



# Fuel Hazard Permitting Options for Landowners





# Fuel Hazard Permitting Options

Purpose of presentation:

- Update the Board of Forestry and Fire Protection (BOF) on the availability, use and monitoring of the various permitting options under the Forest Practice Rules when harvesting timber for fuel hazard reduction.



# Fuel Hazard Permitting Options

## Presentation Outline:

- Identify the existing and new permitting/noticing options available for fuel hazard reduction. (Fuel Hazard Reduction Landowner Guide)
- Describe the past and current use of the various permitting options.
- Highlight regulations developed by the BOF for the years 2014-15.
- Describe Monitoring Requirements and Monitoring Plan Development
- Current Monitoring Activities



# Fuel Hazard Permitting Options

CAL FIRE has developed a Landowner's Guide to Permitting Options when Harvesting Timber for Fuel Hazard Reduction.

The guide identifies twelve fuel hazard permitting options:

- Exemptions- eight
- Emergency- One
- Timber Harvest Plans (THPs)- three

Landowner considerations for selecting the right permitting option:

- Registered Professional Forester (RPF) requirements
- Area/Acreage limitations
- Silviculture/Stocking
- Diameter Limits
- Surface and Ladder Fuel Treatments
- Protection of other resources (Wildlife, Water, Archeology)
- Approval times; Effective Period; Restrictions



# Fuel Hazard Permitting Options

## Exemptions - 14 CCR § 1038

- (c) – 150' structure protection
- (c)(6) – 150' to 300' structure protection (**NEW 2015**)
- (b) – 10% dead, dying, diseased trees
- (k) – Drought Mortality (**NEW 2015**)
- (d) – Substantially Damaged Timberlands
- (g) – Woody Debris & Slash for Energy Production
- (i) – Forest Fire Prevention Project
- (j) – Forest Fire Prevention PILOT project (**NEW 2015**)

## Emergencies – 14 CCR § 1052.4

- Fuel Hazard Reduction

## Timber Harvest Plans – 14 CCR §

- 1051.3 – Modified THP for Fuel Hazard Reduction
- 913.4 – Fuelbreak Defensible Space
- 916.9(v)(6) – Anadromous Salmonids planning watersheds



# Fuel Hazard Permitting Option

## Example Landowner's Guide

FUEL HAZARD REDUCTION PERMIT OPTIONS 2015										
PERMIT OPTIONS	RPF REQUIRED?	AREA/ACREAGE LIMITATIONS	SILVICULTURE / STOCKING	DIAMETER LIMIT	SURFACE/LADDER FUELS TREATMENT	ARCH	APPROVAL TIME	EFFECTIVE PERIOD	§ 1038(b)(1-10) RESTRICTIONS *	OTHER INFORMATION
<b>EXEMPTIONS</b>										
150' Structure Protection Exemption (14 CCR § 1038(c))	NO	Only trees within 150 feet of an approved & Legally Permitted Structure	Prohibits clearcutting, seed tree removal steep, and shelterwood	No tree greater than 60 dbh redwood and 48 dbh other species (14 CCR §§ 1038 & 1038(h))	Surface fuels created during harvest exceeding 1" in diameter SHALL be chipped, burned, or removed in 45 days and be consistent with Technical addendum #4 within 1 year	No timber operations in a significant archaeological or historical site. (14 CCR § 1038(b)(10))	5 working days from receipt - Operations may occur once LTO has a copy of exemption on site (14 CCR § 1038(e))	1 - Year	YES	Tahoe region restriction (14 CCR § 1038(f)(3)-(16))
150' - 300' Structure Protection Exemption (14 CCR § 1038(c)(6))	Yes	Only trees within 150 - 300 feet of Habitable Structures occupied for residential use	Stocking standards shall be consistent with the standards of (14 CCR § 913.2, 933.2, 953.2)	No tree greater than 60 dbh redwood and 48 dbh other species (14 CCR §§ 1038 & 1038(h))	ALL logging slash created during timber harvesting shall be lopped to less than 18", removed, chipped, piled and burned or otherwise treated within 45 days of creation.	No timber operations in a significant archaeological or historical site. (14 CCR § 1038(b)(10))	5 working days from receipt - Operations may occur once LTO has a copy of exemption on site (14 CCR § 1038(e))	1 - Year	YES	Quadratic Mean Diameter (QMD) of trees greater than 8 inch dbh shall be increased in the Post-harvest stand.



# Fuel Hazard Permitting Option

## Example Landowner's Guide

PERMIT OPTIONS	RPF REQUIRED?	AREA/ACREAGE LIMITATIONS	SILVICULTURE / STOCKING	DIAMETER LIMIT	SURFACE/LADDER FUELS TREATMENT	ARCH	APPROVAL TIME	EFFECTIVE PERIOD	§ 1038(b)(1-10) RESTRICTIONS*	OTHER INFORMATION
Harvesting Dead, Dying, Diseased trees. (14 CCR § 1038(b))	Only for trees harvested in standard WLPZ (14 CCR § 1038(b)(9))	NONE	NONE	No tree greater than 60 dbh redwood and 48 dbh other species (14 CCR §§ 1038 & 1038(h))	Slash treatment must be consistent with FPR's, Article 7 - "Hazard Reduction" (14 CCR § 917, 937, 957)	No timber operations in a significant archaeological or historical site. (14 CCR § 1038(b)(10))	Submission of exemption/ Operations may occur once LTO has a copy of exemption on site.	1 - Year	YES	Harvest limited to less than 10% of the volume per acre. Tahoe region restriction (14 CCR § 1038(f)(3)-(16))
Drought Mortality Exemption (14 CCR § 1038(k))	Only when the cumulative harvest area exceeds 20 acres total contiguous ownership	NONE	NONE	No tree greater than 60 dbh redwood and 48 dbh other species (14 CCR §§ 1038 & 1038(h))	Slash treatment must be consistent with FPR's, Article 7 - "Hazard Reduction" (14 CCR § 917, 937, 957)	No timber operations in a significant archaeological or historical site. (14 CCR § 1038(b)(10))	5 working days from receipt - Operations may occur once LTO has a copy of exemption on site (14 CCR § 1038(e))	1 - Year	YES	Harvesting limited to only Dead or Dying trees due to mortality Tahoe region restriction (14 CCR § 1038(f)(3)-(16))

[http://calfire.ca.gov/resource\\_mgt/resource\\_mgt\\_fuelhazardreduction.php](http://calfire.ca.gov/resource_mgt/resource_mgt_fuelhazardreduction.php)



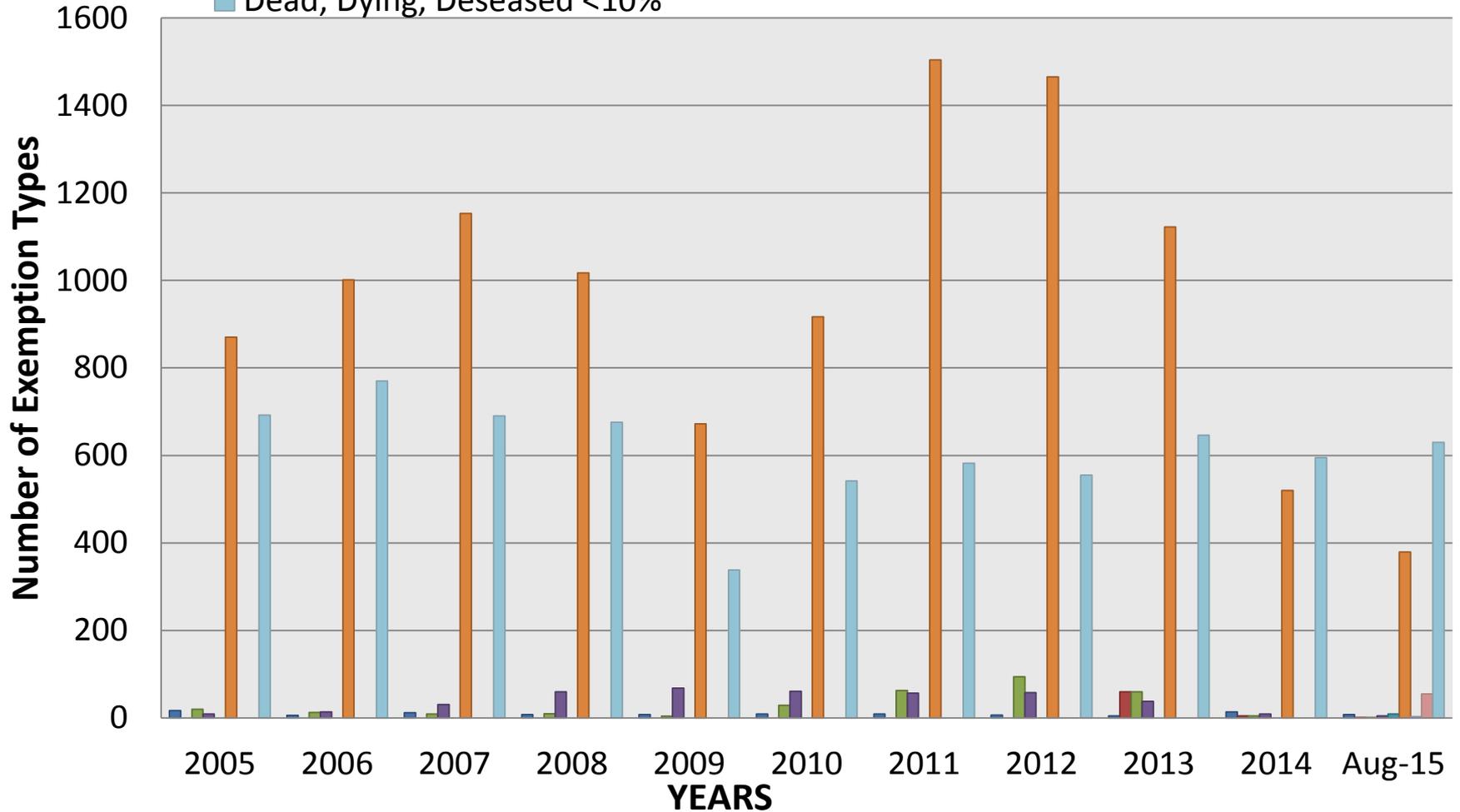
# Fuel Hazard Harvest Documents 2005-2015

HARVEST DOC	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Aug 2015
THP Fuelbreak	17	6	12	8	8	9	9	7	5	14	8
MTHP Fuel Haz	0	0	0	0	0	0	0	0	2	0	0
EM Fuel Haz Red	20	13	9	10	4	29	63	94	60	5	1
Forest Fire Prev	9	14	31	60	68	61	57	58	38	9	5
FFP Pilot Project	0	0	0	0	0	0	0	0	0	0	9/1,470
Fire Hazard 150'	870	1,001	1,153	1,017	672	917	1,504	1,465	1,122	520	379
Fire Hazard 300'	0	0	0	0	0	0	0	0	0	0	3/8
Drought Mortality	0	0	0	0	0	0	0	0	0	0	55/2,677
<b>TOTALS</b>	<b>916</b>	<b>1,034</b>	<b>1,205</b>	<b>1,095</b>	<b>752</b>	<b>1,016</b>	<b>1,633</b>	<b>1,624</b>	<b>1,227</b>	<b>548</b>	<b>466</b>
<b>Annual Average</b>	<b>1,046</b>										
Dead, Dying 10%	692	770	690	676	338	542	582	555	646	595	630

New documents in 2015 are FFP Pilot Project, Habitable Structures (Fire Hazard 300') and Drought Mortality.

# FUEL HAZARD DOCUMENTS 2005 - AUGUST 2015

- THP Fuel Break
- MTHP Fuel Hazard
- EM Fuel Hazard Red.
- Forest Fire Prevention
- FFP Pilot Project
- Fire Hazard 150'
- Fire Hazard 300'
- Drought Mortality
- Dead, Dying, Diseased <10%



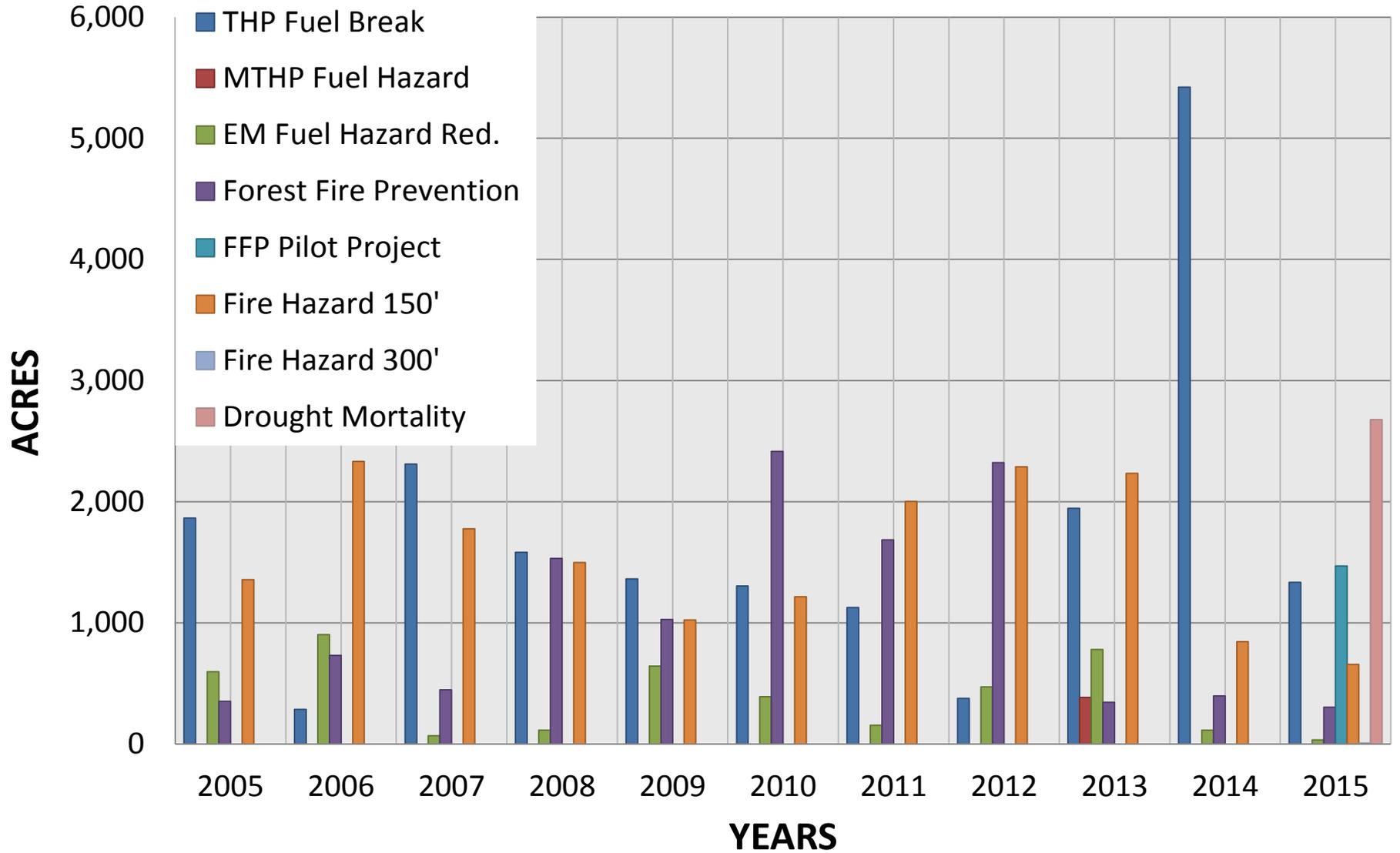


# Fuel Hazard Acres 2005-2015

HARVEST DOC	2005 Acres	2006 Acres	2007 Acres	2008 Acres	2009 Acres	2010 Acres	2011 Acres	2012 Acres	2013 Acres	2014 Acres	8-2015 Acres
THP Fuelbreak	1,865	285	2,310	1,582	1,362	1,305	1,127	376	1,945	5,423	1,335
MTHP Fuel Haz	0	0	0	0	0	0	0	0	385	0	0
EM Fuel Haz Red	597	902	68	114	642	390	154	471	779	115	33
Forest Fire Prev	353	731	447	1,531	1,027	2,415	1,685	2,322	344	396	304
FFP Pilot Project	0	0	0	0	0	0	0	0	0	0	1,470
Fire Hazard 150'	1,357	2,333	1,775	1,497	1,024	1,216	2,002	2,289	2,234	845	656
Fire Hazard 300'	0	0	0	0	0	0	0	0	0	0	8
Drought Mortality	0	0	0	0	0	0	0	0	0	0	2,677
<b>TOTALS</b>	<b>4,172</b>	<b>4,251</b>	<b>4,600</b>	<b>4,724</b>	<b>4,055</b>	<b>5,326</b>	<b>4,968</b>	<b>5,458</b>	<b>5,687</b>	<b>6,779</b>	<b>6,601</b>
<b>Annual Average</b>	<b>5,147</b>										
Dead, Dying 10%	2,863,716	2,727,824	2,961,053	2,613,670	2,568,028	2,781,706	3,116,707	2,788,006	2,677,887	2,790,621	2,502,936

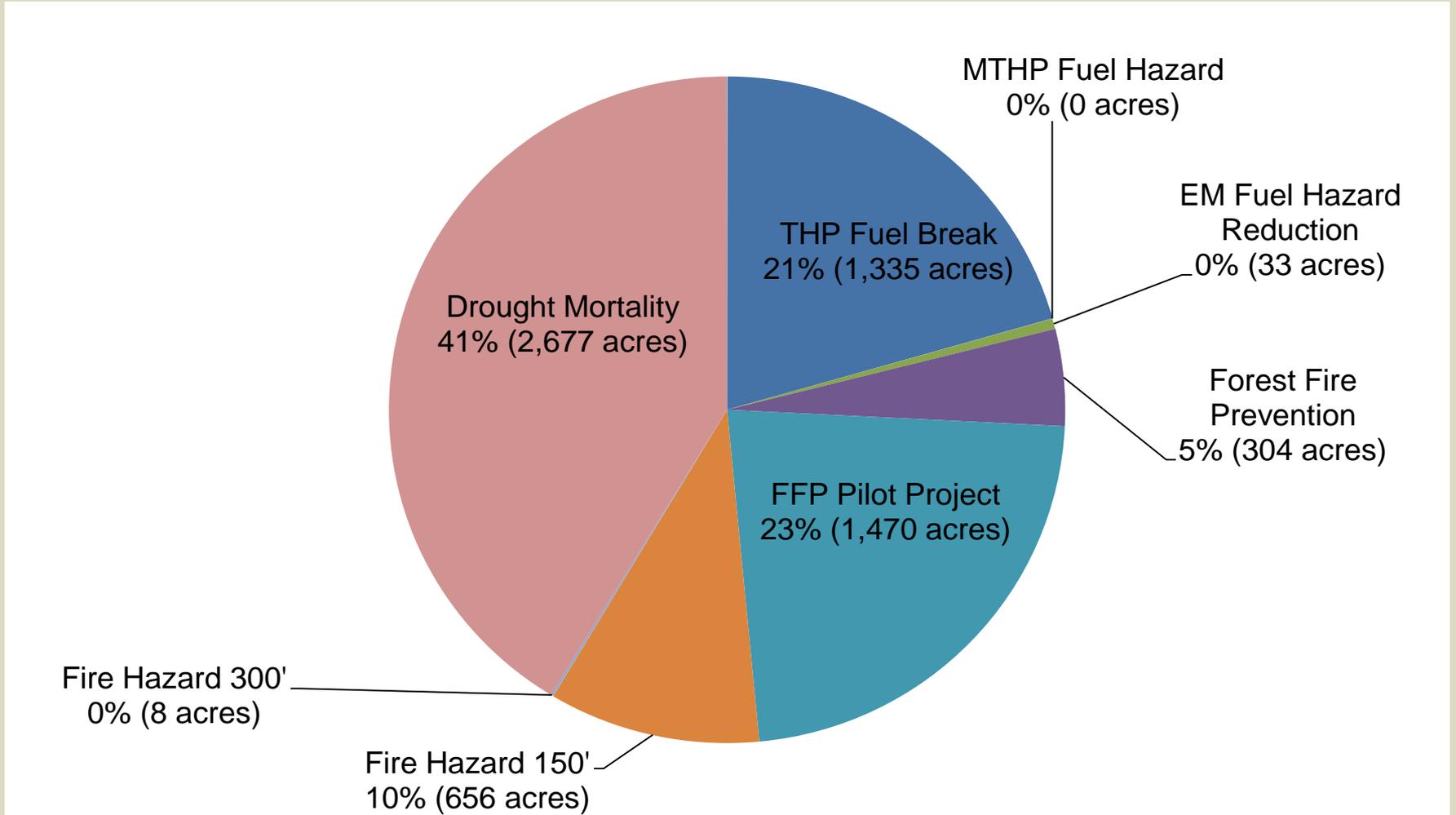
The majority of the acreage included for the removal of less than 10% Dead, Dying and Diseased Trees are for annual industrial ownerships.

## FUEL HAZARD ACRES 2005 - AUGUST 2015





# Fuel Hazard Acres August 2015





# Monitoring Requirements

## 14 CCR § 1038(c)(6) – 150' to 300'

14 CCR §1038(c)(6) states:

*The Department shall evaluate the effects of the exemption allowed under 14 CCR 1038(c)(6) including:*

- *frequency and state-wide distribution of use*
- *acres treated and compliance*
- *professional judgment regarding post-treatment stand conditions observed relative to moderating fire behavior, and actual performance in the event of a wildfire*

*The Department shall, annually report its findings, based on this evaluation to the Board.*

Three (3) submitted as of August 31, 2015: Nevada, Humboldt and Mariposa Counties



# Monitoring Requirements 14 CCR § 1038(j) – FFPPP

14 CCR §1038(j)states:

*The Department shall maintain records regarding the use of the Forest Fire Prevention Exemption Pilot Project in order to evaluate the impact of it on:*

- *fuel reduction*
- *natural resources in areas where it has been used.*

*14 CCR § 1038(j) shall expire on January 1, 2018.*

Nine (9) submitted as of August 31, 2015:

4 Siskiyou	1 Del Norte
2 Plumas	
2 Humboldt	

***Nine projects totaling 1,470 acres***



# Monitoring Requirements

## 14 CCR § 1038(k) Drought Mortality

14 CCR §1038(k)(8) states:

*The Department shall Monitor and report the statewide use of the exemption, allowed under 14 CCR § 1038(k), including the*

- *number of harvest area acres,*
- *areas of application,*
- *degree of compliance.*

*The Department shall, within 180 days of the date that the emergency regulations are filed with the Secretary of the State, report its findings to the Board.”*



# Monitoring Requirements 14 CCR § 1038(k) - Drought Mortality

## DROUGHT MORTALITY EXEMPTIONS (Number of harvest area acres by county through August 2015)

SOUTHERN			NORTHERN		
COUNTY	No. EX	ACRES	COUNTY	No. EX	ACRES
Kern	33	173	Shasta	2	91
Fresno	3	485	Butte	3	156
Mariposa	9	858	Modoc	1	582
Tuolumne	2	68	Lake	1	259
Madera	1	5	<b>TOTAL</b>	<b>7</b>	<b>1,089</b>
<b>TOTAL</b>	<b>48</b>	<b>1,588</b>			

55 Projects totaling 2,677 acres

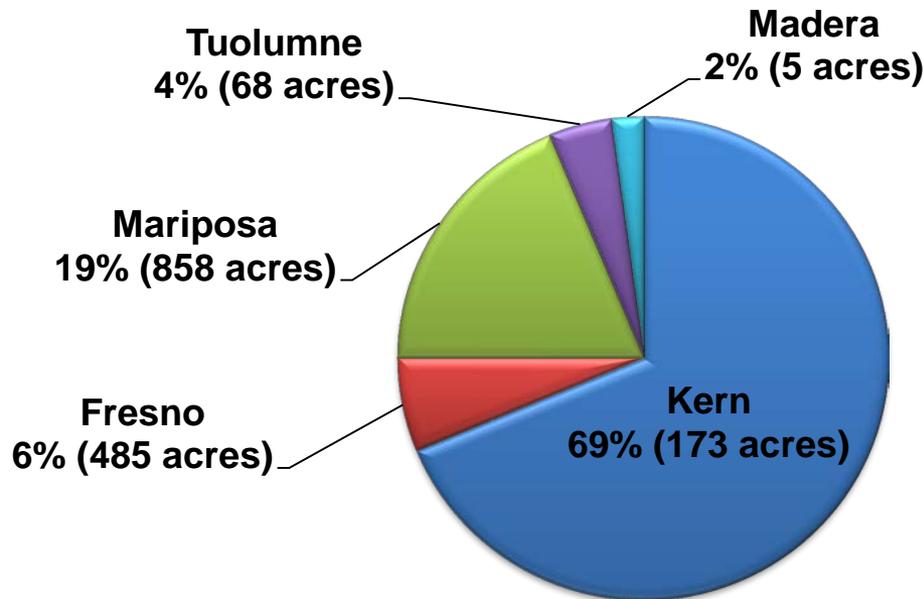


# Monitoring Requirements 14 CCR § 1038(k) - Drought Mortality

## DROUGHT MORTALITY EXEMPTIONS

(Number of harvest documents/area acres by county through August 2015)

### SOUTHERN No. EXEMPTIONS



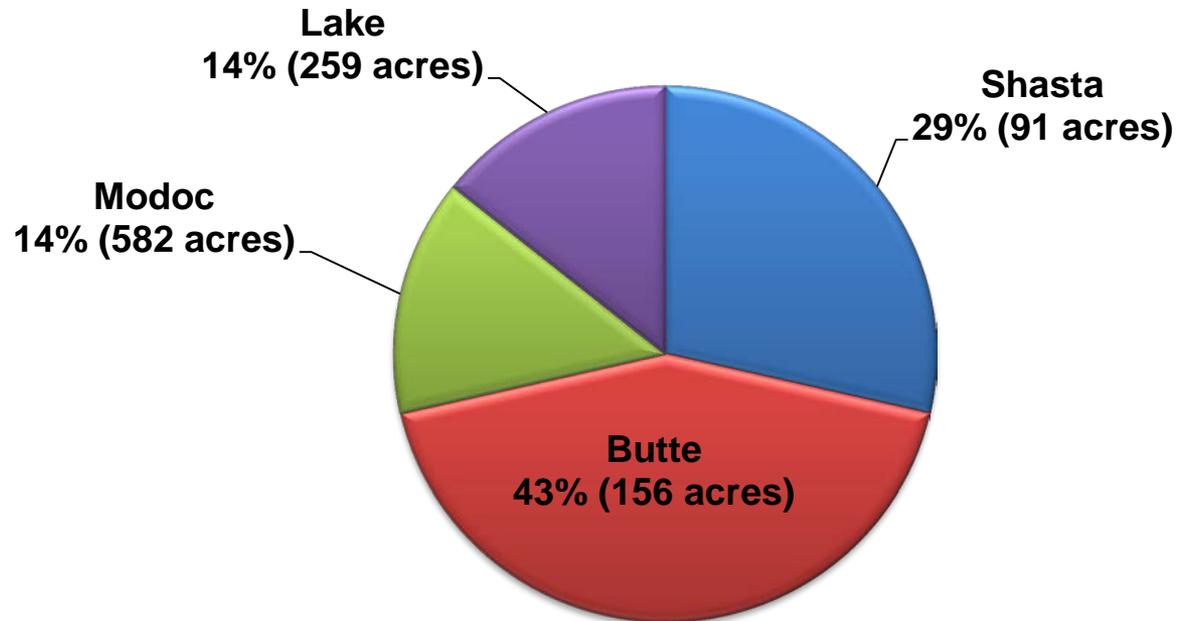


# Monitoring Requirements 14 CCR § 1038(k) - Drought Mortality

## DROUGHT MORTALITY EXEMPTIONS

(Number of harvest documents/area acres by county through August 2015)

### NORTHERN No. EXEMPTIONS

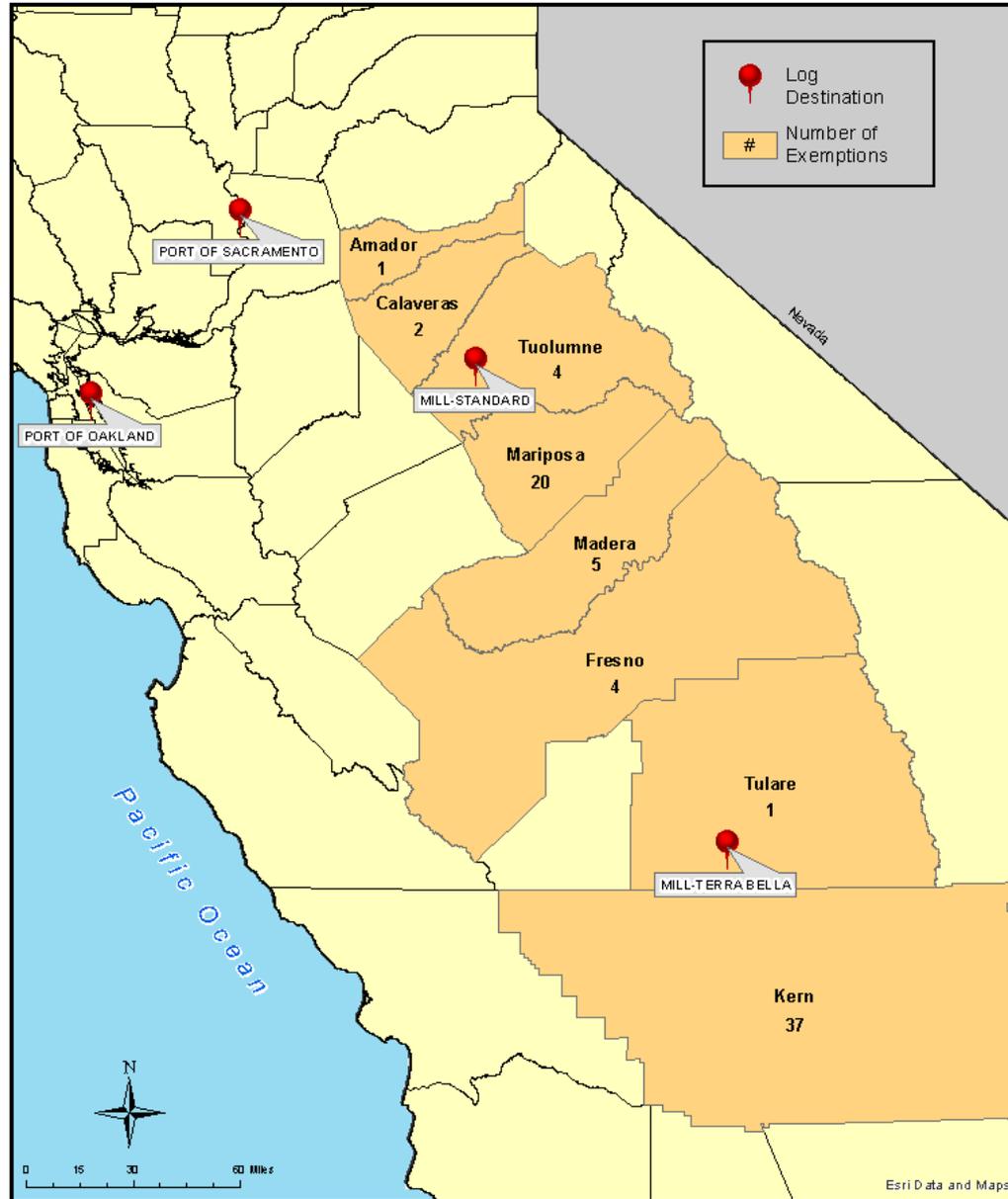




# Drought Mortality Log Destinations as of August 31, 2015

County – Region 4	# EX's	Destination	Destination	Destination
Fresno	3	Mill-Terra Bella		
Kern	33	Mill-Terra Bella		
Madera	1	Port of Oakland	Mill-Standard	
Mariposa	4	Port of Sac	Mill-Standard	Firewood in Madera
Mariposa	5	Port of Oakland	Mill-Standard	
Tuolumne	1	Mill-Standard		
Tuolumne	1	Mill-Standard		
<b>County – Region 2</b>				
Butte	3	Mill-Anderson		
Modoc	1	Mill-Burney		
Shasta	2	Mill-Anderson		
<b>County – Region 1</b>				
Lake	1			

# Southern California Counties Affected by Drought with Mortality Exemptions



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# *CAL FIRE*

## Monitoring Plan Development

Considerations:

- Monitoring plan must be flexible and capable of evaluating all the various fuel prescriptions and permitting options
- Must be repeatable and efficient (Sacramento-Units)
- Must capture POST forest stand conditions
- PRE conditions if possible



# ***CAL FIRE***

## **Monitoring Plan Development**

Pre/Post-Harvest Photo Point Monitoring Protocol:

- **Crown canopy closure** (horizontal continuity)
- **Tree stems per acre and understory** (vertical continuity)
- **Forest floor conditions** (understory & fuel depth)
- **Habitat Components**-Oaks, nests, screen trees downed woody debris, snags



# ***CAL FIRE***

## **Monitoring Plan Development**

OTHER – Factors to consider in photo point monitoring:

- Use of scale - to capture fuel load depth
- Areas where extreme fire conditions exist
- Aerial views
- GPS photo point locations
- Photo log

OTHER – data collection:

- Obtain tree diameters (DBH) on 1/50 acre plots (PRE) diameter information – evaluating quadratic mean diameter.



# **CAL FIRE**

## **Recent Photo Point Monitoring**

Monitoring / evaluation of these exemptions has begun in cooperation between CAL FIRE Sacramento, Region, and Unit forestry personnel.

- In the Southern Region, Water Quality Control Board WRC Engineer Anthony Toto assisted in monitoring.
- In the Northern Region CAL FIRE Archaeologist Richard Jenkins assisted in evaluating protection of historical sites near an exemption area.
- California Department of Fish and Wildlife will assist in future monitoring efforts.



# **CAL FIRE**

## **Recent Photo Point Monitoring**

Monitoring efforts to date:

- 14 CCR §1038(j) FFP Pilot Project: Nine (9) submitted two (2) have been monitored in Siskiyou County. Two other exemptions in Plumas are scheduled to be monitored.
- 14 CCR §1038(c)(6) 150 ft to 300 ft structure protection: Three (3) have been submitted and at this time no monitoring has occurred. Less than 1% of the 150 ft Fire Hazard Exemption
- 14 CC §1038(k) Drought Mortality: Seventy-six (76) have been submitted as of 9/14/15 and twenty eight (28) have been monitored.

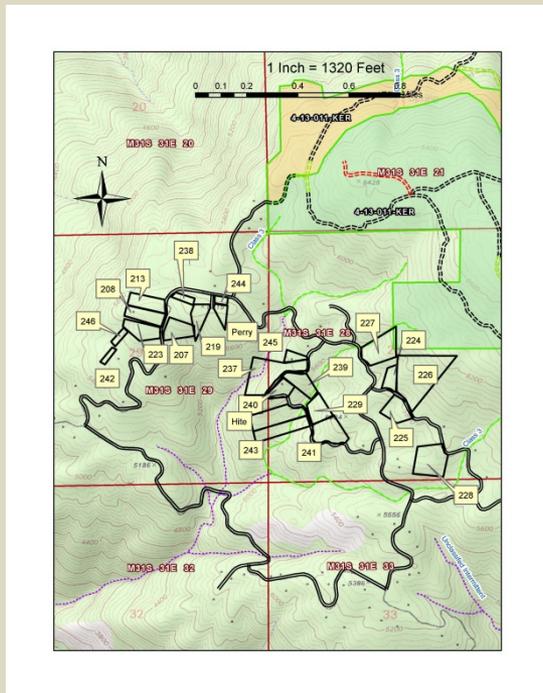


# CAL FIRE

## Recent Photo Point Monitoring

A majority of the monitoring has occurred within the drought mortality exemptions due to the immediate and extensive use. Photos below represent mortality in the Southern Region, Kern and Fresno County.

### 14 CCR § 1038(K) Kern County





# **CAL FIRE**

## **Recent Photo Point Monitoring**

**14 CCR § 1038(K) Kern County - Tehachapi**





# **CAL FIRE**

## **Recent Photo Point Monitoring**

Monitoring revealed three general applications of this exemption:

- **Community application** parcels averaging 6 acres
  - community service districts
  - rural residential
- **Nonindustrial application** parcels up to 700 acres
  - ranches
  - landowners not engaged primarily in forest management
  - limited resources available
- **Industrial application**
  - corporate landowners engaged in forest management
  - resources available for wood utilization



# CAL FIRE

## Recent Photo Point Monitoring

### COMMUNITY APPLICATION

#### KEY POINTS:

#### Prior to emergency regulation adoption

- Community Service District require landowners to remove trees.
  - Landowners were either falling trees themselves or
  - Hiring firewood cutters or
  - Letting trees stay on the ground creating a fuel hazards
  - Landowners spending thousands of dollars to have trees removed
  - **NO regulatory oversight.**

#### After emergency regulations adoption

- RPF submitting documentation to assist landowners. (Although, in most cases not required.)
- LTO removing slash and debris at time of operations, preparing it to be burned or removing for firewood
- Landowners provided economic relief to comply with service district's request
- Value of wood captured
- **Regulatory oversight obtained**, for public protection and environmental protection.



***CAL FIRE***

# Recent Photo Point Monitoring

**14 CCR § 1038(k) Fresno County - Pinehurst**





***CAL FIRE***

# Recent Photo Point Monitoring

**14 CCR § 1038(k) Fresno County - Pinehurst**



**Forest Practice Program**

**Sacramento Headquarters**



# CAL FIRE

## Recent Photo Point Monitoring

### NONINDUSTRIAL APPLICATION

#### KEY POINTS:

- Smaller properties typically not managed for timber value.
- Under drought conditions, in Southern Region, large areas of Pine mortality. Entire property affected.
- These ownerships typically have large acres in single watersheds.
  - High fuel loading both vertical and horizontal.
- Limited resources available, LTO hired to remove logs of value.
- Due to haul distance and lack of scale value of mortality trees, slash debris is higher than would be expected in green tree logging.
  - Not all of the tree is being removed from site as in green tree logging.
- Landowner has no plans to prepare site for replanting.



Sacramento Headquarters



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **INDUSTRIAL APPLICATION**

#### **KEY POINTS:**

- Industrial Owners have been utilizing the 14 CCR 1038(b) 10% dead, dying or diseased exemption on a property-wide basis for many years, harvesting mortality trees within areas they are working.
- The California drought has created an environment where areas of mortality are larger than 10%, precluding the use of that exemption.
- The use of the Drought Mortality exemption has allowed industry to capture the increased mortality occurring in a patch-work fashion within the forested landscape.
- Currently industry has submitted a large 582 acre exemption and several small acreage exemptions attempting to stop the spread of the mortality.
- As harvested areas are prepared for new planting, slash is piled for burning or lopped to allow planting.



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **OVERVIEW OF DROUGHT MORTALITY**

- The overall application of the drought mortality exemption varies depending on the location within the state and the type of landowner.
- Resources available such as the proximity of a mill or the availability of an LTO affect the on-the-ground operations.
- In the Southern Region where the mortality is the greatest the difficulty is delivering logs to a mill. On average the haul times are 5 hours roundtrip. This forces the LTO to only remove the wood with scale value (the butt log) leaving the remaining portions of the tree onsite.



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **OVERVIEW OF DROUGH MORTALITY cont.....**

- In communities, slash is placed in piles for burning and in nonindustrial environments, slash is often left where it falls in the harvested areas.
- Considering the smaller nonindustrial properties are not, in general, managing for timber value, no site preparation or slash treatment is occurring in the harvest areas.
- Industrial landowners are generally closer to a mill facility and manage their lands for timber value regenerating the sites post harvest. Accordingly, they are more aggressively treating the slash conditions.



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **14 CCR § 1038(j) – Forest Fire Prevention Pilot Project**

In January 2015 the Forest Fire Prevention Pilot Project became effective in the FPRs. The purpose of the exemption is to eliminate the vertical continuity of vegetative fuels and the horizontal continuity of tree crowns, for the purpose of reducing the rate of fire spread, duration and intensity, fuel ignitability, or ignition of tree crowns.

Currently there have been nine (9) submitted State-wide; all in the Northern Region. Seven (7) of the nine have been submitted by industrial landowners and two are nonindustrial owners.

Monitoring has occurred on two (2) within Siskiyou County and two have been scheduled for monitoring in Plumas County.



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **14 CCR § 1038(j) – Forest Fire Prevention Pilot Project**

The pictures below represent the monitoring that occurred in Siskiyou County. The exemptions are located approximately two miles south of the town of Weed. The stand type was a plantation; average age 40 to 45 years.

**PRE Stand Conditions**



**POST Stand Conditions**





# **CAL FIRE**

## **Recent Photo Point Monitoring**

### **14 CCR § 1038(j) – Forest Fire Prevention Pilot Project**

The pre-stand conditions consisted of a heavy canopy component with an understory of brush and sapling-size trees. Harvesting was conducted with a hot saw /feller buncher and whole trees were yarded to the landings; this eliminated the slash component in the harvesting area.

Ground conditions post harvest. Area was whole tree yarded and landing piles created.



**Fuel loading from slash was less than 12 inches area wide**



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **14 CCR § 1038(j) – Forest Fire Prevention Pilot Project**

- Evaluation of the Quadratic Mean Diameter (QMD), using ocular estimates: QMD appeared to have remained consistent or increased slightly, however no formalized measurements were taken at the time. Approximately 50% of the stems had been removed, stump analysis identified smaller diameters were removed and the larger diameters remained; however, the diameter of these trees only varied by 3 inches.
- Percent canopy was opened with little or no understory within the drip line of the trees. Horizontal and vertical continuity were eliminated to reduce the rate of fire spread, duration and intensity, fuel ignitability, and ignition of tree crowns.
- Overall forest health appeared to have been enhanced, reducing overcrowding within the stand. Growth ring analysis of the stumps showed good growth for the first 20 to 25 years, but as the stand became more suppressed the growth rings showed little growth. After completion of harvesting the stand conditions are no longer suppressed and tree growth will potentially increase.



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **Monitoring Summary**

- Monitoring procedures are continuing to be developed to efficiently provide input to the BOF, stakeholders and the public. The early stages of monitoring conducted on these exemptions has provided a good basis for the application of the exemption and their use however, more quantitative information will be helpful in presenting facts. Photos and general narratives are being developed for each exemption monitored.
- The application of the monitored exemptions are consistent with the BOF intent and in most cases, such as the Drought Mortality exemption, have provided a level of regulatory oversight that otherwise would not be present.



# ***CAL FIRE***

## **Recent Photo Point Monitoring**

### **Monitoring Summary cont...**

- The use of the exemptions for fuel treatments has been utilized effectively in areas monitored. Ground fuels and slash are being treated to reduce intensity and rate of fire spread. Forest canopies are being opened to eliminate or slow the spread of wildfire in the crowns and overall forest health is being improved reducing the overcrowded forest stand.