Shasta-Trinity Unit
Strategic Fire Plan

Last update: 1 May 2015

UNIT STRATEGIC FIRE PLAN AMENDMENTS

Date	Section Updated	Page Numbers Updated	Description of Update	Updated By
12/22/12	Appendix A	39-40	Update to projects	DW
12/22/12	Appendix B	41	Update goals and objectives	DW
12/22/12	Appendix C	42	Removed codes added Communities at Risk	DW
12/22/12	Appendix D	43-48	Update maps to 2012 ignitions	DW
4/5/14	Section II	7	Update collaborators	DW
4/5/14	Section III	9-10	Update values and communities at risk	DW
4/5/14	Section V	39-40	Added Camp and Latour	DW
4/5/14	Appendix A	41-43	Update project list	DW
4/5/14	Appendix C	45	Add Ignition Analysis	DW
4/5/14	2013 Supplemental	53	Add 2013 Supplement	DW
4/09/15	Appendix C	44 and 52	Updated Ignition Analysis	DB
4/23/15	Appendix A	40	Updated Calmapper Charts	DB

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SIGNATURE PAGE

Unit Strategic Fire Plan developed for the Shasta/Trinity Unit

This Plan:

- Was collaboratively developed. Interested parties, federal, state, city, and county agencies within the unit, have been consulted and are listed in the plan.
- Identifies and prioritizes pre fire and post fire management strategies and tactics meant to reduce the loss of values at risk within the Unit.
- Is intended for use as a planning and assessment tool only. It is the responsibility of those implementing the projects to ensure that all environmental compliance and permitting processes are met as necessary.

5/1/15

Unit Chief — Date

Mike Hebrard

05-01-15

Pre-Fire Engineer — Date

Del Beaudry

EXECUTIVE SUMMARY

The Shasta / Trinity Unit Strategic Fire Plan is a living document. It is intended to be updated yearly with Addendums, as the Unit makes progress on meeting statewide and Unit priority goals and objectives as identified in the 2010 Strategic Fire Plan for California.

This plan recognizes that fire will occur in California, specific to Shasta and Trinity Counties, and works to answer the question of "how do we utilize and live with that risk of wildfire?" Our goal is to create a state that is more resistant and resilient to the damaging effects of catastrophic wildfire while recognizing fire's beneficial aspects. Our goals are to enhance the protection of lives, property, and natural resources from wildland fire, as well as improve environmental resistance to wildland fire. Community protection includes safeguarding and protecting the public, emergency responders, private property, resources, and other improvements.

The plan is divided into battalions, or geographical boundaries, where fuels, weather, topography, and fire history, specific to each battalion, are identified. Firefighting strategies and tactics are pre-planned and evaluated for success, and actions such as fire prevention education and pre-fire inspections are pursued to educate the public to enhance life safety and fire protection capabilities. Through identifying communities at risk and assets at risk, project areas can be targeted for hazard reduction and mitigation, within monetary and staffing constraints, and collaboration with Stakeholders such as private landowners, Fire Safe Councils, Fire Wise Communities, Resource Conservation Districts, and other federal, state, and local agencies.

This plan will utilize the seven goals of the Strategic Fire Plan for California and incorporates them into the planning and implementation process and can be summarized as:

- Improved availability and use of information on hazard and risk assessment
- Land use planning: including general plans, new development, and existing Developments
- Shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans (CWPP)
- Establishing fire resistance in assets at risk, such as homes and neighborhoods
- Shared vision among multiple fire protection jurisdictions and agencies
- Levels of fire suppression and related services
- Post fire recovery

SECTION I: UNIT OVERVIEW

UNIT DESCRIPTION

The Shasta / Trinity Unit is located at the northern end of the Sacramento Valley. It encompasses most of Shasta County and portions of eastern Trinity County. Federal lands are administered by the Shasta / Trinity National Forest, the Lassen National Forest, the Bureau of Land Management, the Bureau of Indian Affairs, the Bureau of Reclamation, and the National Park Service, are all contained within the Unit.

Traveling west to east on Highway 299 from Weaverville to the Lassen County line is approximately 150 miles. South to north on Interstate 5 from Cottonwood to the Siskiyou County line is approximately 75 miles. In these distances, there are distinct differences in climate, fuels and topography, all of which affect fire behavior and fire danger rating.

The Unit includes portions of the Great Valley, the Southern Cascade and the North Coast Ranges, and the Modoc Plateau. The eastern slopes of Shasta County gently rise across the toe of the Southern Cascade Range, towards the Modoc Plateau while to the west and north the land abruptly rises to the Klamath Mountains. Southern Trinity County and the southwest corner of Shasta County are partially located in the North Coast Range.

Having mountains to the north, west, and east, the Sacramento Valley to the south, and the Pacific Ocean 150 miles to the west makes weather forecasting difficult and produces some unique weather. The CAL FIRE State Responsibility Area (SRA) within the Unit is divided into five distinct National Fire Danger Rating System (NFDRS) areas based on climate, topography, and fuels, and modified to match existing Wildland Fire Response Area boundaries. These NFDRS areas reflect historical average burning conditions and have been used for fire dispatch and planning in the Unit since 1994. Areas of the Unit not included in the NFDRS areas are in the USFS Direct Protection Area (DPA) and are mostly in the Interior Timber planning belt.

The Redding Emergency Command Center uses the areas to determine the Fire Danger Rating and Dispatch Levels for the Unit based on daily weather observations taken from a Remote Automatic Weather Station (RAWS) in each area.

Fire Danger Rating Areas

Timber West

This area is the Douglas-fir/Ponderosa Pine Forest of the CAL FIRE DPA in Trinity County. The area is managed for timber production; therefore logging slash is a common fuel component. Sufficient undergrowth of ceanothus and manzanita is present to require consideration of a live fuel component. Fire behavior fuel model 10 and

(NFDRS) fuel model G, are used in this area. The larger communities within this area are Hayfork, Lewiston, and Weaverville. Smaller communities exist as well as various areas of urbanization. Most of the urbanization lies in the lower elevations of Trinity County in valleys or along streams. The terrain is very steep containing large amount of heavy fuels. The terrain in Trinity County contributes to extended travel times for resources.

Trinity County has experienced several catastrophic fires in recent history such as the Lowden fire (1999, 1,945 acres), Oregon fire (2001, 1,695 acres), Junction fire (2006, 3,130 acres) Coffin fire (2009, 1,098 acres) and the Oregon fire (2014, 580 acres) These fires not only damaged valuable timberlands, but also caused significant structure and private property loss.

Brush Area

The mid elevations (1,000 – 2,000 ft.) surrounding the Sacramento Valley are merged into the brush area. The area is typically chaparral with chamise and manzanita. These elevations include oak woodland fuels with a high mixture of brushy fuels. Communities include the City of Shasta Lake, Mountain Gate, Shasta, Keswick, and French Gulch.

Most of the lands to the northwest of Redding were void of vegetation by the early 1900's due to copper mining and smelter operations. This area now consists of mostly brush fields that are 50 years old or older. In 2004 the French fire (12,675 acres) and in 2008 the Motion fire (28,330 acres) burned in this general area thereby reducing much of the dead fuel loading. While the fuels in the mountains off the valley floor were reduced by fire, the brush fields just off the valley floor were not affected. These areas remain to have sufficient dead fuel and fine fuel to sustain large and damaging fires (Fire Behavior fuel model 4, NFDRS model F).

The lands to the west of Redding, located at the base or lower levels of the mountains are covered mostly in brush or oak woodland with a heavy brush understory. This area is also highly urbanized which creates a high threat to life and property from wildfire. Subdivisions that were developed prior to 1982 often have narrow one-lane roads and do not have community water systems. Access to structures in this area is difficult due to most of them having a single access road. Some subdivisions were developed with "Fire Emergency Access" roads, however many of these roads are no longer maintained and are overgrown making them impassable. Communities in the Brush Area west of Redding include Igo, Centerville, Shasta, Keswick, The City of Shasta Lake, and portions of the City of Redding.

The brush area east of Redding is generally located in rangeland. However urbanization in the brush area exists in the western edge of the communities of Shingletown, Whitmore, Oak Run, Round Mountain, and Montgomery Creek. This area has experienced significant fires in the past and with the current urbanization can expect future fires to be more damaging. Some of the past fire is the brush area have been the Fern fire (1988, 7,558 acres), Bear fire (2004, 10,441 acres) Pine 2 fire (2008, 1,193 acres) Bully Fire (2014, 13,661 acres) and the Gulch fire (2014, 1,375 acres)

Valley Floor (Grass Area)

This is the south-central part of the Unit extending from the Sacramento River outwards to an approximate elevation of 1,000 feet. This is the most urbanized area of the Unit and includes the cities of Anderson, Redding, and the communities of Bella Vista, Cloverdale, Millville, Olinda, and Palo Cedro. The area is typically grass oak woodland, with blue oak, valley oak, gray pine, and annual grasses. There are also large areas covered by various brush types, and some of the woodland areas have a dense brush under story.

Significant fires have occurred on the valley floor such as the Canyon fire (1999, 2,579 acres), Jones fire (1999, 26,202 acres), Bear fire (2004, 10,441 acres), Dale fire (2012, 1,037) and Clover fire (2013, 8077). Fires in these fuels have an increased amount of damage during North Wind events. Since the primary fuel is annual grass the fire danger remains every year even after a significant fire. The fine fuels react quickly to weather changes, especially wind. Fire Behavior model 2 and NFDRS model C are used.

Timber East

The Timber East area is the forested area east of Redding. The area extends from the 2,000-foot elevation of the Sacramento Valley to Highway 89. The majority of the area is managed for timber production. This is a mixed species conifer forest that varies from the Timber West Zone in topography, weather and some hardwood species. Slash and brush are part of the fuel component. Fire Behavior Fuel Model 9 and NFDRS Fuel Model U are used in this area. Several communities exist within this zone including, Shingletown, Whitmore, Oak Run, Round Mountain, Montgomery Creek, and Burney.

Significant damaging fires have occurred in this area such as the Burney fire (1988, 3,264 acres), Fountain fire (1992, 60,290 acres), resulting in large structure and timber loss. The Ponderosa fire (2012, 27,676 acres) and the Eiler fire (2014, 32,416 acres)

Northeast Plateau

This is the area east of Hwy 89. The area is high elevation sage brush, junipers, and Ponderosa pine. Sage brush is the predominant problem fuel, so NFDRS fuel model T is used. The area is represented by the Soldier Mountain RAWS station.

Significant fires that have occurred in this area are the Day fire (2014, 13,153 acres) and the Bald fire (2014, 39,736 acres).

UNIT PREPAREDNESS AND FIREFIGHTING CAPABILITIES

Besides the County boundaries, three incorporated cities lie within the boundaries of the Shasta / Trinity Unit: Anderson, Redding, and the City of Shasta Lake. The remaining communities within the Unit are not incorporated.

Several independent special districts called County Service Areas (CSAs) provide other services such as, but not limited to water and sewer. CSA 1 provides fire protection for all of the unincorporated areas within Shasta County that are not in a fire district. Trinity County is served by 17 special districts.

The Shasta / Trinity Unit is operated under one Unit headquarters, and is located in Redding California. The State Responsibility Area of the Unit is divided into six field battalions, numbered from east of the Unit to the west. During declared fire season, the Shasta / Trinity Unit operates 19 fire engines, three dozers, 12 hand crews, one Air Tactical Supervisor and two Air tankers. The Shasta / Trinity Unit employs 151 permanent fire personnel and 136 seasonal personnel during fire season.

Redding City Fire Department, eleven fire districts, and the Shasta County Fire Department provide local fire protection responsibility for improvements within Shasta County.

Five fire districts, four community service districts, three volunteer fire companies, and one PUD provide local responsibility fire protection within Trinity County.

The Shasta / Trinity Unit has dispatch agreements with Shasta County Fire Department, Fall River Mills Fire Protection District, McArthur Fire Protection District, Burney Fire Protection District, Millville Fire Protection District, Cottonwood Fire Protection District, Mountain Gate Community Services District, Shasta Lake Fire Protection District, Happy Valley Fire Protection District, Anderson Fire Protection District, Shasta Community Services District (Old Shasta) and the Shasta College Fire Protection District.

SECTION II: COLLABORATION

COMMUNITY / AGENCIES / FIRE SAFE COUNCILS

Representatives involved in the development of the Unit Strategic Fire Plan are included in the following table. Their organization and title are indicated below:

Plan Development Team:

Organization:	*Representative:*	*Contact Information:*
Western Shasta Resource Conservation District	Harmony Gugino	530-365-7332
		http://www.westernshastarcd.org
Shasta County Fire Safe Council	Council Members	530-365-7332
Cottonwood Creek Watershed		http://shastacountyfiresafecouncil.org/
Cow Creek Watershed		
French Gulch Area		
Lakehead Area		
Lower Clear Creek Watershed		
Shasta West Watershed		
Shingletown Community		
Stillwater-Churn Creek Community		
Fall River Resource Conservation District	Mike Millington	http://fallriverrcd.org/
		530-336-6591
Hat Creek Valley Fire Safe Council	Don Curtis	
Day Bench Fire Safe Council	Todd Sloat	530-335-6591
Trinity County Fire Safe Council	Pat Frost	530- 623-6004
		http://www.tcrcd.net
Trinity County Resource Conservation District	Pat Frost	530-623-6004
		http://www.tcrcd.net
W.M. Beaty and Associates Inc.	Forester	
Sierra Pacific Industries	Forester	

SECTION III: VALUES

A: VALUES

Assets at Risk (AAR) in the Shasta / Trinity Unit (SHU) include: citizen and firefighter safety, watersheds and water, timber, wildlife and habitat (including rare and endangered species), rural communities, unique areas (scenic, cultural, and historic), recreation, range, structures, and air quality. Each AAR has a unique set of stakeholders and public issues.

A tool to help evaluate the AARs is a program called Cal MAPPER which contains a data base that can be queried to provide initial areas to focus on. The identified AARs enable the Unit and other fire service managers to set priorities for fire management project work. Assets susceptible to fire damage in SHU are identified in the table on the next page.

Asset at Risk	Public Issue Category	Location and ranking methodology	SHU Values
Hydroelectric power	Public welfare	1) Watershed area up to 20 miles upstream from 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).	148,458 Acres
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.	238,022 Acres
Water supply	Public health	126) Watershed area up to 20 miles 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	54 Acres
Scenic	Public welfare	Four mile view shed around Scenic Highways and ¼ mile view shed around wild and scenic rivers, ranked based on potential impacts to vegetation types (tree versus non-tree types).	201 Miles of Roads 173 Miles of Rivers
Late seral forest	Public welfare	Late seral forest timberlands that could be potentially damaged by wildfire.	534,483 Acres
Range	Public welfare	Rangelands ranked on potential replacement feed cost by region/owner/vegetation type.	$82,368,729
Air quality	Public health Environment Public welfare	Potential damages to health, materials, vegetation, and visibility; ranking based on vegetation type and air basin.	$3,296,002,355
Recreation	Public welfare	Unique recreation areas or areas with potential damage to facilities, ranked based on fire susceptibility.	17,079 Acres
Structures	Public safety Public welfare	Ranking based on housing density and exposure (potential for structure loss in a large fire event). This dataset contains point features showing locations of "building clusters" from the Rapid Assessment of Values-at-Risk (RAVAR) 11/2010 data. For performance, the RAVAR data was clipped to remove all building clusters that are over 1km from SRA lands.). For more information on RAVAR and its components, see http://www.fs.fed.us/rm/wfdss_ravar/index.shtml.	37,467 Structures
Wildlife	Environment Public welfare	Potential impact of wildfire on important wildlife areas. Highest ranked areas were those managed specifically for wildlife. Priority landscape ranks (High = 3 Medium = 2 Low = 1)	3 = 1,569,795 Acres 2 = 1,086,865 Acres 3 = 2,385 Acres
Infrastructure	Public safety Public welfare	Infrastructure for delivery of emergency and other critical services, example: repeater sites, transmission lines, transport corridors. Priority landscape ranks (High = 3 Medium = 2 Low = 1)	3 = 38,258 Acres 2 = 212,687 Acres 1 = 22,248 Acres
Ecosystem health	Environment	Ranking based on condition class, potential for ecological damage from a severe fire event due to deviation from historical fire return interval. Priority landscape ranks (High = 3 Medium = 2 Low = 1)	3 = 2,325,995 Acres 2 = 764,605 Acres 1 = 641,664 Acres

B: COMMUNITIES

Fifty-four communities within the Shasta / Trinity Unit have been recognized as communities at risk. More information regarding communities at risk can be found at www.cafirealliance.org/communities_at_risk/.

Community	Federal Threat	Community	Federal Threat	Community	Federal Threat
Anderson		Fall River Mills	X	O'Brien	X
Beegum	X	Forest Glen	X	Oak Run	
Bella Vista	X	French Gulch	X	Old Station	X
Big Bar	X	Gibson	X	Ono	
Big Bend	X	Glenburn		Palo Cedro	
Burney	X	Hat Creek	X	Pitville	X
Burnt Ranch	X	Hayfork	X	Platina	X
Cassel	X	Hyampom	X	Redding	
Castella	X	Igo	X	Redding Rancheria	X
Centerville	X	Junction City	X	Roaring Creek Rancheria	X
Central Valley	X	Keswick	X	Round Mountain	X
Coffee	X	Lakehead	X	Shasta	X
Cottonwood	X	Lamoine	X	Shingletown	X
Covington Mill	X	Lewiston	X	Sims	X
Dana	X	McArthur		Trinity Center	X
Del Loma	X	Millville		Weaverville	X
Denny	X	Montgomery Creek	X	Whitmore	
Douglas City	X	Mountain Gate	X	Wildwood	X

SECTION IV: PRE-FIRE MANAGEMENT STRATEGIES

A: FIRE PREVENTION

It is extremely important to determine how fires are caused, where fires occur, and whether the Unit is meeting the Department's goal of containing 95 percent of all wildfires at 10 acres or less. Determining causal trends can direct the Unit to specific prevention efforts to change that causal trend. The location where the majority of fires occur can help determine where prevention and pre-fire efforts might produce the greatest result.

The ignition workload assessment is derived from data collected from CAL FIRE's California All-Incident Reporting System (CAIRS). This fire reporting system utilizes the National Fire Protection Association (NFPA) Standard 901 coding convention. CAL FIRE has historically classified fire causes into twelve General Causes while the NFPA causal data is collected as causal factors. CAIRS data uses Latitude and Longitude information that points the ignitions to the actual area of origin.

The Fire Plan data only uses ignitions that have caused a vegetation fire. The Shasta /Trinity Unit collects data for all ignitions including non-vegetation fires such as structure or vehicle fires. Many of these ignitions could have spread to the wildland vegetation, but suppression activity contained the fire to the original material ignited.

The goals of the Fire Prevention Bureau are: Education, Information, Planning and Enforcement. The Prevention Bureau objectives to reduce ignitions are to identify and address all ignitions which threaten public safety and lands within our jurisdiction. We identify specific fire cause classifications by researching the data collected. The results from the research are then used to educate and inform the public. During this phase of education we will send out news releases, develop commercials, hand out flyers, and disseminate safety messages. Enforcing the Public Resource Code through warnings and citations is also used to reduce specific fire causes.

- **Public Resource Code 4291**

The California Public Resource Code 4291 and Government Code 51182, amended by Governor Schwarzenegger signed into law on September 23, 2004, Senate Bill 1369 and became effective January 1, 2005, which increase the minimum clearance (defensible space) requirement from 30' to 100'. It also provides that state law or local ordinance rules or regulations to specify requirements of greater than 100' around buildings because of extra hazardous conditions or where a firebreak of only 100 feet around such building or structure is not sufficient to provide reasonable fire safety.

A defensible space perimeter around buildings and structures provide firefighters a working environment that allows them to protect buildings and structures from encroaching wildfires as well as minimizing the chance that a structure fire will escape to the surrounding wildland. These guidelines apply to any person who owns, leases, controls, operates, or maintains a building or structure in, upon, or adjoining any mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or any land that is covered with flammable material, and located within a State Responsibility Area (SRA).

The vegetation surrounding a building or structure is fuel for a fire. Even the building or structure itself is considered fuel. Research and experience have shown that fuel reduction around a building or structure increases the probability of it surviving a wildfire. Good defensible space allows firefighters to protect and save buildings or structures safely, without facing unacceptable risk to their lives. Fuel reduction through vegetation management is the key to creating good defensible space.

Terrain, climate conditions and vegetation interact to affect fire behavior and fuel reduction standards. The diversity of California's geography also influences fire behavior and fuel reduction standards as well. While fuel reduction standards will vary throughout the State, there are some common practices that guide fuel modification treatments to ensure creation of adequate defensible space:

- Properties with greater fire hazards will require more clearing. Clearing requirements will be greater for those lands with steeper terrain, larger and denser fuels, fuels that are highly volatile, and in locations subject to frequent fires.

- Creation of defensible space through vegetation management usually means reducing the amount of fuel around the building or structure, providing separation between fuels, and or reshaping retained fuels by trimming. Defensible space can be created removing dead vegetation, separating fuels, and pruning lower limbs.

- In all cases, fuel reduction means arranging the tree, shrubs and other fuel sources in a way that makes it difficult for fire to transfer from one fuel source to another. It does not mean cutting down all trees and shrubs, or creating a bare ring of earth across the property.

- A homeowner's clearing responsibility is limited to 100 feet away from his or her building or structure or to the property line, whichever is less, and limited to their land. While individual property owners are not required to clear beyond 100 feet, groups of property owners are encouraged to extend clearances beyond the 100 foot requirement in order to create communitywide defensible spaces.

- Homeowners who do fuel reduction activities that remove or dispose of vegetation are required to comply with all federal, state or local environmental protection laws and obtain permits when necessary. Environmental protection laws include, but are not limited to, threatened and endangered species, water quality, air quality, and cultural/archeological resources. For example, trees removed for fuel reduction that are used for commercial purposes require permits from CAL FIRE. Also, many counties and towns require tree removal permits when cutting trees over a specified size. Contact your local resource or planning agency officials to ensure compliance.

CAL FIRE is dedicated to public safety and Defensible Space Inspections. CAL FIRE inspects private properties with structures to educate and advise the public in making their structures compliant with the 100' defensible space requirements, giving their homes a better chance of survival in the event of a wildfire. These inspections are done year round, with the majority of the inspections done in the late winter and early spring months, giving homeowner's time to mitigate non-compliance issues around homes and structures before the summer months when the fire danger higher.

http://www.fire.ca.gov/communications/downloads/fact_sheets/DefensibleSpaceFlyer.pdf

http://www.fire.ca.gov/cdfbofdb/pdfs/4291finalguidelines2_23_06.pdf

Last update: 1 May 2015

Fire Protection Planning

The Fire Safety Standards are codified in the Shasta County Development Standards as Chapter 6. The Development Standards are uniformly applied throughout the County. Other agencies may elect to enforce stricter standards. However, the Fire Safety Standards are the minimum level of fire protection planning allowed. The Standards incorporate elements of Title 19, Title 24, and Public Resources Code 4290 and Government Code sections 51175-51189. The current Standards adopted in 2004 primarily address access and water. The standards are applied to all new land divisions within Shasta County when projects are submitted to the County for review. Due to the Cooperative Fire Agreement, the Unit Chief is appointed as the County Fire Warden. The Board of Supervisors delegates authority to the Fire Warden to enforce the Fire Safety Standards for all new land divisions within the County. This authority is, in turn, delegated to the Fire Marshal of the Shasta County Fire Department. The Fire Marshal works closely with the Planning Department and is an integral component of the review process. Applicable conditions are applied to each project to ensure conformity with the Fire Safety Standards. Once projects are approved by the Planning Commission and/or Board of Supervisors, the Fire Marshal inspects work completed to ensure it meets the conditions applied to the project.

Structure Ignitability and WUI

Starting January 2008, the new 2007 California Building Code (CBC) became effective. For products to be used in the Wildland Urban Interface (WUI) there are some regulations that required building products to comply with specific standards.

In an effort to provide the home owners, industries, designers, local fire and building officials a list of "compliance WUI products", the State Fire Marshal (SFM) has published, the "WUI Products Handbook".

All products published in this handbook have been reviewed and verified their compliance in accordance with the new 2007 CBC by SFM staff. All products published in the WUI Products Handbook are "approved" by the SFM. They are not "Listed" unless a SFM Listing number is attached. It should be noted that products are not in the WUI Products Handbook may still comply with the standards since it is not a requirement for any products to be in the WUI Products Handbook.

http://osfm.fire.ca.gov/strucfireengineer/pdf/bml/wuiproducts.pdf

The California Building Commission adopted the Wildland-Urban Interface (WUI) codes in late 2005. The majority of the new requirements took effect in 2008 and has been updated in the 2013 California Building code. These new codes include provisions for ignition resistant construction standards in the WUI. The updated fire hazard severity zones will be used by building officials to determine appropriate construction materials for new buildings in the WUI. 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 new building standard for the Fire Hazard Severity Zones will be enforced by the Building Official as projects go through the plan checking process. To best assist them in determining if a product meets the code requirements, the State Fire Marshal's Building Materials Listing program (BML) is accepting applications for materials for listing or for the review of meeting the standards. These materials will be posted on the SFM BML website at:

http://osfm.fire.ca.gov/strucfireengineer/pdf/bml/wuiproducts.pdf

The Wildland Urban Interface Building Codes page of the Wildland Hazards and Building Codes at:

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

The SFM listing service provides building authorities, architectural and engineering communities, contractors, and the fire service with a reliable and readily available source of information.

Since the materials under Wildland Urban Interface Building Codes (except roof wood shakes and shingles) are not required by law to be listed by the SFM, the listings for these products are strictly voluntary. Materials not listed by the SFM may still qualify for use provided they meet all the requirements under Chapter 7A. If not listed on the SFM site, all documentation and testing certificates showing compliance must be submitted to the building official having jurisdiction for final approval.

Information regarding all Wildland Urban Interface issues can be downloaded at:

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

Code Enforcement

Within Shasta County, each fire protection Authority Having Jurisdiction (AHJ) is responsible for conducting fire safety inspections and code enforcement. The Shasta County Fire Department conducts inspections of all non-residential occupancies falling within its jurisdiction. The target interval for inspections is every three years. Any complaint regarding alleged violations of the Uniform Fire Code is investigated immediately. The Fire Marshal's office coordinates and conducts the Fire Safety Inspections.

Shasta County has adopted the 2013 Uniform Fire Code, Residential Code, and Uniform Building Code for all new construction and inspections in the jurisdiction. The Fire Marshal's office works closely with the County Building Department to ensure applicable fire safety codes are applied. Information regarding codes can be found at:

http://www.shastacountyfire.org/images/stories/PDF/Prevention/fire%20safety%20standards%202004.pdf

INFORMATION AND EDUCATION

The Shasta / Trinity Unit has an education program that is geared to educating the citizens of Shasta and Trinity counties as a whole. There are three major components to the fire prevention and education programs.

- School programs – SHU prevention staff, utilizing both paid and volunteer personnel participate in school programs on an annual basis reaching out to nearly 5,000 children and young adults, also included in this demographic are a number of programs addressing children with special needs. Teaching children about the dangers of fire play and the consequences of such actions is important in preventing wildland fires resulting from children or young adults playing with fire.

- Juvenile Fire Setter Program – In cases where children or young adults have been playing with fire and staff is able to identify those persons, they are enrolled in a juvenile fire setter intervention class (JFSI). The JFSI is key in identifying the reasoning behind the fire play and ensuing consequences will help to mitigate the recurrence of such activity.

- Public and community information events or programs – Using venues such as home and garden shows, earth day festivals and other community oriented events, SHU Prevention Staff are able to educate residents of all ages regarding fire safety and prevention of fire. The emphasis at these events is educating the residents of the need for defensible space, but at the same time advising of the factors that can ignite a fire while achieving that defensible space. Fires can be ignited by equipment (i.e. mowers, trimmers, etc.) that produces heat, ignites duff, or causes sparks. In addition, staff has educated the general public at these events on other ways fires start including dooryard debris burning regulations (when applicable) and outdoor fire safety when recreating in the wildland.

The use of these information and education components is key to raising public awareness of how fires start and how they can be prevented. In addition, fire prevention staff are members of the Shasta County Fire Prevention Officers Association where ideas and collaboration in the fire prevention help to educate the public.

B. VEGETATION MANAGEMENT

Fuel Reduction

The Forest Practice Program provides several functions, including enforcement of laws that regulate logging on privately-owned lands in California through the Forest Practice Act to preserve and protect our fish, wildlife, forests and streams. The Forest Practice Act provides several timber harvesting permits which facilitate fuel reduction around homes, property and communities. These permits include Harvesting Dead, Dying or Diseased Exemption, 150 foot Fire Hazard Removal Exemption (around habitable structures), removal of Substantially Damaged Timber, Forest Fire Prevention Exemption, Woody Debris Slash Removal Exemption, Fuel Hazard Reduction Emergency Notice, as well as Sanitation Salvage and Fuelbreak/ Defensible Space Timber Harvest Plans.

The Vegetation Management Program (VMP) offers similar fuel reduction plans but focusing on prescribed burning. Through prescribed burning and other fuel reduction methods, the risk of wildfire can be diminished. Prescribed burns remove the thick underbrush in wildland areas in a controlled manner rather than through destruction from a wildfire. Fuel reduction not only improves the growing conditions of native plant and wildlife species but, a treated site can act as a fire break, stopping a wildfire in its tracks, or providing firefighters with safe areas to make a stand against a fire. Specialized CAL FIRE personnel coordinate with landowners to determine sites and create plans for prescribed burns. CAL FIRE works with other cooperators, such as the Air Quality Management District and wildlife agencies, to ensure burning is done with minimal impact on air quality or biological diversity.

Suppression Repair

Our Department's 7000 manual outlines the standard protection measures for Suppression Repair. Section 7013.11.3 states: "The Pattern for mitigation measures rest in large part on the standards in the Forest Practice Regulation. These are the same standards that CAL FIRE foresters enforce on private logging operations." The Forest Practice Program (through the staff Forester I, II and III's) often provides lead on Suppression Repair activities. To the extent possible and practical, indirect damages to soil, streams, fish habitat, and private property should be minimized but with due consideration for fire suppression requirements.

Vegetation Management Program coordinators are also familiar with Suppression Repair activities, have a strong knowledge base on local concerns and issues, and often the preplanning and implementation aspect of a VMP project reduces the need for post-fire suppression repair.

Forest and Range Health

The goal of forest management under the Forest Practice Program in relation to the Forest Practice Act falls into four objectives:

1. Achieve a balance between growth and harvest over time.

2. Maintain functional wildlife habitat with a planning watershed.

3. Retain or recruit late and diverse seral stage habitat components for wildlife.
4. Maintain growing stock, genetic diversity and soil productivity.

Likewise, the goal of any VMP project is to meet the criteria of the California Environmental Quality Act (CEQA).

CAL FIRE foresters and VMP coordinator's diversity in education, training and background experience help strengthen our Department's ability to help local landowners, communities and Counties manage the health of their forests and rangelands. The Forest Practice Program and the Vegetation Management Program work with other cooperators such as the Department of Fish and Wildlife, Regional Water Quality Control Boards, US Fish and Wildlife Service, as well as others to provide solid and balanced perspectives to forest and rangeland health.

State law (Public Resource Code 4789) requires that CAL FIRE periodically assess California's forest and rangeland resources. The Forest Practice Program and the Vegetation Management Program utilize the information provided by Fire and Resource Assessment Program (FRAP), which identifies emerging resource issues on wildlands, analyzes the results of different types of land use and management on wildland conditions, reviews and evaluates policies by federal, state, and local agencies as they relate to wildland protection, and identifies and analyzes policy options for the Board of Forestry and Fire Protection. The program has established a statewide geographic information system (GIS) of biological, physiographic, demographic, and other types of data needed to address CAL FIRE's mission, including information on vegetation, wildlife, soils, watersheds, fire behavior, and ownership.

SHU Battalion 1

Battalion Overview:

Shasta / Trinity Unit Battalion 1, is located in the northeast corner of the Shasta / Trinity Unit. The Battalion is comprised of state, federal and local firefighting resources. Battalion 1 borders the USFS Lassen National Forest to the south, the USFS Shasta Trinity National Forest to the northwest, the Modoc National Forest to the northeast, the CAL FIRE Siskiyou Unit to the north and the CAL FIRE Lassen/ Modoc Unit to the east. Within Battalion 1's Direct Protection Area (DPA), there is a mixture of private property, National Forest, BLM, and State land. There are two BLM wilderness study areas (WSA's) comprising of approximately 30,000 acres. In the Fall River valley there are 3 local responsibility areas (LRA) that border the state DPA. They are protected by the Shasta County Fire Department (administered by CAL FIRE SHU), Fall River Fire District and the McArthur Fire District.

Battalion Resources:

Fire Protection within the Battalion is largely made up of volunteer and seasonal staffing within CAL FIRE and Shasta County Fire, under the supervision of Battalion Chief 2411. There are also three fire districts within Battalion 1. Burney Fire Protection District staffs equipment with full time paid staffing, along with volunteers. The Fall River and McArthur Fire Districts are staffed with volunteers.

- **CAL FIRE**

Battalion 1 consists of two seasonal schedule B stations. Burney Station 14 houses two type III schedule B engines, a type II initial attack bull dozer, a Forester 1 and a Battalion Chief. Big Bend Station 19 houses one type III schedule B engine and is collocated with a type III engine from the USFS Shasta Trinity National Forest. Soldier Mountain Lookout is also located and maintained by the Battalion. Soldier Mountain lookout is staffed by local emergency hire citizens during times of severe fire hazard.

- **Shasta County Fire Department**

The Shasta County Fire Department, administered by CAL FIRE has 5 volunteer fire companies in Battalion 1. The communities protected by these companies are Cassel, Hat Creek, Old Station, Soldier Mountain/Dana and Big Bend. Each station houses a type II engine, a type III engine, water tender and transport capable rescue vehicle.

- **Fire Protection Districts and Municipality**

There are three Fire Protection Districts with in the Battalion, they are the communities of Fall River, McArthur and Burney. Fall River and McArthur Fire Districts both have portions of their districts that are SRA. All of the Burney Fire Protection District falls within the SRA.

Wildland and Urban Interface:

Battalion 1 is largely comprised of private timberland with Sierra Pacific, Roseburg Forest Products, Beatty & Associates and Fruit Growers being the largest land holders. There are several small communities with mostly residential structures spread out in the SRA. The town of Burney is the largest town in the Battalion with several commercial properties as well a few thousand residential structures within the wildland urban interface.

Fuels-Weather-Topography:

Most of Battalion 1 is comprised of eastside pine and mixed brush (in the old burns). The north end of the battalion through the Pit River drainage and into Big Bend is more of a mixed conifer fuel type, depending on the exposure.

Under normal summer high pressure, the fire activity will diminish after dark. The normal wind pattern is west to southwest during the afternoon. There are many occasions we will get a significant down canyon wind after midnight down the Pit River canyon and down the west slope of Hatchet Mountain. On a normal year we can expect to have two or three significant lightning events with the potential of starting 50+ fires within the Battalion. Normal lightning storms will begin in the late afternoon and last until approximately midnight. Most storms will begin somewhat dry with increasing moisture into the evening hours. Storms that occur early in the day have a greater potential to produce extended or major attack incidents.

Battalion 1 is located in the Cascade mountain range. The majority of the Battalion has been shaped over millions of years by volcanic events. The Battalion lies between Mount Shasta to the north and Mount Lassen to the south. There are several lava flows and cinder cones in the south end of the Battalion. The Pit River drainage runs through the center of the Battalion with very steep and narrow canyons.

Battalion Fire History:

Battalion 1 has a significant fire history of both lightning and human-caused fires. The majority of the fires burn from the southwest under a normal summer time high pressure in the afternoon. There have been several major fires that have threatened the community of Burney including; the Tamarack Fire (1986) Burney Fire (1988) Burney Fire (1992) Fountain Fire (1992) the Eiler Fire (2014) and the Bald fire, (2014). The Battalion has also experienced lightning sieges that have included multiple major fires in 1990, 1999, 2008, 2009, and 2014.

Fuels Reduction / Battalion Projects and Priorities:

There are two active fire safe councils within Battalion 1. The Hat Creek Fire Safe Council covers the Hat Creek Valley through the community of Cassel north to the Burney Falls State Park. Hat Creek Fire Safe Council operates under the Western Shasta Resource Conservation District (RCD). The Day Road Fire Safe Council covers Day Road in both SHU and LMU. The Day Road Fire Safe Council operates under the Fall River RCD. There are hopes to start a fire safe council in the Burney area and are working with the Fall River RCD.

CAL FIRE Personnel have a history of completing LE-100 inspections in most areas of the Battalion. The Hat Creek Fire Safe Council has successfully completed several shaded fuel breaks in and around the community of Cassel. Battalion 1 has a proven Lightning Plan, and is updated regularly due to lightning potential, with an established Incident Command Post held the Battalion Headquarters in Burney. Other emergency pre-plans, consisting of roads, addresses, and assets at risk within Battalion 1, have been established, and are monitored for changes annually. Both Hat Creek and Day Bench Fire Safe Councils have exceptional pre-plan maps for public use.

SHU Battalion 2

Battalion Overview:

The Shasta/Trinity Unit's Battalion 2, is located along the southeast shores of Shasta Lake, east of Interstate 5 in Jones Valley, across the southern boundary of the community of Big Bend to the Chalk Mountain, south across Highway 299E, just east of Hatchet Mountain, and south along Tamarack Road to the Whitmore area, west toward Millville along Whitmore Road, around Palo Cedro, north along the Redding City boundary, and back to Jones Valley. All of Battalion 2 is under State Direct Protection Area (DPA) on State Responsibility Area (SRA) lands.

Battalion Resources:

Battalion 2 consists of four CAL FIRE Stations as well as three Shasta County Volunteer Fire Companies, under the supervision of Battalion Chief 2412.

- **CAL FIRE**

Shasta College Station 73 provides service for Northern Shasta County in the communities of Bella Vista, Jones Valley, Lakehead and the areas in and around the Shasta College Fire District as a year round cooperative agreement with CAL FIRE. The Station has one CAL FIRE type III engine which is staffed 24 hours a day with a minimum of one CAL FIRE Fire Officer and one CAL FIRE firefighter during Amador months, and department staffing during declared fire season. Three CAL FIRE stations are open 24 hours for the duration of fire season, each with a type III engine. Diddy Wells Station 74 protects the communities from Bella Vista to Round Mountain and from Shasta Lake to Oak Run. Hillcrest Station 75 covers from Round Mountain to Burney, also from Big Bend to Oak Run. Buckhorn Station 34 is located between the communities of Oak Run and Whitmore, and protects from Hillcrest to the Millville Plains, to Ingot Canyon. Sugar Pine Conservation Camp is a 6 crew and one dozer camp and is located West of Ingot Canyon.

- **Shasta County Fire Department**

Volunteer Fire Companies include the Oak Run Volunteer Fire Company 30, Bella Vista Volunteer Fire Company Station 33, Montgomery Creek Volunteer Fire Company 71 and Jones Valley Volunteer Fire Company 72. Battalion 2 SCFD Companies each house a type II fire engine, a type III fire engine, water tender and a transport capable rescue vehicle. Station 72 also has a fire/rescue boat located on Shasta Lake, at the Jones Valley Marina.

Wildland and Urban Interface:

Battalion 2 is comprised of commercial, residential, agricultural, and highway uses, including State Highway 299 East. There are many different assets at risk in the Battalion. Private land includes grazing land to the west to commercial timber land in the east. Some of the land owners that have resources include: Beatty and Associates, Fruit Growers Association, Roseburg and Sierra Pacific Industries. This land is an Asset

at Risk also due to the fact that it falls in the Sacramento River watershed. There are several communities in the Battalion such as Bella Vista, Round Mountain, Montgomery Creek, Oak Run and Jones Valley. These communities have commercial property, such as restaurants, grocery stores, gasoline and propane fueling services and medical facilities. Most of the communities also contain public schools and churches. There are also historical Assets at Risk such as the Phillips Mill. Large infrastructure that is considered an Asset is the Pacific Gas and Electric (PG&E) substation and two sets of 500kv transmission lines. Shasta Community College resides on the west side of the Battalion, and the north side of the Battalion is United States Forest Service (USFS) land along Shasta Lake that is protected by State DPA. This is not an inclusive list but an example of the diversity that falls within the Battalion.

Fuels-Weather-Topography:

Fire fuels along the southwest area of Battalion 2 include grass and oak woodland, which carry fire quickly and upslope within the foothills and wildland urban interface within the communities of Oak Run, Hillcrest, and Whitmore. There is a predominate brush belt within the 1000-2000 foot elevations including Diddy Wells and Oak Run, that transition into mixed pine and oak in the communities of Hillcrest, and Oak Run.

Weather is generally warm and dry during the day with moderate humidity recovery at night. Peak summer temperatures average 85 to 95 degrees with temperatures reaching in excess of 110 degrees for two to five day periods. The average relative humidity is 15 to 35%. Gradient winds are generally out of the west, southwest 5 to 12 miles per hour (mph). Occasional light east winds occur in the morning then shifting to more west/southwest flow in the afternoon and can reach speeds of 15 to 20 mph, generally up slope and up canyon. North wind events occur periodically throughout the fire season and can reach the 10 to 40 mph range with associated higher gusts. These winds frequently switch to the northeast and strengthen after dark, with occasional stronger winds reaching 50 mph in the Hillcrest – Round Mountain area between 2 A.M. to after sunrise.

Battalion Fire History:

Battalion 2 has experienced several catastrophic wildfires. While fires caused by lightning have destroyed several thousand acres within the Battalion in the last few years, most fires have been caused by humans, and were predominately wind-driven, destroying structures and private property. Burn patterns indicative of the west-east drainages and local up-canyon winds influenced by the valley heating, have scarred the landscape with historical fires such as the Fountain Fire (1992, 60,290 acres) with significant structure and timber loss. Both the Jones fire (1999, 26,202 acres), and the Bear fire (2004, 10,4441 acres), were wind driven, and human caused. More recent fire activity has been the SHU Lightning (2008, 86,500 acres) and the Gulch fire (2014, 1,375 acres)

Fuels Reduction / Battalion Projects and Priorities:

Battalion 2 experienced an overwhelming participation with stakeholders to suppress wildfires and save structures in previous years, and continues today. Pre-plans to

ranches and private industry lands have been collaborated and in place to speed suppression efforts for emergency personnel, ultimately saving life and property.

Battalion pre-plans are in place to identify helicopter landing zones for medical emergencies, safety zones for firefighters, evacuation points and routes for citizens, water sources for catastrophic fires, staging areas for firefighting equipment, and augmentation to initial attack resources. LE-100 inspections have become an integral part of pre-fire season operations intended to educate property owners of the benefits to preparing their homes against the potential for catastrophic loss due to wildfire. A lightning plan is maintained, and has been utilized several times to organize and deploy firefighters to over 100 fires collectively.

There are many natural and man-made features that may serve as fire breaks including roads, highways, streams, and irrigated pastures. local, state, and federal budgetary constraints have led small local community fire safe councils within the Battalion to merge their efforts for project work under the umbrella of the Shasta County Fire Safe Council, administered under the direction of the Western Shasta Resource Conservation District (WSRCD). The WSRCD has established a fire plan for areas within Battalion 2 that include the Cow Creek Strategic Fuel Reduction Plan. The goal of this plan is to reduce the destruction and associated costs from wildfire by creating shaded fuel breaks, increase homeowner and fire department access and egress, watershed restoration, and public information and education on developing Fire Wise communities. Several shaded fuel breaks along county roads and Highway 299 East surrounding the communities of Oak Run, Hillcrest, Montgomery Creek, Round Mountain, are initiated by the WSRCD.

There have been several years when California experienced an overwhelming influx of lightning-caused fires that taxed firefighters at every level, increasing the recognition and importance of structural defensible space, visible structure addresses, and access. The benefit of pre-fire projects that proved to slow and/or stop fires at existing fire breaks has also been recognized.

SHU Battalion 3

Battalion Overview:

The Shasta/Trinity Unit's Battalion 3 (Shingletown – Whitmore Battalion) is comprised of an integrated, multi agency workforce of state, local and federal firefighting resources which provide wildland fire protection to southeastern Shasta County under cooperative agreements. Battalion 3 is located at the north end of the Sacramento Valley in southeastern Shasta County. It's bordered on the west by the Sacramento River and runs east paralleling the Tehama County border until reaching Lassen County which is the eastern boundary. Battalion 3 includes the communities of Manton, Millville, Shingletown, Whitmore and Viola. There is one independent Fire District within the Battalion serving the community of Millville. The eastern portion of Battalion 3 consists of Federal Responsibility Area (FRA) and is administered by the Lassen National Forest and the Lassen National Park. While statutory responsibility for all wildland fires within Lassen National Forest is federal direct protection area (DPA), all other types of incidents including medical aids, traffic collisions and structure fires is the responsibility of Shasta County Fire Department (SCFD) administered by CAL FIRE. The Lassen National Park has sole responsibility for all incidents within the park boundaries. Battalion 3 also includes LaTour Demonstration State Forest, administered by CAL FIRE. This is a demonstration forest consisting of 9000+ acres of mainly conifer commercial timberland.

Battalion Resources:

Fire Protection within Battalion 3 is made up of career paid staffing from CAL FIRE, United States Forest Service and National Park Service. Volunteer firefighters make up a large majority of the firefighting work force in all the unincorporated communities consisting of Millville Fire Protection District and Shasta County Fire Department. The CAL FIRE and Shasta County Fire Department resources are under the supervision of Battalion Chief 2413.

- **CAL FIRE**

Battalion 3 consists of two career fire stations. Shingletown Fire Station 22 is staffed with 2 type III Schedule B engines during the peak fire season months, while in the winter months the staffing is reduced to one engine under a cooperative agreement with Shasta County Fire Department (SCFD) and is staffed with a minimum of one operator and one firefighter. Whitmore Fire Station 35 is staffed with 1 type III Schedule B engine during the peak fire season months and is closed during the off season. Battalion 3 also administers LaTour Butte Lookout which is staffed with career or retired firefighters during times of severe fire danger.

- **Shasta County Fire Department**

The Shasta County Fire Department is administered by CAL FIRE. Volunteer Fire Companies within Battalion 3 include Shingletown Volunteer Fire Company Station 20; utilizing 2 type II engines, 1 type III engine, 2 type 1 water tenders and 3 rescues.

The other is Whitmore Volunteer Fire Company Station 31; utilizing 1 type II engine, 1 type III engine, 2 type II water tenders and 1 transport capable rescue.

- **Fire Protection District**

Independent Fire Protection Districts within Battalion 3 include the Millville Fire Protection District Station 21; utilizing 2 type II engines, 1 type III engine, 1 type I water tender and 1 rescue.

Wildland and Urban Interface:

Battalion 3 is largely comprised of residential, rangeland and commercial timberland. The community of Shingletown is the largest residential area within Battalion 3. It's mainly a bedroom community for people who work in the Redding and Anderson area as well as a retirement community. Large subdivisions of 200+ homes in the area include Shasta Forest Village, Starlite Pines and Lake McCumber. The smaller community of Whitmore, along with Shingletown presents the greatest threat for a catastrophic Wildland Urban Interface (WUI) fire due to population density and fuel loading. Large ranches exist in the front country. A number of these ranches exceed 5000+ acres. Private commercial timberlands comprise the eastern third of the Battalion and include large land owners such as Sierra Pacific Industries and Beaty & Associates.

Fuels-Weather-Topography:

Fuels within Battalion 3 transition from grass/oak woodland in the Sacramento Valley and Millville Plains to brush to mixed hardwood/conifer to pure conifer stands. Fuel models 1, 4, 10 and 11 are examples. At lower elevations, open areas of annual grasses are interspersed with 15 to 50 year old stands of decadent brush (chaparral). These fuel's dead to live ratio average approximately 20%. Annual chaparral live fuel moistures vary from 120% to less than 75% in late summer. Fuels transition from chaparral to mixed hardwood/conifer stands at approximately 2500 feet. Above 4500 feet you'll find continuous stands of short needled conifer. Current mixed hardwood/conifer and solid conifer stands have occasional pockets of dead trees due to bug and snow kill.

The climate is characterized as Mediterranean with hot and dry summers. Temperatures in the summer in the Sacramento Valley average over 100 degrees in the valley and near 90 degrees in the higher elevations. The relative humidity averages from 10-25 % in the afternoon, and is often followed by poor nighttime humidity recovery in the mid to upper elevations. Rainfall during the summer is normally less than 1 in. Average rainfall in the valley averages around 30 in, and in the higher elevations 35-50 in. LaTour Demonstration State Forest can see as much as 12-15 ft. of snow pack in a good winter. Normal gradient winds are from the southwest and average between 6-12 mph in the mid-afternoon. These winds can be enhanced by an on shore or southerly flow which can increase speed to 12-18 mph at times. The humidity with this type of wind in Battalion 3 tends to only increase a few percent due to the distance from the ocean. Foehn or north wind events often occur during the late summer and early fall. On the eastern side of Shasta County this wind is normally the strongest toward the end of the wind event and occurs at night when the normal gradient winds enhance the northeast wind flow of the Foehn wind. These winds are also enhanced,

and funneled by the alignment of the main drainages within the Battalion that run from the northeast to the southwest. Peak winds during these wind events can reach over 50 mph. Examples of these Foehn wind driven fires include the Fern fire (1988, 7,558 acres) and the Whitmore fire (2003, 1,004 acres).

The elevation ranges between 375 ft. at the Sacramento River up into the Cascade Range and Latour Butte Lookout at 6740 ft. Topography varies greatly within Battalion 3. The west side of the battalion consists of mainly the Sacramento Valley with rolling grass/oak woodland with small drainages. As the elevation increases to the east the topography gradually becomes more rugged. The main drainages within the battalion consist of Cow Creek, Bear Creek and Battle Creek.

Battalion Fire History:

Battalion 3 has seen numerous significant fires in the past. Fire history demonstrates moderate to rapid rates of spread, sometimes reaching one to three mph especially within fuel model 1 and in fuel model 10 and 11 during Foehn wind events. These fast moving fires can occur during north wind weather patterns as well as during a strong onshore flows pushing up the Sacramento Valley causing south to southwest winds of 12-18 mph. The humidities with these onshore/south winds tend to only increase a few percent due to the distance from the ocean. Example: 1965 Highway 44 Fire -13,708 acres. In fuel model 4 flame lengths in the chaparral can range from 12 to 20 feet once the live fuel moisture reaches critical at 80%. Example: 1958 Blue Mountain Fire – 7,731 acres. Fire history demonstrates the greatest risk for large damaging fires occurs mostly in the hard/conifer fuel belt running through the battalion. This is especially true once the 1000 hour dead fuel moisture reaches critical level of less that 12%. Examples: 1978 Whitmore Fire – 7,285 acres, 1988 Fern Fire – 7,558 acres, 2003 Whitmore Fire – 1,004 acres, 2012 Ponderosa Fire – 27,676 acres.

Fuels Reduction / Battalion Projects and Priorities:

Battalion 3 has one of the oldest Fire Safe Councils in California within the community of Shingletown. Over the years this Fire Safe Council has developed, completed and maintained approximately 5 miles of shaded fuel break around the community of Shingletown. They have also worked on numerous fuels reduction projects and continue to develop and look for new ways at reducing the fuel loading in and around the community of Shingletown. A comprehensive plan has been developed with the assistance of the Shasta County Fire Safe Council and the Western Shasta Resource Conservation District. Currently additional shaded fuel breaks/escape routes are currently being constructed in two more locations along Shingletown Ridge.
There is one other Fire Safe Council in the community of Manton. This council is also very active but most of their work has been completed within Tehama County. Currently the two Fire Safe Councils are working together and are developing future projects in Shasta County along the Tehama County line. Both councils are also working hard to ensure their communities are designated "Fire Wise" in hopes of securing additional grants in the future. With the continued threat of catastrophic wildland fires and the increasing population growth within the wildland urban interface (WUI), the Battalion aggressively provides Defensible Space Inspections and Information/Education presentations on an ongoing basis.

SHU Battalion 4

Battalion Overview:

The Shasta/Trinity Unit's Battalion 4 (Redding Battalion) is comprised of an integrated, multi agency workforce of state, local and federal firefighting resources which provide wildland fire protection to the heart of Shasta County under cooperative agreements. Battalion 4 is located on the valley floor of Shasta County along the Interstate 5 and Sacramento River corridor running from Siskiyou County to the north and Tehama County to the south. Battalion 4 is interspersed with three incorporated cities, the City of Redding, the City of Anderson, and the City of Shasta Lake. There are also three unincorporated communities within the Battalion which are served by independent Fire Districts which include (from north to south) Mountain Gate, Happy Valley, and the community of Cottonwood. The northern portion of Battalion 4, north of the community of Mountain Gate, is Federal direct protection area (DPA) and is administered by the Shasta-Trinity National Forest and the Shasta Lake National Recreation Area. While the statutory responsibility for all wildland fires is federal responsibility, the protection responsibility for medical aids, traffic collisions, boat fires on Lake Shasta, and other improvement fires is served by the Shasta County Fire Department (SCFD), administered by CAL FIRE under a cooperative agreement. Lake Shasta is located within this federal DPA/Battalion and is the largest reservoir in California. At full pool, the lake has an elevation of 1,067 feet, a surface area of 30,000 acres, and a storage capacity of more than 4 million acre feet of water.

Battalion Resources:

Fire Protection within the Battalion is largely made up of career paid staffing, specifically within the incorporated cities, while CAL FIRE / Shasta County Fire Department career and volunteer firefighters make up a large majority of the firefighting work force in the unincorporated areas. The CAL FIRE and Shasta County Fire Department are under the supervision of Battalion Chief 2414

- **CAL FIRE**

Battalion 4 houses two career fire stations and three volunteer fire companies. Redding Fire Station 43 is served by 2 type III Schedule B engines and one Type II Schedule A engine during the peak fire season months, while in the winter months the staffing is reduced to two engines under Amador and Schedule A contracts. The Palo Cedro Fire Station 32 is a combination career and volunteer staffed Schedule A fire station which houses one type II fire engine. Battalion 4 is also home to the Shasta Bear Lookout which is staffed by career or retired firefighters during times of severe fire danger (red flag conditions).

- **Shasta County Fire Department**

Volunteer fire companies within the Battalion include (from north to south) the Lakehead Volunteer Fire Company Station 54, the Palo Cedro Volunteer Fire Company Station

32 and the West Valley Volunteer Fire Company Station 55.

- **Fire Protection Districts and Municipality**

District and municipal fire departments within the Battalion (from north to south) include the Dunsmuir/Castella Fire Protection District located at the Siskiyou, Shasta County line on Interstate 5 near the City of Dunsmuir. The Dunsmuir/Castella Fire Protection District is comprised of three fire stations, a number of ICS type I, II, and III engines, two water tenders, and rescue units. Staffing includes one career paid Fire Chief and a workforce of volunteer firefighters. The Mountain Gate Fire Protection District (MGFPD) is located on Interstate 5 directly south of Lake Shasta and is comprised of one station with two ICS type II and one ICS type III fire engine, a rescue, and one water tender. Staffing is made up of one career paid chief and a volunteer firefighting workforce. The Shasta Lake Fire Protection District (SLFPD) is located in the City of Shasta Lake and is comprised of two fire stations with two ICS type I, one ICS type II, two ICS type III engines, one rescue, and one water tender. The SLFPD has one career paid Chief, two career Battalion Chiefs, six career firefighters working in three alternating shifts 24 hours per day. The City of Redding Fire Department (ISO rating of 3) is comprised of seven career staffed fire stations with 63 uniformed firefighting personnel assigned to three alternating shifts (A/B/C). The Anderson Fire Protection District (AFPD) is located within the City of Anderson (ISO rating of 5) and is comprised of one career staffed fire station with one career paid Chief, one Battalion Chief, and 6 firefighting personnel assigned to three alternating shifts 24 hours per day. Directly west of the AFPD is the Happy Valley Fire Protection District (HVFPD). The HVFPD currently has two fire stations with plans for a third and is located entirely within State DPA. The HVFPD has one career paid Chief and a workforce of volunteer firefighters. HVFPD has two paid firefighters staffing one station during normal weekday business hours. Lastly is the Cottonwood Fire Protection District (CFPD) located near Interstate 5 at the Shasta/Tehama County line. The CFPD is comprised of one paid Chief and three firefighting personnel working alternating shifts staffed at 1-0.

Wildland and Urban Interface:

Battalion 4 is largely comprised of commercial, residential, agricultural, and highway uses, including Interstate 5 and State Highways 44, 273 and 299 east. Commercial properties include three active lumber mills, three large bulk propane facilities, and the Knighton Road Truck Stop to name a few. There are numerous public schools, churches, mobile home parks and residential developments located in the Battalion. While most of these occupancies exist within the large portion of LRA in Battalion 4, other mixed retail and commercial occupancies exist throughout the Battalion's SRA areas.

Fuels-Weather-Topography:

Fuels within Battalion 4 transition from grass/oak woodland to brush to conifer stands, fuel models 1, 4, and 10. At lower elevations, open areas of annual grasses are interspersed with 15 to 50 year old stands of decadent brush (chaparral). These fuel's dead to live ratio average approximately 20%. Annual chaparral live fuel moistures vary from 120% to less than 75%. Fuels transition from chaparral to conifer stands above

3000 feet. Current mixed conifer stands have occasional pockets of dead trees due to bug and snow kill.

Weather is generally warm and dry during the day with moderate humidity recovery at night. Peak summer temperatures average 85 to 95 degrees with temperatures reaching in excess of 110 degrees for two to five day periods. The average relative humidity is 15 to 35%. Gradient winds are generally out of the west, southwest 5 to 12 mph. Occasional light east winds occur in the morning then shifting to more W/SW flow in the afternoon and can reach speeds of 15 to 20 mph, generally up slope and up canyon. North wind events occur periodically throughout the fire season and can reach in the 10 to 30 mph range with associated higher gusts. These winds frequently switch to the northeast and strengthen after dark, maintaining low relative humidity's, often in the single digits throughout a 24 hour period.

Battalion Fire History:

Fire history suggests moderate to rapid rates of spread, sometimes reaching 1 to 3 mph specifically within fuel model 1. Spotting can be expected to have a major impact on firefighting resources, especially within the Wildland Urban Interface (WUI) which is a large make-up of Battalion 4's geography. Flame lengths in the chaparral can range from 12 to 20 feet. Normal Burning Indexes (BI's) from July to October average over 40. The 1999 Canyon Fire and Jones Fire, both driven by powerful north wind events, burned 2,580 and 26,200 acres respectively, and consumed more than 1,184 homes throughout a large portion of Battalion 4 within a single burning period. Lightning fires are also common place in Shasta County. In 2008, the valley floor was hit with hundreds of lightning caused fires that were quickly contained due to the lighter fuel models.

Fuels Reduction / Battalion Projects and Priorities:

There is no large scale fuel break located within Battalion 4. Many subdivisions have completed defensible space projects including small scale or isolated fuel breaks. There are many natural and man made features that may serve as fire breaks including roads, highways, railroads, and the Sacramento River. Local, state, and federal budgetary constraints have led small local community fire safe councils within the Battalion to merge their efforts for project work under the umbrella of the Shasta County Fire Safe Council, administered under the direction of the Western Shasta Resource Conservation District (WSRCD). The WSRCD has established fire plans for areas within Battalion 4 that include the Cottonwood Creek Watershed to the south, the Cow Creek Watershed to the east, the Community of Lakehead to the north, the lower Clear Creek Watershed to the west, and the Stillwater/Churn Creek Watershed plan in the heart of the Battalion which includes the communities of the City of Shasta Lake, Buckeye, the City of Redding, and the City of Anderson. The goal of these plans is to reduce the destruction and associated costs from wildfire by creating shaded fuel breaks, increase homeowner and fire department access and egress, watershed restoration, and public information and education on developing fire wise communities.

SHU Battalion 5

Battalion Overview:

The Battalion is located at the northern end of the Sacramento Valley with the City of Redding forming the eastern boundary and Trinity County forming the western border. The battalion includes portions of the Coast Range with elevations ranging from 500 to 6919 feet. The unincorporated communities of Centerville, Igo, Ono, Platina, French Gulch, Keswick, and Shasta all lie within the battalion. The Whiskeytown National Recreation Area is a popular local destination for area residents that enjoy water sports, camping, and hiking. The Battalion is comprised of a multi-agency workforce of state, local, and federal firefighting resources which provide wildland fire protection to the western portions of Shasta County under a cooperative agreement.

Battalion Resources:

Fire Protection within the Battalion is made up of CAL FIRE, Shasta County Fire Department, Shasta Fire Department, and National Park Service career and volunteer firefighters. The CAL FIRE and Shasta County Fire Department are under the supervision of Battalion Chief 2415.

- **CAL FIRE**

CAL FIRE maintains two career fire stations located in the communities of Shasta and Ono. Station 58 in Shasta houses two type III CAL FIRE engines and one type II bulldozer during peak fire season. In the winter months the staffing at station 58 is reduced to one engine under a cooperative agreement with Shasta County Fire. Station 57 in Ono houses one type III CAL FIRE engine during the fire season.

- **Shasta County Fire Department**

The Shasta County Fire Department (SCFD) is administered by CAL FIRE. Volunteer Fire Companies within Battalion 5 include the Igo/Ono Fire Company 50 and 51, utilizing 1 type II engine, 2 type III engines, 1 water tender, and 1 rescue. Centerville station 52, utilizing 1 type II engine and 1 type III engine. Keswick station 53, utilizing 1 type II engine, 1 type III engine, 1 water tender, and 1 rescue. French Gulch station 59, utilizing 1 type II engine, 1 type III engine, and 1 rescue.

- **Shasta Fire Department**

Shasta Fire Department station 56 is located in the community of Shasta. Station 56 utilizes 1 type I engine, 1 type II engine, 1 type III engine, 1 water tender, and 1 rescue.

- **Whiskeytown National Recreation Area**

The National Park Service staffs one type III engine during the fire season at their facility in the Whiskeytown NRA.

Wildland and Urban Interface:

Battalion 5 is largely comprised of brush and timberland with residential subdivisions located within the wildland. The subdivisions contain mainly single family residences with a few public schools and commercial businesses located within the communities.

All of the communities within the battalion have the potential for a catastrophic Wildland Urban Interface (WUI) fire due to population density and fuel loading.

Fuels-Weather-Topography:

The Coast Range is the dominate topographic feature within the Battalion. Bully Choop Peak sits on the western boundary of the Battalion at 6919 feet. Fuels transition from oak woodland to chaparral to conifer stands at the higher elevations. The climate is characterized by hot, dry summers and cool, wet winters. The summer high temperatures average from 90°F to 95°F with average relative humidity ranging between 15% - 35%. The majority of the precipitation occurs during the winter with an average of 30 – 40 inches falling per year. Gradient winds are generally out of the west to southwest with wind speeds of 15-20 mph in the late afternoon during the summer. Foehn wind events occur periodically throughout the summer and fall with wind speeds for these events ranging from 10-30 mph.

Battalion Fire History:

The Battalion has a rich fire history ranging back into the 1940's. Some of the larger fires in the Battalion are the Muletown fire (1946, 25,993 acres), Swasey fire (1972, 3,215 acres), French fire (2004, 12,675 acres), Motion fire (2008, 28,330 acres), Moon (2008, 35,312) Clover fire (2013, 8,077 acres), and the Bully fire (2014, 12,661 acres). Lightning fires are common in Shasta County during the summer months. In June of 2008, the Battalion was hit with numerous lightning strikes that caused scores of fires that eventually burned together into the Motion and Moon fires.

Fuels Reduction / Battalion Projects and Priorities:

The Battalion aggressively pursues defensible space inspections as well as fire safety presentations within the community. Information and education presentations are made at the local schools, the area churches, and at the two CAL FIRE stations within the Battalion.

The Battalion has many natural and manmade features which could serve as fire breaks including roads, highways, and waterways. State Highway 299 bisects the Battalion from Trinity County to the Redding City limits. Highway 299 is a major thoroughfare to the Northern California Coast.

Local, state, and federal budgetary constraints have led small local community fire safe councils within the Battalion to merge their efforts for project work under the umbrella of the Shasta County Fire Safe Council, administered under the direction of the Western Shasta Resource Conservation District (WSRCD). The WSRCD has established Community Wildfire Protection Plans (CWPP) for areas within the Battalion which include the communities of Keswick, Shasta, Igo, and French Gulch. The goal of the plans are to reduce the destruction and associated costs from wildfire by creating shaded fuel breaks, increase homeowner and fire department access and education on developing Fire Wise communities.

SHU Battalion 6

Battalion Overview:

The administrative boundaries for Battalion 6 encompass most of Trinity County. General boundaries are east of South Fork Mountain and Devils Backbone to Shasta County. The Northern boundary is the Siskiyou/Trinity County Line and the southern boundary is the Yolla Bolla Wilderness Area. The county is dissected by three state highways. State Route 299 and State Route 36 run east/west and State Route 3 runs north/south. The County is situated in mountainous, heavily forested land between the Sacramento Valley and the Coastal Mountain Range. A large portion of the land in Trinity County is federally owned. Trinity County population is just under 14,000 people, with an overall population density of 4 persons per square mile. The largest community is Weaverville, the County seat, with an estimated population of 3600 people. The Direct Protection Area (DPA) for the Battalion includes the communities of Douglas City, Lewiston, Hayfork, Weaverville and most of Junction City. Federal DPA is to the north, west, and south of the state DPA which includes Lewiston Lake, Trinity Lake and the Trinity Alps. There are no areas in Trinity County that currently meet Local Responsibility Area (LRA) criteria.

Battalion Resources:

It is not uncommon for resources from a high dispatch to respond for an hour and a half before arriving at an incident in the Battalion. Incidents within the Battalion require a multi- agency response that relies on the United States Forest Service to commit 3 to 4 engines during initial attack. Local Fire entities usually supply one engine and water tender.

- **CAL FIRE**

CAL FIRE has three Schedule B stations, one Lookout and one Conservation Camp within the Battalion. Trinity River Conservation Camp is a 6 crew camp and located north of Lewiston. All stations are staffed seasonally. Weaverville, Station 60, is the Battalion 6 Headquarters and has one type III four-wheel drive engine. Hayfork, Station 62, has one type III four- wheel drive engine. Fawnlodge, Station 61, has two type III engines, one conventional and one four-wheel drive. Bully Choop lookout is near the Shasta / Trinity County Line in the southern portion of Trinity County at just under 7,000 feet elevation. The lookout is staffed during periods of elevated fire danger by seasonal firefighters.

- **Districts**

There are areas in the Battalion DPA that are not covered by local Departments and Districts (unprotected for improvement fires). All local fire entities are staffed by volunteers, with only a couple of paid members in the larger communities. Being volunteer based, response from departments varies between departments, time of day, time of year etc. The following are the Districts and Department within the Battalion DPA:

Douglas City Community Services District: one type I engine, two type IV engines, one type I water tender.

Hayfork Fire Protection District: one type I engine, one type II engine, and one water tender.

Junction City Fire Protection District: one type I engine, one type II engine, two type III engines, and one type I water tender.

Lewiston Fire Protection District: one type II engine, two type III engines, one type I water tender.

Weaverville Fire Department: one type I engine, one type II engine, one type III engine, and one water tender.

Wildland and Urban Interface:

Developments within Trinity County tend to be guided by the terrain. Structures are comprised of one working lumber mill, multiple schools, light commercial and residential housing. Population density is generally greater in the flatter areas of the County. Because of the terrain there are multiple areas in the county that do not have a secondary ingress/egress. Multiple roads outside of the communities are either unnamed or unmarked. Large fire apparatus have limited mobility outside of the communities. The county is presently implementing a standardized addressing system. Water systems for fire suppression are limited to the larger communities and most do not have generator back-up to support the system during power failures. Fire suppression resources rely on water tenders using the Trinity River and numerous creeks for water supply.

Fuels-Weather-Topography:

Fuels within the Battalion are primarily timber and oak woodland with pockets of brush and grass. Timber fuel loading is increasing due to changing logging practices, fire occurrences, and natural effects (bug, snow, and wind). Fuel models[1] best representing most of Trinity County timber would be: Fuel Model 10, TL3 (moderate load conifer) and TL 6 (heavy load conifer). Ground fires are easily transitioning to crown fires. Canopy cover density is allowing for longer sustained crown fire runs. There are numerous brush pockets in the Battalion that are too dense to walk through. The dead component in these brush pockets can exceed 50%. Fuel Model 4 best represent these pockets during peak season. Unit fire occurrence and history maps show that there are areas in the battalion that have not burned in over 100 years. Fires during peak season in these areas will most likely cause significant damage to the water shed and natural resources. Annual grasses are limited to the Hayfork Valley, old fire areas with large tree and brush kills, and areas of the county where the tree density still allows for grass growth. Fuel Model 1 and 2 best represent the grass during the peak season.

[1] Hal E. Anderson / Joe H. Scott/Robert E. Burgan

Due to fires in the last 15 years another fuel loading category is increasing across the county. Large pockets of dead and down material that was not consumed during the fire with little or no post fire clean-up. These fuel beds are estimated to have greater than 75 tons of large fuel (above 3" in diameter) accumulations. Fires in these fuels are time consuming to extinguish and pose significant control problems during peak season. Fire modeling is difficult because the models do not account for the large diameter fuel loading.

Weather is generally warm and dry with occasional thunderstorms throughout the summer. Average daily high temperatures during the summer range between 85°-93° with peaks above 100°. Average relatively humidity daily minimums are 19% to 12% with single digit relative humidity a couple of days most summers. Gradient winds are west to east. Diurnal winds upslope and up canyon occur during the afternoon hours with down slope winds occurring during the night. Both upslope and down slope winds can be influenced by the Sacramento Valley and the coast causing higher than normal wind speeds. Precipitation during the summer averages less than 2 inches for the months of June, July, and August[2].

Trinity County topography is dominated by the Trinity Alps reaching above 7000' in elevation. The Trinity River dissects the Battalion with multiple tributaries. Slopes of 100% are common with few areas of the county considered flat.

Battalion Fire History:

Most communities in Trinity County have been under evacuation orders due to wildland fires within the last 15 years. Most fires requiring the evacuation orders were over 1000 acres in size. Examples are the Oregon fire (2001, 1,695 acres) Junction Fire (2006, 3,150 acres) and a second Oregon fire, (2014, 580 acres). These larger fires are characterized as total stand replacement fires creating significant environmental concerns. Fires starting at the bottom of a slope will typically reach the top of that slope. Winds aloft will transport embers into the next drainage creating spot fires in receptive fuel beds. Rates of spread can reach 1-3 miles per hour as the fire spreads uphill. Damage to structures caused by wildland fire is occurring more frequently as structures are built in the Wildland Urban interface, and fuel loading increases.

Fuels Reduction/Battalion Projects and Priorities:

The Battalion is responsible for implementing the Public Resource Code 4290 in Trinity County. Working in conjunction with the County Building Department, Planning Commission, General Plan Committee, and Subdivision Committee, Battalion personnel provide guidance to prepare and interpret ordinances as subject matter experts. In addition personnel assist developers in applying Fire Safe ordinances to their projects. The Trinity County Resource Conservation District (TRCD) and Hayfork Water Shed Center in conjunction with the Trinity County Fire Safe Council have taken lead roles in implementing fuels reduction projects and pre fire activities within the Battalion. All communities have been identified as a community at risk and are registered "Fire Wise Communities". TRCD assisted in updating a map book of the county, created pre fire attack maps with water sources, structures locations, roads, staging areas, and gates.

[2] NOAA and RAWS data

The Community Wildfire Protection Plan (CWPP) has identified and prioritized areas within the county that fuel treatments are needed to limit the negative impacts of wildland fires. Prioritization of areas was based on population, fuel loading, fuel type, terrain, completed fuel treatments and weather patterns. In addition ingress/egress routes were evaluated for fuel treatment projects to enhance safer travel for residents and response personnel. Prioritization was on a regional scale tying ridge top fuel breaks into community defensible zones.

TRCD in partnership with Bureau of Land Management created the Weaverville Community Forest, a stewardship to reduce the fuel loading on the west side of Weaverville. The plan is to expand the Community Forest to include additional areas to the west and north of Weaverville and include Forest Service lands. The local volunteer department has received grant funding to assist land owners in Defensible Space clearances. Defensible Space inspections are coordinated with the local projects to enhance the overall project success. This approach has produced a positive impact in the community by providing residents that otherwise could not complete the clearances, a means to comply with the law with little to no out of pocket cost. This multiple project approach is being implemented throughout the County with cooperation between federal, state, and local resources to reduce fuels in and around communities.

The Hayfork Water Shed Center is implementing projects that started with fuel breaks and defensible space clearances. The second phase of the projects will include a combination of hand/mechanical and prescribed fire to treat large blocks (over 1000 acres) of Bureau of Land Management and private lands.

Battalion station personnel work with school officials to provide education to grade school children. Coordination of resources between federal, state, and local resources occur when the school is within a multi-jurisdictional area.

SHU Battalion 7 Training

The Shasta / Trinity Unit Training Bureau statement of goals:

The Shasta Trinity Unit is dedicated to providing our employees with the highest degree of training, incorporating industry recognized standards and certifications, focusing on cost efficiency and fiscal responsibility while assuring operational needs are met. The Shasta / Trinity Unit training goals are based on defined, measurable training objectives, provided in a safe and harassment free environment, meeting Department policy and State statutes. It is expected that each employee dedicate 15% of their shift to training, whether it's informal at the fire station, or formal multi-agency training. By maintaining this commitment, we can perform at the highest level of service in; mitigating all types of emergency incidents, public education, law enforcement and administration for our customers, the people of California and its valuable resources.

During the summer, a Battalion chief, fire captain and a part-time office assistant staff the Training Bureau. In the winter the staff is increased by adding up to four training officers from the CAL FIRE ranks to deliver training to Shasta County Fire Department (SCFD). These training officers are comprised of permanent fire apparatus engineers and fire captains, both bringing a wide range of experience. These training officers are assigned Shasta County vehicles and equipment to conduct training to the individual volunteer companies within Shasta County. Every year the Shasta County Training Committee (consisting of representatives from CAL FIRE and SCFD training officers) recommends subjects, topics and evolutions which are then incorporated into the training schedule. With the addition of state and federally mandated training for firefighters the training schedule is completed and the winter training officers present it in the evenings at the SCFD facilities. The training sessions are a minimum of three hours each evening, and in 2014, included the following topics: Structure fire drills, CPR/AED, Defensive Driver, Hazardous Materials Refresher, Fit Testing, L-180, EMS Skills, Command and Control Wildland Fires, Rope Rescue, Wildland Safety Training, and RT-130. The Shasta County Training Bureau supplied over 2,000 instructor hours in 2014, with the average SCFD Volunteer attending over 100 hours of focused training.

In the winter a captain is assigned to assist with training in Trinity County. The captain assists the local volunteer agencies in Trinity County with their regular training schedule.

Camps

Sugar Pine Conservation Camp (SPCC)

Sugar Pine Camp is a 130 man, 6 crew, and one CAL FIRE bulldozer camp located in Shasta County approximately fifteen miles outside of the town of Bella Vista. (SPCC) opened in 1988, Sugar Pine is operated by the CAL FIRE, and the California Department of Corrections and Rehabilitation. The fire crews work on grade projects five days a week all year round. These projects include many fuel reduction projects for Fire Safe Councils, municipalities, schools, county government, state government agencies and federal government agencies. Acres treated vary by project and stakeholder needs and desires. As recognized by the fire plan, inmate labor for fuel reduction projects provides good training for fire-fighting crews and defensible space around valuable assets and infrastructure at a reasonable cost to the taxpayer. In addition to the fire crews Sugar Pine Camp has an engraving shop, cabinet shop, and automotive repair shop.

Trinity River Conservation Camp (TRCC)

Trinity River Camp is a 130 man, 6 crew camp, located in Trinity County approximately 12 miles outside of the town of Lewiston. Opened in 1988, Trinity River is operated by the CAL FIRE, and the California Department of Corrections and Rehabilitation. The fire crews work on grade projects five days a week all year round. The crews are engaged in federal, state, and local community projects which include reforestation, hazard fuel reduction, erosion control, fish habitat, wildlife improvements, school site cleanup, and other projects supporting the public good. Acres treated vary by project and stakeholder needs and desires. As recognized by the fire plan, inmate labor for fuel reduction projects provides good training for fire-fighting crews and defensible space around valuable assets and infrastructure at a reasonable cost to the taxpayer. In addition to the fire crews, Trinity River Camp has a wood shop, lumber mill, welding shop, sew shop, and automotive repair shop.

LaTour Demonstration State Forest

This property became a state forest in 1946 when the State Lands Commission deeded the property to the then California Division of Forestry. It is located in Shasta County, south of Burney and east of Redding at the edge of the Lassen National Forest. The 9,033 acre State Forest contains many interesting volcanic, glacial and geological features, and comprises the headwaters of two major tributaries to the Sacramento River, including Old Cow Creek and South Cow Creek.

The forest supports 10 coniferous tree species of commercial value. They include sugar pine, ponderosa pine, Jeffrey pine, western white pine, lodge-pole pine, Douglas-fir, white and red fir, incense cedar and mountain hemlock. The stands contain lesser amounts of hardwood trees, such as California black oak, canyon live oak, big leaf maple and red alder.

Near the southern extent of the Cascade Range, the area is popular with hikers, bicyclists, snowmobilers, and equestrian groups. Hunting and fishing may be enjoyed in season, and in accordance with the Department of Fish and Wildlife laws and regulations.

Normally, the forest is accessible to vehicles from late June until early November. Winter and spring months are often a time of high winds, deep snow, and extreme cold, making the area inaccessible to vehicle traffic except snowmobiles. The four campgrounds found on LaTour include multiple campsites, picnic tables, fire rings and restroom facilities. Water is available at each campground.

LaTour Demonstration State Forest utilizes crews from Sugar Pine Conservation Camp to work on fuels projects such as thinning along roadways to increase forest health and create shaded fuel breaks. LaTour is also open to the public to cut dead and down trees for firewood and the cutting of Christmas Trees. The State Capital Christmas Tree has been harvested annually from LaTour Demonstration State Forest since 2012.

APPENDIX A: PRE- FIRE PROJECTS

TREATMENT NAME	PROJECT STATUS	TYPE	ACRES
11-NR-SHA-07	Active	CFIP	36.34
Bateman Fuel Break	Planned	VMP	0.00
Bebensee Fuels Treatement	Active	CFIP	268.40
Big Creek VMP	Active	VMP	53.26
Burney Community Fuel Break	Active	VMP	117.41
Burney FB Phase II	Planned	VMP	0.00
Escove CFIP	Complete	CFIP	136.23
Frietas Plantations	Complete	CFIP	10.55
Hat Creek FMP	Complete	FirePlan	20.18
LaTour State Forest	Active	VMP	225.27
Lower Clear Creek FMP	Active	FirePlan	24.76
McArthur Swamp VMP	Active	VMP	703.91
Ponderosa Way Fuel Break Phase 2	Planned	VMP	0.00
Ponderosa Way Fuelbreak Phase 1	Active	VMP	0.00
Public Service Announcements	Planned	FirePlan	0.00
Shingletown FMP	Complete	FirePlan	31.88
Shingletown Fuel Break, Woodridge	Active	VMP	0.00
Shingletown Ridge	Complete in Maintenance	FirePlan	318.93
Stillwater-Churn Creek CWPP	Complete	FirePlan	126.23

Additional projects listed in Community Wildfire Protection Plans (CWPP) for: Lower Clear Creek Area, Keswick Basin, Shingletown/Manton Communities, Lakehead Area, Cow Creek, Stillwater-Churn Creek, French Gulch Area, Cottonwood Creek and the Shasta West Watershed. Not all projects could be listed in the table above, the CWPP's are on file at the Shasta Trinity Headquarters office.

APPENDIX B: UNIT GOALS AND OBJECTIVES

Goals and Objectives of the Shasta-Trinity Unit

The overall goal of the Shasta / Trinity Unit is to reduce the costs and losses associated with wildfire though continuing collaborative efforts from the Unit, stakeholders and cooperators with shared objectives to be implemented in this plan, including;

- Collection, analysis and sharing Geographic Information Systems (GIS) with stakeholders and cooperators.
    - This is accomplished by working with the Resource Conservation Districts (RCD), Fire Safe Councils (FSC) and county resources.

- Continue to support resource conservation districts, fire safe councils and fire safe communities in the efforts in implementation in the communities CWPP'S.

- Attending local meetings and having representatives offer guidance and support from CAL FIRE when needed.
- Completion of projects by utilizing CAL FIRE/CDCR hand crews.

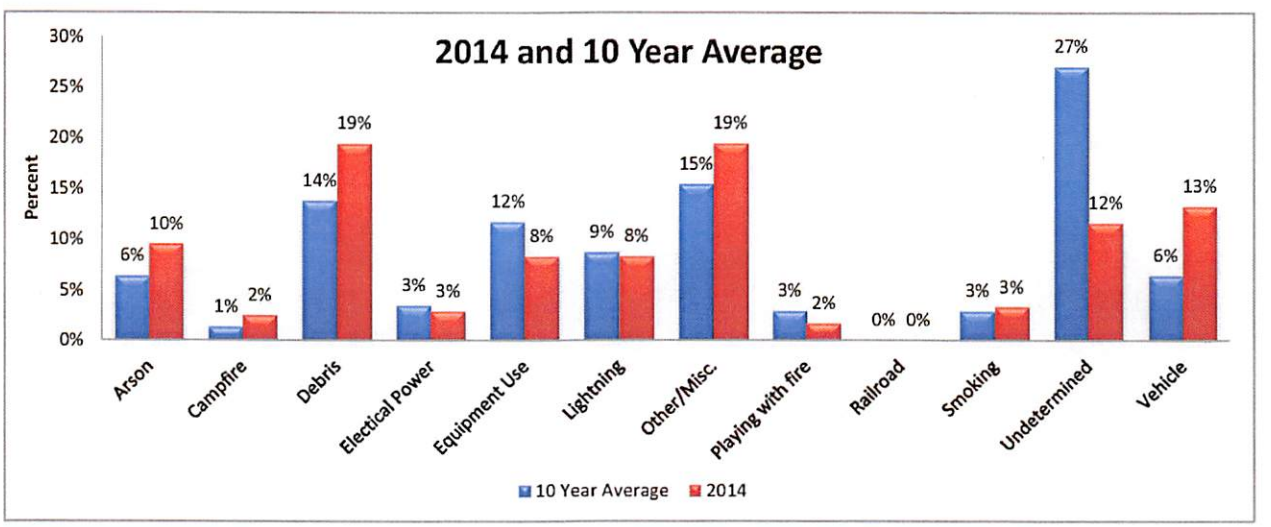
- Recognize and identify assets at risk and establish protection plans for those assets.
  - Utilizing programs such as CalMAPPER, local knowledge from Battalion Chiefs and citizens.

- Increase the number and effectiveness of the defensible space (*PRC § 4291*) inspections and promote an increased level of compliance with defendable space laws and regulations.
  - Using Volunteers In Prevention (VIP) to help conduct LE-100 inspections prior to peak staffing at the stations.
  - Station personnel conducting inspections throughout the summer.
  - Have four Defensible Space Inspectors, to continue inspections through the summer.

- Increased inspections on railway and power line clearances and equipment.
  - Work with the Railroad companies to complete inspections with use to ensure right of way clearance.
  - Work with PG&E to educate personnel on equipment and required clearance.
  - Create and Utilize inspection booklets for personnel to identify and submit problem locations.
- Increase the public awareness on how to reduce wildfire ignitions.
  - Identify current ignition trends and educate the public through press releases to newspapers, radio and television stations.
  - Increase the public awareness to changing seasons and potential hazards through press releases to newspapers, radio and television stations.
  - Road side signs with public messages.

APPENDIX C: IGNITION ANALYSIS

The Shasta / Trinity Unit uses fire ignition cause data to analyze and determine the trend in fire causes. In the past ten years the highest percentage of fires in the unit has been classified as undetermined. Fire cause is classified as undetermined when the investigator is unable to eliminate the ignition source to one cause. In order to reduce the number of undetermined fires the Prevention Bureau attempts to respond to all fire in SHU. Training engine personnel in origin and cause determination can also decrease the number of fires classified as undetermined. The next largest cause class in the past ten years has been miscellaneous fires. Miscellaneous fires are fires which have a clearly identified ignition but do not fit into the other cause classes. Two causes of fires in which the Prevention Bureau and the Unit can focus efforts to reduce are the next highest causes in the past ten years, debris burning and equipment use. Debris burning has always been in an issue during the early part of the summer, around April and May. The past several years has also seen an increase of debris fire escapes in the fall as the winters have been dry with long time periods between rain events. In an effort to reduce the amount of fires caused by debris burning public announcements, media releases, and enforcement action has been utilized in an effort to educate the public on how to properly burn their debris piles. Equipment use has been declining in the past ten years but still remains a major contributor in fire starts. Media releases, education and enforcement of the Public Resources Code have worked in decreasing the numbers of equipment caused fires. Another program the "One less Spark One Less Fire" developed by the United States Forest Service has also helped to bring the attention to the public on the issue of equipment caused fires. The chart below illustrates the cause and percentage of fires in the Shasta / Trinity Unit over the past ten years.



EXHIBITS: MAPS

Figure A: Unit Map

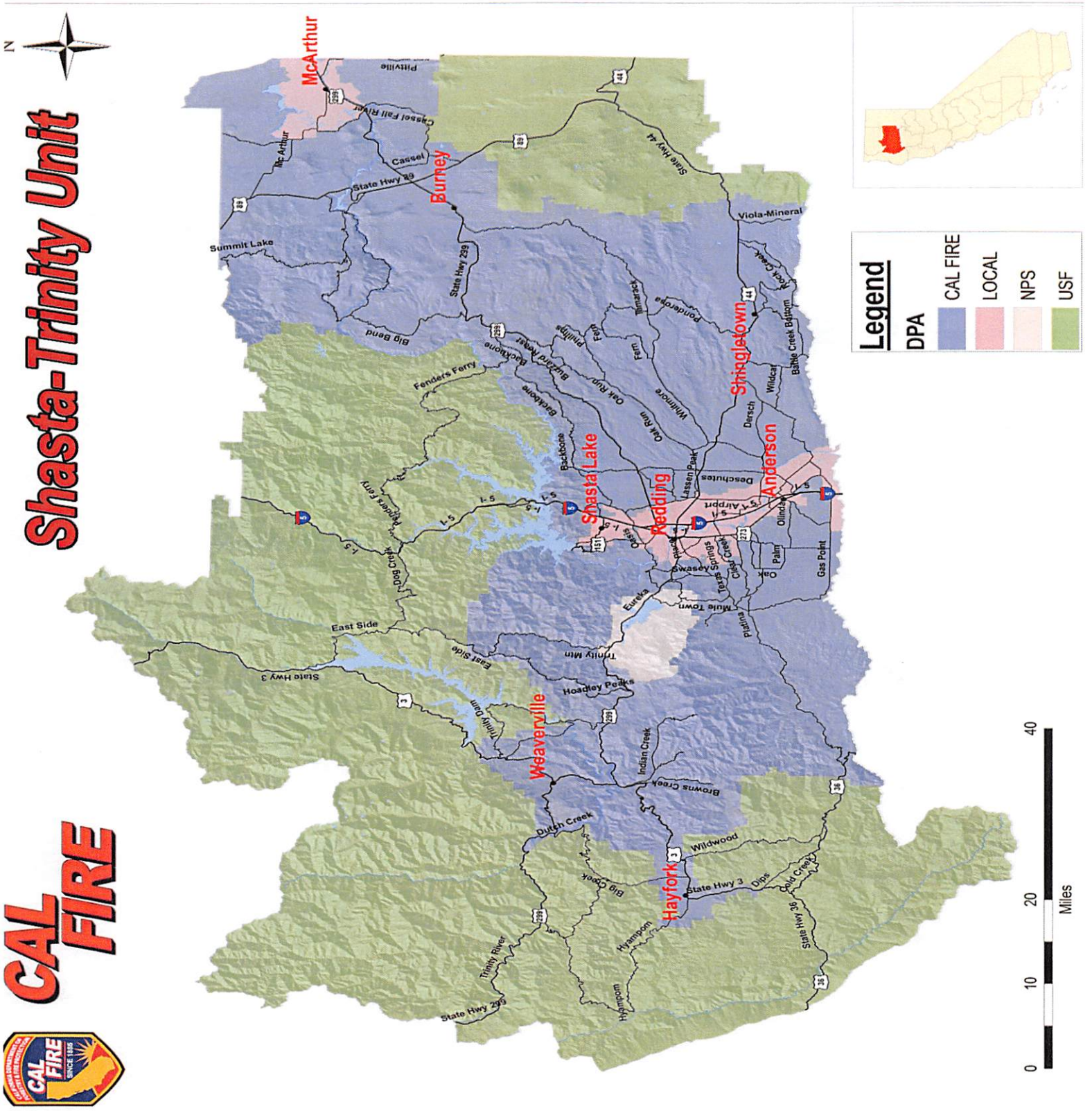
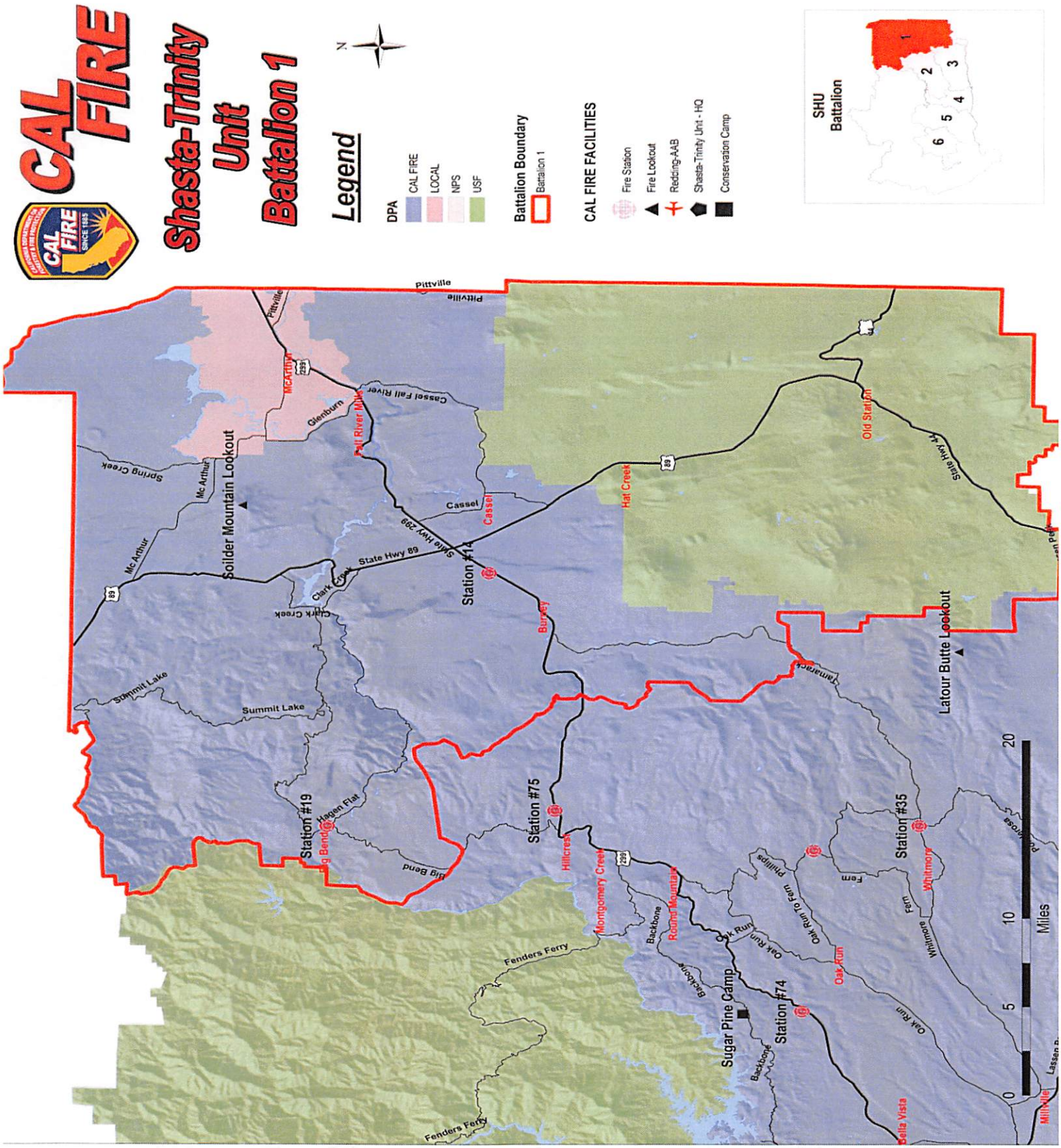
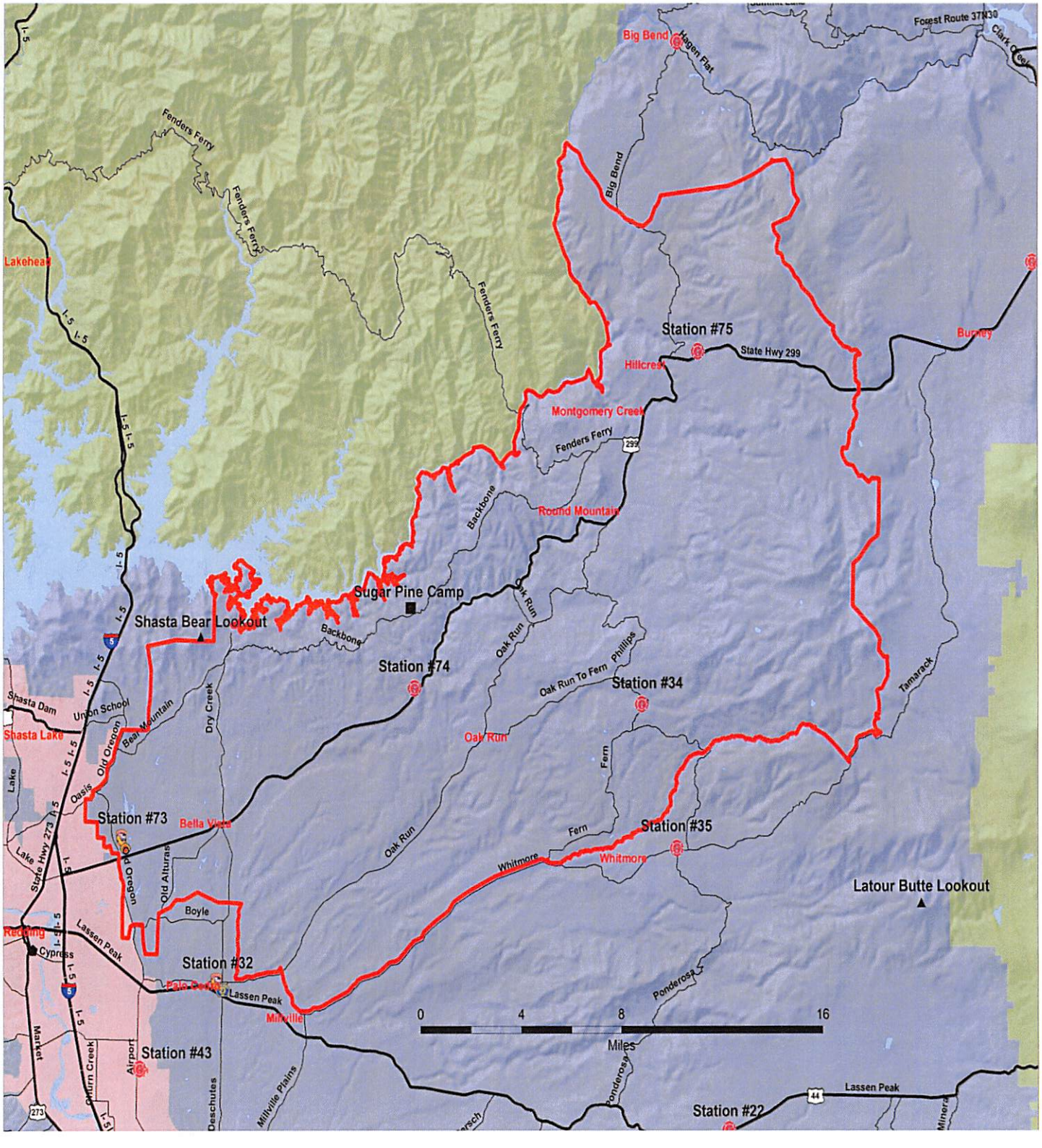


Figure B: Battalion Maps

Battalion 1





CAL FIRE

Shasta-Trinity Unit
Battalion 2

Legend

DPA
- CAL FIRE
- LOCAL
- NPS
- USF

Battalion Boundary
- Battalion 2

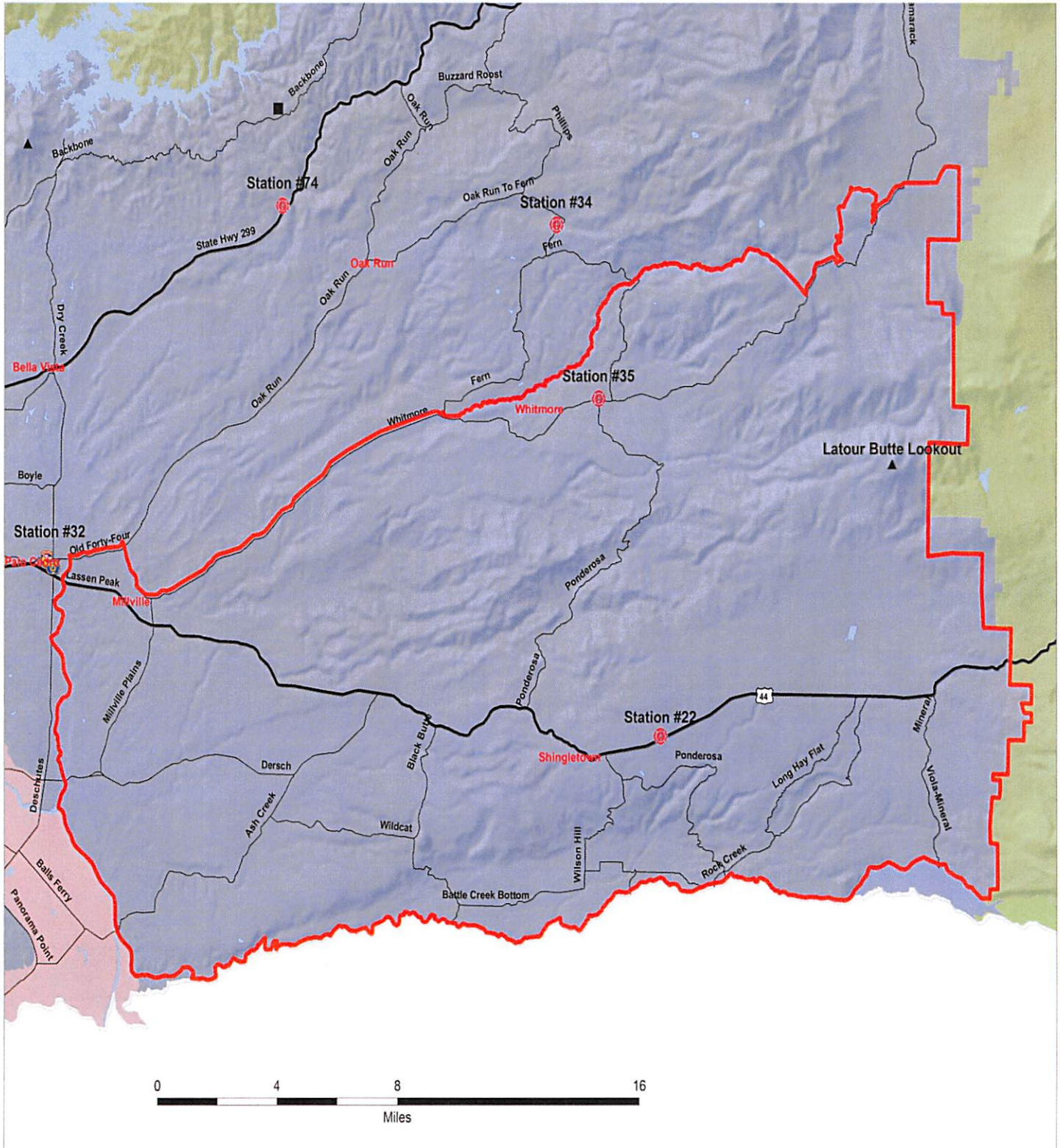
CAL FIRE FACILITIES
- Fire Station
- Fire Lookout
- Redding-AAB
- Shasta-Trinity Unit - HQ
- Conservation Camp

CAL FIRE Contract Stations
- Station #32 (A)
- Station #73 (Amador)

N

Battalion 2

SHU Battalion



CAL FIRE

Shasta-Trinity Unit Battalion 3

Legend

DPA
- CAL FIRE
- LOCAL
- NPS
- USF

Battalion Boundary
- Battalion 3

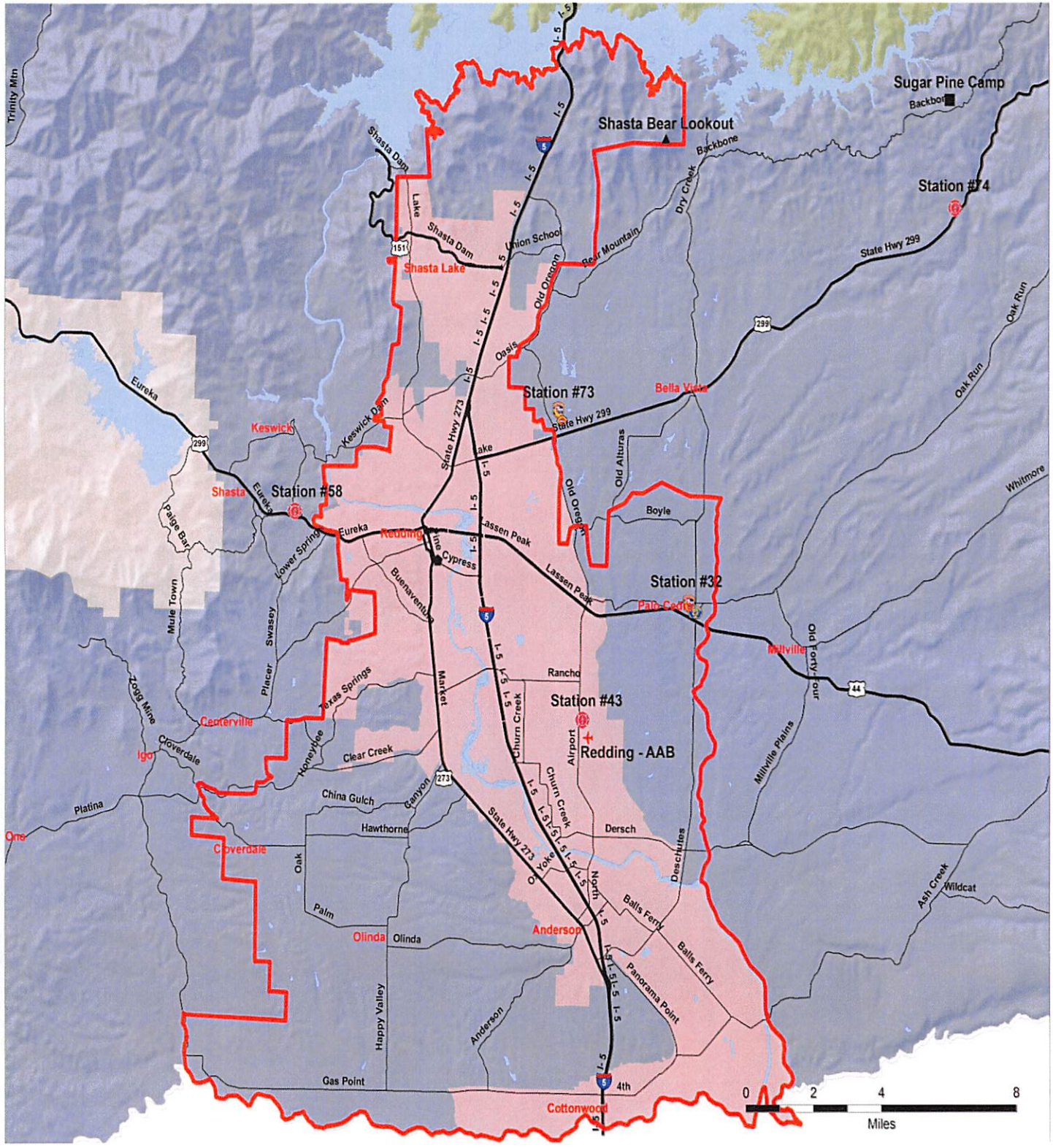
CAL FIRE FACILITIES
- Fire Station
- Fire Lookout
- Redding-AAB
- Shasta-Trinity Unit - HQ
- Conservation Camp

CAL FIRE Contract Station
- Station #32 (A)

N

Battalion 3

SHU Battalion



CAL FIRE

Shasta-Trinity Unit
Battalion 4

Legend

N

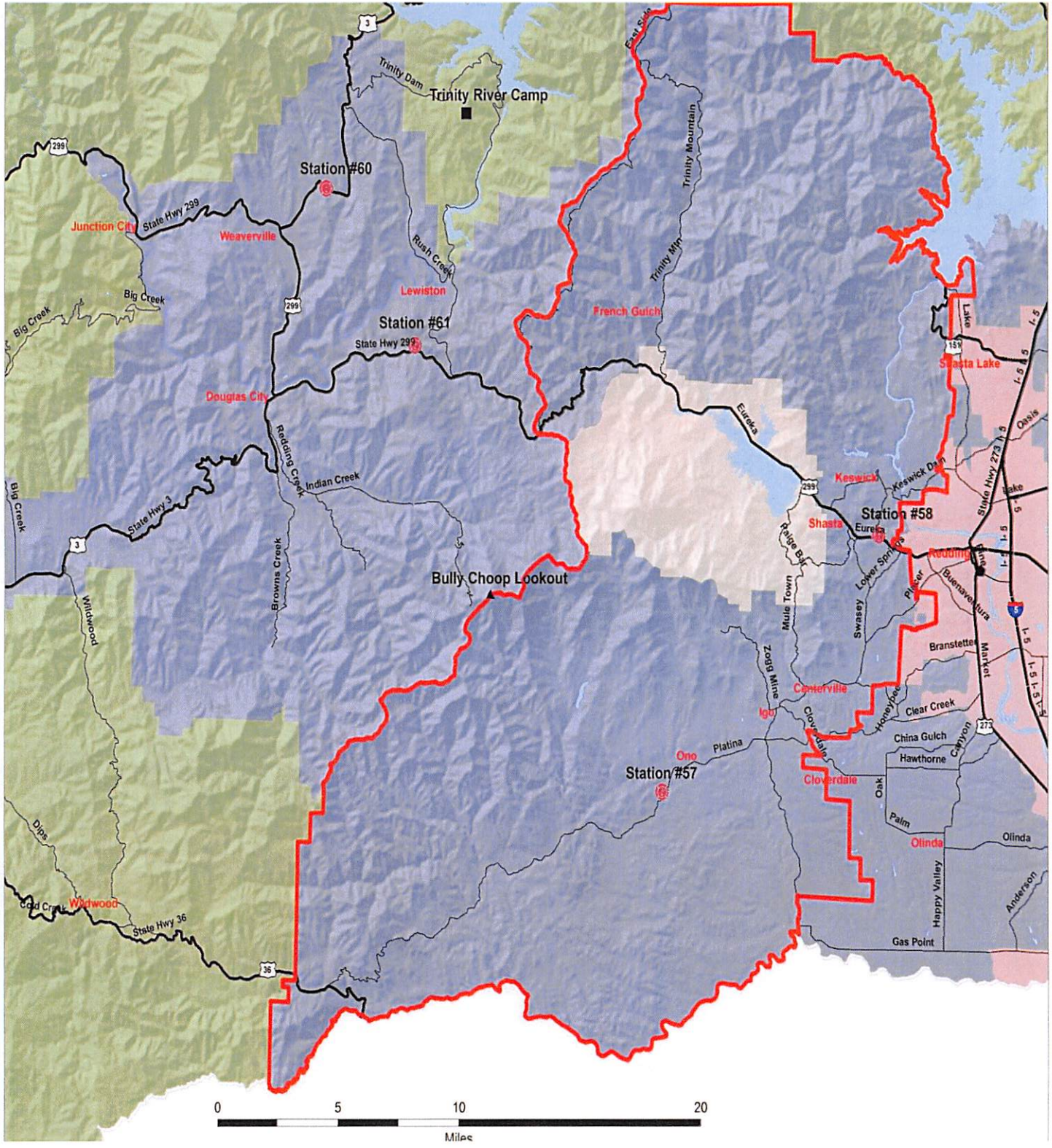
DPA
- CAL FIRE
- LOCAL
- NPS
- USF

Battalion Boundary
- Battalion 4

CAL FIRE FACILITIES
- Fire Station
- Fire Lookout
- Redding-AAB
- Shasta-Trinity Unit - HQ
- Conservation Camp

SHU Battalion

Battalion 4



CAL FIRE

Shasta-Trinity Unit Battalion 5

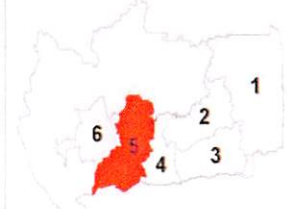
Legend

DPA
- CAL FIRE
- LOCAL
- NPS
- USF

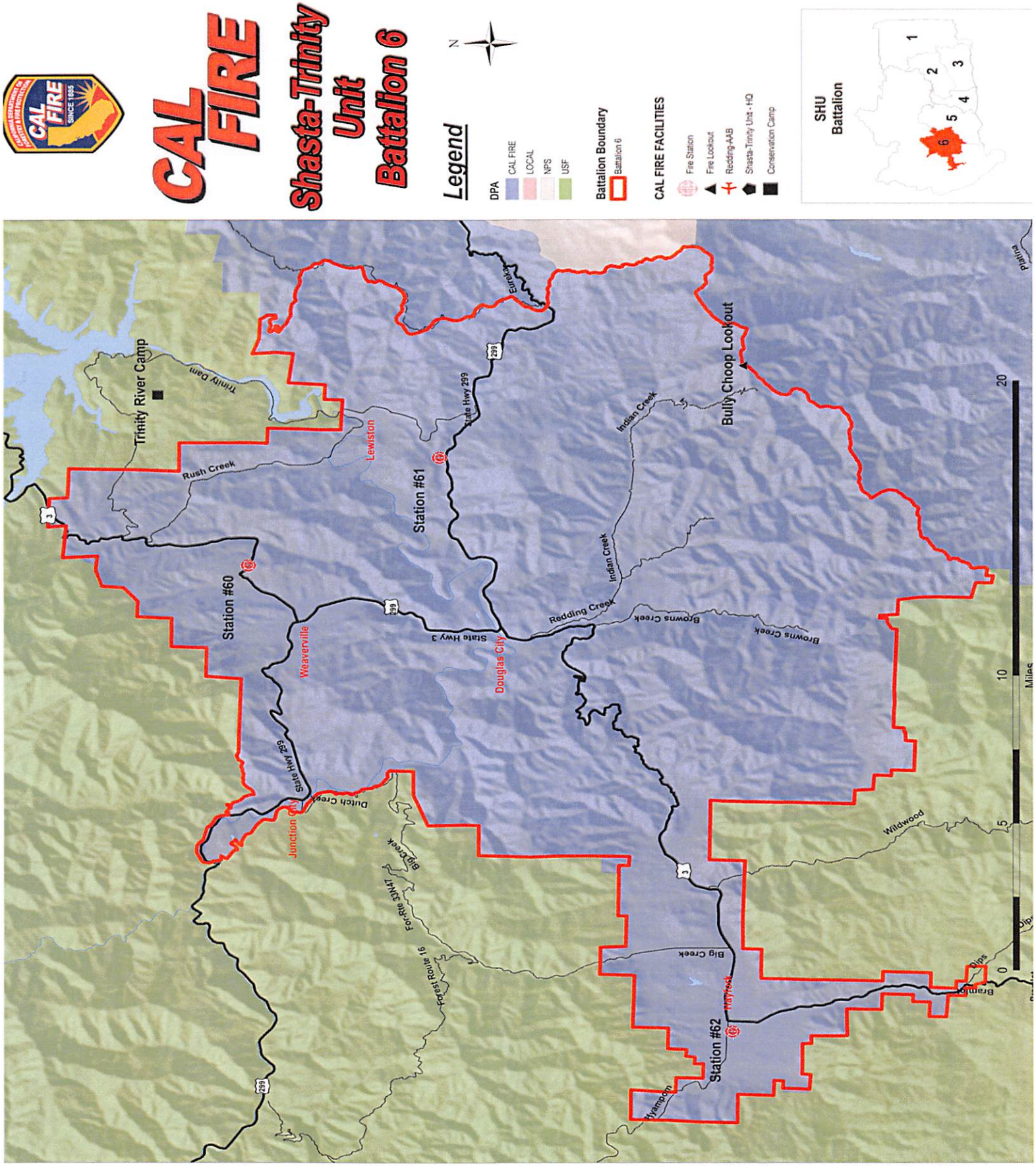
Battalion Boundary
- Battalion 5

CAL FIRE FACILITIES
- Fire Station
- Fire Lookout
- Redding-AAB
- Shasta-Trinity Unit - HQ
- Conservation Camp

SHU Battalion

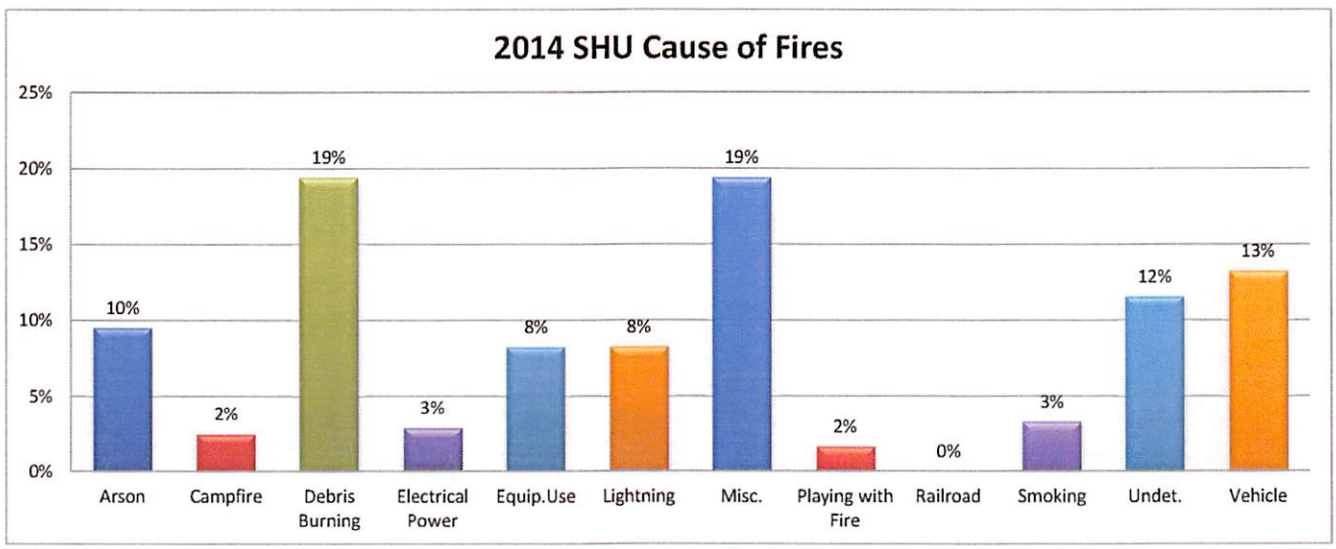


Battalion 5


CAL FIRE
Shasta-Trinity Unit Battalion 6
Legend
DPA
CAL FIRE
LOCAL
NPS
USF
Battalion Boundary
Battalion 6
CAL FIRE FACILITIES
Fire Station
Fire Lookout
Redding-AAB
Shasta-Trinity Unit - HQ
Conservation Camp
SHU Battalion
Trinity River Camp
Trinity Dam
Rush Creek
Lewiston
Station #61
Station #60
Weaverville
Junction City
Dutch Creek
State Hwy 299
State Hwy 3
Douglas City
Redding Creek
Indian Creek
Eureka
Bully Choop Lookout
Browns Creek
Forest Route 16
Big Creek
Hayfork
Station #62
Hyampom
Wildwood
Dips
Bramlo
Miles

SUPPLEMENT: 2

Annual Report of Unit Accomplishments

In 2014 the Shasta / Trinity Unit continued to work with cooperators to identify new projects and continued progress on current projects. Projects on Highway 299 in the Hatchet Mountain area, Shingletown Ridge and LaTour State Forest continued with thinning of fuels to create fuel breaks. In Trinity County the Big Creek Vegetation Management Plan was able to complete 37 acres of an understory broadcast burn in coordination with landowners, the Hayfork Watershed group and CAL FIRE. This project is planned for more burning in the future. Shasta / Trinity Unit continued with Public Resource Code 4291 inspections throughout the year utilizing station personnel along with the Volunteers in Prevention. Sugar Pine Camp and Trinity River Camp continued to support local agencies with crew hours to progress or complete projects within the Unit.

In 2013 arson caused fires had increased from the prior year, and in 2014, there was a decrease in that number. This decrease in the number of arson fires was due to the prevention bureau recognizing the problem, and initiating region support. This resulted in 2 arrests. The two main contributors to fire starts in 2014 were from debris burning, and miscellaneous. The increase of both debris fires and miscellaneous caused fires, can be attributed to the ongoing drought, creating drier than normal fuel conditions statewide. The amount of undetermined fires was reduced over the ten year average in part to the increased training of line personnel and the effort for prevention to respond to every fire in the Unit.