

California Department of Forestry and Fire Protection

Amador – El Dorado Unit Fire Management Plan 2007 - 2008



**Ore Fire – July 2006
Amador – El Dorado Unit**

COMMUNITY WILDFIRE PROTECTION PLAN AGREEMENT

This Community Wildfire Protection Plan developed for the California Department of Forestry and Fire Protections Amador-El Dorado Unit:

- Was collaboratively developed. Interested parties and federal agencies managing land in the Amador-El Dorado Unit have been consulted.
- Identifies and prioritizes areas for hazardous fuel reduction treatments and recommends the types and methods of treatment that will protect communities within the Amador-El Dorado Unit.
- Recommends measures to reduce the ignitability of structures throughout the area addressed by the Plan.

The following entities attest that the standards listed above have been met and mutually agree with the contents of this Amador-El Dorado Unit Community Wildfire Protection Plan.

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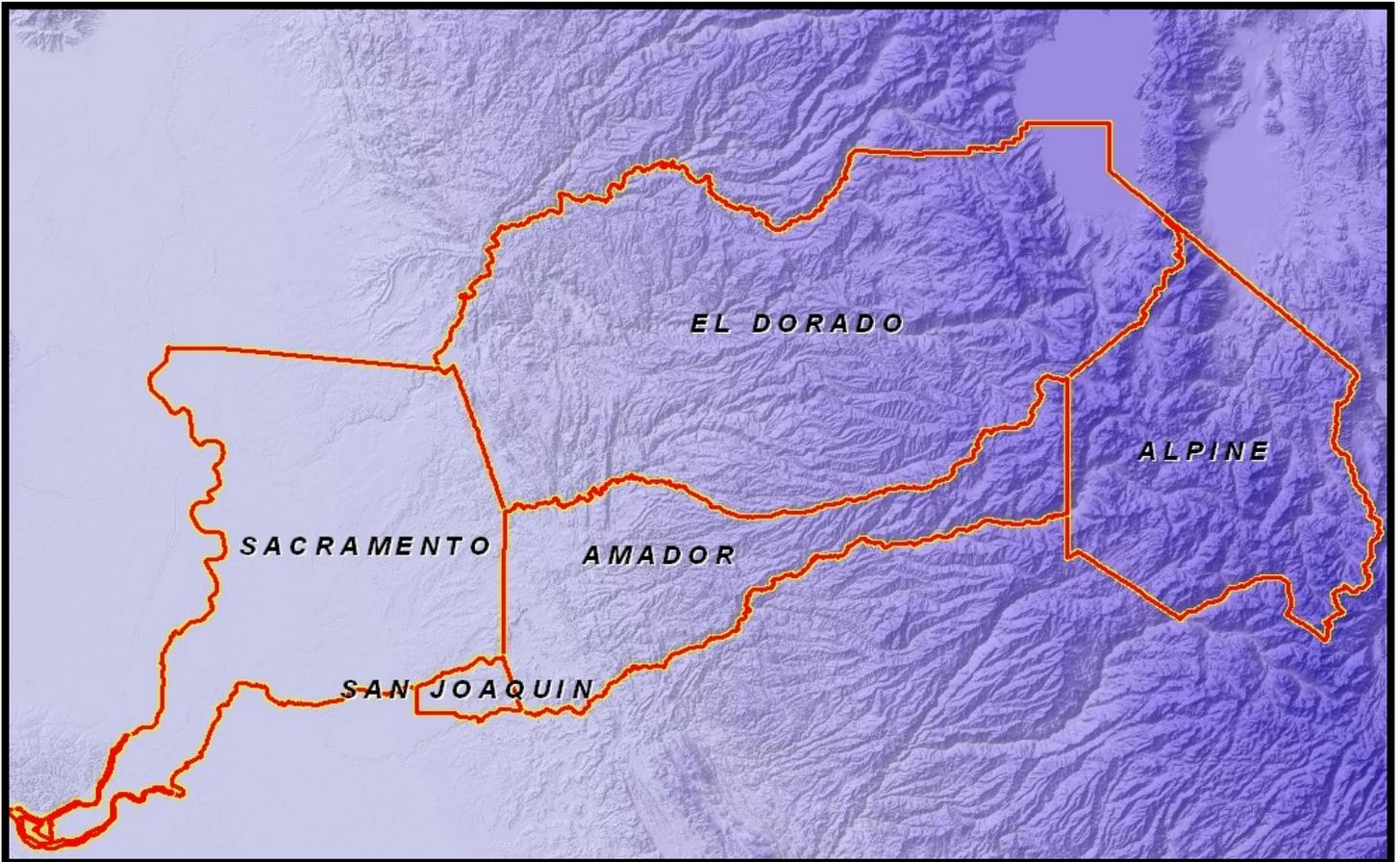
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AMADOR-EL DORADO UNIT



County	Total Acres	SRA Acres	% of AEU SRA
Amador	387,429	292,039	28.2
El Dorado	1,145,528	566,394	54.7
Alpine	474,104	35,018	3.4
Sacramento	635,892	117,216	11.3
San Joaquin	24,888	24888	2.4
Total	2,667,841	1,035,555	100

Statement of Purpose

The goal of any administrative unit of CAL FIRE is to reduce the loss of life, property, watershed values, and other assets at risk from wildfire through a focused pre-fire management program and increased initial attack success.

The above statement is fairly clear however the roadmap to accomplishing those ends isn't always crystal clear. Every administrative unit and associated communities have differing concerns as it relates to project implementation and priorities as it relates to wildland fire. The purpose of this Pre-Fire Management Plan is to provide adequate direction to departmental staff and communities within the administrative unit to better direct resources and personnel commitments to the implementation of this plan.

The Amador-El Dorado Unit Pre-Fire Management Plan has been prepared with the following objectives in priority order.

1. Support project work and planning efforts that encourage the development of safe ingress and egress routes for emergency incidents.
2. Continue to support the implementation of fire safe clearance around structures and the new 100' standard.
3. Support implementation of the new 2008 WUI Building standards through cooperation with local government planning departments.
4. Continue to provide operational training that will support safe and successful suppression operations.
5. Utilize CAL FIRE and community resources to mitigate large and damaging wildfires with defensible fuel zone/fuels reduction projects at critical operational locations.
6. Utilize prevention operations to reduce ignitions within the unit.
7. Conduct incident analysis to evaluate Unit success in achieving the 95% threshold of keeping fires less than 10 acres in size.
8. Educate the community on their role in the wildlands and support Fire Safe Council activities.

This Pre-Fire Management plan has been developed utilizing the above objectives during the evaluation process for this plan.

Amador-El Dorado Unit at a Glance					
	Amador	El Dorado	Sacramento	Alpine	San Joaquin
Total Acreage	387,429	1,145,528	635,892	474,104	24,888
SRA Acres*	292,039	566,394	117,216	37,830	24,888
DPA Acres	299,861	459,863	119,248	0	24,888
Population	40,000	180,000	1,365,000**	1,100	664,000**
Fire Districts	6	14	4	4	2
National Forest Region	5	5	5	4	N/A
National Forest	El Dorado National Forest	El Dorado National Forest Tahoe Management Unit	Fire and Aviation Management, McClellan	Humboldt-Toiyabe National Forest	N/A
Totals	Total DPA	Total SRA	Fire Districts	Total Acreage	
	898,861	1,038,305	30	2,667,841	

*SRA Acreage for Amador, El Dorado, Sacramento, Alpine, and San Joaquin Counties, respectively.

** Represents total population of the County. The CAL FIRE DPA/SRA only covers rural areas and not the total population distribution. Statistics are designed to identify the population pressures by proximity.

Amador-El Dorado Unit Cooperating Local Government Fire Agencies				
Amador	El Dorado	Sacramento	Alpine	San Joaquin
City of Ione	Rescue FPD	Sacramento Metro Fire	Kirkwood FPD	Clements FPD
Jackson City	Cameron Park CSD*	Herald FPD	Markleeville FD	Liberty FPD
Amador FPD	City of South Lake Tahoe	Wilton FPD	Woodfords FD	
Jackson Valley FPD	Diamond Springs – El Dorado County Fire	Folsom City Fire Department	Bear Valley FD	
Sutter Creek FPD	El Dorado County FPD			
Kirkwood FPD	El Dorado Hills CWD			
	Pioneer FPD			
	Garden Valley FPD			
	Georgetown FPD			
	Lake Valley FPD			
	Latrobe FPD			
	Meeks Bay FPD			

	Mosquito FPD			
	Fallen Leaf Lake FPD			
6	14	4	4	2

* CAL FIRE Schedule A Agreement for Fire Protection in Effect

Unit Vegetation Fire Call Statistics					
Year	Total Call Volume	Vegetation Fires	Acreage Burned	Structures Destroyed	Clearance Inspections
2007	24,021	251	941	1	6,669
2006	21,352	390	1,500		2,662
2005	19,070	230	1,393		2,113
2004	20,261	296	1,528		1,899
2003	19,550	346	1,260		
2002	18,036	311	1,982		
2001	16,953	337	4,830		
2000		301	1,564		
1999		375	1,839		
1998		238	224		
1997		309	785		
11 Year Ave.		308	1,622		

AEU Fire Plan Collaborators

Collaborators are defined as any persons, agencies, or organizations with an interest in the protection of assets from wildfire. The Amador-El Dorado Unit (AEU) makes a concerted effort to involve collaborators in its planning process. AEU Battalion Chiefs and Foresters are essential in development and implementation of the collaborative process. Their involvement provides a community based approach by identifying collaborators and their interests at the battalion level. This is an ongoing effort which is evaluated continuously through the development and planning of pre-fire projects. It is a priority to involve as many collaborators as possible and to continually update planning efforts with their input and support.

Primary Collaborators Within AEU

Private

- Residents of the Communities
- Sierra Pacific Industries
- Pacific Gas and Electric Company
- East Bay Municipal Utility District
- The Nature Conservancy
- El Dorado Irrigation District
- County Roads Department
- American River Watershed Group

Government

- United State Forest Service
- United States Fish & Wildlife Service
- Bureau of Land Management
- Bureau of Reclamation
- Bureau of Indian Affairs
- Department of Fish and Game
- Blodgett Forest University of California
- Regional Water Quality Control Boards
- County governments
- Resource Conservation Districts
- CalTrans

Unit Fire Safe Councils

Alpine County Fire Safe Council

The Alpine County Fire Safe Council (ACFSC), in cooperation with the Resource Advisory Committee and concerned citizens was organized in 2003. The mission of the ACFSC is to reduce the risk to life and property in Alpine County from catastrophic wildfires. The ACFSC facilitates community efforts such as defensible space education, public outreach, fuels reduction projects, and FireWise planning. Through these community based efforts and partnerships with local public agencies, Alpine County residents can reduce the risk of wildfire damage.

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Amador County Fire Safe Council

The Amador Fire Safe Council (AFSC) was organized in 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. 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.”

Cathy Koos Breazeal

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El Dorado County Fire Safe Council

The El Dorado County Fire Safe Council (EDCFSC) was organized in 2001 and currently has over 150 individuals from the public and private sectors on the council. The Mission of the EDCFSC is to protect the citizens of El Dorado County and their property from the effects of catastrophic wildfire through education, cooperation, innovation, and action." The EDCFSC is committed to making El Dorado County more fire safe and helping residents become aware of their responsibilities for their property and to their community.

ECFSC satellite councils:

*Auburn Lake Trails (FIREWISE Community)
Volcanoville & Quintette (FIREWISE Community)
Grizzly Flats (FIREWISE Community)*

<i>Cameron Park</i>	<i>Nashville/W. Sandridge</i>
<i>Chrome Ridge</i>	<i>Outingdale/E. Sandridge</i>
<i>Logtown</i>	<i>El Dorado Hills/Latrobe</i>
<i>Mosquito</i>	<i>Sly Park/Pollock Pines</i>
<i>Texas Hill</i>	<i>Garden Valley</i>
<i>Georgetown/Divide</i>	<i>Rescue</i>

[Vicki Yorty](#)

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<http://www.edcfiresafe.org>

Nevada Fire Safe Council

To create an organization that serves as a bridge between fire services and public agencies, and communities threatened by wildfire.

To focus the new organization's activities on creating a network of local community support, and to provide assistance to threatened communities to:

1. Improve resident's understanding of the fire threat and accept personal responsibility for some level of community protection.
2. Identify and rate the risks and hazards.
3. Develop and prioritize mitigation projects.
4. Procure funding assistance to implement mitigation measures.

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Amador-El Dorado Unit Fire Safe Planning

The Problem

The Unit has a unique wildland fire environment owing to its Mediterranean climate, highly combustible fuels, frequent wildland-urban interface zones, and the complexity of its terrain. Fires burn with greater intensity in this environment and are more costly and difficult to control, creating a greater risk of loss of life, property, and resources.

The Unit's Direct Protection Area (DPA¹) on the west slope of the Central Sierra Nevada Mountain Range is experiencing explosive population growth. Most of this growth is occurring outside of the incorporated cities - the same areas that contain the most hazardous fuels and most difficult terrain. Most of the man-made values at risk from wildfire are also located in these areas.

The fire environment in the Unit is conducive to large destructive wildfires as shown by the fire history map. Most of CAL-FIRE's DPA contains high to very high hazard fuels (brush and timber). These areas contain steep, rugged river canyons that can limit accessibility. Fighting fires with bulldozers is difficult, if not impossible in some locations.

Key Issues:

- Increasing life, property, resources, and ecological losses.
- Inadequate community ingress/egress routes.
- Difficulty of fire suppression, increasing safety problems for firefighters.
- Longer periods between recurring fires in many vegetation types increasing volumes of fuel per acre.
- Increasing fire intensities.
- Increasing taxpayer costs and asset losses.
- More people are living and recreating in wildland intermix areas, which adds to the increases in ignition sources, resulting in more fires.
- The loss of funding for the two lookouts has significantly decreased the early detection ability of fires in AEU.

¹ DPA are lands that CAL FIRE has contractually agreed to protect. These are usually federal lands where the federal government is fiscally and legally the protection agency but CAL FIRE resources are better positioned to provide protection. Federal agencies provide direct protection to SRA lands where the situation is reversed.

Fire History

The Unit's fire history is one of numerous small fires with large fires occurring every thirty to forty years. The last large fire was the Rancheria Creek Fire in 1961(34,104 ac.) However, over the past twenty years population growth and development in the wildland have placed many additional homes and businesses at risk - now small fires often create wildland-urban interface fire protection problems previously only found in the most densely populated areas of southern California. [Appendix "A"](#) contains the large fire history and the ten-year fire occurrence maps of the Unit. On these maps the fires shown prior to the 2002 fire season are 300 acres and larger. In 2002, CAL FIRE changed its fire mapping requirements to include mapping grass fires 300 acres and over, brush fires 50 acres and over, and timber fires 10 acres and over, and all wildland fires which destroy 3 or more structures or which cause \$300,000 or more in damage.

Most large fires are aligned east to west. This is particularly evident in Amador County. This orientation is due to two factors, prevailing winds and terrain. El Dorado and Sacramento Counties are more likely to experience fires, which run from the north to the south - especially at the lower elevations. However, the historical large fires in El Dorado County follow the same east to west orientation as those in Amador County.

Fire Weather & Terrain

The Wildland Fire Triangle consists of fuels, weather, and topography. The most variable component is weather and the most stable of the three is topography. These components of the fire environment can't be altered by humans to affect the potential outcome of wildland fire occurrence, however the contribution to fire behavior by both require significant analysis to meet the objective of mitigating wildland fire activity on State Responsibility Lands.

Fire Weather

Fire weather for AEU is typically dominated by three general weather phenomenon; the delta push influence, north wind events, and east foehn winds caused by high pressure development in the Great Basin. All three weather conditions cause considerable increases in fire intensity and size, however the delta influence is the most common and surfaces frequently throughout summer.

Typically, high pressure systems will dominate Northern California in the summer months bringing extremely hot and dry conditions over much of the region. As these systems develop they will tend to yield near the Delta and Sacramento

areas bringing the marine influence to the Unit. This is generally considered a good thing for fire behavior; slightly cooler afternoon temperatures and increases in relative humidity. The downside however is the strong winds that accompany these patterns. These winds are generally capable of overriding any benefit that may come from marine air. There is however an upside, this type of wind will typically subside after sundown causing fire behavior to drop off dramatically.

The other critical wind patterns for AEU are very difficult to predict, are relatively rare, and often times are forecasted only the day before. Northerly or easterly winds are typically warmer and drier than most other wind patterns due to air compression. These conditions provide the perfect environment for increased fire intensity and large fire growth. Fire growth is typically wind driven, however as these events recede, fire immediately returns to fuel/topography driven in opposing directions to the wind driven direction. This type of wind event is commonly referred to as a Santa Ana Wind in Southern California, however it can manifest itself anywhere in California.

Topography

Topography in AEU is much like most other Sierra Units; flat near the valley bottom and increasingly steep as the unit reaches higher elevations. More importantly is the relationship of vegetation change with that of topography. Fuel loads tend to increase significantly as the topography becomes more rugged. The area near the Central Valley and Delta region, which is characterized by rolling hills and flat valley bottoms, is generally dominated by grass lands or savannah. The fire behavior is generally wind driven short duration fires, typically lasting no more than one burning period.

As the terrain approaches the upper foothills the vegetation changes dramatically to brush and tree dominated fuel types. These areas are generally steeper and longer sloped which will tend to cause more fuel and topography dominated fire behavior. Heavier fuels over steeper slopes cause marked increases in fire intensity and fire size as well as making fire fighting efforts more difficult. This is primarily due to the demands that heavier fuels on steeper terrain can have on resources during active suppression and mop up operations.

Higher elevation areas of the unit are typically steeper than that of the upper foothill region. Fuels are generally Sierran Mixed Conifer which is made up of heavy timber and significant loads of accumulated dead fuels. Fire spread is typically fuel and slope driven but winds can cause long range spotting.

A major topographic feature that can lead to increased fire spread and intensity is the canyon alignment of the major river systems within the unit. All of the major river systems are generally aligned in an east/west direction which coincides with the general prevailing westerly wind patterns over the Unit. This alignment can have the effect of channeling which can increase the wind speed and turbulence

along these river systems. This alignment can often cause fire to spread farther and with greater intensity.

The Amador-El Dorado Unit has completed a Fire Weather Operating Plan which is used to drive much of the day to day fire business decision making in the unit. That plan is attached as an appendix and goes into much greater detail with respect to weather and topography. [Appendix "G"](#)

Geographic/Ownership

AEU is located in the Northern Central Sierras. It includes Amador, El Dorado, Alpine and portions of Sacramento and San Joaquin counties. AEU encompasses 2,667,841 acres. AEU's DPA serves **898,861** acres. The United States Forest Service, Bureau of Indian Affairs, Bureau of Land Management, and Bureau of Reclamation manage lands that are protected by AEU. Conversely, in addition to national forest lands, the Forest Service provides direct wildland fire protection to private lands within the El Dorado and Toiyabe National Forest. Even with the USFS providing that protection the Unit is still actively engaged in pre-fire projects outside of its DPA.

Within AEU there are two all season trans-Sierra highways, State Highway 50 in El Dorado County and State Highway 88 in Amador County. Bisecting the Unit north to south is historic State Highway 49, on the west side of the Sierras and State Highway 89 in the Lake Tahoe Basin on the east side of the Sierras. Most population growth has historically occurred along the two east-west highways. With the influx of high-tech industry in Sacramento County, growth is occurring north and south from the major population centers creating new areas of wildland-urban interface.

AEU contains all or part of three major watersheds, the Middle and South Forks of the American, the North Fork of the Mokelumne, and the Cosumnes River basin. Numerous water agencies and power companies utilize the resources of these rivers and their tributaries for generation of hydroelectric power, acquisition of drinking and irrigation water.

Socioeconomic

The approximate resident population in AEU's DPA is 320,053. El Dorado County's highest population densities are found along the Highway 50 corridor from El Dorado Hills to Pollock Pines. The areas of Pleasant Valley and along State Highway 49 south of the community of El Dorado are also experiencing a rapid population growth. In Amador County, the population densities are greatest along the State Highway 88 corridor from Jackson to the Pioneer area.

County	Population²
Alpine	1,100
Amador	40,000
El Dorado	180,000
Sacramento	1,377,193
San Joaquin	664,000
Unit Total	2,262,293

A significant seasonal population increase occurs in mid-spring and continues to gradually increase due to the influx of seasonal workers seeking employment during the apple and grape harvests in the late fall.

The easy access to the Lake Tahoe Basin, recreational areas, summer homes, and tourist attractions are also major factors that influence the population during fire season. Even though most of these areas are located within the El Dorado National Forest, visitors must transit through CAL FIRE's DPA to reach them. Since the majority of the fires are human caused, this increase in population usually results in more wildland fire ignitions.

The major industries that support the local economy includes timber, tourism, recreation, wine and fruit production, construction, service oriented businesses and to a lesser extent, light industry. All of these industries have at one time or another been affected by wildfires. Hundreds of thousands of dollars have been lost both directly and indirectly due to wildfires. It has been estimated that a closure of Highway 50 during the summer months, would result in a loss of between 1.5 and 2 million dollars a day in the South Lake Tahoe Basin (including Nevada interests). Additionally, an estimated \$150,000 would be lost to the west slope communities due to a closure of Highway 50 from the west county line to Echo summit.

² 2002 census data

California Fire Alliance Communities at Risk

Wildfires burn millions of acres throughout the United States each year. These fires dramatically illustrate the threat to human lives and development.

A fundamental step in realizing this was the identification of areas that are at high risk of damage from wildfire. Federal fire managers authorized State Foresters to determine which communities were under 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. With California's extensive Wildland-Urban Interface situation the list of communities extends beyond just those on Federal lands.

AEU contains thirty-three communities classified at risk from wildfire. Most of which are adjacent to federal lands. These are indicated with an "F" in the "federal threat" column of the following chart. The Hazard Level Code included on the list designates a community's fire threat level where 3 indicates the highest threat.



California Fire Alliance communities at risk

Communities	COUNTY NAME	FEDERAL THREAT	HAZARD LEVEL
Bear Valley	ALPINE	F	3
Kirkwood	ALPINE	F	2
Markleeville	ALPINE	F	3
Paynesville	ALPINE	F	3
Woodfords	ALPINE	F	3
Woodfords Community (Indian Reservation)	ALPINE	F	3
Amador City	AMADOR	F	3
Fiddletown	AMADOR	F	3
Ione	AMADOR		3
Jackson	AMADOR	F	3
Pine Grove	AMADOR	F	3
Pioneer	AMADOR	F	3
Plymouth	AMADOR	F	3
River Pines	AMADOR		3
Sutter Creek	AMADOR	F	3
Volcano	AMADOR	F	3
Cameron Park	EL DORADO	F	3
Coloma	EL DORADO	F	3
Cool	EL DORADO	F	3
Diamond Springs	EL DORADO	F	3
El Dorado Hills	EL DORADO	F	3
Georgetown	EL DORADO	F	3
Grizzly Flat	EL DORADO	F	3
Kelsey	EL DORADO	F	3
Latrobe	EL DORADO	F	3
Omo Ranch	EL DORADO	F	3
Outingdale	EL DORADO	F	3
Placerville	EL DORADO	F	3
Pleasant Valley	EL DORADO	F	3
Pollock Pines	EL DORADO	F	3
Shingle Springs	EL DORADO	F	3
South Lake Tahoe	EL DORADO	F	3
Rancho Murrieta	SACRAMENTO		3

AEU Action Plan



The Unit's Fire Management Plan was developed to address fire safe planning and hazardous fuel reduction concerns of federal, state, and local fire agencies, fire safe councils and other collaborators. The Fire Plan incorporates an across the board approach to reducing the occurrence and impact of wildland fire through a coordinated effort involving law enforcement, for instance PRC-4291 defensible space requirements, education and information, community fire safe and evacuation planning and hazardous fuel reduction with emphasis upon the wildland-urban interface and in particular the homeowner and creating defensible space.

Shaded fuel breaks are also a large component of the overall fuel reduction effort with the Unit focusing on those fuel breaks that support the safe ingress of fire suppression forces and egress of civilians in and around communities.



The Unit considers collaborator support extremely important. Lack of collaborators may eliminate otherwise important projects from consideration. To gain community support, the Unit works closely with the Fire Safe Councils, local governments, and Federal agencies. These Fire Safe Councils provide a forum for creating support for all kinds of projects. This resource has proven so effective that the Unit now accomplishes projects it could not accomplish in the past.

These Fire Safe Councils also closely link their projects with projects in the Unit's Fire Plan. This allows greater progress towards the ultimate goal of reducing damage from wildfire.

The key to effective fire planning is the battalion's acting as community wildfire leaders. Consequently, as community wildland leaders, the battalions can only achieve the Unit and Department goals with support from the community.

Amador-El Dorado Unit Fire Plan Assessments

The fire plan process involves analyzing of:

- Assets at Risk (AAR)
- Ignition Workload Assessment (Level of Service)
- Fuels
- Frequency of Severe Fire Weather

Computer based Geographic Information Systems (GIS) is used to assess and rank fire hazard and risk. GIS provides a systematic approach for determining the level of wildland fire protection service and identifying high risk, and high value areas. These are the areas with the greatest potential for large and costly wildfires. Ranking areas in terms of hazard levels allows fire managers and collaborators to focus on the most critical areas, evaluate alternatives and recommend solutions to reduce costs and losses.

The assets at risk are evaluated to the 450-acre scale within the Unit. This scale has been designated by the Department for purposes of manageability. This is based on the sectioning of a USGS 7.5 minute quadrangle map down into a grid resulting in grids of 450 acres per cell. The 450-acre cells have been designated as Quad 81st (Q81) fire plan assessments have been made at the Q81 level. For instance, each Q81st in Unit has a ranking applied to it for Assets at Risk (AAR), Level of Service (LOS), and Fuel Hazard Ranking.

In addition, the unit is using a fifth component:

- Residential Density (parcel based)

The GIS assessment tool only provides one side of the equation. Using each Battalion Chief's intimate knowledge of their area insures project development and implementation is directed at the most critical areas.

Assets at Risk

Assets at risk refer to real and societal values that have the potential to be burned or damaged by wildfire. Sixteen assets have been identified and ranked as to their risk from wildfire. The table on the following page provides a description of the assets evaluated.

Asset at Risk	Public Issue Category	Location and ranking methodology
Hydroelectric power	Public welfare	1) Watersheds that feed run of the river power plants, ranked based on plant capacity; 2) cells adjacent to reservoir based plants (Low rank); and 3) cells containing canals and flumes (High rank)
Fire-flood watersheds	Public safety Public welfare	Watersheds with a history of problems or proper conditions for future problems, ranked based on affected downstream population
Soil erosion	Environment	Watersheds ranked based on erosion potential
Water storage	Public welfare	Watershed area up to 20 miles upstream from water storage facility, ranked based on water value and dead storage capacity of facility
Water supply	Public health	1) Watershed area up to 20 miles upstream from water supply facility (High rank); 2) grid cells containing domestic water diversions, ranked based on number of connections; and 3) cells containing ditches that contribute to the water supply system (High rank)
Scenic	Public welfare	Four mile view shed around Scenic Highways and 1/4 mile view shed around Wild and Scenic Rivers, ranked based on potential impacts to vegetation types (tree versus non-tree types)
Timber	Public welfare	Timberlands ranked based on value/susceptibility to damage
Range	Public welfare	Rangeland ranked based on potential replacement feed cost by region/owner/vegetation type
Air quality	Public health Environment Public welfare	Potential damages to health, materials, vegetation, and visibility; ranked based on vegetation type and air basin
Historic buildings	Public welfare	Historic buildings ranked based on fire susceptibility
Recreation	Public welfare	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility
Structures	Public safety Public welfare	Ranked based on housing density and fire susceptibility
Non-game wildlife	Environment Public welfare	Critical habitats and species locations based on input from California Department of Fish and Game and other collaborators
Game wildlife	Public welfare Environment	Critical habitats and species locations based on input from California Department of Fish and Game and other collaborators
Infrastructure	Public safety Public welfare	Infrastructure for delivery of emergency and other critical services (e.g. repeater sites, transmission lines)
Ecosystem Health	Environment	Ranking based on vegetation type/fuel characteristics

Knowledge of the type, magnitude, and location of assets at risk, is critical to fire protection planning. Given the limits on fire protection resources, these resources should be allocated, at least in part, based on the value of the assets at risk. Knowledge of assets at risk is also necessary to choose those projects, which will provide the greatest benefit for a given investment.

Thus, as part of the overall fire plan process, assets were addressed at two levels. First, generalized assets at risk were estimated to indicate what areas contain high valued assets. Second, the input of collaborators further refined this assessment.

The areas with the highest combined asset values and fire risk were considered for projects, particularly where those projects would protect assets and reduce suppression costs should a fire start in the project area. Second, as potential projects were identified in these areas, they were subjected to an analysis of the degree to which the projects will reduce damage to assets and potential suppression costs. See [Appendix "B"](#) for the assets map.

The following table represents the weights (1-5), 1 being low and 5 being high, applied to each asset as used to compute the overall Asset Rank within the Unit.

Asset	Weight	Asset	Weight	Asset	Weight
Infrastructure	3	Timber	3	Storage (Water)	3
Water Supply	4	Range	1	Fire-Flood	2
Historic	2	Soil	1	Air	4
Scenic	2	Hydroelectric	3	Recreation	2
Housing	5	Non-game Wildlife	1	Game (Wildlife)	1
Ecosystem	3				



Residential Density

This data is a parcel map representing improved residential parcels. It helps planners focus on those areas where the combination of fuels, weather, and improved parcels pose the greatest potential for large damaging fires. It also provides planners and fire managers with an up-to-date view of residential density. This data is especially useful in the PRC 4291 program. Utilizing parcel maps in target areas helps the field personnel quickly and accurately complete their inspections. See [Appendix "C"](#) for the residential density map. (Sacramento & San Joaquin county data not available)



Ignition Workload Assessment (Level of Service)

The Fire Plan Ignition Workload Analysis assessment (LOS) is designed to measure the Unit's success at controlling fires before they become large and costly. The underlying assumption is that fires successfully contained in the initial attack stage are not problem fires. Problem fires are the few that exceed suppression organization capabilities and cause damage or are costly to control.

CAL-FIRE uses GIS to overlay a history of wildfires onto a vegetation type map and derives the average annual number of fires by size, severity of burning and assets lost. This data allows a level of service success and failure rate calculation. The number of successful initial attacks divided by the number of

initial attacks will equal the level of service for the time period analyzed. This rating is expressed as a percentage of fires that are successfully extinguished during initial attack. See [Appendix “D”](#) for the LOS maps.

Success is defined as those fires that are controlled before unacceptable damage and cost are incurred.

Failures are defined as the following:

Woodland	Fires = 15 acres and above
Grass	Fires = 12 acres and above
Brush	Fires = 6 acres and above
Interior (Timber)	Fires = 3 acres and above

FUELS

Vegetation within the Unit varies widely and includes grassland, oak woodland, brush, mixed conifer, and true fir. Using the GIS database, each 450-acre planning block is ranked by age and type of vegetation. These rankings identify high-volume fuel areas with accumulations of dead fuel having the potential for costly and damaging fires. Planning blocks are ranked high, medium, or low risk based on their potential as sites of costly and damaging fires.

The hazardous fuel ranking system is based on estimates of potential fire behavior associated with the particular fuel type, and it has a direct relationship to the burning characteristics of that fuel. The fuel rank is a composite index of fire behavior indicators – rate of spread, fireline intensity, heat per unit area, etc. This index represents how a fuel complex burns under a particular set of weather conditions. The intent is to provide a basic means of stratifying the landscape into areas of moderate, high, and very high hazard as related to potential fire behavior.

The rankings were determined by using the underlying fuel models in conjunction with the BEHAVE³ fire behavior prediction system. The various fuel models were then plotted on the fire characteristics chart commonly used to evaluate resistance to control (Rothermal, 1983), where a fuel model’s rate of spread is plotted against its heat per unit area. This plot represents fire behavior calculations conducted under severe fire weather conditions, where fires are more likely to escape. The farther the flame front is from the origin, the greater the fire behavior potential, and hence, the greater the resistance to control. As these fuel models only reflect surface fire behavior, additional information regarding crown fire potential and slope was also included in the development of the ranking scheme.

³ Behave fire modeling system is a computer application used to predict wildland fire behavior.

Generally, only those fuel models where there is a large volume of available fuels (yielding high heat per unit area) and at least a moderate expected rate of spread under severe environmental conditions have a hazard rank of “Very High”, “High” and “Moderate” ranks represent lesser fuel volumes where either heat per unit area or spread rate is expected to be lower. Heavy brush and heavy forest fuel types received “Very High” ranks. Moderate brush, pine/grass, intermediate load conifer, and light logging slash received “High” ranks. Grass and low volume forest types received “Moderate” ranks. See [Appendix “E”](#) for the fuels maps.

Weather

Weather conditions dramatically influence fire behavior. Large costly fires are frequently, though not always, associated with severe fire weather conditions. Severe fire weather is typified by high temperatures, low humidity, and strong surface winds.

Fire weather history is analyzed to determine the average number of days during fire season that severe fire weather occurs.

Severe fire weather is defined using the Fire Weather Index (FWI) developed by the USDA Forest Service Riverside Fire Lab. The FWI combines air temperature, relative humidity, and wind speed into a single score. The FWI gives wildland fire managers an index that indicates relative changes in fire behavior due to the weather (fuel and topography conditions are not included in the calculation). Severe fire weather occurs when the FWI, calculated from the hourly weather measurement, exceeds a predetermined threshold. The threshold FWI is derived from average bad fire weather of (approximately) 95° F, 20% relative humidity, and a 7 mph eye-level wind speed. Frequency of severe fire weather is defined as the percent of time during the budgeted fire season that the weather station records severe fire weather. Individual weather stations are ranked as low, medium, or high frequency of severe fire weather. This ranking can then be applied to the area on the ground represented by the weather station. See [Appendix “F”](#) for the severe fire weather map.

Severe Weather Analysis Parameters

FWI CUTOFF	START LOW RANK	START MED RANK	START HIGH RANK
29.725	0%	5%	20%

STATION	OWNER	LAT	LON	ELEVATION	WX-SCORE	WX-RANK
Ben Bolt	CAL FIRE	38.586	-121.017	840	0	L
Esperanza	CAL FIRE	38.243	-120.514	2512	1	L
Green Springs	CAL FIRE	37.834	-120.502	1000	2	L
Pilot Hill	CAL FIRE	38.833	-120.009	1250	0	L
Mt Zion	CAL FIRE	38.394	-120.650	2960	0	L
Secret Town	CAL FIRE	39.185	-120.882	2720	0	L
Crane Flat	NPS	37.767	-119.817	6644	1	L
Tuolumne Meadows	NPS	37.867	-119.300	9200	1	L
White Wolf	NPS	37.850	-119.650	8000	1	L
Bald Mountain	USFS	39.901	-120.686	4613	0	L
Beaver	USFS	38.519	-120.328	5700	10	M
Crestview	USFS	37.735	-119.000	7518	1	L
Hell Hole	USFS	38.900	-120.683	5240	9	M
Owens Camp	USFS	38.733	-120.250	5240	7	M
Stampede	USFS	39.483	-120.075	6600	1	L

WxSCORE

[SevereWx]/[WxInSeas] The weather score is a percentage of the number of days of severe weather during the designated fire season. Non-fire season data is not considered as the fuel is not in a state in which to readily burn regardless of the severity of weather.

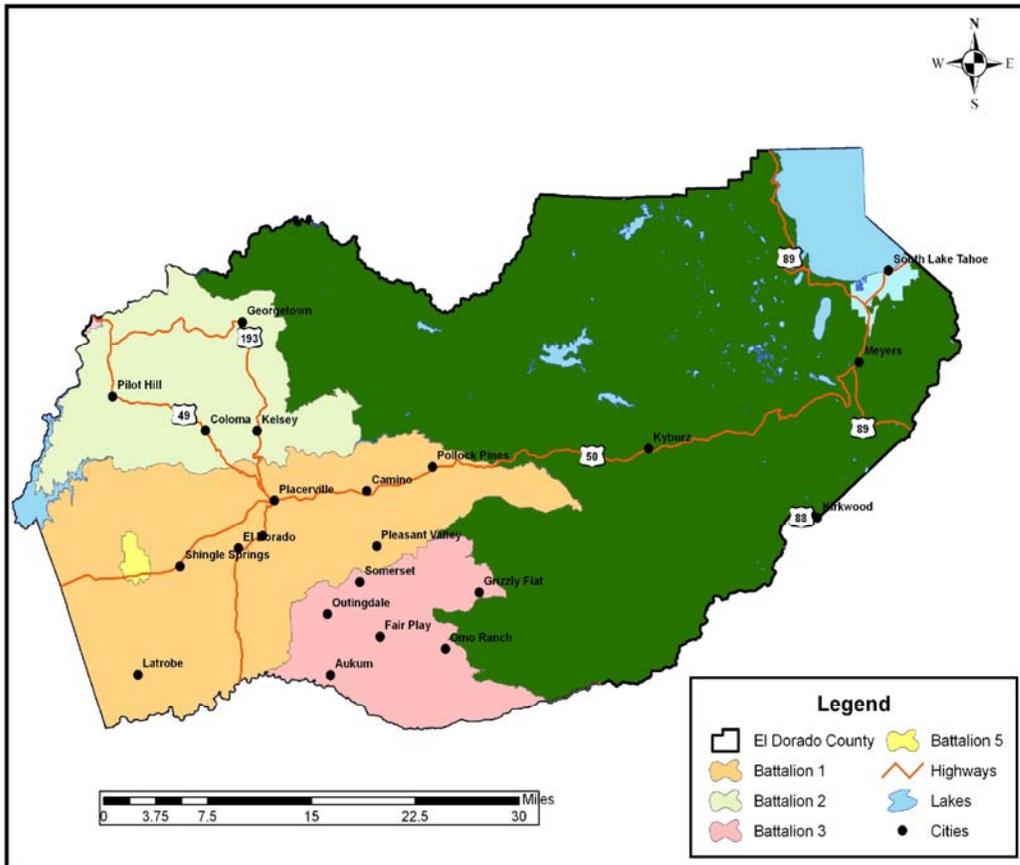
WxRANK

The WxSCORE intensity rating is lumped into three categories, low, medium, and high, to create a severe fire weather frequency ranking

Amador-El Dorado Unit Fire Planning By County

El Dorado County

El Dorado county consists of 459,863 acres of CAL FIRE Direct Protection Area and is divided into all or portions of CAL-FIRE Battalion's 1,2,3, and 5 as shown below.



Battalion 1 – Battalion Chief Suzanne Todd

Battalion 1 encompasses approximately 309,544 acres in El Dorado and Sacramento counties. El Dorado communities within the Battalion include Camino, Diamond Springs, El Dorado, El Dorado Hills, Logtown, Nashville, Placerville, Pleasant Valley, Pollock Pines, Rescue, and Shingle Springs.

Within Battalion 1 there are two CAL FIRE stations. Mt. Danaher Station (in Camino) has one fire engine and shares its location with the Amador-El Dorado Unit Headquarters, and the Camino Interagency Emergency Command Center which provides the Command and Control for SRA, LRA, and FRA, in Amador, Alpine, and El Dorado counties, the Eldorado National Forest (ENF), and Tahoe Management Unit (TMU). The second Battalion 1 station is El Dorado Station (in El Dorado) and has two fire engines, as well as a bulldozer, Battalion Chief, Fire Equipment Manager, mechanic, vehicle repair shop.

Seven local agency fire districts lie, at least partially, within Battalion 1. These Fire Districts are: El Dorado County Fire Protection District, El Dorado Hills Fire Department, Cameron Park Fire Department, Diamond Springs-El Dorado Fire Protection District, Rescue Fire Protection District, Latrobe Fire Protection District, and Pioneer Fire Protection District. A close working relationship is maintained with each district as well as with the USFS.

The fuels within Battalion 1 are diverse, and include approximately 18% timber, 33% brush, and 49% grass/oak woodland.

Like many areas in the Sierra Nevada's the Battalion contains a significant wildland-urban interface problem.

Battalion 1 Hazard/Target Areas

All communities within Battalion 1 SRA are evaluated using the following general and specific criteria to determine their Hazard/Target status:

1. Potential for life loss
2. Potential for property loss
3. Potential for high community consequence (historical, environmental, infrastructure, etc.)
4. Fuel types and fuel loading
5. Ingress and egress
6. Stakeholder collaboration

All communities within Battalion 1 meet the Target Hazard Criteria, some to a greater or lesser degree than others listed. The final criterion of stakeholder collaboration is key to the success of the ignition management plan.

Battalion 1 Ignition Management Plan:

Fire cause statistics for 2007 show that equipment use and debris burning, 22% and 19% respectively, were the leading causes of reported fires. The third dominant category is classified as “Undetermined”, whereas approximately 14% of fires reported and investigated in Battalion 1 did not result in specifying a cause for the fire. This is often the case when we do not have staff available to respond to fires, but are responsible for gathering fire cause, origin, and report information vicariously.

Ignition mitigations include education during the burn permit process, as well as target group education (saw shops, home shows, etc.) and defensible space inspections. Additionally, we are reviewing our current investigation techniques, policy, and procedure, with the goal of decreasing the number of “Undetermined” fire causes.

As in years past, we are focusing on education as our primary means of prevention.

Current Battalion 1 Projects:

Independence Fuel Break

Federal and state defensible fuel zone/shaded fuel break project for the protection of the Pollock Pines area in the vicinity of Forbay Road. This project is a collaborative effort to treat federal lands while creating an opportunity to treat private lands that are isolated between the Federal lands. The El Dorado National Forest has been conducting thinning and prescribed fire operations on the Independence Fuel Break as a high priority for their new fuels management strategy. CAL FIRE was approached by the USFS to assist in project implementation for the private lands that lie within the federal lands project. The federal agencies are unable to directly conduct work on private lands; however, they are able to provide funding sources.

CAL FIRE chose to utilize the California Forest Improvement Program (CFIP) for project implementation. CFIP provides the statutory framework to conduct the type of work required to fulfill the project objectives and has an excellent mechanism to manage the administration of the project work. CFIP is currently an unfunded program; however, there is the ability to move Federal grant funds through the CFIP program.

The Unit has been awarded two National Fire Plan Grants to fund project work through the use of the California Forestry Improvement Program (CFIP). The

grants total \$212,000, which is administered through the already in place CFIP mechanism.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Non-Industrial Private Landowners

Sly Park Fire Safe Project

This project is primarily a fuels treatment project that prescribes the creation of a Defensible Fuels Zone/shaded fuel break between Park Creek Road and Sly Park Reservoir with the utilization of broadcast burning as well as hand treatment by CAL FIRE Growlersburg crews. This project provides a fuel break for the surrounding communities and natural resources around Sly Park Reservoir. Landowners, situated along the border of the project, will be allowed to participate in the Sly Park Fire Safe Project II by including their residential parcels in the fuel break. This project went into the maintenance phase starting the fall of 2004.

This fuel break project is considered complete however; continued maintenance is required to ensure the project remains intact. Maintenance will require some minor fire crew work and understory burning.

Cooperators / Collaborators

Amador-El Dorado Unit
Sly Park Recreation Area
El Dorado Irrigation District
Non-Industrial Private Landowners
USFS
Sierra Pacific Industries

Last Chance Fuels Reduction Project

Federal and state defensible fuels zone/shaded fuel break project for the protection of the community of Grizzly Flats within the Cosumnes River watershed. This project is a collaborative effort to treat federal lands while creating an opportunity to also treat private lands that are isolated between the Federal lands. The El Dorado National Forest has been conducting thinning and prescribed fire operations on the Last Chance Fuel Break as a high priority for the Federal fuels management strategy. CAL FIRE was approached by the USFS to assist in project implementation for the private lands that lie within the federal lands project. The federal agencies are unable to directly conduct work on private lands; however, they are able to provide funding sources.

CAL FIRE chose to utilize the California Forest Improvement Program (CFIP) for project implementation. CFIP provides the statutory framework to conduct the type of work required to fulfill the project objectives and has an excellent mechanism to manage the administration of the project work. CFIP is currently an unfunded program; however, there is the ability to move Federal grant funds through the CFIP program.

The Unit has been awarded National Fire Plan Grant funding to conduct project work through the use of the California Forestry Improvement Program (CFIP) in cooperation with small non-industrial landowners. The grant total is \$198,000, which is administered through the already in place CFIP mechanism.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Non-Industrial Private Landowners

Folsom Lake/El Dorado Hills Fire Safe Project

This project includes the establishment of defensible fuel zones at the boundary of the Folsom Lake State Recreation Area and the private parcels that have homes with inadequate set backs. The intent is to provide defensible zones that start on private lands and extend 100-300 feet into the State Recreation Area. This will provide adequate protection to fire personnel and residents from a fire that originates within the Folsom Lake State Recreation Area.

Cooperators/Collaborators

Amador-El Dorado Unit
El Dorado Hills Fire Department
Bureau of Reclamation
California Department of Parks and Recreation
El Dorado County Fire Safe Council

Future Battalion 1 Projects:

- Mountaineers 2007 CFIP (Pollock Pines)
- Thorne/Hayden 2006 CFIP (Pollock Pines)
- Goldridge Forest 2007 CAG (Pollock Pines)
- Sandridge/Wolverine Ln. 2007 CAG (Nashville)
- Logtown 2007 CAG (Logtown)
- Greenstone 2007 CAG (Diamond Springs/Rescue)
- Chrome Ridge 2006 CAG (Pleasant Valley)
- Goldbug Park 2006 CAG (Placerville)
- Eltner 2005 CFIP (Pollock Pines)

Battalion 2 – Battalion Chief Mark Brunton

CAL FIRE Battalion 2 lies primarily on the Georgetown Divide in northern El Dorado County. The communities of Georgetown, Garden Valley, Pilot Hill, Mosquito, Kelsey, Coloma, and Auburn Lake Trails are within the Battalion. The total area of the Battalion is 128,454 acres. Fuel types within the Battalion range from 19% timber, 54% brush, to 27% grass/oak woodland.

Like most Sierra Nevada areas the Battalion has a significant wildland-urban interface problem. The majority of construction in the area took place prior to adoption of the Fire Safe Regulations. This has led to areas with inadequate ingress/egress routes and insufficient defensible space clearance around structures. This problem was confirmed with the destruction of fourteen homes in the 1994 Kelsey fire.

Battalion 2 consists of two CAL FIRE stations, a Conservation Camp, and one un-staffed lookout. Garden Valley station and Pilot Hill station are each two engine stations, with Growlersburg Conservation Camp, located outside of Georgetown, providing five hand crews.

Five local agency fire districts lie, at least partially, within Battalion 2. These fire districts are; Garden Valley, Georgetown, Mosquito, Rescue, and El Dorado County Fire. A close working relationship is maintained with each district as well as with the USFS.

Current Battalion 2 Projects:

Auburn Lake Trails Fire Safe Project

The Auburn Lake Trails subdivision is situated at the rim of the American River canyon at the edge of the lake that would have been formed by the Auburn Dam. Exclusion of fire and the heavy public use below the subdivision create a very hazardous condition with respect to the potential for ignition. The topography, fuels, and significant numbers of homes create a combination of factors that will cause significant resource damage as well as a major risk to life safety within the community.

The primary strategy is to establish defensible fuel zones around and within the subdivision. CAL FIRE fire crews will conduct VMP project work on federal lands adjoining the subdivision. Private land owners will be asked to participate in the VMP so fuels reduction will continue on the private lands between homes and the federal lands project area. The property owner's association retains control of all the common area within the subdivision and is the primary partner with the Auburn Lake Trails VMP. Currently CAL FIRE has treated approximately 200 acres of federal and private lands.

Cooperators/Collaborators

CAL FIRE AEU and NEU

ALT Fire Safe Council and Homeowners Association

California Department of Parks and Recreation

United States Department of the Interior, Bureau of Reclamation

Battalion 2 Hazard/ Target Areas

The entire area covered within Battalion 2 would be considered a Target Area with significant potential. As noted earlier, the Divide has a significant fire history that has proven to challenge fire suppression efforts over the years. With the increase in population within the Divide, the potential for increased ignitions are ever growing. Some Target Areas include but are not solely limited to:

Community of Mosquito

Community of Garden Valley and surrounding communities

Community of Georgetown and surrounding communities

Auburn Lake Trails

Major travel corridors noted below

American River Drainage

Coloma State Park

Future Battalion 2 Projects:

Future projects within the boundaries of Battalion 2 should focus on the following areas:

Continued work on the ALT Fuels project including roadside clearing and ALT greenbelt/ common space areas.

VMPs with major landholders to reduce fire hazards and noxious weeds.

Roadside clearances along all major routes of travel on the Divide.

- Hwy 49 corridor
- Hwy 193 corridor
- Rock Creek Road
- Mosquito Road
- Sliger Mine Road
- Spanish Dry Diggings Road
- Wentworth Springs Road
- Marshall Road
- Bayne Road
- Shoo Fly Road
- Bear Creek Road

- Spanish Flat Road
- Rattlesnake Bar Road
- Salmon Falls Road

Fuel Break Projects in the Mosquito area to continue towards connecting with fuels projects already accomplished by the USFS.

Fuels reduction in the Shoo Fly/ Bear Creek Road areas to work towards connecting with the USFS Darling Ridge Fuel Break.

Opening and maintenance of the Truck Trail between Tim Mine Rd and Rock Creek Road allowing emergency equipment access between these two locations as well as providing a fuel break.

Continuous Defensible Space inspection program (PRC 4291)

Battalion 2 Ignition Management Plan

Fire season 2007 statistics showed that the three leading causes of wildland fire ignitions were as follows:

- Debris Burning
- Equipment
- Arson

Acres burned by each category were as follows:

- Debris Burning 22
- Equipment 32
- Arson 127

A total of 181 acres of wildland were lost due to these categories.

Some mitigations to reducing these ignitions are as follows:

Debris Burning: Continued education of the public in appropriate dooryard burning practices and regulations.

Work with Prevention Bureau in increased enforcement of regulations and citations/ cost collection of fires escaping control.

Burned acreage in this category remains static over the past 3 years.

Equipment: Continued public education through Public Safety Announcements in print media/ fliers as to potential hazards of equipment in wildland areas as well as spark arrestor laws/ regulations.

Arson: Continued work by the Prevention Bureau in the development of their investigations of ongoing cases that should alleviate this issue unique to 2007. One fire in particular has been attributed to a suspect arrested in 2007 for arson. This fire was the majority of the acreage associated with the 2007 statistic.

With the assistance of the Defensible Space Inspections, fuels treatment and Proposition 40 projects, fire spread and damage can be significantly reduced.

Battalion 3 – Battalion Chief Brian Kirk

CAL FIRE Battalion 3 is 185,062 acres and encompasses portions of El Dorado and Amador counties. Within El Dorado county the communities of Grizzly Flats, Fairplay, Somerset, Omo Ranch, and Mt. Aukum are within the Battalion. The fuel types in the Battalion range from 45% timber, 48% brush, to 7% grass/oak woodland.

Like many areas in the Sierra Nevada's there exists a significant wildland-urban interface problem within the Battalion. There are several large, well populated subdivisions within the Battalion that are at risk from a catastrophic fire occurrence.

The Battalion consists of two CAL FIRE stations, a Conservation Camp, one un-staffed lookout, and Mount Zion State Forest (160 acres). Zion station, in Pine Grove, has two engines, while Dew Drop station, east of Pioneer, has one engine. Pine Grove Conservation Camp provides four hand crews. Dew Drop station is staffed year-round, and during fire season the El Dorado National Forest operates an engine out of the Dew Drop station.

Three local agency fire districts lie, at least partially, within Battalion 3. These fire districts are; Pioneer Fire in El Dorado county, Lockwood Fire, and Amador Fire Protection District in Amador county. A close working relationship is maintained with each district as well as with the USFS.

Current Battalion 3 Projects:

Omo Ranch Fire Safe Project

Omo Ranch Fuel Break is a defensible fuel zone/shaded fuel break along Omo Ranch Road in Amador and El Dorado Counties. The project begins at Highway 88 and progresses west to Road E16 near Mt. Aukum. The project also includes the Barney ridge and Farnham fuelbreaks. The primary purpose of the project is to establish a defensible fuel break for fire fighting operations and to protect the

interface communities of the area. The community of Omo Ranch is a small and relatively isolated community in southern El Dorado County.

CAL FIRE, Sierra Pacific Industries, and the USFS have completed approximately one third of the project. Work on the middle third of the zone started in 2004. All work to be completed by CAL FIRE is covered by a mitigated negative declaration and a VMP contract. All work on the National Forest lands was completed by the USFS.

Funding for this project has traditionally been through the Unit's Prefire Program as a standard Vegetation Management Project. AEU was awarded \$60,000 of Title III funding by the El Dorado County Fire Safe Council to conduct work on the middle third of the project, especially around the Indian Diggin's Elementary School in the town of Omo Ranch. AEU will utilize Proposition 40 watershed protection funding to continue project work into the near future.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Amador Fire Safe Council
El Dorado County Fire Safe Council
Sierra Pacific Industries

Future Battalion 3 Projects:

CAL FIRE Battalion 3 will focus on maintaining the existing defensible fuel zone/shaded fuel break along Omo Ranch road and continuing to extend the fuel break towards E-16 in Mt. Aukum from Highway 88.

CAL FIRE Battalion 3 will also work towards developing a Public Information Mailer/Self-Certification Program

In order to achieve all of the potential benefits of Defensible Fuel Zones established and/or in progress, an aggressive public education program is required. This public information program will target developed properties within the community. The purpose of this public education program is to provide information about individual defensible fuel zones (defensible space) around property improvements.

In order to maximize the distribution of information to the community, it is the intent to utilize a public education mailer. The mailer will include information about defensible space, fire safety precautions and a self-certification process. The self-certification process will allow community members to interact with the department regarding:

1. The completion of defensible space work

2. Incomplete defensible space work/non-response
3. Questions regarding defensible space work

Information provided by the self-certification process will be mapped in ArcView for GIS evaluation of compliance and non-compliance/no response.

Battalion 3 Ignition Management Plan

Equipment Use:

Public Education within the primary market to include but not limited to:

1. Power Equipment Retailers
2. Public Events (County Fair etc.)
3. Public Information Mailer
4. Burn Permit Process
5. Print and Television Media

Arson: Aggressively pursue investigations where patterned or recurring behavior appears to account for fire starts.

Electrical: Work with PG&E and SMUD to inspect and maintain power transmission lines and facilities especially in regards to clearance.

Vehicles: Work with CalTrans and the El Dorado D.O.T. to more aggressively pursue roadside fuel reduction/abatement programs.



California Department of Forestry and Fire Protection Amador El Dorado Unit

Battalion 5 - CAMERON PARK

General Information

Location: El Dorado County, California

Geographic Coordinates: W120°-59'-15" ; N38°-41'-02" (@ Cameron Airpark)

Area: 8.5 square miles (5,440 acres)

Terrain: Foothills

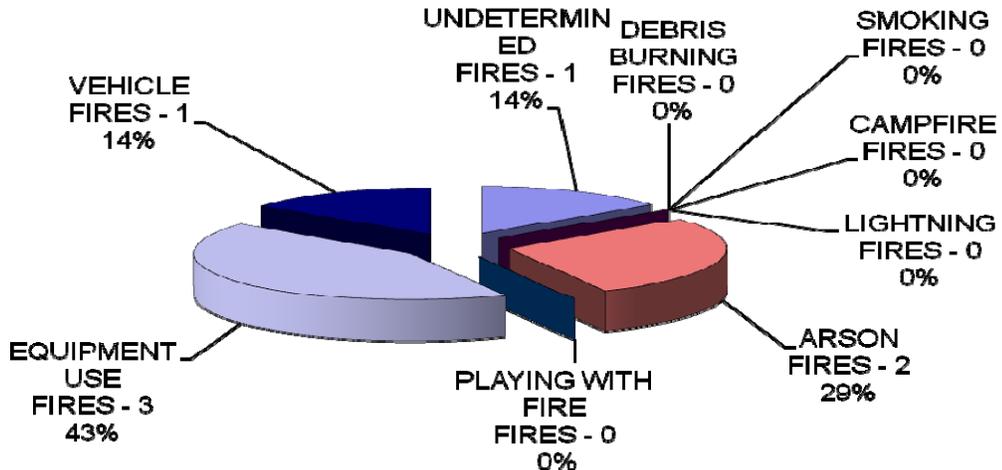
Elevation: Low 1000' (Cameron Estates)
Mid 1250' (Cameron Airpark)
High 1600' (Pine Hill Preserve)

Land Use: Residential (70%); Recreational (10%); Commercial (8%); Nature Preserve (6%); Industrial (3%); Airport (2%); Highway (1%)

Population (2005 Est.): 18,225

Housing: Single Family – 5,588 Dwelling Units
Multi family – 1,298 Dwelling Units

**Fire Season 2007
Causes Of Wildland Fire
Cameron Park**



Community History

Cameron Park is a foothill community on the west slope of the Sierra Nevada mountain range in El Dorado County. Established as a community services district in the 1960's, the community initially consisted of several hundred residents living around a championship golf course and a small commuter airport located on the Highway 50 corridor.



The Cameron Park Country Club is located in a central valley at the south end of the community. In this view from the clubhouse (facing northwest) a ridge in the background rises approximately 300 feet above the fairway. Many homes are nestled into

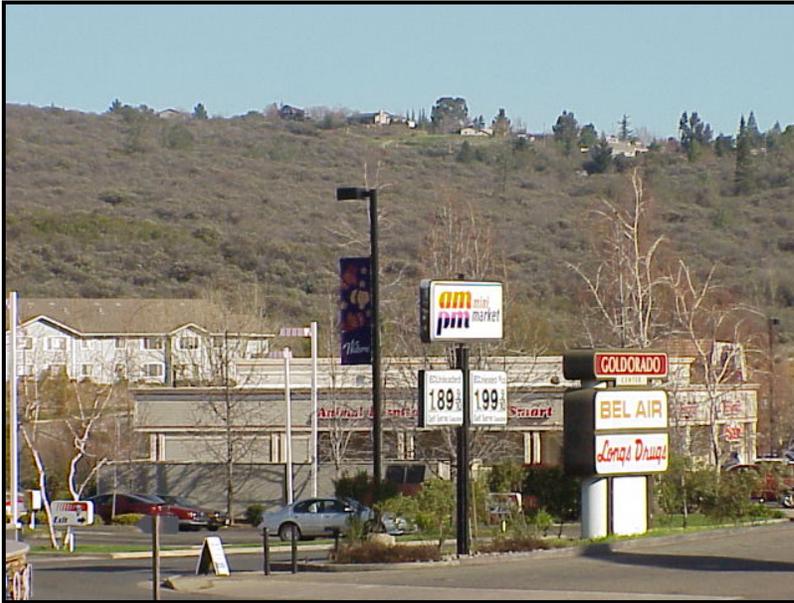


dense concentrations of highly flammable, mature, brush along Woodleigh Lane and the adjoining streets located on the top of this ridge.

The Cameron Park Airport sits in the central part of the valley immediately north of the golf course. In this view of the runway (facing northwest) surrounding homes can barely be seen through dense stands of oak woodland and brush.

Community Development

Since the Cameron Park Community Services District was formed in 1961, more than 5,500 single family homes, 1200 dwelling units (multi-family complexes), commercial buildings, retail centers, industrial plants, and schools have developed in an eight and one-half square mile area. The population has grown from 400 residents to an estimated 18,225 residents. The community development is in areas where buildings and combustible vegetation are collocated in an environment referred to as a **wildland-urban interface**.



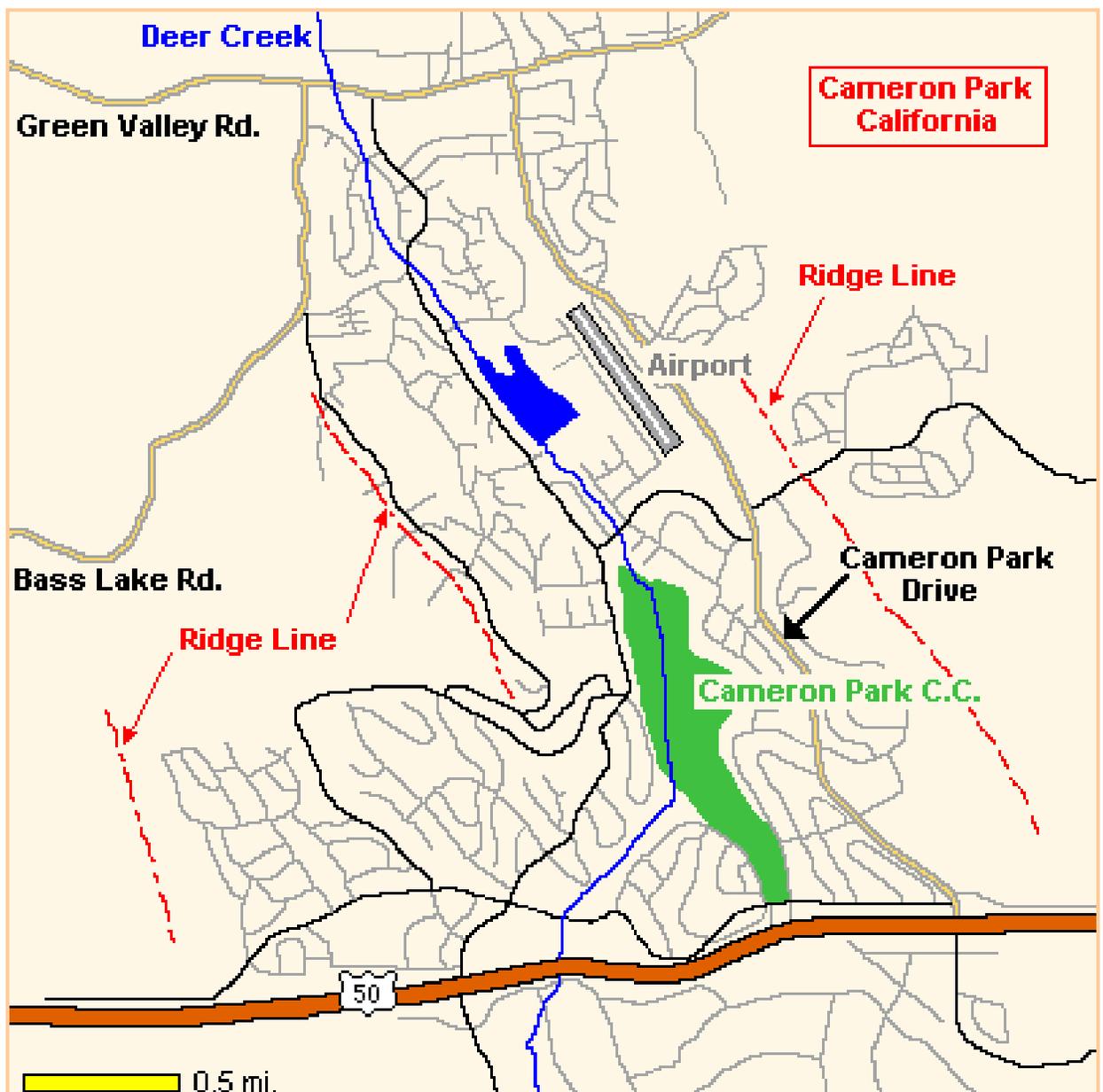
Commercial buildings - In the background is a dense stand of brush which is now part of the Pine Hill Preserve. Some private homes can be seen along the ridge top

Much of the commercial and residential development in the District is surrounded by a dense stand of native flammable vegetation. In this case Manzanita, Chamise, and Digger Pines are in close proximity to the building.



Geography

The general topography of the area consists of a central valley along the Deer Creek drainage, approximately ½ mile wide with a northwest/southeast orientation. The golf course, airpark, a 40 acre lake, and surrounding residences are the primary features in the valley. The elevation at the valley floor is in the range of 1200 to 1300 feet above sea level. Much of the valley is enclosed between ridges to the east and west sides. The ridge tops rise 300 to 400 feet above the valley floor. Slopes leading up to the ridge tops range from approximately 15% to 35%.



The Wildland-Urban Interface Problem

Development in Cameron Park has created a wildland-urban interface condition in an area with mature stands of brush, and dense oak woodland forests. Manzanita and Chamise are the most common brush species reaching heights greater than 10 feet. There is a large amount of dead material in the brush. Oak species include large varieties such as Blue Oak and Valley Oak. However most of the trees are of the smaller brushy varieties such as Live Oak or Holly Oak.

Some areas of the community, mostly the lower elevations and gentler slopes, include seasonal dry grasses. There are several areas of open space in the community ranging from 5 acres to 300 acres. Some of the open, space such as the golf course, airport, and Cameron Park Lake, have been cleared of flammable vegetation. Much of the open space such as undeveloped lots and preserve lands (Pine Hill Preserve), are covered with flammable vegetation providing areas in and around the community where a large wildfire could become established.



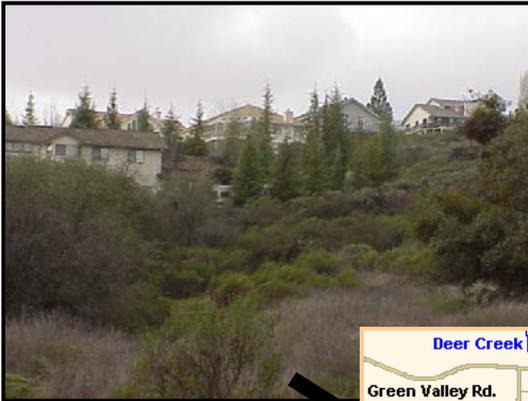
A large patch of brush located on the east side of a ridge, below Woodleigh Lane. To the right a subdivision of new homes has been carved into the hillside. At the bottom of the hill is the Deer Creek drainage which passes through Cameron Park Lake (right side of photo).

Residential development throughout the district include the valley floor, ridge tops, and the slopes that lead up to the ridge tops. Many of the homes were built in the 1970's and 1980's, before the County of El Dorado adopted standards for roof construction. Homes with wood siding, wood decks, and shake roofs, nestled into heavy fuels on steep slopes are common. Currently, the average density of homes in the community is approximately 1 home per acre (5,180 residences in 8.5 square miles). However, residential lot sizes typically range in the $\frac{1}{4}$ to $\frac{1}{2}$ acre size, providing for densities in some areas of more than four times the average. Many of the residential roads in the community are narrow, winding, and do not support 2-way traffic when cars are parked on the road sides, thus complicating fire suppression and evacuation procedures.

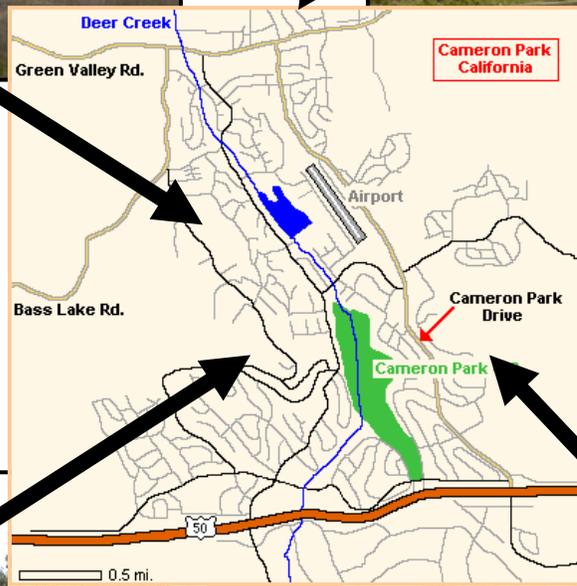
Typical Wildland-Urban Interface Conditions

Although the most recent subdivisions have required fire safe plans, the wildland-urban interface problem remains a hazard throughout the community. Development between 1950 and 1990 typically did not remove or modify combustible vegetation sufficiently to eliminate the fire risk. Newer subdivisions since 1990 have created a fire safe environment within the subdivision, however flammable vegetation often remains around the perimeter. Below are some typical examples of wildland-urban interface conditions in the community.

Woodleigh Lane



Royce Drive



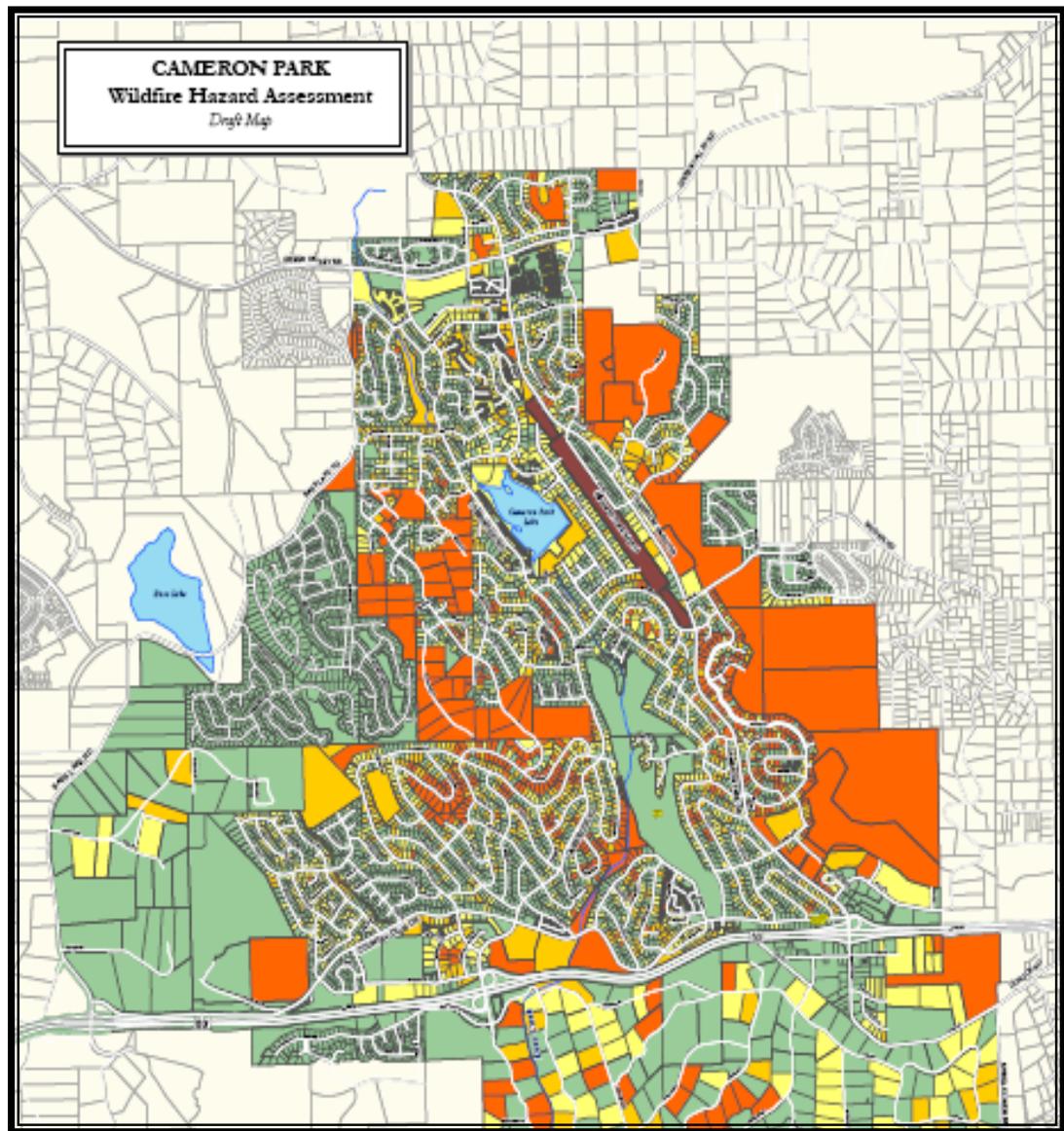
Knollwood Drive



Sudbury Road

Cameron Park Wild Fire Community Hazard and Risk Assessment

The Cameron Park Fire Safe Planning and Fuels Reduction Project depicts, in detail, the critical fire hazard and threat to Cameron Park. This tool allows Cameron Park to prioritize wildland urban interface mitigation projects. The complete geographic inventory of the community identified those areas in most need as “extreme”. Additionally, the Cameron Park Risk Assessment has identified others areas as high, moderate, or low. Attributes assessed to develop this map include: building materials, roof type, fuel type or fuel model, and lot slope and aspect.



Map Prepared January, 2006

 Extreme
 High

 Moderate
 Low

Fire History

The community of Cameron Park is situated next to Highway 50 which is heavily commuted by local, state, and interstate travelers. The Highway 50 corridor is also the most densely populated area of El Dorado County. Wildfire history is much higher along the Highway 50 corridor than surrounding areas of El Dorado County in terms of numbers of fires started. Over the 40 year history of the community, numerous large vegetation fires have occurred in the immediate surrounding areas.

Given the fuels, topography, weather, development and fire history in the area, the community is vulnerable to a catastrophic wildfire. The California Department of Forestry and Fire Protection (CAL-FIRE) in cooperation with the Cameron Park Fire Department (CPFD) has implemented a comprehensive "Fire Safe" project for the community of Cameron Park to minimize the potential for costs and losses associated with a catastrophic wildfire.



View from Cameron Park Airport
View from Green Valley Road and Cameron Park Drive

Hickok Fire *September 2002*

The most recent large fire in the Cameron Park area occurred 3 miles north of the community in 2002. The Hickok Fire burned approximately 700 acres of vegetation and threatened dozens of homes in the community of Rescue before it was stopped by firefighters at Deer Valley Road.

Fortunately the Hickok fire occurred on a day when winds were light (less than 5 mph). Had this fire occurred on a day when winds were blowing from the northwest at 25 mph it most certainly would have burned into, and probably through, the community of Cameron Park.



Cameron Park Fire Safe Project

A common complaint received by the Cameron Park Fire Department from the public is about their concern for protection from a wildfire emergency. An analysis of emergency incidents in the local area supports the public perception that the greatest threat to the community may be from a destructive wildfire similar in nature to the fire that occurred recently in South Lake Tahoe, the Angora Fire, which started this past summer on June 24, 2007. The Angora Fire burned less than 5 square miles (31000 acres) and destroyed 254 homes and 75 commercial and other structures in one day.

The Cameron Park Fire Department in Cooperation with the California Department of Forestry implemented a project in the Community of Cameron Park with a long term goal of establishing a "Fire Safe" community. The enormous scope of the problem necessitated that it be approached by a coalition of public and private stakeholders that included: 1) Fire Department officials, 2) El Dorado County government and agency officials, 3) Community Services District officials, 4) utility company representatives, 4) environmental groups, 5) insurance industry representatives, 6) real estate industry representatives, 7) homeowners associations, 8) large land owners, and 9) general public.

The project is comprehensive enough to address the entire wildland-urban interface problem in the district from small strips of flammable vegetation along roadside easements, to large tracts of undeveloped brush covered lands. No timeframes were established for the completion of this project. Progress is dependent upon the cooperation and initiative of the stakeholders, and the success in securing project funding through grants or other sources. Three critical elements of the project are:

Project Elements

Planning:

Cameron Park Fire Safe Bureau
Cameron Park Fire Safe Council
Fire Safe Development Plans – PRC 4290
Community Wildfire Preparedness Plan
Community Hazard and Risk Assessment

Fuel Reduction: Residential Lot Clearing Requirements – PRC 4291

Vacant Lot Clearing Requirements – H&S 14875 - 14922
Chipper Program
Vegetation Management Program
Fire Resistive Planting Program
Curbside Landscaping

Public Education:

Volunteers in Prevention
Public Displays
Demonstration Lots
Public Recognition
Hazard Awareness

Planning Element Description

Cameron Park Fire Safe Bureau – The Cameron Park Fire Department has a Fire Safe Bureau to coordinate the districts' efforts towards minimizing costs and losses associated with wildfire emergencies. The Fire Safe Bureau is located at Cameron Park Fire Station 89. The Fire Safe Bureau works with the Cameron Park Fire Safe Council to implement the Cameron Park Fire Safe Project. The Fire Safe Bureau re-focuses the efforts and priorities of the fire department personnel and resources directly on the wildland-urban interface problem.

Cameron Park Fire Safe Council – A Fire Safe Council is established in the community. It is a partnership between the fire department and the community for addressing the local wildfire hazard. The Fire Safe Council is a coalition of public and private sector stakeholders including community leaders, residents, business persons, government agencies, the fire department, and other groups and associations committed to developing a "Fire Safe" community in Cameron Park. The Fire Safe Council meets every other month. One member of the Cameron Park Fire Safe Council represents the community at the El Dorado County Fire Safe Council. The active Fire Safe Council is one of the critical elements for this project's success.

Fire Safe Development Plans (PRC 4290) – A Fire Safe Plan has been prepared and submitted for project applications for new construction and development within the community. The Fire Safe Plan provides for emergency vehicle access and perimeter wildfire protection measures. Elements of the fire safe plan include standards for road and street networks, water supply standards, building construction, and fuel modification and defensible space. The Department's Fire Safe Bureau works closely with the County of El Dorado Building and Planning to accomplish fire safe projects.

Cameron Park Wildfire Preparedness Plan (CWPP) – A preplan for managing wildfire emergencies in and around the community has been developed. The preplan incorporates information developed in the Fire Safe Plan to improve chances for initial attack success in the event of a wildfire emergency. Fuel breaks, water supplies, evacuation routes, staging areas, resource needs, strategies and tactics, etc. are developed for a variety of wildfire scenarios. The pre-plan will be distributed to local firefighters for training and made available to the public for educational purposes.

Community Hazard and Risk Assessment – A hazard and risk assessment has been completed for the entire community. The hazard

and risk assessment quantifies the threat to persons and property in the community from a wildfire emergency. Factors such as fuel, topography, land use and types of building construction were considered. The hazard and risk assessment is a critical planning tool that directs the efforts of the Fire Safe Bureau.

Fuel Reduction Element Description

Residential Lot Clearing Requirements (PRC 4291) –Residents are required to establish defensible space around the structures on their lots, under the authority of Public Resource Code § 4291. PRC 4291 requires removal of flammable vegetation for a minimum of 30 feet, and up to 100 feet around structures. Fire department personnel and volunteers make initial inspections. Failure to comply may result in a citation.

Vacant Lot Clearing Requirements (H&S 14875 – 14922) – Based on the community hazard and risk assessment, vacant lots are required to remove flammable vegetation under the authority of the Fire District's weed abatement ordinance. The weed abatement ordinance was established in 1999, by the Board of Directors, under the authority of Health and Safety Code § 14875. Fire Department personnel and volunteers make initial inspections. Failure to comply may result in the fire department contracting for the abatement work and a lien being filed on the property.

Chipper Program – The Cameron Park Fire Department utilizes the El Dorado County Fire Safe Council's chipper program to support the residential lot clearing efforts. The chipper program provides a cost effective alternative and incentive for property owners to cooperate with the District's fuel reduction efforts. Chips can be scattered in place on the property owner's lot, stored in a central location for redistribution, or used as a groundcover in road easements or other areas.

Fire Resistive Plants – Ornamental trees, shrubs, and groundcovers that are fire resistive and perform well in the local soil and weather conditions have been identified. Property owners are encouraged to replace native flammable vegetation with fire resistive ornamental plants.

Public Education Element Description

Volunteers in Prevention (VIP) – The district has established a Volunteers in Prevention program to assist with administration of the Cameron Park Fire Safe Project and public education. The VIP program is administered by CAL-FIRE. VIP's are utilized for a variety of fire

prevention activities including office support, inspections, and public education programs.

Demonstration Lots – “Demonstration Lots” have been established around the District featuring two types of fire safe landscaping. One type demonstrates how to thin and prune native vegetation (primarily oak woodland) to reduce its fire danger potential. The other type includes fire resistive ornamental plants that can be used to replace or enhance native plant species.

Public Displays – Public education materials are constantly displayed at community events attended by the Fire Department and/or the Fire Safe Council.

Web Page – The District’s web page is updated to provide a complete overview of the Cameron Park Fire Safe Project.

Hazard Awareness and Prevention – Public education materials have been developed to heighten the awareness of the community towards the dangers of a wildfire emergency and to educate the public on the efforts to reduce the hazard. Materials include maps and information of the fire history in the local area; history of catastrophic wildfires in the state; methods for fuel reduction and fire resistive landscaping; methods for creating defensible space around structures; methods for preventing the ignition of a wildland fire; and/or a mock newscast of a catastrophic wildfire in the community to present the reality of the danger.

Conclusion

The community of Cameron Park is in an area where high fire danger exists. This Community Fire Safe Project offered by the Cameron Park Fire Department, in cooperation with the California Department of Forestry and Fire Protection, addresses the public’s concern for fire danger. It has been endorsed by the Cameron Park Fire Safe Council. It is a plan for the continued development of a “Fire Safe” community in Cameron Park. This document is subject to review and revision in the future.

Lake Tahoe Basin – Division Chief Mary Huggins

The Lake Tahoe Basin is administered by two CAL FIRE units. The north shore vicinity, which includes Placer and Nevada Counties, is administered by the Nevada-Yuba-Placer Unit headquartered in Auburn. The El Dorado County area, located on the south and west shores of Lake Tahoe is administered by the Amador-El Dorado Unit. The AEU staff is located in South Lake Tahoe and includes one Division Chief (Forester II) whom also serves as Agency Representative during emergencies, one Forester I, one Forestry Assistant II, and three Forestry Aides.

Through the statewide Cooperative Fire Agreement, the USFS has been given the authority to act on CAL FIRE's behalf as the wildland fire response entity for State Responsibility Area (SRA) lands within the Lake Tahoe Basin. Locally driven, specific terms of this agreement are addressed in an Annual Operating Agreement between the USFS Lake Tahoe Basin Management Unit and the CAL FIRE Amador-El Dorado Unit. This agreement includes, but is not limited to, information such as tactical frequencies, wildland fire response notification procedures, apparatus and their staffing levels, facilities, prescribed burning procedures, and inspection and enforcement of PRC 4291. Therefore, due to this agreement, CAL FIRE does not have engine stations within Lake Tahoe Basin where the USFS has SRA lands within its Direct Protection Area (DPA). Staffing level changes for fire season 2008 will change due to the Governor's Executive Order of May 27, 2008 which authorizes CAL FIRE to establish two one-engine stations, one station on the south shore and one station on the north shore.

Fire History, Fuel Hazards, and Ignition Information

In 2000, the Lake Tahoe Basin Watershed Assessment for the Lake Tahoe Community Wildfire Protection Plan quantified and assessed the wildfire threat to watersheds in the Tahoe Basin. Fuels analysis, ignition history, and fire behavior modeling was used to predict fire occurrence in the basin. Field surveys were conducted to collect community and project specific information. Detailed fire behavior analysis, structural assessment, and community design assessments were conducted to rate communities. Mitigation projects were developed around hazardous community areas and were prioritized by reviewing field based hazard information, data from watershed assessments, input from the public, and input from the local fire chief. Results from the field assessment indicated that a majority of homes and structures in the Tahoe Basin lacked non-flammable building materials, fire safe construction techniques, and Public Resource Code 4291 then –required 30-foot defensible space clearance. Fuel loadings and around Fire behavior analysts conducted on sample points located within the communities found fire would reach the canopy of the forest 80% of the time.

Wildfire hazards to the communities were significant due to high fuel loadings within and around communities.

Historic Fire Regime and Fuel Hazards

Prior to European settlement, fire in the Basin had return intervals varying from 5 years to 128 years throughout the Basin. However, at lower elevations where most of the Native Americans of the Washoe tribe camped and where today's communities are located, the fire return intervals were shortest. These lower elevation areas had fire return intervals averaging 5 years to 18 years around the edge of the Lake and then south to approximately the town of Meyers. Immediately above this elevation, fire return intervals averaged 9 years to 32 years. Based on fire return data, it is estimated that 689 to 2,964 acres burned annually in the western portion of the Basin (Murray and Knopp 2000). During this pre-European time, lower elevation montane forests were characterized by large, widely spaced trees with little understory. Because frequent fires reduced surface and ladder fuels, fire intensities were low and there was little mortality of mature trees.

As Europeans settled in the Basin, the fire regime and fuels hazards changed. The frequent fires set by the Washoe were eliminated as the native Americans were pushed out of the Basin. Between 1875 and 1895, large-scale timber harvesting resulted in clearcutting most of the old growth forests on the west shore. Large-scale harvesting continued after this but was more localized. By 1900 the forests in the Basin were now comprised of individual stands of smaller size classes (1 inch DBH to 24 inch DBH and also old growth in areas difficult to access at the time. The smaller size classes of these trees would have supported more intensive fires than the old growth stands. The high hazard fuels resulted in the largest fire ever recorded in the Basin in 1918 (1,013 acres) and the largest number of acres burned in the Basin during the decade between 1916 and 1925 (2,593 acres) (Murray and Knopp 2000).

Current Fire Regime and Fuel Hazards

Several factors have combined to significantly change the fire regime and fuel hazards in the Basin. Since the 1970's, public sentiment and management strategies increasingly emphasized the protection and preservation of natural resources. Without sources of disturbance such as fires or harvesting, forest vegetation continued to grow. As a result, there were a large number of all size classes of trees in forest stands that create a ladder of flammable vegetation from the ground to the overstory canopy. In addition, since 1975, three periods of drought increased mortality in forest and riparian vegetation. As a result, fuel hazards may be the highest they have been in over 100 years.

ANGORA FIRE

On June 24, 2007, the Angora Fire began in the North Upper Truckee area in South Lake Tahoe, California. The fire burned out of control, threatening hundreds of residences and commercial structures, and resulted in thousands of evacuations. A total of 3,100 acres were burned and 254 homes were destroyed by this fire. El Dorado County proclaimed a local emergency June 24, 2007, and subsequently requested state and federal assistance by a separate proclamation issued the next day. In response to El Dorado County's request, California Governor Arnold Schwarzenegger proclaimed a State of Emergency for this event on June 25, 2007. The Angora Fire was fully contained on July 2, 2007. The Angora Fire has underscored the need for a comprehensive review of fire prevention and fuels management practices in the Lake Tahoe Basin, and on July 5, 2007, Nevada Governor Jim Gibbons publicly invited California Governor Arnold Schwarzenegger to join him in establishing a joint fire commission to review fuels management of forests in the Tahoe Basin as well as the policies and procedures of the various agencies that govern fuels management within the Basin. The States of California and Nevada are committed to reducing the threat of wildfires while preserving the unique and treasured environment of the Tahoe region. California and Nevada hereby agreed to create the California-Nevada Tahoe Basin Fire Commission.

The Commission was formed in August 2007 and met for eight months. The first two meetings were dedicated to listening to fire responders, agency directors and staff, technical experts, and, most of all, the public and residents of the Lake Tahoe Basin, as they explained their problems, concerns, and hopes in the wake of the disaster. The Commission spent a little time on analyzing the Angora Fire itself, and much more on the efforts that had gone into preparing for the inevitable wildfires, wherever and whenever they might occur in the Basin. At those first meetings, the Commission also considered at length how the elements of environmental protection interplay with public safety. Three primary areas of discussion emerged, and committees were created to further explore the multitude of topics in each of these areas: Wildland Fuels Management, Community Fire Safety, and Legislation and Funding Policies.

The commissioners all agreed that a universal goal was to have the most open, participative, and collaborative process possible – the Commission felt strongly that any member of the public should have a chance to have input. Toward that end the Commission developed an approach that invited any individual or organization to submit a 'Finding and Recommendations' suggestion that would be considered by one of the three committees, and then brought to the Commission for action. Altogether, 120 proposed findings and nearly 200 recommendations were submitted by a variety of experts, stakeholders, organizations, and individuals, including Commissioners themselves. They were all reviewed and analyzed, and many were incorporated into the Commission's report.

The Commission spent much of its time listening to the Lake Tahoe community at its meetings. The Commissioners did not all agree on every proposed solution, but consensus emerged on most of the pressing fire safety and environmental issues impacting the Tahoe Basin. All agreed that Lake Tahoe continues to be at risk from catastrophic wildfire and everyone recognizes that a large-scale, destructive forest fire is, in itself, a significant threat to the clarity of Lake Tahoe and the Basin's environment.

Catastrophic fire causes deleterious impacts to the surrounding forests, the crystal blue clarity of the Lake, the economic livelihood of the Basin, and the people that live or visit there. Recommendations were submitted by a variety of experts, stakeholders, organizations, and individuals, including Commissioners themselves. They were all reviewed and analyzed, and many were incorporated into the Commission's report.

Over the course of eight months' deliberations, the California-Nevada Tahoe Basin Fire Commission heard from many Basin residents, fire professionals, land managers, environmental regulators, scientists, and others. By February 2008, more than 50 individuals and organizations had submitted 120 proposed findings ("F") and even more associated recommendations ("R") to the Commission. About a third of these were developed by members of the Commission, while another third were developed by implementing and regulatory agencies at all levels of government, often working through interagency working groups. The rest were developed by interested members of the public including representatives of the conservation community, homeowners, and forestry-interest groups. Some of the proposed findings and recommendations were adopted as submitted or with modifications requested by Commissioners. More often, they were edited to combine similar ideas, eliminate redundancies, or reconcile conflicting recommendations. Ultimately, 90 recommendations were formulated by the Commission to be forwarded to the Governors of California and Nevada.

The Commission's findings and recommendations are presented in six categories that address short- and long T term needs, policy changes, education, funding, governmental structures, and environmental practices related to Lake Tahoe's vulnerability to wildfire. The report recommends some change from past practices, and change can be challenging for some. But the Commission's challenge from the Governors was to take a treasured jewel, two states, a diverse community, strongly held beliefs, the work of many regulatory agencies, and the input of a concerned public to create a set of recommendations to reduce the risk of wildfire to Lake Tahoe.

The Commissioners unanimously recommended that the Governors issue Emergency Declarations regarding the extreme threat that catastrophic fire poses to the Basin, its residents, and the unique natural resource that is Lake Tahoe (R 10, 12). The Commission's recommendations are organized into six

categories (below) which together constitute a plan for reducing the Basin's vulnerability to catastrophic wildfire and the impacts such fires would have on the Lake's fragile environment.

CATEGORY 1: Environmental Protection

The difference between the threat of catastrophic fire to the Lake Tahoe Basin and the threat of catastrophic fire to other areas of California and Nevada is the presence of Lake Tahoe itself. This unique national treasure is one of the few areas in America that warranted creation by two neighboring states and Congress of a planning authority to oversee its protection. For over thirty years, environmental matters within the Lake Tahoe Basin have been determined by the Tahoe Regional Planning Agency and a myriad of federal and state agencies. This unique system of regulatory oversight has resulted in the imposition of multiple layers of requirements that are not found in other areas of the two States. The Commission worked diligently to reconcile these important protections of the Basin's unique natural resources with commonly accepted fire prevention and suppression practices in order to find a balance that reflected the values of life, property, and environmental protection. To this end, the Commission's recommendations address the need for:

- All agencies to make restoration of the Basin's forests to a more natural and fire-resistant condition as a common and primary goal (R 2).
- Easier implementation of fuels reduction project streamlining permitting procedures and monitoring requirements (R 17, 72).
- TRPA and the LRWQCB to review their procedures and requirements and, where possible without jeopardizing reasonable environmental practices, to modify their requirements to facilitate needed fuels reduction programs (R 16, 17, 18, 19, 35, 52, 53, 69, 73).

CATEGORY 2: Issues of Governance

The Commission adopted a number of recommendations aimed at making the TRPA more responsive to concerns regarding the threat posed by catastrophic fire to residents of the Basin as well as to the Lake. Also included are recommendations addressing other agencies' practices and activities relating to the need to facilitate fuels removal projects in the Lake Tahoe Basin. Recommendations are forwarded regarding the need to:

- Bring fire prevention perspectives to the TRPA (F 9; R 20) and have TRPA review its present requirements in light of their impacts on the risk of catastrophic fire (R 18, 19).
- Impose enhanced reporting obligations of the TRPA to the States of California and Nevada regarding such matters (R 21, 22, 23).

- Develop a Memoranda of Understanding (MOU) between TRPA and the LRWQCB to facilitate procedures relating to fuels reduction projects (F 11, 12; R 26).
- Make environmental standards relating to fuel removal projects uniform throughout the Basin (R17).
- Support the Tahoe Basin Fire Chief's "Nine Point Letter" to TRPA (F 8) and the agreements reached to resolve those concerns (R 19).
- Extend the Commission authority so that it may monitor implementation of the recommendations that are accepted by the Governors (F 6; R 14, 22).

CATEGORY 3: Community and Homeowner Fire Protection

A number of the Commission's recommendations recognize that fire prevention is also a duty of every property owner and must be aggressively addressed by private property owners within the Basin. Recommendations are therefore presented to:

- Clarify regulatory requirements relating the removal of pine needles from areas adjacent to residences (R 37)
- Require the implementation of defensible space around all structures (R 37,44)
- Address the need to retrofit all existing structures in the Basin with ignition resistant materials (R 45, 46)
- Promote educational programs regarding defensible space and fire safe practices (R 38, 39, 41)
- Implement the "Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy - 10 Year Plan" that builds upon community wildfire prevention plans affecting every community within the Basin (R15, 54, 55)

CATEGORY 4: Forest and Fuels Management

The key to addressing the buildup of fuels within the forests of the Basin is to remove the excess fuels as quickly as possible and to then maintain the forests according to sound forest management practices. The Commission developed a number of recommendations addressing this over-arching problem including:

- Implementation of the "Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy - 10 Year Plan" with regard to the Basin's forests (R 15)
- The need to facilitate the use of hand-thinning and low-impact equipment and allow pile burning in sensitive stream environment zones and on steep slopes (R 17, 68, 70)
- The need to allow use of readily available mechanized equipment in such areas in order to accomplish fuels reduction projects (F 32; R 17, 68)
- The need to facilitate forest thinning practices and biomass processing as means to reduce the intensity of future wildfires and resulting pollution to air and water resources (F 21, R 56)

- The need to quickly clean up and reforest areas burned by the Angora fire (F 19; R 50)

CATEGORY 5: Fire Suppression

With respect to all matters within the Tahoe Basin, the Commission determined that protection of life, property, and the environment be served in that order of priority (R 78, 89). In that regard, the Commission has recommended a number of actions to:

- Enhance fire suppression resources within the Basin including revision of the “Balance of Acres” agreement between the State of California and federal authorities to assure that the Basin receives 24/7 fire protection services at a level equal to other state responsibility areas in California (F 37; R10, 75)
- Re-introduce CAL FIRE’s presence within the Basin (R 76)
- Equip the C-130’s of the Nevada Air National Guard with modular airborne fire fighting systems (R 78)
- Make fuels reduction projects in areas within and adjacent to the Basin’s communities the first priority by all agencies (R 69, 89)

CATEGORY 6: Funding

Present funding levels for fire prevention, planning, and suppression activities in the Basin were found by the Commission to be inadequate and, in some cases, derived from sources that are not consistently reliable. The Commission also recognized the need for private property owners to participate in the costs of avoiding catastrophic wildfire. Consequently, the Commission has attempted to quantify immediate funding needs as well as funding needed on a long term basis needed from all stakeholders. To assist in identifying these needs and serve as a foundation for future discussions, the Commission adopted recommendations:

- Addressing the need to stabilize revenues from existing funding sources and to develop additional funding sources necessary for the implementation of the Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy 10 Year Plan (R 84, 87, 88).
- Encouraging the Governors to join with the States’ Congressional delegations to develop permanent federal sources of funding for emergency fuels reduction programs and forest restoration efforts in the Lake Tahoe Basin (R 82, 83). Additional information regarding estimates of specific funding needs is set forth in Appendix E, “Costs Summary.” For the complete language of any of the Commission’s recommendations, please see the Recommendations section of this Emergency Report. For information regarding the background and rationale for the recommendations, please see the Findings section.

Ignition Risk

The Lake Tahoe Basin has one of the highest ignition rates in the Sierra Nevada. Data from the USFS Lake Tahoe Basin Management Unit (LTBMU) from 1973-1996 were used to describe ignition risks. In the planning area, the highest occurrence of ignitions (number of ignitions per 1,000 acres) occurs at Brockway, from Kings beach to Tahoe vista, Dollar Point, Camp Richardson, and around the City of South Lake Tahoe. The lowest occurrence of ignitions occurred at Homewood, Meeks Bay and D.L. Bliss Sate Park. Humans caused all but one fire during this period (Murray and Knopp 2000).

Ignition Data -2007

Except for the Angora Fire, all fires are size class A, and were contained at 0.1 acres or less.

Emergency Evacuation Routes

The Lake Tahoe Basin's emergency evacuation routes consist of primary travel routes which are generally state highways that surround Lake Tahoe along its shoreline, with some highways on the north shore and the south shore offering access out of the Basin via an overland pass to a major highway such as 80, 50 or 395. The highways on the California side include Highway 50, Highway 89, Highway 267, and Highway 28. On the Nevada side, highways include Highway 28, Highway 431 (Mt. Rose Highway), and Highway 207 (Kingsbury Grade). The travel routes along the west shore (Highway 89) and the east shore (Highway 28) of Lake Tahoe do not afford access out of the Basin until one reaches either the south shore (Highway 50, 89/88 or 207) or the north shore (Highway 431, 267 or 89 north). This lack of egress creates the potential for traffic jams, decreased evacuation time, and increased risk of loss of life in the event of a major emergency such as a wildfire.

Proposition 40 Fuels Reduction Projects

In 2004, the legislature authorized a new CAL FIRE fuels reduction program of approximately 40 million dollars of Proposition 40 funds over 5 years. The fuels reduction projects are to result in improvement and protection of watersheds and water quality at risk throughout the Sierra Nevada. During the first grant cycle held in Spring 2005, various entities within the El Dorado County portion of the Lake Tahoe Basin, such as fire districts and fire safe councils, applied for and were awarded approximately \$200,000 in grant monies to perform fuels reduction work in priority areas previously identified in the Lake Tahoe Basin Community Fire Plan. The CAL FIRE awarded three Proposition 40 Community Assistance Grant applications for the South Tahoe area in February 2005, three Proposition 40 Community Assistance Grant applications in April 2006, and one Proposition 40 Community Assistance Grant with three more to follow which are listed below.

2004-2005 FUNDED PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Lake Valley Fire District Chipper Program (South Shore) \$45,180: Approximately 245 acres to be treated throughout the Lake Valley Fire District whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Lake Valley Fire crews.
- Lake Valley Fire District Christmas Valley 3 Fuel Break (South Shore) \$43,221: Approximately 25 acres to be treated by thinning to create a community fuel break near Meyers.
- Fallen Leaf Lodge Homeowners Fuels Reduction (South Shore) \$42,000: Approximately 30 acres to be treated by thinning in order to create a community fuel break on the west Shore of Fallen Leaf Lake adjacent to the lakeside community.
- Alpine County Fire Safe Council Hot Springs Road Fuels Reduction \$29,000: Within 100 feet of centerline of Hot Springs Road, create a roadway defense zone and emergency ingress/egress improvement covering 30 acres by removing tree under 8 inches DBH and all brush within 20 feet of the road bed edge of Hot Springs Road. Fire Safe Council unable to complete due to lack of primary private land ownership participation.

2005-2006 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Fallen Leaf Lodge Homeowners Fuels Reduction, Project 4, Phase 1 \$47,500: Approximately 14 acres to be treated by thinning in order to create a community fuel break on the west shore of Fallen Leaf Lake adjacent to the lakeside community.
- Nevada-Tahoe Fire Safe Council, Rubicon Bay Fuels Reduction Project \$79,600: Approximately 20 acres to be treated by hand thinning in order to create a community fuel break and also to protect a major native fishery within the project area.
- California State Parks Grizzly Mountain Defense Zone \$33,000: Approximately 8 acres to be hand thinned and both chipped and hand piled for burning within Washoe State Park immediately adjacent to a major subdivision area.
- Alpine County Public Works Bear Valley Fuel Reduction Program: \$50,000. Approximately 30 acres to be treated using a masticator in order to create a community fuel break adjacent to the Bear Valley subdivision in western Alpine County.

2006-2007 FUNDED PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Lake Valley Fire Protection District Community Chipping and Defensible Space Program \$50,000: Approximately 245 acres to be treated throughout the Lake Valley Fire whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Lake Valley Fire crews.

- Fallen Leaf Lodge Homeowners Fuels Reduction \$79,250: Approximately 25 acres to be treated by thinning in order to create a community fuel break on the west Shore of Fallen Leaf Lake adjacent to the lakeside community, as well as fuels reduction concurrently being performed by on USFS and California Tahoe Conservancy lands. Work is in progress.
- City of South Lake Tahoe Springwood Fuels Reduction Project (Springwood): \$50,000. Approximately 30 acres to be hand thinned and both chipped and hand piled for burning within the City of South Lake Tahoe on city lands immediately adjacent to a major subdivision. Project is in planning stage.
- County of El Dorado Angora Fire Salvage: \$375,000. Approximately 200 parcels affected by the Angora Fire shall be treated for burned vegetation removal. The County ended up only using \$50,000 for erosion control, and turned back the remaining allocation.

2007-2008 FUNDED PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Lake Valley Fire Protection District Community Chipping and Defensible Space Program \$50,000: Approximately 245 acres to be treated throughout the Lake Valley Fire whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Lake Valley Fire crews.
- Fallen Leaf Lodge Homeowners Fuels Reduction \$111,250: Approximately 80 acres to be treated by thinning in order to create a community fuel break on the west Shore of Fallen Leaf Lake adjacent to the lakeside community, as well as fuels reduction concurrently being performed by on USFS and California Tahoe Conservancy lands.
- Meeks Bay Fire Protection District Chipper Program \$50,000 whereby homeowners bring material removed for defensible space purposes to the roadside chipper to be chipped by Meeks Bay Fire crews.

CAL FIRE has granted \$625,000 in Proposition 40 funds to the California Conservation Corp (CCC) to perform fuels reduction projects on California Tahoe Conservancy lands. The following projects on California Tahoe Conservancy lands are scheduled for hand thinning treatment by the CCC hand crews. These projects will result in the overall treatment of 176 acres beginning in September 2005 located throughout Tahoe Basin in California within the urban-wildland interface. The contract expired June 1, 2008. The projects included:

- Book 98: Fuel reduction treatment on approximately 32 acres within the urban intermix.
- High Meadows: Fuel reduction treatment on approximately 69 acres within the urban intermix. This project was the first Proposition 40 project area

- for the CCCs. Project work started September 3, 2006. Production rate was approximately 40 acres/year and work was completed June 2006.
- CalTrans Right of Way: Fuel reduction treatment on approximately 33 acres of Caltrans land within the urban intermix.
 - Cold Creek: Fuel reduction treatments on approximately 11 acres within the urban intermix.
 - Trout: Fuel reduction treatment on approximately 4 acres within the urban intermix.
 - Bijou: Fuel reduction treatment on approximately 14 acres within the urban intermix.
 - Book 97: Fuel reduction treatment on approximately 13 acres within the urban intermix.

PATHWAY

The Tahoe Regional Planning Agency (TRPA) is a bi-state agency created by the states of Nevada and California in order to lead the cooperative effort to preserve, restore and enhance the unique natural and human environment of the Lake Tahoe basin. The TRPA regulates land use, rate of growth and impacts to the scenic environment among other things. The TRPA's Regional Plan, adopted in 1987 is due to be updated by 2007. This document guides all land use decisions in the Basin and is the basis for all of TRPA's ordinances and environmental codes.

The TRPA is joining forces with several other Lake Tahoe public agencies, including CAL FIRE, in a process called Pathway. It is a collaborative effort between TRPA, the US Forest Service, the Lahontan Regional Quality Control Board, and the Nevada Division of Environmental Protection. These agencies are working together to update each of their respective environmental regional planning documents for the Lake Tahoe Basin. Given three major public agencies in Lake Tahoe (TRPA, US Forest Service, and Lahontan) in the process of updating regional plans, it was thought to make sense to coordinate these efforts. The TRPA will be evaluating all nine of its thresholds, which are the environmental standards outlined in the bi-state Compact that governs TRPA. New research and science will help formulate the Pathway 2007 process over the next few years.

PATHWAY is an effort to ensure coordination between different public agencies and to share resources and expertise while inviting public participation. Working together, the goal for 2007 is to have each agency's regional plans completed and to be consistent with one another. PATHWAY is providing the public with an unprecedented opportunity to help create a vision for the Tahoe Basin.

PATHWAY partner agencies include the Tahoe Regional Planning Agency, USDA Forest Service, the Lahontan Regional Water Quality Control Board and the Nevada Division of Environmental Protection. The agencies are working

together to update important resource management plans by 2010 for the Lake Tahoe Basin. These regional plan updates will guide land management, resource management and environmental regulations over the next 20 years. The plans will address many areas, including the following:

- How much additional development will take place at Lake Tahoe by the year 2027? What kind of growth is on the horizon?
- What will be the state of lake clarity, forest health, water quality and recreation by 2027?
- How will regional plans address the threat of catastrophic wildfires in the Lake Tahoe Basin?
- How will Lake Tahoe agencies revise their long-range plans to create a unified vision for Tahoe's future?
- How will Lake Tahoe's startling beauty be preserved while maintaining quality of life for those who live and visit here?

Technical Work Groups are managed by the PATHWAY 2007 Steering Team and staff of the four PATHWAY 2007 agencies: the Lahontan Regional Water Quality Control Board, the Tahoe Regional Planning Agency, the US Forest Service and the Nevada Division of Environmental Protection. AEU staff is participating at both the TAC and Forum (via State Agency Advisory Group) levels regarding forestry and fire issues.

Tahoe Basin Fire Safe Council Subchapter of the Nevada Fire Safe Council

In March 2001 AEU staff in the Tahoe Basin submitted a grant proposal in the amount of \$72,000 to the Community-Based Wildfire Prevention Grant Program and was awarded those funds to establish a Fire Safe Council for the California portion of the Tahoe Basin. The requested grant was awarded and since then the Tahoe Basin Fire Safe Council has become fully functional, including acquiring non-profit corporation status, various grants, and final completion in Spring 2005 of the Tahoe Basin Community Wildfire Protection Plan to which AEU staff provided response.

In January 2005, the Tahoe Basin Fire Safe Council merged with the (Northern) Nevada Fire Safe Council based in Carson City, Nevada. However, the Tahoe Basin has retained its original administrator who now acts as the Tahoe Basin Coordinator for the Nevada Fire Safe Council, and continues to retain an office in South Lake Tahoe. The Tahoe Basin Fire Safe Coordinator for the Nevada Fire Safe Council has been active in securing various grants, in addition to conducting routine business of the council.

TAHOE BASIN FIRE DEPARTMENTS

The Tahoe Basin area fire departments are located within both California and Nevada, and work very closely together regarding fire and EMS service issues. Local Tahoe basin- area fire departments in California include Fallen Leaf, Lake Valley, Meeks Bay, Squaw Valley, Alpine, City of South Lake Tahoe, Northstar, Truckee, and North Tahoe, as well as CAL FIRE and the USFS Lake Tahoe Basin Management Unit. Local Tahoe basin-area fire departments in Nevada include North Lake Tahoe and Tahoe-Douglas Fire Departments. In addition, local, state, and federal fire departments from nearby Washoe and Carson Valleys in Nevada and Alpine County in California participate in the Tahoe Regional Chiefs Association. These fire departments include the Reno Fire Department, Sparks Fire Department, Carson City Fire Department, East Fork Fire Department, Markleeville Volunteer Fire Department, Woodsford Volunteer Fire department, Bear Valley Volunteer Fire Department, Kirkwood Volunteer Fire Department, Humboldt-Toiyabe National Forest, and the Nevada Division of Forestry.

Due to recent fires including the 2002 Gondola Fire near Heavenly Valley Ski Resort and the 2004 Waterfall Fire northwest of Carson City, the fire departments within the Tahoe Basin have been working aggressively to perform fuel reduction efforts within their districts and to increase public awareness of the necessity of defensible space clearing. Subsequently, the Amador-El Dorado Unit chose to fund three fuels reduction projects using Proposition 40 grant monies from FY 04-05 through 07-08 to Tahoe area fire departments, the Nevada Fire Safe Council, and California State Parks.

Additional fuels reduction efforts include the hiring of fire department-employee crews to perform fuels reduction efforts within the North Lake Tahoe Fire Protection District located in the Incline Village area, and the North Tahoe Fire Protection District located in California near the Brockway area adjacent to the California-Nevada state line. The Lake Valley Fire Protection District is also hiring crews as fire department employees to perform fuels reduction work, including for the Proposition 40 projects.

Timber Harvesting Plans and Timber Harvesting Exemption Notices

Forest health is paramount to maintaining the water quality of Lake Tahoe, and efforts to prevent loss by catastrophic wildfire and other pathogens precipitate landowners' decision to plan and prepare harvesting documents in the Tahoe Basin. Field recommendations by CAL FIRE staff regarding slash treatment and silvicultural treatments are thoroughly discussed and recommendations developed, which furthers the goals of the Pre-fire Management Plan.

In general, most tree removal activities within the Tahoe Basin are conducted on small, developed lots less than 3 acres in size. Such landowners commonly

elect not to commercialize the small amount of product generated. Therefore, such non-commercial projects do not require a harvesting document be submitted to CAL FIRE for review and approval. On larger, mostly undeveloped ownerships, such as the California Tahoe Conservancy lands, tree removal is commonly elected for commercial use as the higher amount of wood generated from the ownerships is sold as fuelwood to the public, especially in the South Lake Tahoe vicinity where the more highly desirable Lodgepole Pine fuelwood is available.

Very few large (over 10 acres) non-federal ownerships exist within the Tahoe Basin. Consequently, very few Timber Harvesting Plans for areas located within the Tahoe Basin are submitted to CAL FIRE and commercial tree removal operations are generally conducted under Timber Harvesting Exemptions. However, regardless of whether or not a landowner elects to engage in a commercial tree removal venture, other agencies within the Tahoe Basin, such as the Tahoe Regional Planning Agency and the Lahontan Regional Water Quality Control Board, require the landowner to comply with additional and generally more stringent regulations regarding tree removal on non-federal lands. The Lahontan Region Water Quality Control Board and the Tahoe Regional Planning Agency each review very closely all harvesting activities occurring within the Tahoe Basin.

In May 2005, the State Board of Forestry and Fire Protection adopted emergency rule language regarding allowing the removal of live trees within Watercourse and Lake Protection Zones (Stream Environment Zones as defined in TRPA ordinance) within the Lake Tahoe Basin non-federal lands by amending Title 14 CCR §1038 and §1038 (f) and is anticipated to become effective by June 2005. The primary emergency nature of the regulation change was to provide regulatory relief for fuels reduction activities for summer 2005 relative to permitting live tree thinning in Watercourse and Lake Protection Zones/Stream Environment Zones for fuel hazard reduction. Due to the discussions resulting from this rule change, the Board of Forestry and Fire Protection now acknowledges and understands the Forest Practice rules inconsistencies and complications related to exemption rules in Lake Tahoe and fully intends on considering Unit suggestions regarding permanent rule change.

California Tahoe Conservancy

The California Tahoe Conservancy (CTC) conducts fuel reduction projects throughout the Lake Tahoe Basin through their Urban Land Management Program. The California Tahoe Conservancy, through contract, funds CAL FIRE personnel to perform various professional forestry duties, including those duties required to implement fuel breaks. In addition, the CAL FIRE provides professional forestry advice and services, including but not limited to, preparation and implementation of THPs, Exemptions and vegetation management projects on California Tahoe Conservancy properties. The CAL FIRE also works with the

California Tahoe Conservancy Forest Habitat Enhancement Program on fuel reduction, forest health and wildlife habitat enhancement projects located within the urban interface and general forest areas.

In January 2005, CAL FIRE was authorized approximately 40 million dollars of Proposition 40 funds over 5 years by the Legislature for fuels reduction projects which would result in improvement and protection of watersheds and their water quality and assets at risk. Approximately \$625,000 was allocated to CAL FIRE expressly for authorizing its use to the California Conservation Corp for fuels reduction projects on California Tahoe Conservancy lands.

Service Forestry

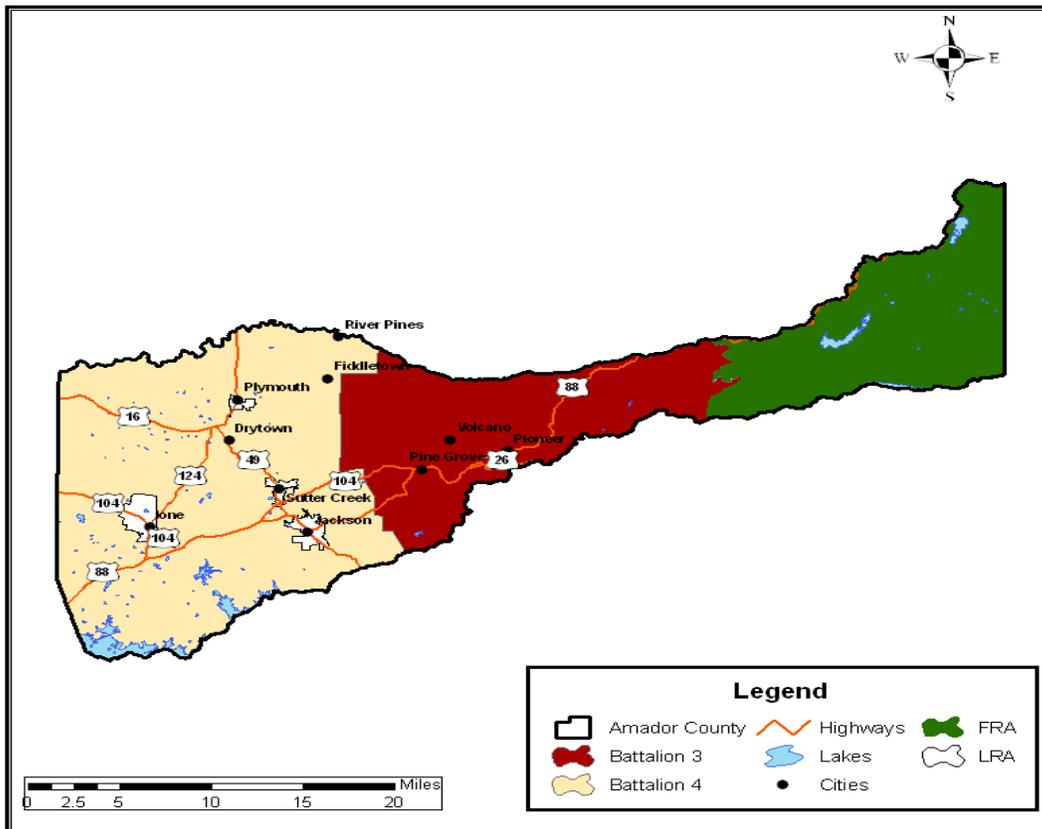
The Tahoe Regional Planning Agency (TRPA) requires a TRPA Tree Removal Permit to be issued by a TRPA Registered Professional Forester (or their designee through an MOU such as the case with the California Tahoe Conservancy and some Tahoe Basin fire districts), for the removal of any green tree six inches DBH or greater from all ownerships located within the Tahoe Basin. The requirement for this permit applies to both non-federal and federal lands.

A Memorandum of Understanding (MOU) between the CAL FIRE and TRPA was established in the 1980's to better serve the public and facilitate the tree removal process. The CAL FIRE Area Foresters, at the request of an individual landowner, inspected, marked, and issued the TRPA Tree Removal Permit. During the time CAL FIRE assisted with the program, no permit fee was charged to the landowner for this service.

Due to funding problems and liability concerns, the CAL FIRE discontinued their role in the TRPA Tree Removal Program permit process in 2002. The TRPA now requires California residents to either pay a \$50.00 fee per site visit to the TRPA to cover the cost of a TRPA forester to provide this service or contact the local fire department who authorized by TRPA through an MOU to provide this service since 2007.

Amador County

Amador County consists of 299,861 acres of CAL FIRE Direct Protection Areas and is divided into CAL FIRE Battalion's 3 and 4 as shown below:



Battalion 3 – Battalion Chief Brian Kirk

CAL FIRE Battalion 3 is 185,062 acres and encompasses portions of El Dorado and Amador counties. Within Amador county the communities of Pioneer, Pine Grove, Volcano, and Lockwood are within the Battalion. The fuel types in the Battalion range from 45% timber, 48% brush, to 7% grass/oak woodland.

Like many areas in the Sierra Nevada's there exists a significant wildland-urban interface problem within the Battalion. There are several large, well populated subdivisions within the Battalion that are at risk from a catastrophic fire occurrence.

The Battalion consists of two CAL FIRE stations, a Conservation Camp, one un-staffed lookout, and Mount Zion State Forest (160 acres). Zion station, in Pine Grove, has two engines, while Dew Drop station, east of Pioneer, has one engine. Pine Grove Conservation Camp provides four hand crews. Dew Drop station is staffed year-round, and during fire season the El Dorado National Forest operates an engine out of the Dew Drop station.

Three local agency fire districts lie, at least partially, within Battalion 3. These fire districts are; Pioneer Fire in El Dorado county, Lockwood Fire, and Amador Fire Protection District in Amador county. A close working relationship is maintained with each district as well as with the USFS.

Current Battalion 3 Projects:

Pine Acres Fire Safe Project

The Pine Acres Fire Safe Project is an attempt to establish a defensible fuel zone between the community of Pine Acres and the Mokelumne River Canyon. All of the fuels reduction work is being conducted by CAL FIRE Pine Grove crews on private property bordering the subdivision and on the Mt. Zion State Forest.

A WUI grant in the amount of \$85,000 is currently the funding source for this project.

The Unit was awarded a \$22,000 planning grant for a comprehensive fire safe plan, biomass utilization plan, and community emergency evacuation plan. CAL FIRE contracted with a consultant to complete the work. The project is complete and the fire safe plans, as well as the other existing documents, have been distributed to the community of Pine Acres.

Cooperators / Collaborators

Amador-El Dorado Unit, Amador County Fire Safe Council
BLM, and Local landowners

Omo Ranch Fire Safe Project

Omo Ranch Fuel Break is a defensible fuel zone/shaded fuel break along Omo Ranch Road in Amador and El Dorado Counties. The project begins at Highway 88 and progresses west to Road E16 near Mt. Aukum. This project also includes the Barney Ridge and Farnham fuelbreaks. The primary purpose of the project is to establish a defensible fuel break for fire fighting operations and to protect the interface communities of the area. The community of Omo Ranch is a small and relatively isolated community in southern El Dorado County.

CAL FIRE, Sierra Pacific Industries, and the USFS have completed approximately one third of the project. Work on the middle third of the zone started in 2004. All work to be completed by CAL FIRE is covered by a mitigated negative declaration and a VMP contract. All work on the National Forest lands was completed by the USFS.

Funding for this project has traditionally been through the Unit's Prefire Program as a standard Vegetation Management Project. AEU was awarded \$60,000 of Title III funding by the El Dorado County Fire Safe Council to conduct work on the middle third of the project, especially around the Indian Diggin's Elementary School in the town of Omo Ranch. AEU will utilize Proposition 40 watershed protection funding to continue project work into the near future.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Amador Fire Safe Council
El Dorado County Fire Safe Council
Sierra Pacific Industries

Shake Ridge/Antelope Fire Safe Project

The primary objective of the project was to establish defensible fuel zones around the community near Amador Pines and provide assistance with fire safe clearances. The project also includes the areas of the Scott Creek and Fiddletown fuelbreaks. The project includes prescribed fire, fire crew pre/post prescribed fire treatments, roadside clearance work, dooryard chipping, mastication, tree thinning, and enhanced fire safe inspections. All work on this project was completed with a mitigated negative declaration and the State Vegetation Management Program.

The original project described above was funded through a \$150,000 Proposition 204 Watershed Protection Grant proposal that was awarded to CAL FIRE in 1999. The proposal was conducted over a four-year period and allowed CAL

FIRE to hire a Fire Captain Grant Coordinator to manage the day-to-day operations of the project work. The fundamental foundations of this project were established during the early planning phases of the Proposition 204 period. For the next three years, AEU will utilize Proposition 40 watershed protection funding to continue the project.

Cooperators / Collaborators

Amador-El Dorado Unit
USFS
Sierra Pacific Industries
Amador Fire Safe Council & Local landowners

Future Battalion 3 Projects:

Amador Pines Fuel Break/Fire Safe Project

Develop New and Maintain Existing defensible fuel zones around and within the community of Amador Pines and the drainages West of said community.

Develop a Community Wildfire Protection Plan/Evacuation Plan for the Amador Pines/Pioneer area.

Coordinate with other groups to facilitate ingress/egress route clearing.

Develop a Public Education Program (Including Public Information Mailer/Self-Certification*) for PRC 4291.

Pine Acres Fire Safe Project

Maintain a defensible fuel zone within and between the community of Pine Acres and the Mokelumne River Canyon.

Develop a Community Wildfire Protection Plan/Evacuation Plan for the Pine Grove/Pine Acres area.

Develop a Public Education Program (Including Public Information Mailer/Self-Certification*) for PRC 4291.

Shake Ridge/Antelope Fuel Break

Develop New and Maintain existing defensible fuel zone extending West on Shake Ridge towards volcano.

Tiger Creek Fuel Break

Develop a defensible fuel zone extending West from the Antelope Fuel Break to the Tiger Creek Power Plant on the Mokelumne River.

Coordinate with other groups to facilitate ingress/egress route clearing.

Omo Ranch Fuel Break

Develop New and Maintain Existing defensible fuel zone/shaded fuel break along Omo Ranch Road in Amador and El Dorado Counties beginning at Highway 88 and progressing North-West to E-16 in Mt. Aukum.

Surrey Junction Fuel Break

Develop a defensible fuel zone extending North-East from Ridge Road, beginning in the vicinity of Bates Road, and following the 2000 foot contour line around the Surrey Junction and Tanyard Hill residential areas to Lupe Road.

Coordinate with other groups to facilitate ingress/egress route clearing.

Defender Grade Fuel Break

Develop a defensible fuel zone extending South from Highway 88 at Pioneer following ridges to Highway 26 and then to Mokelumne River Canyon.

Coordinate with other groups to facilitate ingress/egress route clearing.

Public Information Mailer/Self-Certification*

In order to achieve all of the potential benefits of Defensible Fuel Zones established and/or in progress, an aggressive public education program is required. This public information program will target developed properties within the community. The purpose of this public education program is to provide information about individual defensible fuel zones (defensible space) around property improvements.

In order to maximize the distribution of information to the community, it is the intent to utilize a public education mailer. The mailer will include information about defensible space, fire safety precautions and a self-certification process. The self-certification process will allow community members to interact with the department regarding:

- 1.The completion of defensible space work
- 2.Incomplete defensible space work/non-response
- 3.Questions regarding defensible space work

Information provided by the self-certification process will be mapped in ArcView for GIS evaluation of compliance and non-compliance/no response.

Battalion 3 Ignition Management Plan

Equipment Use:

Public Education within the primary market to include but not limited to:

- 1.Power Equipment Retailers
- 2.Public Events (County Fair etc.)
- 3.Public Information Mailer
- 4.Burn Permit Process
- 5.Print and Television Media

Arson: Aggressively pursue investigations where patterned or recurring behavior appears to account for fire starts.

Electrical: Work with PG&E and SMUD to inspect and maintain power transmission lines and facilities especially in regard to clearance.

Vehicles: Work with CalTrans and Amador County Road Department to more aggressively pursue roadside fuel reduction/abatement programs.

Battalion 4 – Battalion Chief Dennis Tremelling

CALFIRE Battalion 4 is 367,983 acres in size and encompasses portions of Amador, Sacramento, and San Joaquin counties. The fuel types in the Battalion range from 14% timber, to 33% brush, and 49% grass/oak woodland.

Like the other Battalion's in the Unit there exists a significant wildland-urban interface problem within the Battalion. There are several large, well populated subdivisions that are at risk to large catastrophic fires.

There are two CALFIRE stations within the Battalion. Sutter Hill station staffs one engine year-round and a second engine during fire season. A CALFIRE bulldozer is also stationed at Sutter Hill, along with an automotive shop, and the Unit's service center. Pine Lodge station, in River Pines, staffs one CALFIRE engine year-round. There are no CALFIRE stations in Sacramento or San Joaquin counties.

Cooperating Fire Agencies

AMADOR COUNTY

The CALFIRE Academy and nine Amador County fire departments lie, at least partially, within the Battalion. The local fire departments include: the Amador Fire Protection District, Lone City Fire, Jackson City Fire, Jackson Rancheria Fire, Jackson Valley Fire Protection District, Lockwood Fire Protection District, Mule Creek State Prison Fire, Plymouth City Fire, and Sutter Creek Fire Protection District.

CALFIRE and the above fire departments serve the following Amador County communities: Buena Vista, Carbondale, Camanche, Fiddletown, Lone, Jackson, Jackson Rancheria Casino, Martell, Plymouth, River Pines, Amador City, Drytown, and Sutter Creek.

Current Battalion 4 Projects:

Within Battalion 4 a strong emphasis is placed upon projects which involve fire preparedness training. Logistical and training support is provided to the CALFIRE Academy in Lone and to the AEU training program with the following projects:

Heavy Forestry Equipment Operations Training

Through the efforts of the AEU VMP Coordinator landowners who control strategically significant lands are placed under VMP contract to allow the HFEO class to practice their dozer operator skills. The land placed under contract is primarily that which is owned by cattle ranchers desiring to convert their brush covered lands to grazing lands. To enhance the effectiveness of this project CALFIRE burns the resulting piles and the ranchers seed the treated land each fall. In this fashion there is mutual benefit to the rancher, in the form of additional/improved grazing land, and to the Department, in the form of trained and tested operators. A collateral benefit to CALFIRE is significant fuels reduction within the training areas which are located primarily in Amador County.

Future Battalion 4 Projects:

Meath Road Project

Battalion 4 is supporting a proposed Amador County Resource Conservation District (ARCD) Proposition 40 fuel reduction project that would treat up to eighty (80) acres along the prominent ridge running west to east parallel to Cook Ranch Road. The project would involve two or more property owners and would be the first Community Action Grant project undertaken by the ARCD. The project would create a buffer between the residences at the top of the ridge and the

heavily wooded box canyon to the immediate north. If successful this project may also encourage the ARCD to sponsor and supervise future projects.

Jackson Rancheria Project

The Jackson Rancheria of Me-Wuk Indians has developed a gaming facility complete with a hotel and convention center. The Tribe has also purchased the 1000+ acre Caminetti Ranch property adjacent to the south boundary of the Rancheria. In addition to the gaming and lodging facilities described above there are new amenities being developed on the Caminetti Ranch portion of the property. A gas station and a one hundred space recreational vehicle park are currently nearing completion. These amenities will potentially contribute to the wildland fire protection problems in the area. The Tribe is considering how to best create fire defense improvements, on the property, to retard the spread of vegetation fires to or from the commercial areas of the facility. Battalion 4 personnel and the unit VMP Coordinator will participate in this planning process. The Tribe will fund these improvements.

Public Education Projects

There are two new public education projects within Battalion 4: First, in conjunction with other Battalions in AEU, Battalion 4 would like to participate in an educational PRC 4291 project which would involve mailing defensible space literature to property owners within targeted high risk areas of the Battalion. These mailers would include educational material regarding PRC 4291 requirements and a process for residential property owners to complete LE 100 style inspections utilizing a self certification process. The program would also include a random follow-up inspection component to verify that the self certifications were accurate and that PRC 4291 objectives had been met.

Second, the fire prevention signs within Amador County are in a state of disrepair and the public education messages are dated. As a result, county residents drive past these signs on a daily basis and do not notice the signs nor the messages contained thereon. The objective in the Battalion is to repair and replace the signs with attention attracting features and relevant public education messages which will be noticed and embraced by the motoring public.

The following table shows the proposed signs:

LOCATION	PREVENTION MESSAGE BY PRIORITY	DIRECTIONAL VIEW
JVFPD Station 171 Quiver @ Curran Comanche	<ol style="list-style-type: none"> 1. Defensible Space 2. Equipment Use 3. Debris Escapes 4. Fireworks 	Two Sided Message
Plymouth @ south city limit, east side of Hwy. 49	<ol style="list-style-type: none"> 1. Defensible Space 2. Equipment Use 3. Debris escapes 4. Fireworks 	Single Sided Message
Fiddletown Road @	<ol style="list-style-type: none"> 1. Defensible space 	Single Sided Message

AmerCa	<ol style="list-style-type: none"> 2. Ingress/egress/addresses 3. Debris Escapes 4. Equipment use 	
Highway 88 @ Dew Drop Bypass Road	<ol style="list-style-type: none"> 1. Defensible space 2. Ingress/egress/addresses 3. Debris escapes 4. Equipment use 5. Fireworks 	Single Sided Message. Reverse side is ENF Fire Danger Rating.
Highway 88 @ Pioneer Cemetery	<ol style="list-style-type: none"> 1. Defensible space 2. Ingress/egress/addresses 3. Debris escapes 4. Equipment use 5. Fireworks 	Two Sided Message
Ridge Road @ Climax Road Pine Grove	<ol style="list-style-type: none"> 1. Defensible space 2. Ingress/egress/addresses 3. Equipment Use 4. Debris escapes 5. Fireworks 	Single Sided Message
Sutter Hill Fire Station, 11600 Highway 49	<ol style="list-style-type: none"> 1. Defensible space 2. Equipment Use 3. Debris escapes 4. Ingress/egress/addresses 5. Fireworks 	Two Sided Message

Battalion 4 Ignition Management Plan

The four leading causes of State Responsibility Area (SRA) vegetation fires in Battalion 4 during the 2007 season were:

Fire Cause	Number of Fires	Acres Burned
Vehicle	17	64
Debris Burning	13	194
Electrical	6	11
Arson	6	5

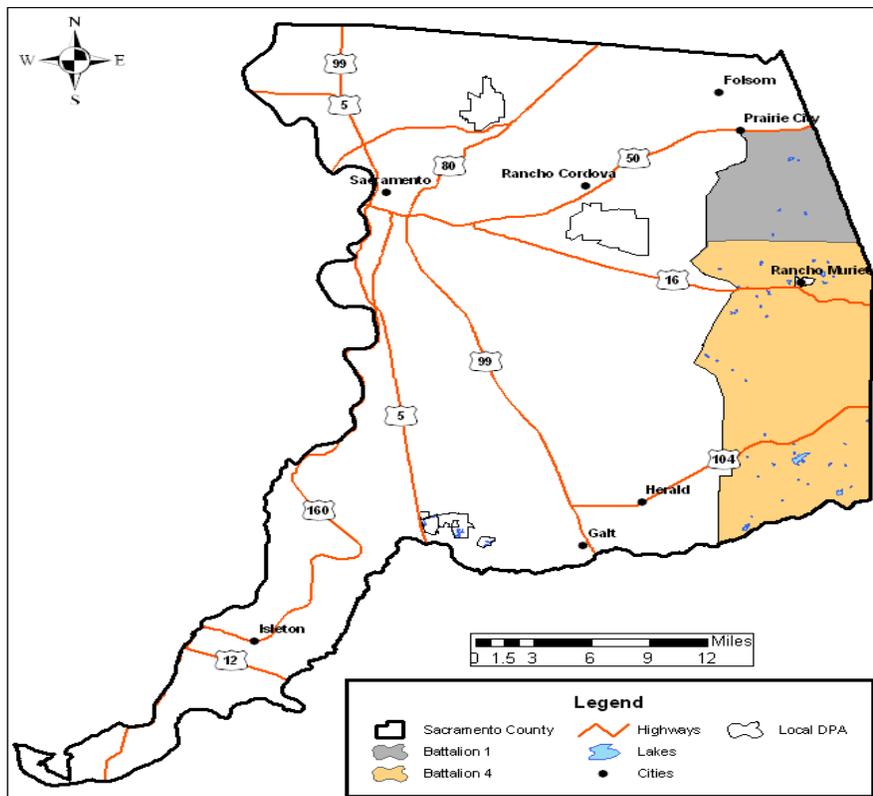
There is little that can be done about the vehicle and structural fires which contributed to the incidence of vegetation fires in 2007 but in the other fire cause classifications focused public education and prevention efforts may be effective.

Debris Burning: Continued public education as to ‘best practices’ for conducting residential burning operations will be pursued. The best opportunities to deliver this educational message is during the face to face contacts between property owners and CALFIRE employees associated with the issuance of residential burn permits and during 4291 inspections. The opportunities shall be maximized.

Arson: Thorough and focused preliminary fire investigations along with aggressive follow up by the Fire Prevention Bureau when suspicious patterns or activity occurs shall continue to be the goal within Battalion 4.

Sacramento County

Sacramento county consists of 119,248 acres of CAL FIRE Direct Protection Area and is divided into portions of CAL FIRE Battalions 1 and 4 as shown below:



Battalion 1 – Battalion Chief Suzanne Todd

Battalion 1 encompasses approximately 309,544 acres in El Dorado and Sacramento counties. The Sacramento county area within the Battalion is primarily rural and includes the lands in eastern Sacramento county outside the city of Folsom, and west to Praire City, White Rock road, and Grant Line road, with Kiefer road near the southern boundary of the Battalion.

Within Battalion 1 there are two CAL FIRE stations. Mt. Danaher Station (in Camino) has one fire engine and shares its location with the Amador-El Dorado Unit Headquarters, and the Camino Interagency Emergency Command Center which provides the Command and Control for SRA, LRA, and FRA, in Amador, Alpine, and El Dorado counties, the Eldorado National Forest (ENF), and Tahoe Management Unit (TMU). The second Battalion 1 station is El Dorado Station (in El Dorado) and has two fire engines, as well as a bulldozer, Battalion Chief, Fire Equipment Manager, mechanic, vehicle repair shop.

In Sacramento county the local agency fire districts that lie, at least partially, within Battalion 1 are Sacramento Metropolitan Fire and Folsom City Fire. A close working relationship is maintained with each district.

The fuels within Battalion 1 are diverse, and include approximately 18% timber, 33% brush, and 49% grass/oak woodland.

Like many areas in the Sierra Nevada's the Battalion contains a significant wildland-urban interface problem.

Battalion 1 Hazard/Target Areas

All communities within Battalion 1 SRA are evaluated using the following general and specific criteria to determine their Hazard/Target status:

- 1.Potential for life loss
- 2.Potential for property loss
- 3.Potential for high community consequence (historical, environmental, infrastructure, etc.)
- 4.Fuel types and fuel loading
- 5.Ingress and egress
- 6.Stakeholder collaboration

All communities within Battalion 1 meet the Target Hazard Criteria, some to a greater or lesser degree than others listed. The final criterion of stakeholder collaboration is key to the success of the ignition management plan.

Battalion 1 Ignition Management Plan:

Fire cause statistics for 2007 show that equipment use and debris burning, 22% and 19% respectively, were the leading causes of reported fires. The third dominant category is classified as “Undetermined”, whereas approximately 14% of fires reported and investigated in Battalion 1 did not result in specifying a cause for the fire. This is often the case when we do not have staff available to respond to fires, but are responsible for gathering fire cause, origin, and report information vicariously.

Ignition mitigations include education during the burn permit process, as well as target group education (saw shops, home shows, etc.) and defensible space inspections. Additionally, we are reviewing our current investigation techniques, policy, and procedure, with the goal of decreasing the number of “Undetermined” fire causes.

As in years past, we are focusing on education as our primary means of prevention.

Battalion 4 – Battalion Chief Dennis Tremelling

CALFIRE Battalion 4 is 367,983 acres in size and encompasses portions of Amador, Sacramento, and San Joaquin counties. The fuel types in the Battalion range from 14% timber, to 33% brush, and 49% grass/oak woodland.

Like the other Battalion’s in the Unit there exists a significant wildland-urban interface problem within the Battalion. There are several large, well populated subdivisions that are at risk to large catastrophic fires.

There are two CALFIRE stations within the Battalion. Sutter Hill station staffs one engine year-round and a second engine during fire season. A CALFIRE bulldozer is also stationed at Sutter Hill, along with an automotive shop, and the Unit’s service center. Pine Lodge station, in River Pines, staffs one CALFIRE engine year-round. There are no CALFIRE stations in Sacramento or San Joaquin counties.

Cooperating Fire Agencies

SACRAMENTO COUNTY

Four Sacramento County fire departments lie, at least partially, within Battalion 4: Cosumnes Fire Protection District, Herald Fire Protection District, Sacramento Metropolitan Fire Protection District, and Wilton Fire Protection District.

The Sacramento County communities served by CALFIRE and these departments include: Herald, Rancho Murieta, and Wilton.

Current Battalion 4 Projects:

Within Battalion 4 a strong emphasis is placed upon projects which involve fire preparedness training. Logistical and training support is provided to the CAL FIRE Academy in Lone and to the AEU training program with the following projects:

Heavy Forestry Equipment Operations Training

Through the efforts of the AEU VMP Coordinator landowners who control strategically significant lands are placed under VMP contract to allow the HFEO class to practice their dozer operator skills. The land placed under contract is primarily that which is owned by cattle ranchers desiring to convert their brush covered lands to grazing lands. To enhance the effectiveness of this project CALFIRE burns the resulting piles and the ranchers seed the treated land each fall. In this fashion there is mutual benefit to the rancher, in the form of additional/improved grazing land, and to the Department, in the form of trained and tested operators. A collateral benefit to CALFIRE is significant fuels reduction within the training areas which are located primarily in Amador County.

Van Vleck VMP

The objective of this project is to combine range improvement, wildlife habitat improvement, and a variety of fire training exercises. The native grasses in the area have been significantly damaged by the invasion of Medusa head and other non-native species. Prescribed fires, when properly timed, are used as live fire training exercises to improve the skill levels of AEU fire suppression employees and to effectively control these invasive species. This project site also has an abundance of California Grey Pine that is available to the chain saw training cadre for tree felling and bucking classes. CALFIRE dozer operations and familiarization classes are also conducted on this site to provide dozer operators refresher training and to evaluate proficiency. The project site is located in the Rancho Murieta area of Sacramento County.

Cooperators/Collaborators

Van Vleck Ranch

Chance Ranch VMP

The objective of this project is to combine range improvement, wildlife habitat improvement, and live fire training exercises. The vernal pools and the upland grasses in the area have been significantly damaged by the invasion of Medusa

head and other invasive grass and forbs species. Each year up to 600 acres of this 12000 acre ranch, which is subject to a conservation easement, is made available to AEU for firing classes. Prescribed fire, used as a live fire training tool, conducted at the proper time of the year, effectively controls these invasive species and thereby improves the shrimp habitat within the vernal pools.

This project is located on the Chance Ranch approximately 5 miles east of Rancho Seco power plant in Sacramento County.

Cooperators/Collaborators

The Nature Conservancy
 Landowner: Jim Chance
 Lessee: Jack Sparrowk

Future Battalion 4 Projects:

Public Education Projects

There are two new public education projects within Battalion 4: First, in conjunction with other Battalions in AEU, Battalion 4 would like to participate in an educational PRC 4291 project which would involve mailing defensible space literature to property owners within targeted high risk areas of the Battalion. These mailers would include educational material regarding PRC 4291 requirements and a process for residential property owners to complete LE 100 style inspections utilizing a self certification process. The program would also include a random follow-up inspection component to verify that the self certifications were accurate and that PRC 4291 objectives had been met.

Second, the fire prevention signs within Amador County are in a state of disrepair and the public education messages are dated. As a result, county residents drive past these signs on a daily basis and do not notice the signs nor the messages contained thereon. The objective in the Battalion is to repair and replace the signs with attention attracting features and relevant public education messages which will be noticed and embraced by the motoring public.

The following table shows the proposed signs:

LOCATION	PREVENTION MESSAGE BY PRIORITY	DIRECTIONAL VIEW
JVFPD Station 171 Quiver @ Curran Comanche	1. Defensible Space 2. Equipment Use 3. Debris Escapes 4. Fireworks	Two Sided Message
Plymouth @ south city limit, east side of Hwy. 49	1. Defensible Space 2. Equipment Use 3. Debris escapes 4. Fireworks	Single Sided Message
Fiddletown Road @	1. Defensible space	Single Sided Message

AmerCa	<ol style="list-style-type: none"> 2. Ingress/egress/addresses 3. Debris Escapes 4. Equipment use 	
Highway 88 @ Dew Drop Bypass Road	<ol style="list-style-type: none"> 1. Defensible space 2. Ingress/egress/addresses 3. Debris escapes 4. Equipment use 5. Fireworks 	Single Sided Message. Reverse side is ENF Fire Danger Rating.
Highway 88 @ Pioneer Cemetery	<ol style="list-style-type: none"> 1. Defensible space 2. Ingress/egress/addresses 3. Debris escapes 4. Equipment use 5. Fireworks 	Two Sided Message
Ridge Road @ Climax Road Pine Grove	<ol style="list-style-type: none"> 1. Defensible space 2. Ingress/egress/addresses 3. Equipment Use 4. Debris escapes 5. Fireworks 	Single Sided Message
Sutter Hill Fire Station, 11600 Highway 49	<ol style="list-style-type: none"> 1. Defensible space 2. Equipment Use 3. Debris escapes 4. Ingress/egress/addresses 5. Fireworks 	Two Sided Message

Battalion 4 Ignition Management Plan

The four leading causes of State Responsibility Area (SRA) vegetation fires in Battalion 4 during the 2007 season were:

Fire Cause	Number of Fires	Acres Burned
Vehicle	17	64
Debris Burning	13	194
Electrical	6	11
Arson	6	5

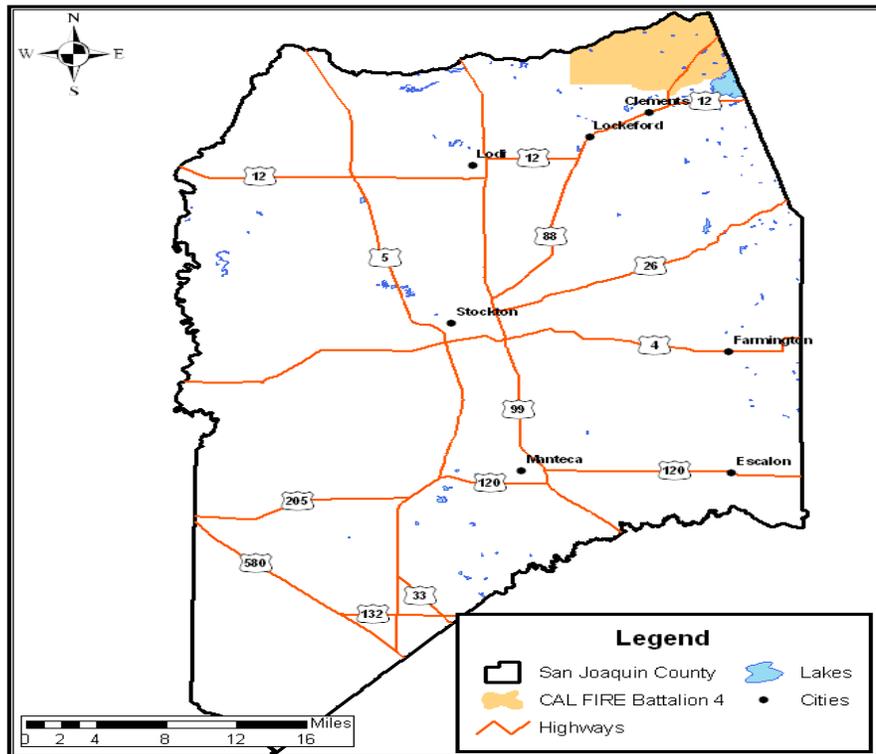
There is little that can be done about the vehicle and structural fires which contributed to the incidence of vegetation fires in 2007 but in the other fire cause classifications focused public education and prevention efforts may be effective.

Debris Burning: Continued public education as to ‘best practices’ for conducting residential burning operations will be pursued. The best opportunities to deliver this educational message is during the face to face contacts between property owners and CALFIRE employees associated with the issuance of residential burn permits and during 4291 inspections. The opportunities shall be maximized.

Arson: Thorough and focused preliminary fire investigations along with aggressive follow up by the Fire Prevention Bureau when suspicious patterns or activity occurs shall continue to be the goal within Battalion 4.

San Joaquin County

San Joaquin county consists of 24,888 acres of CAL FIRE Direct Protection Areas with the Amador-El Dorado Unit and is part of CAL FIRE Battalion 4 as shown below:



Battalion 4 – Battalion Chief Dennis Tremelling

CALFIRE Battalion 4 is 367,983 acres in size and encompasses portions of Amador, Sacramento, and San Joaquin counties. The fuel types in the Battalion range from 14% timber, to 33% brush, and 49% grass/oak woodland.

Like the other Battalion's in the Unit there exists a significant wildland-urban interface problem within the Battalion. There are several large, well populated subdivisions that are at risk to large catastrophic fires.

There are two CALFIRE stations within the Battalion. Sutter Hill station staffs one engine year-round and a second engine during fire season. A CALFIRE bulldozer is also stationed at Sutter Hill, along with an automotive shop, and the Unit's service center. Pine Lodge station, in River Pines, staffs one CALFIRE engine year-round. There are no CALFIRE stations in Sacramento or San Joaquin counties.

Cooperating Fire Agencies

SAN JOAQUIN COUNTY:

Two San Joaquin County fire departments lie, at least partially, within Battalion 4: Clements Fire Protection District and Liberty Fire Protection District. CALFIRE and these fire departments serve the rural areas surrounding the community of Clements.

Future Battalion 4 Projects:

CAL FIRE's VMP and Pre-Fire program is currently assessing a proposed project on the Niederhauser Ranch, located in northeastern San Joaquin county.

Public Education Projects

There are two new public education projects within Battalion 4: First, in conjunction with other Battalions in AEU, Battalion 4 would like to participate in an educational PRC 4291 project which would involve mailing defensible space literature to property owners within targeted high risk areas of the Battalion. These mailers would include educational material regarding PRC 4291 requirements and a process for residential property owners to complete LE 100 style inspections utilizing a self certification process. The program would also include a random follow-up inspection component to verify that the self certifications were accurate and that PRC 4291 objectives had been met.

Second, the fire prevention signs within Amador County are in a state of disrepair and the public education messages are dated. As a result, county residents drive

past these signs on a daily basis and do not notice the signs nor the messages contained thereon. The objective in the Battalion is to repair and replace the signs with attention attracting features and relevant public education messages which will be noticed and embraced by the motoring public.

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Arson: Thorough and focused preliminary fire investigations along with aggressive follow up by the Fire Prevention Bureau when suspicious patterns or activity occurs shall continue to be the goal within Battalion 4.

Alpine County

Alpine County is located primarily within the CAL FIRE Amador-El Dorado Unit and has approximately 4% of its lands designated as State Responsibility Area. The remaining lands are managed by the Humboldt-Toiyabe National Forest located within Region-4 of the United States Forest Service and the Bureau of Land Management. The AEU staff is located in South Lake Tahoe and includes one Division Chief whom also serves as Agency Representative during emergencies and provides PRC 4290 input to the county, landowners assistance, and fuels reduction grant administration.

Through the statewide Four-Party Agreement, the USFS has been given the authority to act on CAL FIRE's behalf as the wildland fire response entity for State Responsibility Area (SRA) lands within Alpine County. Locally driven, specific terms of this agreement are addressed in an Annual Operating Agreement between the USFS Humboldt-Toiyabe National Forest and the CAL FIRE Amador-El Dorado Unit. This agreement includes, but is not limited to, information such as tactical frequencies, wildland fire response notification procedures, apparatus and their staffing levels, facilities, prescribed burning procedures, and inspection and enforcement of PRC 4291. Therefore, due to this agreement, CAL FIRE does not have engine stations within Alpine County where the USFS has SRA lands within its Direct Protection Area (DPA).

Alpine County is generally split into two distinct geographic areas: Eastern Alpine County and Western Alpine County. Eastern Alpine County is the area located east of the crest of the Sierra, known as the Sierra Front, and is characterized by high elevation eastside pine stands with sage brush and Manzanita understory, as well as open, rangeland areas of sagebrush and mountain mahogany areas adjacent to the Nevada border. Communities include Markleeville and Woodsford. The Western Alpine County area is high elevation mixed conifer forest type. Communities include Bear Valley and Kirkwood.

Fire History, Fuel Hazards, and Ignition Information

Eastern Alpine County has been affected by large fires within the past 25 years. Such fires include the Indian Creek Fire which burned 6,000 acres in 1981; the Fredericksburg Fire which burned 2,000 acres in 1986, and the Acorn Fire, which burned nearly 6,000 acres and twenty-six homes in 1987. Lightning causes the most wildland fire ignitions in this area, with summer thunderstorms bringing erratic winds and lightning to the area. It is common to have a strong southwesterly wind coming over the Sierras in the afternoon during the summer, which helps to drive fires. Most catastrophic fires have occurred during these conditions along the Sierra Front.

Western Alpine County has generally had low intensity fires and a low frequency of fires due to the high elevation and cool, moist summer temperatures. The Mesa Vista and Woodsford/Alpine Village neighborhoods have had few frequent fires in the last 20 years. Since 1980, at least three fires have burned in the area, some over the same ground multiple times. Fuels are flashy, making fire difficult to contain on initial attack, but loadings are not near the level of other communities.

Eastern Alpine County SRA Ignition Data-2007

Date	Name	Acres	Class	Land status	Statistical Cause
3/9/2007	Ranch	9	B	2 - Private, CA	2 equipment use
4/13/2007	Diamond Valley	0.5	B	2 - Private, CA	4 Campfire
5/31/2007	190	0.5	B	1 - HTF, CA	1 Lightning
5/31/2007	Wolf	0.1	A	1 - HTF, CA	1 Lightning
6/1/2007	Centerville	0.25	B	1 - HTF, CA	1 Lightning
6/1/2007	Drew	0.25	B	1 - HTF, CA	1 Lightning
6/23/2007	Hwy 89	45	C	2 - Private, CA	9 Misc. (Power line)
6/27/2007	China Springs	0.1	A	1 - HTF, NV	9 Misc. Undetermined
7/1/2007	Arcadia	1	B	1 - HTF, NV	3 Burning Vehicle
7/5/2007	Turtle	0.5	B	2 - Private, CA	9 Misc. (Power line)
7/7/2007	Carson River	5	B	2 - Private, CA	9 Misc. (Power line)
7/11/2007	Faith	0.1	A	1 - HTF, CA	1 Lightning
7/23/2007	Poor	1	B	1 - HTF, CA	1 Lightning
7/30/2007	Jakes	0.1	A	1 - HTF, NV	9 Misc. Undetermined
8/1/2007	Blue Lakes	0.1	A	1 - HTF, CA	9 Misc. Undetermined
8/10/2007	Hidden	0.1	A	3 - Private, CA	9 Misc. Undetermined
8/14/2007	Power Dam	70	C	1 - HTF, NV	9 Misc. Undetermined
8/29/2007	Raymond	0.1	A	1 - HTF, CA	1 Lightning
10/30/2007	Dutch	0.1	A	1 - HTF, CA	1 Lightning
10/30/2007	Genoa	0.25	B	1 - HTF, NV	1 Lightning
11/4/2007	China Springs 2	335	D	1 - HTF, NV	9 Misc. Undetermined

TOTAL: 21 Fires 470 Ac

Emergency Evacuation Routes

The emergency evacuation routes in Alpine County consist of primary travel routes which are generally state highways that generally move traffic in an east-west direction between Nevada and the Sacramento and San Joaquin Valleys of California. These routes include Highway 89, 88, 4, and the Emigrant Trail (old Highway 88).

Alpine County Proposition 40 Fuels Reduction Projects

In 2004, the legislature authorized a new CAL FIRE fuels reduction program of approximately 40 million dollars of Proposition 40 funds over 5 years. The fuels reduction projects are to result in improvement and protection of watersheds and water quality at risk throughout the Sierra Nevada. During the first grant cycle held in spring 2005, the Alpine Fire Safe Council applied for its first CAL FIRE fuels reduction grant. .

2005 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS:

- Alpine County Fire Safe Council Hot Springs Road Fuels Reduction: Within 100 feet of centerline of Hot Springs Road, create a roadway defense zone and emergency ingress/egress improvement covering 30 acres by removing tree under 8 inches DBH and all brush within 20 feet of the road bed edge of Hot Springs Road. Unfortunately, due to lack of participating landowners, the county was forced to forfeit the grant funds I November 2006.

2006 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- Alpine County Public Works Bear Valley Fuel Reduction Program
Approximately 30 acres was treated using a masticator in order to create a community fuel break adjacent to the Bear Valley subdivision in western Alpine County. The project has been completed.

2007 PROPOSITION 40 COMMUNITY ASSISTANCE GRANTS

- None submitted as of March 2007. However, Alpine County Public Works is currently working on a new proposal to chip along Hot Springs Road on county easement.

Alpine County Fire Safe Council

The Alpine County Fire Safe Council was formed in 2001 when Alpine County was awarded a grant through the Community-Based Wildfire Prevention Grant Program to support the development of an Alpine County Fire Safe Council. In 2003, the Alpine County Resource Advisory Committee (RAC) allocated funds to the Fire Safe Council in the form of Title II funds to further assist in development of a Fire Safe Council. As a result, in 2003 the Alpine Fire Safe Council was formally established through these two aforementioned cooperative efforts between the County Board of Supervisors and the Alpine County Resource Advisory Committee. The Amador-El Dorado unit has provided technical assistance through the development of the Alpine Fire Safe Council.

The Alpine FSC is now currently in place and pursuing and obtaining grants, and is very active in county-wide fire protection issues, such as pre-fire development concerns and enforcement and Public Resource Code 4291 compliance. Specific accomplishments of the Alpine Fire Safe Council include creation of educational kiosks located at key county government locations; courtesy fire safe ordinance review of proposed developments; completion of the Manzanita Lane Fuel reduction project in 2004, and facilitation of the creation of the Fire Services Ad-Hoc Committee, which is a collaborative effort with the County Board of Supervisors, public, and fire and EMS personnel to address the issues surrounding county volunteer fire suppression resources.

In addition, a major accomplishment of the Alpine County Fire Safe Council is the completion of the draft Alpine County Community Fire Plan. The Alpine County Fire Safe Council received a grant from Region 4 of the USFS in 2004 to provide grant funding for completion of a Community Fire Plan. The Alpine Fire Safe Council prepared their Community Wildfire plan in 2004 and distributed the draft for public review in December 2004, to which Unit staff provided response. The Alpine County Fire Safe Council is seeking to finalize the plan during summer 2005. The Community Fire Plan is an important document with which to augment county planning efforts regarding fire protection planning, especially as Alpine County is experiencing a significant increase in large-scale development as nearby Lake Tahoe becomes increasingly populated, difficult and expensive within which to develop. Therefore, the Alpine County Fire Safe Council, in conjunction with the Alpine County Board of Supervisors, established an Ad-Hoc Committee in 2004 to address fire protection issues within Alpine County. The Ad-Hoc Committee has identified a lack of implementation and enforcement of the State Responsibility Fire Safe Regulation regarding new development. The 2005 Proposition 40-funded AEU Division Chief stationed in South Lake Tahoe is addressing responses to new development regarding the SRA Fire Safe Regulations and is attending Alpine County Board meetings, Alpine County Fire Safe Council meetings, and is on the County Technical Advisory Committee for new development.

The Alpine County Community Fire Plan identifies and prioritizes areas within Alpine County which are at risk of catastrophic fire. The Shay Creek Subdivision located adjacent to Hot Springs Road near Markleeville is rated "High". Consequently, the Alpine County Community Fire Plan identifies the Hot Springs Road Roadway and Utility Access Fuel Reduction Project as Project #1 for treatment. The Alpine County Fire Safe Council submitted to the FireWise Grants Clearinghouse in January 2005 its proposal to request grant funding to reduce the fuels within the Hot Springs Road Roadway and Public Utility Access Fuels Reduction Project. The Amador-EI Dorado Unit chose in March 2005 to award the Alpine Fire Safe Council with Proposition 40 funding in the amount of \$45,500 for the proposed Hot Springs Roadway and Utility Access Fuels Reduction Project for FY 04-05 and 05-06. The Alpine County Fire Safe Council was unable to begin the project due to landowners that subsequently chose not to participate. However, Alpine County department of Public Works is working to submit a Proposition 40 grant application in spring 2007 for a similar project on different ownerships along Hot Springs Road .

ALPINE COUNTY FIRE DEPARTMENTS

WOODSFORD

Fire protection is provided by the Woodsford Volunteer Fire Department and has an Insurance Services office (ISO) Rating 10. The Woodsford Volunteer Fire department is not within a district. Currently, volunteer staffing levels are at a critical low. Hydrants do not exist within the response area and the nearest drafting source is the Carson River.

MARKLEEVILLE

Fire protection is provided by the Markleeville Volunteer Fire Department and is not within a district. Markleeville Volunteer Fire Department has one station and has an ISO Rating 6 where hydrants exist and an ISO Rating 8 in areas without hydrants but is located within 5 miles of the Markleeville Fire Station.

BEAR VALLEY

Fire protection for Bear Valley is provided by the Bear Valley Volunteer Fire Protection District, and is funded through assessment fees. The Bear Valley Fire Protection District has an ISO Rating 5.

KIRKWOOD

Fire protection for Kirkwood is provided by the Kirkwood Volunteer Fire Protection District, and is funded through assessment fees. The Kirkwood Volunteer Fire Protection District has an ISO Rating 4.

Amador-El Dorado Unit Structure Ignitability

The following section will discuss structure ignitability within the Amador-El Dorado Unit. Structure ignitability is a building's susceptibility to catching on fire. This is a growing concern as more homes and businesses continue being built in the wildland-urban interface. Measures can be taken to reduce the ignitability of structures in wildland areas by:

- Proper planning, which locates homes and communities such that their exposure to wildfire is minimized.
- Use of building design techniques that prevent flames or windborne embers from entering the structure, and use of building materials that are fire and heat resistant.
- Managing and reducing the flammable vegetation around the structure.

PLANNING: The Amador-El Dorado Unit has seen rapid growth over the last couple of decades with homes and businesses being built farther away from population centers creating new areas of wildland-urban interface. Improper planning in regards to minimizing a structures exposure to wildfire has allowed many of the structures to be built in areas that increase their exposure to the effects of wildfires, such as building on steep slopes and within or at the top of both large and small drainages. Drainages act as chimneys and funnel heat and energy from wildfires. Homes within these drainages are subjected to a lot more heat and embers during a wildfire increasing the structures chance of igniting. Many times firefighters are unable to defend structures within these drainages from an oncoming wildfire because of the amount of heat. Unfortunately, new construction continues to occur within these areas increasing the number of structures with a high susceptibility to igniting during a wildfire. The Amador-El Dorado Unit Fire Prevention Bureau works with county planning and building departments to locate new construction in areas that minimize a buildings exposure to wildfire.

CONSTRUCTION: How a structure is constructed and the type of material is just as important as where a structure is located. The California Department of Forestry and Fire Protection/ Office of the State Fire Marshal has developed wildland-urban interface building standards for new construction. The objective of the Wildland-Urban Interface Fire Area Building Standards is to establish minimum standards for materials and material assemblies and to provide a reasonable level of exterior wildfire exposure protection for buildings in Wildland-Urban Interface Fire Areas. The use of ignition resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire (wildfire exposure) will prove to be the most prudent effort California has made to try and mitigate the losses resulting from our repeating cycle of interface fire disasters. The new standards became effective on January 1, 2008 for all areas within State Responsibility Areas and on July 1, 2008 in Local Responsibility

Areas classified as Very High Fire Hazard Severity Zones. The new standards address such things as roofing, attic ventilation, ignition resistant siding, decking, windows, and wall vents. The new standards will help to reduce the number of burning embers that enter a building and ignite fires. Burning ember intrusion is the main reason homes are destroyed in wildland-urban interface fires.

Fire Hazard Severity Zone Maps

In 2007-2008 CAL FIRE updated the existing Fire Hazard Severity Zone maps to coincide with the adoption of the new wildland-urban interface building standards. The updated maps have incorporated improved wildland fire behavior science, data sets, and understanding of structure ignition mechanisms during conflagrations. These fire hazard severity zones will be used by building officials to determine appropriate construction materials for new buildings in the wildland-urban interface. The updated zones will also be used by property owners to comply with natural hazards disclosure requirements at time of property sale. It is likely that the fire hazard severity zones will be used by local government as they update the safety element of general plans. The Fire Hazard Severity Zone maps and new building standards for each county can be obtained from the CAL FIRE website, www.fire.ca.gov.

DEFENSIBLE SPACE: Managing and reducing the flammable vegetation around structures will also reduce the number of structure ignitions from wildland fires. Clearing vegetation and maintaining that clearance is required by section 4291 of the Public Resources Code (PRC 4291). In 2005 PRC 4291 was amended to increase the minimum vegetation clearance requirement from 30 feet to 100 feet around structures. Although this law requires it, many landowners fail to maintain adequate clearance around their structures. CAL-FIRE's fire safe inspection program is used to enforce compliance with PRC-4291. Additionally, the fuel reduction projects within AEU are aimed at reducing wildland fuels and educating the public on what they can do for themselves to protect their homes from wildfires and reducing structure ignitability.

Support Bureaus

Fuels Management Programs

Vegetation Management Program

During the past 10 years, the Unit has treated an average of 1,000 acres annually under the Vegetation Management Program (VMP). Currently the Unit has treated approximately 19,825 acres since 1982, with an estimated 1500 additional treated acres by the end of the year. Many of the projects undertaken in the Unit have been within the wildland-urban interface. Due to the existing land use patterns within the Unit and the increasing population densities in Amador and El Dorado Counties, it is anticipated that the emphasis of the Vegetation Management Program will continue to focus projects within the wildland-urban interface areas. Future projects will concentrate on densely populated areas with high assets at risk.

California Forest Improvement Program (CFIP)

Both federal and state cost share programs exist to assist private timberland owners in the management of their lands; CAL FIRE will pay as much as 90% of the cost of the project. The California Forest Improvement Program (CFIP) has recently been funded to aid non-industrial timberland owners in managing their lands. Many of the cost share practices such as site preparation, timber stand thinning, pruning, and chemical release aid in managing and reducing fuel loading on non-industrial timberlands.

In 1999, CAL FIRE foresaw the need to expand the ability of the program to meet other watershed needs. These measures include thinning, shaded fuel breaks, and other land treatments or forest resource improvement projects consistent with Section 4794.

Proposition 40 Fuel Reduction Program

The goal of the CAL FIRE Prop-40 Fuels Reduction Program is to reduce wildland fuel loadings that pose a threat to watershed resources and water quality. These funds would be for planning, administration, and implementation of forest land and fuels management projects that protect watersheds from catastrophic wildfire, thereby improving water quality, protecting habitat and fisheries, and controlling erosion and sedimentation in the Sierra Nevada region.

CAL FIRE is using the VMP program, Community Assistance Grants (CAG's) and CFIP as tools to accomplish the goal of protection of the targeted watersheds, specifically fuels management projects. In order to protect these stands from fire it may be necessary to accomplish more than the standard

lopping of fuels generated from hand site preparation, Pre-commercial thinning (PCT), pruning and/or release activities. The table below displays the Community Assistance Grant projects implemented under the Proposition 40 Program:

Project name	Type	County	Treated Acreage	Completion Date
Auburn Lake Trails #2 - Perimeter Common Lots	Modified shaded fuelbreak	El Dorado	Up to 251	April 15, 2009
Gold Ridge Forest #1 -Priority Common Lots	Modified shaded fuelbreak	El Dorado	130	April 15, 2009
Chrome Ridge #1	Modified shaded fuelbreak	El Dorado	41	April 15, 2009
City of Placerville #1 - Gold Bug Park	Modified shaded fuelbreak	El Dorado	45	April 15, 2009
SPI #2 - Sly park / Swansburrough	Modified shaded fuelbreak	El Dorado	170	April 15, 2009
Sand Ridge #3 - Wolverine Modified Shaded Fuelbreak	Modified shaded fuelbreak	El Dorado	30	April 15, 2009
Auburn Lake Trails #3 - Perimeter Private Lots	Modified shaded fuelbreak	El Dorado	Up to 239	April 15, 2009
Meeks Bay Fire	Chipper	El Dorado		April 15, 2009
Lake Valley Fire	Chipper	El Dorado		April 15, 2009
Sandridge #1 Freshwater lane	Roadside fuelbreak	El Dorado	6.5	Dec 31, 2007
Sandridge #2 Puma Point / Jaguar lane	Roadside fuelbreak	El Dorado	8.0	Dec 31, 2007
Georgetown #1 Spanish Dry Diggins	Roadside fuelbreak	El Dorado	20	Dec 31, 2007
Mosquito Priority Evacuation Routes phase 2	Roadside fuelbreak	El Dorado	23	Dec 31, 2007
South Rubicon Bay Fuels Reduction	Fuelbreak	El Dorado	20	Dec 31, 2007
Fallen Leaf Fire Project 4, Phase 1 Fallen Leaf Road	Fuelbreak And Thinning	El Dorado	14	Dec 31, 2007
Jackson Extension Fuelbreak (46Ac)	Fuelbreak	El Dorado	46	Dec 31, 2007
Antelope Fuelbreak (50% of Project= 75Ac.)	Fuelbreak	Amador	147	Dec 31, 2007

Marz Fuel Modification	Fuelbreak	Amador	59	Dec 31, 2007
*Bear Valley -- total cost \$58,280(funded AEU/TCU)	Fuelbreak	Alpine	30	Dec 31, 2007
Grizzly Mtn Defense Zone	Fuelbreak	El Dorado	8	Dec 31, 2007
City South Lake Tahoe Fuels reduction Project (Springwood)	Fuelbreak	El Dorado	30	2009
El Dorado RCD C.A.G.- Uncle Toms Pre Fire mgmt area I	Modified shaded fuelbreak	El Dorado	200	May 31, 2007
Auburn Lake trails C.A.G.	Roadside fuelbreak	El Dorado	65	Dec 31, 2006
Mosquito Priority Evacuation Routes	Roadside fuelbreak	El Dorado	62	Dec 31, 2006
Amador FSC C.A.G - Shake Rams Fiddletown complex	Fuelbreak	Amador	143	2006
Alpine FSC C.A. G.-Hot Springs Road Right-of-Way Fuels Treatment	Roadside Fuelbreak	Alpine	30	2009
Fallen Leaf Lodge Homeowners	Fuelbreak and Thinning	El Dorado	25	2009
Lake Valley Fire Protection District Chipper Program	Chipper	El Dorado	245	Oct. 2005
Christmas Valley 3 Fuelbreak (Combined into Chipper Agreement)	Fuelbreak and Thinning	El Dorado	25	Nov. 2006
Meath Road C.A.G	Modified Shaded Fuelbreak	Amador	112	April 15, 2010
Grizzly "GF4" PFSB	Perimeter Fuelbreak	El Dorado	129	April 15, 2010
Logtown #1	Fuelbreak & Thinning	El Dorado	127	April 15, 2010
Greenstone country #1	Modified Shaded Fuelbreak	El Dorado	50	April 15, 2010
Markleeville/Woodfords Fuel Reduction	Roadside Fuelbreak	Alpine	100	April 15, 2010

California Tahoe Conservancy Fuel Reduction Program

The California Tahoe Conservancy (CTC) conducts fuel reduction projects throughout the Lake Tahoe Basin through their Urban Land Management Program. The California Tahoe Conservancy, through contract, funds CAL FIRE personnel to perform various professional forestry duties, including those duties required to implement fuel breaks. In addition, CAL FIRE provides professional forestry advice and services, including but not limited to, preparation and implementation of THPs, Exemptions and vegetation management projects on California Tahoe Conservancy properties. CAL FIRE also works with the California Tahoe Conservancy Forest Habitat Enhancement Program on fuel reduction, forest health and wildlife habitat enhancement projects located within the urban interface and general forest areas.

In January 2005, CAL FIRE was authorized approximately 40 million dollars of Proposition 40 funds over 5 years by the legislature for fuels reduction projects which would result in improvement and protection of watersheds and their water quality and assets at risk. Approximately \$600,000 was allocated to CAL FIRE expressly for authorizing its use to the California Conservation Corp for fuels reduction projects on California Tahoe Conservancy lands.

Pre-Fire Engineering

Prefire engineering is a critical part of the unit fire plan. GIS mapping is used to analyze the fire environment and help unit managers make key decisions for on the ground prefire projects. It is the goal of engineering to provide the most current and accurate data for the fire plan process. This goal is accomplished by field validating the data with unit battalions, collaborators, county officials, and federal agencies.

Objectives:

- Update the AAR data
- Update the fuels for the unit
- Maintain current and up to date county parcel data
- Work with Unit personnel and collaborators to enhance the fire plan data
- Asses the weather rankings for accuracy

FIRE PREVENTION BUREAU – Battalion Chief Chris Anthony

AMADOR/ELDORADO UNIT (AEU)

2008 IGNITION MANAGEMENT PLAN

2007 Fire Season Ignition Statistics

Wildland fire ignition stats were tracked for the entire year of 2007. The Unit experienced 251 fires within its Direct Protection Area (DPA) for the year. This number represents a 27% decrease from 2006 (301 fires), and less than a 1% decrease over the 10-year average (299 fires).

The five largest fires in the unit were:

- 1) Montfort Fire at 180 acres, \$350,000 dollars of damage, cost to suppress estimated at \$32,833, and caused by an illegal burn barrel.
- 2) Bayne Fire at 126 acres, \$3,000 dollars of damage, cost to suppress estimated at \$130,000, and the cause arson.
- 3) Logtown Fire at 104 acres, \$6,000 dollars of damage, cost to suppress estimated at \$126,000, and the cause was undetermined.
- 4) Mine Fire at 80 acres, \$5,000 dollars of damage, cost to suppress estimated at \$121,000, and the cause was arson.
- 5) Pardee Fire at 36 acres, \$75,000 dollars of damage, cost to suppress estimated at \$25,000, and caused by a vehicle.

<u>2007 Five Largest Fires</u>	<u>Acres</u>	<u>Total Cost</u>	<u>Cause</u>
Montfort Fire	180	\$387,833	Burn Barrel
Bayne Fire	126	\$133,000	Arson
Logtown Fire	104	\$132,000	Undetermined
Mine Fire	80	\$126,000	Arson
Pardee Fire	36	\$80,000	Vehicle

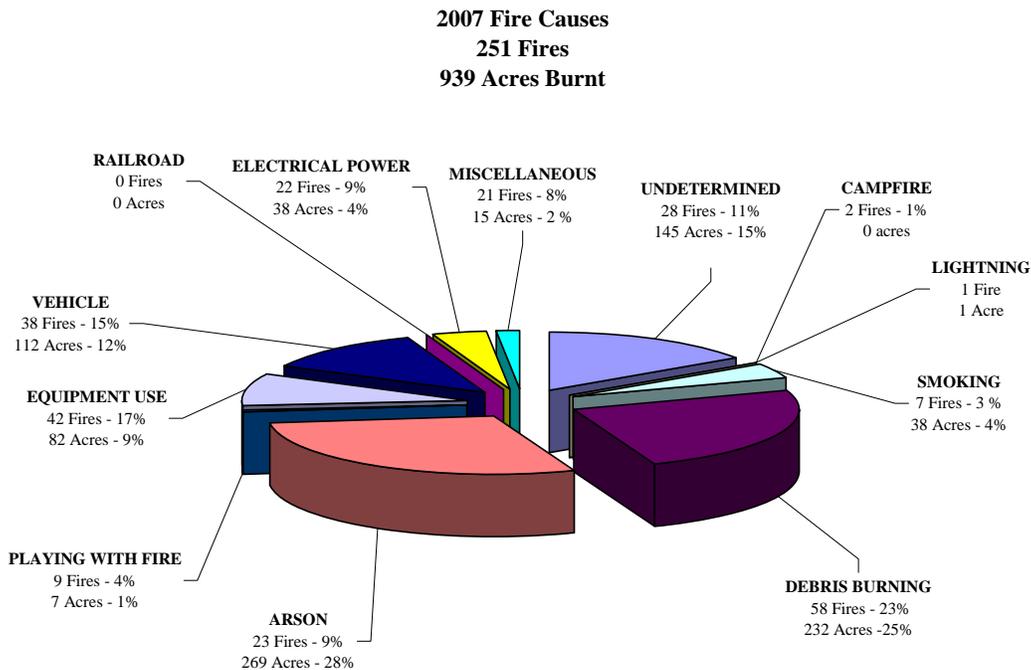
Approximately 941 acres burned in 2007 compared with the 10-year average of **1,890**. Damage caused by these fires in 2007 was estimated at approximately \$608,900.00.

In reviewing fire causes during the 2007 season, it was found that the five leading causes of vegetation fires in the Unit were:

- 1) Debris Burning (58 fires – 23%)
- 2) Equipment (42 fires – 17%)
- 3) Vehicle (38 fires – 15%)
- 4) Undetermined (28 fires – 11%)
- 5) Arson (23 fires – 9%)

These accounted for 189 fires or 75% of all fires that occurred. These were followed in order by: electrical power (22 fires – 9%), miscellaneous (21 fires – 8%), playing with fire (9 fires – 4%), smoking (7 fires – 3%), campfire (2 fires – 1%), lightning (1 fire) and railroad (0 fires).

Fire occurrences on the increase from the 10-year average were debris burning and electrical power. Increases can be explained because of year long reporting not just during the declared fire season. All other sources were on the decrease even with year long reporting. Ignitions causing the most acreage loss were arson at 269 acres, debris burning at 232 acres, and undetermined at 145 acres. When analyzing data for the whole year debris burning caused the most fires, though these fires were kept relatively small in size, one fire at 180 acres accounted for most of the acres burned for this category.



In order to better address ignition management for the Unit, a more detailed analysis of the fires in each major cause classification was conducted.

1) Debris Burning accounted for 58 fires or 23% of the total fires in the Unit. Escaped debris burns resulted in 232 acres being burned or 25% of the Unit's total. This cause saw a 19% increase from the 10-year average of 47. The increase was explained because in previous years, fires were only counted when they occurred during the declared fire season. In 2006, 29 debris fires occurred outside the declared fire season with 39 debris fires occurring during the declared fire season. 69 debris fires were reported during the year. A concerted educational program along with the elimination of debris burning during June through November substantially limited the number and severity of these fires. The Montfort Fire accounted for the greatest amount of damage and suppression costs for this category. Lack of clearance is the #1 cause for the escape burns followed by wind and old control burns re-igniting (coming back to life). Unattended control burns also contributed to the totals. All fire departments in Amador and El Dorado Counties are assisting us in handing out legal notices (LE-38's) on all debris caused fires. These legal notices serve to educate the public and put them on notice that their next escape will result in a citation. This cooperation has proven to continually keep number and acres lost below the 10 year average. Over the last 3 years of LE-38 notices only 2 repeat offenders were identified. There were no repeat violators in 2007.

2) Equipment accounted for 42 wildland fires or 17% of the total ignitions. Equipment caused fires resulted in 82 acres being burned or 9% of the Unit's total. This represents a 21% decrease from the 10-year average of 53. Historically, this classification has been one of the top causes of wildfire starts in the Unit. Equipment use and debris burning were again heavily targeted this year. Through continuing displays and education programs, we hope to continue a downward trend. In reviewing the specific causes within this classification, approximately 68% are due to the misuse of mowers and weed-eaters. Welding or grinding without adequate clearance caused 16% and another 16% were caused by the operation of heavy equipment. The majority of the heavy equipment caused fires occurred in the El Dorado Hills Area. These fires were all quickly extinguished. Over 90% of the mower fires were due to the mower blades striking rocks and friction belts igniting collected chaff around them. Ironically, most of the mower caused fires occurred as a result of residents trying to clear property for fire safety, but doing it during the hottest part of the day, usually between the hours of 10:00 AM and 6:00 PM.

3) Vehicles accounted for 38 fires or 15% of the total ignitions. Vehicle caused fires resulted in 112 acres being burned or 12% of the Unit's total. This represents a 24% decrease from the 10-year average of 50. This category has

been one of the leading causes of fires in the Unit for the past several years. The majority of these fires occurred along the major traffic corridors of Hwy 16, 49, 50, 88, and 124.

4) Undetermined accounted for 28 fires or 9% of the total ignitions. Undetermined caused fires resulted in 145 acres being burned or 15% of the Unit's total. This category saw an increase from the last several years but it was not above the 10 year average of 30. The majority of acres burned by this cause class resulted from the Log Town Fire which burned 108 acres. Hard work and dedication of the Unit's Fire Prevention Staff and the company officers who conduct thorough origin and cause investigations aid in the declining number in this cause class. Thorough origin and cause investigations also assist in determining fire patterns which may be reduced by public education and or enforcement.

5) Arson accounted for 23 fires or 9% of the total ignitions. Arson caused fires resulted in 269 acres burned or 29% of the Unit's total. This represents a 33% decrease from the 10-year average of 35. The Fire Prevention Bureau made 2 arrests for PC 451c – Arson to the Wildland. One person was arrested in El Dorado County and one person in Amador County.

6) Electrical power accounted for 22 fires or 9% of the total ignitions. Electrically caused fires resulted in 38 acres burned or 4% of the Unit's total. Electrically caused fires increased by one from the 10 year average of 21. This is a decrease from the last 3 years. Most of these fires resulted from trees, branches or birds into the power lines.

7) Miscellaneous causes accounted for 21 fires or 8% of the total ignitions. Miscellaneous caused fires resulted in 15 acres burned or 2% of the Unit's total. This cause class saw a 27% decrease from the 10 year average of 29. This classification includes causes such as spontaneous combustion, fireplace ashes deposited in the wildland, interior fires such as wiring, flue fires, barbequing, cooking fires, fireworks, and electrical wiring on the user side of the meter. Ashes deposited in the dry vegetation caused 8 fires, spontaneous combustion caused 6 fires, gopher bombs caused 3 fires, and an electric fence caused 2 fires to name a few.

8) Playing with Fire accounted for 9 fires or 4% of the total ignitions. Playing with Fire resulted in 7 acres burned or 1% of the Unit's total. This was a 44% decrease from the 10 year average of 16.

9) Smoking accounted for 7 fires or 3% of the total ignitions. Smoking caused fires resulted in 38 acres burned or 4% of the Unit's total. This was a decrease by one fire from the 10 year average of 8. The majority of these fires were

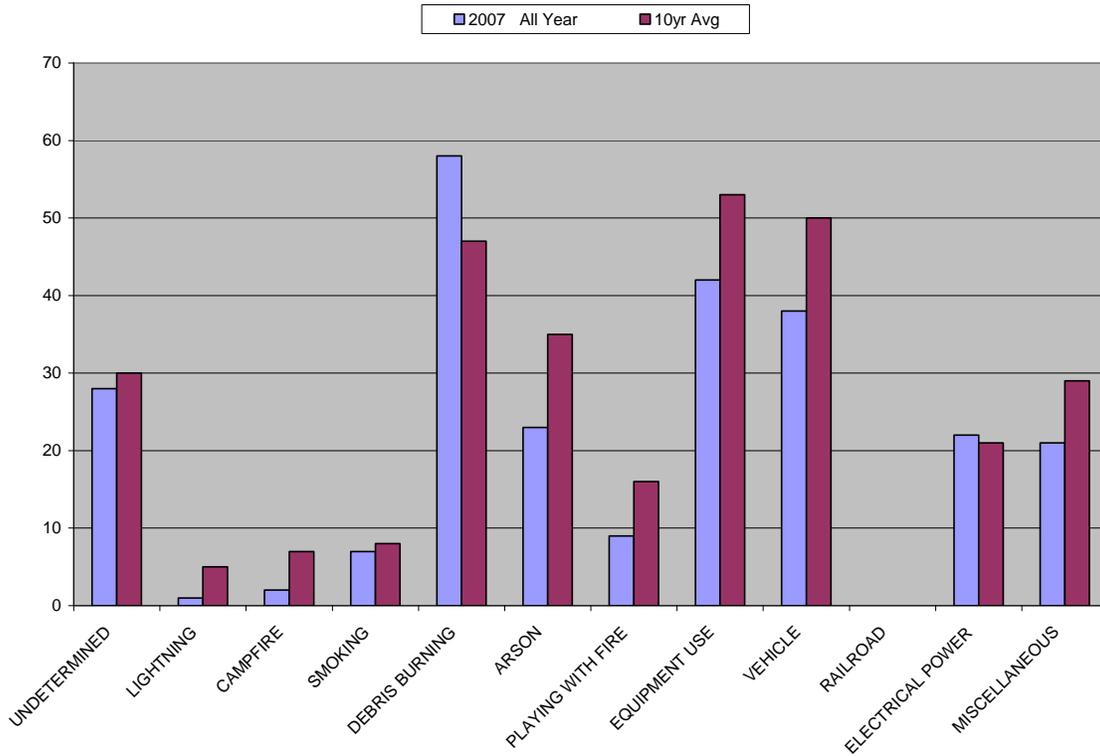
carelessly discarded cigarettes along our roadways. However, several bark and planter box fires were directly attributed to smoking.

10) Illegal campfires and campfire escapes caused 2 fires or less than 1% of the total ignitions. No acres burned were recorded as a result of these fires. This was a 80% decrease from the 10 year average of 7.

11) Lightning caused 1 fire and burned 1 acre in the Unit in 2007.

12) Railroad accounted for zero fires in 2007. No active rail lines are working in either Amador or El Dorado Counties at this time. Sacramento County contains very few working rail spurs in the SRA.

The following chart compares the 2007 primary causes compared to the 10-year average.



Education and (Volunteer in Prevention)VIP

The AEU VIP Program assists the Unit in a variety of Fire Prevention Activities. The VIPs support the Headquarters Office and fire stations, school programs, public education events (fairs, displays, parades, fire patrols) and fire information centers on an immediate need basis. The VIPs are active year round in Amador, El Dorado, Alpine, and Sacramento Counties. Prevention personnel assisted by

engine personnel and VIPs participated in 7 fairs / displays, 12 VIP activities, and 3 school programs.

Juvenile Firesetters

The JFS Program is initiated when a juvenile who have been experimenting with fire. The juvenile and parents /caregivers are assessed utilizing the FEMA JFS assessment program. Following the assessment, the family will view one or two videos specifically designed for JFS. If further assistance is needed, the referrals are processed through the juvenile justice system.

Assessments are done in cooperation with the US Forest Service and local fire districts. Prevention personnel assessed 15 juveniles through the JFS Program.

The objectives of the JFS Program are:

- Identify juvenile firesetters
- Assess the juvenile firesetters needs
- Provide life skill training and education
- Provide referrals to family counseling
- Evaluate firesetters and program progress

Training Battalion – Battalion Chief Brian Estes

The AEU Training Bureau exists to provide mandatory and career enhancement training to CAL FIRE employees so that they can carry out the mission of the Department effectively and safely.

The Training Bureau is currently staffed with a Battalion Chief and Fire Captain. The Training Bureau oversees the training for over 160 permanent and seasonal employees. These employees work in Fire Protection and Emergency Medical Services, Emergency Command Center, Administration, Resource Management, and our Schedule "A" contracts with both the Cameron Park Fire Department and the Amador Fire Protection District (Amador Plan).

In 2007, the Unit Training Bureau committed employees to over 15,000 staff hours of training. This training included courses on the Incident Command System, Wildland and Structural Firefighting, Emergency Medical System and Hazardous Materials Incidents. This training was facilitated through local, regional and state level courses. 2008 will see an overall increase in training hours and diversity.

Training and the Fire Plan

The Training that is provided through the AEU Training Bureau supports the Unit's Fire Plan. A well trained work force will not only perform more safely on a wildland fire, but will also more effectively mitigate and/or prevent major wildland

fires from occurring. Training in the Incident Command System as well as refining basic company officer skills in prevention and suppression will complement the mission of the Fire Plan.

Emergency Command Center – Battalion Chief David Samaniego

The Camino Interagency Emergency Command Center (CICC) provides the Command and Control for SRA, LRA, and FRA, of Amador, Alpine, and El Dorado counties, the Eldorado National Forest (ENF), and Tahoe Management Unit (TMU).

AEU, ENF and TMU are located in CICC's dispatch center at Camino. This co-location allows each agency to assist the other during times of high activity, the opportunity to share personnel and assures coordination of local, state, and federal fire fighting forces during interface wildfires, structure fires, and medical emergencies.

CICC monitors fire weather conditions within the Unit to augment staffing prior to these weather events. CICC maintains 9 Remote Weather Stations (RAWS), and monitors these stations on a daily basis to set the appropriate dispatch level. A Standard Response Plan is pre-determined for each dispatch level for timely activation in the event of a wildfire, or other type fire which is threatening to burn the wildland.

CICC maintains an electronic Emergency Resource Directory, (ERD) which allows personnel to support any given incident within the area. The ERD contains information such as the ICS qualifications for AEU, ENF, and TMU personnel, supplies, vendors, private resources available for hire, call when needed rosters (i.e.; dozers, helicopters, water tenders, etc), and Local Government cooperator information.

CICC also has an expanded operation. The CICC Expanded Dispatch is used for large or complex incidents that outgrow the main floor of the command center. When an Initial Attack incident occurs that has the potential to become an extended attack or major incident, CICC immediately staffs expanded with ECC personnel. Once CICC Expanded is up and running, all ordering for the given incident takes place within this building and staffing levels are adjusted based on the size or complexity of the incident. The incident is assigned a separate Command Frequency, to allow the CICC to return to processing new incidents. As the incident continues to grow, additional resources are assigned from within AEU, ENF, or TMU, or orders are placed to fill from other areas of the state or nation. The properly staffed Expanded Operation allows for timely resource ordering, cancellation, or reassignment of resources, overhead, and equipment while taking the load of supporting the incident off the CICC main floor.

In 2007, the CICC processed 24,021 incidents with the call volume for the CICC increasing by 8.5% from the previous year.

Mission Statement

The Camino Interagency Command Center, operated by California Department of Forestry and Fire Protection and the United States Forest Service, is a cooperative interagency command center. The command center is dedicated to providing professional and efficient dispatch services for the residents and visitors of El Dorado, Amador, Sacramento, and Alpine Counties including the El Dorado National Forest and the Lake Tahoe Basin Management Unit. The primary mission is to achieve the most economical and effective cooperative fire, aviation management, emergency medical response, law enforcement, and rescue service through collaboration.

Resource Management - Division Chief Phyllis Banducci

The State Forest Practice Act and Forest Practice Rules govern the harvest of timber from private lands in California. The Rules require a landowner who harvests timber for commercial purposes (i.e. you sell, barter or trade logs or milled lumber to another party) to submit an exemption notice or timber harvesting plan document with the California Department of Forestry and Fire Protection. Some of the notices or plans that are required may require the services of a Registered Professional Forester. Below we have listed the most common documents required by the state and the conditions under which each is appropriate.

1. **Less than 3 acre Conversion Exemption** - For the harvesting of trees which is a single conversion to a non-timber growing use (orchard, house, pasture etc.) on parcels less than 3 acres. The conversion requires that 100% of the slash be removed; these strict slash removal requirements were designed to minimize fuels in and around residences.
2. **Emergency Notice of Operations** - This emergency allows for the harvest of dead and dying trees to capture fire salvage in addition to insect and disease killed trees.
3. **Fuel Hazard Reduction Emergency** – This emergency, adopted in 2004, allows for the immediate harvest of trees where high, very high or extreme fuel hazard conditions, the combination combustible fuel quantity, type, condition, configuration and terrain positioning, pose a significant fire threat on private timberlands. Cutting and removal of hazardous fuels, including trees, shrubs and other woody material, is needed to eliminate

the vertical and horizontal continuity of understory fuels and surface fuels for the purpose of reducing the rate of fire spread, fire duration and intensity, fuel ignitability and to achieve a flame length under average severe fire weather conditions that is less than 4 feet in the treated areas.

4. **10% Dead & Dying Exemption** – This exemption allows for the immediate harvest of dead, dying or diseased trees of any size, fuel wood or split wood products, in amounts less than 10% of the average volume per acre
5. **Fire Safe Exemption** - This exemption allows for the removal of ladder fuels and thinning of trees within 150 feet of a permitted structure. All slash be treated within 45 days. This activity is encouraged to further the intent of Public Resource Code (PRC) 4290.
6. **Modified Timber Harvest Plan** - This plan allows for the harvest of trees on an ownership 100 acres or less.
7. **Timber Harvest Plan (THP)** – A plan addressing the harvest of timber on more than 3 acres that is beyond the scope of a modified THP. An approved THP acts as the functional equivalent of an Environmental Impact Report as required by the California Environmental Quality Act (CEQA).
8. **Non-industrial Timber Management Plan (NTMP)** - A long-term timber harvesting plan with no termination date for a timberland owner with less than 2500 acres.

Timber Harvesting Plans (THP)

Timber harvest Plans are required to go through a multi-agency environmental review and most require a pre-harvest inspection to determine whether potential environmental impacts are adequately mitigated prior to harvest activities. The potential for creating or reducing fire hazards from timber harvesting is evaluated during the THP review. In Amador-El Dorado Unit, Area Foresters contact the Battalion Chiefs in the area where the harvesting will occur and solicit their input on THPs that pose potential fire hazards. Any concerns the Battalion Chiefs and Area Foresters have with regard to reducing the fire hazard will be incorporated into the THP as additional mitigations. Foresters preparing a THP must show how the proposed harvest will meet maximum sustained production of wood products. Demonstrating maximum sustained production includes addressing the health and productivity of the residual stand. Fuels treatments are considered in this process, fire resilience is a key component of a healthy and productive stand.

Occupied residences and public and private roads are required to comply with the Forest Practice rules that address hazard reduction. Additionally, where logging occurs in and adjacent to subdivisions and residential developments the Area Forester may require that the THP include slash treatments above and beyond the requirements of the Forest Practice Rules.

While logging is active on THP's the Area Forester will make compliance inspections to ensure that the loggers have the required fire fighting tools and equipment on site. Loggers are also required to leave all logging roads passable at the end of each workday.

The Region Office builds and maintains a GIS database of all THP's; this database is provided to the Area Foresters on an annual basis. The THP database is a valuable tool that could be used in identifying recently logged areas that may require different firefighting strategies.

Area Foresters encourage consulting Foresters, to utilize Special Prescriptions to reduce stocking to levels lower than that allowed in the general forest in order to create a more open, fire resistant stand of trees. The use of special prescriptions is the primary means by which fuels are modified to create Community Fuelbreaks. Community Fuelbreaks such as the Omo Ranch shaded fuelbreak in El Dorado County cross over Federal lands, industrial timberlands and non-industrial ownership and fuels treatments are consistent over all ownerships. Landowners are encouraged to create Community Fuelbreaks where:

- Residential developments abut industrial timberlands and /or Federally managed lands,
- On ridges in and adjacent to Communities at Risk,
- On a ridge that will provide for wildlife and watershed protection
- Adjacent to major highways, haul routs and evacuation routes
- Around isolated residence surrounded by timberland
- Where the Area Forester and Battalion Chief agree

Community Fuelbreak Implementation through the THP Process

One of these Special Prescriptions is the Fuelbreak/Defensible Space Prescription. The Rules specify it can be applied where; some trees and other vegetation and fuels are removed to create a shaded fuel break or defensible space in an area to reduce the potential for wildfires and the damage they might cause. Additionally the Rules ask the RPF to describe in the plan specific vegetation and fuels treatment, including timing, to reduce fuels to meet the objectives of the Community Fuelbreak area. Area Foresters provide the following guidelines to RPFs to aid them in the application of the Fuelbreak Prescription.

The purpose of a Community Fuelbreak is to create a defensible fuel zone that provides wildfire protection for wildland urban interface communities, watersheds, and firefighters engaged in fire suppression operations. The fuelbreak treatments are intended to protect communities from fires that originate in the wildlands as well as minimizing the spread of fires that originate in urban areas. The fuelbreak is not intended to stop the fire but should be a place where the vegetation has been modified, giving firefighters a safe place to initiate suppression activities. The vegetation will be modified so that the horizontal and vertical continuity of forest fuels are broken up. The extent of vegetation modification will vary depending on topographic features and vegetation condition, slope, aspect, and urban environment. The seven objectives listed below may be implemented through the THP process if they are included in the pre-harvest inspection recommendations. Depending on the timing and complexity of the project, the objectives may be implemented through the Units VMP or CFIP Program. .

1. The optimum width for a defensible zone is at a minimum 500' or wider depending on topography and resources at risk. If the defensible zone is along an existing road or ridge it should extend a minimum of 150 feet from the edge of the road or the center of the ridge. Road passage will be a primary goal, where a well developed private or public road lies within the Fuelbreak, for evacuation, tactical, and operational access.
2. Crowns of the overstory trees should be separated, leaving canopy cover ranging between 30% and 50%.
3. A minimum of 80% of the ladder fuels shall be removed if ladder fuels are left (as in the form of regeneration) the lower branches shall be pruned so that they do not provide continuity between the surface fuels and the canopy. Trees over 6 inches DBH will be pruned to 10 feet above the ground.
4. The residual trees shall meet a minimum of the following criteria:
 - a. The tree must be alive and healthy
 - b. The tree must have at least 1/3 of its length in live crown as a ratio of total tree height.
 - c. The tree must be a commercial species from a local seed source or a seed source, which the registered Professional Forester determines, will produce commercially trees physically suited for the area involved.
 - d. Leave tree species preference is ponderosa pine, sugar pine, Douglas-fir, incense cedar, black oak, and true fir in that order.
5. Tree removal targets understory trees, with primarily healthy dominant and co-dominant trees retained.

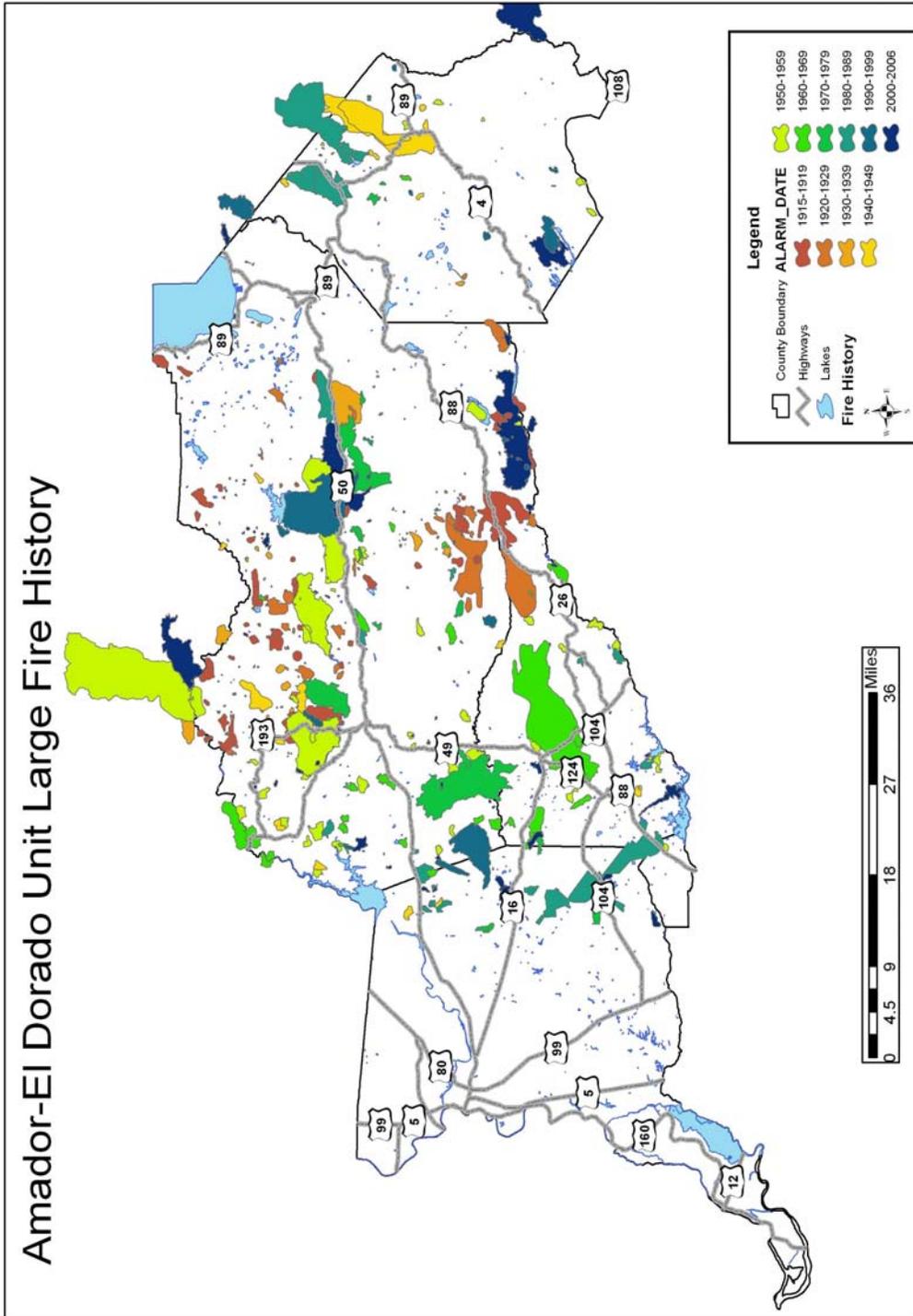
6. Surface and ground fuels shall be treated so that they do not function as ladder fuel to the residual stand. A minimum of 80% of the activity generated non-merchantable material (slash) shall be treated, piled and burned, chipped or removed from the site.

7. Regeneration will be allowed for where it does not act as ladder fuel.

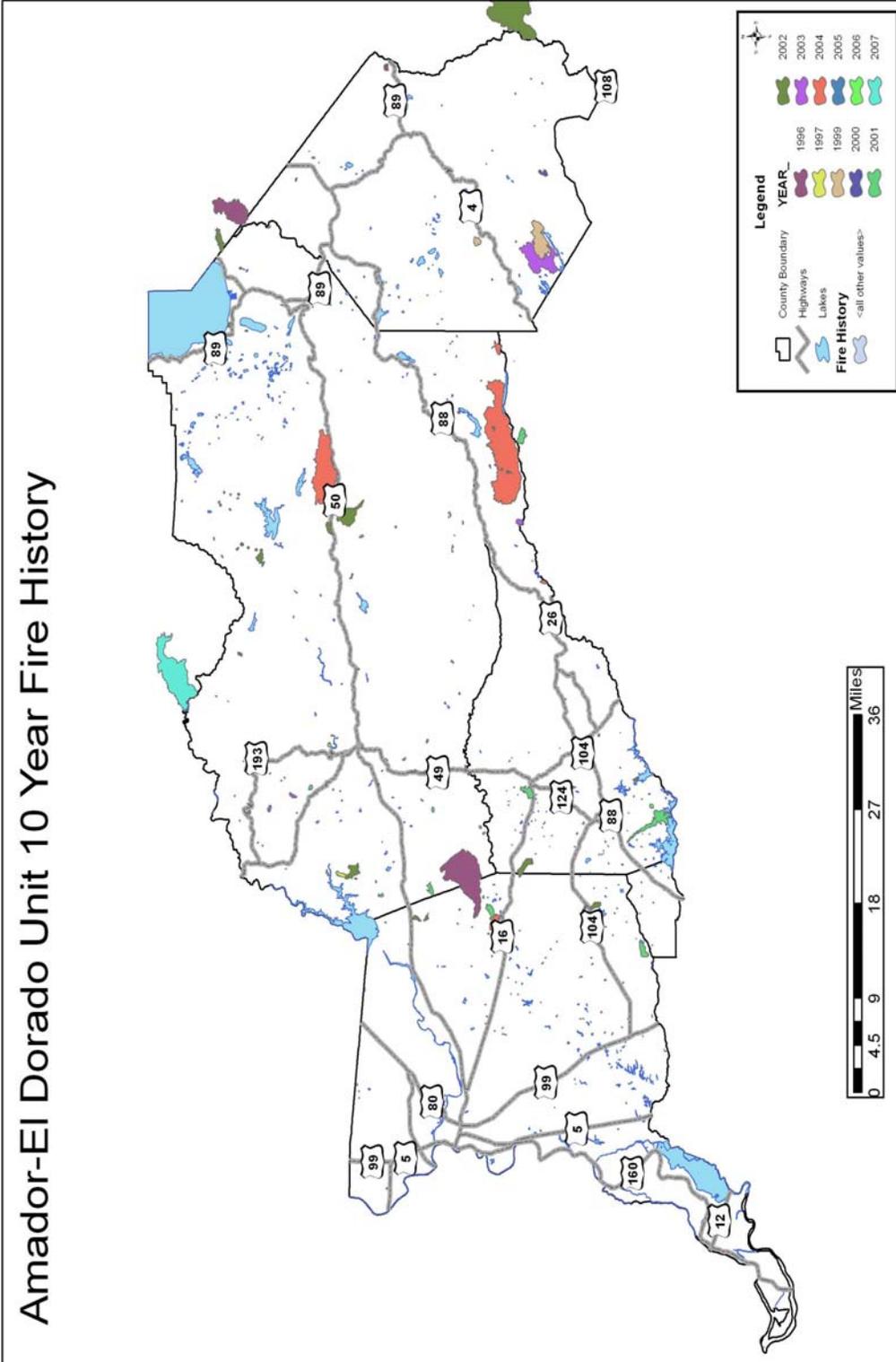
Service Forestry

The Area Foresters are also required to provide forestry advice upon request to private landowners. This advice includes, but is not limited to, recommendations for fuels management and fire safe activities that can be applied to residents. Many times service forestry calls are related to bark beetle activity in pine trees. Landowners are encouraged to immediately remove the bark beetle killed trees and treat the slash.

APPENDIX A

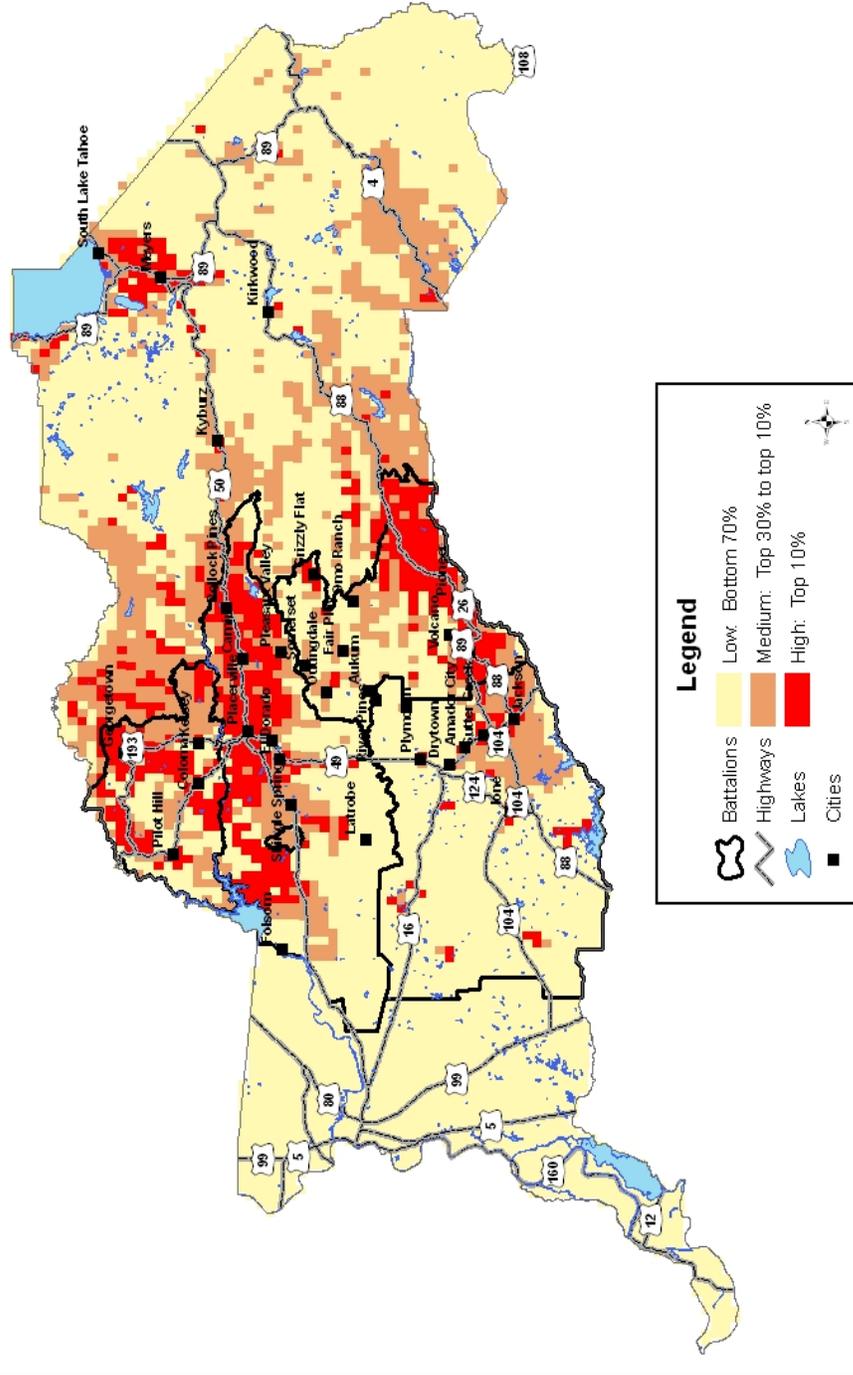


APPENDIX A

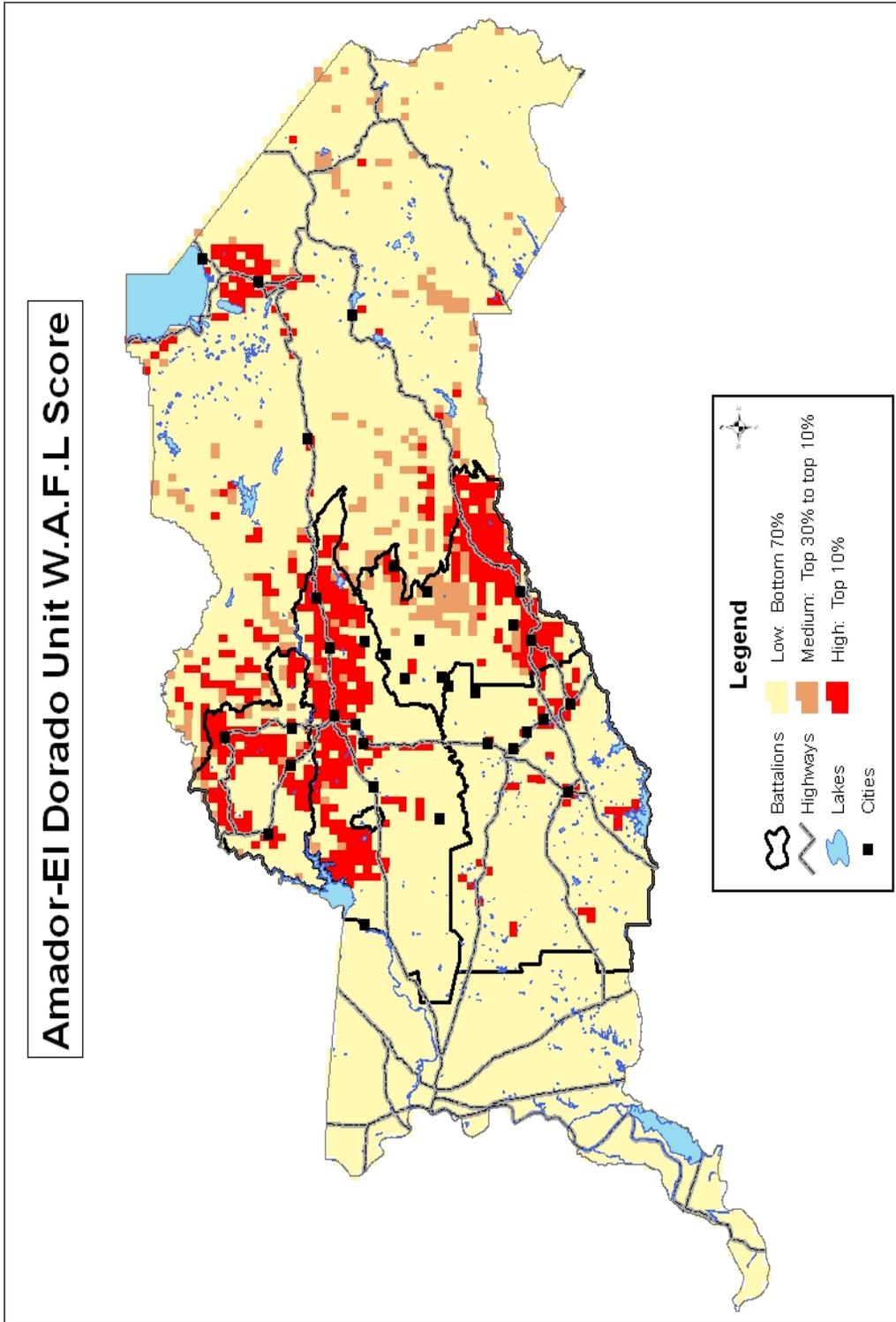


APPENDIX B

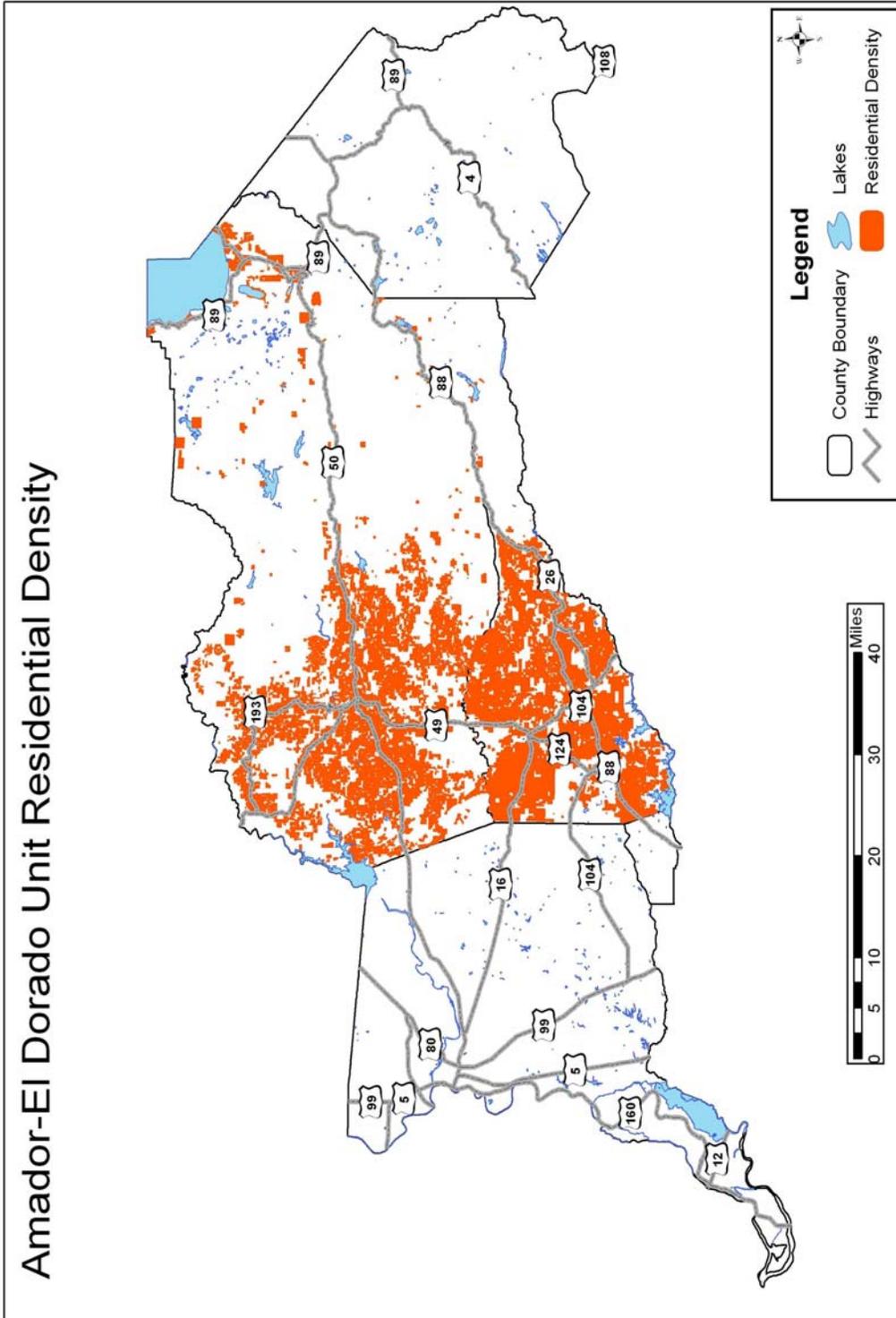
Amador-El Dorado Unit Total Asset at Risk Score



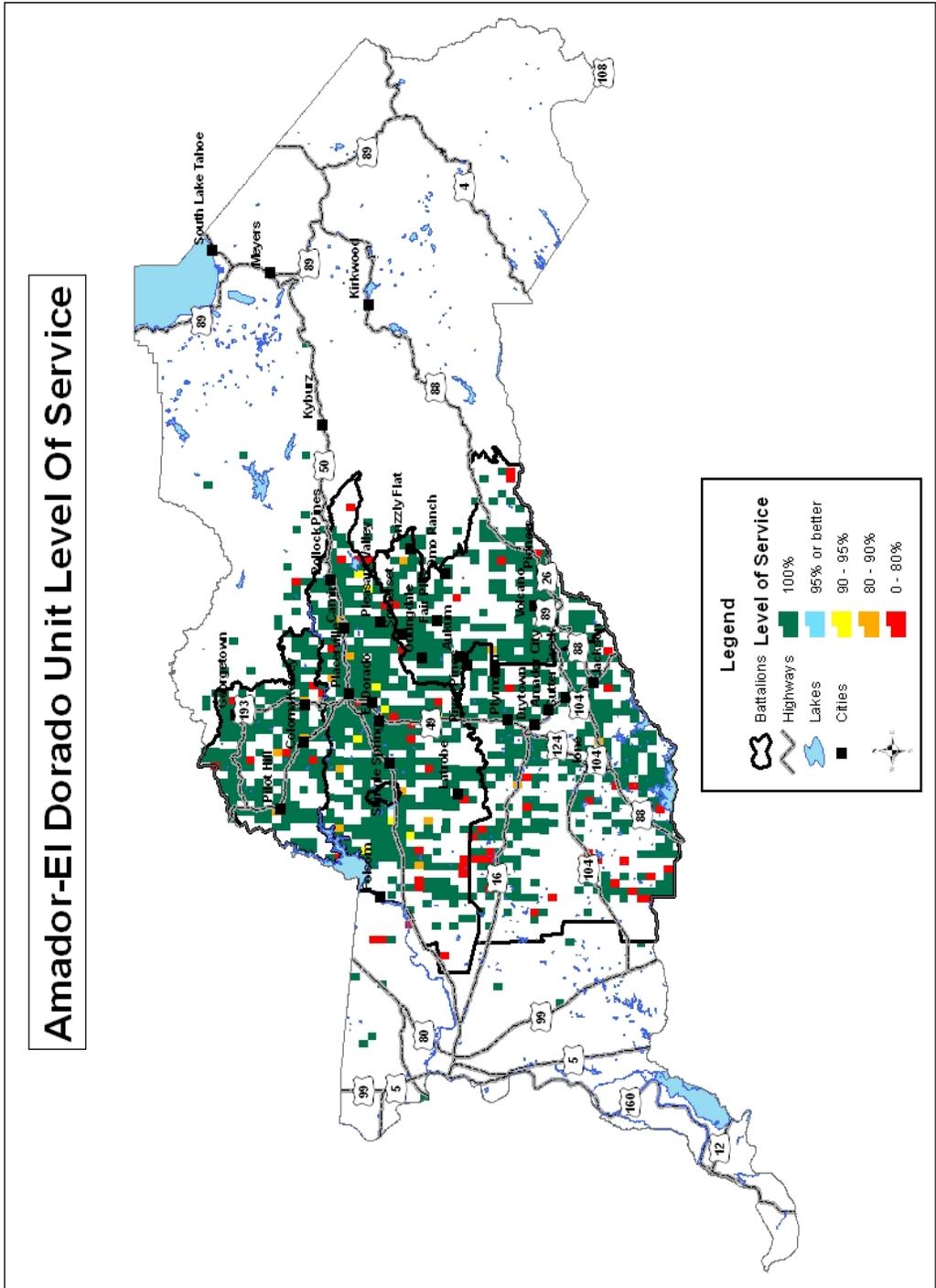
APPENDIX B



APPENDIX C

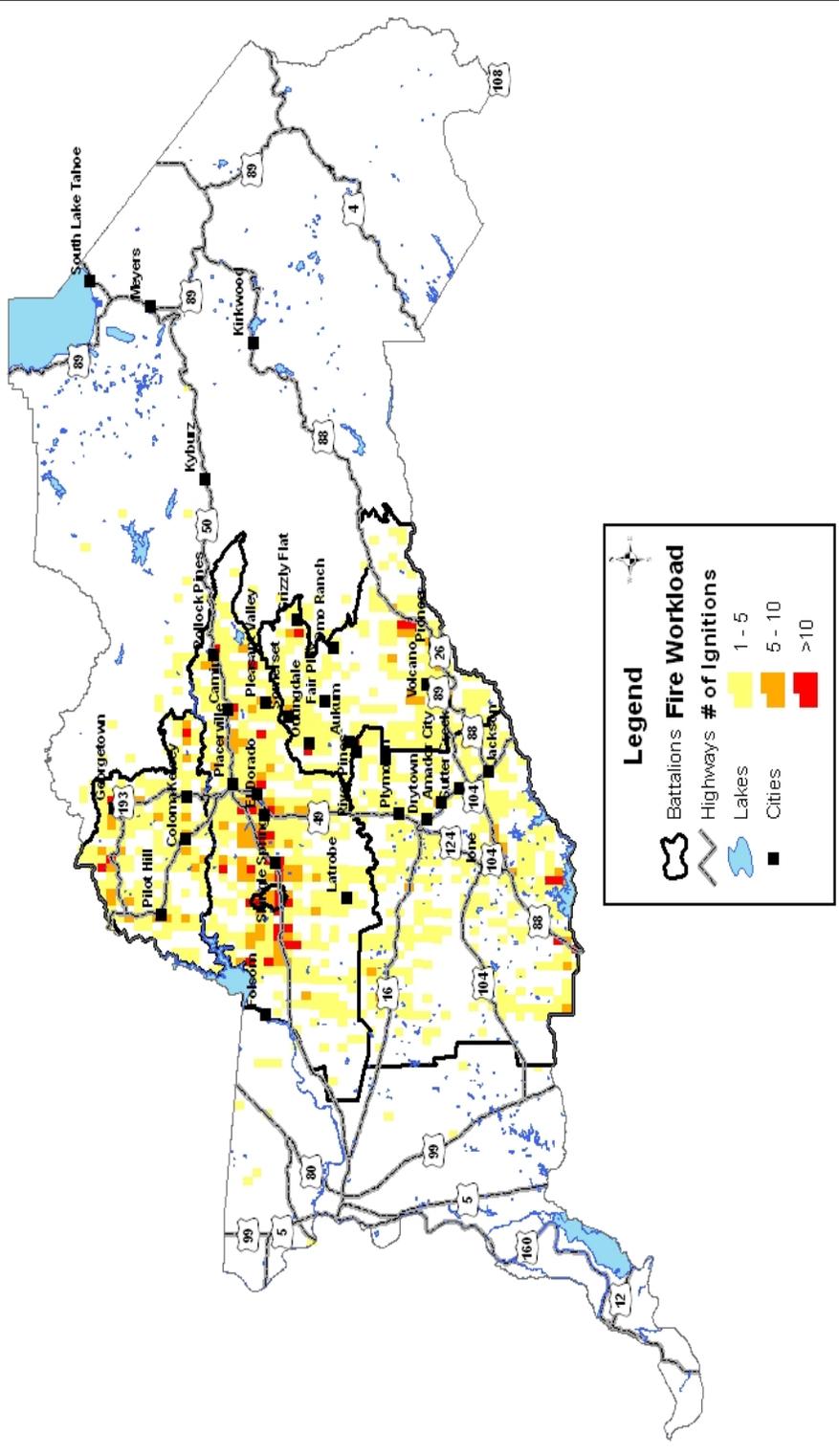


APPENDIX D



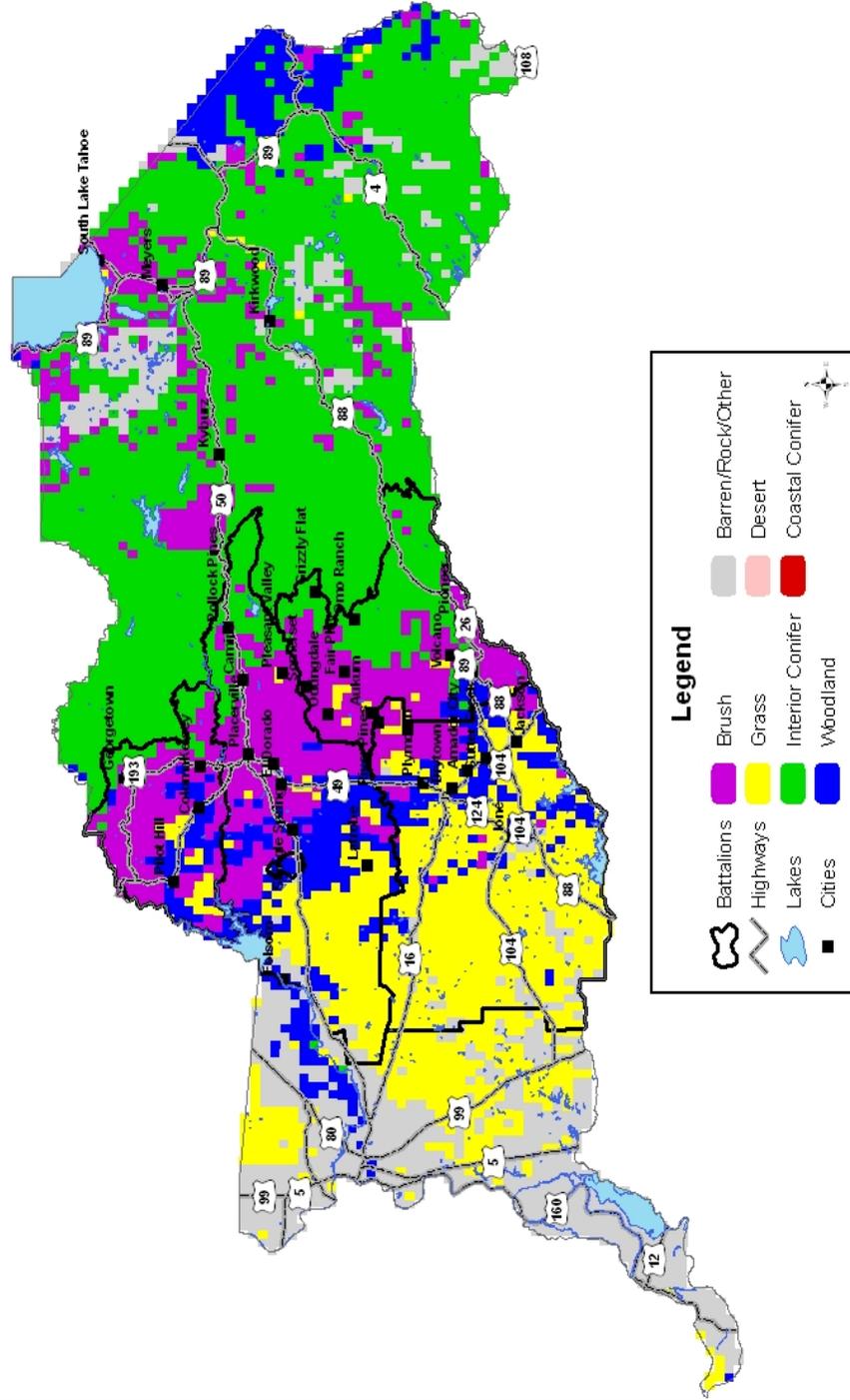
APPENDIX D

Amador-El Dorado Unit Fire Workload



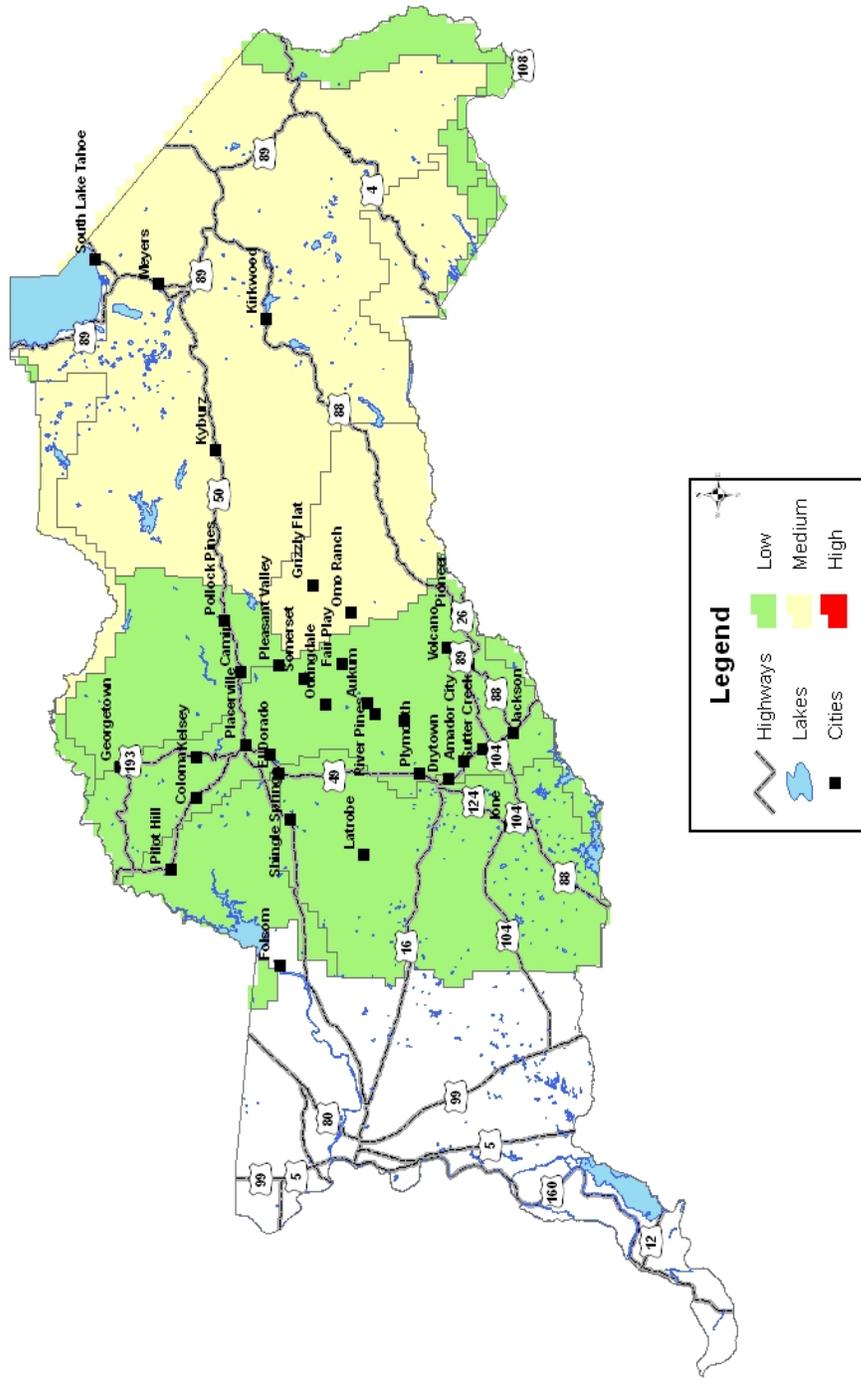
APPENDIX E

Amador-El Dorado Unit Vegetation Groups (Planning Belts)



APPENDIX F

Amador-El Dorado Unit Severe Fire Weather



APPENDIX G

FIRE WEATHER OPERATING PLAN

**NATIONAL FIRE DANGER RATING SYSTEM OPERATING PLAN
Fire Weather Operating Plan**



**Amador-El Dorado Unit
California Department of Forestry and Fire Protection**

April 15, 2008



Camanche Fire July 10th 2006 Buena Vista Buttes, Amador County

Plan Prepared By:

**Norman C. Waters
Unit Fire Weather Coordinator
Amador-El Dorado Unit
CAL FIRE**

Plan Approval

Bill Holmes, Chief, Amador-El Dorado Unit, CAL FIRE

Date

Lee Winton, Deputy Chief, Amador-El Dorado Unit, CAL FIRE

Date

David Samaniego, ECC Chief, Amador El Dorado Unit, CAL FIRE

Date

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I. Introduction

This National Fire Danger Rating System Fire Danger Operating Plan discusses the setup and management of the National Fire Danger Rating System (NFDRS) fire danger modeling program for the Amador-El Dorado Unit (AEU). Fire danger is only one factor affecting operational decision making. The analysis framework used to develop this operating plan tries to account for the weather, fuels and topography driven factors as they affect fire danger and burning conditions throughout AEU. This analysis framework does not necessarily account for other factors such as resource draw down, training levels, political factors, mutual aid status, over riding budget constraints, and other pertinent issues.

AEU created a Fire Weather Working Group charged with the creation and maintenance of this plan. Individuals with specific expertise were selected to work towards a Unit wide operating plan that fulfills the objectives set forth by the California Department of Forestry and Fire Protection. The following individuals participated in the development of this plan and make up the Fire Weather Working Group:

Norman "Chris" Waters	Unit Fire Weather Program Coordinator
Jody Gossner	Unit Administrative Officer
Kelly Keenan	North Area Operations Chief
David Samaniego	ECC Chief
Ty Labelle	Unit ECC Captain
Chris Anthony	Prevention Battalion
Gianni Muschetto	Pre-Fire Engineer

II. Roles and Responsibilities

A. Fire Weather Program Coordinator

The AEU Weather Coordinator is Norman C. Waters. The Fire Weather Program Coordinator is responsible for the annual data analysis and preparation of this Fire Weather Operating Plan. Annual review will be completed at which point CDF FRAP has completed and made available the data conversion from Unit Fire Reporting System (CAIRS) to the FireFamily Plus format.

The Fire Weather Program Coordinator will be responsible for the management of the NFDRS models which will include fuel model green up and associated quality control as the fire season progresses. The Fire Weather Program Coordinator will monitor the seasonal vegetation development to properly manage the NFDRS models through the green up phase. No one else in the Unit is authorized to make any changes in the WIMS NFDRS settings as the green up process begins.

B. Dispatch/Communications/Emergency Command Center

Staff assigned to the Amador-El Dorado Interagency Command Center (ECC) in Camino, California have the responsibility for the implementation of this NFDRS Fire Danger Operating Plan and maintenance of the Weather Information Management System (WIMS). The ECC will have the responsibility of calculating the NFDRS daily indices and the responsibility for transmission of index information to the field. The Daily Operations Appendix of this plan will outline the ECC roles and responsibilities for the day to day NFDRS operation.

C. RAWS Station Maintenance Responsibilities

Weather station maintenance and training is the responsibility of the following individuals:

<i>Weather Station</i>	<i>Agency</i>	<i>Position</i>	<i>Site Maintenance</i>
Zion RAWS (NFDRS)	CDF	Battalion 3	Zion Station
Ben Bolt RAWS (NFDRS)	CDF	Battalion 1	El Dorado Station
Pilot Hill RAWS (NFDRS)	CDF	Battalion 2	Pilot Hill Station
Campo Seco RAWS (NFDRS)	East Bay MUD	Campo Seco TCU	East Bay MUD
CDF Portable #08	CDF	Pre-Fire/VMP	F4517

Weather station site maintenance is described in Chapter 4 of the *Weather Station Handbook – an Interagency Guide for Wildland Managers* by Arnold I. Fiklin and William Fischer. This guide has been adopted as CAL FIRE policy by reference in CAL FIRE’s Fire Weather Handbook, Handbook 7800. Weather station standards are also described in *National Fire Danger Rating System – Weather Station Standards*, NWCG-PMS-426-3, May 2005 Revision. The above publications will be used to consistently manage the weather station network utilized by AEU for this plan.

Station site maintenance will include regular site visits no less than once per month (weather permitting) to inspect site conditions, conduct routine weed control, exclusion fence repair, and any other task that is not related to the station operation or technology related to the station.

Station maintenance and repair will be the responsibility of the local General Services representative that has been assigned to the service area where the station is located. Weather stations owned by other entities will be maintained by those entities. The Camino ECC and the Fire Weather Coordinator will monitor station readings as well as the weekly ASCADS reports to ensure the stations are operating properly. In the event that maintenance or repair is required, the local General Services representative or cooperator will be contacted immediately to repair what ever problem is detected.

<i>Weather Station</i>	<i>G.S. Representative</i>	<i>Phone Number</i>
Mount Zion RAWS	Phil Lopez	(209) 754-4134
Ben Bolt RAWS	Rich Compton	(530) 644-2655
Pilot Hill RAWS	Bob Reeves	(916) 925-8186
Campo Seco RAWS	East Bay MUD	(209) 772-8338
CDF Portable #08	Rich Compton	(530) 644-2655

D. Program Managers

Fire protection program managers are responsible for establishing appropriate actions based on the fire danger adjective ratings and NFDRS indices. These program managers include Operations, Fire Prevention, Vegetation Management, and Public Affairs/Prevention Specialist. The Camino ECC staff will calculate the NFDRS indices and related components. The program managers are responsible for decision matrix implementation.

III. Fire Danger Inventory

A. The Command Area

The command area for this Operating Plan includes those portions of Amador, El Dorado, Sacramento, and San Joaquin Counties that make up the Direct Protection Area (DPA) of AEU.

B. Fire Activity

Fire activity data from 1998 through 2007 is used for the analysis that supports this Operating Plan. Emergency Activity Reporting System (EARS) and CAIRS data for AEU is used for the analysis phase of this plan utilizing FireFamily Plus software to complete the statistical analysis. EARS and CAIRS data are not collected in a format which can be utilized by FireFamily Plus directly; therefore the Unit Fire Weather Program Coordinator must manually convert data to the Federal format for use with FireFamily Plus. The crosswalk for converting data sets to a format that is compatible with Fire Family Plus is included within the Appendix section of this plan.

Fire occurrence data will need to be analyzed and validated to ensure there are as few missing fire occurrences and incorrect acreage values as possible. This is especially true in the era of CAIRS. It will be necessary for the Fire Weather Program Coordinator to build the fire data input tables with direct consultation with the Prevention Bureau and the Unit Fire Report File (LE-66's). Instructions on the development of the necessary input data format are included in Appendix F of this plan.

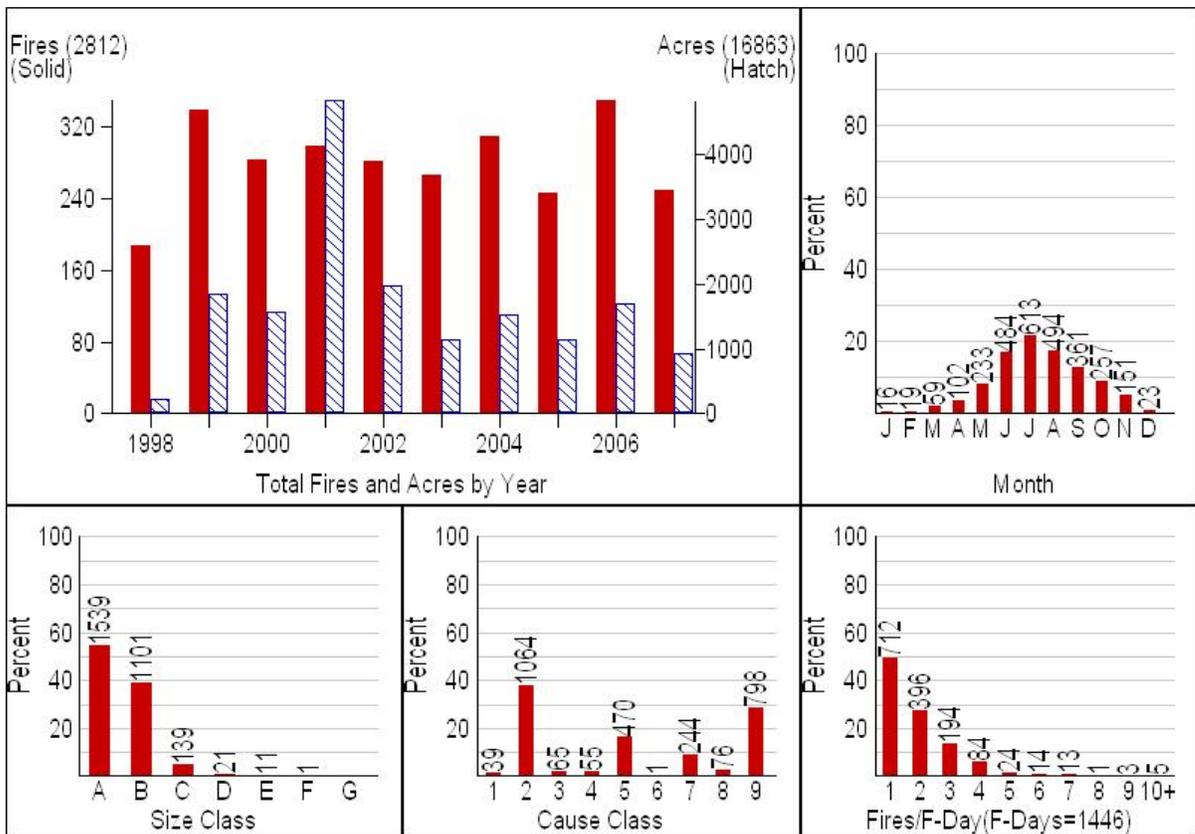
The discrepancy between the Federal and CAL FIRE vegetation fire reporting systems present some interpretation issues as it relates to fire cause codes. The Federal system does not classify fires that have an electrical cause within a separate category. FireFamily Plus only recognizes the ten federal cause codes which would typically place electrical cause ignitions as Miscellaneous. Interpretation of the fire perimeter data for AEU required further analysis to identify electrical fire cause category. The Pre-Fire Management Planning process was utilized to further evaluate the actual number of electrical caused fires. This is due to the impacts that electrical caused fires can have on unit fire business.

The two tables below represent the Cause Class Codes and Size Classes that are utilized in FireFamily Plus.

<i>Cause Class Code</i>	<i>Cause</i>
0	Unknown
1	Lighting
2	Equipment
3	Smoking
4	Campfire
5	Debris Burning
6	Railroad
7	Arson
8	Children
9	Miscellaneous

<i>Size Class Code</i>	<i>Fire Size</i>
A	0.0 - 0.25 Acres
B	0.26 – 9.9 Acres
C	10.0 – 99 Acres
D	100 – 299 Acres
E	300 – 999 Acres
F	1000 – 5000 Acres
G	5000 + Acres

The table below shows AEU fire history as evaluated in FireFamily Plus analysis for the period starting in 1998 and ending in 2007. The data below is unfiltered and represents fires occurring for the entire year. Data will be added annually as it comes available for each subsequent year. Data for these analyses are prepared by FRAP in Sacramento after all fire reporting data has been received from the local Units.



The following points can be drawn from the above data set:

1. The major cause of fires in the Unit is Equipment Use, closely followed by the general category of Miscellaneous. The Miscellaneous category will include those fires that do not match any Federal category, most notably Electrical and Undetermined.
2. Over the last 10 years, 94% of fires are less than 10 acres in size.
3. Fire Season for the Unit historically starts early in May and ends sometime in October.
4. July and August are historically the busiest months of the year for fire activity.

C. Weather Stations

The AEU has three NFDRS RAWS with historic weather data in the National Interagency Fire Management Integrated Database (NIFMID) which is accessible at the KCFAST link in FamWeb <http://fam.nwcg.gov/fam-web/>. This data is available for use in daily NFDRS operations.

The AEU ECC has the responsibility for the management and editing of the daily weather observations that are required within the WIMS system. The action of marking the "0" observation closest to 1300 hrs. is required on a consistent basis for the NFDRS decision support tool to function properly. The 1200 hr. observation in WIMS will be observation closest to 1300 hrs. based on the transmission time of each station. **This observation must be edited in WIMS prior to 1430 hrs.**

Weather stations in adjoining Units may be utilized for the selected Fire Danger Rating Areas if they are close enough or representative enough to make fire business decisions. Further evaluation of RAWS in TCU and NEU will be made to determine if data collected from those locations will provide additional correlation value.

Initial contact has been made with the East Bay Municipal Utility District (EBMUD) in Calaveras and Amador Counties concerning the status of the Campo Seco RAWS located above Comanche Reservoir. The Campo Seco RAWS is owned by EBMUD and not CAL FIRE. The station is maintained as a NFDRS station and is available in the WIMS system. EBMUD has given AEU permission to monitor and record the 1300 observations for the NFDRS calculations. AEU will notify EBMUD if the station data indicates repair needs and EBMUD will be maintaining the site as a part of the park operations. Discussions with the TCU ECC will have to occur in the future to develop a plan to make sure the 1300 observation is recorded for the benefit of both Units.

The purpose of NFDRS is to rate the relative fire danger as a worst case scenario for a given Fire Danger Rating Area. Initial examination of the data from Pilot Hill RAWS data indicate that there may be some local influence which sets the weather data less extreme than expected. Evaluation of the statistical fit for fuel models however indicates that Pilot Hill RAWS is very much appropriate for decision making with certain fuel models. The fuel model chosen for the decision making in NFDRS is reflective of the goodness of fit test that was conducted for every fuel model. Statistical analysis and the associated predictive tools used to develop decision thresholds and associated adjective ratings are difficult to verify when the data is poorly fit. In this case fit is very good and the decision thresholds should support adequate accuracy. Particular attention will be paid to the Pilot Hill RAWS and corresponding indices as the season progresses to ensure the RAWS is appropriate for the fuel model chosen.

One area within the Unit that may be lacking in RAWS influence coverage is the "Front Country" in the valley floor at the western edge of the Unit DPA. This area has typically been represented by the Ben Bolt RAWS in the Latrobe area. The significant wind influence created by the summer Delta Push and North wind events is partially lost at the Ben Bolt RAWS. The terrain and vegetation around the station may reduce the effect of the highest potential winds that may be surfacing in the valley floor. This is significant because nearly all of the significant fire spread in the valley floor is wind driven and is lacking the topographic relief or vegetation to cause noticeable friction caused wind speed reductions. The Ben Bolt RAWS may not bring the worst case scenario for the NFDRA, which is dominated by the valley floor topography and fuel type. Further evaluation needs to be made to evaluate the appropriateness of Ben Bolt for the NFDRA that covers the valley floor.

Weather Information Management System (WIMS) Station Catalog Settings

Catalog Information	<i>Ben Bolt</i>	<i>Pilot Hill</i>	<i>Mount Zion</i>	<i>CAL FIRE Portable RAWS 8</i>
Station ID	042612	042609	042701	049915
Mean Precipitation	18	25	40	
Latitude	38 35' 27"	38 49' 56.6"	38 23' 27.6"	
Longitude	120 56' 01"	121 00' 36.39"	120 39' 6.3"	
Aspect	Southeast	Flat/None	South	
Elevation	905	1250	2960	
Site	Midslope	Valley Bottom/Flat	Ridgetop/Peak	
Time Zone	Pacific	Pacific	Pacific	
Transmission Time	59:00	58:30	59:30	52:41
Observation Time	1200 hrs.	1200 hrs.	1200 hrs.	1200 hrs.
Danger Rating Area	West	East	East	

Station Photographs



**Ben Bolt RAWS
Assigned to the West NFDRA**

**Station ID: 042612
NESDIS ID: CA21B4C0
Forest Technology Systems FWS-12S**

Site Owner: Everett Fox

**General Location: Latrobe.
Station is located above French
Creek Road approximately ¼ mile
north of the intersection with
Brandon Road. Station is located
above the road on a small knoll
which overlooks French Creek**



**Pilot Hill RAWS
Assigned to the East NFDRA**

**Station ID: 042609
NESDIS ID: CA21D126
Forest Technology Systems FWS-12S**

**Site Owner: CAL FIRE, State of
California**

**General Location: Pilot Hill.
RAWS is located behind CAL
FIRE Pilot Hill Fire Station.**



**Mount Zion RAWS
Assigned as Reserve**

**Station ID: 042612
NESDIS ID: CA21C250
Forest Technology Systems FWS-12S**

Site Owner: CAL FIRE, State of California

**General Location: Mount Zion.
Station is located adjacent to the**



CDF PORTABLE #08 RAWS

**Station ID: 049915
NESDIS ID: CA49774A
Forest Technology Systems Quick Deploy FWS-12S**

**Contact Frequency: Cal Fire TAC 8
DTMF Code: 1234**

D. Vegetation and Fuels

The area covered by this Operating Plan is dominated by three distinctly different vegetation types. The area referred to as the *Front Country* by some Unit personnel is grassy foothill slopes comprised of annual grasses. Occasional oaks or California Gray Pine may be present. This fuel type is characterized by fine, very porous, and continuous herbaceous fuels that seasonally cure. The elevation range of this vegetation type runs from around 100' to 800' elevation.

The second vegetation type is primarily dominated by mixed chaparral and live oak stands. This fuel type is characterized by varying age classes of Chamise, Manzanita, and related chaparral species. Occasional live oak stands will be found intermixed with the chaparral vegetation within drainages and over favorable aspects. The elevation where this vegetation type can be found is as low in elevation as 300' and as high as 2,500'.

The third vegetation type is mixed conifer forest. This fuel type is dominated by conifer forest comprised of Ponderosa Pine, Sugar Pine, Incense Cedar, Black Oak, and Douglas Fir. The vegetation in this area consists of well developed forests with varying degrees of density. The elevation where this vegetation type can be found is between 1500' elevation and the transition to true fir belt at around 6,000' elevation.

The attached NFDRS Fuels Map gives a broad indication of the distribution of the above fuel types. This map is the most current for AEU; however requires professional interpretation and adjustments to account for local knowledge and significant changes due to type conversion. An NFDRS Fuel Model map for the Unit is included in the attached appendices.

E. Topography

AEU is an area of wildly varying topography that begins very near sea level in the Delta Region, runs to the crest of the Sierra Nevada Mountains, and continues to the east side plateau beyond the Sierra crest. The area for which this plan covers is the unit DPA which lies between eastern portions of Sacramento County and the central portions of Amador and El Dorado Counties where the state DPA ends. There are three distinct topographic regions of the plan area; the Front Country, the Foothill Region and the Mountainous Region.

The *Front Country* is within the central valley and is subject to the Delta Weather Influence as well as the fall foehn winds that originate from the north and east during the summer months. The Delta Influence has a dual role during the summer months by providing higher humidity's which limit fire behavior, however, on the other hand the Delta can bring significant increases in wind speed as the weather phenomenon strengthens. This region of the unit is characterized by flat to rolling hills with mild intervening ridges and valleys from the major river systems in the Unit. The terrain in this region presents the mildest topographic relief of all the areas within AEU.

The Foothill Region of the Unit is characterized by continuous rolling hills and intervening canyons with an occasional flat valley bottom. The mountains in this region are typically rolling however some extreme topography can be found at the transition with the more mountainous regions of AEU. Wind interaction with this topography is fairly predictable, increasing turbulence and velocity through canyon bottoms. Wind interaction with this topography can have a significant impact on fire behavior by increasing the effect of the topography when alignment is parallel with wind. Delta wind influence in this region significantly increases fire behavior with canyon alignment or exceedingly high winds.

The Mountainous Region of the Unit can be characterized as a typical Sierra Nevada relief with long roaming ridges that run east to west. Between these major ridges are intervening drainages that vary from steep to nearly vertical. The topography is dominated by the major river systems that run through the region. The Mokelumne River, the Cosumnes River System, and at least two major forks of the American River cut through the Sierras within the unit. These canyons are typically very steep and dominate the wind patterns that flow through them.

<i>Area</i>	<i>Slopes</i>	<i>NFDRS Slope Class</i>
Valley Floor (<i>Front Country</i>)	gentle	1
Mid Elevation Brush Areas	moderate	2
Mountainous Areas	steep	3

<i>NFDRS Slope Class</i>	<i>Percent Slope Range</i>
1	0 - 25%
2	26 - 40%
3	41 - 55%
4	56 - 75%
5	Greater than 75%

F. Climate Class

Climate Class can be utilized to prolong or shorten the Green Up and subsequent Curing of dead fuels. The following table shows the Climate Class and corresponding Green Up periods. The Green Up and curing of fuels within the fuel models can affect NFDRS outputs as the season progresses. Changes to Climate Class can be made to more accurately reflect seasonal vegetation development. The Fire Weather Coordinator will monitor spring green up conditions and be the only person allowed to modify climate class within WIMS.

All of AEU is classified as an NFDRS Climate Class II, rainfall deficit in the summer. Climate class was selected to appropriately model the green up phase of the NFDRS calculations. Other Climate classes didn't respond adequately to model actual conditions, however it will not exclude other Climate Classes if seasonal spring conditions warrant.

<i>NFDRS Climate Class</i>	<i>Green Up Period</i>
I	7 Days
II	14 Days
III	21 Days
IV	28 Days

G. Fire Danger Rating Areas (FDRA)

Two fire danger rating areas are used to define fire danger in the AEU. These two areas capture the major differences in the Unit without drawing too much detail for the scale required for NFDRS evaluation and decision outputs. State Highway 49 was utilized as the Fire Danger Rating Area break point to provide an easy reference to Unit personnel and cooperators.

1. **FDRA CAAEU EAST** (DPA east of State Highway 49) The Timber and heavy brush region of the Unit DPA is that of Sierran Mixed Conifer and Chaparral. The area is generally managed for timber however there has been a significant increase in development and public use. Heavy dead fuels have a common presence throughout the fuel profile. Vegetation consists of Chaparral consisting of Chamise, Manzanita and Live Oak and Sierran Mixed Conifer/Ponderosa Pine. NFDRS fuel model J is used for this area and is represented by the Pilot Hill RAWS.
2. **FDRA CAAEU WEST** (DPA west of State Highway 49) Elevation below 800' is considered the Annual Grass region of the DPA. This area is dominated by annual grasslands with scattered oaks and oak groves. Small areas of heavy brush are present within the area; however, not in quantities large enough to change the area to some other fuel type. NFDRS fuel model A best represents this area and will be used for purposes of this plan. The area is represented by the Ben Bolt RAWS.

IV. Fire Danger Indexes and Fire Business

The following list represents the array of NFDRS indices that are used by the NFDRS system to quantify Fire Danger:

Spread Component (SC) is an estimate of the spread of a fire at its head. It is projecting the potential rate of a fire's spread at its head in feet per minute under the assumed weather, fuels, and topographic conditions associated with the fire danger rating area.

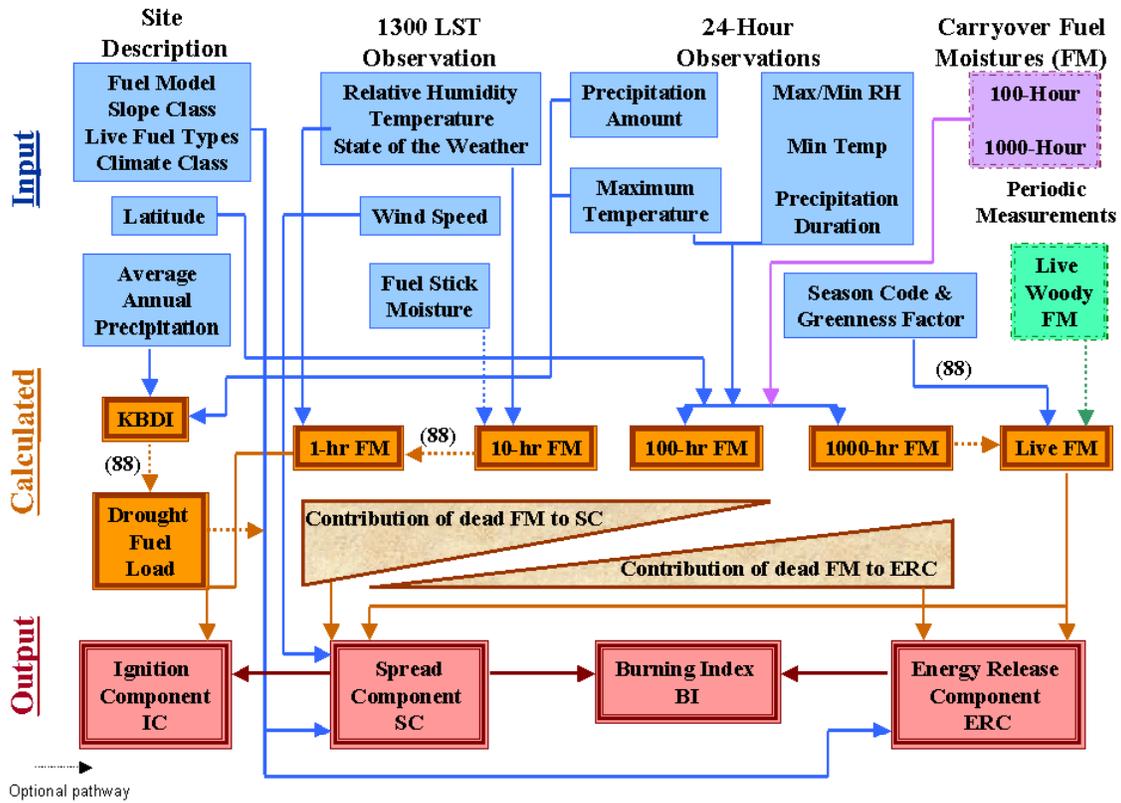
Ignition Component (IC) is an expressed probability that a firebrand will cause an actionable fire, one that requires suppression action.

Burning Index (BI) is a number that relates the contribution of a fire's behavior in containing the fire. Containment difficulty is directly related to fireline intensity (BTU's/ft/sec). This is the heat release along the fire perimeter at its head. BI is an index that rates fire danger related to potential flame length over a fire danger rating area.

Energy Release Component (ERC) is a number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of the fire. It evaluates the contribution of various fuel loadings represented mathematically in the NFDRS fuel models.

Thousand Hour Time Lag (1000-hr FM) In addition to the above NFDRS output indices, the intermediate output which models the 1000 time lag fuel moisture content can also be utilized as a fire danger index. This long term trending output can be a valuable tool in evaluating the larger fuels within an area where larger fuels make up the primary fuel bed indicator.

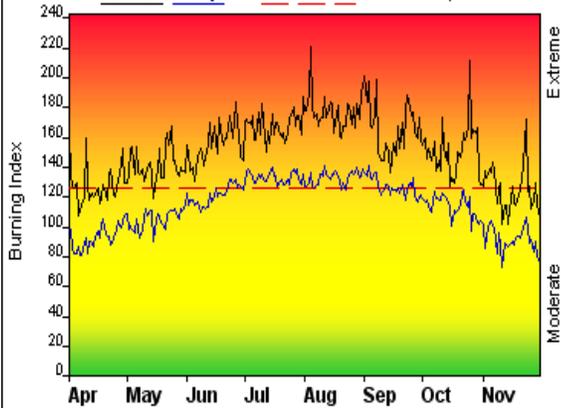
NFDRS Structure



The above diagram gives the basic structure of the NFDRS and the various inputs, intermediate calculations, and the final index outputs. The flow chart shows the process model and how the indices are impacted by the various inputs.

FIRE DANGER -- AEU East of Highway 49

Maximum, Average, and 67th Percentile, based on 10 years data



Fire Danger Area:

- AEU East of Highway 49
- State DPA
- Pilot Hill RAMS 042609
- * Meets NWCG Wx Station Standards



Fire Danger Interpretation:



- EXTREME** -- Use extreme caution
- (Caution)** -- Watch for change
- Moderate** -- Lower Potential, but always be aware

Maximum -- Highest Burning Index by day for 1998 - 2007

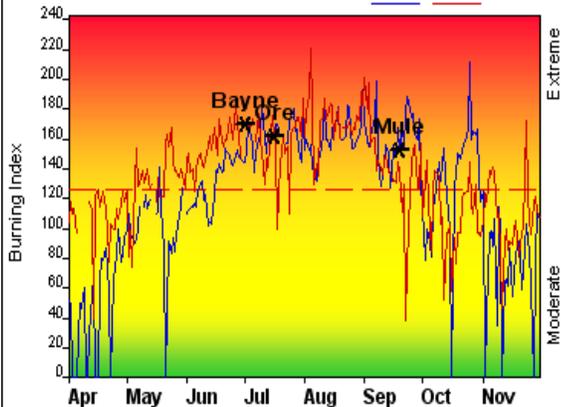
Average -- shows peak fire season over 10 years (2388 observations)

67th Percentile -- Only 33% of the 2388 days from 1998 - 2007 had an Burning Index above 125

Local Thresholds - Watch out:

- Combinations of any of these factors can greatly increase fire behavior:
- 20' Wind Speed over 7 mph, RH less than 20%,
- Temperature over 90, 10-Hour Fuel Moisture less than 6

Years to Remember: 2006 2007



Fuel Model: J - Intermediate Slash

Remember what Fire Danger tells you:

- ✓ Burning Index gives day-to-day fluctuations calculated from 2 pm temperature, humidity, wind, daily temperature & rh ranges, and precip duration.
- ✓ Wind is part of BI calculation.
- ✓ Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- ✓ Listen to weather forecasts -- especially WIND.

Past Experience:

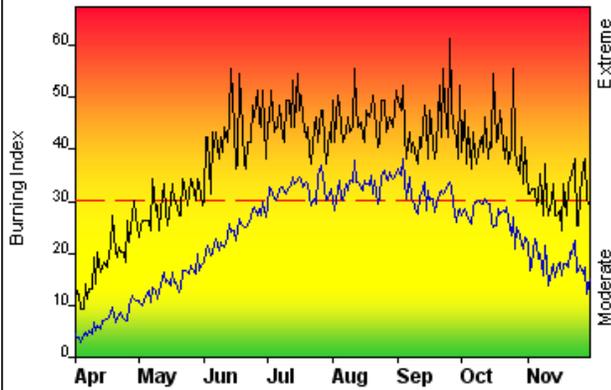
AEU east of State Highway 49 is characterized by heavy brush and timber stands with heavy dead fuel accumulations. Steep river canyons covered in California Chaparral and Mixed Conifer Forest are the general vegetation that dominates the critical fire behavior of the area. The prevailing Delta Push winds are generally in alignment with most of the major river canyons within the Unit. Seasonal wind patterns include the occasional north wind events that follow low pressure systems and off shore wind patterns in the fall. The fuel model selected for this area models mostly dead fuel response to environmental conditions. Fire frequency and intensity increase above a BI of 125.

Responsible Agency: Cal Fire Amador El Dorado Unit
 FF+3.0.5 04/14/2008-13:50 (D:\My Documents\NFDRS\...2008 Master April 9 FF 3_0.mdb)

Design by NWCG Fire Danger Working Team

FIRE DANGER -- AEU West of Highway 49

Maximum, Average, and 65th Percentile, based on 10 years data



Fire Danger Area:

- AEU West of Highway 49
- State DPA
- Ben Bolt RAWS 042612
- * Meets NWCG Wx Station Standards



Fire Danger Interpretation:



- EXTREME** -- Use extreme caution
- (Caution)** -- Watch for change
- Moderate** -- Lower Potential, but always be aware

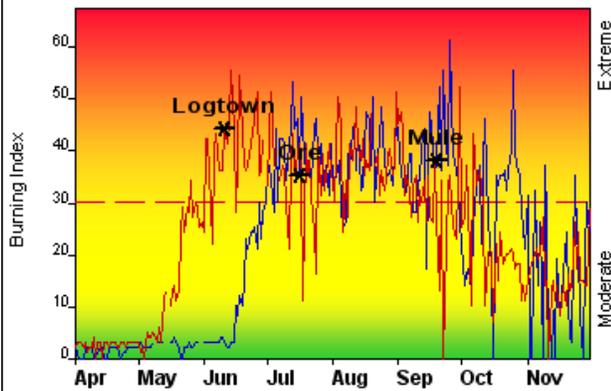
Maximum -- Highest Burning Index by day for 1998 - 2007

Average -- shows peak fire season over 10 years (2333 observations)

65th Percentile -- Only 35% of the 2333 days from 1998 - 2007 had an Burning Index above 30

Local Thresholds - Watch out: Combinations of any of these factors can greatly increase fire behavior:
 20' Wind Speed over 8 mph, RH less than 20%,
 Temperature over 95, 1-Hour Fuel Moisture less than 4

Years to Remember: 2006 2007



Remember what Fire Danger tells you:

- ✓ Burning Index gives day-to-day fluctuations calculated from 2 pm temperature, humidity, wind, daily temperature & rh ranges, and precip duration.
- ✓ Wind is part of BI calculation.
- ✓ Watch local conditions and variations across the landscape -- Fuel, Weather, Topography.
- ✓ Listen to weather forecasts -- especially WIND.

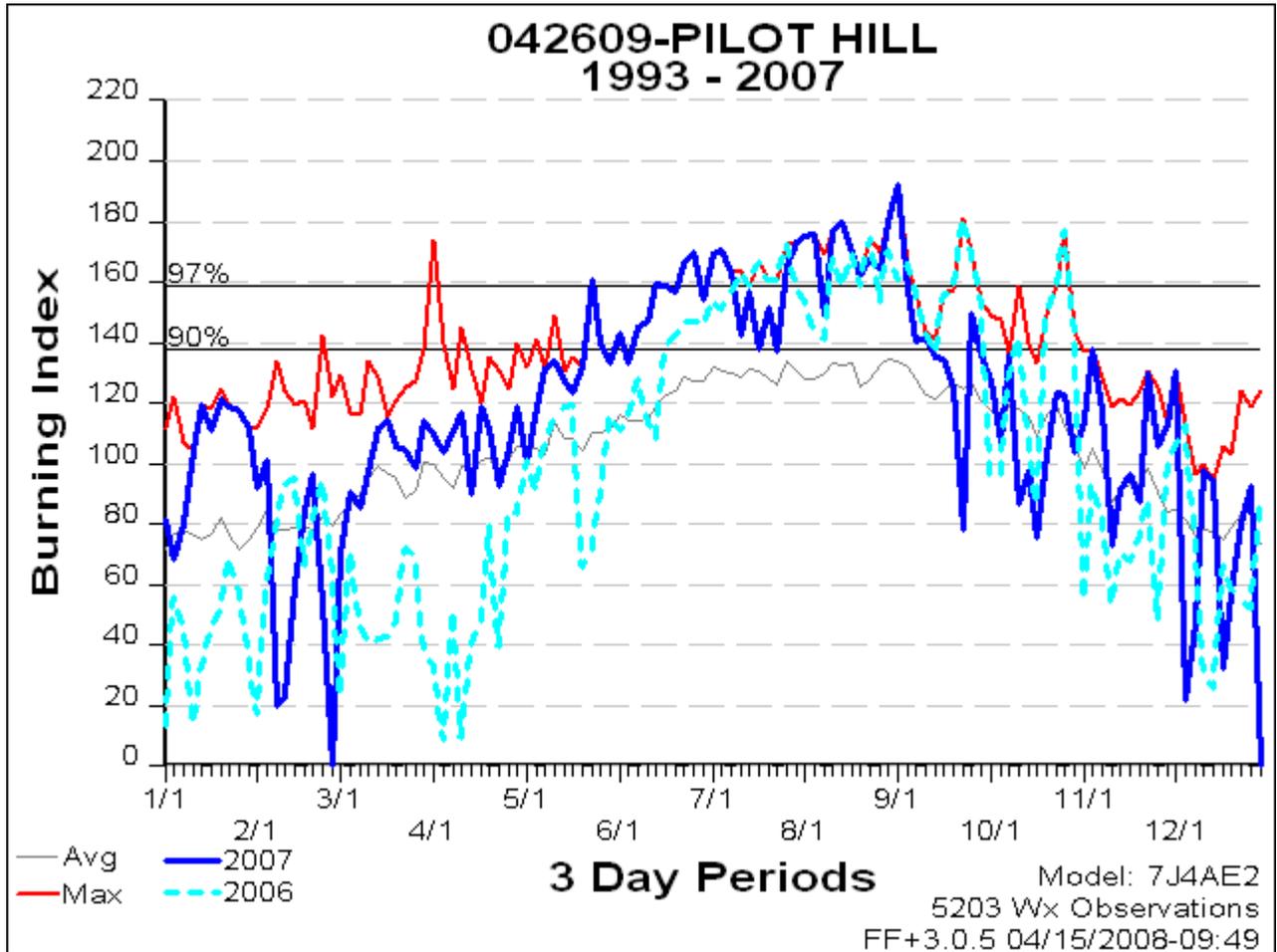
Past Experience:

AEU west of State Highway 49 is dominated by a grass fuel type. The primary driver of fire behavior is fine flashy fuels and wind. Winds generally prevail from the west and southwest with the Delta Push weather influence. Seasonal wind patterns include occasional north wind events that follow low pressure systems and off shore wind patterns that typically surface during the late summer and fall months. Fire growth and intensity are heavily dependent on wind. Monitor the fire ground for erratic wind shifts and gusty winds, especially in areas that have little topographic relief or limited brush and tree cover. Fire frequency and intensity increase above a BI of 30.

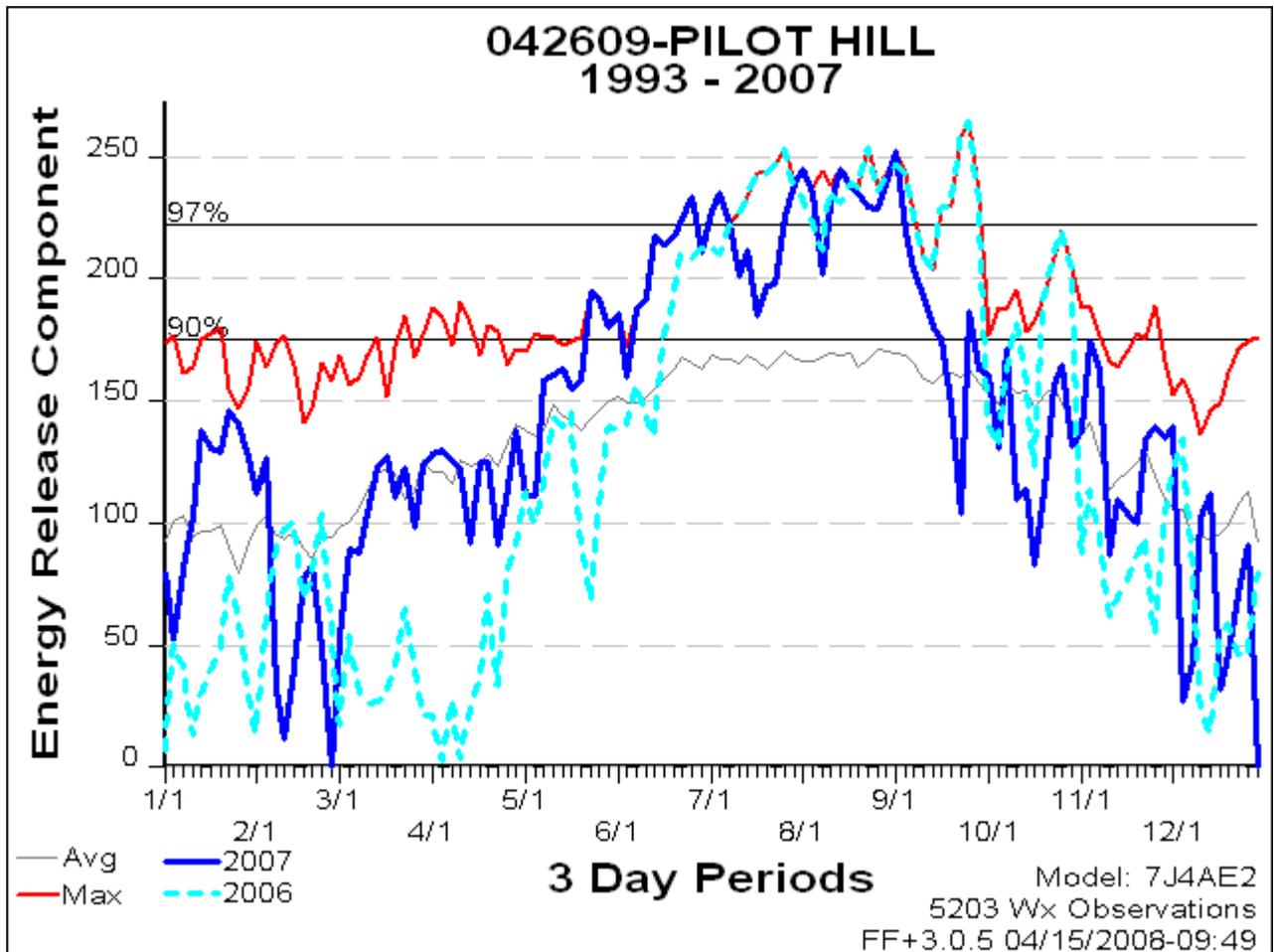
Responsible Agency: Cal Fire Amador-E Dorado Unit
 FF+3.0.5 04/14/2008-13:51 (D:\My Documents\WFRS\...\2008 Master April 9 FF 3_0.mdb)

Design by NWCG Fire Danger Working Team

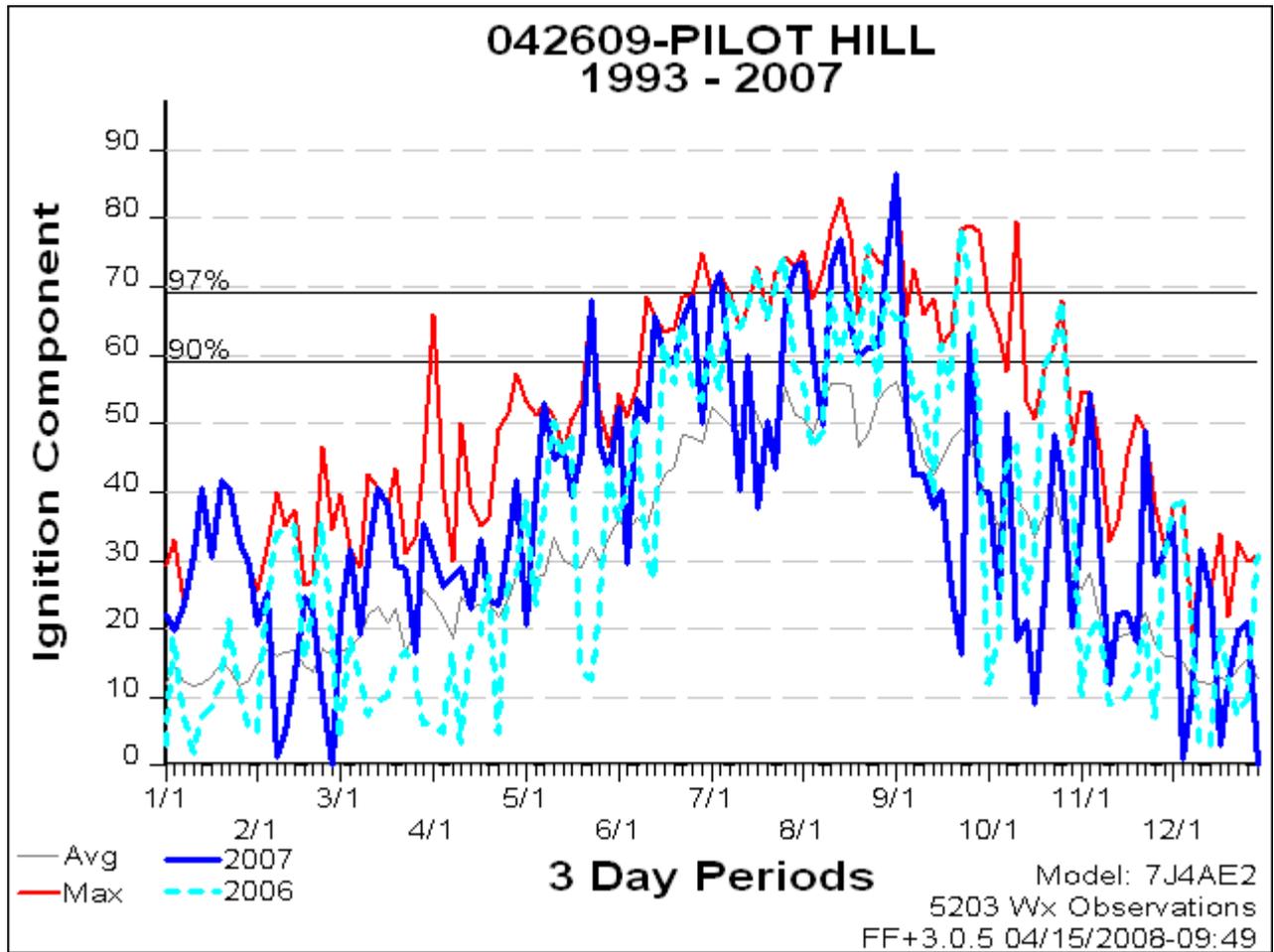
AEU EAST Burning Index (BI) Pilot Hill RAWS



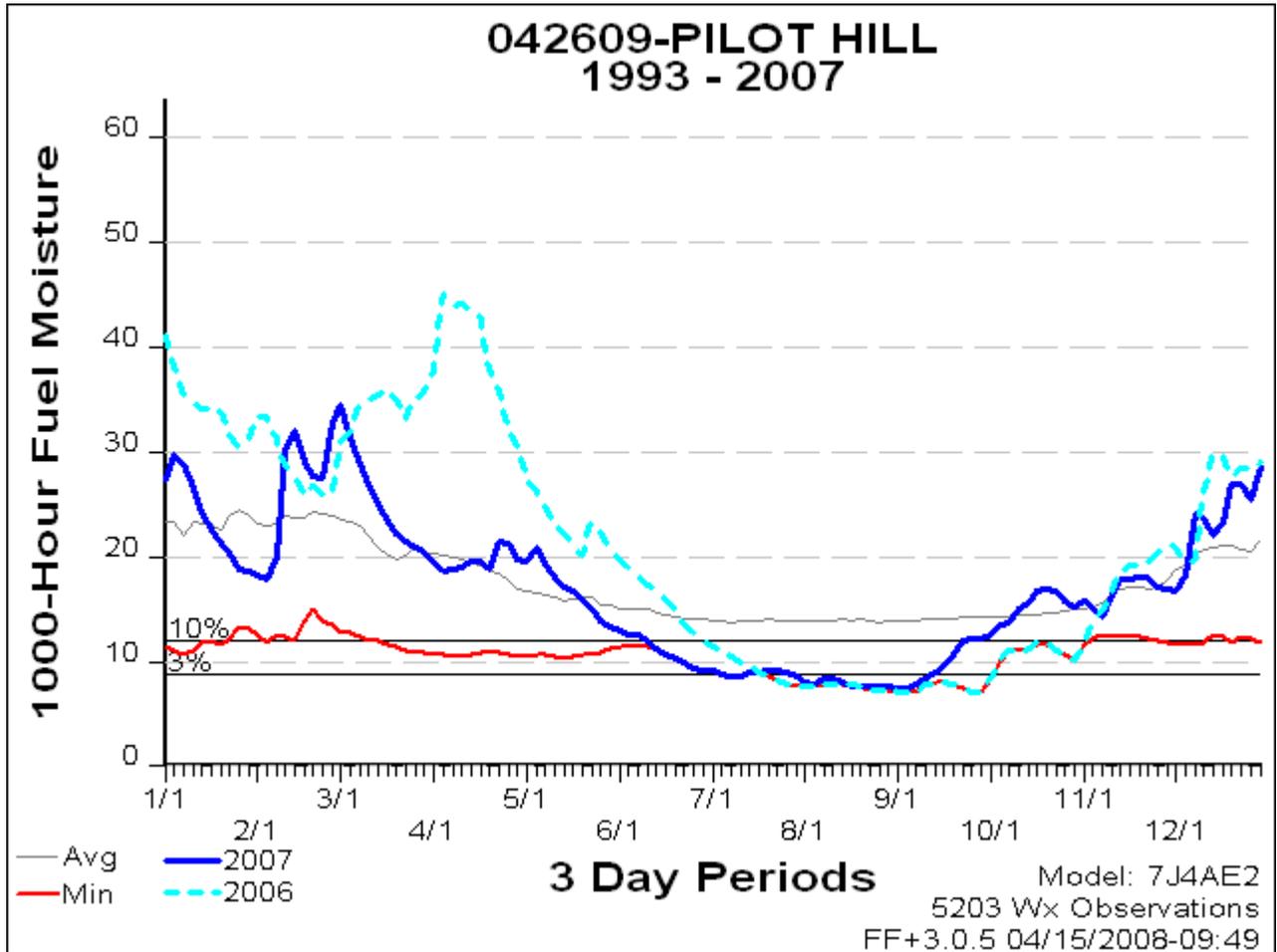
AEU EAST Energy Release Component (ERC) Pilot Hill RAWS



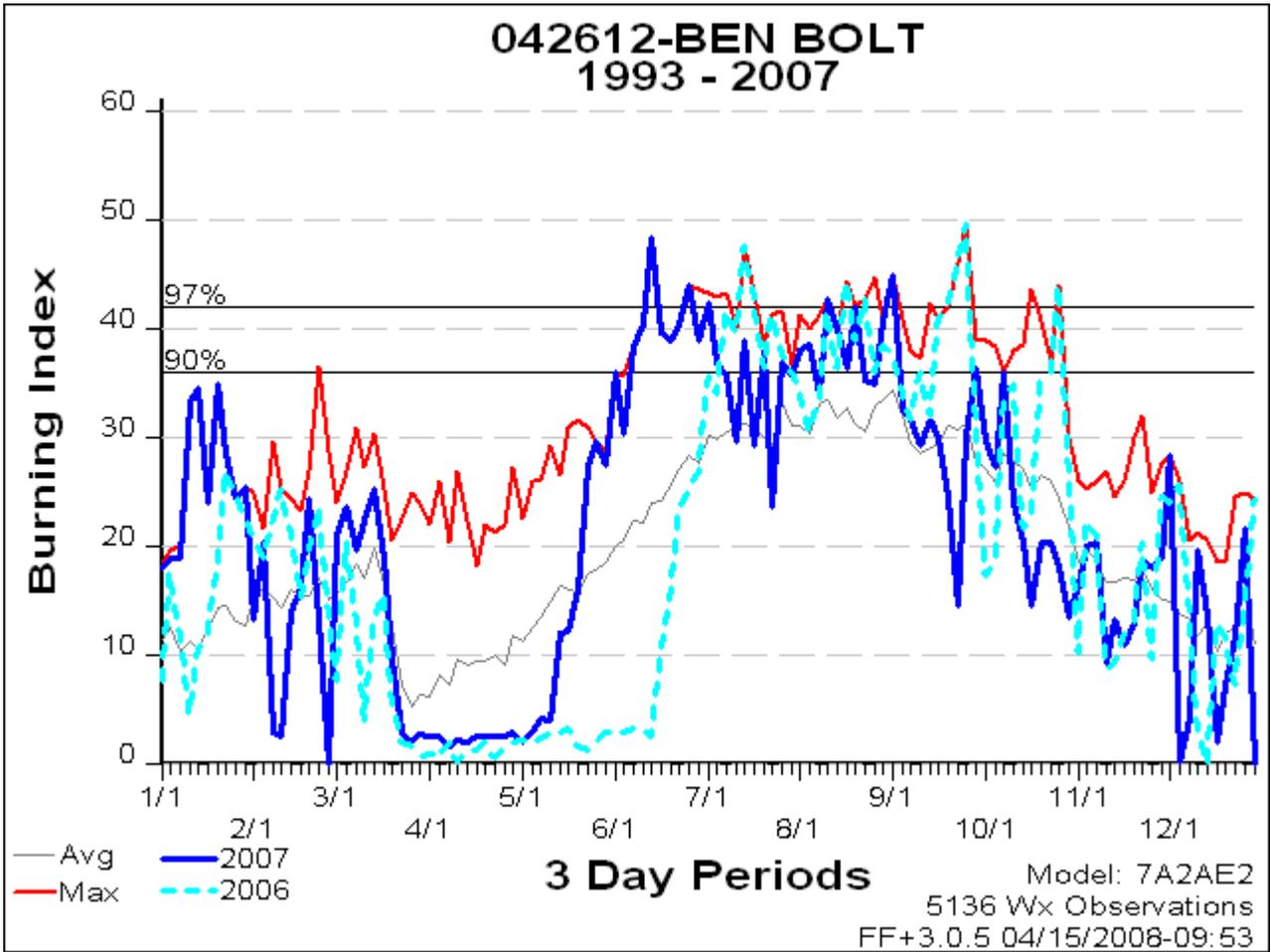
AEU EAST Ignition Component (IC) Pilot Hill RAWS



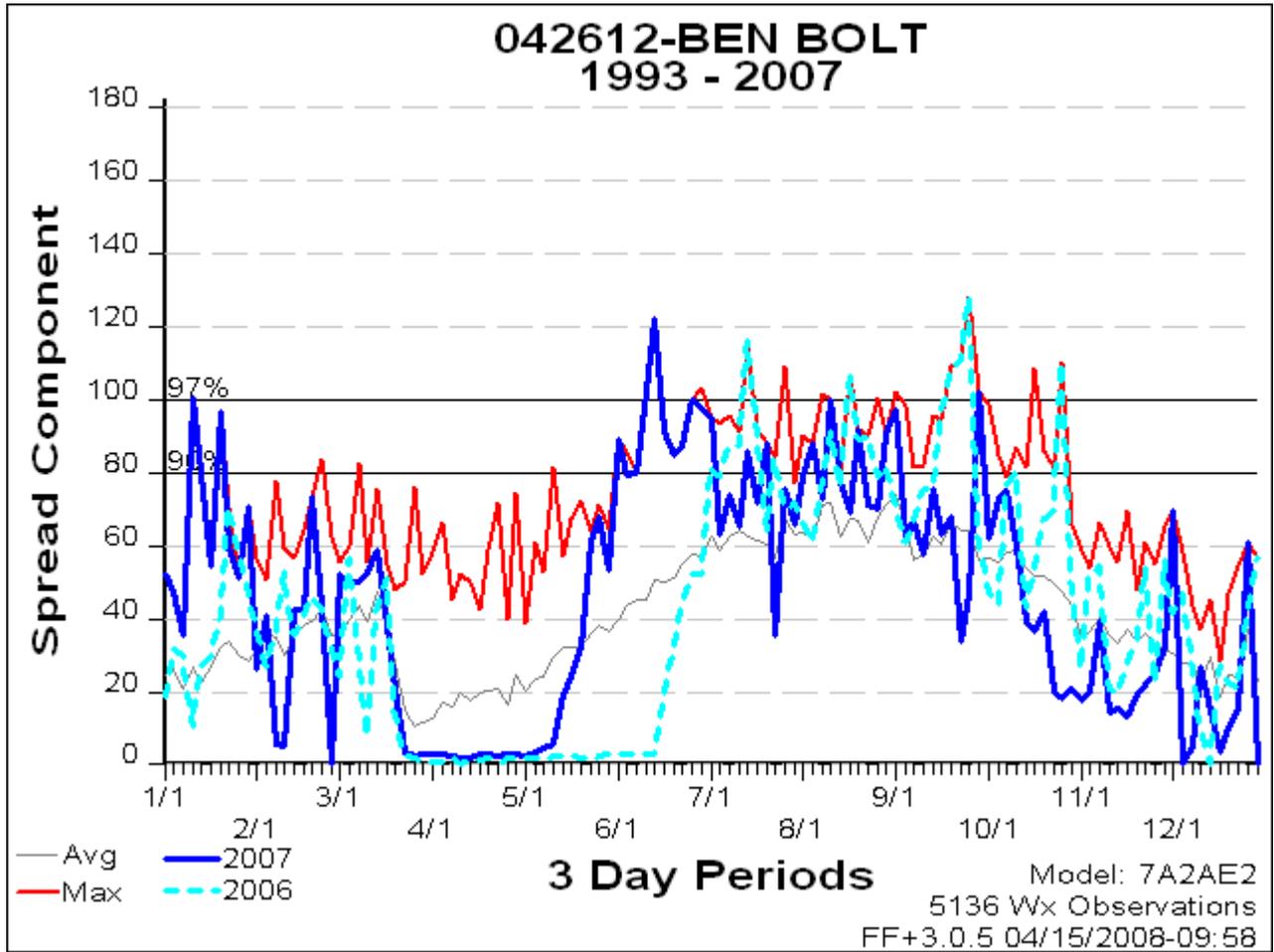
AEU EAST 1000 Hr. Fuel Moisture Pilot Hill RAWS



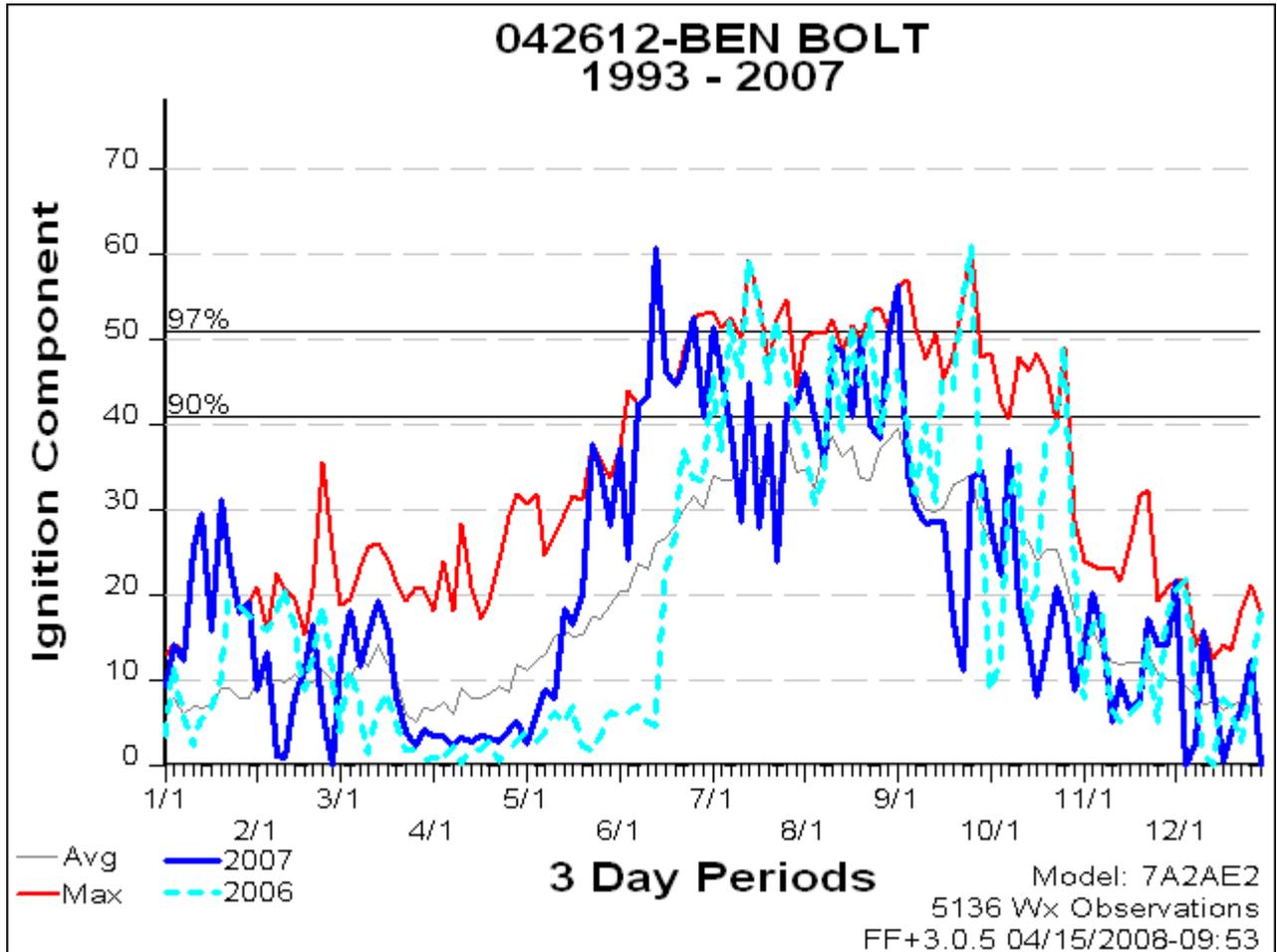
AEU WEST Burning Index (BI) Ben Bolt RAWS



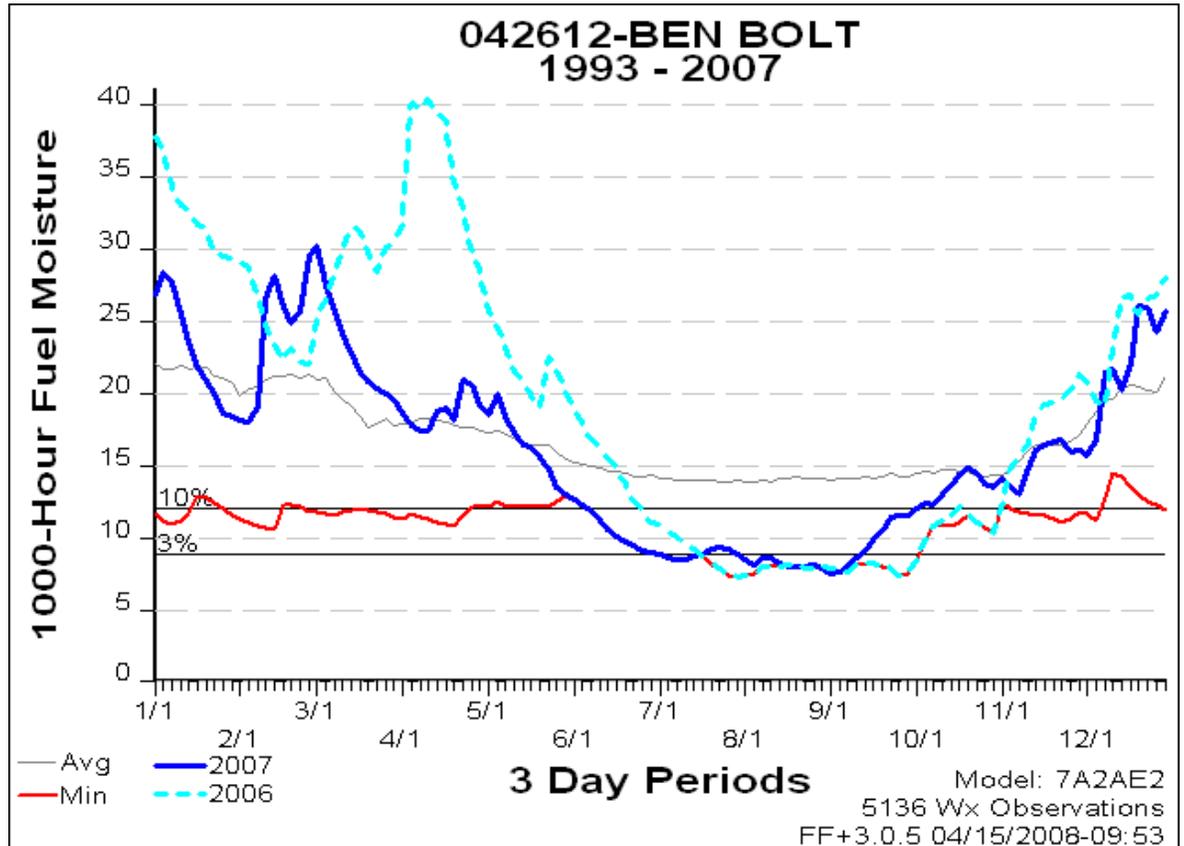
AEU WEST Spread Component (SC) Ben Bolt RAWS



AEU WEST Ignition Component (IC) Ben Bolt RAWS



AEU WEST 1000 Hr. Fuel Moisture Ben Bolt RAWS



AEU Adjective Rating Definitions

Fire Danger information in AEU is important to decision makers outside the Unit. Those decision makers may represent the general public, local fire district, industry or other departmental decision makers at the regional or statewide level. The following Adjective Fire Danger Rating definitions will be used for reporting the relative fire danger ratings to decision makers that will need the applicable fire danger rating information for their respective operations. Adjective rating definitions are calculated on all observations that are edited within the WIMS system. These can be calculated for any observation that has been transmitted by the RAWS to the NIFMID database. Adjective ratings are defined by a calculated Staffing Level and five Ignition Component classes as defined by the 90th and 97th percentile weather using Burning Index as the reference index. Those two values have been agreed upon by wildland agencies in California for use with the Adjective Class ratings. These values will be loaded into the WIMS Station Catalogs so Adjective Ratings can be determined throughout the day as well as forecasted for the next day. AEU will utilize the model which best represents the RAWS for the corresponding calculations.

Adjective Rating Settings in WIMS

NFDR Area	Weather Station	Fuel Model	Index	Percentile Values for May to October		
				90'th	97'th	Number of years
EAST	Pilot Hill (042609)	J	BI	139	152	14
WEST	Ben Bolt (042612)	A	BI	38	43	16
East (Reserve)	Mount Zion (042701)	J	BI	134	148	16

Following are the terms and definitions for adjective fire danger as defined by the National Wildfire Coordinating Group (NWCG) Fire Danger Working Team in 2000.

Fire Danger Rating and Color Code	Description
<p>Low (L) Green</p>	<p>Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.</p>
<p>Moderate (M) Blue</p>	<p>Fires can start from most causes but, with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.</p>
<p>High (H) Yellow</p>	<p>All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.</p>
<p>Very High (VH) Orange</p>	<p>Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long range spotting and fire whirlwinds when they burn in heavier fuels.</p>
<p>Extreme (E) Red</p>	<p>Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or conifer stands may be unmanageable while the extreme burning conditions last. Under these circumstances the only effective and safe control actions are on the flanks until the weather changes or the fuel loading decreases.</p>

Fire Weather Watches and Red Flag Warnings

NWS offices issue Fire Weather Watches and Red Flag Warnings for critical fire weather patterns that contribute to extreme fire danger and/or fire behavior.

Fire Weather Watch is used to alert agencies to the high potential for development of a Red Flag event in the 12-72 hour time frame. The Watch may be issued for all or selected portions of a fire weather zone or zones. A watch may be issued in the first 12 hour time period only for an expected dry thunderstorm event.

Red Flag Warning is used to inform agencies of the imminent or actual occurrence of Red Flag conditions. A Red Flag Warning is issued when there is high confidence that Red Flag criteria will be met within the next 24 hours, or if those criteria are already being met.

Criteria for Red Flag Warnings/Fire Weather Watches

Dry Lightning - A lightning event that is not accompanied by enough precipitation to significantly wet fuels that have been identified as critically dry. Significant precipitation is defined as ranging from .05 inches for grass or brush fuels to .15 inches for closed-canopy timber/heavy fuels. Watches and warnings will be issued when dry lightning is expected to be widespread. Isolated events or events of short duration (i.e., events which start dry but become wet within an hour or two) do not need warnings but will be headlined in the forecast.

Wind and Humidity - Wind and humidity criteria are geared toward those situations which may result in rapid spread of wildfires. Because topography and vegetation play a big role in this, several sets of criteria are used across California. Where possible, issuance criteria have been meshed with those used in adjacent states to meet the needs of agencies whose jurisdictions cross state lines. Criteria are listed in the Wind/Humidity Table below.

Wind/Humidity Table

Area Description	NWS Fire Weather Zones	Criteria	
Southern California desert area excluding the Colorado River Valley	226-228, 230, 232, 260-262	Relative Humidity \leq 15% and wind gusts \geq 35 mph for 3 hours or more	
Colorado River Valley	229,231	Relative Humidity \leq 15%, with <u>sustained</u> winds (20 foot) \geq 20 mph and/or frequent gusts \geq 35 mph for 3 hours or more	
Antelope Valley and SE Kern County Deserts	298, 299, 259	Relative Humidity \leq 15% and sustained (20-foot) winds \geq 25 mph for a duration of 8 hours or more	
Southern California from mountains westward	234-258, 288-297	Either Relative Humidity \leq 15%, with <u>sustained</u> winds \geq 25 mph and/or <u>frequent gusts</u> \geq 35 mph (duration of 6 hours or more)	Or Relative Humidity \leq 10% (duration of 10 hours or more) regardless of wind
Northern California East of Cascade/Sierra Crest and Western Great Basin including the Modoc Plateau	214, 270-273, 278, 284, 285	Tahoe Management Basin: Three hours of wind gusts \geq 30 mph and Relative Humidity \leq 20%	Rest: Three hours of wind gusts \geq 30 mph and Relative Humidity \leq 15%.
Northern California West of the Cascade/Sierra Crest	201-213, 215-221, 263-269, 274-277, 280-282	See matrix below	

Wind/RH RFW Decision Matrix for Northern California West of the Sierra Crest

Matrix assumes daytime 10-hour fuel moisture \leq 6% (measured at 1300), annual grasses are cured, and that no wetting rain (greater than 0.10 inch) has fallen in the last 24 hours.

Sustained 20-foot Wind Speed (Note: the wind event should be expected to last at least 8 hours). **W** indicates that the forecaster should consider a warning.

Relative Humidity	Sustained Wind 6-11 mph	Sustained Wind 12-20 mph	Sustained Wind 21-29 mph	Sustained Wind 30+ mph
Daytime Minimum RH 29-42% and/or Nighttime Maximum RH 60-80%				W
Daytime Minimum RH 19-28% and/or Nighttime Maximum RH 46-60%			W	W
Daytime Minimum RH 9-18% and/or Nighttime Maximum RH 31-45%		W	W	W
Daytime Minimum RH < 9% and/or Nighttime Maximum RH < 31%	W	W	W	W

Red Flag Warnings and Fire Weather Watches will remain in effect through the expiration time noted in the forecast, or until canceled or upgraded

Red Flag Warnings and Fire Weather Watches are available via WIMS, from the California Fire Weather web page (<http://www.wrh.noaa.gov/sto/cafw/>) and the web site of the issuing NWS office. Links to all forecasts and NWS office web pages can be found on the National Fire Weather Page at <http://fire.boi.noaa.gov/>.

V. *Fire Danger Based Decisions*

For NFDRS to be an effective tool for decision making the Unit must identify the fire management problems and answer the following questions:

1. What are the fire occurrence patterns in AEU?
2. What type of fire problems are common to AEU and which of those have the greatest significance to the various managers within the Unit?
3. Can NFDRS outputs be used to identify critical decision thresholds that will aid AEU management staff in the development and implementation of management control mechanisms that could result in fewer or smaller fires?
4. Who is affected by these management control mechanisms and how much control do we have over the affected parties?
5. What is the appropriate NFDRS component or index that will best fit each management control mechanism selected?

Target Group Decision Master Checklist Master (example)

Description:

This section describes in general terms, the purpose of the decision.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input type="checkbox"/> Agency Personnel <input type="checkbox"/> Industry <input type="checkbox"/> Public	This section describes the "public" being controlled by the decision. Generally, most control can be exercised over our own people, some control over industry people subject to regulation and the least control over the general public.	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	The ability of the "public" to respond to changing conditions is the issue. This is often driven by the communication method. We usually have quick communication with our own people and infrequent communication with the public.

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low Medium High Very High Extreme	Indicate the general action that should happen at each adjective level. Indicate who is responsible for the action.

Use Custom Decision Criteria

If the general adjective ratings are not appropriate for the decision, then a "custom" decision criteria can be set up. Consider the control issues described above when selecting an index to drive the decision. For example, Ignition Component and Spread Component are volatile and difficult to predict. Burning Index is a little more stable and is usually based on more predictable factors. Energy Release Component tends to be slow to respond to short term fluctuations in weather and is therefore more stable and predictable.

NFDR Area	Weather Station	Index to use	Index Values	Action

A. Incident Dispatch

Control:

Incident Dispatch is simply stated the initial incident response level for resource allocation for incidents within the Unit. This decision typically sets the tone for an effective initial attack response to wildland fires as well as for times when command center personnel have a report of a wildland fire and a location, but possibly little additional information prior to the first Report-On-Conditions. The intent is to send sufficient resource strength given the potential fire behavior for that time. The intent is also to save time, money, and resources by not sending resources that probably won't be needed. Specific resource amounts by dispatch level are identified in CAD for each response area.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input checked="" type="checkbox"/> Agency Personnel	Initial attack forces USFS ENF Local Government Fire Agencies (all counties)	<input checked="" type="checkbox"/> High	Radio communication at all times. Alpha Pager Links in CAD
<input type="checkbox"/> Industry		<input type="checkbox"/> Medium	
<input type="checkbox"/> Public		<input type="checkbox"/> Low	

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	
Extreme	

[X] Use Custom Decision Criteria

Decision criteria for AEU was developed using different breakpoint criteria for each NFDRA within the Unit. Within NFDRA East, Burning Index (BI) will be used exclusively for setting the corresponding Dispatch Level throughout the day. For the NFDRA West there will be a custom matrix utilized which will correlate Burning Index (BI) and Spread Component (SC) to set the Dispatch Level throughout the day. The tables below represent the thresholds that will be utilized in both NFDRA's within AEU.

The afternoon dispatch level will be set by actual indices calculated in WIMS or with the NFDRA calculator. Forecasted indices are available at approximately 1630 hrs. for use the next day and will be available as a planning tool for the next day's operation. Daytime actual calculations will be used to modify dispatch level every two hours or as needed throughout the day.

NFDRA EAST

Pilot Hill RAWS

Fuel Model J

		Index Break Points		
Weather Station	Index	Low	Medium	High
Pilot Hill	BI	0-95	95-125	125<

NFDRA WEST

Ben Bolt RAWS

Fuel Model A

Dispatch Level				
		Burning Index		
		0-20	21-33	34<
Spread Component	0-30	LOW	MEDIUM	HIGH
	31-65	MEDIUM	MEDIUM	HIGH
	65<	HIGH	HIGH	HIGH

B. Cooperating Fire Agencies, Adjacent Units, Law Enforcement, and Local OES

Description:

All of the groups listed below bring fire control resources, organizational support, or overhead resources to bear in the event of a wildland fire in AEU. This support will place additional strains on their own jurisdictional responsibilities as it relates to delivering the services they provide. The Fire Danger Adjective Rating will allow them to make preparations for impacts that may occur as a result of a wildland fire within AEU.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input checked="" type="checkbox"/> Agency Personnel	Amador, El Dorado, Sacramento, and Alpine County Fire Agencies Local OES Reps. USFS TMU, ENF, & HTF BLM CDF TCU, NEU, HQ/CFA	<input checked="" type="checkbox"/> High	Local Unit or Sacramento ECC's contact various offices via alpha page or email.
<input type="checkbox"/> Industry		<input type="checkbox"/> Medium	
<input type="checkbox"/> Public		<input type="checkbox"/> Low	

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	Alpha Page or Email Local Cooperators.
Extreme	Alpha Page or Email Local Cooperators.

Use Custom Decision Criteria

NFDR Area	Weather Station	Index	Index Break Points		
			Low	Medium	High

Land Management Agencies (other than USFS & BLM)

Description:

Land management organizations typically have some fire prevention responsibility related to public utilization of the organization's lands. Notification of the Fire Danger Adjective Rating will give them the necessary information for the control of public activity relating to the use of open fires as well as road and trail access through wildland areas.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input checked="" type="checkbox"/> Agency Personnel	Bureau of Reclamation Calif. Dept. of Parks and Rec. Folsom Lake and Auburn State Rec. Area EID Sly Park and Forebay	<input type="checkbox"/> High	
<input type="checkbox"/> Industry		<input checked="" type="checkbox"/> Medium	Local Unit or Sacramento ECC's contact various offices via alpha page or email.
<input type="checkbox"/> Public		<input type="checkbox"/> Low	

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	Alpha Page or Email Cooperators.
Extreme	Alpha Page or Email Cooperators

Use Custom Decision Criteria

NFDR Area	Weather Station	Index	Index Break Points		
			Low	Medium	High

C. PG&E, SMUD, Cal Trans, & Water Delivery Agencies

Description:

Utilities, CalTrans, Local Water Agencies, and Private Industry will modify some of their daily operational activities based on the fire danger. This is primarily a fire prevention measure to eliminate risk sources during very high and extreme fire danger conditions. Sacramento Command Center staff retrieves the predicted fire danger from Regions and then communicates this information to the state offices of PG&E, SMUD, and CalTrans. Those entities have the opportunity to change their operational plans based upon the relative fire danger in work areas. The predicted adjective ratings will be used to determine the need to make contact with the appropriate entities. See Notification Matrix.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input type="checkbox"/> Agency Personnel		<input type="checkbox"/> High	
<input checked="" type="checkbox"/> Industry	PG&E, SMUD, CalTrans, El Dorado Irrigation District, Amador Water Agency	<input checked="" type="checkbox"/> Medium	Local Unit or Sacramento ECC's contact various offices via alpha page or email.
<input type="checkbox"/> Public		<input type="checkbox"/> Low	

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	Alpha Page or Email Cooperators.
Extreme	Alpha Page or Email Cooperators

Use Custom Decision Criteria

NFDR Area	Weather Station	Index	Index Break Points		
			Low	Medium	High

D. Public and Fire Safe Council Notification

Description:

This is the general, once daily description of the fire danger. The intent is to raise awareness of the potential fire danger in simple easy to communicate terms. This is primarily a fire prevention tool to alert the public to be fire safe. The main contact for this notification will be the El Dorado and Amador Fire Safe Councils. The actual (real time) and predicted (forecasted) adjective ratings will be used to determine the need to make contact with the appropriate entities. See Notification Matrix.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input type="checkbox"/> Agency Personnel		<input type="checkbox"/> High	
<input type="checkbox"/> Industry		<input type="checkbox"/> Medium	
<input checked="" type="checkbox"/> Public	General public, local citizens, and tourists. Includes agency personnel and industry but not specifically aimed at their activities.	<input checked="" type="checkbox"/> Low	Low relative control and relatively good communication. Notification by phone, page, or email.

Decision Action:

Use Adjective Levels, Forecasted and Actual

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	Alpha Page or Email Fire Safe Councils
Extreme	Alpha Page or Email Fire Safe Councils Prevention Specialist will prepare a Public Service Announcement for distribution.

Use Custom Decision Criteria

NFDR Area	Weather Station	Index	Index Break Points		
			Low	Medium	High

E. Draw Down Staffing Patterns

Description:

Occasionally it is necessary to hold employees on duty or call employees back from days off to staff equipment when other resources are out of county or committed to an incident within the unit. When fire potential is severe enough, it may be required to take action before a new incident occurs. The question frequently arises about the need to fight the fire on hand; or fight the fire we might have. This plan provides the starting point for such decisions and the decision to initiate staffing patterns should be made with consideration of Draw Down Level and relative fire danger.

AEU Draw Down Levels				
	Blue Book	Draw Down Level		
	Assigned	1	2	3
Engines	13	11	7	3
Crews	9	7	5	2
Dozers	2	2	1	1

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input checked="" type="checkbox"/> Agency Personnel	Initial attack suppression employees and conservation camp crews.	<input type="checkbox"/> High	
<input type="checkbox"/> Industry		<input checked="" type="checkbox"/> Medium	Personnel management policy establishes the minimum call back period.
<input type="checkbox"/> Public		<input type="checkbox"/> Low	

Decision Action:

[X] Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	Consider the need to initiate local staffing pattern.
Extreme	The need for local staffing pattern highly likely.

[] Use Custom Decision Criteria

			Index Break Points		
NFDR Area	Weather Station	Index	Low	Medium	High

F. Initiation of the Burn Ban

Description:

Every year AEU is tasked with making a determination to cancel permitted open burning within the DPA. This can be a very contentious decision because it's the role of the local unit to encourage homeowners to remove hazardous vegetation while still allowing them to burn within conditions that allow the safe use of fire. The absence of an adequate mechanism, other than open burning, to dispose of vegetation created while maintaining clearance standards presents an administrative quandary. On one hand you want the public to manage the vegetation near their homes, while on the other we need to protect the community from the use of fire during those times when conditions can cause escape or large fire development. NFDRS lends itself to making these kinds of decisions; however, it is recognized that it will only be one of the many factors that are considered to make the final decision.

This decision is also one that relates directly to the credibility of the local unit. The burn ban, once initiated, cannot be reversed until the end of fire season. The Level of Control and Ability to Communicate are very low at best. The ability to communicate with the public in a timely and efficient manor makes this decision one of the more difficult administrative actions undertaken each year. The most appropriate index or intermediate calculation to use will be one that demonstrates a long term trend throughout and does not fluctuate wildly over the course of the season.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input type="checkbox"/> Agency Personnel		<input type="checkbox"/> High	
<input type="checkbox"/> Industry		<input type="checkbox"/> Medium	
<input checked="" type="checkbox"/> Public	Homeowners and other members of the community who utilize open burning to dispose of vegetation.	<input checked="" type="checkbox"/> Low	Press release to the local publications and contact with the local Air Quality Management Districts to change recordings.

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	
Extreme	

Use Custom Decision Criteria

NFDR Area	Weather Station	Index	Index Break Points		
			Low	Medium	High
EAST	Pilot Hill Model J	ERC			125

At the point where the ERC at Pilot Hill RAWS reaches 125, **AFTER GREEN UP is complete**, for Fuel Model J, Consideration of the Unit Burn Ban will be made by the Unit Chief, Prevention Bureau, and Operational Staff.

G. Timber Operations

Description:

The fire prevention program is aimed at preventing ignitions in forested areas when the potential for large and damaging fires becomes excessive. The daily NFDRS forecast which is available in WIMS every afternoon will provide the necessary planning tool. This information will be transmitted to local operators with the means to receive the information after the forecasted indices have been made available in WIMS.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input type="checkbox"/> Agency Personnel		<input type="checkbox"/> High	
<input checked="" type="checkbox"/> Industry		<input checked="" type="checkbox"/> Medium	Larger timberland owners have contact with employees through radio or cell phones.
<input type="checkbox"/> Public		<input checked="" type="checkbox"/> Low	Smaller contract operators do not typically have frequent contact with timberland owners.

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	Zion RAWS: Contact local timber operators via Alpha Page or Email
Extreme	ZION RAWS: Contact local timber operators via Alpha Page or Email

Use Custom Decision Criteria

NFDR Area	Weather Station	Index	Index Break Points		
			Low	Medium	High

H. Lightning

Description

Lightning activity within the area covered by this plan can occasionally present a significant ignition source during the summer and fall months when fuels conditions are most critical. Lightning activity can cause large numbers of ignitions over wide areas which overwhelm local resources engaged in detection and suppression. Pre-Planning for possible lightning activity is critical to ensure the unit is successful in mitigating lightning caused wildfire events.

Lightning events come in two basic forms; those not accompanied by precipitation known as “dry”, and those that come with precipitation. Both types present unique fire suppression problems. Dry lightning events present immediate ignitions that are brought to life by the dry fuels conditions and high winds that result from the associated thunderstorms. These events have the potential to cause large rapidly moving wildfires. Lightning events with precipitation are still a significant threat, often long after the event has passed. Ignitions can remain seeded in damp fuel beds until the warmer and drier weather brings them to life. The delay in detection can extend the impact of these events for days.

Control:

<i>Who does decision affect</i>		<i>Level of Control and Communication</i>	
<input checked="" type="checkbox"/> Agency Personnel	CAL FIRE AEU and the El Dorado National Forest	<input checked="" type="checkbox"/> High	Interagency Emergency Command Center
<input type="checkbox"/> Industry		<input type="checkbox"/> Medium	
<input type="checkbox"/> Public		<input type="checkbox"/> Low	

Decision Action:

Use Adjective Levels

<i>Adjective</i>	<i>Action</i>
Low	
Medium	
High	
Very High	
Extreme	

Use Custom Decision Criteria

See the attached Lightning and Complex Incident Plan in Appendix H of this Plan.

VI. Notification Matrix For Predictions

Predictions can come in any number of formats and can come from various sources. The two basic types of predictions that will be used as a part of this plan will be that created from WIMS and those created from the National Weather Service. WIMS directions are included as an appendix to this plan and the National Weather Service Fire Weather Products can be found at the following site: <http://www.wrh.noaa.gov/sto/cafw/index.php> In addition to the products listed above, there is a daily Smoke Management Conference Call which will include Predictive Services staff as well as representation from operational resources. This call is generally intended for prescribed fire users however it is an excellent venue to discuss other issues. The call is daily at 1300 hrs. @ 877-874-5440; Pass Code 357238.

Action/ Notify	Battalion Chiefs Division Chiefs Fire Weather Coordinator	Prevention Duty Officer and Staff	Duty Chief	Stations, Camps, Shops	Local Government USFS & BLM County OES State Parks Duty Chief/Officer	Timber Harvesting Operations	Fire Safe Council and Public Notification
Event/ Situation							
Fire Weather Watch Red Flag Warning or Lightning Event	Page prior to reading weather	Page prior to reading weather	Page prior to reading weather	Read AM and PM wx BC's responsible for station contact and confirmation	Page LG Duty Chiefs & Other Agencies	Page Prevention Duty Officer	Page Prevention Duty Officer Prepare PSA
Very High Adjective Prediction	Page prior to reading weather	Page prior to reading weather	Page and notify when giving 1600 predictios	Read adjective predictions at end of PM weather	Page LG Duty Chiefs & Other Agencies	Page Prevention Duty Officer who will notify cooperators.	
Extreme Adjective Prediction	Page prior to reading weather	Page prior to reading weather	Page and notify when giving 1600 predictions	Include adjective predictions at end of PM weather	Page LG Duty Chiefs & Other Agencies	Page Prevention Duty Officer who will notify cooperators.	Page Prevention Duty Officer Prepare PSA
NWS Winter Storm Warning			Page prior to reading advisory over AEU Local	Read advisory over AEU Local	Page LG Duty Chiefs & Other Agencies		

VII. Needs Assessment

A. Weather Station Sites

New weather station sites will not be necessary for AEU fire business and NFDRS system support. The scale of NFDRS doesn't require additional RAWS to be effective. Placement of the RAWS is more likely an issue of review for AEU.

Evaluation of the area referred to as the Front Country will need further review to ensure the Ben Bolt RAWS is adequate in capturing the valley bottom fire associations. Weather conditions are often more extreme in this area and an analysis is required to determine the need for further changes in the RAWS network. CDF Portable RAWS 08 will be at the Van Vleck Ranch in Rancho Murrieta to test NFDRS weather parameters.

B. WIMS & NFDRS Training

WIMS and NFDRS training needs to be a priority for AEU ECC staff. The ECC is the anchor point for the implementation of this Fire Weather Operating Plan. Communication Operators, ECC Captains, ECC Chief, and Management will need to make training a priority. Further effort should be made to identify candidates for the Advanced National Fire Danger Rating course offered at NAFRI in Tucson, Arizona. This course is the final in the NFDRS series which provides the student with the tools to create and manage an NFDRS Fire Danger Rating Operating Plan.

C. Quality Assurance and Analysis

As is the case with any new tool, this Fire Danger Rating Operating Plan must undergo continuous quality assurance and analysis to ensure the plan is functioning as needed to fulfill operational objectives. As this product is rolled out to the field it will require input from responding field staff to validate the appropriateness of the decisions that are made throughout the season. The evaluation must be as objective as possible and address the problems with a given incident or administrative decision in an honest manner. The field staff will be asked to provide written feedback throughout the first year to refine the decision making process.

D. Contact Updates

Contacts not included as part of the CAD at the Camino ECC will have to be reviewed annually.

VIII. Appendix

A. Annual Review

Annual review of this plan will be made by the Unit Fire Weather Coordinator, Operations Chief, ECC Chief, and the Unit Chief prior to December 31st of every year. Fire analysis will be conducted and reviewed by the same individuals annually as the data is available to evaluate the indices and decision thresholds. This will be completed after the CAIRS data has been converted to a format that can be utilized with FireFamily Plus.

B. Maps

1. Unit and Direct Protection Area Map
2. Fire Danger Rating Area Map
3. Weather Station Map
4. Vegetation Map

C. Daily Operations

D. WIMS Procedures

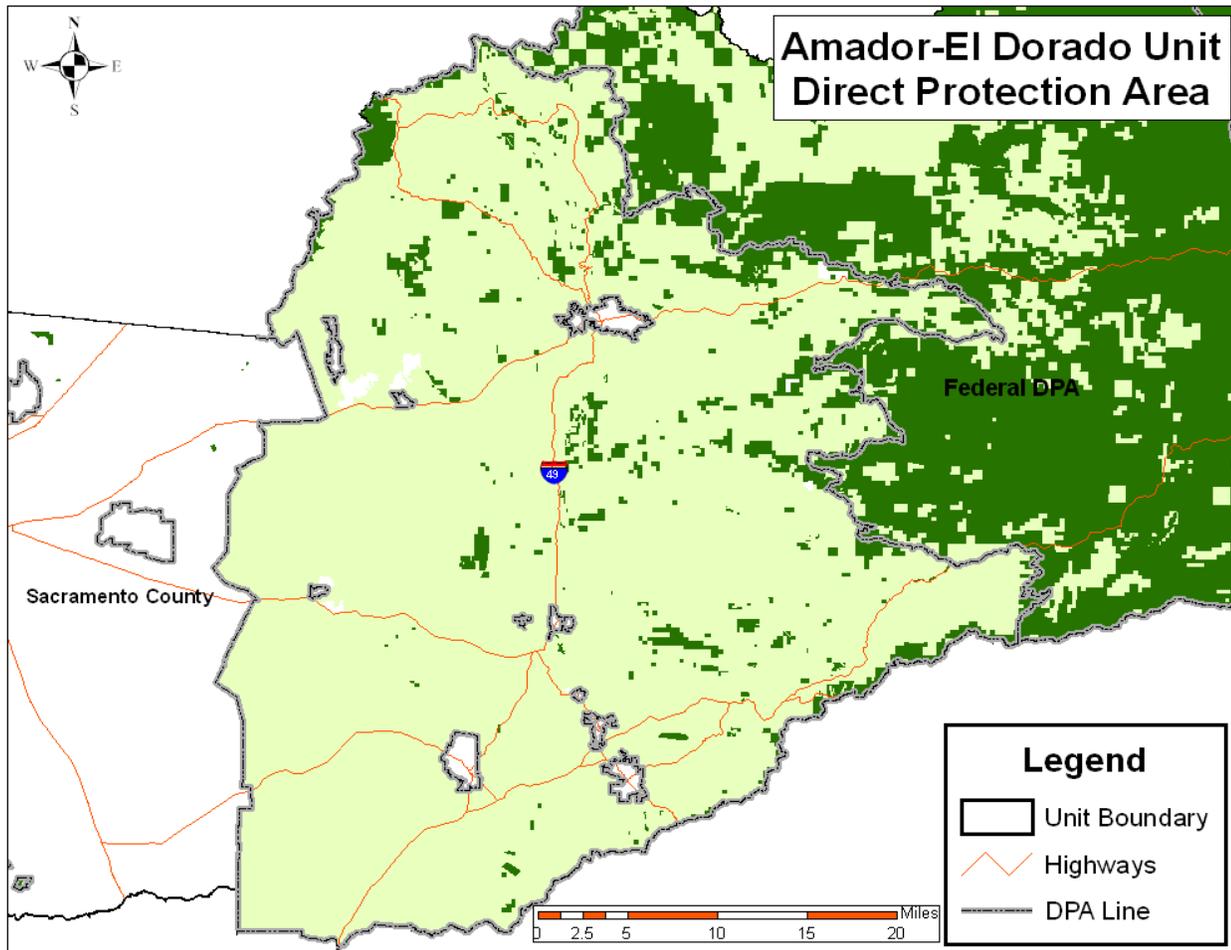
E. WIMS State of the Weather and Wet Flag Definitions

F. Data Import Procedures for CAL FIRE Data into Fire Family Plus

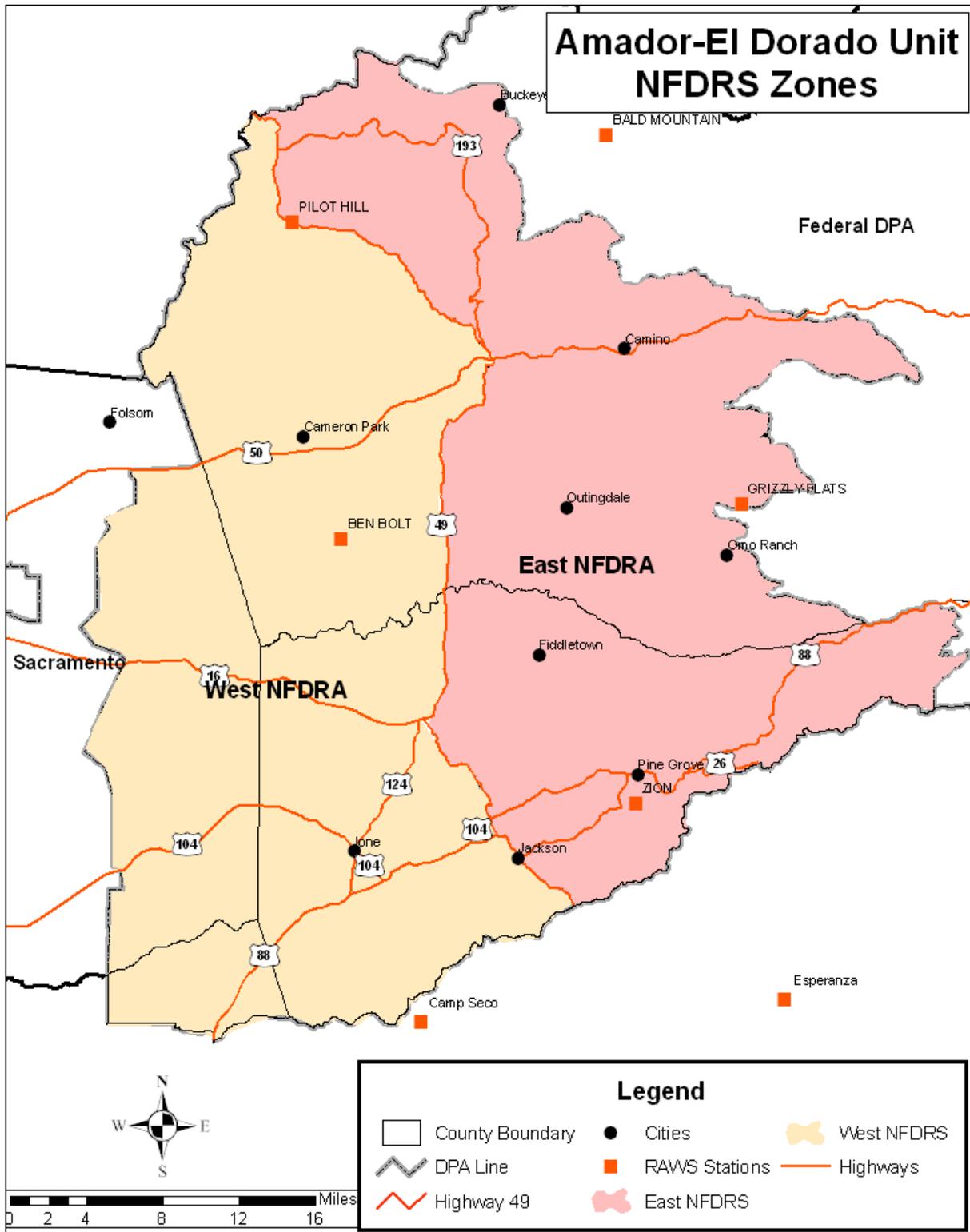
G. Quality Assurance

H. Lightning and Complex Incident Plan

Unit Map/DPA

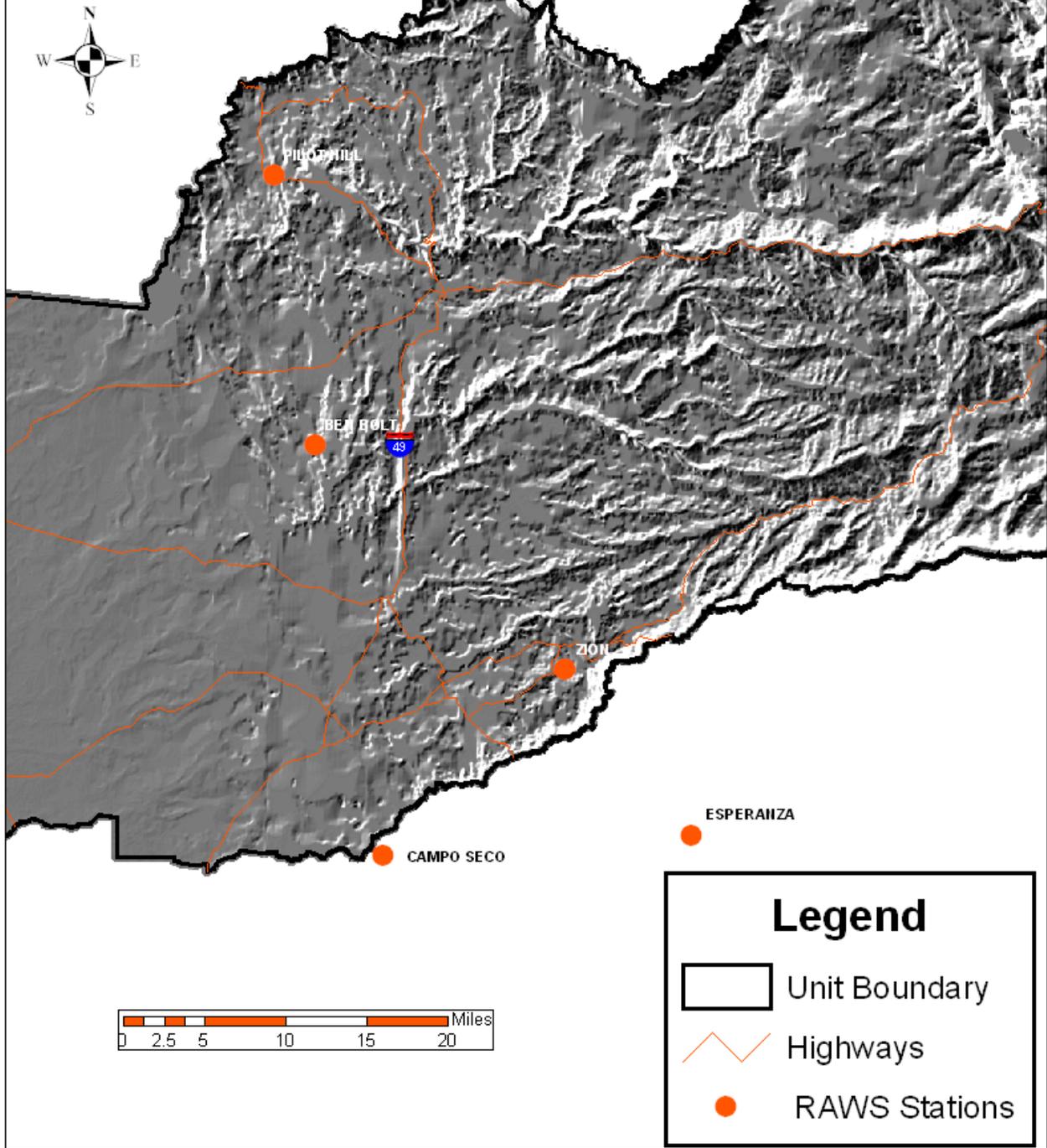


National Fire Danger Rating Areas

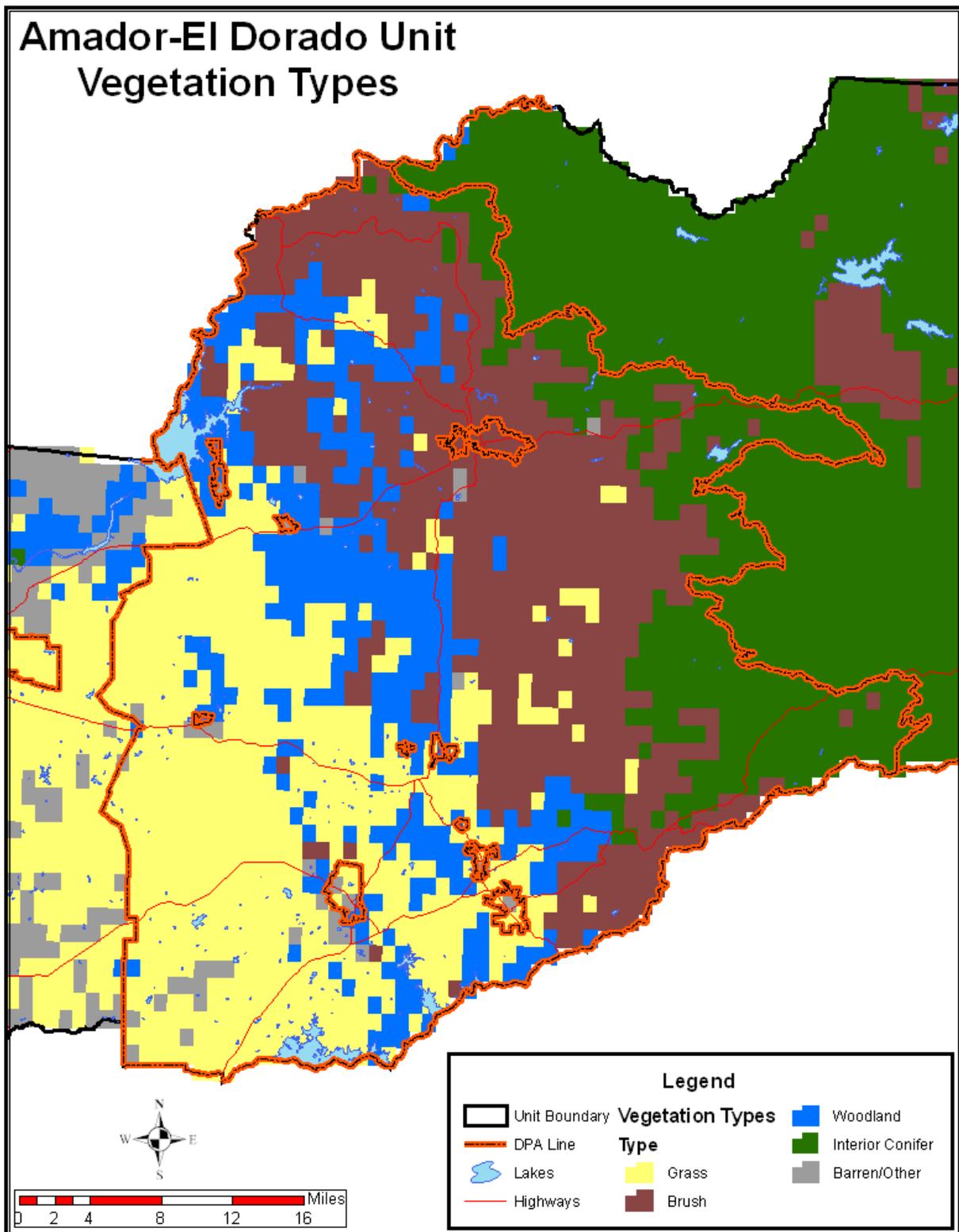


RAWS Map

Amador-El Dorado Unit RAWS Stations



Vegetation Type Map



Appendix C

Daily Operations

ECC Operations

0900 hrs.	Review WIMS for forecasted indices, review Notification Matrix for possible notifications to users.
1000 hrs.	Broadcast Weather Forecast and Last Night's Predicted Indices with Morning Report over AEU Local Net
1030 hrs.	First Dispatch Level Calculation (Use latest observation*)
1230 hrs.	Second Dispatch Level Calculation
1330 hrs.	Edit the 1200 Observation in WIMS for all stations in AEU and make third Dispatch Level Calculation.
1530 hrs.	Fourth Dispatch Level Calculation (1400 Observation)
1600 hrs.	Tomorrow's Predicted Indices Should be Available in WIMS. Review thresholds and Notification Matrix. Begin Notifications for tomorrows predicted Adjective Ratings.
Sundown + 2 Hours	Last Dispatch Level Calculation (Reset for Tomorrow)

*** If the observation has not arrive in WIMS than use the latest available observation. Data transmission times for AEU RAWS are all after the 58th minute of the hour. Therefore the 1200 hr. observation is actually transmitted to the satellite at 1258 hrs. This makes 1200 hr. observation the closest observation to the 1300 hour, which is the target time for NFDRS. Always remember the observation time is rounded DOWN to the whole hour.**

Daily Dispatch Level and Adjective Rating Data Sheet

Date: _____

Forecasted Indices and Adjective Ratings (WIMS forecast from yesterday, read with morning weather)

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

1200 Hr. Observation From WIMS

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

Afternoon Supplemental Calculations

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

Supplemental Dispatch Level and Adjective Rating Data Sheet

Date: _____

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

WIMS Ob Time:

NFDRA Dispatch Zone	Temp	RH	Wind Sp/Dr	IC	SC	BI	Adjective Rating	Dispatch Level
EAST Pilot Hill RAWS 042609								
WEST Ben Bolt RAWS 042612								

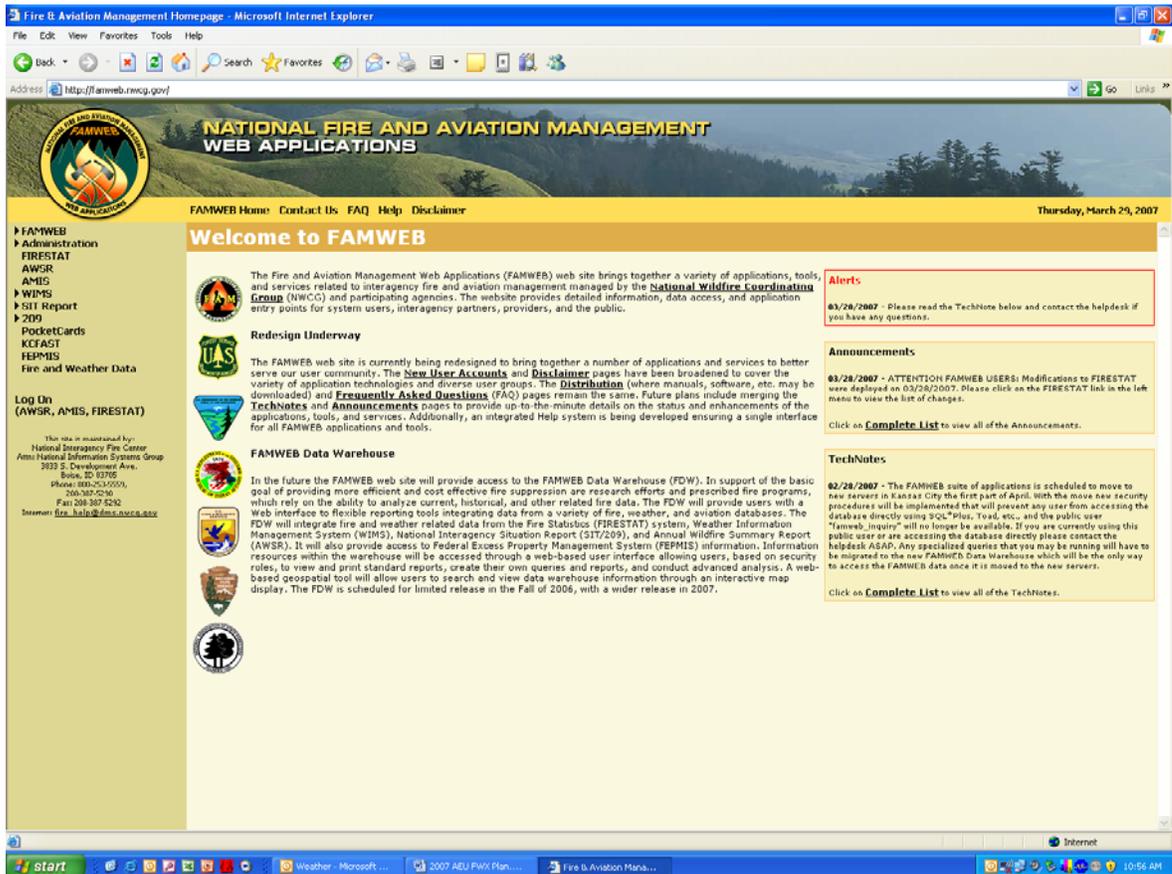
Appendix D

WIMS Procedures

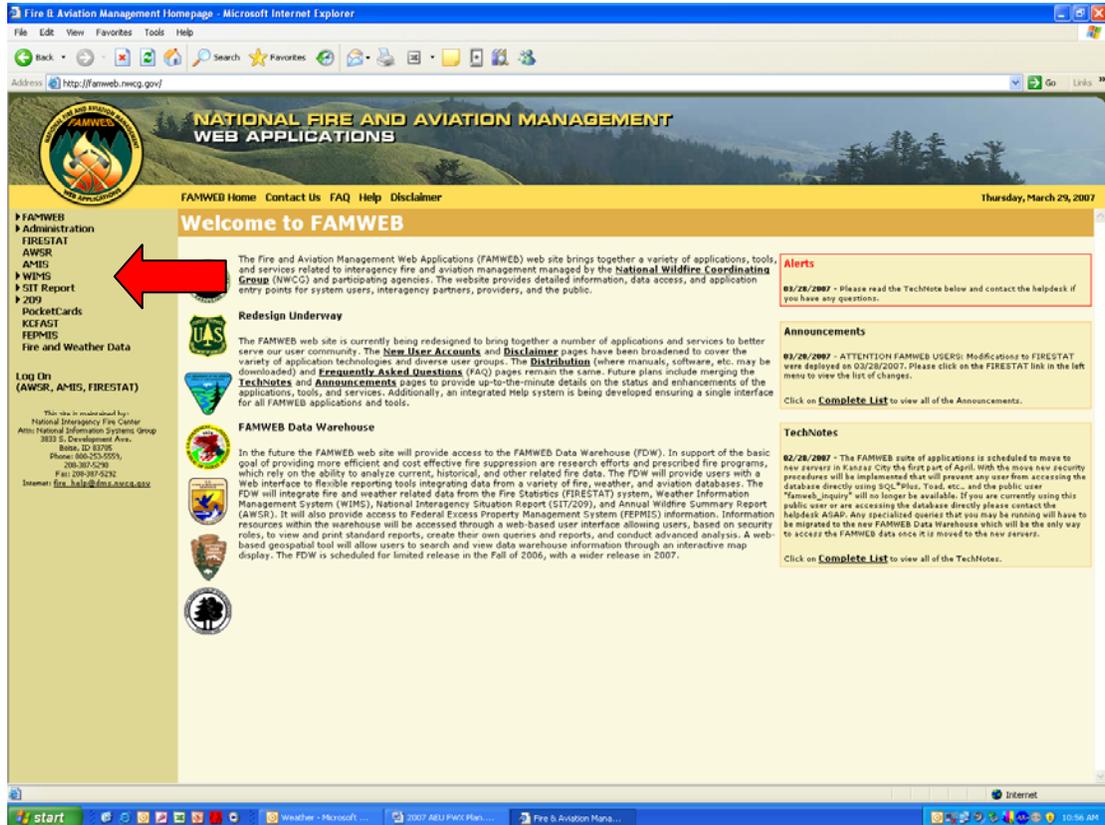
Step by Step WIMS Directions for the ECC, Editing OBS

Step 1: Start *Internet Explorer*

Step 2: Type <http://fam.nwcg.gov/fam-web/> in the Address Bar and hit Go.



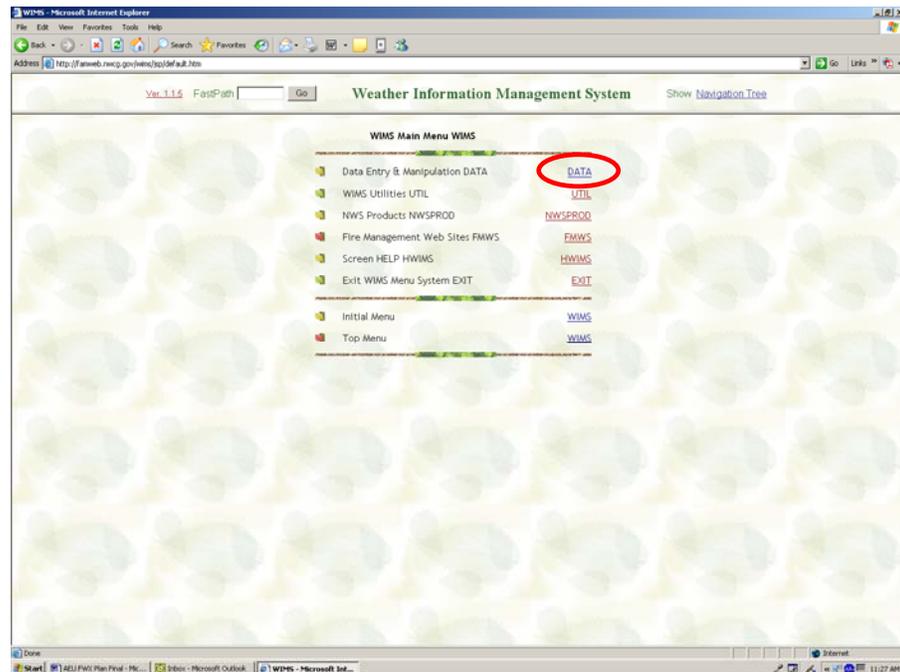
Step 3: The screen shown below will appear. Click WIMS.



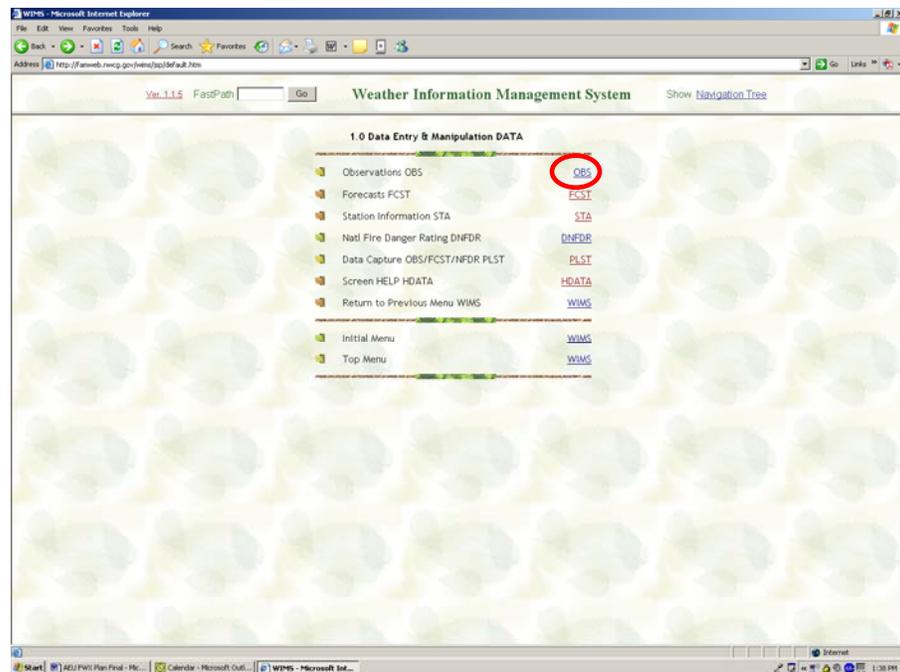
Step 4: Enter User Name and Password



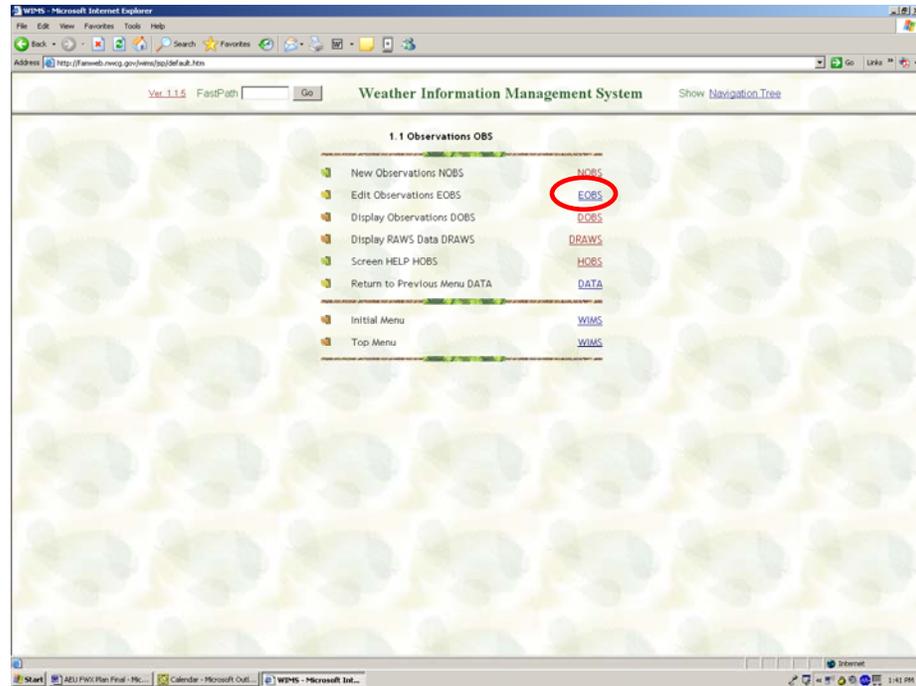
Step 5: WIMS Main Menu Click “DATA”



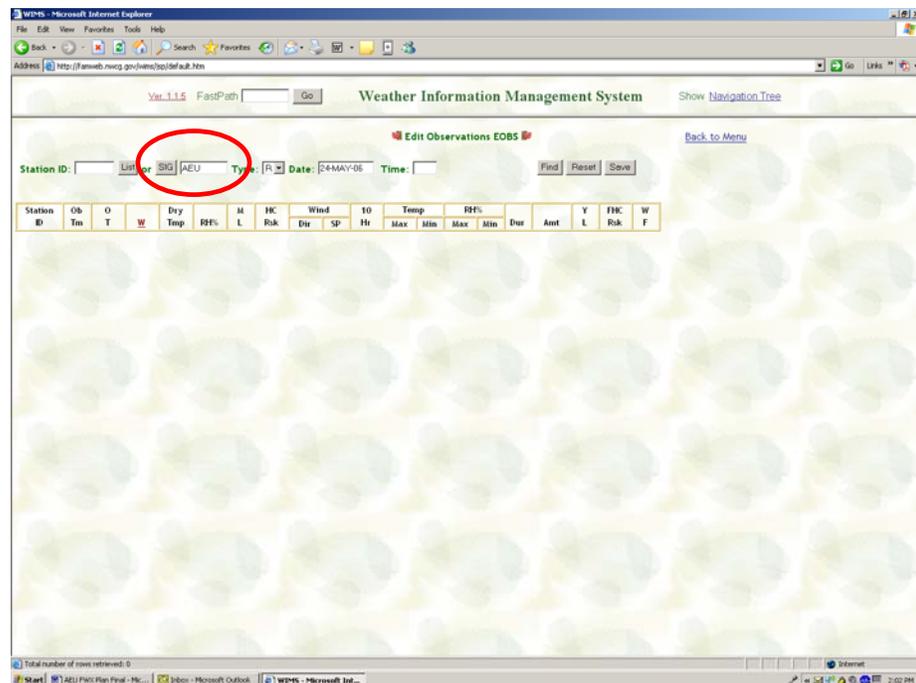
Step 6: WIMS Main Menu Click “OBS”



Step 7: WIMS Main Menu Click “OBS”

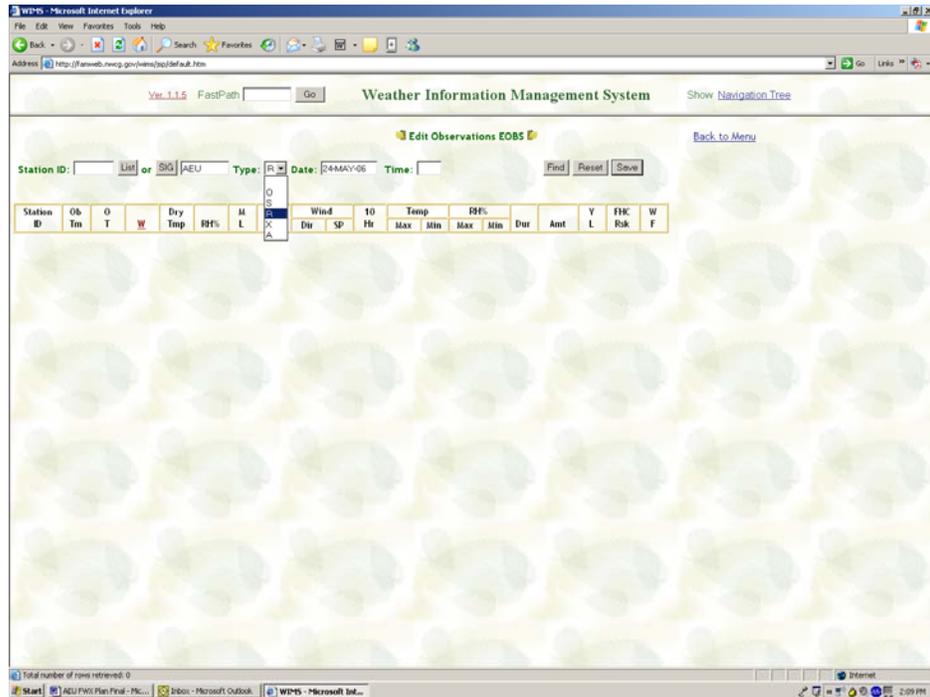


Step 8: WIMS Edit Observations Screen

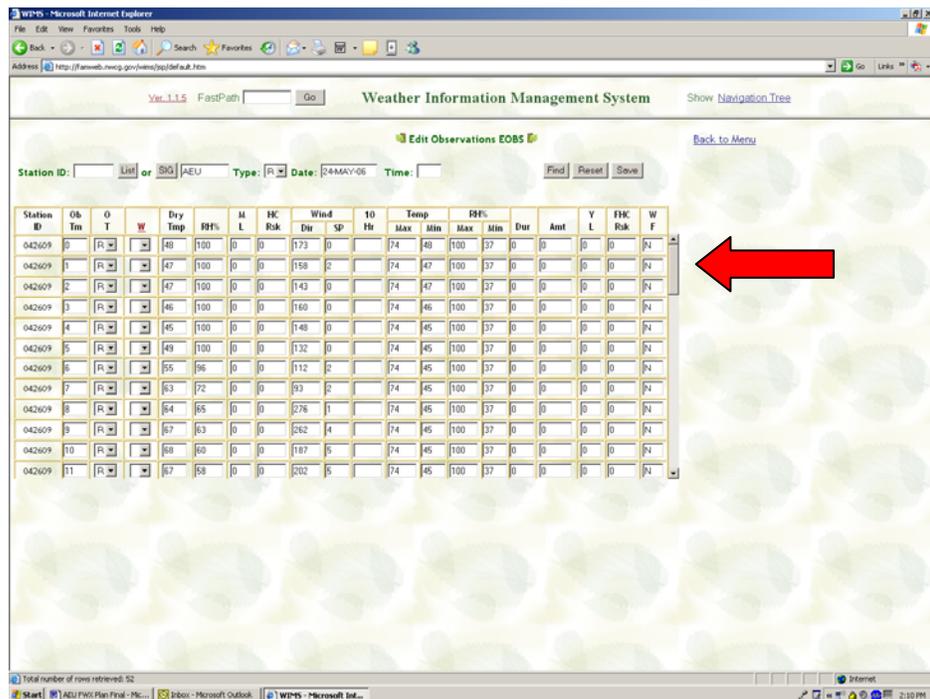


The SIG cell should be “AEU”, if it doesn’t, click the SIG button and scroll down to it to fill the cell properly.

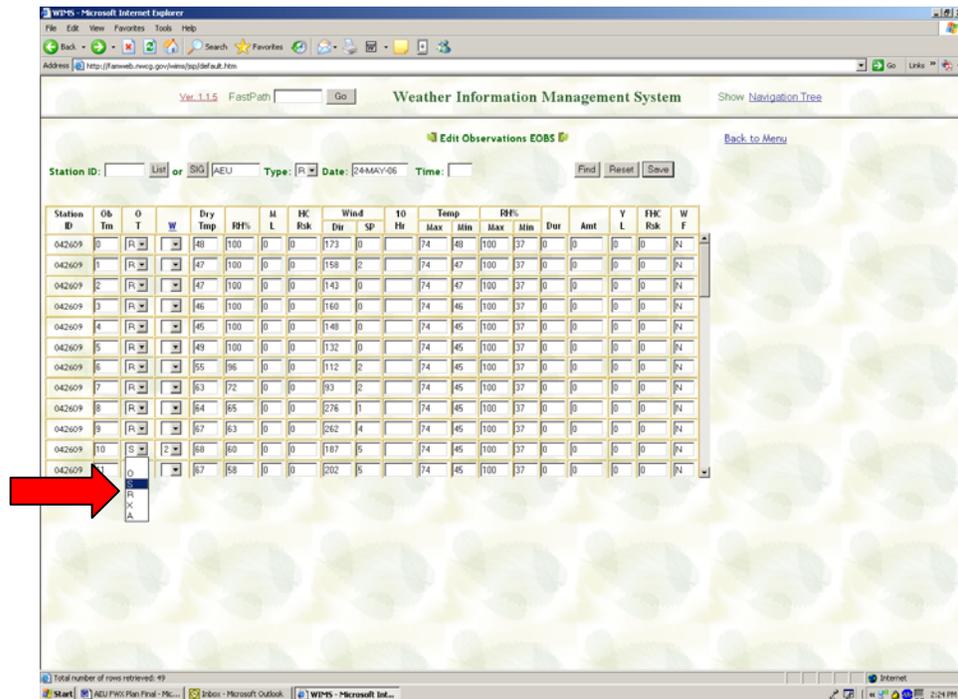
Step 9: Change the Type Field to “R” for Raw Data and then click the “FIND” button to bring all the observations for all three RAWs up.



The screen below will appear with the daily observations for all three RAWs which can be scrolled through with the bar to the right of the observations.



Step 10: It's now time to make the necessary edits so WIMS can work for you. There are two types of observations; "S" for Special or "O" for Observation. The "S" observation will be used for making daily dispatch level calculations or determining the Adjective Rating for that time. The "O" observation will also be utilized for the Dispatch Level and Adjective Ratings however the "O" observation is saved in the system permanently for future NFDRS calculations. The "S" type observation can be done at any time and the "O" type observation is only done to the 1200 hrs. observation for each station.



Edit the OT field reflect the required information. The image above shows a change to an "S" observation.

WPMS - Microsoft Internet Explorer

Address: http://fawweb.nwcg.gov/ntms/jsp/Obf.aJ.B.htm

Ver. 1.1.5 FastPath [] Go Weather Information Management System Show Navigation Tree

Edit Observations EOBS [] Back to Menu

Station ID: [] List or SWS [AEU] Type: [R] Date: [24-MAY-06] Time: [] Find [] Reset [] Save []

Station ID	Obs Tm	O T	W	Dry	M	HK	Wind	10	Temp	RF%	Y	HK	W					
				Temp	RF%	L	Dir	SP	Max	Min	L	Rsk	F					
042609	0	[R]	[]	48	100	0	173	0	74	48	100	37	0	0	0	0	0	0
042609	1	[R]	[]	47	100	0	158	2	74	47	100	37	0	0	0	0	0	0
042609	2	[R]	[]	47	100	0	143	0	74	47	100	37	0	0	0	0	0	0
042609	3	[R]	[]	46	100	0	160	0	74	46	100	37	0	0	0	0	0	0
042609	4	[R]	[]	45	100	0	148	0	74	45	100	37	0	0	0	0	0	0
042609	5	[R]	[]	49	100	0	132	0	74	45	100	37	0	0	0	0	0	0
042609	6	[R]	[]	55	96	0	112	2	74	45	100	37	0	0	0	0	0	0
042609	7	[R]	[]	53	72	0	93	2	74	45	100	37	0	0	0	0	0	0
042609	8	[R]	[]	54	65	0	276	1	74	45	100	37	0	0	0	0	0	0
042609	9	[R]	[]	57	63	0	262	4	74	45	100	37	0	0	0	0	0	0
042609	10	[S]	[2]	58	60	0	187	5	74	45	100	37	0	0	0	0	0	0
042609	11	[R]	[]	57	58	0	202	5	74	45	100	37	0	0	0	0	0	0

Total number of rows retrieved: 49

Edit the State of the Weather Field “W” to reflect the cloud cover and possible precipitation. There is a discussion of the State of the Weather codes at the end of these instructions for your review. Please review this information prior to selecting the State of the Weather.

After editing all three RAWS observations for the same time hit "SAVE". After a save any accepted change will appear in green as shown below.

The screenshot shows the WIMS web interface with a table of weather observations. The table has columns for Station ID, Obs Tm, O, Y, W, Dry Temp, RH%, M, HC, Wind Dir, SP, TO, Hr, Temp Max, Min, RH% Max, Min, Dur, Amt, Y, L, FHC, Rok, and W. The observation for station 042609 at 10:00 on May 6, 2008, is highlighted in green, indicating it has been successfully saved. A message below the table states: "Info: Observation successfully saved [042609/24-May-06/10/15]".

Station ID	Obs Tm	O	Y	W	Dry Temp	RH%	M	HC	Wind Dir	SP	TO	Hr	Temp Max	Min	RH% Max	Min	Dur	Amt	Y	L	FHC	Rok	W
042609	6	R			55	86	0	0	112	2			74	45	100	37	0	0	0	0	0	0	N
042609	7	R			53	72	0	0	93	2			74	45	100	37	0	0	0	0	0	0	N
042609	8	R			64	65	0	0	276	1			74	45	100	37	0	0	0	0	0	0	N
042609	9	R			67	63	0	0	262	4			74	45	100	37	0	0	0	0	0	0	N
042609	10	S			68	60	0	0	187	5			74	45	100	37	0	0	0	0	0	0	N
042609	11	R			67	58	0	0	202	5			74	45	100	37	0	0	0	0	0	0	N
042609	13	O			69	56	1	0	181	6			74	45	100	37	0	0	0	0	0	0	N
042612	0	R			50	86	0	0	23	4			76	50	98	37	0	0	0	0	0	0	N
042612	1	R			50	87	0	0	12	3			76	50	98	37	0	0	0	0	0	0	N
042612	2	R			49	88	0	0	2	2			76	49	98	37	0	0	0	0	0	0	N
042612	3	R			49	88	0	0	29	4			76	49	98	37	0	0	0	0	0	0	N

Scroll down to make sure all three were successfully saved. If not, go back and make the edits again and save again. Eventually it will take. To check and see if they did in fact take, change the Type field to blank and hit FIND again. All of the obs. should appear, regardless of type and will appear as shown below.

The screenshot shows the WIMS web interface. At the top, there's a navigation bar with 'Weather Information Management System' and 'Show Navigation Tree'. Below that, there's a search area with 'Station ID', 'List or SIG', 'AEU', 'Type', 'Date: 04/15/06', and 'Time'. There are 'Find', 'Reset', and 'Save' buttons. The main content is a table of observations. The table has columns for Station ID, Obs ID, O, T, W, Dry Temp, RH%, M, HC, Wind Dir, SP, TO, Temp Max, Temp Min, RH% Max, RH% Min, Dur, Amt, Y, L, FHC, and W. The observations are for station 042609 and 042612 on 04/15/06. The table shows various weather parameters like temperature, humidity, wind, and precipitation.

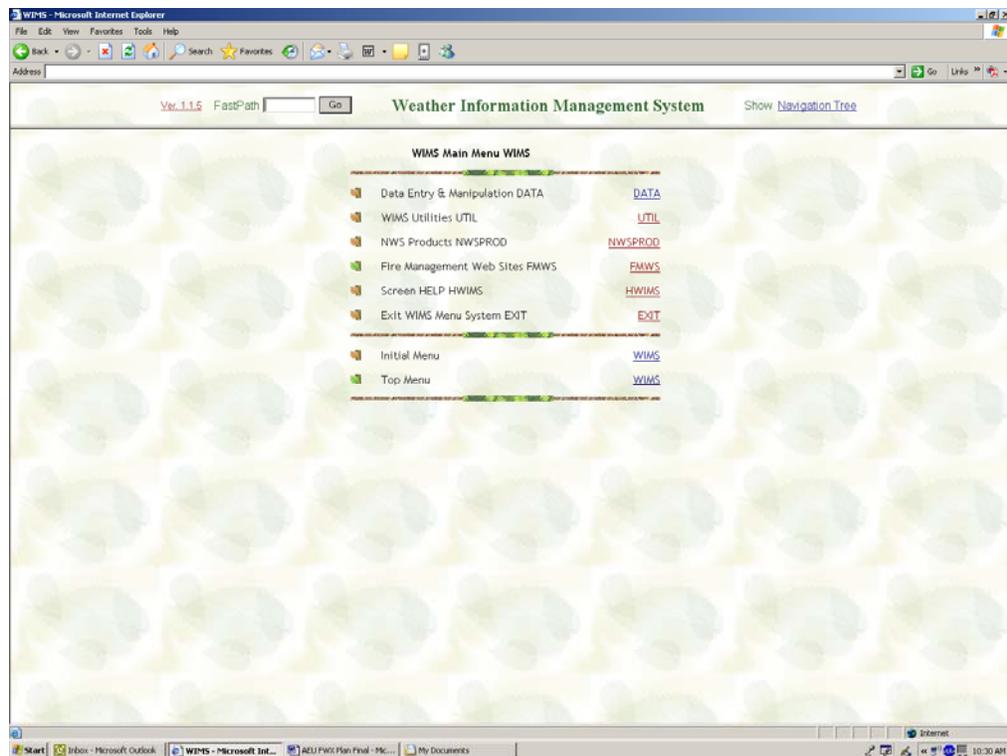
Station ID	Obs ID	O	T	W	Dry Temp	RH%	M	HC	Wind Dir	SP	TO	Temp Max	Temp Min	RH% Max	RH% Min	Dur	Amt	Y	L	FHC	W
042609	7	H			83	74	0	0	276	1		74	45	100	37	0	0	0	0	0	N
042609	8	R			64	65	0	0	276	1		74	45	100	37	0	0	0	0	0	N
042609	9	R			67	63	0	0	262	4		74	45	100	37	0	0	0	0	0	N
042609	10	S			60	60	0	0	187	5		74	45	100	37	0	0	0	0	0	N
042609	11	R			67	58	0	0	202	5		74	45	100	37	0	0	0	0	0	N
042609	13	O			69	56	1	0	181	6		74	45	100	37	0	0	0	0	0	N
042612	0	R			60	66	0	0	23	4		76	50	98	37	0	0	0	0	0	N
042612	1	R			60	67	0	0	12	3		76	50	98	37	0	0	0	0	0	N
042612	2	R			49	99	0	0	2	2		76	49	98	37	0	0	0	0	0	N
042612	3	R			49	98	0	0	29	4		76	49	98	37	0	0	0	0	0	N
042612	4	R			48	99	0	0	323	2		76	48	99	37	0	0	0	0	0	N
042612	5	R			51	99	0	0	19	3		76	48	99	37	0	0	0	0	0	N

Step by Step WIMS Directions for the ECC, Retrieving Indices

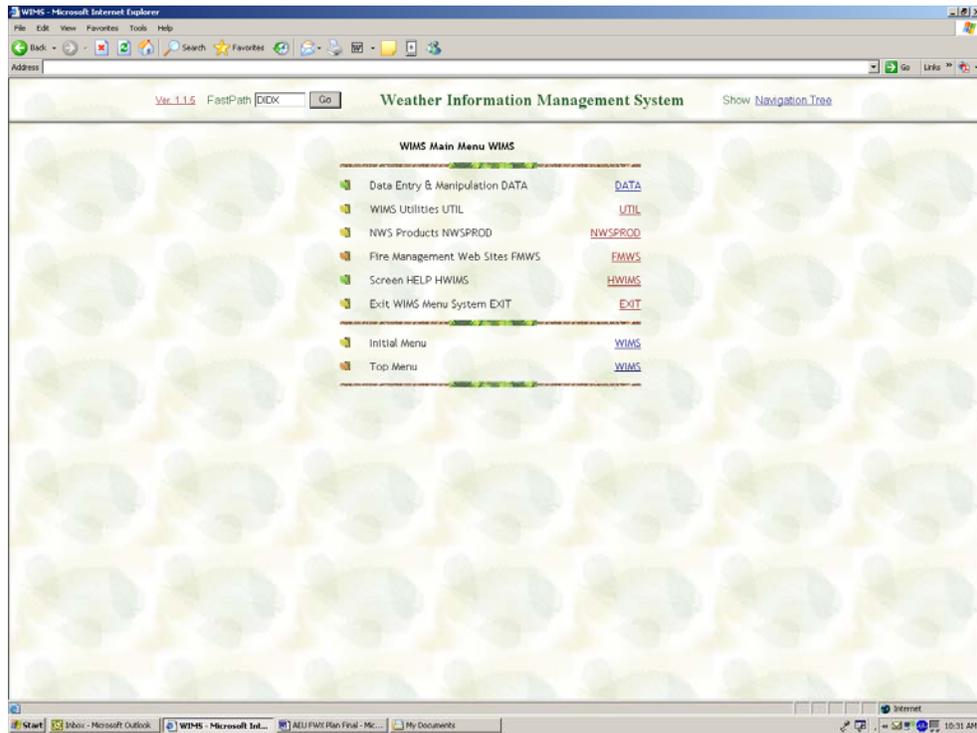
Remember, when retrieving NFDRS indices the observation must first be edited as described as above.

This action will require the user to log into WIMS in the same fashion as described above however the method to access the indices will be a little different. WIMS uses two different ways to execute commands; use the menus or use a FastPath command in the upper left hand corner of the WIMS screen. Please follow the steps below to access the indices and associated NFDRS Adjective Ratings.

Step 1: Access the WIMS Main Menu Screen as shown below.



Step 2: Type “DIDX” in the FastPath box at the top left hand side of the screen and hit *Enter*.



Note: When accessing indices from the “DIDX” FastPath you can also designate a specific observation time so there isn’t so much information to scroll through. If you take a close look at the screen below you will notice a number of rows for each station number. WIMS makes calculations for every fuel model shown in the station catalogs. There are various fuel models for different purposes associated with each station. The only one that will be used for ECC purposes will be the one first shown for each station. See below.

Ver. 1.1.5 FastPath Go Show [Navigation Tree](#)

Display Index Format DIDX [Back to Menu](#)

Station ID: or SIG AEU Type: Date: 30-MAY-06 Time:

Station ID	Obs Dt	Tm	O	T	MSGC	WS	WDY	HRB	1H	10	HU	TH	XH	IC	SC	EC	BI	SL	R	KBDI	FL	LR	LO	HR	HO
42609	053006	7	S		7J3A2	1	167	188	7	8	12	21	21	14	7	125	68	2	L	110	48	0	0	0	0
42609	053006	7	S		7B3A2	1	167	188	7	8	12	21	21	7	3	23	19	2	L	110	14	0	0	0	0
42609	053006	7	S		7A3A2	1	167	188	7	8	12	21	21	3	2	0	2	1	L	110	2	0	0	0	0
42609	053006	7	S		7G3A2	1	167	188	7	8	12	21	21	10	3	26	22	2	L	110	16	0	0	0	0
42612	053006	7	S		7A2A2	3	162	175	7	7	10	20	20	3	2	0	2	1	L	84	2	0	0	0	0
42612	053006	7	S		7B2A2	3	162	175	7	7	10	20	20	8	3	25	21	2	L	84	15	0	0	0	0
42612	053006	7	S		7G2A2	3	162	175	7	7	10	20	20	10	2	29	21	2	L	84	15	0	0	0	0
42701	053006	7	S		7J4A2	2	135	129	5	6	9	17	16	28	15	163	108	3	M	206	77	0	0	0	0
42701	053006	7	S		7B4A2	2	135	129	5	6	9	17	16	15	6	33	34	3	M	206	24	0	0	0	0
42701	053006	7	S		7G4A2	2	135	129	5	6	9	17	16	23	7	39	39	3	M	206	28	0	0	0	0

Total number of rows retrieved: 10

Use the information from the first row for each RAWS and record the data on the daily *WIMS, RAWS, Dispatch, and Adjective Rating Data sheet*.

Appendix E

WIMS State of the Weather and Wet Flag Definitions

State of the Weather Codes for WIMS

Code Associated State of Weather

- | | |
|---|--|
| 0 | Clear (less than 1/10 of the sky cloud covered.) |
| 1 | Scattered clouds (1/10 to 5/10 of sky cloud covered). |
| 2 | Broken clouds (6/10 to 9/10 of sky cloud covered). |
| 3 | Overcast (more that 9/10 of sky cloud covered). |
| 4 | Foggy |
| 5 | Drizzling (precipitation of numerous fine droplets, misting). |
| 6 | Raining |
| 7 | Snowing or sleet |
| 8 | Showering (in sight of or occurring at station). |
| 9 | Thunderstorms in progress (lightning seen or thunder heard within 30 miles of observation site). |

State of the Weather Codes 5, 6, & 7 Set Wet Flag to YES

State of the Weather Selection in WIMS

This section has been created to demystify the issue of State of the Weather selection in the WIMS system and the other issues that have to be considered as one selects one of the 10 State of the Weather codes. State of the Weather code selection is important for two reasons: to evaluate the effect of cloud cover on fire fuels and the level to which fuels have been wetted by precipitation. State of the Weather selection will assign the appropriate values in the NFDRS calculations to model the impact of cloud cover and associated moisture on fire fuels. State of the Weather is the condition that exists over the RAWS itself. This can vary between RAWS due to differing weather conditions over the Unit.

State of the Weather will have to be selected for each station each time a selected observation is to be utilized by the NFDRS calculations. This will be the normal afternoon "O" observation as well as the interval observations "S" that will be necessary to calculate the Adjective Ratings and the scheduled NFDRS indices, as well as dispatch levels. The selected State of the Weather code can cause wild swings in NFDRS indices if the incorrect code is selected. This is especially true with Codes 5, 6, & 7.

State of the Weather Codes 5, 6, & 7 will cause the Wet Flag setting to switch to “Yes” (the Wet Flag setting can be found at the far right side of the WIMS page where observations are edited). The Wet Flag setting of “Yes” or “No” refers to whether the fuels are so saturated with precipitation moisture to the level that a handful of the fuels will produce noticeable quantities of water when squeezed or swung. That’s a lot of moisture. This is important because most NFDRS indices will automatically get driven to 0 when the Wet Flag is tripped to “Yes”. During the winter months this isn’t much of a problem, but during Fire Season this is a major problem because we are trying to model the NFDRS indices to accurately reflect fire danger. Driving the indices to zero during the Fire Season will cause wild swings within index values for the remainder of the fire season. Furthermore, it’s almost impossible to accumulate enough rainfall during the fire season to cause wild swings in the actual fire danger and risk of ignition is only slightly reduced for a short period. Thunderstorm precipitation isn’t adequate to change the overall fire danger picture. Minor day to day variations are normal however wild swings back and forth are not. Only what is described as a “Season Ending Event” would cause this.

So, between May 1st and the first MAJOR fall rains, don’t use State of the Weather Codes 5, 6, & 7. Use one of the other codes that will reflect rainfall without tripping the Wet Flag to “Yes”. The Unit Fire Weather Coordinator will make the determination when the season ends within the NFDRS models in WIMS.

One additional issue with respect to the Wet Flag needs to be clarified for the Zion RAWS. The issue revolves around the treatment of snow over fuels. As long as there is snow on the fuels the Wet Flag must be tripped manually. For example, the sun is shining bright however the fuels are covered in two inches of snow. The State of the Weather Code will be a 0 or 1, however the Wet Flag will need to be manually tripped to Yes to ensure the models know the fuels are covered in snow. This may sound trivial, however in late fall when early snows can be followed by dry spells, the unit needs to accurately model the fuels that are impacted by persistent snow.

In Summary:

1. State of the Weather is entered in WIMS to model the affect of cloud cover and precipitation over fire fuels.
2. State of the Weather must be entered for all observations used in NFDRS.
3. State of the Weather Codes 5, 6, & 7 are not to be used after May 1st.
4. Manually trip the Wet Flag to Yes if the fuels are covered in snow, if it does not trip automatically (5, 6, & 7).
5. State of the Weather represents conditions over or near the RAWS as described above in the Codes Description. Not over or near the ECC.
6. The Unit Fire Weather Coordinator will determine when the Fire Season ends in the WIMS NFDRS models. This relates to the use of the 5, 6, & 7 State of the Weather Codes.

Appendix F

Data Import Procedures for CAL FIRE Data into Fire Family Plus 3

N. Chris Waters, CAL FIRE AEU

March 22, 2007

One of the biggest hurdles for CAL FIRE folks trying to utilize NFDRS and the associated processors is acquiring data sets that are compatible with Fire Family Plus. Other agencies have made efforts to post fire occurrence data sets on the FAMWEB site and CAL FIRE is no exception. There may come a time however where CAL FIRE may not process the data as timely as necessary or you may need to convert the data yourself. The following pages will generally guide you through the process.

If this is the first time setting up Fire Family Plus: Before data can be imported into Fire Family Plus you must first set up Fire Family Plus to receive the data. This will require you to create Agencies, Regions, and Units under the main menu option "Data".

The following format is how the CDF data is typically imported into Fire Family Plus

Agency: CDF

Region: 1 Units: HUU
 MEU
 CZU
 SCU
 LNU
 MRN

Region: 2 Units: SKU
 LMU
 SHU
 BTU
 TGU
 NEU

Region: 3 Units: MVU
 RRU
 BDU
 SLU
 LAC
 ORC
 VNC
 SBC

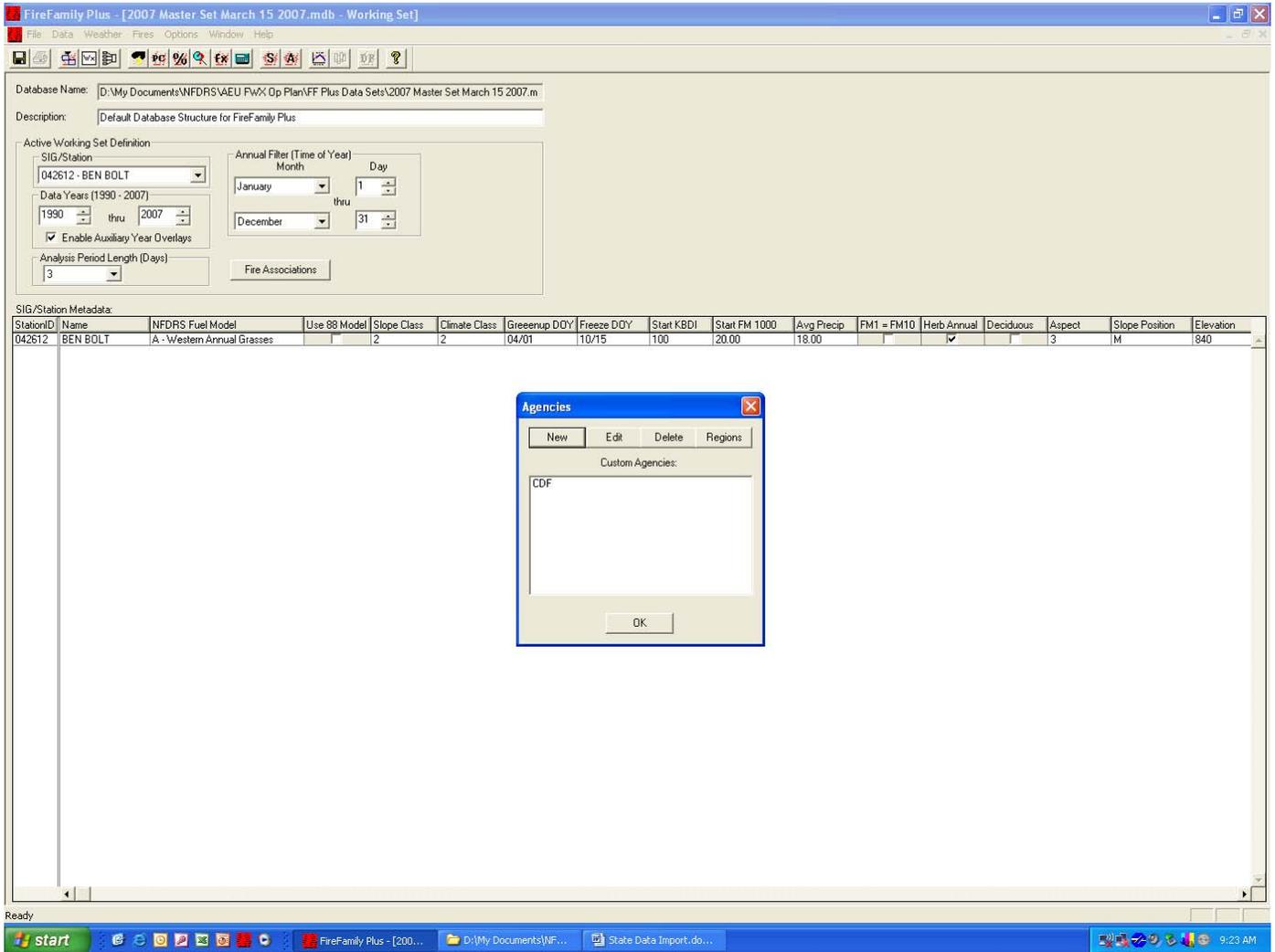
Region: 4 Units: AEU***
 TCU
 MMU
 FKU
 TUU
 KRN

The Regions will remain as the old four region format to manage data set size while importing to Fire Family Plus. Contract county fire occurrence data will be treated like any other unit for vegetation fires on SRA.

*** For purposes of NFDRS calculations, AEU will remain in Region 4.

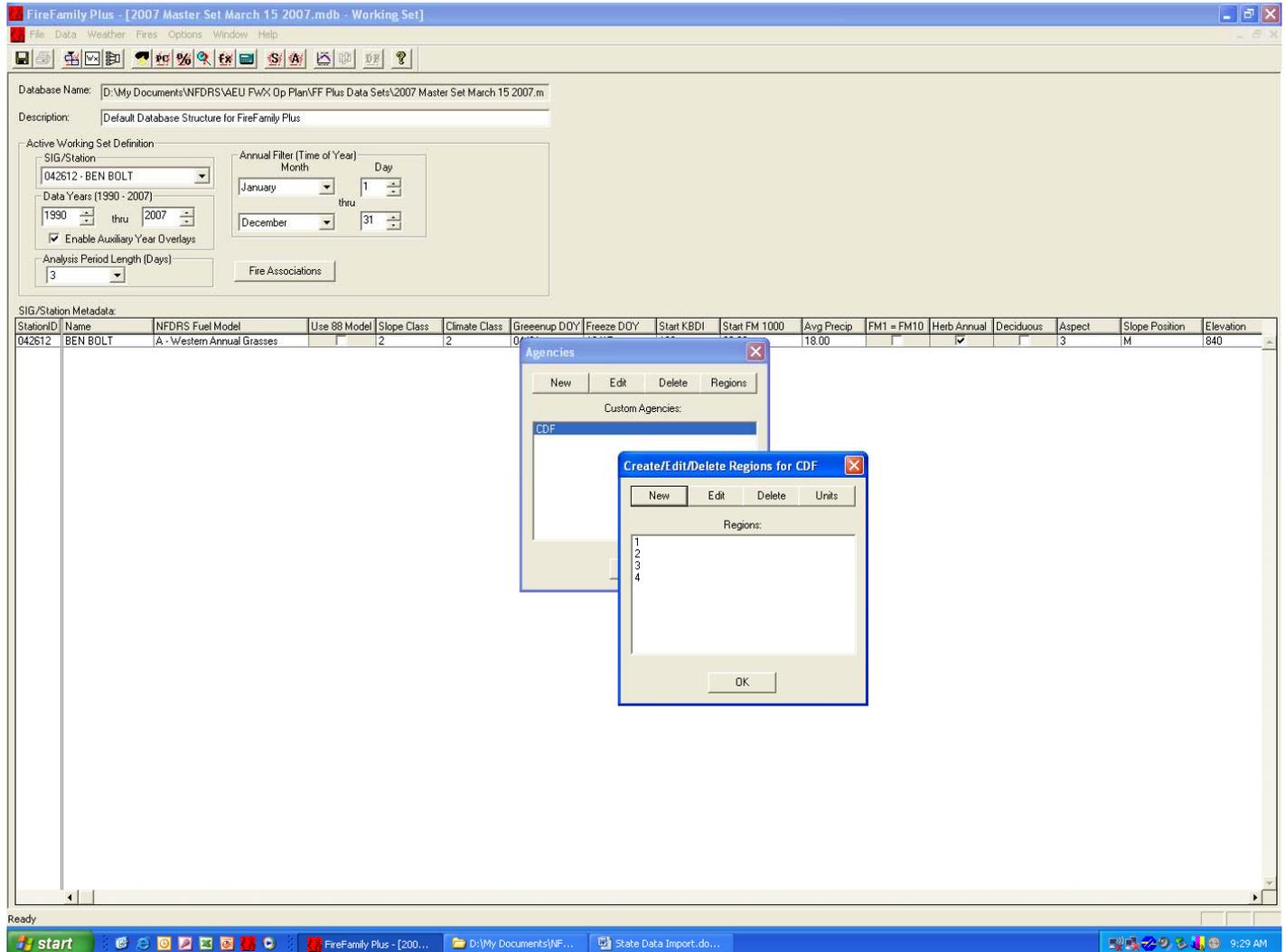
The first step is to check to see if CDF has been added to the working set summary selection menu. Select the following: **Data>Agencies**

The screen shown below will pop up and if CDF is there, then everything is OK. If not, Add CDF using the **New** button and add CDF.



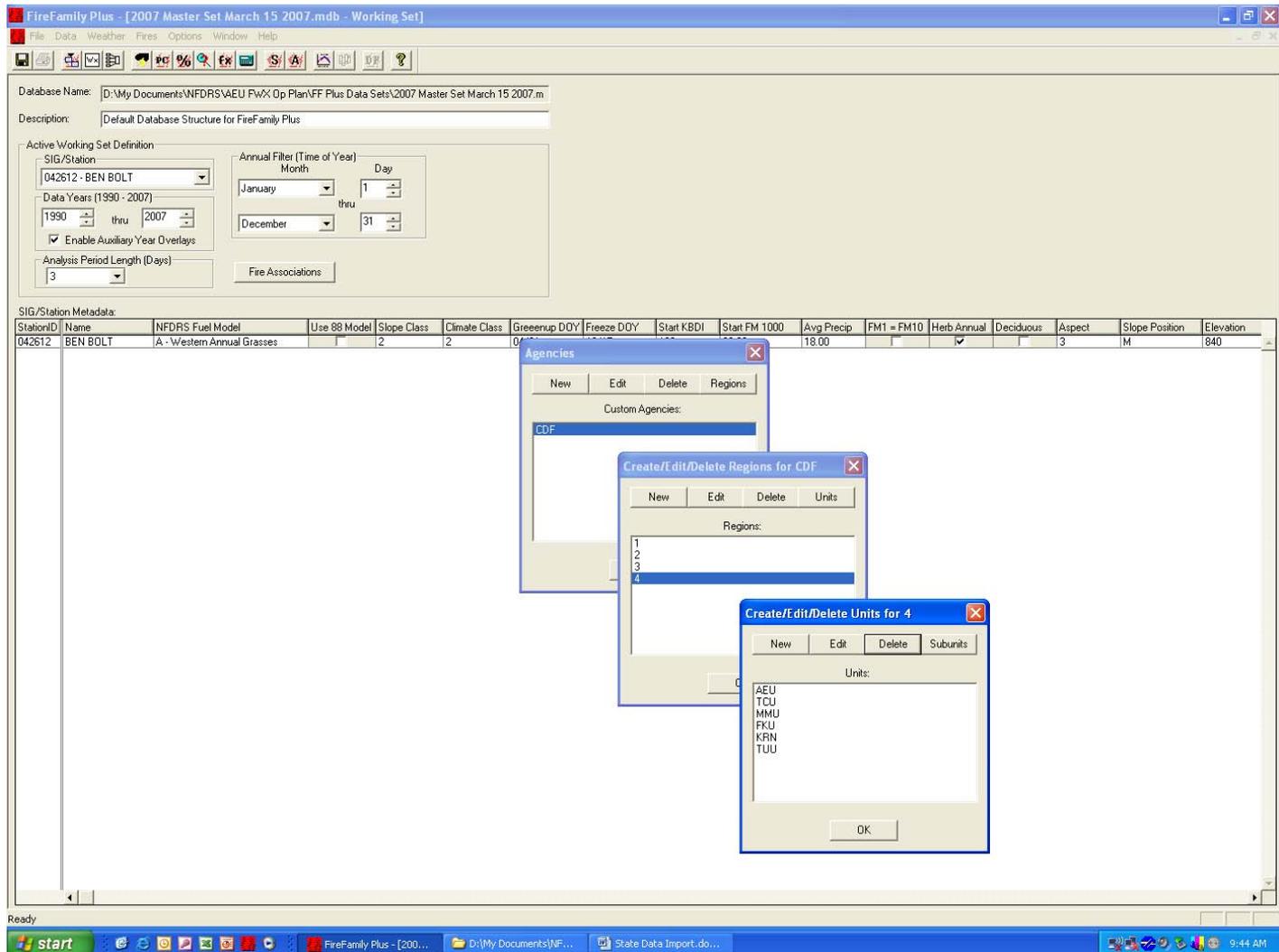
The next step is to make sure the Regions are in place. Select the following: **Data>Agencies, Highlight CDF>Regions**

The screen below will be visible. Regions are numbered 1 through 4 using single digits. If Regions are absent, add them using the **New** button and add each Region.



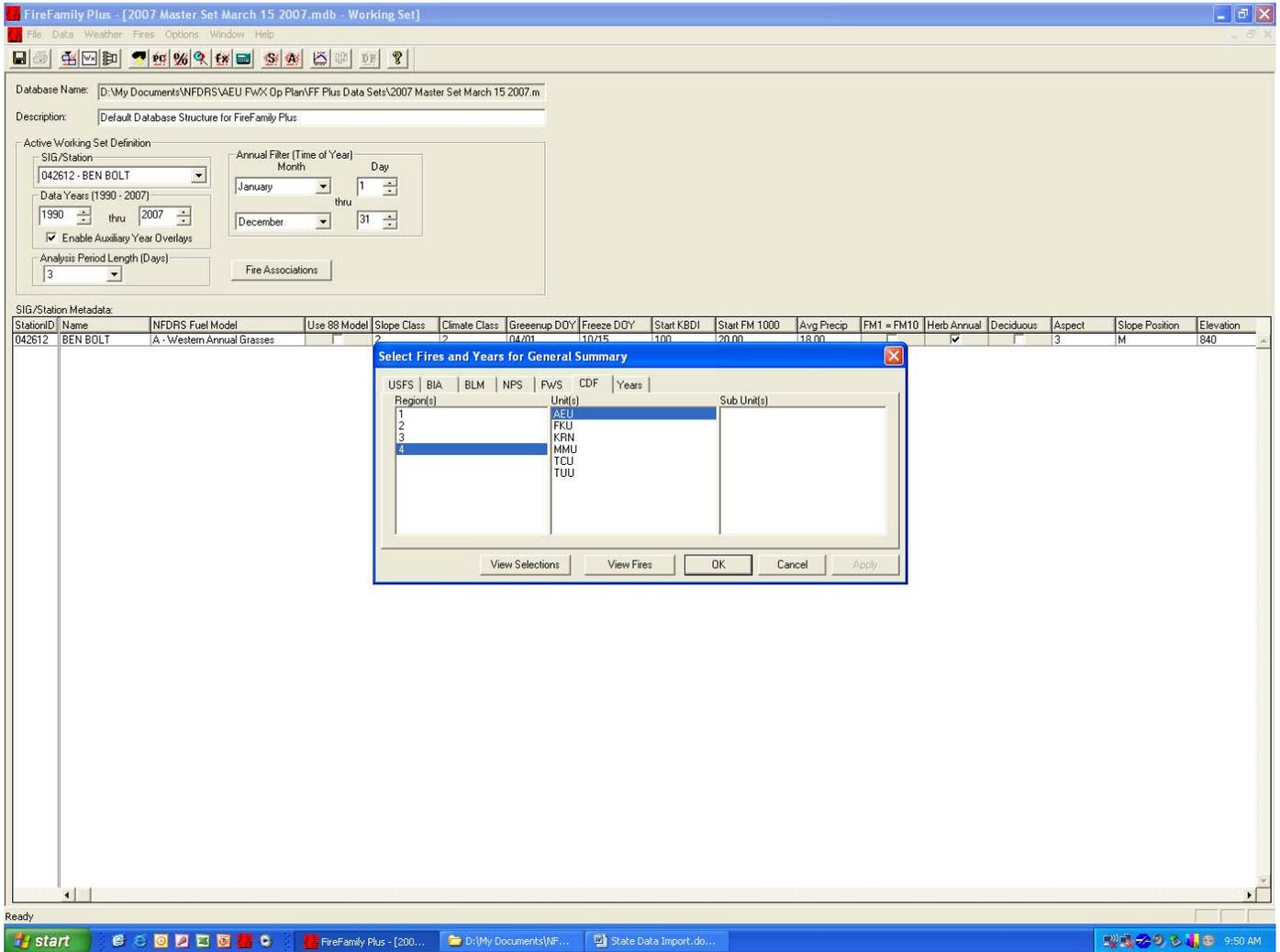
The last step is to add the Units to each Region. Select the following: **Data>Agencies, Highlight CDF>Regions, highlight the region>Units**

The screen below will be visible. Add the appropriate Units. AEU will remain in Region 4 as shown since all of the historical data was prepared in that fashion.



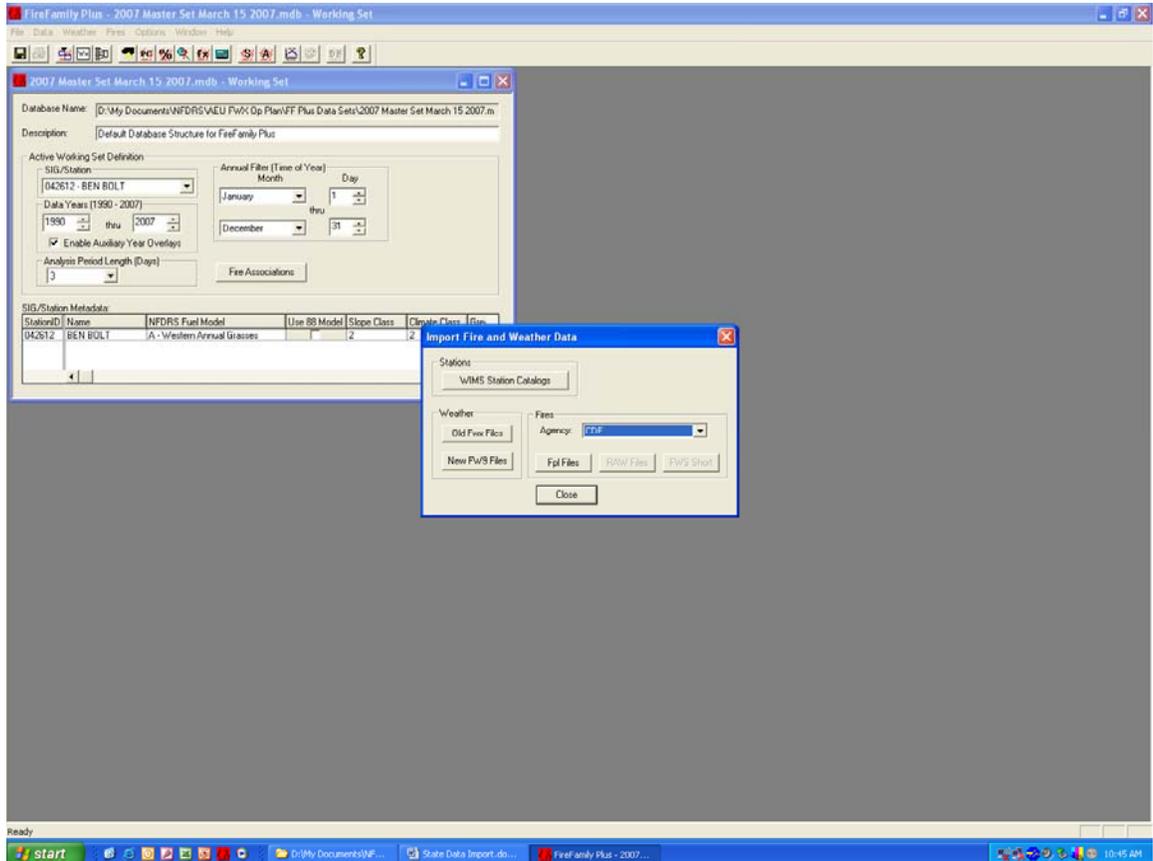
The last step before importing data will be to check the fire summary to see if the tabs have assigned properly. Select the following: **Fires>Summary>General**

The screen below will be visible. Notice the CDF tab and notice the Units that are shown when one of the regions gets highlighted. If the Units or Regions are not visible, go back and add them.



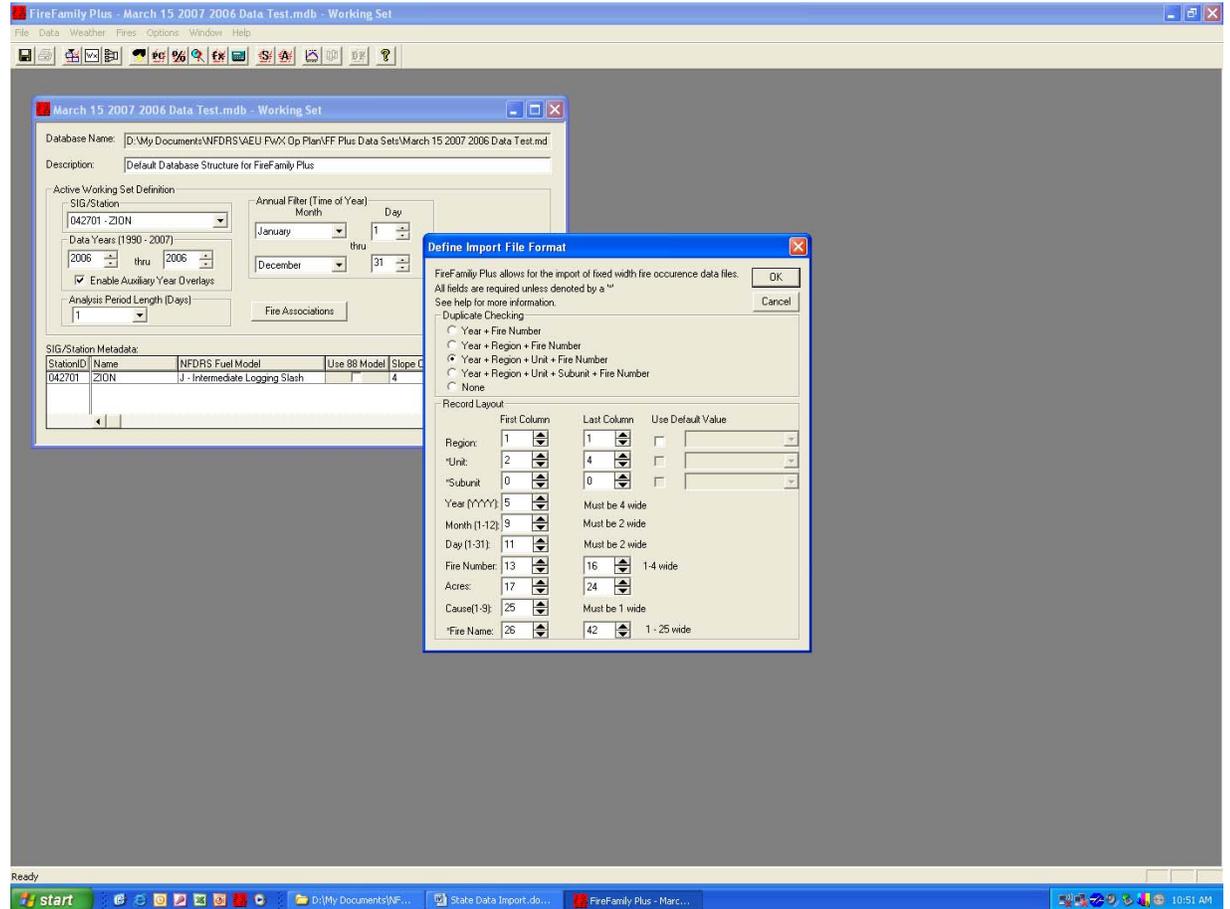
If Fire Family Plus has already been set up to receive data, you're ready to import the data: The State data up to 2005 can be found on the FAMWEB website under California. The data is broken into four pieces which are labeled for the specific Region they are from. Keep in mind the data for Region 4 is mislabeled; it's the fourth CDF data set down. Fire Family Plus will be looking for a file with an .fpl extension. Copy the data set from the FAMWEB site to your computer.

Import the data by Selecting the following: **Data>Import, select the Agency and click the Fpl Files Button.**



Fire Family Plus will give you a browse menu so you can find the .fpl file. Select the file you want to load.

The next screen that will appear will be used to assign place holders for the data set. Make it look like the one shown below.



Hit OK!

The data set should load. After Fire Family Plus completes loading the data it will show a dialog box with the number of records loaded and any possible errors.

Fire Occurrence Data Conversion from CAL FIRE data set to a format that can be used in Fire Family Plus

One problem with fire occurrence data across all state agencies is the lack of standardization for fire cause codes. For data to be used in Fire Family Plus it needs to be converted to the Federal cause code classes and then be formatted to the required data placement. The following instructions will guide you through the process of converting the cause code classes to the ones used in Fire Family Plus and how to take a standard spread sheet and convert it to an .fpl file that can be downloaded into Fire Family Plus.

The CAL FIRE fire occurrence data can be found on the Fire Plan web page or you can have the Unit Pre Fire Engineer pull it off for you. It will probably be in a .dbf format so you will need to open it up in Excel and save it as a spread sheet so it can be edited in Excel.

Seven pieces of information are required for Fire Family Plus in the following column order; Region Number, Unit 3 Letter Identifier, Date (YYYYMMDD), Fire Number, Acres (to one decimal place), Fire Cause Code, Fire Name.

Region, Unit, Date, Fire Number, Acres, Fire Cause Code, Fire Name

Step 1: Arrange the columns in the order shown above, delete anything else that may come with the data set.

Step 2: Sort the data set by date, ascending.

Step 3: Convert the Cause Class Codes using Table #1.

Step 4: Make sure the acres column is formatted to show figures to one decimal place.

Step 5: Assign Fire Numbers, starting with 0001 and continue to the last fire for

Step 6: Remove the titles.

Step 7: Change the font to "Courier New" font size 8.

Step 8: Format column **width** to the following:

Region: 1
Unit: 3
Date: 8
Fire Number: 4
Acres: 8
Cause Code: 1
Fire Name: 16

The spread sheet will look like this:

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	4 ARU 20060208	1	1.0 5	OLD DITCH																		
2	4 ARU 20060223	2	0.0 9	HWY																		
3	4 ARU 20060226	3	1.0 9	GND																		
4	4 ARU 20060226	4	0.1 9	HIGHWAY																		
5	4 ARU 20060226	5	0.5 9	REYNOLDS																		
6	4 ARU 20060226	6	0.1 9	NEWTOWN																		
7	4 ARU 20060427	7	0.5 9	CREEK																		
8	4 ARU 20060429	8	0.1 9	SUNSET																		
9	4 ARU 20060507	9	0.3 9	PINE																		
10	4 ARU 20060507	10	0.3 9	SETTLEERS																		
11	4 ARU 20060513	11	0.0 5	SLOTT																		
12	4 ARU 20060513	12	0.5 9	CANYON																		
13	4 ARU 20060513	13	0.0 9	ROCKY																		
14	4 ARU 20060514	14	0.0 9	#1																		
15	4 ARU 20060514	15	0.1 9	#2																		
16	4 ARU 20060514	16	0.1 9	#3																		
17	4 ARU 20060515	17	1.0 5	MULE																		
18	4 ARU 20060522	18	0.0 9	SAFARI																		
19	4 ARU 20060525	19	0.1 9	GALWHA																		
20	4 ARU 20060527	20	0.3 9	MORTHOSE																		
21	4 ARU 20060328	21	0.1 9	MOSQUITO																		
22	4 ARU 20060528	22	0.3 5	D'AGOSTINI																		
23	4 ARU 20060528	23	0.6 9	VALLEY																		
24	4 ARU 20060528	24	0.1 9	JACKSON																		
25	4 ARU 20060529	25	0.3 5	COLDEN																		
26	4 ARU 20060529	26	0.1 9	SLY																		
27	4 ARU 20060529	27	0.3 2	HIDDEN																		
28	4 ARU 20060530	28	1.0 9	NORTHSIDE																		
29	4 ARU 20060530	29	0.1 7	FERRO																		
30	4 ARU 20060531	30	0.3 5	LOGAN																		
31	4 ARU 20060601	31	0.0 5	SNEY RANCH LN																		
32	4 ARU 20060602	32	5.0 5	CANYON																		
33	4 ARU 20060602	33	0.2 9	KENNEDY																		
34	4 ARU 20060603	34	1.0 2	DICKINSON																		
35	4 ARU 20060603	35	0.2 4	CAMACHELAKE																		
36	4 ARU 20060604	36	0.3 5	LAMBERT																		
37	4 ARU 20060604	37	0.1 5	ALLAN																		
38	4 ARU 20060606	38	0.3 5	LOTTS																		
39	4 ARU 20060607	39	0.2 5	BEAR																		
40	4 ARU 20060607	40	1.0 2	HAYTSO/SANDEEP																		
41	4 ARU 20060608	41	0.0 7	IC																		
42	4 ARU 20060608	42	0.3 5	CLEAR																		
43	4 ARU 20060609	43	0.5 5	FREEDOM																		
44	4 ARU 20060609	44	0.5 9	COLD																		
45	4 ARU 20060609	45	0.5 5	CABLE																		
46	4 ARU 20060610	46	0.1 2	HATCOCK																		
47	4 ARU 20060611	47	0.5 2	HATCOCK																		
48	4 ARU 20060612	48	0.0 7	49																		
49	4 ARU 20060612	49	0.3 2	TALKING																		

Step 9: Save the file as Formatted Text (space delimited) *.prn file extension.

Step 10: Change the extension from *.prn. to *.fpl

Step 11: It's ready to load.

Table 1: Cause Code Converter CAL FIRE to Federal/Fire Family Plus

Cause code converter		
CDF Cause_Code	Cause Description	Fed Cause Code
0	Unknown	9
1	Undetermined	9
2	Lightning	1
3	Campfire	4
4	Smoking	3
5	Debris Burning	5
6	Arson	7
7	Equipment Use	2
8	Playing / Fire	8
9	Misc	9
10	Vehicle	2
11	Railroad	6
12	Powerline	9

Appendix G

Quality Assurance

The quality Assurance Program is currently under construction.

Appendix H

**Amador-El Dorado
2007 Unit Lightning and Complex
Incident Plan**



Background

The Amador El Dorado Unit Lightning and Complex Incident Plan has been created to guide Unit operational and support personnel through the significant demands that any multiple component emergency incident can cause. Lightning events are an example of an incident that can become especially overwhelming for Unit ECC operations as the complexity of the situation increases. The intent of this plan is to move incidents of this type off the main Emergency Command Center (ECC) floor to an independent incident organization for management complexity and span of control. Preparation of this plan was originally prepared with the intent of managing lightning incidents; however it is recognized that it can be activated for any incident that presents similar demands on the ECC. This plan is designed as an outgrowth of the Incident Command System (ICS) using the standard organizational elements to cover geographic areas that are impacted by lightning or any other emergency incident that exceeds the operational control of the Unit ECC.

Activation

Stage I Prediction,

Lightning event or other incident has been predicted via National Weather Service Warning.

Stage II Activation,

Lightning downstrikes or other incidents have been observed and/or lightning fires have been reported.

ECC Operations

Stage I Prediction

- Notify Unit, Cooperators, and adjacent Units that the Plan is to be activated.
- Initiate authorization of staffing pattern with Duty Chief.
- Staff additional personnel for *Stage I* as per Duty Chief.
- Open Expanded Dispatch as ICP/Assign IC.
- Explore opportunities to staff lookouts for detection support, activate lookouts (fire only).
- Status available aircraft for detection (fire only).

- IC to establish Branch geographic/functional areas as per the incident demand.
- Consider the need for Logistics Section, FLO, and FEM.
- Modify the IA Dispatch from full response to a level that considers incident complexity/demand.

Stage II Activation

- Notify Unit, Cooperators, and adjacent Units that the Plan has entered *Stage II*.
- Staff utility vehicles in affected Branches with additional Overhead (Pre-Fire, VMP, Prevention, or Area Forester).
- Establish Planning Section with a minimum of Situation and Resource Units at the ICP.
- Assign detection and suppression aircraft or coordinate with National Forest or adjacent units to share aviation resources.
- Initiate ICS structure for detection and management of incident activity in each Branch.
- Assign detection and operational resources to Branches based on IC priorities.
- IC will work from the Lightning ICP and continue to coordinate with the ECC for resources.

All lightning fire detection and suppression activity will move to the Lightning Plan ICS organization and remain independent of the normal Unit ECC operations.

Field Operations

IC will be responsible for the tracking of all resources assigned to each Branch. It is the responsibility for the IC to reconcile resource status with each Branch at regular intervals to ensure appropriate Plan resource status.

Each Branch will have geographic/functional responsibility for the detection and suppression of fires that occur as a result of lightning activity, or are found incidentally by detection operations. The IC will create what ever ICS structure necessary to manage span of control and complexity. Branch will have control of

all resources assigned to the respective area/function and will allocate those resources as needed to manage incident activity.

The Branch will request, assign, and status all resources needed for operations related to their respective area/function.

Branch will utilize an alpha numeric system to name and track all incidents that occur within an assigned Branch.

Possible Format: "Branch Name" – "Number"; El Dorado Lightning 1, Amador Lightning 1

Branch will notify the IC of any new incident with the Name, Legal Location & Lat Long, Geographic Description, and Size.

Branch will be responsible for the mapping and tracking of all incidents within the assigned area/function.

All operations resulting from the implementation of this plan will utilize the original Incident Number that was used activate the plan.

In the event a detected lightning fire or other incident overwhelms the Branch's capability, the Branch Director will advise the IC who will then notify the Unit ECC directly and transfer the incident, as a new incident, back to the Unit. A new incident number will be assigned and the incident will retain the original designation as the new incident name. The new incident IC will be assigned by the Branch Director and further management of the incident will occur as any other.