

**Upper Clear Creek
Wildfire Defense Plan/ Fuels Management**



**Prepared by the
Western Shasta Resource Conservation District**

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Upper Clear Creek Wildfire Defense/Fuels Management Plan

BACKGROUND

In October of 2000, a Fuels Committee assembled to look at what could be done to decrease the threat of a destructive wildfire burning in the watershed. The goal of the Fuels Committee was to develop a well coordinated Wildfire Defense Plan for the Upper Clear Creek Watershed. The Fuels Committee included representatives from CDF, BLM, NPS, USFS, WSRCD, NRCS, Sierra Pacific Industries, French Gulch Volunteer Fire Department, and private landowners. The Plan was jointly funded through U.S. Fish & Wildlife Service (USFWS) Jobs-In-The-Woods funding and a CALFED grant.

The Plan is essentially the combination of a Wildfire Defense Plan and a Fuels Management Plan, including the monitoring plan for the fuel treatments implemented under the Calfed grant for the watershed.

The plan is written in three sections: the first section is an introduction to the watershed with an analysis of the assets at risk, topography, and weather factors that determine fire behavior. The second section, the Shaded Fuelbreak Plan takes into consideration the assets at risk and identifies a priority list of recommendations to decrease the effects of a devastating wildfire. Locations for shaded fuelbreaks and descriptions of the various types of fuels treatment are also identified.. The third section, the Monitoring Plan looks at the first two years after a fuels treatment.

INTRODUCTION

The goal of the Upper Clear Creek Wildfire Defense/Fuels Management Plan is to address the problems in the watershed in relation to wildland fire and fuels management. The Plan was developed through a Team Effort with Federal, State, and Local Agencies, private landowners, and private citizens.

The Upper Clear Creek Watershed occupies nearly 200 square miles upstream of Whiskeytown Dam. The watershed consists of approximately 86,079 acres (67%) of publicly owned land and 41,728 acres (33%) of privately owned land.

Fire protection in the watershed is managed by three different agencies, each responsible for different areas of the watershed. The USFS is responsible for fire protection north of Brush Creek, and the NPS manages fire protection within the Whiskeytown unit. CDF has a cooperative statewide fire protection agreement with the BLM, USFS, and NPS for sharing fire protection resources and jointly managing fires that threaten lands on more than one jurisdiction.

Fig. 1 Fire Protection Responsibility for the Upper Clear Creek Watershed



I. Three Major Components of the Wildland Fire Environment

The three major components of the wildland fire environment are weather, topography and fuels (NWCG, 1994.)

WEATHER

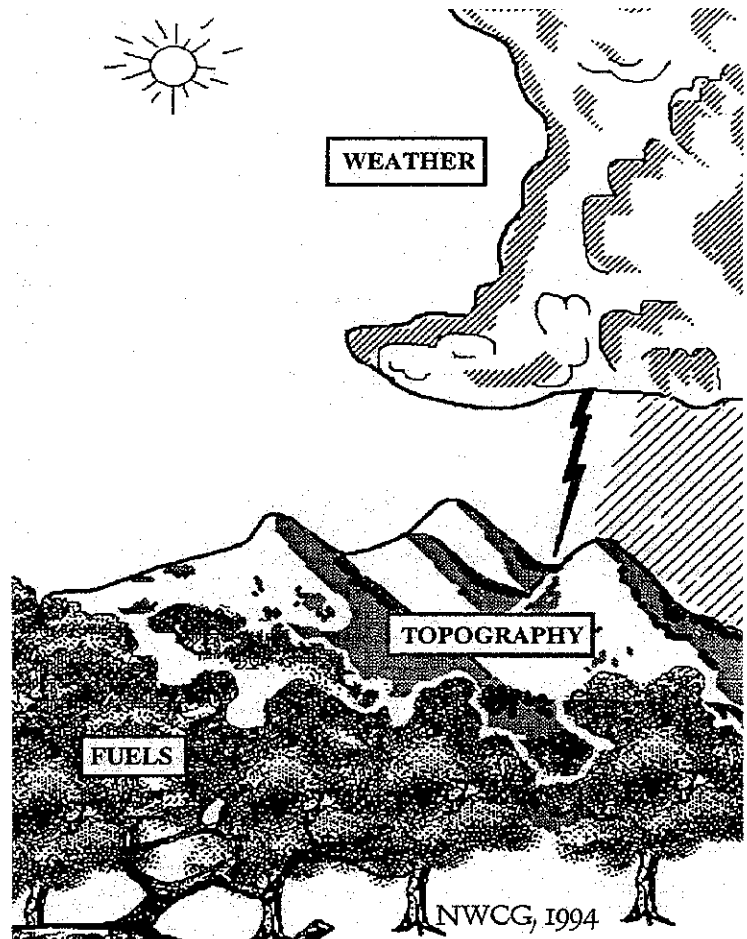
- Temperature
- Relative Humidity
- Atmospheric Stability
- Windspeed & Direction
- Precipitation

TOPOGRAPHY

- Elevation
- Position on slope
- Aspect
- Shape of the country
- Steepness of slope

FUELS

- Fuel Loading (tons/acre)
- Size & Shape
- Compactness
- Horizontal Continuity
- Vertical Continuity
- Chemical Content



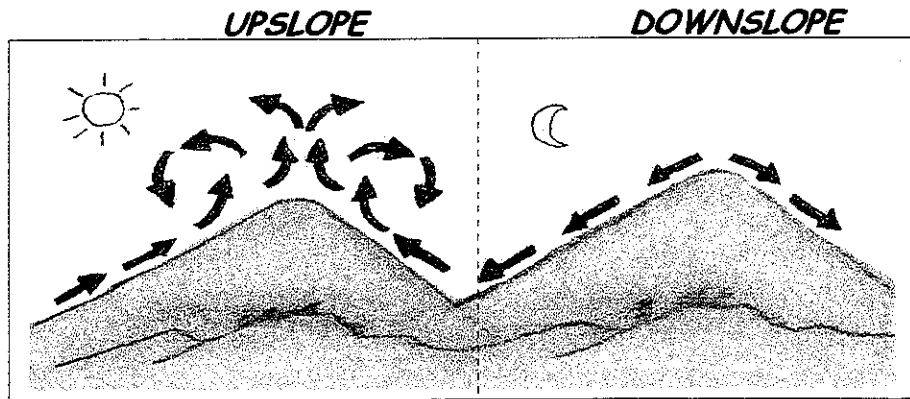
Climate in the watershed is seasonal and also varies with elevation; summers are typically hot and dry and winters are cool with moderate rainfall. Although no climate data center exists near the head of the watershed, climate data has been collected from the Whiskeytown National Recreation Area managed by the National Park Service.

Summer temperatures in the watershed range from 85° - 100°+F and lows from 60° - 70°F. The highest average temperature typically occurs in July and August (Western Region Climate Center Station #049621.)

WINDS

There are 3 types of wind to be aware of in the Upper Clear Creek Watershed, normal, pre-frontal, and post-frontal (Fontana, National Fire Weather Service.)

1. Normal : Winds are light, less than 10mph, upslope during the day, downslope in the evenings



2. Pre-frontal winds : Winds are strong, windspeeds up to 12-18 mph, SE-SW.
3. Post-frontal winds : Winds are strong, windspeeds up to 15-20 mph, NW-NE.

The majority of the wildfires in the Upper Clear Creek Watershed follow the same pattern; the fires begin at the bottom of the hill and run up to the top. This is a direct result of the upslope winds that are common during the day. A common suppression tactic used by fire suppression crews is to attack the fire at the top of the hill, i.e., airtanker drops, helicopter bucket drops, fire line construction. If the fire is not contained, the momentum of the fire will decrease considerably without the upslope winds driving it. The fire will continue to back down the lee side of the hill, however the rate of spread will have dropped off, giving fire crews an opportunity to contain it. (Gunderson, 2000)

The pre- and post-frontal winds also have a significant effect on fire behavior in the watershed. The increased windspeeds in addition to the changing wind patterns require fire managers to be aware of the changing weather conditions and be ready for the hard to predict fire behavior that is associated with these winds.

TOPOGRAPHY

Upper Clear Creek has been described as having steep, rugged topography with limited access (WSRCD, 1999.) Elevations in the upper watershed range from 6,209 feet at the top of Shasta Bally to approximately 976 feet at the Whiskeytown Dam spillway. Other peaks in the watershed include Slate Mountain, Blue Mountain, Trinity Mountain and Iron Mountain.

FUELS

Fuels can be defined as any organic material, living or dead, in the ground, on the ground, or in the air, that will ignite and burn. Historically, fire has been a natural influence on the landscape within the Upper Clear Creek watershed. Before the influence of humans, wildfires started from lightning strikes or hot dry winds and spread across large tracts of land before burning out. Some conifer species (e.g. knobcone pines) require fire, heat or stress for seed germination. Such frequent, low intensity fires burn quickly through underbrush, preserving large trees and maintaining diverse, multistory forests. Forest management practices over the past 70 years, however, have suppressed fire on many of the public lands and have profoundly affected the structure and composition of vegetation in low- to middle-elevation forests (Weatherspoon, 1996.) Conifer stands have become denser, mainly in small- and medium- size classes of shade-tolerant and fire-sensitive species. Additionally, dead and downed trees, due to drought, disease, or pest infestation, increase the amount of fuels on the forest floor. One consequence of this has been a large increase in the amount and continuity of both live and dead forest fuels, resulting in a substantial increase in the probability of large, severe wildfires (Weatherspoon and Skinner, 1996.)

The conditions are now set for hot stand replacement type fires that consume underbrush, overstory trees, and the duff layer. Stand replacement type fires burn hotter, longer and are usually more difficult to control. Fire size is predicted to increase with these conditions especially in the upper Clear Creek watershed, which has steep, rugged topography and limited access (Tetra Tech, 1999.)

II. ASSETS AT RISK

Human Life

Approximately 650 residents currently live within the watershed, in and around the town of French Gulch (Tetra Tech, 1999.) In addition, Upper Clear Creek provides endless opportunities for recreational activities. Some popular activities include hiking, camping, fishing, boating, hunting, and nature watching, among others.

Structures

The majority of the structures in the watershed are located in and around the town of French Gulch. In addition, Whiskeytown National Recreation Area are responsible for a number of structures including a Visitor's Center, Post Office, various outbuildings, and residences for some of the Park's seasonal and permanent employees.

Wildlife

Several threatened, endangered, and sensitive plant and wildlife species are found within the Upper Clear Creek watershed. Two sensitive plant species have been found within the watershed: Howell's alkali grass (*Puccinellia howellii*) and Canyon Creek stonecrop (*Sedum paradisum*). Two federally listed species occur in the watershed, the northern spotted owl (*Strix occidentalis caurina*) and the bald eagle (*Haliaeetus leucocephalus*). The watershed also contains three federal wildlife species of concern: the Pacific fisher (*Martes pennanti pacifica*),

the northern goshawk (*Accipiter gentiles*), and California wolverine (*Gulo gulo*); and one Forest Service sensitive species: marten (*Martes Americana*). (Tetra Tech, 1999)

Streams

Upstream of the Whiskeytown Dam, flows are unregulated and are affected only by direct precipitation and runoff following rainfall or snowmelt. The Upper Clear Creek watershed has numerous perennial, intermittent and ephemeral tributaries. Perennial stream reaches carry stream flow all year long. Intermittent streams carry water a considerable portion of the time but seasonally or occasionally cease to flow. Ephemeral streams carry water only during and immediately after periods of rainfall or snowmelt. A total of 497 miles of streams are mapped in the watershed. Most streams in the watershed are ephemeral or intermittent. The mainstem of Clear Creek is perennial nearly to its headwater reaches (Tetra Tech, 1999.)

Archaeological Sites

The town of French Gulch is a historic mining town. Historic mining sites are scattered between the East Fork of Clear Creek and Whiskeytown Lake in the historic mining region known as the French Gulch District. Additionally, the Clear Creek watershed has developed a historic cultural identity from the Native American Wintu and early European mining communities that occupied parts of the watershed over different periods of history.

Timber

Late-successional reserves (LSRs), are designed to provide habitat for species, including the northern spotted owl, that depend on late-successional, old growth areas. LSRs are managed to protect and enhance old growth forest ecosystems, and to protect them from loss due to large scale fire, insect and disease epidemics, and major human impacts (USDA, USDI 1994). Only those practices that accelerate the development of old growth characteristics and that reduce the risk from severe impacts and loss of habitat are allowed. LSR lands within the Upper Clear Creek watershed are part of Clear Creek Late-successional Reserve (RC-334) Management Assessment (FS 1997). The Clear Creek LSR covers an area of approximately 83,798 acres, 19,271 acres (15 percent) of this is included in the northern end of the watershed (Tetra Tech, 1999.)

Approximately 19,500 acres (15 percent) of the Upper Clear Creek watershed is occupied by private Timber Production Zones (TPZ's). Owners of TPZ lands are restricted to timber production and certain compatible uses. Sierra Pacific Industries (SPI), is the largest commercial timber company operating within the watershed, and is the only private timber production company that owns and manages lands within the Clear Creek LSR. SPI currently has a no-take management plan agreement for TPZ lands within the Clear Creek LSR, through a letter of concurrence with the Fish & Wildlife Service (Tetra Tech, 1999.)

SPI have no immediate plans for broadcast burning in the Upper Clear Creek Watershed, this is primarily due to the risk factor. SPI is not planning for any fuelbreaks in the watershed, any project that would involve removing trees would require a Timber Harvest Plan in accordance with the Forest Practice Act.

SPI is open to ideas for possible cooperative projects involving fuels management, this would include broadcast burning and fuelbreak construction.

As defined by SPI, their mission is "...to conserve the productive basis of the land and associated resources by maintaining the integrity of biological and ecological processes while producing commodities and other services through the concept of sustainable forestry."

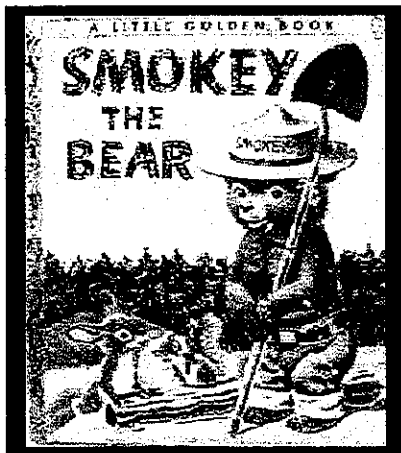
Powerlines

Both the Western Area Power Administration (WAPA), and Pacific Gas & Electric Company (PG&E), are responsible for inspecting their respective powerlines for the proper clearance. They are also responsible for the actual clearance work. The Whiskeytown National Recreation is responsible for spot checking the powerlines to ensure that adequate inspections are being made (WNRA, 1992.) WAPA and PG&E have installed state-of-the-art fault interruption equipment, which shuts off power whenever a tree falls on the lines.

III. FIRE HISTORY

The USFS and CDF recorded at least 13 large fires and 219 fire starts in the Upper Clear Creek watershed between 1922 and 1999. Most of the locations mapped as fire starts were small burns of less than 50 acres. However, large wildfires have burned a total of 14,273 acres (11 percent) of the watershed. The largest of these wildfires burned 3,550 acres in the French Gulch area in 1955 (See Figure 1). Humans were reported to have caused five of the six large fires recorded by the USFS. Most fire starts in the watershed were located in close proximity of roads. Many of the fire starts with unknown causes are likely to have human causes based on their distribution near roads and riparian corridors where human access and use is high (Tetra Tech, 1999).

To protect and preserve private residences, public lands, and natural resources in the watershed, a fire suppression policy was implemented about 70 years ago. This management regime has decreased the occurrence of frequent, low intensity fires, resulting in a buildup of underbrush and ladder fuels.



"Smokey The Bear",
A Little Golden Book Publishing Co.

The now infamous catch phrase:

"Remember... Only YOU Can Prevent Forest Fires," was introduced in 1947. After 54 years, Smokey Bear has a new message: "Only you can Prevent Wildfires."

The new tagline was created by the Advertising Council, along with the USDA Forest Service and the National Association of State Foresters (NASF), in response to increase in wildfires, and in an effort to make Smokey's message of forest conservation more contemporary.

(www.adcouncil.org)

Upper Clear Creek Large Fire History

Fig. 1

	DATE	NAME	AREA (in Acres)	CAUSE	AGENCY
1	1922		139	Human	USFS
2	1924		214	Human	USFS
3	1931		1435	Human	USFS
4	1934		558	Unknown	USFS
5	1945		97	Human	USFS
6	1948		40	Human	USFS
7	1955	FRENCH GULCH	3550	Wildfire	CDF
8	1961	BOWDISH	385	Wildfire	CDF
9	1961	YANKEE GULCH	549	Wildfire	CDF
10	1962	EAST FORK	5163	Wildfire	CDF
11	1980	TOWERHOUSE	2414	Wildfire	CDF
12	1983	KUTRAS	245	Prescribed Fire	CDF
13	1986	KUTRAS #2	207	Prescribed Fire	CDF
14	1991		197	Human	USFS
15	1999	HIGH COMPLEX	1039	Lightening	CDF

Legend

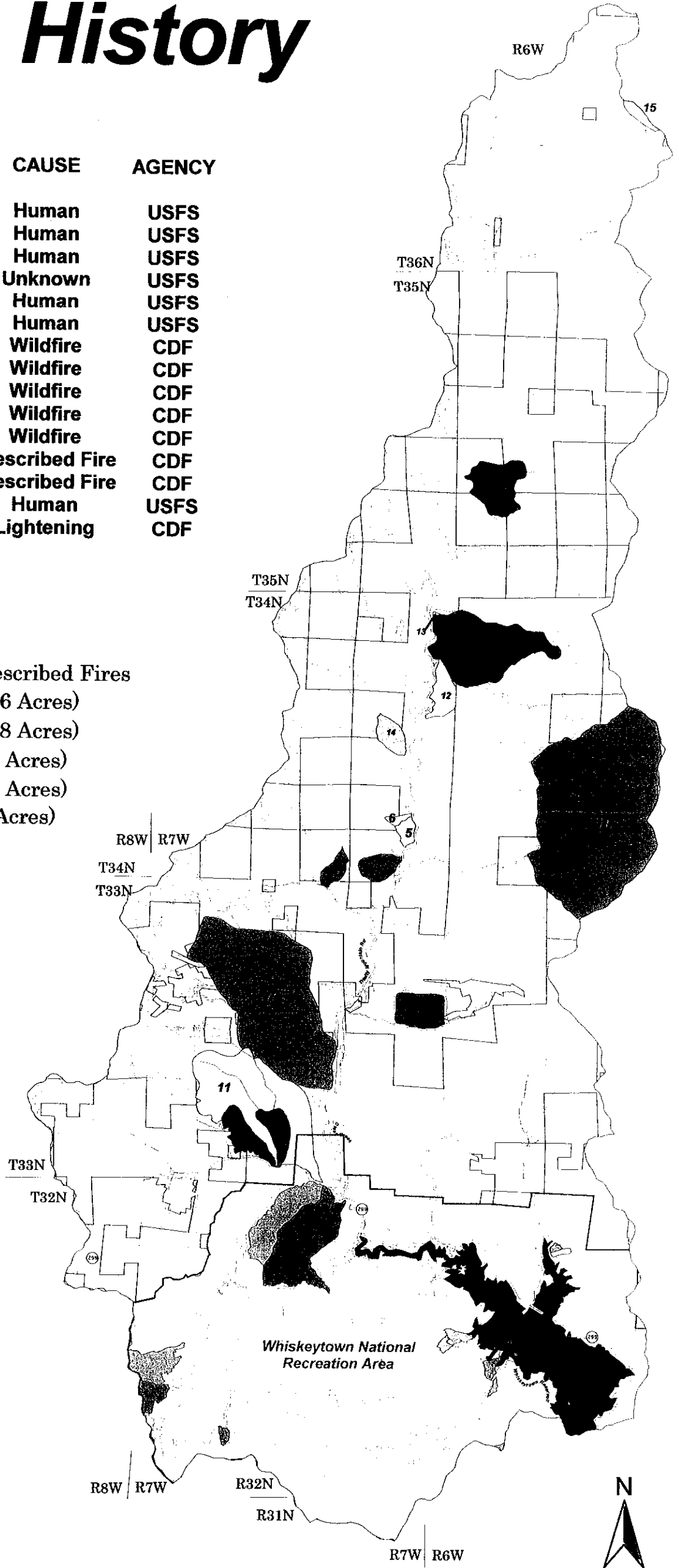
Fire History

- 1920s
- 1930s
- 1940s
- 1950s
- 1960s
- 1980s
- 1990s

- NPS Park Boundary
- Road
- Creek

Whiskeytown Prescribed Fires

- 1998 (1376 Acres)
- 1997 (1058 Acres)
- 1996 (195 Acres)
- 1995 (177 Acres)
- 1994 (65 Acres)



Created by Chris Glover
May 8, 2002
Sources: CDF, USFS, WSRCD
Projection: UTM Zone 18, NAD27

2 0 2 4 6 Miles

Shaded Fuelbreak Plan

The three major components of a wildland fire have been identified as weather, topography, and fuels. Of the three components, fuels is the one thing that man can significantly alter to reduce the likelihood of a wildland fire.

The Fuels Committee developed a map identifying areas in the watershed in need of some type of fuels treatment. The following are some factors that were considered in identifying these areas:

- Fire history for the area, both lightning caused and human caused fires
- Assets at risk
- Heavy fuel loading conditions with closed canopies
- Major roads overgrown with vegetation
- Major topographical features important to fire control
- Road access
- Willing landowners
- Ability to tie in with other projects, i.e., connecting to existing fuelbreaks or firelines

The Upper Clear Creek Watershed Group prioritized this list during the November, 2000 watershed meeting in French Gulch. The following is the priority list of recommendations, which could be implemented in the Upper Clear Creek Watershed. An explanation is following giving details for each project. Figure 2, shows the location for each proposed project by its corresponding priority number.

#1-Eastfork, Roadside Hazard Reduction

Eastfork road begins off of Trinity Mountain Road, approximately 2 miles north of French Gulch. The Volunteer Fire Chief, Dick Laughlin and the CDF Battalion Chief, Jim Gunderson identified the road as a potential firetrap in the event of a wildfire due to the heavy fuel load. In addition, the road is a difficult area for fire suppression resources because of the traffic congestion and the narrow, winding nature of the road. This project was immediately ranked as having the highest priority due to the severity of the situation. The project area consists of 3 miles, 2 private 1-mile long sections and 1 mile through BLM land. A temporary entry permit was obtained from each private landowner in the fuelbreak area to allow Western Shasta RCD personnel and California Department of Forestry & Fire Conservation Camp Crews access to construct the fuelbreak (See Appendix 2).

#2-A residential settlement north of the junction of Highland Ridge Road and Trinity Mountain Road

Fuel reduction between the structures and the encroaching wildland interface. The community is just west of Clear Creek and north of French Gulch.

#3-The area between Cline Gulch and John's Gulch, immediately east of Cline Gulch Road and opposite French Gulch Elementary School

Area is in close proximity to the French Gulch Elementary School, high fuel loading of primarily manzanita next to only access road to school from main highway.

#4-West of French Gulch

In 1999, a fuelbreak was constructed directly west of the town of French Gulch, continued segments of fuelbreak would increase the safety zone between the heavy fuel loads and the urban interface.

#5-South of Tom Green Road to the Whiskeytown NRA boundary

The ridge parallel with Trinity Mountain Road has an old fireline that was constructed during the mid 1990's this would be a good centerline for a fuelbreak.

#6- PG&E Right-of Way

The PG&E Right-of-Way is an ideal place for a shaded fuelbreak. Fire history in the watershed show that the majority of fires spread in a north or south direction. The majority of the PG&E line runs east-west, ideal for breaking up the continuity of fuels. There is a road that parallels the PG&E line for approximately 2 of the 4 miles and the PG&E maintenance road for the other 2 miles. There are 6 private landowners in the project area and one federal landowner, the Bureau of Land Management. The PG&E Right-of-Way is approximately 60' wide, the centerline being the center of the powerpoles. PG&E have been contacted and are in support of the project.

#7-Identify bridges that cannot support fire equipment

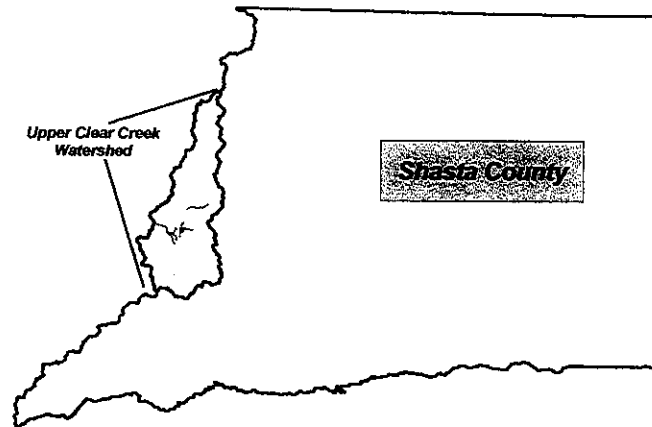
During the recon to identify fuels reduction projects it was discovered that the majority of the private bridges over the perennial streams are not designed to support the weight of fire suppression equipment. Landowners need to be aware that fire suppression equipment are unable to cross unsafe bridges.

#8-Community Fire Clean-Up Day

There is a lot of interest in the community to have a fire clean-up day. The high price to dispose of cut vegetation and long haul distance discourages many landowners from being able to sufficiently clear their property.

PROPOSED PROJECTS

Fig. 2



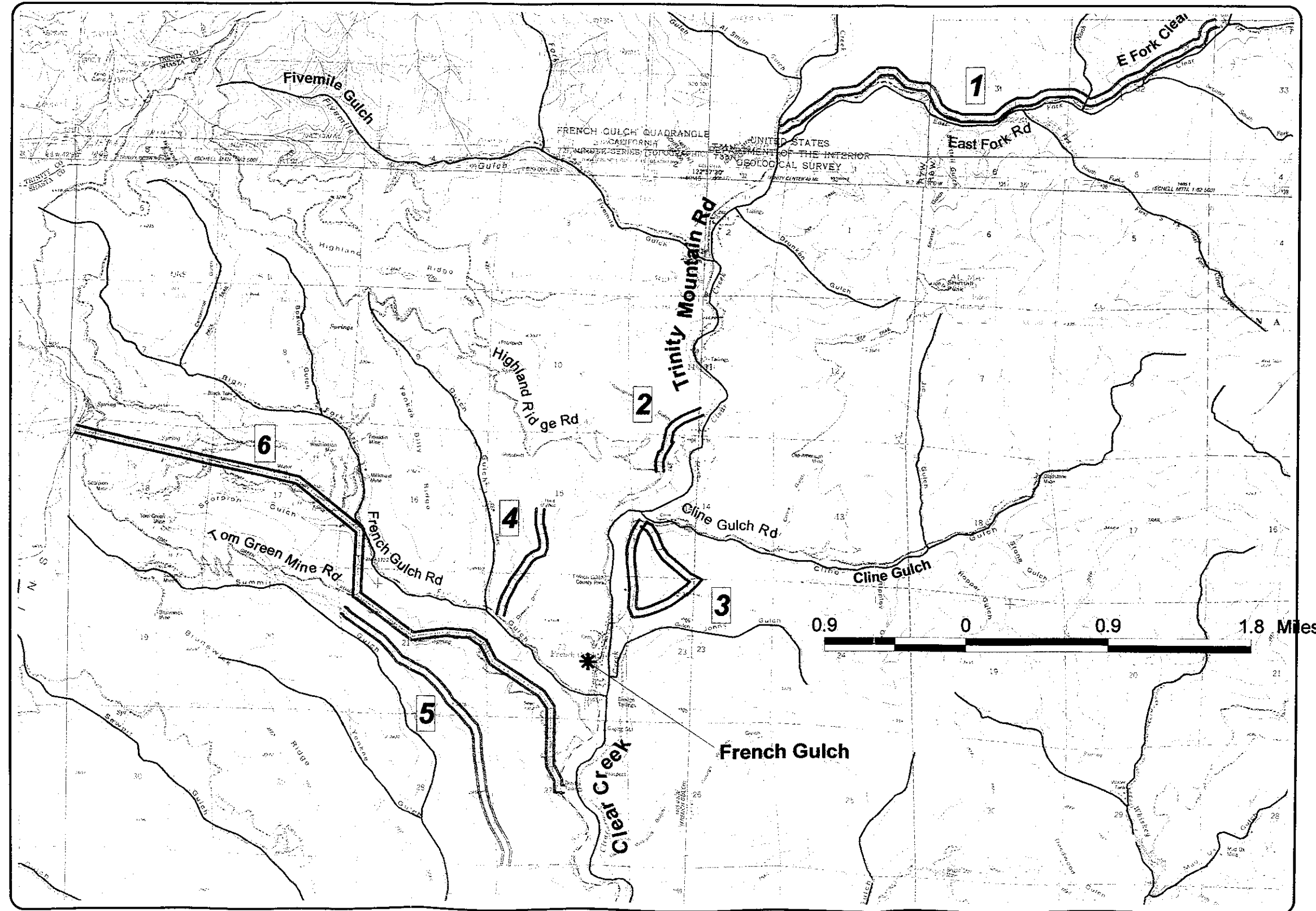
KEY

- Proposed Fuel Break
- Road
- Creek

Upper Images: French Gulch, Whiskeytown DRGs
 Lower Images: Schell Mountain, Papoose Creek DRGs



Created by Chris Glover
 May 6, 2002
 UTM Zone 10, NAD27



Types of Fuels Treatments

There are many different types of fuels treatments that can be implemented in the watershed. Prescribed fire, shaded fuelbreaks, and mechanical treatments are three different types described below.

A. Prescribed Fire

Prescribed Fire : Deliberate setting of fire over a specific area under predetermined conditions so that the fire is confined to that area to meet silvicultural, wildlife management, sanitary or hazard reduction requirements, or other natural resource objectives.

Prescribed fire practices should be conducted in a manner that limits loss of soil organic matter and litter and that reduces the potential for runoff and erosion. Bladed firelines should be stabilized to prevent erosion; practices such as handlines, firebrakes, or hose lays should be used where possible.

B. Shaded Fuelbreaks

Shaded fuelbreaks work by reducing the amount of fuel available to a fire, removing particularly dangerous fuels, rearranging the fuels so that they do not carry fire easily, and replacing some particularly flammable fuels with others that ignite less easily and burn less intensely. Reducing fuels and opening canopies should result in (a) lower fire intensity, (b) less probability of torching, and (c) lower probability of independent crown fire. A well designed shaded fuelbreak should provide an aesthetic setting for people and a desirable habitat for wildlife.

The primary reason for fuelbreaks is to change the behavior of a wildland fire entering the fuelbreak. Fuelbreaks may also be used as anchor points for indirect attack as well as for prescribed fire. (Agee, et al., 1999)

Fuelbreak Standards

Width: Fuelbreak width will depend on many factors, slope, fuel type, road access, etc. Typically fuelbreaks are a minimum of 100' wide.

Access: Fuelbreaks should be easily accessible by fire crews and equipment at many points. Rapid response and staffing of fire lines is very important to quick containment of a wildfire. The fuelbreak should provide a safe place from which firefighters can attack the blaze.

Aesthetics: The edges of fuelbreaks should not form straight lines. Edges should be varied creating a mosaic look. Where possible, fuelbreaks should tie in with natural barriers such as meadows, rock outcroppings, and roadways.

Maintenance: A maintenance plan should be developed before construction of a fuelbreak. Although a fuelbreak can be constructed in a matter of a few weeks, maintenance over decades is necessary.

Erosion: The establishment of a shaded fuelbreak can cause erosion if not properly done. Ground cover should be maintained to protect the soil and watershed. Heavy equipment should only be used when soil is dry, typically April – October 15.

C. Mechanical Treatments

Using mechanized equipment is an effective tool for reducing fuels loads on suitable topography and fuel types. Mechanical methods include but are not limited to using bulldozers with or without brush rakes, rubber tired skidders, chainsaws or mechanized falling machines, chippers, and grinders. During a typical thinning operation, live and dead wildland fuels are:

1. Cut using specialized equipment
2. Bunched together with a bulldozer and/or skidder in a collection area called a landing
3. Processed by chipping or grinding into a uniform wood fiber product
4. Loaded onto trucks for removal from the site

A typical area after treatment should consist of well spaced vegetation with little or no ground fuels, all brush removed, and tree crowns spaced 10-15' apart. Shaded fuelbreaks will have even more spacing between trees that are left. The area will be characterized by abundant open space after treatment.

The mechanical method of treatment can be used alone or as a pre treatment for prescribed fire. More fuel residues may need to be left to carry fire in subsequent prescribed burns. Mechanical treatments can be applied successfully on slopes up to 30% if the ground conditions are relatively free of surface rock, there are flat landing areas, and soils are not prone to erosion.

Mechanical treatment does have some adverse impacts that must be considered in specific applications. Soil disturbance from heavy equipment should only be done under dry conditions to minimize erosion and compaction. The drastic visual change must be considered in planning projects so that all parties are aware of potential changes to near and far views. Erosion due to exposed soil on slopes must be addressed in the planning of projects. Mitigation measures such as waterbars, ditching, and mulching in critical areas should be adopted. Impacts on wildlife and archaeological resources must be addressed to prevent adverse results.

Although mechanical thinning comes with a significantly higher price tag than prescribed fire, for urban interfaced areas this is fast becoming the only acceptable way to reducing fuel loads.

Things to consider with the different types of treatments:

- Manual treatment is very expensive but effective.
- Mechanical treatment is restricted to time of year and slopes.
- Prescribed fire can be effective but there is potential for fire escape

Maintenance of Fuelbreaks

Regardless of which type of fuels treatment is implemented, follow-up maintenance is critical. The effectiveness of many past fuels treatments has been largely lost due to inadequate or no maintenance.

Monitoring Plan

In the Spring of 2001, two fuel treatments were completed in the Upper Clear Creek Watershed. The fuel treatments are referred to as East Fork- West and East Fork- East (See Figure 3). Each treatment consisted of constructing a shaded fuelbreak along approximately 1-mile of road. The area of treatment was decided on by a Fuels Team and private landowners. Construction of the shaded fuelbreak took approximately 2 months.

By the Fall of 2001, monitoring of the fuelbreak (see Table 1 – Monitoring Plan) showed that East Fork-West had resprouted considerably and a follow-up maintenance treatment would need to be done. The Upper Clear Creek Watershed Group and the Fuels Team all agreed that the maintenance treatment was a high priority, so it was decided to implement the treatment under the last of the three fuel treatments required by the Calfed Grant.

A licensed Pesticide Applicator was approached to find out the most effective chemical for the resprouting vegetation. It was recommended that a concentration of Round-up be applied to the areas of resprouting vegetation. In the Spring of 2002, the herbicide treatment was completed.

Follow-up monitoring on similar fuels projects have shown that herbicides are effective in maintaining fuelbreaks, especially in areas that have resprouting vegetation.

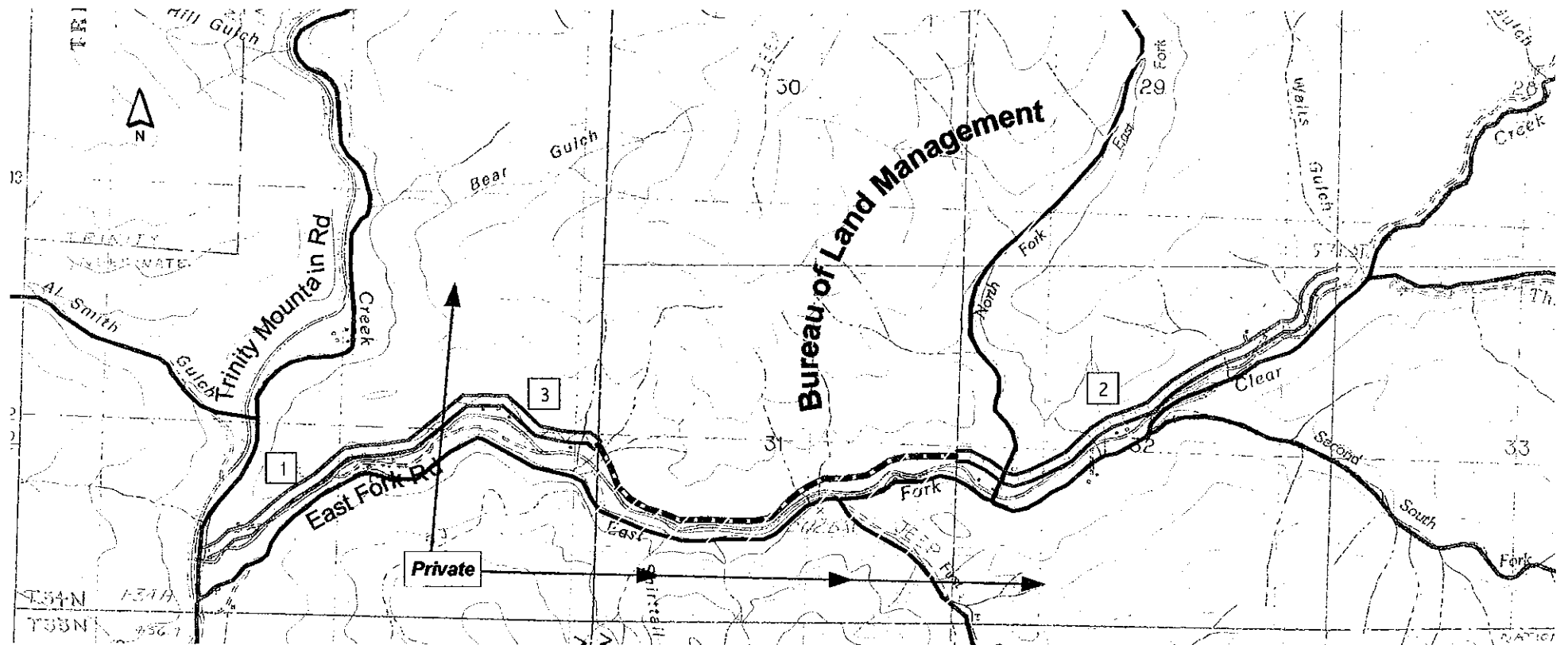
East Fork-East did not have as high of density of resprouting vegetation as the West end did. Maintenance is not needed at this time, however comparing the area with other similar projects, maintenance will most likely be required within the next few years.

Table 1 – Monitoring Plan

Objective/Hypothesis	Data Collection Approach	Data Evaluation Approach	Conclusions	
<p>Objective R1: Create a shaded fuelbreak to reduce the effects of a catastrophic wildland fire.</p> <p>Hypothesis R1: Vegetation cut during the construction of the shaded fuelbreak will need to be retreated after two growing seasons.</p>	<p>Monitor growth of vegetation, including resprouting stumps. Continue to monitor project site for a minimum of 2 years following the completion of fuels treatment.</p>	<p>Establish photo points to monitor plant regrowth,</p>	<p><u>East Fork West-</u> Monitoring results showed the shaded fuelbreak constructed in 2000 required re-treatment by the Spring of 2002. Resprouting vegetation was chemically treated with the herbicide Round-Up ®.</p>	<p><u>East Fork East-</u> Monitoring results showed the shaded fuelbreak constructed in Fall of 2000 did have regrowth by the Spring of 2002 however it was not significant enough to justify a retreatment by the Spring of 2002. The fuelbreak will continued to be monitored.</p>







FUEL TREATMENTS

Fig. 3



[1]: Shaded Fuelbreak, Private Land, Mile 1, Fall 2000
[2]: Shaded Fuelbreak, Private Land, Mile 3, Fall 2000
[3]: Herbicide Treatment of Fuelbreak, Spring 2002

Key

-  Fuel Break Completed
-  Fuel Break Proposed
-  Road
-  Creek
-  Image
-  Schell Mountain DRG



Created by Steve Giesler
 May 4, 2004
 Produced by US State of MADO



Funding Opportunities for Proposed Projects

The CALFED grant provided approximately \$14,600 to perform 3 fuels treatments in the Upper Clear Creek Watershed. Eastfork Road, the highest priority, had to be done. This project however spanned 3 miles of dense, overgrown vegetation and would easily consume the entire funding. It was decided by the Fuels Committee to break this project into 3 sections. The project took approximately 2 months to complete. (See the Fuel Management Plan for more information on this project.)

There are numerous State and Federal funding sources available that focus on Fire and Fuel Reduction and Hazard Mitigation. The University of California, Cooperative Extension (UCCE), provided the information on the following table (Table 2).

Table 2- Funding Sources that focus on Fire & Fuels

Program	Goals	Services	Will Fund	Who	Limitations	Agency
CA Forest Improvement Program	Forestry, watershed and riparian protection, enhancement	Reforestation, land conservation, fish & wildlife habitat improvements	75% up to \$30,000. Rehab after natural disaster up to 90%	Landowners	Plan required, 20-50,000 acres of forestland	CDF
Environmental Quality Incentives Program	To address significant natural resource needs and objectives	Cost sharing, technical and educational assistance	Up to 75%	Agricultural and Forest producers having significant resource needs	Approved practices up to \$10,000 per year	NRCS, FSA
Forest Stewardship Program	Assist CA communities to more actively manage their watershed	Technical, educational, and financial assistance	Cost share up to \$50,000, 100% match is required	RCDs, RC&Ds, Indian tribes, and community non-profit organizations	Address pre-fire fuels mgmt	CDF

References

- Agee, James K., Berni Bahro, Mark A. Finney, et.al. "Forest Ecology and Management", Elsevier Science Products, New York, 1999.
- Anderson, Hal. 1982. "Aids to Determining Fuel Models for Estimating Fire Behavior." 1982, U.S. Department of Agriculture, Forest Service (Ogden, Utah). General Technical Report INT-122.
- Sapsis, Dave. "CDF Fire Plan Hazard Assessment Methods." California Department of Forestry and Fire Protection, Sacramento, page 15.
- Weatherspoon, C.P. and C.N. Skinner. 1996. "Landscape-Level Strategies for Forest Fuel Management". Davis University of California, Centers for Water and Wildland Resources, 1996.
- Western Shasta Resource Conservation District. 1999. "Upper Clear Creek Watershed Analysis." Tetra Tech, Inc., San Francisco, CA.
- _____, "S-290 Intermediate Wildland Fire Behavior". National Interagency Fire Center, Boise, ID., 1993.

Personal Communications

- Gunderson, James. 2000. Personal communication between Jim Gunderson, CDF and Hide Nakashima, WSRCD, Month date, year.
- Fontana, Chris. 2000. Telephone conversation between Chris Fontana, National Fire Weather Service and Hide Nakashima, WSRCD, November 12, 2000.

Appendix 1

Upper Clear Creek Fuels Team

Name	Affiliation	Title
Bob Bailey	Natural Resources Conservation Service	District Conservationist
Herb Baldwin	Sierra Pacific Industries	Forester
Jack Bramhall	Western Shasta Resource Conservation District	Upper Clear Creek Watershed Coordinator
Jim Gunderson	California Department of Forestry & Fire Protection	Battalion Chief
Jim Hutton	Whiskeytown National Recreation Area	Fire Management Officer
Dick Laughlin	Private Landowner	French Gulch Fire Chief
Stan Leach	Private Landowner	Timber Operator
Hide Nakashima	Western Shasta Resource Conservation District	Project Manager
Kathleen Schori	California Department of Forestry and Fire Protection	Vegetation Management Program Coordinator
Chuck Schultz	Bureau of Land Management	Field Office Manager
Dave Soho	California Department of Forestry and Fire Protection	Resource Manager
Ember Swan	French Gulch School District	Principal
John Wideman	United States Forest Service	Fuels Management Officer

Appendix 2

TEMPORARY ENTRY PERMIT

Permission is hereby given to the Western Shasta Resource Conservation District and its officers, employees, agents, and persons under contract therewith, hereafter referred to as the Sponsor, by the Permitter named below to enter, with all necessary equipment, in the County of Shasta, State of California, described as follows:

Section ____ T. ____ N, R ____ W, MDBM. Mining Claim No. _____ - _____

Assessors Parcel No. _____ Claimant: _____

FOR THE PURPOSE OF:

Construct a shaded fuelbreak approximately 150' wide. Fuelbreak construction shall be performed using handtools such as pulaskis, and chainsaws. The cut brush will be either piled and burned on site or chipped and blown on site. A California approved herbicide may be applied to cut stumps of resprouting vegetation in the fuelbreak corridor.

and for such other purposes as may be incidental thereto subject to the following provisions:

1. Reasonable precautions.
2. Permitter assumes no liability for loss or damage to property or injuries to or deaths of agents, contractors, or employees of Sponsor by reason of the exercise of privileges conferred herein.
3. Nothing in this permit shall preclude Permitter from filing a claim, or claims, for any loss or expense which Permitter or his tenant may suffer caused by arising out of the exercise by the Sponsor or the rights herein granted.
4. Sponsor agrees to indemnify and hold harmless Permitter from any damage caused by Sponsor's authorized use of said property. Sponsor agrees also to either indemnify Permitter for any damage or destruction to its roads or fences, or other property, occurring by reason of the exercise of rights granted herein, or to replace or restore said property.
5. This permit shall expire on _____.
6. The Western Shasta Resource Conservation District is not responsible for maintaining permitted work.
7. This permit is granted subject to the provisions set forth above.

Permitter: _____ Date: _____

Signature: _____

Address: _____ City: _____ State: ____ Zip: _____

Phone: _____ Fax: _____

Permit Accepted by Western Shasta Resource Conservation District

By: _____

Title: _____

Date: _____