove	Non-fuel	871	2.8	0.2
	Moderate	1,871	6.1	0.5
	High	19,400	63.1	5.0
	Very High	8,581	27.9	2.2
Pioneer/Volcano	Non-fuel	493	2.1	0.1
	Moderate	744	3.2	0.2
	High	10,974	47.7	2.8
	Very High	10,814	47.0	2.8
Upcountry	Non-fuel	11,425	10.4	3.0
	Moderate	43,977	40.2	11.4
	High	24,869	22.7	6.4
	Very High	29,130	26.6	7.5

Source: CDF 2002

Unit	Threat	Acres	Percent of Admin Unit	Percent of County
Plymouth	Little or No Threat	1,355	3.7	0.4
	Moderate	324	0.9	0.1
	High	11,982	32.5	3.1
	Very High	23,154	62.9	6.0
Ione	Little or No Threat	2,976	5.3	0.8
	Moderate	2,401	4.3	0.6
	High	25,891	46.1	6.7
	Very High	24,902	44.3	6.4
Comanche	Little or No Threat	3,575	11.4	0.9
	Moderate	312	1.0	0.1
	High	16,637	53.1	4.3
	Very High	10,794	34.5	2.8
Jackson	Little or No Threat	1,252	2.9	0.3
	Moderate	1,384	3.2	0.4
	High	8,583	20.1	2.2
	Very High	31,440	73.7	8.1
Sutter/Amador	Little or No Threat	378	1.3	0.1
	Moderate	524	1.8	0.1
	High	3,171	10.7	0.8
	Very High	25,453	86.2	6.6
Fiddletown	Little or No Threat	1,252	4.6	0.3
	Moderate	172	0.6	0.0
	High	3,488	12.8	0.9
	Very High	22,235	81.9	5.7
Pine Grove	Little or No Threat	886	2.9	0.2
	Moderate	164	0.5	0.0
	High	3,151	10.3	0.8
	Very High	26,534	86.3	6.9
Pioneer/Volcano	Little or No Threat	506	2.2	0.1
	Moderate	349	1.5	0.1
	High	5,253	22.8	1.4
	Very High	16,900	73.5	4.4
Upcountry	Little or No Threat	11,242	10.3	2.9
	Moderate	40,704	37.2	10.5
	High	23,979	21.9	6.2
	Very High	33,452	30.6	8.6

Source: CDF FRAP 2002

Condition Class

Condition class refers to the general deviation of an ecosystem from its pre-settlement or natural fire regime. It can be viewed as a measure of sensitivity to fire damage, or a measure of fire-related risk to ecosystem health. Classes are assigned based on current vegetation type and structure, an understanding of its pre-settlement fire regime, and current conditions regarding expected fire frequency and potential fire behavior (Figure 20). The conceptual basis for assigning condition classes is that for fire-adapted ecosystems, much of their ecological structure and processes are driven by fire, and disruption of fire regimes leads to many alterations to the ecosystem including, changes in plant composition and structure, uncharacteristic fire behavior and other disturbance agents (pests), altered hydrologic processes and increased smoke production.

Condition Class 1 is associated with low level disruption of fire regime, and consequently low risk to loss or damage to the ecosystem. Condition Class 2 indicates some degree of departure from natural fire regimes, with some loss and change in elements and processes within the ecosystem. Condition class 3 is highly divergent from natural regime conditions, and represents the highest level of risk of loss.

Fire Regime

Fire regime refers to the pattern and variability of fire occurrence and its effect on vegetation. A simple statewide fire regime classification system provides an approximate idea of the range in fire frequency and severity as it existed before European settlement (Figure 21). This classification is based on a similar classification system developed in conjunction with the Coarse-Scale Condition Class assessment done for the National Fire Plan, modified from the USFS National Fire Plan Condition Class Assessment. (See <http://www.fs.fed.us/fire/fuelman/> and Hardy et al. 2001 for further detail.) This classification, while highly generalized, can only illustrate coarse differences in fire regimes. However, the resulting analysis is appropriate given the statewide scale of inquiry, where broad differences in regimes point out significant implications for managing wildland fire at the regional scale.

Fire Rotation Class

Fire Rotation Interval is calculated from fifty years of fire history on land areas grouped into "strata" based on fire environment conditions (Figure 22). These strata are defined by climate, vegetation, and land ownership. The Fire Rotation Interval is the number of years it would take for past fires to burn an area equivalent to the area of a given stratum. Fire Rotation Interval for a given stratum is calculated by dividing total area of the stratum by the annual number of acres burned. Finally, Fire Rotation Intervals are grouped into classes. The larger Fire Rotation Intervals correspond to less frequent burning. In contrast, the higher the fire rotation class, the more frequent fire is in that strata. (FRAP 2003)

California Natural Diversity Database (CNDDDB)

The CNDDDB is a repository of rare plant and animal information maintained by the Habitat Conservation Division of the California Department of Fish and Game (CDFG). The primary function of CNDDDB is to gather and disseminate data on the status and locations of rare and endangered plants, animals, and vegetation types. This data helps drive conservation decisions, aid in better siting of development projects, provide baseline data helpful in recovering endangered species and for research projects. The goal of the CNDDDB is to provide the most current information available on the state's most imperiled elements of natural diversity and to provide tools to analyze these data. CNDDDB data are available to the public digitally or as hard copy reports from the CDFG. Updates to the CNDDDB are issued every six months by the CDFG.

The CNDDDB was queried for information on special status species in Amador County. This information is highly valuable in identifying the locations of fuel reduction projects so that they do not adversely affect these species. Within Amador County there are 22 special status species or communities and 115 recorded occurrences of those species or communities (Figure 23). A majority of the occurrences have been recorded near the western half of the county. Unique soil types in this region contribute to the unique communities found around Ione. Individual species reports for all of the occurrences in the county are included in Appendix E.

Administrative Unit Fuel Descriptions

Unit 1 – Plymouth

This unit is located in the northwest corner of the County adjacent to the Cosumnes River and Sacramento County line (Figure 24). Elevations in the unit range from approximately 300 feet to 1,500 feet above sea level. The terrain is relatively gentle with rolling hills and is dominated by grasslands. The Town of Plymouth is located in the Southeast portion of the unit. Extreme Fire Threat areas occur along the major watercourses including the Cosumnes River, Big Indian Creek and Dry Creek. FRAP maps indicate that high Fuel Rank areas occur mostly along the Cosumnes river and in a few scattered locations in the interior of the units.

Unit 2 – Ione

Unit 2 is located along the western boundary of the County adjacent to Sacramento County (Figure 25). Elevations range from 200 feet to 1,000 feet above sea level. The unit is dominated by grasslands and Chaparral. The City of Ione is located in the southern portion of the unit, south of Dry Creek. Fire Threat maps indicate that the eastern portion of the unit has a more extreme Fire Threat than the west side. Other areas that have high Fire Threat include areas dominated by chaparral. Fuel Ranks maps show areas with high Fuel Ranks around tall grasslands, chaparral, and along portions of Sutter Creek.

Unit 3 – Comanche

Unit 3 is located in the Southwest corner of the County bordering Calaveras County and San Joaquin County (Figure 26). Elevations range from approximately 200 feet to 900 feet above sea level. The unit is dominated by grasslands and rolling hills and many unincorporated

neighborhoods such as Comanche are located in these areas. Fire Threat maps show that the eastern side of the unit has the higher Fire Threat than the west side of the unit, due in part to a changes in vegetation from grasslands to chaparral vegetation as you head towards the mountains. Fire Rank is also higher on the east side of the unit, in the scattered patches of tall chaparral vegetation.

Unit 4 – Jackson

Unit 4 is located along the southern portion of the county adjacent to Calaveras County (Figure 27). The town of Jackson is located in the middle of the unit, and the southern portion of Sutter Creek borders the north side of the unit. Grassland and chaparral vegetation occur interspersed throughout the unit, with chaparral and dormant brush areas becoming more dominant at higher elevations. The town of Mokelumne Hill is located outside of the county line just south of the unit. The Mokelumne River flows along the southern boundary of the unit, and Jackson Creek flows through the center of the town of Jackson, continuing through the entire unit. Elevations range from approximately 500 feet to 2400 feet above sea level. Fire Threat is extreme throughout the entire area, especially along the Mokelumne River. Fuel Rank is very high in locations with concentrations of tall chaparral and dormant brush vegetation. Jackson is surrounded mostly by grasslands and Fuel Ranks surrounding the town are high.

Unit 5 – Sutter/Amador

Unit five is located in the center of the County, bound on the north by Dry Creek and extending south to the town of Sutter Creek (Figure 28). Amador city is also located in the unit. Elevations range from approximately 600 feet to 2,200 feet above sea level. Grasslands dominate the western half of the unit. The vegetation transitions into brush and chaparral vegetation further east. At higher elevations, mixed conifer forests begin to dominate. Fire Threat is extreme throughout the entire unit. Very high Fuel Rank areas occur along portions of Sutter Creek, and along portions of the South Fork Dry Creek where forests type habitats occur.

Unit 6 – Fiddletown

Unit 6 is located along the northern boundary of the county adjacent to the South Fork Cosumnes River (Figure 29). It is bound on the south by the South Fork Dry Creek. Much of the area is dominated by brush vegetation, intermingled with grasslands. The terrain is variable, with rolling foothills along the west side of the unit and more steep terrain occurring along the major streams at higher elevations. Elevations range from approximately 1,300 feet to 3,200 feet. Further upland at around 2,500 feet, on the east side of the unit, forest vegetation begins to dominate the landscape. Fire Threat is extreme throughout the entire unit. Fuel Rank is very high in areas with concentrations of the chaparral vegetation. Fuel Rank is also very high in the area adjacent to the South Fork Cosumnes River on the east side of the unit.

Unit 7 – Pine Grove

Unit seven is located in the middle of the County, bound on the north by the South Fork Dry Creek, and on the south by North Fork Mokelumne River (Figure 30). The west side of the unit is dominated by pine/grass vegetation, and this transitions into forest habitat at higher

elevations. The terrain is more mountainous, with steep canyons along the North Fork Mokelumne River and Sutter Creek. Elevations range from 1,400 feet to 3,000 feet. Fire threat is extreme throughout the entire unit. Fuel ranks are very high on north facing slopes adjacent to Sutter Creek, North Fork Mokelumne River, and South Fork Dry Creek.

Unit 8 – Pioneer/Volcano

Unit 8 is bound on the north by the South Fork Cosumnes River and on the south by the North Fork Mokelumne River (Figure 31). Several unincorporated neighborhoods including the Pioneer and Volcano communities are found in this unit. The area is dominated by mixed-conifer and interspersed by brush vegetation. The terrain is mountainous with steep canyons along the North Fork Mokelumne River, Sutter Creek and Ashland Creek. Elevations range from approximately 2,000 feet to 4,100 feet. Fire Threat is extreme throughout the entire unit. Fuel Ranks are also very high throughout the unit, especially on north facing slopes along the South Fork Cosumnes River, Sutter Creek and Ashland Creek.

Unit 9 – Upcountry

Unit 9 consists of the entire eastern portion of the county from Antelope Creek to Alpine County (Figure 32). Much of this area is within the El Dorado National Forest, and is intermingled with SPI land holdings. Elevations range from approximately 2,600 feet to 8,000 feet above sea level. The terrain is mountainous, and dominated by conifer forests. The North Fork Mokelumne River borders the southern edge of the unit, and is characterized by extremely steep canyon walls. Fire Threat is highest in the western half of the unit where dense mixed conifer stands dominate. Further upland Fire Threat is lower because timber stands are less dense, and intermingled with barren rock outcrops. Fuel Ranks are also very high in the western half of the unit in the mixed conifer vegetation.

4. FIRE RISK MITIGATION STRATEGY

4.1 Proposed Vegetation Fuel Modification Areas

Tables 14 and 15 list 42 proposed fuel modification projects and gives brief descriptions of their location, purpose and size (Figure 33). The purpose of each project is defined as either a Shaded Fuelbreak (SFB) or a Roadside Clearing (RSC) project. These fuel modification projects, also shown on the Administrative Unit maps Figures 24-32, represent general locations where fuel reduction work should be considered for future development. It is important to note that these projects are to be considered as initial steps in landscape-level fuel reduction treatments that should be followed, over time, with supporting strategic area treatments, community chipper programs and maintenance. Detailed planning and field review to identify the exact alignment, boundaries and prescriptions of the Proposed Projects will be required before their implementation.

Shaded Fuelbreaks

The Proposed Projects identified as “Shaded Fuelbreaks” are defined as initial fuel modification areas where overstory crowns may need to be thinned and where surface and ladder fuels should be significantly reduced. The specific treatments may include a variety of fuel reduction prescriptions and treatment methods, similar to those used for Defensible Fuel Profile Zones (DFPZ’s). DFPZ’s are linear treatments that typically concentrate fuels reduction treatments along the top of major or strategic topographic ridgelines. Additional treatments that widen the DFPZ continue on the upper 2/3rds of the slope and are “feathered” back, or receive less intensive treatments, along the edges or lower portions of the slope.

The Shaded Fuelbreaks presented in this plan should be considered the initial step to a landscape-level fuels management strategy. The Shaded Fuelbreak might best be viewed as a location from which to “build out” other fuel reduction projects – and should not be considered an end in itself. The linear depiction of these projects on the maps are simply a representation of the general vicinity of the proposed work. In reality, these projects are intended to develop into area treatments over time that address the general fire risks in the identified area based on topography, aspect, fuel types and community threat. The fuelbreak strategy, used for the development of this document, is supported by the study titled, The Use of Shaded Fuelbreaks in Landscape Fire Management, (James K. Agee et al. 2000). The conclusion of this study is reproduced here, in part, for background information:

“There is a clear theoretical basis for concluding that fuelbreaks will alter fire behavior in ways amenable to limiting both the sizes of wildland fires and reducing the severity of damage from them. It is also clear that physical effectiveness of fuelbreaks depends not only on their construction specifications but on the behavior of

wildland fires approaching them, and the presence and level of fire control forces. Combining fuelbreaks with area-wide treatments in adjacent areas can reduce the size and intensity of wildland fires. These conclusions offer little guidance, however, in the specific design of a fuelbreak system. Creation of a fuelbreak network in a given area will be a site-specific decision, and will often be part of a wider scale landscape treatment of fuels.”

Specific vegetation removal prescriptions for project areas noted as Shaded Fuelbreaks, are beyond the scope of this Fire Plan. The objective for these areas should be to reduce the potential spread of crown fire. A generalized prescription designed to achieve this objective would be as follows:

Understory or surface fuels

To the extent feasible, surface fuels (brush & small trees) should be removed from beneath larger dominate trees with the objective of increasing groundcover to crown distances, reducing ladder fuels and disrupting continuous concentrations of surface fuels. Individual plants or groups of plants up to 10 feet in canopy diameter may be retained provided there is a horizontal separation between these patches of vegetation of 3 to 5 times the height of the vegetation, and this residual vegetation is not within the drip line of an overstory tree.

Midstory and Overstory Fuels

The harvesting of midstory and overstory trees, with 100% clean up of slash, should occur where crowns are intermingled, with the objectives of creating space between each crown and reducing overall crown densities to about 40-60%. Some groups of larger trees (3-4) can be left if significant crown opening is left around the group. Pruning of residual tree stems should occur up to at least 10 feet. Removal or retention of snags should be reviewed on a case by case basis.

Roadside Clearing

The Proposed Projects identified as “Roadside Clearing,” generally follow paved roads that are important for emergency evacuation, firefighting access and/or fuelbreak development. These projects will vary in width and in the degree of vegetation clearing based on landowner cooperation, fuel density, and fire threat. A 25 to 50 foot project width from the edge of road should be set as a minimum objective for this work. The general prescription for roadside clearing would be to remove all concentrations of brush and smaller trees (<8”) away from the road edge. Larger trees should be spaced to the maximum extent allowed by the property owner, and pruned to at least 10 feet.

TABLE 14

PRIMARY FUEL REDUCTION PROJECTS

Project #	Administrative Unit Name	Unit Priority	Priority within Unit	Project Name	Type¹	Miles	Acres	Description
P1	Ione	4	1	Sutter Creek Rancho	SFB	2.5	91	Extends north from Hwy. 88, beginning about ½ mile east of Sunnybrook, mostly following a jeep trail to Sutter-Ione Road (Goffinet Rd.).
P4	Jackson	5	1	Piccardo Ranch	SFB	3.4	125	Extends east from Hwy. 49, beginning about 1 mile north of Hwy. 49 bridge, following ridges paralleling Moke. River to vicinity of Amador Lane (1 mile west of Lake Tabeau).
P3	Jackson	5	2	Black Gulch	SFB	2.1	76	Extends north from Moke River, beginning about 1 mile west of Middle Bar bridge, following ridge east of and parallel to Black Gulch.
P6	Jackson	5	3	Bonnefoy	SFB	1.1	41	Extends north from Hwy. 88 from Bonnefoy Dr. following ridges to New York Ranch Road.
P9	Sutter/Amador	6	1	Shake Ridge Road West	RSC	4.0	48	Extends southwest along Shake Ridge Road from BM 2040 (southern end of Hale/Rancheria South project) to Gopher Flat Road.
P11	Sutter/Amador	6	2 ²	Quartz Mt.	SFB	2.0	72	Extends southeast from New Chicago Road, beginning about 1 mile north of Quartz Mt., following ridges to vicinity of Echo Dr. and ending at Amador/Quartz SFB.
P12	Sutter/Amador	6	2 ²	Amador/Quartz	SFB	2.0	72	Extends southwest from Quartz Mt. Road, beginning at Meath Dr., following Echo Dr. and other secondary ridge roads to Amador Creek.
P10	Sutter/Amador	6	3	Hale/Rancheria West	SFB	3.8	138	Extends west for 3.8 miles from Hale Road, beginning at the end of the Hale/Rancheria East project (BM 1989), following main ridge south of the SF Dry Creek.
P2	Sutter/Amador	6	4	Stoney Creek	SFB	2.6	94	Extends north from Hwy. 88, beginning at the intersection with the Stoney Creek Road, following the ridges adjacent to the Stoney Creek Rd. to Sutter-Ione Rd. (Goffinet Rd.).
P16	Fiddletown	3	1	Ponderosa Way North	SFB	1.2	45	Extends south from Fiddletown Road, beginning at intersection with Ponderosa Way, following ridges to South Fork Dry Creek.
P15	Fiddletown	3	2	Fiddletown Road	RSC	8.0	99	Extends west along Fiddletown Road from Shake

TABLE 14

PRIMARY FUEL REDUCTION PROJECTS

Project #	Administrative Unit Name	Unit Priority	Priority within Unit	Project Name	Type ¹	Miles	Acres	Description
								Ridge Road to Hale Road.
P22	Fiddletown	3	3	American Flat	SFB	5.5	203	Extends west from Hale Road, beginning on a ridge just south of Deadman Fork of Dry Creek, following ridges to N.F. Dry Creek.
P14	Fiddletown	3	4	Wetzel	SFB	4.5	164	Extends west from Fiddletown Road, near Jura Lane, following ridges south of Big Indian Creek to Tyler Rd.
P23	Pine Grove	2	1	Pine Acres	SFB RSC	9.7 1.0	353 12	This project implements the Pine Acres Fire Safe Plan. See Plan for details
P7	Pine Grove	2	2	Surrey/Lupe	SFB	3.1	114	Extends northeast from Ridge Road, beginning in vicinity of Bates Road, and following the 2000 foot contour line around the Surrey Junction & Tanyard Hill residential areas to Lupe Road.
P8	Pine Grove	2	2	Lupe Road	RSC	1.9	23	Extends north from Ridge Road along Lupe Road & Ponderosa Way to vicinity of Sutter Creek.
P13	Pine Grove	2	3 ³	Hale/Rancheria East	RSC	2.5	30	Extends west along Hale Road from Shake Ridge Road to beginning of the Hale/Rancheria West & South projects (BM 1989).
P24	Pine Grove	2	3 ³	Hale/Rancheria South	SFB	2.0	24	Extends south from Hale Road, beginning at BM 1989 and following a unnamed secondary road to the Shake Ridge Road. This project begins at the intersection of the Hale/Rancheria East & West projects.
P20	Pine Grove	2	4	Defender Grade	SFB RSC	2.5 .5	91 6	Extend south from Hwy 88 at Pioneer following ridges to Hwy 26. Then follows Hwy 26 west to major ridge at about 3000 foot contour and then runs south down ridge line to NF Moke. River.
P5	Pine Grove	2	5	Ponderosa Way South	SFB	1.7	60	Extends south from intersection of Tabeau Road & Ponderosa Way following ridge and Ponderosa Way to North Fork Mokelumne Bridge.
P21	Pioneer/Volcano	1	1	Rams Horn/ Shake Ridge	SFB RSC	2.5 4.0	91 48	Extends west along Shake Ridge Road, beginning from about Lupin Road, to Rams Horn Grade. Follows ridges down Rams Horn Grade to bottom of grade near
P18	Pioneer/Volcano	1	2	Pioneer Trail East	SFB	1.5	109	Extends north from completed Pioneer Trails SFB

TABLE 14

PRIMARY FUEL REDUCTION PROJECTS

Project #	Administrative Unit Name	Unit Priority	Priority within Unit	Project Name	Type¹	Miles	Acres	Description
					RSC	1.5	18	to Shake Ridge Road following ridge along Canterbury Rd and Pine Drive East.
P17	Pioneer/Volcano	1	3	Pioneer Trail West	SFB	2.5	91	Extends south, following ridges from completed Pioneer Trails SFB to Pioneer Volcano Road in vicinity of Quartz Road.
P19	Pioneer/Volcano	1	4	Antelope South	SFB	2.0	73	Extends south, following ridges from completed Antelope SFB to vicinity of Tiger Creek spillway on the NF Mokelumne River.

Notes:

1. Project Types are designated as either Shaded Fuel Breaks (SFB) or Roadside Clearing (RSC) or a combination of both.
2. Projects P11 and P12 have the same ranking within the Sutter/Amador Admin. Unit because they were originally selected as one project and later separated into two projects.
3. Projects P13 and P24 have the same ranking within the Pine Grove Admin. Unit because they were originally selected as one project and later separated into two projects.

TABLE 15

SECONDARY FUEL REDUCTION PROJECTS

Project #	Administrative Unit Name	Unit Priority	Project Name	Type ¹	Miles	Acres	Description
S1	Plymouth	7	Copper Hill Mine	RSC	1.4	17	Project is located east of Copper Hill mine, and extends along the secondary road from the County line, south.
S2	Plymouth	7	East Latrobe	SFB	2.5	89	Project is located east of Latrobe Road, on a ridgetop extending from the Cosumnes River, south to Loretz Road.
S3	Plymouth	7	Oak Meadow	RSC	1.9	23	Extends north along Oak Meadow Rd. from Old Sacramento Road.
S4	Plymouth	7	Old Sacramento North	SFB	3.6	131	Project segment extends north from Old Sacramento Road, along a ridge to the Cosumnes River
S5	Plymouth	7	Enterprise	SFB	2.0	73	Extends southwest from the Hwy 49 bridge on the Cosumnes River up a major ridge generally following a secondary road.
S6	Plymouth	7	Bell Road	RSC	2.3	28	Project extends along Bell Road, north to the Cosumnes River.
S9	Ione	4	Brush Road	RSC	1.3	16	Project extends from Brush Road, north to Mariah Heights Road.
S13	Ione	4	Irish Hill Road	SFB	3.2	115	Project extends from Irish Hill Road, northwest to Barney Road.
S12	Ione	4	Clay Pit	SFB	1.8	66	Project extends from Irish Hill Road, northwest along a ridgetop that parallels Michigan Bar Road.
S11	Ione	4	Mule Creek	SFB	1.3	46	Project is located north of Ione and west of Hwy 124 on a ridge that runs to the northwest beginning from the vicinity of the intersection of Hwy 124 and the Sutter-Ione Road (Goffinet Rd.).
S10	Ione	4	Paine Road	RSC	2.2	27	Extends along Paine Rd. from Tonzi Rd. south to Sutter Ione Rd. (Goffinet Rd.).
S14	Comanche	8	Jackson Valley Road	RSC	2.2	27	Extends south along Jackson Valley Road from Hwy 88.
S15	Comanche	8	Chemisal	SFB	2.5	91	Extends from Buena Vista Road, southwest to Coal Mine Road.
S16	Jackson	5	Mountain Spring	RSC	1.5	18	Extends south down major ridge from Highway 88, beginning about ½ mile east of Sunnybrook.
S17	Jackson		Previtali Road	SFB/RSC	3.2	118	Project extends along Previtali Road, then follows a ridgetop northeast to Clinton Road.
S7	Fiddletown		Fiddletown Road	RSC	2.6	31	Project extends from Tyler Road west along the North Fork Dry Creek.
S8	Fiddletown		Highway 16E	RSC	1.3	15	Project extends along southern edge of River Pines Neighborhood, along Highway 16E.

TABLE 15

SECONDARY FUEL REDUCTION PROJECTS

Project #	Administrative Unit Name	Unit Priority	Project Name	Type¹	Miles	Acres	Description
S18	Pioneer/Volcano		Canzatti Springs	SFB	2.9	104	Project extends from Canzatti springs, west to Defender Grade Road. Project may coincide with existing powerline Right-of-Way.

Notes:

1. Project Types are designated as either Shaded Fuel Breaks (SFB) or Roadside Clearing (RSC) or a combination of both.

Project Prioritization

For this Fire Plan the Proposed Projects locations were focused in the “lower” eight Administration Units based on the assumption fuel reduction planning in Unit 9 (upcountry unity) would be conducted by USFS and not the AFSC. The Proposed Projects were separated into two categories identified as “Primary” and “Secondary” projects. The primary projects were selected with assistance from the CDF Chief’s for Battalions 14 & 15, CDF’s Vegetation Management Coordinator, and other CDF fire management personnel using their local field knowledge of fuels, fire threat and fire behavior. The project selections were reviewed and confirmed by the CDF team by helicopter on December 3, 2003. The selections were presented to the Amador County Fire Chiefs for comment and input at their monthly meeting on December 7, 2003. The objectives that were considered for selection of project areas included: the protection of population centers; fragmentation of large fuel concentration areas; and the support of current fuel modification work. Using the same objectives as the primary projects, the secondary projects were selected through an office review process using topographic maps and the CDF’s Fire and Resource Assessment Program (FRAP) information for Fire Severity Zones, Surface Fuels, Fuel Rank and Fire Threat. Within the “Primary” category of projects, further prioritization was done by ranking the Administration Units by their potential for large catastrophic fire, using FRAP Fuel Rank information. Then the projects within each Unit were ranked using the CDF team’s consensus on the relative importance of each project in meeting the objectives described above.

4.2 Environmental Review

This section of the Fire Plan discusses the environmental review protocol pertinent to future AFSC hazardous fuels reduction projects. Except for low impact projects, it is anticipated that fuel reduction projects conducted by the AFSC will require a minimum environmental review process that will include a review of potential project impacts relative the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA) and the Migratory Bird Treaty Act (MBTA). As part of this minimum effort, the AFSC should conduct a review through the California Natural Diversity Data Base (CNDDDB) to verify findings of Special Status Species within a project area, and conduct a literature search of existing information available through the local archaeological clearinghouse (California State University Sacramento) to determine the presence of any archaeological or historic resources within a fuel reduction project site. If through this review process a particular Special Status plant or animal species or archaeological or historic resource is found at a project site, mitigation would be required that would likely include delaying work to another period of the year, or physically working around the particular species or archaeological or historic resource. Low impact projects, such as the senior assistance program, chipper program and hand piling and burning around homes, would normally be exempt from environmental review due to the past disturbances resulting from home construction. In all cases, work should stop and an archaeological site survey, or plant or animals survey, should be conducted if a site or special status species is found during the project work.

National Environmental Policy Act (NEPA)

Federal agencies such as the United States Forest Service and Bureau of Land Management under NEPA are directed by the United States Congress since January 1, 1970 to carry out regulations, policies and programs in accordance with NEPA (42 U.S.C 4322; 40 C.F.R. 1500.2).

The AFSC fuel reduction projects may be subject to the NEPA process depending on the source of grants for the fuel reduction projects and the location of the projects. For the AFSC, the likely sources of federal funding will be the United States Forest Service and Bureau of Land Management. Fuels management projects based on grants from these agencies or projects located on federal property will require some level of environmental review. The parameters of this review will be dictated by the agencies at the time the grant is solicited by the AFSC. As discussed above, at a minimum, the environmental review will include review of the potential impacts of the project in the context of the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA) and the Migratory Bird Treaty Act (MBTA).

California Environmental Quality Act (CEQA)

CEQA is a set of laws designed to develop and maintain a high quality environment and prevent environmental damage ([Public Resources Code §21000 et seq.](#)). CEQA applies to decisions by state and local governmental agencies that carry out or approve projects that have the potential for causing significant environmental effects. As Fire Safe Councils are not governmental agencies, and are informal groups that work to coordinate fire safety activities of public and private entities, and are not an agency with powers granted by the State Legislature or by a local legislative body, decisions of a Fire Safe Council are not subject to CEQA. While the Fire Safe Councils may have representatives from State and local agencies, these representatives do not make the council a public agency. However, if an activity sponsored by a Fire Safe Council needs approval, financing, or efforts directly undertaken by a state or local public agency, the public agency would need to address CEQA compliance with its actions (Dinah Bear 2003). CEQA compliance responsibility will be determined by the state or local public agency in collaboration with the Fire Safe Council and would take the form of a CEQA Exemption, a Negative Declaration or on rare occasions a requirement for an Environmental Impact Report:

CEQA Exemptions

After a fuel reduction activity has been determined to be a “project” subject to CEQA review, the lead public agency involved in the activity determines if the project is exempt under CEQA guidelines. The project may be exempt if it falls into one of the following categories described below.

Statutory Exemption

This exemption applies to activities specifically identified by the legislature as being exempt from CEQA review and includes burning permits and Air District permits for smoke management (Article 18, Sec. 15281).

Categorical Exemption

This exemption would apply to projects that have no possible significant effect on the environment and includes minor alterations to land (Article 19, Sec. 15304). This Section specifically exempts fuel reduction activities within 30 feet (or 100 feet if authorized by a local fire protection authority) of a structure.

Negative Declarations

After a fuel reduction activity has been determined to be a “project” subject to CEQA review and it has been determined that an exemption is not applicable, the lead public agency may choose to prepare a Negative Declaration if environmental impacts are considered insignificant. This is a written statement based on an Environmental Checklist that describes the reasons that a proposed project will not have a significant effect on the environment and therefore does not require the preparation of an Environmental Impact Report. The Negative Declaration requires a public comment period of 20 days. A Mitigated Negative Declaration may be required if some impacts are deemed significant but can be resolved in the Environmental Checklist and not in an Environmental Impact Report.

Environmental Impact Reports (EIR)

Large fuel reduction projects with impacts that cannot be fully addressed in a Negative Declaration must comply with CEQA requirements through the preparation of an Environmental Impact Report. EIRs can be lengthy and expensive and generally involve an analysis of impacts to biological resources, hydrology, air quality, traffic, geology/soils, aesthetics, cultural resources, cumulative impacts and impacts to other resources as identified through the EIR Process. Mitigation measures are developed during the EIR process in order to address impacts created by the projects implementation. Public review and comments are important elements in an EIR.

Fuel reduction projects conducted by small landowners generally do not require planning documents subject to CEQA review, unless the project includes removal of timber for commercial sale (discussed later in this report under Timber Harvest Plans) or involves CDF or other California public agency administration and/or support.

Large property owners or groups of small property owners such as timber companies, utility companies, ranches, and subdivisions may request the support of the CDF in conducting fuel reduction projects through the CDF’s VMP Program. Resources made available through the VMP program, include information on environmental resources in the area that have the potential for being impacted by the project, advice on fuel treatment methods, stand-by fire suppression equipment and manpower, and hand labor for cutting, piling and burning. CEQA documentation is generally required for each VMP project and is done by the CDF through the preparation of an Environmental Checklist and a Negative Declaration.

All CEQA documentation prepared for projects that have received federal funding must be reviewed to ensure the documentation meets the intent of NEPA.

Timber Harvest Plans (THP)

Fuel reduction projects in stands of timber may involve the removal of timber or solid wood forest products that land owners may sell in the open market to recover the costs of fuel reduction work, or sold for profit. Projects may include the creation of fireline that remove all timber and vegetation, or “shaded fuelbreaks” where understory vegetation and some dominant trees are removed to create areas of discontinuous fuels. These projects would involve the use of heavy equipment to remove the timber and transport it out of the forest. Impacts associated with timber harvest operations would be addressed in a THP. These plans must be prepared by a Registered Professional Forester (RPF), and must comply with the Rules and Regulations of the California Forest Practice Rules as they apply to THP’s. The purpose of the Forest Practice Rules is to implement the provisions of the Z’berg-Nejedly Forest Practice Act of 1973 in a manner consistent with other laws, including but not limited to, the Timberland Productivity Act of 1982, CEQA, the Porter Cologne Water Quality Act, and the California Endangered Species Act. The provisions of these rules must be followed by an RPF in preparing THPs, and by the CDF Director of Forestry in reviewing such plans.

The THP process substitutes for the EIR process under CEQA because the timber harvesting regulatory program has been certified pursuant to PRC Section 21080.5. In recognition of that certification and PRC Section 4582.75, these rules are intended to provide the exclusive criteria for reviewing THPs. If the CDF or the Director of Forestry believes that there are significant adverse environmental impacts not covered in existing rules, matters are referred to the Board of Forestry as specified in these rules.

The sale of commercial timber that has been harvested during a fuel reduction project can support future fuel reduction needs through establishment of a trust fund. Monies obtained through the sale of the timber can be used for the future maintenance of a fuelbreak or for the control of understory vegetation over time. This may be a viable tool for some communities in which many small landowners are involved with a fuelbreak that extends across their land.

Fuel reduction projects that remove trees on private and state timberlands may be exempt from THP requirements under an Exemption process of the California Forest Practice Rules. The cutting and removal of trees in compliance with sections 4290 and 4291, which eliminates the vertical continuity of vegetative fuels and the horizontal continuity of tree crowns, is covered under the THP exemption process. An exemption form must be completed and submitted to the Director of CDF prior to commencement of operations. Forms can be obtained from CDF.

4.3 Fuel Reduction Project Recommendations

42 fuel reduction projects have been identified and are recommended for consideration in Section 4.1 of this Fire Plan. In addition to these fire hazard reduction projects, other fire prevention programs are recommended for consideration as follows:

Mt. Zion Lookout

Professional lookouts result in quicker initial response time for fire fighters. This is a critical factor in controlling wildfire in the heavy fuels in Amador County. It is recommended that a

consistent funding program be provided in order to assure continued operation of the Mt. Zion Lookout and the retention of experienced personnel.

Community Fire Safe Plans

The Amador County Fire Plan is not detailed enough to address fuel reduction projects at the residential community or subdivision level. Using the Pine Acres Fire Safe Plan as an example, the Amador County Fire Plan needs to be expanded in densely populated areas with detailed information on the recommended location of tactical fuelbreaks, road clearances, evacuation routes and safe areas. It is recommended that detailed fire plans be developed for the following residential communities and subdivisions. This list is not exhaustive, and other areas should be added for detailed planning consideration as research continues.

- KC Ranchettes
- Sutter Highlands
- Lupe
- Surrey Junction
- Pioneer
- River Pines
- Butte Mountain
- Clinton
- Ponderosa Heights
- Tanyard Hill
- Irish Town Road
- Cedar Heights

Support of Amador Fire Districts and Departments

It is recommended that the Amador Fire Safe Council explore ways to assist the various County fire districts and departments in the area of grant funding for fire fighting assets, paid personnel and training.

Fire Hazard Reduction Coordination with PG&E

PG&E is required by law to maintain certain clearances on rights-of-way for its primary and secondary power transmission lines. It is recommended that future fire hazard reduction projects be coordinated with PG&E as a way to share cost and enhance project work.

Fire Safe Education

The AFSC has already implemented a strong and successful public education program through its advertisements, public meetings, chipper program, senior citizen program and demonstration projects. It is recommended that this program be continued and enhanced where possible and the flow of funds uninterrupted. In order to enhance success of this program and maintain high visibility in the community, consideration should be given to implementing a “recognition” award for property owners who regularly meet defensible space criteria.

Shaded Fuelbreak Maintenance

Vegetation fuel hazard reduction work requires a continuing maintenance program once projects have been initiated. Removed brush will quickly return from sprouts or seed if not controlled. Herbicides, prescribed burning, mastication and grazing are some of the methods that can be used for control. It is very important that a maintenance program begin within the first two to three years after the initial projects are completed to control the flush of re-growth stimulated by the disturbances from the original project. The maintenance program would then be repeated on a routine basis as needed. It is recommended that follow-up maintenance projects be initiated in a timely manner after the completion of each fuel hazard reduction project.

BLM lands and Participation

The BLM manages approximately 8,700 acres of land throughout Amador County. Most of BLM land is within the lower reaches of the Mokelumne River drainage, or is divided into small scattered parcels that are intermingled with private land holdings (WUI zones). Many of these areas are overgrown with vegetative fuels due to the lack of active management by the BLM. As a result, many of the private properties adjacent to these lands are exposed to a greater risk of damage and loss due to wildfires. It is recommended that the AFSC focus some of their planning efforts on the private lands around the hazardous BLM lands in order to reduce the risk to these neighborhoods. Also, the AFSC should continue to solicit BLM participation and encourage the local BLM land managers to more aggressively address WUI issues on their properties.

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6. FIGURES
