

# BARK BEETLE STATUS 2016



# NEVADA COUNTY 2016



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# BARK BEETLES KILL THE CAMBIUM LAYER

Healthy Cambium





**PINK NEW BARK, WHITE SPONGY CAMBIUM AND  
CREAM-COLORED NEW WOOD**



# GREEN PONDEROSA PINE - DEAD

Green, But Dead



Due to Bark Beetle Attack



# MASSIVE BARK BEETLE ATTACK



# IPS. SP. BARK BEETLE



**WESTERN OR MOUNTAIN  
BARK BEETLE PITCH TUBES**



# WESTERN PINE BARK BEETLE

Small White, Red, or Pink  
Pitch Tubes on the  
Bole of the Tree



Woodpeckers Mine for Larvae  
Hiding in the Bark



# MOUNTAIN PINE BARK BEETLE

Small White, Red, or Pink  
Pitch Tubes on the  
Bole of the Tree



Woodpeckers Mine for Larvae  
Hiding Along Cambium Layer



# IPS. SP. BARK BEETLE GALLERIES



UGA1455159



# TURPENTINE BARK BEETLE

Large, Usually Reddish, Pitch Tubes

Always at the Base of the Tree



**RED TURPENTINE  
BARK BEETLE**



# PONDEROSA PINE

**Healthy**



**Weak**



## TWO TYPES OF CROWN LOSS

**Lion's Tailing Due to Age  
in Ponderosa Pine**



**Crown Weakness Due to Western Gall  
Rust in Ponderosa Pine**



**PARASITE WEAKENED  
PONDEROSA PINE**

**Dwarf Mistletoe Fruiting Body**



**Deformed Branching Due to Dwarf  
Mistletoe**



# WHAT CAN BARK TELL YOU?

**Bark Exhibits Rapid Growth**



**Bark Exhibits Slow Growth**



# CAN YOU SEE THE FOREST FOR THE TREES?

**Fire Exclusion and  
No Stocking Control in this  
120 Year-Old Stand**



**Plantation 50 Years after the  
1959 Mountain House Fire  
Prescribed Burned 3 Times**



# EXTREMELY HIGH STOCKING





# EXCESSIVE UNDERSTORY COMPETITION

**Dense Foliage Consumes  
Water Destined for Trees**



**Dense Foliage Consumes  
Nutrients Destined for Trees**



# CALFIRE DROUGHT EXEMPTION

**DROUGHT MORTALITY EXEMPTION  
HARVESTING DEAD OR DYING TREES RELATED TO  
DROUGHT FOR FUELWOOD OR SPLIT PRODUCTS  
14 CCR § 1038(k)**

FOR ADMIN. USE ONLY

Ex. # \_\_\_\_\_

Date of Receipt \_\_\_\_\_

Date Expires \_\_\_\_\_

STATE OF CALIFORNIA  
DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
NOTICE OF TIMBER OPERATIONS THAT ARE EXEMPT FROM  
TIMBER HARVESTING PLAN REQUIREMENTS; RM-73 (§1038(k)) (07/15)

VALID FOR ONE YEAR FROM DATE OF RECEIPT BY CAL FIRE

The Director of the Department of Forestry and Fire Protection (CAL FIRE) is hereby notified of timber operations under the requirements of 14 CCR § 1038(k).

The timber owner shall complete this form both pages, then sign on page three.

1. TIMBER OWNER(S) OF RECORD:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

**TIMBER TAX NOTICE:** Timber owners owe timber yield tax when they harvest trees unless the harvest is exempt (Revenue and Taxation Code sec. 38116). Some small or low value harvests may be exempt from the timber yield tax: timber removed from an operation whose value does not exceed \$3,000 within a quarter, according to BOE Harvest Value Schedules, Rule 1024. If you believe your harvest may qualify for this exemption, please complete items A, B, C, and D below. For timber yield tax information or for further assistance with these questions call the State Board of Equalization, 1-800-400-7115 or write: Timber Tax Section, MIC. 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0060; or contact the BOE Web Page on the Internet at <http://www.boe.ca.gov>.

A. Circle the option that most closely estimates the total volume for this harvest, in thousands of board feet (mbf - Net Scribner short log):

Under 8 mbf                      8-15 mbf                      16-25 mbf                      Over 25 mbf

B. Estimate what percentage of timber will be removed during this harvest:

Redwood \_\_\_\_\_%; Ponderosa/Sugar pine \_\_\_\_\_%; Douglas-fir \_\_\_\_\_%; Fir \_\_\_\_\_%;

Port-Orford Cedar \_\_\_\_\_%; Cedar (IC, WRC) \_\_\_\_\_%; Other conifer %: \_\_\_\_\_; Other hardwood \_\_\_\_\_%.

C. Fuelwood over 150 cords? Yes \_\_\_\_\_ No \_\_\_\_\_

2. TIMBERLAND OWNER(S) OF RECORD:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

*I certify, that I am the Timber Landowner of record for the property where harvesting under the exemption will be conducted.*

SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

3. LICENSED TIMBER OPERATOR(S):

Name \_\_\_\_\_ Lic. No. \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

# DOES NOT MEET DROUGHT EXEMPTION



# ADDITIONAL CALFIRE EXEMPTION FORMS

## \$350 - \$750 EACH

### 10% Dead and Dying

### Emergency Notice

CHRISTMAS TREE; DEAD, DYING OR DISEASED;  
FUELWOOD OR SPLIT PRODUCTS EXEMPTION

STATE OF CALIFORNIA  
DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
NOTICE OF TIMBER OPERATIONS THAT ARE EXEMPT FROM  
TIMBER HARVESTING PLAN REQUIREMENTS, RM-73(1038a) (9/99)

FOR ADMIN. USE ONLY

Ex. # \_\_\_\_\_  
Date of Receipt \_\_\_\_\_  
Date Expires \_\_\_\_\_

VALID FOR ONE YEAR FROM DATE OF RECEIPT BY CDF

The Director of the Department of Forestry and Fire Protection is hereby notified of timber operations under the requirements of 14 CCR 1038(a) or (b). The following type(s) of timber operation is to be conducted:

\_\_\_\_ Harvesting Christmas trees.  
\_\_\_\_ Harvesting dead, dying or diseased trees of any size in amounts less than 10 percent of the average volume per acre, where timber operations will meet the conditions listed in 14 CCR 1038(b).  
\_\_\_\_ Harvesting fuelwood or split products in amounts less than 10 percent of the average volume per acre, where timber operations will meet the conditions listed in 14 CCR 1038(b).

The Timber Owner shall complete this form both pages, then sign on Page Two.

1. TIMBER OWNER(S) OF RECORD: Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

NOTICE OF EMERGENCY TIMBER OPERATIONS  
FUEL HAZARD REDUCTION

STATE OF CALIFORNIA, DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
NOTICE OF TIMBER OPERATIONS THAT ARE EXEMPT  
FROM TIMBER HARVESTING PLAN REQUIREMENTS RM-65(1652-4) (2/4/05)

FOR ADMIN. USE ONLY

EM. # \_\_\_\_\_  
Date of Receipt \_\_\_\_\_  
Date Accepted by CDF \_\_\_\_\_  
Date Expires \_\_\_\_\_

OPERATIONS CANNOT COMMENCE FOR 15 WORKING DAYS FROM DATE OF RECEIPT BY CDF\*

VALID THROUGH June 24, 2005\*

The Director of the Department of Forestry and Fire Protection is hereby notified of timber operations under the requirements of PRC § 4992 and 14 CCR §§ 1052-1052.4 to remove timber on an emergency basis. The Registered Professional Forester (RPF) should complete items 1 - 7 and shall sign the Declaration of Emergency on Page Two and provide additional information. The Timber Owner must sign the declaration of intent to pay the yield tax in item 1.

1. TIMBER OWNER(S) OF RECORD: Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

TIMBER TAX NOTICE: The Timber Owner is responsible for payment of a yield tax and must complete the following declaration: *I declare, under penalty of perjury, that any applicable timber yield taxes will be paid, pursuant to Section 38115 of the Revenue and Taxation Code (complete the signature below).* TIMBER TAX EXEMPTION: Timber owners owe timber yield tax when they harvest trees unless the harvest is exempt (Revenue and Taxation Code sec. 38116). Some small or low value harvests may be exempt from timber yield tax: timber removed from an operation whose value does not exceed \$3,000 within a quarter, according to BOE Harvest Value Schedules, Rule 1024. If you believe your harvest may qualify for this exemption, please complete items A, B, C, and D below. For timber yield tax information or for assistance with these questions call 1-800-400-7115, or write: Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, CA 94279-0000; or see the BOE Web Page on the internet <http://www.boe.ca.gov>.

A. Circle the option that most closely estimates the total volume for this harvest, in thousands of board feet (mbf - Net Scribner short log):  
Under 8 mbf      8-15 mbf      16-25 mbf      Over 25 mbf

B. Estimate what percentage of timber to be removed during this harvest will be:

### <3 Acre Conversion

### 150' Structure Exemption

LESS THAN 3 ACRE CONVERSION EXEMPTION

STATE OF CALIFORNIA  
DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
NOTICE OF TIMBER OPERATIONS THAT ARE EXEMPT FROM  
CONVERSION AND TIMBER HARVESTING PLAN REQUIREMENTS  
RM-73(1194.1a) (9/99)

FOR ADMIN. USE ONLY

Ex. # \_\_\_\_\_  
Date of Receipt \_\_\_\_\_  
Date Accepted \_\_\_\_\_  
Date Expires \_\_\_\_\_

VALID FOR ONE YEAR FROM DATE OF RECEIPT BY CDF  
TIMBER OPERATIONS CANNOT START UNTIL VALID COPY  
OF A NOTICE OF ACCEPTANCE IS RECEIVED FROM CDF

The Director of the Department of Forestry and Fire Protection is hereby notified of timber operations under the requirements of 14 CCR 1104.1(a). Harvesting of trees which is a single conversion to a non-timber growing use of timberland of less than three acres. (See 14 CCR 1104.1(a) for a description of the conditions on the conduct of this type of timber operation, and additional information that is *required* to be submitted.) Complete items 1 through 8, on both pages of this notice.

1. TIMBER OWNER(S) OF RECORD: Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

TIMBER TAX EXEMPTION: Timber owners owe timber yield tax when they harvest trees unless the harvest is exempt (Revenue and Taxation Code sec. 38116). Some small or low value harvests may be exempt from timber yield tax: timber removed from an operation whose value does not exceed \$3,000 within a quarter, according to BOE Harvest Value Schedules, Rule 1024. If you believe your harvest may qualify for this exemption, please complete items A and B below. For timber yield tax information or for further assistance with these questions call the State Board of Equalization, 1-800-400-7115, or write: Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0000; or contact the BOE Web Page on the internet at <http://www.boe.ca.gov>.

A. Circle the option that most closely estimates the total volume for this harvest, in thousands of board feet (mbf - Net Scribner short log):  
Under 8 mbf      8-15 mbf      16-25 mbf      Over 25 mbf

REMOVAL OF FIRE HAZARD TREES  
WITHIN 150 FEET OF A STRUCTURE EXEMPTION

STATE OF CALIFORNIA  
DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
NOTICE OF TIMBER OPERATIONS THAT ARE EXEMPT FROM  
TIMBER HARVESTING PLAN REQUIREMENTS  
RM-73(1038d) (1/99)

FOR ADMIN. USE ONLY

Ex. # \_\_\_\_\_  
Date of Receipt \_\_\_\_\_  
Date Accepted by CDF \_\_\_\_\_  
Date Expires \_\_\_\_\_

VALID FOR ONE YEAR FROM DATE OF RECEIPT BY CDF  
OPERATIONS MAY NOT COMMENCE FOR FIVE WORKING DAYS FROM DATE OF RECEIPT BY CDF

The Director of the Department of Forestry and Fire Protection is hereby notified of timber operations under the requirements of 14 CCR 1038(d) to cut or remove trees in compliance with Public Resources Code Sections 4290 and 4291.

1. TIMBER OWNER(S) OF RECORD: Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

TIMBER TAX EXEMPTION: Timber owners owe timber yield tax when they harvest trees unless the harvest is exempt (Revenue and Taxation Code sec. 38116). Some small or low value harvests may be exempt from timber yield tax: timber removed from an operation whose value does not exceed \$3,000 within a quarter, according to BOE Harvest Value Schedules, Rule 1024. If you believe your harvest may qualify for this exemption, please complete items A and B below. For timber yield tax information or for further assistance with these questions call 1-800-400-7115, or write: Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0000; or contact the BOE Web Page on the internet at <http://www.boe.ca.gov>.

A. Circle the option that most closely estimates the total volume for this harvest, in thousands of board feet (mbf - Net Scribner short log):  
Under 8 mbf      8-15 mbf      16-25 mbf      Over 25 mbf

# TIMBER HARVEST PLAN

## \$6,000 PLUS

FOR ADMIN. USE ONLY

### TIMBER HARVESTING PLAN

STATE OF CALIFORNIA  
DEPARTMENT OF FORESTRY  
AND FIRE PROTECTION  
RM-63 (03-15)

FOR ADMIN. USE ONLY

1. \_\_\_\_\_ 8. \_\_\_\_\_  
2. \_\_\_\_\_ 9. \_\_\_\_\_  
3. \_\_\_\_\_ 10. \_\_\_\_\_  
4. \_\_\_\_\_ 11. \_\_\_\_\_  
5. \_\_\_\_\_ 12. \_\_\_\_\_  
6. \_\_\_\_\_ 13. \_\_\_\_\_  
7. \_\_\_\_\_ 14. \_\_\_\_\_

THP Name: \_\_\_\_\_

THP No. \_\_\_\_\_  
Dates Rec'd: \_\_\_\_\_  
Date Filed \_\_\_\_\_  
Date Approved \_\_\_\_\_  
Date Expired \_\_\_\_\_

If this is a MODIFIED THP, check box:

Extension: [ ] Am # \_\_\_\_\_

This Timber Harvesting Plan (THP) form, when properly completed, is designed to comply with the Forest Practice Act (FPA) and Board of Forestry and Fire Protection rules. All rule references are from Title 14 CCR; when cited, the form text will only make reference to the rule number itself. The THP is divided into six sections. See separate instructions for information on completing this form. NOTE: The form must be printed legibly in ink or typewritten. Additional space may be inserted, as needed, to provide required information. Please distinguish answers from questions by *font change, bold or underline*.

#### SECTION I - GENERAL INFORMATION

This THP conforms to my/our plan and upon approval, I/we agree to conduct harvesting in accordance therewith. Consent is hereby given to the Director of Forestry and Fire Protection, and his or her agents and employees, to enter the premises to inspect timber operations for compliance with the Forest Practice Act and Forest Practice Rules.

**1. TIMBER OWNER(S) OF RECORD:** Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

NOTE: The Timber Owner is responsible for payment of a yield tax. Timber Yield Tax information may be obtained at: Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0060. Phone 1-800-400-7115. For Timber Tax information, please see our website at: [www.boe.ca.gov/proptaxes/timbertax.htm](http://www.boe.ca.gov/proptaxes/timbertax.htm).

**2. TIMBERLAND OWNER(S) OF RECORD:** Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

**3. LICENSED TIMBER OPERATOR(S):** Name \_\_\_\_\_ Lic. No. \_\_\_\_\_

(If unknown, so state. You must notify CAL FIRE of LTO prior to start of operations)

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

**4. PLAN SUBMITTER(S):** Name \_\_\_\_\_

The submitter is the person who owns, leases, contracts, or operates on timberland. If the submitter is not identified in (1), (2), or (3), above, an explanation of his/her authority to submit the plan should be provided in Section III. [1032.7(a) and 1034(e)].

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Phone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

# FUEL TREATMENT REQUIRED

Limbs and Tops



Logs and Other Large Debris



# FUEL TREATMENT REQUIRED

Large Chunks, Limbs, & Tops



Logs and Other Large Debris



# PILE AND BURN

Release of Monoterpenes Until Burned





# MASTICATION

Release of Monoterpenes-  
Attracting Beetles



# CHIPPING

**Massive Release of  
Monoterpenes and Nitrogen  
Depletion**



# DOMESTIC MILLS



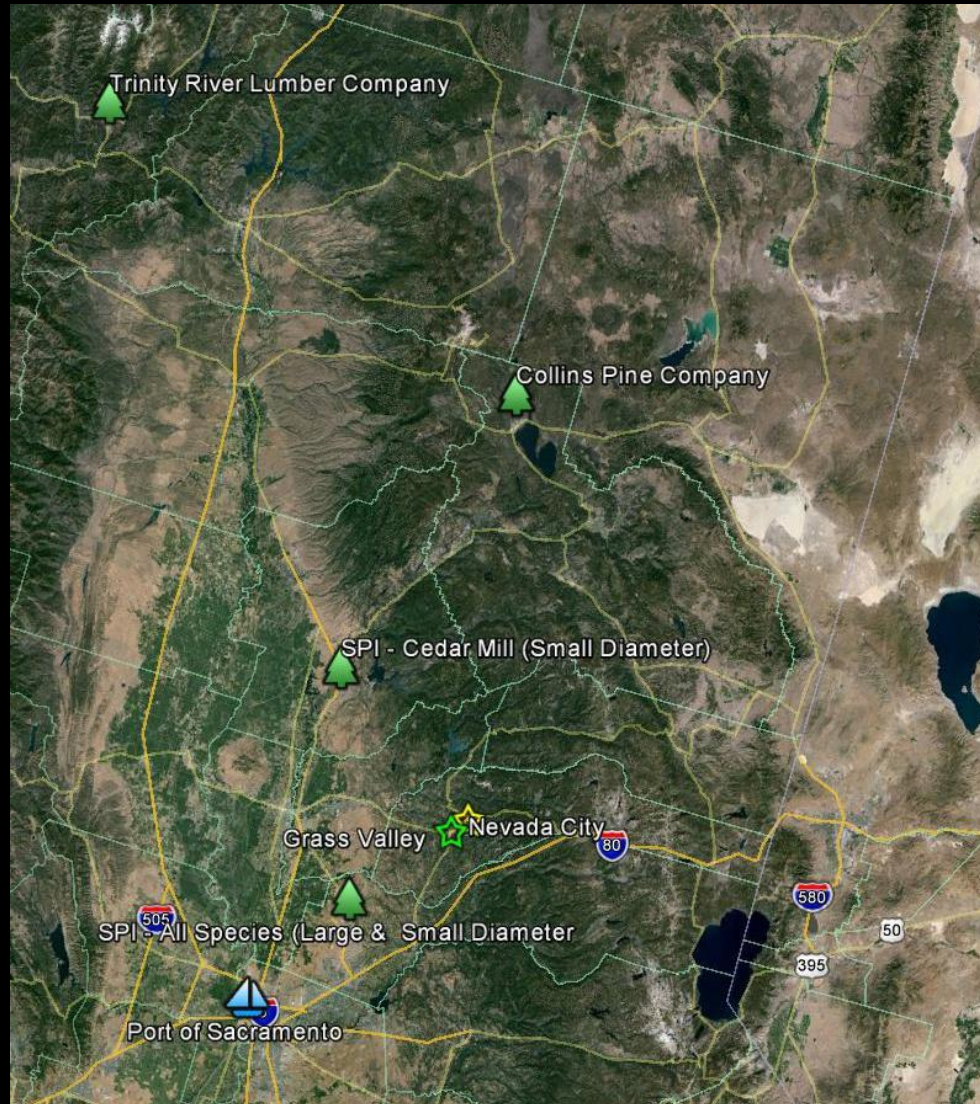
# EXPORT LOGS OVERSEAS



# TRANSFER LOGS TO DISTANT MILLS



# PROCESSING FACILITIES AVAILABILITY MAP



# BLUE STAIN FUNGUS

No Loss of Structural Integrity,  
However Loss of Grade and Value



# EXCESSIVE ROOT COMPETITION





# EXCESSIVE ROOT COMPETITION AND VOLATILE FUEL LADDER



# FIRE EXCLUSION AND NO STOCKING CONTROL

**Suppressed Slow-Growing  
Trees with Poor Crowns and  
Thin Bark**



**Heavily Fuel-Loaded and  
Extremely Susceptible to Fire  
or Insect Damage**





Rubicon Canyon - **No Survivors**



USFS Large Diameter Shaded Fuel Break  
No Ground Fuel Removal



Shaded Fuel Break  
Limited Surface Fuel Removal



Shaded Fuel Break  
Limited Surface Fuel Removal



Stumpy Meadows Reservoir, El Dorado County



Wildfires Have Consequences





Starving Bobcat with Burned Pads



Doe and Fawns Trapped

# WHAT A LANDOWNER CAN DO - REDUCE TREE STRESS

**Thin and Remove Excessive Stocking**



# WHAT A LANDOWNER CAN DO - REDUCE TREE STRESS

**Thin and Remove  
Understory Vegetation**



# WHAT A LANDOWNER CAN DO - REDUCE TREE STRESS

**Thin and Remove  
Weak or Unhealthy Trees**



**WITHOUT PROCESSING FACILITIES  
LANDOWNERS ARE LEFT WITH HEAVY FUELS**



**DOING NOTHING, LANDOWNERS  
ARE LEFT WITH MASSIVE FIRE FUELS**

