SECTION IV: PRE-FIRE MANAGEMENT STRATEGIES

A: FIRE PREVENTION

Ignition Analysis

Katrina Blumer – Battalion Chief, Prevention Bureau

2011 Annual Wildland Ignition Statistics – Unit Wide *(add 6-2012)*

Like most Central Sierra Units, Tuolumne Calaveras Unit experienced a decrease in fires during the 2011 fire season. This decrease was due in large part to a weather pattern that was wetter and cooler than average and the timing of wet storms that rendered fuels less susceptible to ignitions.

TOTAL FIRES AND ACRES BY CAUSE:

2011

Cause	Number of Fires	% of total	Total Acres
Control Burning*	77	28	75
Undetermined	60	22	357
Equipment Use	33	13	802
Electrical Power	26	10	45
Misc/Other	23	8	143
Arson	17	6	486
Campfire	10	4	3
Playing with Fire	8	3	6
Lightning	7	2	1137
Smoking	5	2	17
Vehicle	3	1	6
Railroad	2	1	46

Table:4A-1 * aka debris burning

ANALYSIS OF FIRES BY CAUSE: *(add 6-2012)*

- **Control Burning (Debris): 77 fires 28% of total**
  Control burn escapes remained the leading cause of wildland fires though no large fires resulted from an escape. Control burn escapes have decreased steadily in the Unit due to an array of prevention activities including heavy media use, and a burn permit administration program in targeted areas that includes multiple hand-outs and dedicated counter time at the stations when citizens renew their permits. The transition to night time burning, followed by an early burn suspension by Unit management, also contributed to a decrease.

- **Undetermined: 60 fires 22% of total**
  This was the second leading cause and reflected a lack of confidence by field personnel to state a true cause. The lack of confidence was discussed at Annual

Unit training and appeared to stem from a low level of training. Only two employees in the Unit have attended Fire Investigation 210: Wildland Fire Investigation.

- **Equipment Use: 33 fires 13% of total**
  This was the third leading cause of vegetation fires and was consistent with the Unit average. Large agricultural equipment operated in light fuels caused the greatest number of fires.

- **Electrical power: 26 fires 10% of total**
  This cause includes power line fires as well as other electrical causes including bird strikes. Pacific Gas and Electric is the main supplier of power in the county although there are a number of irrigation districts supplying power on shorter lines. The Unit currently enjoys a good working relationship with all power providers.

- **Misc/Other: 23 fires 8% of total**
  This is a broad category and includes wildland fires caused by structure fires and causes that don't conveniently fit into other categories. It is the goal of the Bureau to reduce the number of incidents assigned to this category that may fit other cause types.

- **Arson: 17 fires 6% of total of total**
  Arson fires decreased in the Unit during 2011 but the decrease was probably due to under-reporting. Tuolumne-Calaveras historically experiences a high percentage of arson fires during peak fire season and has embarked on an aggressive training and response schedule for Prevention Bureau personnel to combat this through assisting engine company operators with investigations.

- **Campfire: 10 fires 4% of total**
  The majority of campfire escapes occurred inside the Woodward Reservoir campground and remained consistent with past years. No significant acreage resulted.

- **Playing with fire: 8 fires 3% of total**
  This number remained steady but confusion among field personnel has historically skewed this statistic. Versions of the LE66 Fire Investigation Report prior to 2012 listed 'firework' under this category so the presence of a firework would automatically be categorized as playing with fire. Additional training for field personnel at annual Unit training and internal memos, helped clarify this cause category. Also, Bureau personnel implemented a juvenile fire setter program in June of 2011 and received 5 referrals from the field.

- **Lightning: 7 fires 2% of total**
  Lightning caused a small percentage of fires in the Unit but in 2011 caused the largest fire. The Milton Fire occurred during a series of storms that moved across the grasslands in the front country. Multiple lightning strikes in close proximity caused three fires that quickly merged into one large fire.

- **Smoking: 5 fires 2% of total**
  Smoking caused a small percentage of fires. All met the weather/environmental conditions for a smoking caused fire and all were admitted to by property owners.

- **Vehicle: 3 fires 1% of total**

- **Railroad: 2 fires 1% of total**

FIVE LARGEST TCU FIRES:

- The five largest fires had a combined acreage of under 2500 acres.

- No residences were lost as a result of these 5 wildland fires.

2011

Five Largest Fires	Acres	Cause
Milton Fire	1122	Lightning
Eastman Fire	330	Equipment Use
Eastman Fire	257	Arson
Cobble	206	Arson
Middle	194	Other/Misc

Table: 4A-2

FACTORS AFFECTING STATISTICS

Compilation of statistics is accomplished through a comparative analysis using CAIRS data, Fire Investigation Reports (FIR) and CAD data. Fire Investigation Reports are the most variable of the three data sets but offer the most detail. Submission of FIR's was less than 60% of total in 2010. In an effort to increase that amount, Prevention Bureau personnel initiated a "late list" and aggressive follow-up for collection of FIR's and at the beginning of 2012 implemented a new policy for fire reporting. This resulted in a dramatic increase in positive tracking and the Unit currently stands at 100% compliance.

Quality of investigations and accuracy of FIR's by field personnel varies tremendously. This variance and the large number of undetermined causes are directly linked to the lack of training of field personnel in modern wildland fire investigation. Field personnel at the Engine Company Officer level have done an excellent job despite the lack of training, and consistently demonstrate a willingness to learn and improve. The Unit has approved offering Fire Investigation 210 courses when budget and time constraints allow.

Dispatch participation in collection of accurate statistics is critical and prior to mid 2011 was not given enough support or emphasis. Communication between field personnel and dispatch to insure capture of an accurate final call type was inconsistent. Education and policy guidelines clarified responsibility for all parties and accurate reporting has

increased dramatically. Support from the ECC Supervisor to the floor personnel has been steadfast.

MEETING CDF'S FIRE CONTROL OBJECTIVES *(rev 6-2012)*

CDF Fire Operations Handbook (7000), section 7001.2 declares : "CDF's fire protection objective states that a system of basic fire protection will be provided so that damages to life, property and natural resources will be held at or below a level acceptable within social, political and economic constraints. Board of Forestry and Fire Protection designates in the Fire Plan that CDF will strive to contain 95% of all unwanted fires at 10 acres or less."

(NOTE: 2011 Unit wide and Individual Battalion ignition statistics and analysis were unavailable at time of publication. It is anticipated that these numbers etc will be available in the second half of 2012. The Fire Plan will be updated here at that time.)

(The fire occurrence statistics below and on subsequent pages are drawn from the "vegfires" aka "ignitionhistory" geodatabase compiled by the CDF Fire Plan program based on CAIRS data.)

2010

TCU 2010 *	CAIRS/Fire Plan Cause Description	Total # of Fires	Total Acres	# of Fires 10 acres or less	% of Total Fires 10 acres or less	Average Acres	Largest Fire Acres	Median Acres
0	Unknown/Unreported	69	0	69	100.00%	0.00	0.00	0.00
1	Undetermined	61	284	56	91.80%	4.66	68.00	0.50
2	Lightning	4	4	4	100.00%	0.88	1.00	1.00
3	Campfire	2	2	2	100.00%	0.85	1.00	0.85
4	Smoking	5	2	5	100.00%	0.38	1.00	0.20
5	Debris Burning	28	13	28	100.00%	0.47	2.50	0.25
6	Arson	16	57	15	93.75%	3.53	48.30	0.43
7	Equipment	29	247	25	86.21%	8.51	116.00	1.00
8	Playing W/ Fire	21	8	21	100.00%	0.37	3.00	0.15
9	Misc / Other	49	75	47	95.92%	1.54	18.00	1.00
10	Vehicle	4	25	2	50.00%	6.30	15.00	0.20
11	Railroad	0						
12	Electrical Power	7	3	7	100.00%	0.40	1.20	0.18
	Annual Totals:	**295**	**719.30**	**281**	**95.25%**	**2.44**	**116.00**	**0.22**

Table 4A-3 * 2011 numbers not available at time of publication

Interpreting the tables:
Comparing the total number of fires to the total number of fires under ten acres gives an indication of the range of fire sizes in any given category

Throughout the categories the average acre size is skewed high due to a very small number of fires within each category, usually between 2-5, that exceeded the ten acre mark significantly. Therefore median[1] fire size is included in order to present a better picture of "typical" fire sizes that relate to the percentage under ten acres figure.

Cause categories of particular note are highlited yellow; individual values bordered in red.

[1] Median: The middle value in a set of statistical values that are arranged in ascending or descending order (fire size in acres); an equal number of values are lower and higher than the median. Example: Eleven fires are reported at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 acres. Six acres is the middle size point, the median size; five fires are less than six acres, five fires are greater than six acres. From the table above: 295 total fires with a median of .22 acres: .22 acres was the mid point fire size - 147 fires were at or less than .22acres, 147 fires were at or greater than .22 acres.

Reducing Structural Ignitability

The communities within the confines of the Tuolumne-Calaveras Unit have always been confronted by the threat posed by uncontrolled wildland fire. The gold rush of the mid-1800's brought the first large wave of non-native American inhabitants into the foothill countryside. The growth off the population has continued unabated ever since. As such the structures within the Unit reflect well over 100 years of the evolution of accepted building materials and techniques. Only within the very recent past have structures been designed and built with a focus on reducing the likelihood of ignition due to wildland fire.

It is a fact recognized by all fire control personnel in the Unit and the local government fire organizations that any ignition can quickly result in a fire that immediately threatens structures. CAL FIRE's entire fire control system is designed to bring to bear a rapid initial attack capable of snuffing out the threat ASAP. Never the less, fires do progress rapidly to the point of being a significant threat to structures. Whether it's 1 acre, 100 or 1,000 acres, structures will be threatened; and some will burn. In the case of small rapidly growing fires a means of structure ignition is direct flame impingement and / or radiant heat. In the case of very large, landscape scale fires a primary means of ignition is airborne embers. The larger the fire, the higher the likelihood that structures will burn, due in part to the fact that there are simply not enough fire control resources available to immediately protect every threatened structure during a rapidly progressing fire. Recognition of this fact by property owners should encourage them to take personal responsibility for improving the safety of their structures by following the steps required and or recommended to reduce the threat of structure ignition.

The Prevention Bureau of the Tuolumne-Calaveras Unit supports three primary means by which the public, in cooperation with Federal, State and Local Government fire control agencies, can reduce the threat posed by direct flame impingement and airborne embers.

- **Fire Hazard Severity Zones and Building Standards and Materials for Building Code Chapter 7A, 2007 California Building Code (CBC)**

  The California Building Commission adopted the Wildland-Urban Interface codes (Chapter 7A) in late 2005. The majority of the new requirements took effect in 2008. These new codes include provisions for ignition resistant construction standards applicable to the Wildland Urban Interface (WUI); with an emphasis on protecting against airborne embers. During this same period of time CAL FIRE initiated a statewide project to update the Fire Hazard Severity Zone designations within the WUI, using the latest science based analysis techniques and geographic information system technologies to delineate those concentrations of wildland vegetation fuels likely to produce embers when involved in fire. Starting with the State Responsibility Areas in 2005 and concluding with Local Responsibility Areas adjacent to or within the SRA in 2008, Fire Hazard Severity Zones were field validated, updated as required and adopted by local government (County and City governing and regulatory entities), before official CAL FIRE maps were produced and released to local government.

The Chapter 7A Building Code requirements and the associated Fire Hazard Severity Zones have been enacted and are being enforced by local government building officials as development plans work their way through the approval process. The updated zones will also be used by property owners to comply with Natural Hazards Disclosure requirements at the time of a property sale. Local government is encouraged to integrate the updated FHSZ's into the Safety Element of their General Plans.

Property owners, developers, contractors, building materials businesses, and product designers can find specific wording and answers to questions regarding Building Code Chapter 7A, Fire Code Chapter 47, PRC 4290 and 91, Title 14 and other related information at the following CAL FIRE Office of the State Fire Marshal website:

http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_codes.php

Maps depicting Local and State Responsibility Area Fire Hazard Severity Zones are available at the following CAL FIRE Office of the State Fire Marshal website:

Tuolumne County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_tuolumne.php

Calaveras County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_calaveras.php

Stanislaus County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_stanislaus.php

San Joaquin County:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_sanjoaquin.php

- **Defensible Space**

Property owners living in State Responsibility Areas (SRA) are required by Public Resource Code (PRC) 4291 to maintain clearance of flammable vegetation around their property. A property owner's clearance responsibility is limited to 100 feet from his or her structure(s) or to the property line, whichever is closer, and is limited to their lands. However, coordination with adjacent landowners to achieve maximum defensible space is encouraged.

Short of expensive remodel and retrofit projects for existing structures, compliance with existing Public Resources Code 4291 requirements is the single most effective means by which property owners can reduce the likelihood of structure ignition due to wildland fire. The Tuolumne-Calaveras Unit of CAL FIRE is committed to helping the population come into compliance with the

PRC4291 clearance requirements: a 30' wide *Defensible Space* zone immediately adjacent to the structure, plus an additional 70' *Reduced Fuel* zone, for a total of 100' of *"Clearance"* around all structures.

The Prevention Bureau and each Battalion in the Unit is actively engaged in PRC 4291 education and compliance efforts, including: on-sight inspections, self-inspection forms, face to face education at the fire stations, participation in community events, close cooperation with Home/Property Owner Associations, and collaborative efforts with the local Fire Safe Councils and Local Government and Federal fire control and land management agencies.

Detailed guidelines for creating defensible space can be found at this CAL FIRE web site:

http://www.fire.ca.gov/fire_prevention/fhsz_maps/fhsz_maps_sanjoaquin.php

Information regarding updates to PRC 4291 requirements is available at this CAL FIRE web site:

http://www.osfm.fire.ca.gov/informationbulletin/pdf/2009/defspacebulletin.pdf

TUOLUMNE / CALAVERAS UNIT 4291 PROGRAM						
2011 *	**July**	**August**	**September**	**October**	**November**	**December**
Property Inspections	**1895**	**135**	**6**	**12**	**0**	**0**
Code Violations	**505**	**0**	**0**	**4**	**0**	**0**
Citations Issued	**0**	**60**	**0**	**0**	**0**	**0**
Prevention / Education Hours	**400**	**40**	**20**	**15**	**28**	**0**

* Numbers prior to July 2011 were unavailable as of Fire Plan publication date. *(add 6-2012)*

Table 4B-1

Throughout the calendar year Unit personnel, VIP's and community groups are engaged in 4291 related efforts. This effort picks up markedly in the months of March through July with the onset of spring and summer weather and the focus on the upcoming fire season. Due to fire activity, inspections by fire station personnel typically drop off starting mid-summer. The Tuolumne / Calaveras Unit is known within the agency as a top producer of property inspections. The Prevention Bureau has methodologies in place designed to coordinate the collection and distribution of 4291 related statistics. *(add 6-2012)*

- **Fuel Reduction Program**

The Prevention Bureau, through its Fire Captain-Pre Fire Engineer position supports and collaborates with a wide variety of agencies and community

members in the planning, organizing, and documentation of fuel reduction projects throughout the Unit.

Starting in 2010 the Pre Fire Engineer began the long slow process of implementing the State Board of Forestry and Fire Protection's new *2010 Strategic Fire Plan For California.* Under that umbrella document this Unit Fire Plan attempts to document all efforts within the Unit to mitigate the threat posed by wildland fire. One of the primary means by which this is undertaken is through on-the-ground projects designed to create fuel breaks or otherwise reduce fuel loads adjacent to threatened communities and help private landowners and organizations reduce the threat within their property boundaries.

Three Fire Safe Councils are active and productive within the Unit:

- Calaveras Foothills FSC in Calaveras County
- Highway 108 FSC in northern Tuolumne County
- Yosemite Foothills FSC in southern Tuolumne County

The tireless dedication of the members of these community organizations has been, and continues to be crucial to the success of fuel reduction efforts in the Unit. The majority of fuel reduction projects within the Unit involve representatives from the local Fire Safe Council. Without their involvement few projects over the past decade would have come to fruition.

- **Community Wildfire Protection Plans** *(rev. 6-2012)*

In early 2011 the Calaveras County Board of Supervisors approved and adopted a new Community Wildfire Protection Plan. This CWPP remains current and reflects the collaboration between the Calaveras Foothills Fire Safe Council, Cal Fire, private industry, Federal land management agencies, non-profit organizations and the general public. As is the case with the Unit priorities reflected herein, the Calaveras County CWPP emphasizes collaborative efforts to mitigate the threat posed by wildland fire through coordinated fuel reduction and public education projects

The Unit continues to anticipate an effort in Tuolumne County to update its Community Wildfire Protection Plan within the next year or 18 months. Due to the natural geographic and demographic division of Tuolumne County caused by the location of the Tuolumne river canyon, preliminary discussions have included a suggestion for splitting the existing, outdated Tuolumne Co. CWPP into separate documents; a north and south county CWPP, each reflective of the unique conditions and geographic separation of the those areas. Due to increasing workloads in the Pre Fire Engineer office the Unit has been unable to actively engage the various Tuolumne County stakeholders on this issue.

CalMAPPER Program *(rev. 12-2012)*

Bruce Lodge FC – Pre Fire Engineer / Unit CalMAPPER Coordinator

As part of the recent effort to thoroughly redesign the State of California Strategic Fire Plan a new Pre Fire Project Framework was designed. One of it's goals was to create a means of documenting and tracking through time the various fuel reduction, forest improvement, enforcement and public education efforts throughout the agency. The key element of the new Framework, designed to provide the means to meet this goal, is the CalMAPPER program.

"The Department of Forestry and Fire Protection (CAL FIRE) has a new Geographic Information System (GIS) database that will be used to collect, manage and distribute information across its fire plan, forest improvement and other wild land fuels reduction programs. This effort has been organized to bring the Department's records from various fuels reduction and forest improvement programs into a common database framework. CalMAPPER_v1 establishes a set of common database attributes, codes and reporting criteria across vegetation management and fuels reduction programs within CAL FIRE. This new database structure and set of tools facilitates mapping and monitoring of past projects, assists in planning future program activities, and helps make this information available to fire and environmental planners and emergency responders." 2 The CalMAPPER program requires the Units to submit data and map updates quarterly; starting March 1st 2012. In TCU the PFE is the designated CalMAPPER coordinator tasked with administering the program locally.

CalMAPPER was distributed to the Units in August of 2011. That fall the annual Pre Fire Engineer Workshop provided the first opportunity for Unit PFE's to get specific guidance concerning the use of the geodatabase and mapping functions. PFE's were offered a description of the immediate program goals and requirements along with a look ahead to the near future enhancements and changes planned. Participants were introduced to the geodatabase and had an opportunity to engage hands-on with it and the mapping tools and processes.

Within TCU CalMAPPER implementation began in December of 2011. The CalMAPPER program requires significant involvement by fuel reduction, forest improvement, community education and fire prevention program planners and managers in the field. A handful of challenges became evident during implementation; orienting and training all these contributors among them. The most significant of all the challenges has been the effort to devise a means by which data and project information could be collected in the field and then easily and in a timely manner be transmitted to the CalMAPPER Coordinator/PFE.

In late 2011 the Unit PFE created an initial version of a data collection form, but it quickly proved to be inadequate once the specific needs of the geodatabase became known. In early 2012 the Southern Region Fire Plan Coordinator released a data collection form to the field. TCU has put this form into wide scale use.

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[2] Chief Banducci's memo to Region and Unit Chiefs, 8-16-11.

Fire Prevention Specialist Programs

Nancy Longmore Fire Prevention Specialist II

In the 1970's, Fire Captain Specialists carried out the Unit's fire prevention education work in addition to law enforcement. Each Battalion had its own Fire Prevention Aide who did wildland property inspections under Public Resources Code 4291, as well as other fire prevention work. The Aides worked for the Battalions rather than the Prevention Bureau. The Fire Prevention Aide positions were eliminated in the late 1970's, but later "came back to life" as Fire Prevention Assistants, eventually to be upgraded to Fire Prevention Specialists (FPS).

Since then, the FPS has been the face of public information and fire prevention education in the Unit, as well as managing a large Volunteers In Prevention program and providing guidance and oversight to a significant portion of the Unit's PRC 4291 inspection program.

A detailed accounting of the agency's Volunteers In Prevention program history is available at the CAL FIRE website, here:

http://www.fire.ca.gov/communications/communications_volunteers.php

An excerpt from the above web site is of particular note: "History has shown that when VIP teams provide fire prevention teaching in grades K-3rd, child-related fires in those areas have dropped by 50 percent. In addition, VIPs educate thousands of children and their parents about fire prevention by participating in fairs, displays, and parades each year. Volunteers are trained to make preliminary wildland homeowner property inspections for fire safety as required by Public Resources Code 4291, and to discuss with homeowners ways to make their homes fire safe. These one-on-one contacts are an increasingly important education tool as the population in California's wildlands continues to grow."

Currently within TCU about 150 VIPs perform a wide variety of work under the supervision of the Unit's Fire Prevention Specialist and Battalion personnel. This work greatly expands the reach of the fire prevention message in the Unit, well beyond what the corps of company officers and firefighters could hope to achieve. Most of these volunteer folks are retired, but many seasonal firefighters participate during the off season, accruing valuable time and experience that help move them toward their career goals. This dedicated group of VIP's faithfully supports fire prevention education efforts in hundreds of school programs, community events, and the Unit's 4291 inspection program, among others.

The VIP group also includes about 20 Amateur Radio Operators (Hams) who stand ready to supplement CAL FIRE's communications with their sophisticated equipment, or assist in other ways during a major incident.

Throughout the 1980's and 90's the surge in development of relatively inexpensive rural property in the foothills coupled with overpriced urban housing triggered a mass migration of people seeking not only primary housing, but recreational and investment properties. Many of these new residents throughout the Unit were, and still are, unaware of the wildfire danger inherent in their new rural environment, nor how to

mitigate it. Among the growing population are residents physically and/or financially unable to do the necessary clearance around their homes. Still others seek isolation for various reasons ranging from a simple desire to "get away from it all' (including government "interference"), to those who make their living via illegal activities.

Reaching and educating these various groups, and gaining their compliance with defensible space requirements is always challenging, frequently rewarding, often frustrating, and potentially life-threatening.

These challenges increased in 2005 when the defensible space requirements increased from 30 feet around structures to 100 feet. The confusion this created for both inspectors and property owners is lessening somewhat, but giving the public a consistent interpretation of the law remains a challenge.

To resolve these challenges, TCU's current FPS developed and implemented an award winning three part education and training program.

Three Part Prevention and Education Program: Developed locally by the Unit's Fire Prevention Specialist, this program brings consistency to the prevention message, the training of VIP and agency inspectors, and the conduct of on-site inspections. CAL FIRE personnel, Volunteers In Prevention, and other community members provided input, and viewed all three tools for clarity and user-friendliness. In 2010 this innovative program and the Unit's Fire Prevention Specialist, received the CAL FIRE "Director's Innovation Award."

- **Part One:** A locally developed educational handout, intended to simplify and clarify the defensible space requirements. It also explains the reasons for those requirements so that people with no knowledge of fire behavior can understand why defensible space is important.

- **Part Two:** An easy-to-use defensible space inspection form. This locally developed form, using the agency LE100 as inspiration, contains detailed explanations of violations and how to correct them. Used by agency and VIP inspectors alike, its checkbox format acts as a detailed guide for inexperienced inspectors, a prompt for veteran inspectors while minimizing the amount of writing required, and speeding up and standardizing inspections.

- **Part Three:** Reaching and teaching an ever-changing crew of inspectors has always been time-consuming and haphazard. To improve the consistency of the final product (effective inspections) and reduce the amount of time anyone had to spend teaching new inspectors, a "PRC 4291 Inspection Training" PowerPoint program was designed to be a stand-alone, self-paced training program. Jokingly referred to as "the world's longest PowerPoint", it uses hundreds of pictures, to help explain the history of today's fire problem and what property owners need to do about it. It also outlines in step by step detail exactly how to perform a defensible space inspection, and how to counter common objections. A companion version, "Defensible Space For Homeowners" is suitable for presentation to community groups or for use by homeowners.

4291 Inspection Program / Community Partnerships: TCU's fire prevention program has always included many partners, from the community and other agencies. For example, in the late 1980's and early 1990's, VIPs regularly inspected the Rancho Calaveras subdivision west of Valley Springs, in Battalion 1. They were so effective in educating the relatively sparse population about the necessity for and benefits of defensible space, that they literally worked themselves out of a job. Property owners did their clearance every year without prompting, and the inspection crew dissolved.

As the mission of the department has evolved throughout recent decades, and the day to day operations of engine companies have expanded, it has grown more and more difficult and unrealistic to rely solely on fire station personnel to produce the volume of 4291 inspections needed to address the challenge of 4291 education and enforcement. The incorporation of the VIP's into the inspection program has greatly expanded the ability of the agency to educate the population and enforce 4291 regulations. No better current example of that success is found within Battalion 4, the greater Arnold area of Calaveras County. By the late 90's the efforts of VIP's recruited from within Homeowner Associations and elsewhere, under direct supervision of agency company officers, had succeeded in reducing the number of debris burn escapes to near zero in any given year. To this day the defensible space inspection program has continued to build strong partnerships throughout the Unit's communities.

- **Twain Harte Community Services District:** Captain Mark Slater of the Twain Harte Community Services District Fire and Rescue Division had been inspecting lots for years, but CAL FIRE was unable to follow up with citations for non-compliant properties. In 2010, the Unit engaged in a focused effort to support THCSD-FD enforcement of PRC 4291 as their inspection program swung into high gear.

  In 2010 CAL FIRE wrote 56 citations in the Twain Harte Fire District. In the process, it became obvious that very few lot cleaners really understood what PRC 4291 requires. Many were still clearing to pre-100' standards, and some weren't even doing that. Even more owners were doing nothing at all. In Calls came flooding into the office of Captain Slater, whose existing depth of knowledge and practical experience with 4291 issues, recently heightened by his study of the Power Point training materials, proved invaluable to the community. In a commendable example of collaboration he often filled in for the Unit FPS, doing site-visits with owners or lot cleaners, or re-inspections, or handling phone inquires. In April 2011 Captain Slater and the FPS put on a training program attended by about 15 lot cleaners.

  In 2011, CAL FIRE issued no citations. Nonetheless we achieved a gratifying level of compliance by writing the dollar amounts of potential fines on the inspection notices. When property owners realized they were facing fines ranging from four hundred fifty dollars to over two thousand dollars, they were generally willing to do the clearance. CAL FIRE also aims to make sure these property owners understand why they have to do this clearance, and its importance to the community as a whole.

- **Groveland Community Services District, Groveland Fire Department:** Chief Shane Warner is a staunch proponent of fire prevention, especially defensible space, and collaborates with CAL FIRE at every turn.

    - **Pine Mountain Lake Association:** Located within the Groveland Community Services/Fire District is another key player - PMLA. In the last 5 years they have become increasingly pro-active with their fire prevention activities. They have always had a fire safety officer who was also responsible for defensible space inspections. PML requires corner-to-corner clearance on ALL lots, including vacant lots. With one inspector and 3564 lots (739 unimproved) the inspection/re-inspection/enforcement process was sketchy at best. More lots than not went un-cleared year after year, especially the unimproved ones. Beginning in 2008 PML has hired 3 temporary inspectors to inspect every single lot. The Unit's Fire Prevention Specialist provides training for these inspectors, using the Power Point training materials.

      Subsequent years have brought further refinements to the program, including stringent deadlines, mandatory compliance, and Association levied fines big enough to make most people take notice. When owners don't cooperate, PML hires contractors to do the work for them, then bills the owner, and adds administrative costs and a fine. As a result of these efforts, compliance has increased dramatically, as seen in the fact that CAL FIRE hasn't issued a citation in PML since 2008.

      The Association is also engaged in fuel reduction efforts on community greenbelt lands in cooperation with the local Fire Safe Council, in its effort to gain Firewise Community certification. Of 1,207 acres of green belt, common areas, wildlife corridors and stream beds, 475 acres have been treated as of 2011. During 2010 and 2011, 7,000 cubic yards of slash have been burned; 4,000 cubic yards of slash have been chipped. 10,000 cubic yards of composting material was worked in 2010.

    - **Yosemite Vista Estates:** This is a small retirement community within the Groveland Fire District, a few miles east of Groveland, surrounded by dense wildland vegetation. A number of years ago they dedicated a large number of maintenance person-hours to reducing the fire hazard on individual lots, concurrent with a Yosemite Foothills Fire Safe Council effort to clear around the community and on the common area lands inside the community. The managers of Yosemite Vista continue to work closely with the Unit FPS when questions or concerns related to fire safety and defensible space arise within the community.

- **Tuolumne County Superior Court:** Under the terms of PRC 429, the court levies fines over $450 per violation, but drops the fine amount to a flat $250 when the violations are corrected, regardless of the number of violations that were cited. This incentive has motivated property owners throughout Tuolumne County, while at the same time supporting the credibility of agency and volunteer efforts in the field toward enforcement.

- **Sonora City Fire Dept / Sonora Community Estates:** A retirement community located in east Sonora city within the jurisdiction of the Sonora Fire Department is able to leverage a personal tie to the Unit's FPS, to receive a defensible space consultation every year or so. The current community manager recognizes the vulnerability of his elderly and disabled population, and is determined to make them safer. The hazardous fuel conditions within the community have gone from potentially catastrophic to nearly non-existent in the last four years.

  During 2011, the work focused on extending the perimeter clearance to Sonora Community Estates' property boundaries. Due to the dramatic differences between the condition of the SCE property and that of it's neighbors, those boundaries are now clearly visible on the ground.

- **Yosemite Foothills Fire Safe Council:** The Unit Fire Prevention Specialist helped start the Yosemite Foothills Fire Safe Council, and has been a board member since its beginning in 2002. YFFSC has obtained grant funding for community chipping projects, senior and disabled defensible space assistance, roadside clearing, fuelbreaks, and an emergency water storage system, among other projects. They maintain a close cooperative relationship with the Unit Pre-Fire Engineer and Battalion 6 personnel.

- **SouthWest InterFace Team:** The Unit Fire Prevention Specialist and Pre-Fire Engineer maintain memberships with SWIFT, a collaborative effort of city, county, state, and federal fire and land management partners to reduce the threat of wildfire in a 132,000 acre area of southern Tuolumne and northern Mariposa counties. This group has met monthly since 1999, to help coordinate interagency projects such as fuelbreaks and other strategic pre-fire planning and community protection activities.

Fireworks Prevention and Enforcement : During the 4th of July holiday, Tuolumne County's ban on fireworks was openly ignored for years by many Pine Mountain Lake residents and visitors. Since 2006 PML has requested that the TCU FPS patrol the subdivision during the holiday period. PML's Security Department receives calls about illegal fireworks activity in the subdivision, and relays them to the FPS. When possible, PML Security personnel accompany the FPS on the contact, and assist as needed. In 2009 the FPS began blanketing the business districts of Groveland and Big Oak Flat with "Fireworks Prohibited In Tuolumne County" fliers. Virtually every business in the community, including every pump at the largest gas station, displayed these day-glo orange "no fireworks" signs. Fireworks activity in the greater Groveland / south county area of Battalion 6, and Pine Mountain Lake in particular, dropped noticeably. No citations were issued in 2010, and only one was issued in 2011 (in PML). Also in 2010, those same signs appeared (in multiples) at every fireworks stand in Oakdale, a major fireworks supplier to the Mother Lode. This program is ongoing.

California Department of Transportation is another cooperator in the effort to eliminate fireworks as a fire cause. Cal Trans provides display space for the message "Fireworks are illegal in Tuolumne County" on all its electronic highway signs along Hwy 108/120, starting about 10 days before the 4th of July holiday.

Schools Team Teaching Program: Perhaps the largest single component of TCU's fire prevention program is our elementary school program, active within both Calaveras and Tuolumne counties. Each year team teachers from CAL FIRE, the Volunteers In Prevention, and the U. S. Forest Service (Stanislaus National Forest) visit 25-30 schools. This group presents approximately 120 fire safety programs to over 3000 kindergarten through third grade students; one or two classes at a time,

During the 2011 / 2012 school year, the Team Teaching group visited 26 schools to present 159 programs to 3518 students.

The team teaching approach has been used since at least the 1980's. Classes are divided into small groups, and kids receive individual attention that encourages even the shy ones to interact with a "ranger" or a "firefighter."

In 2007, a dedicated VIP took over and streamlined the program reservation system, coordinating the annual distribution of program letters to schools throughout both counties of the Unit, including one Mariposa County school that serves Tuolumne County students. The letter explains the program to school officials and invites them to participate. Nearly 100% of the schools invited elect to take advantage of the program.

The program targets kindergarten thru 3rd grade students, aged 5-9 typically, with age appropriate messages concerning Smokey Bear's 5 rules of fire and match safety, use of the 911 system including address and phone number knowledge, and Stop Drop and Roll situations

The importance of the 911 system portion of the program has been growing recently as it has become evident in recent years that at least half the children in this Unit do not know their address or their telephone number. There is anecdotal evidence that even a percentage of local teenagers don't know their street address. We have started emphasizing the importance of this to parents, sending home letters stressing how critical it is for kids to know their address, phone number, and area code.

Each school program finishes with an appearance by Smokey Bear and a final review of everything they've learned. Letters that we receive from the students after these programs clearly indicate that the kids have learned and taken to heart the messages that they've heard. This is further born out when these youngsters come to our fire prevention booth at the county fairs and other events, and are able to answer correctly when quizzed on the topics presented in their class program months, even years, before. Also evident at these booth encounters is that many kids from out of the area are quite unfamiliar with the fire safety messages our local students have learned since kindergarten. By interesting contrast – even very young children from out of the area almost invariably know their addresses. Another more serious example of the value of these lessons is a recent case where within days of learning Stop, Drop, and Roll one kindergartner fell face down into a campfire. She covered her face and rolled out of the fire, while her classmates helped her to roll, and even patted dirt on her clothes where they were still burning. The girl escaped with barely-visible scarring.

The local team teaching concept promotes innovation on nearly an everyday basis; the larger and more varied the team, the more often new ideas surface. One of the biggest innovations was completed in 2011.

Tired of using twenty or thirty year old "window shade" style teaching aides to teach 911 use, young brains on the Forest Service side of the team took the lead in developing interactive videos featuring realistic emergency scenarios with stop-action capability. They filmed a draft of what they wanted, got administrative support, obtained grant funding, lined up the film production department of Modesto Junior College with script-writers, actors, directors, producers – and during the 2011-12 school year the first-ever Interactive 911 Training Video was put to use locally and state-wide, if not nationwide. CAL FIRE is a proud supporting partner and participant in this project.

Public Information: While the Unit Fire Prevention Specialist is technically the Unit's Public Information Officer (PIO), since 2007 Unit Resources Secretary Lisa Williams has carried out the majority of the PIO work. Lisa is the person the media call first when they hear emergency traffic on their scanners. She also maintains the lists of names and numbers of people who need to be notified of news from TCU CAL FIRE. This intra-agency cooperation between the Unit's Prevention and Natural Resources bureaus has been instrumental in allowing the Fire Prevention Specialist to focus efforts on the purely Prevention related programs and projects described above, while at the same time streamlining and making more efficient the dissemination of Unit information to the news media and cooperators

Fairs & Community Outreach: VIP's from both counties join with the Unit's Prevention Specialist in staffing information booths and static displays at local county fairs, home and garden shows, and other community events that provide information on defensible space, fire safe landscaping, outdoor burning, fire safety in the home, and all aspects of fire prevention pertinent to children and adults

- **Camp Smokey:** TCU has been supporting the agency's California State Fair project annually for many years, via the involvement of the Unit Fire Prevention Specialist. Known as "Camp Smokey", this interagency fire prevention education exhibit at the California State Fair, is actually much more than an "exhibit". At Camp Smokey thousands of children and adults learn about fire safety in the home, how to get out of a burning house, the difference between good fire and bad in the environment, how to play nice in the woods, and of course, who Smokey Bear is. Even though this event is far beyond the confines of the Unit, we regard it as an important element of our own Prevention program in that it reaches tens of thousands of people every year, any one of whom might learn to prevent a fire or save a life in our Unit.

Ham Radio Incident Support: Several dozen amateur (ham) radio operators await the opportunity to put their sophisticated communication equipment into service should traditional communication avenues fail or become overwhelmed during a disaster. These individuals meet regularly and share knowledge and the latest technology. TCU has used these VIP's many times in the past. Their service has proved invaluable both

during large fires, and during times of high fire danger when they have carried out Red Flag Patrols as mobile lookouts watching for activities that could start wildfires.

Resource Management

Adam Frese – Area Forester

Forest Practice Overview

CAL FIRE Area Foresters work with private landowners, foresters, and licensed timber operators to ensure timber harvesting on private property is conducted in compliance with the California Forest Practice Rules. CAL FIRE is the lead agency, and works with other agencies such as the Department of Fish and Game, Regional Water Quality Control Board, and California Geological Survey to evaluate timber harvest plans when they are in the review process. Once the plans are approved, CAL FIRE Foresters conduct inspections to ensure timber operations are being conducted in accordance with the rules, and follow-up inspections to ensure the timber harvest plans have been properly implemented.

From 2005 to 2009, there was a steady decline each year in the number of plans submitted due to poor market conditions. Since 2009 there has been an increase in the amount of plans submitted. The Sierra Pacific Industries saw mill in Standard re-opened in 2011. The re-opening of this saw mill has increased timber harvesting activity in the Unit. Since 2010, 17 timber harvest plans have been submitted in the Tuolumne/Calaveras Unit, covering approximately 8,175 acres. The Lily THP and Blueberry THP in the vicinity of Winton Road include approximately 700 acres of fuel break. The South Park THP includes approximately 138 acres of fuel break around the perimeter of Big Trees State Park.

There are 32 non-industrial timber management plans in the Unit covering approximately 11,562 acres. Non-industrial timber management plans do not have an expiration date. Other timber harvest permits include emergency notices, and exemptions. There have been several harvests completed in the Unit under Emergency Notices for Fuel Hazard Reduction and Forest Fire Prevention Exemptions. These two harvest documents are designed to create shaded fuel break conditions. The Forest Practice Rules have very stringent fuel reduction requirements when using these two permits, so harvests typically do not generate much revenue; however, since 2005, approximately 660 acres have been treated under emergency notices for fuel hazard reduction, and approximately 342 acres have been treated under Forest Fire Prevention Exemptions.

Hazard Fuel Reduction / Risk Mitigation

Resource Management has had an increasing role in fuel reduction projects throughout the Unit in recent years, and will continue to remain heavily involved in the years to come.

The Proposition 40 Program was implemented statewide in 2005 in the wake of the passage of a state bond act in 2004. TCU hired a “Prop 40 forester” in January of 2005

to coordinate this new program. CAL FIRE's share of this bond money provided an opportunity to fund two previously existing agency mechanisms for facilitating projects: the California Forest Improvement Program and the Vegetation Management Program; and it motivated the creation of the agency's new Community Assistance Grants program in order to meet the requirement for involvement by non-profits. Proposition 40 funding was extended through March of 2011and the program was suspended as of April 1, 2011. A new round of Proposition 40 became available in 2012. The Tuolumne/Calaveras Unit encumbered funds for two new Community Assistance Grants (CAG) and several CFIP projects.

- **Community Assistance Grants (CAG):** CAL FIRE Foresters work with community Fire Safe Councils, CAL FIRE camp program crews, private foresters, and contractors to complete fuel reduction projects in the Unit. Battalion Chiefs provide project strategic validation and input during the planning phases of projects. Under this program approximately 702 acres were treated for fuel reduction since 2009. Ongoing maintenance of those treated acres is now the greatest challenge to their continuing effectiveness as fire control points and defensive barriers.

  With the new round of funding in 2012 the Calaveras Foothills Fire Safe Council has sponsored the Bar XX project in Battalion 2, and the Highway 108 Fire Safe Council has sponsored the North Bald Mountain project in Battalion 5.

- **The California Forest Improvement Program (CFIP):** This program encourages private and public investment, and improved management of California forest lands and resources. CFIP is a cost share program, where the state pays 75% of the cost of thinning, planting, herbicide application, mastication etc. Historically CFIP was funded from revenue generated by the State Forest program. Proposition 40 funds became a key source of funding starting in 2005. In the Unit Proposition 40 funded CFIP projects have treated approximately 164 acres since 2009. With the new round of funding in 2012, the majority of CFIP projects in the Unit will focus on maintaining areas that have previously been treated.

- **The Vegetation Management Program:** is a cost sharing program that allows landowners to contract with CAL FIRE to use prescribed fire, and other means, to accomplish fire protection and resource management goals. Since 2009, approximately 597 acres in the Unit were treated for fuel reduction under the VMP.

  Availability of resources and shrinking burn windows are challenges to the continuing implementation of VMP projects.

  The following VMP projects are currently approved in TCU:

  - **Crook VMP** (Rx-CSR-054-TCU) – Batt. 6. This project is approximately 793 acres in size. The project is located near the community of Groveland. This project helps manage fuels along the Pine Mountain Lake, or Rim Truck Trail, fuel break.

- **Winton/Schaad VMP** (Rx-CSR-051-TCU) – Batt 3. This project is approximately 6,342 acres in size. The project is located near the community of West Point on property owned by Sierra Pacific Industries.

- Other VMPs in the planning phase include the Whittle VMP near Fowler Peak – Batt. 2, the Hetch Hetchy VMP in the Moccasin area, and the Kistler Ranch VMP between Highway 108 and Tulloch Reservoir – Batt.6.

- **Federal Fuels Grant Program (FFGP):** is the working name of the Cooperative Fire Assistance Grant - Northern California Disaster Supplemental. Implemented in early 2010, this is the most recent funding source for fuel reduction projects available to the agency and cooperators in the wake of the end of the Prop 40 program. The Tuolumne/Calaveras Unit applied for 10 projects under this program, which reimburses CAL FIRE camp program hand crews $200.00 per day to perform hazard fuel reduction and timber stand improvement work. Project suggestions and strategic validation was obtained from CAL FIRE Battalion Chiefs, with cooperation and input from local fire district authorities, and Fire Safe Councils. The TCU Area Forester coordinating the projects received input from CAL FIRE archaeologists, and personnel from the California Department of Fish and Game, Regional Water Quality Control Board, and U.S Fish and Wildlife Service during the preparation of the project CEQA documentation.

  In Calaveras County six FFGP projects were proposed. All six projects were new fuel reduction projects. The four proposed projects in Tuolumne County consisted of maintenance of fuel breaks established under the Proposition 40 program. The projects in both counties are beneficial to the adjacent communities by reducing fuel loads in strategic locations. The agency's fire control capabilities are also enhanced through the opportunity that this project work provides our fire crews to prepare for fire season – improving job skills and physical fitness. This project work requires hand crews to use chainsaws and hand tools, fell trees and cut brush, burn piles, and work on steep, un-even ground.

  In Tuolumne County, work has been completed on 2 of the 4 projects and 57 acres of fuel breaks have been maintained through cutting, piling and burning. In Calaveras County 5 of 6 projects have been completed and 154 acres have been treated by cutting, piling and burning. The Unit is on schedule to complete all 10 projects by the April 2013 deadline.

  Calaveras County FFGP projects: (add 6-2012)

  - **Union Public Utilities District Fuel Reduction Project** – Battalion 2: This project is located in Murphy's along Sheep Ranch Road. Approximately 18 acres were treated by cutting, piling and burning. This project had a lot of support from the community, and was proposed by Steve Kovacs of the Murphy's Fire Protection District. This project is complete.

- **Winton/Schaads Fuel Reduction Project** - Battalion 3: This project consisted of fuel reduction on SPI property along Winton Road, and around the Lily Valley Estates subdivision. Approximately 40 acres have been treated by cutting, piling and burning. This project is complete.

- **Gold Strike Fuel Reduction Project** – Battalion 1: This project is located on property owned by the San Andreas Sanitary District. Crews treated approximately 46 acres by cutting, piling and burning. This project is complete.

- **Big Trees Village Fuel Reduction Project** – Battalion 4: This project is complete. Crews cut, piled and burned brush and small trees on approximately 20 acres owned by the Big Trees Village Homeowner's Association. The project complements work done on the adjacent Big Trees Village Fuel Break.

- **Murphys Pines Subdivision Fire Defense Project Phase II - Roads Fuel Reduction Project:** – Battalion 2: This project consisted of crews cutting, and chipping or burning brush along roads in the Murphy's Pines subdivision. This project picked up where crews left off under the Proposition 40 project. This project is complete.

- **Calaveras County Roads Fuel Reduction Project:** This project will maintain work that was done under the Proposition 40 program, as well as some additional roads. CAL FIRE hand crews will work with the County Road Department to cut and chip brush along the road right-of-ways of primary roads in Calaveras County. Roads have been prioritized by B4412 and B4413. This is projected to start in late 2012.

Tuolumne County FFGP projects:

- **Cattle Drive Fuel Break Maintenance** – Battalion 5: This project will consist of cutting, piling, and burning brush that has re-grown in the Cattle Drive Fuel Break near Columbia. The fuel break was established under the Proposition 40 program. The project area is approximately 61 acres in size. 40 crew days have been allotted for this project. Crew work has not started yet.

- **Sierra Outdoor School to Cedar Ridge Fuel Break Maintenance** – Battalion 5: This project is approximately 36 acres in size. The fuel break was established under the Proposition 40 program, and extends from the Sierra Outdoor School at the end of Old Oak Ranch Road to Cedar Ridge. Hand crews will cut, pile and burn brush that has re-grown in the fuel break. No work has been conducted on this project; however, permission has been obtained from landowners to start work. Work is expected to start in June or July of 2012.

- **Mt. Havalia Fuel Break Maintenance** – Battalion 5: This project is complete. Crews treated approximately 34 acres by cutting, piling and burning brush. This fuel break was established in 2007 under the Proposition 40 program. Maintenance will be required at least every three years on this fuel break.

- **Turnback Creek Phase 2 Fuel Break Maintenance** – Battalion 5: This project is around the Silver Spur Camp near the town of Tuolumne. It is connected to the Mt. Havalia Fuel Break by the Baker Ranch. This fuel break was established under the Proposition 40 program. Crews treated approximately 23 acres by cutting, piling and burning. This project is complete.