THE TRINITY COUNTY FIRE SAFE COUNCIL

FIRE MANAGEMENT PLAN

February 21, 2003 Version

THIS IS A WORKING PLANNING DOCUMENT. IT IS BEING REVISED FROM FSC MEETING TO FSC MEETING. COMMENTS ARE MUCH APPRECIATED AND WILL BE INCORPORATED BASED ON REVIEW AND AGREEMENT BY TCFSC.

To Fire Safe Council from Planning Sub-committee:
Ken Baldwin, Noreen Doyas, Yvonne Everett, Pat Frost, Lynn Jungwirth, Kelly Sheen, Phil Towle.

FIRE PLAN CONTENTS:

I. PLANNING PROCESS

This fire management planning process is being undertaken by the Trinity County Fire Safe Council (TFSC). The plan development process was initiated in fall 1999. The Fire Safe Council meets monthly. Between meetings, its subcommittees address specific topics, gather background information, sometimes suggest courses of action, process etc. The plan is intended to be a work in progress that will be revisited and updated as time goes on. The format is designed for a loose-leaf binder so that additional materials may be easily added.

1. Development of Mission Statement (completed)
2. Define major topics and add additional subject areas to be covered (current topics defined)
3. For each topic define:
    - Goals: General statements
    - Current status of issue (and history where available)
    - Implementation: Specific projects to be undertaken

4. Once the goals have been defined – prioritize opportunities/activities for funding and implementation purposes.
5. Plan Implementation through TCFSC members and partners
6. Plan Monitoring TCFSC members (addressed in Section 9)

II. GLOSSARY AND LIST OF ACRONYMS INCLUDED IN THE PLAN

AMA	Adaptive Management Area, one of ten areas designated in the Northwest Forest Plan designed to restore and maintain the ecological health of watersheds and aquatic ecosystems for salmon and steelhead on public lands
BLM	Bureau of Land Management
CDF	California Department of Forestry & Fire Protection
CEQA	California Environmental Quality Act
FARSITE	Computer software program used to predict fire behavior in the landscape
FMZ	Fuel Management Zone
GIS	Geographic Information Systems (computer based mapping and analysis)
LS	Late Successional (Late Seral)
LSR	Late Successional Reserve (Late Seral Reserve)
NEPA	National Environmental Policy Act
NGO	Non- Governmental Organization (usually a registered not-for profit 501c (3)
NRCS	Natural Resource Conservation Service (Federal Government Agency)
PROP 204	Proposition 204-State Water Resources Control Board's Delta Tributary Watershed Program
PTEIR	Program Timberland Environmental Impact Report
RAC	Resource Advisory Committee
SPI	Sierra Pacific Industries
SRNF	Six Rivers National Forest
STNF	Shasta-Trinity National Forest
SWRCB	State Water Resources Control Board
TCRCD	Trinity County Resource Conservation District
TFSC	Trinity County Fire Safe Council
THP	Timber Harvest Plan
USFS	United States Forest Service (Federal Government Agency)
USFS PSW	USFS Pacific Southwest Research Station (Federal Agency Research Branch)
VFD	Volunteer Fire Department
WRTC	Watershed Research and Training Center, Hayfork (Local NGO)

III. TRINITY FIRE PLAN MISSION

It is the Mission of the Trinity County Fire Safe Council to reduce the risk of catastrophic fire in Trinity County by establishing priorities for reducing risk of catastrophic fire on a landscape scale in order to improve forest health, water quality and quantity and community well-being.

Fire management has at least three underlying approaches: Pre-fire treatment of vegetation to reduce fuel loading and create opportunities to fight fire when it occurs; fire suppression in the event of a fire; and post-fire treatment to reduce negative impacts of fire such as soil erosion. Emergency response and fire suppression forces are critical to protecting public safety, especially in the wildland-residential interface. We hope that expanded and well-maintained pre-fire and post-fire treatments in the local landscape will support suppression efforts and also improve forest health by allowing for reintroduction of managed low intensity fire over time.

We seek to develop and implement a fire plan that will employ all three approaches through enhanced coordination among all actors, local capacity building, public education and involvement, increased access to funding and assessment of regulatory barriers to fire management.

IV. MAJOR ELEMENTS TO BE ADDRESSED IN THE PLAN

1. **Reducing the Current Level of Fire Risk and Hazard in the Landscape through Pre-Fire and Post-Fire Treatment and Managing for Fire**
    1. Goals
    2. Current Landscape Conditions and Infrastructure
    3. Reduce the incidence of catastrophic fire and protect communities through pre-fire treatments

2. **Support for Local Fire Suppression Forces**
    1. Goals
    2. Current conditions for local fire suppression forces
    3. Implementation

3. **Coordination among all Actors**
    1. Goals
    2. Current situation
    3. Implementation

4. **Building Local Pre-Fire Treatment and Fire Suppression Capacity**
    1. Goals
    2. Current Condition
    3. Implementation

5. **Public Education and Involvement**
    1. Goals
    2. Current Condition
    3. Implementation

6. **Funding Fire Management Activities**
    1. Goals
    2. Current Condition
    3. Implementation

7. **Identifying Regulatory Conflicts that affect Fire Management**
    1. Goals
    2. Current Condition
    3. Implementation

8. **Cooperating with Trinity County Planning Department on Safety Element of General Plan**
    1. Goals
    2. Current Condition
    3. Implementation

9. **Monitoring of Plan Implementation and Effectiveness**
    1. Goals
    2. Current Condition
    3. Implementation

These topics are based on discussions of the planning sub-committee. The topics were reviewed by TFSC Sept 24, 2001 and December 5, 2002.

- Topic 1 was modified.
- Topic 8 was added.

V. PLAN ELEMENTS

ELEMENT 1: Reducing the Current Level of Fire Risk and Hazard in the Landscape through Pre-Fire Treatment and Managing for Fire

1. Goals:

1.1 Reduce the incidence of catastrophic fire and protect communities through pre-fire treatments

1.2 Seek to bring the landscape toward a condition more representative of vegetation composition, seral stage distributions, and fuel loading in the early part of the 20th century (pre-fire suppression)

2. Current Landscape Conditions and Infrastructure

2.1 Current vegetation fire and fuel conditions. (2.1 and 2.2 to be integrated in final version)

There are major data gaps, inventory and research needs. The landscape covers a large, mountainous and remote area. For the purposes of this fire plan, the county has been divided into five parts (see map1). They are:

- Down River
- Mid-Trinity
- North Lake (complete)
- South County
- South Fork

We are compiling a background description of current fire and fuel conditions in each of the five areas. The North Lake Area description is included in Appendix 1.

2.2 Concerns raised by sub-committee and TCFSC to be addressed in the review of landscape conditions:

The ecosystem is "out of balance" or is beyond the average historic levels of variation for measurable factors including vegetation age class distribution (e.g. the relative proportion of old to mature to early to young growth for several vegetation series) and fuel loading.

Human Communities and municipal watersheds are at risk especially in the wildland–residential interface. This is a fundamentally new situation emerging at this scale within the last several decades with increasing numbers of people living in a fire-dominated landscape. The combination of pre-fire and post-fire treatment and suppression will lead to an altered landscape – not necessarily a landscape "restored" to a previous fire regime but hopefully one that maintains most of its historic ecosystem functions with fewer cases of catastrophic wildfire.

Fire management infrastructure placement including fuel reduction projects, fuel break installation and maintenance, water source development and road access are opportunistic (nearly random) and not always related to where they would best be placed in the landscape.

2.3 Physical infrastructure pertinent to emergency response.

In 1999 and 2000 13 Community Mapping Meetings were held in Fire Halls and Community Centers across Trinity County. At the meetings participants reviewed maps of their local area based on the most current information available in USFS, CDF TCRCD and WRTC Geographic Information Systems (GIS). Participants provided information to the TCFSC committee on missing or incorrect information pertinent to emergency response. Information included for example identification of washed out segments of roads or bridges too weak to carry a fire truck or additional water sources and access points. Data were compiled in a GIS (See TCFSC, 2000)

3. Reduce the incidence of catastrophic fire and protect communities through pre-fire treatments

3.1 Generate landscape scale proposal for fuels reduction through pre-fire treatments for Trinity County in 2001/2002. Involve communities and landowners and managers in the process

3.1.1 Gather community recommendations for values at risk in the landscape and proposals for protecting them through fuels management. Prioritize proposals.

Five community meetings were held in 2000 and 5 in 2002 during which community members were asked to identify values at risk in the landscape surrounding their communities. Values identified included for example homes, businesses, utilities, and campgrounds. Participants discussed approaches to protecting the values through fuels treatment. In each meeting the list of values and proposed treatment recommendations were ranked by participants through an assessment process that assessed the relative public safety, economic, social and environmental rank of each identified value/project.

This process resulted in a list of over 100 prioritized fuels management projects from all over Trinity County.

3.1.2 Identify Strategic Landscape Scale Fuel Management Zones that might help suppression forces to slow or stop a catastrophic fire that threatened communities.

Fuel management zones (FMZ) would work in conjunction with fuels reduction projects discussed above in an integrated approach to protecting values at risk from fire. Specifications for FMZ proposals were drawn from the National Fire Plan and included such parameters as accessible (previously roaded) ridgelines positioned perpendicular to prevailing fire season winds within 1.5 miles of a community.

In five community meetings in 2002 potential FMZ locations were identified for each part of the county. In most cases the proposed FMZs are on public (national forest) land. They often correspond with potential FMZs already under assessment by the USFS.

3.1.3 Model fire risk (the likelihood of ignition) and hazard (fuel loading) at a scale relevant for project level planning in the Trinity landscape and identify likely locations for pre-fire treatments based on existing fuel and risk conditions alone.

This is an effort to generate a "value free" or " objective" assessment of fire conditions across the county. Such a layer would help decision makers prioritize among proposed projects from the five parts of the county. The critical issue is scale. Current agency based fire-modeling work for the Shasta-Trinity National Forest and for Trinity County is too coarse for project prioritization.

Progress: In Fall 2001, a team worked to develop a pilot model of fire risk and hazard for the Covington Mill Area. The approach combined FARSITE fire behavior prediction model with Arc View GIS. We hoped that the model could be expanded from the original pilot to develop a GIS based fire risk and hazard layer for all of Trinity County. This is a similar approach to that taken by the USFS for the Shasta-Trinity National Forest Fire Plan but carried out at a finer scale, more useful for identification of pre-fire treatment opportunities. It is an effort to objectively quantify existing landscape conditions with respect to fire risk and hazard. Based on this model it was hoped that landscape wide features for pre-fire treatment such as a network of the most critical ridgeline FMZs or "jackpots" of fuels in potentially dangerous locations could be identified. The effort was funded by USFS PSW (WRTC) and PROP 204 (TCRCD) with cooperation from NRCS. While the modeling effort proved very interesting, in sum the data demands to effectively work the model on a countywide basis could not be met. The idea is premature given the available data for Trinity County. For more information and to see the final report from this study*:* (Clark, Byron and Madalene Ransom. 2001).

Alternative approaches to vegetation inventory and fire risk and hazard modeling are being explored.

3.1.4 Combine fire risk and hazard models with community recommendations on values at risk and proposed locations for pre-fire treatments.

The TFSC carried out an intensive process of gathering community recommendations on values at risk and proposed locations for pre-fire treatments in 1999/2000 and in 2002. The recommendations have been compiled in a draft report[1] and the associated GIS on CDROM. Both are currently under revision and will be available through TCRCD.

[1] Recommendations on Trinity County Values at Risk from Fire and Pre-Fire Fuels Treatment Opportunities drawn from Community Meetings 1999/2000. Report to The Trinity County Fire Safe Council form the Trinity County Resource Conservation District and the Watershed Research and Training Center.

In the long run, the intent is to combine the approach of gathering community recommendations with a countywide fire risk and hazard assessment. The combination will be the TFSC's best effort to combine fire ecological science with local knowledge, expertise and values to recommend pre-fire treatments.

3.1.5 Integrate proposals for treatments with existing management and emergency response planning and develop recommendations for priority implementation activities

Public land managers are members of the TCFSC and are involved in developing the TCFSC plan and project proposals. At the same time, the agencies have existing land management plans and constraints. We hope that the TCFSC recommendations will over time be integrated into agency planning decisions where possible. Existing emergency response plans and capacity should be factored into recommendations for pre-fire fuels treatment priority.

3.2 Implement and Monitor Coordinated Pre-Fire Treatments According to the Landscape Plan

3.2.1 Fund proposed project implementation beginning in 2001
Proposals have been written for a number of projects. See Appendix 2 for the fuels reduction projects in Trinity County that have been funded through September 2002.

3.2.2 Implement and Maintain treatments beginning in 2001
Implementation – various projects have been completed to date.
Maintenance – schedule to be determined with monitoring plan.

3.2.3 Monitor implementation and effectiveness, revisit plan periodically beginning in 2002
The general monitoring plan has been drafted. Each new project will have a monitoring component and proposed schedule for monitoring included. The overall objectives of the fuels reduction projects are to reduce the risk of catastrophic fires, protect the public safety and property, and increase fire fighters ability to defend areas from fire. The objective of the monitoring component is to assess the effects of fuels treatments on terrestrial habitat, fuel loads, and fire behavior (when possible). The goal of this monitoring plan is to document qualitative and quantitative changes in the response to fuel reduction treatments. The level of monitoring will vary from project to project and depend on available funding, the level of landowner support, the vegetation type, location of the project (urban interface vs. remote areas), and type of project (roadside fuel break, defensible space, timber stand thinning, etc.). Level I Monitoring will focus on photo point monitoring with some quick and basic measurements of canopy cover. Level II monitoring will include plots that record: seedling density, pole density, composition of species, mature tree growth, wildlife habitat, dead and down fuels, as well as the Level I variables. (The monitoring plan can be reviewed on request by contacting Pat Frost, TCRCD (530) 623-6004.)

ELEMENT 2: Support for Local Fire Suppression Forces

1. Goals

The local Volunteer Fire Departments (VFDs) seek to provide the best service possible to their communities and to Trinity County with the resources they have available. The Trinity County Fire Safe Council seeks to support them.

2. Current conditions for local fire suppression forces

There are 16 Volunteer Fire and Rescue Organizations (VFDs) in Trinity County. Only four of the VFDs receive funding through tax revenues. VFDs depend on grants, fundraisers and community support for survival. There is no staff available to coordinate VFD activities with Fire Safe Council efforts, such as follow up on fuels reduction projects and community education.

250 volunteers provide first response to both fire and medical calls. Recruitment and retention of volunteers, especially younger people is difficult and will become more so in future.

Much of the equipment in use is functional, but old and very expensive to maintain and repair.

The FSC has consulted with the VFDs and identified VFD needs. These needs have been categorized, as follows:

a. Funding

The VFDs need a consistent source of funding. The majority of the departments do not have a tax base to draw on and must raise funds through community volunteer work, bake sales and the like. Funding would help to cover liability insurance, workers compensation insurance and help with department administration.

b. Apparatus / Vehicles

The majority of emergency vehicles are at least 20 years old. They are expensive to repair and parts are sometimes impossible to find. Some of the engines are 30-40 years old. The VFDs need new (or newer) emergency vehicles that will be more reliable and less costly to maintain. It would be very important to acquire one additional engine soon that can be shared among the VFDs in the county.

c. Training

Need consistent, professional, year-round training to meet mandatory state and federal requirements and to insure the personal safety of firefighters. Training should be made available locally (the county is large, distribute training sites geographically) and on weekends. One suggestion is to pay individuals from each VFD to become instructors working under a CDF training officer. Mandated requirements include: Standard First

Aid; Cardio Pulmonary Resuscitation (C.P.R.); Sudden Infant Death Syndrome (S.I.D.S.); Confined Space; Hazardous Materials; A.E.D; Prevention of Disease Transmission; and in some cases Wildland firefighting/strike team; Firefighter 1/structure fire; and First responder/ Emergency Medical Technician (EMT) /medical training. Further, upon request, VFDs must provide Hepatitis shots and Tuberculosis tests to all responders.

d. Equipment

Each VFD has a list of equipment needs (Attached). Because of the departments' financial situation, it will be important to find funding to cover the entire cost of equipment and not only a cost-share. Mark Stuart of the Douglas City VFD points out, for example, that the model of self-contained breathing apparatus (SCBA) his department has is listed in the manual as one that should be taken out of service. New SCBA gear costs $2,500-$4,500 per unit and ideally each VFD would have a unit for each member and spare air cylinders.

e. Staff for Coordination with Fire Safe Council Implementation Efforts

By their nature, VFDs, do not have paid staff or the expertise needed to expand their capacity to work within the FSC on implementation of strategic elements. Securing funding and a person to provide that coordination would enable VFDs to serve their constituents better and to tap into available funding.

f. Address System / Mapping

Trinity County has been developing an emergency response addressing/mapping system to assist initial response. The system is no complete (as of December 2002) and its completion is a high priority for VFDs.

g. ID, map and get approval for water supply sources

VFDs need to have access to water sources for fighting fires. There are limited know locations that are approved for withdrawal of water, primarily because of endangered species concerns. A program to secure additional water sources and map their locations would improve fire suppression capabilities.

h. Public Education Outreach – defensible space, chipping services

VFDs could play a key role in educating their constituents about defensible space designs/prescriptions, and could link landowners to programs designed to assist landowners in implementing defensible space. The RAC-funded "Big Red Truck" project is a first step in addressing this issue.

3. Implementation

The Fire Safe Council has begun to identify methods of addressing VFD support. Those discussions have led to a number of actions being taken, and the need for others to be initiated. The Volunteer Chiefs' Association submitted an application to the Trinity

County Board of Supervisors for funding to purchase wildland fire fighting "turnouts" through Title III and the request was approved (2.3.1.a and 2.3.1.e). The TCRCD was awarded two Fire Safe Outreach and Education grants (Trinity County Title III and Sacramento Regional Foundation). These grants will be used to [a] work with VFD's to develop funding proposals and submit them in response to grant RFP's; [b] help conduct public outreach through Fire Safe Council coordination (2.3.1.e) and public education with informational slides at the Trinity Theater, outreach booths at the Trinity County Fair and Salmon Festival and fire safe signage along Highway 299 to highlight the fuel management zone being implemented by the FSC partnership (2.3.1.h). CDF has agreed to use its GIS mapping services to produce and distribute addressing maps to all of the VFD's by January 2003 and the County has hired a GIS specialist to finish the more comprehensive addressing system (2.3.1.f). A proposal was submitted by the FSC to the Trinity County RAC for Title II funds for VFD's the conduct residential inspections in the wildland interface (2.3.1.h). The TCRCD was awarded this grant to provide $5,000/VFD to inspect properties, educate landowners about defensible space practices and connect them with fuels reduction programs such as the TCRCD, NRCS/EQIP and the RC&D PTEIR. This project, known as The "Big Red Truck" project, should provide direct outreach to approximately 3,000 landowners.

ELEMENT 3: Coordination Among All Actors

1. Goals:

To coordinate the fire management efforts of all of the organizations and private landowners in Trinity County, including a system to ensure access to both public and private data – *WRTC/TCRCD/USFS/BLM GIS users link to GIS mgrs inside and others*.

2. Current situation:

Fire management in Trinity County involves many organizations with different sets of priorities and responsibilities. There are federal land managers overseeing the majority of the landscape, CDF and local Volunteer Fire Departments providing initial response, Trinity County, with its responsibility for the General Plan, the TCRCD and WRTC implementing fuels reduction demonstration projects and local landowners. The Trinity County Fire Safe Council (FSC), founded in 1998, links all of these entities together. The FSC meets monthly with an agenda that includes agency and NGO reports on outreach, current implementation, funding opportunities, opportunities to collaborate and areas of potential conflict. The FSC coordinated the community planning process with the VFD's.

3. Implementation:

The Fire Safe Council has identified some specific areas for improved coordination

3.1 Sharing data. We need a system to ensure access to public and private data with a GIS users group to provide the needed linkages amongst users for:

a. MOUs to allow sharing and interpretation – analysis
b. New data
c. Compatible coding
d. Meta data
e. Avoid duplication

3.2 Pre-fire Planning and Project coordination (e.g. roads, projects, water, fire, etc) –Quarterly meetings bring proposed projects to the table at the FSC; – via county general plan, USFS roads, fire, wilderness plans – FSC as a data repository for proposed, ongoing, completed projects – carries out MONITORING – Annual status report and event to highlight accomplishments.

3.3 Initial Attack Coordination – link to, and involve, local capacity using the Volunteer Fire Chiefs' Association and improve the County's dispatch system through coordination with Office of Emergency Services Committee.

3.4 Master Agreements / Standard Operating Procedures between agencies e.g. implementing the MOU build experience amongst partners, seek to standardize relationships and mechanisms for coordination.

3.5 Jurisdictions – Coordinate the relationships between public and private landowners/managers emphasizing cross-boundary project incentives to treat landscapes instead of land ownerships. Two specific tools are available to further this coordination.

a. The Trinity County Resource Advisory Committee (RAC) was formed to provide locally led advice to the USFS on resource management issues. The Trinity County RAC has chosen forest health and fire management as one of its key issues. The RAC has sought the advise of the FSC and used the FSC project prioritization to guide its deliberations. Members of the FSC are members of the RAC, enhancing the coordination.

b. Program Timberland Environmental Impact Report (PTEIR) (refer to discussion below).

ELEMENT 4: Building Local Pre-Fire Treatment and Fire Suppression Capacity

1. Goals:

Develop and maintain local forces to conduct pre-fire treatment and fire suppression in Trinity County. Building this local capacity to perform pre-fire treatments and fire suppression includes:

a. Ensure adequate equipment is available and can be replaced as needed.
b. Address skills and training needs (age of volunteers is a major problem).
c. Develop a Readiness, Mobilization Plan.
d. Ensure Communication between key suppression forces (refer to Initial Attack Coordination in Element 3).
e. Secure adequate funding to maintain pool of employees/contractors.

2. Current Conditions:

Pre-fire treatment has not been adequately funded in recent years. Therefore, there currently is little capacity, by way of workers and equipment, to implement pre-fire landscape treatments. Currently pre-fire treatment is implemented by the TCRCD & WRTC (one crew each). The National Fire Plan focused some money for the USFS to hire additional fire crews (that could be used for pre-fire treatment, also), but the additions have been small and seasonal. The Trinity County RAC focus on forest health and fire management indicates that about $500,000/year will be directed towards pre-fire treatment for at 6 years (2001 – 2007). There are approximately 250 volunteer firefighters in Trinity County. They are under-funded and their training is limited by this lack of funding. Another serious issue with regards to local fire suppression capacity is the age of the volunteers and the difficulty in recruiting new, younger members to the volunteer forces.

3. Implementation:

a. Provide an annual report of pre-fire treatment implementation, including sources of funds and crews. Capacity to perform Pre-fire treatment will not improve without reliable sources of funding to incubate building and sustaining implementation crews. The RAC seems to be such a source in the near-term. The FSC will continue to support funding strategic, pre-fire treatment projects in such a manner that the funds go to hiring local crews.

b. Provide an annual report on funding and hiring levels by USFS on suppression forces. Improving the capacity of local suppression forces relies on sustained funding to provide equipment and training of volunteer forces. Appropriated funds to USFS are necessary to improve the capacity of USFS suppression crews locally.

c. Convene a meeting of all of the agencies involved in fire suppression to develop a Readiness, Mobilization Plan under the auspices of the Volunteer Chiefs'

Association. Assess effectiveness of the Plan each year and report to the FSC and Volunteer Chiefs' Association.

ELEMENT 5: Public Education and Involvement

1. Goals:

1.1 Enhance Public Education (outreach, involvement, awareness, understanding, and support.
1.2 Increase Public Input (capturing community recommendations)
1.3 Reach out to non-traditional partners
1.4 Sustain and Systematize Involvement/ Institutionalize fire safety and awareness and FSC activities.
1.5 Maintain communication with, and support from, the California Fire Safe Council (and other Fire Safe Councils) for education and outreach materials and effective ideas.

2. Current Conditions:

The Trinity County Fire Safe Council began the process (in 1999) of developing education and outreach materials, meeting with landowners to discuss defensible space issues, and implementing fuels reduction demonstration projects (which are models for other communities). The RCD distributes a quarterly newsletter, ***The Conservation Almanac***, to all residents of Trinity County with articles about fuels reduction projects, fire safe techniques, and places these articles on its website (www.tcrcd.net). The RCD submits press releases to the **Trinity Journal** regarding Fire Safe Council projects. CDF will meet with interested landowners to make recommended Fire Safe improvement to property. The USFS and CDF have provided informational Fire Safe materials (pamphlets and gewgaws) for the Trinity County Fair, and Salmon Festival. Tours are conducted of fuels reduction demonstration projects and a Self-guided tour brochure has been developed.

3. Implementation: Education and outreach is an ongoing process

3.1 Ongoing outreach

(1) Community Planning & prioritization process (see Element 1)
(2) PowerPoint presentations given
    (a) Local service organizations (Rotary, Lions, Board of Realtors)
    (b) Property Rights organizations
    (c) Board of Supervisors
    (d) Advisory Committees (Trinity County RAC, Klamath PAC)
(3) Elementary School Curriculum (6th Grade Environmental Education Camp, Coffee Creek River Day Celebration, Weaverville Children's Festival)
(4) Develop and run fire safe slides at Trinity Theater

(5) Educational Booth (Trinity County Fair, Salmon Festival)
(6) RCD newsletter fire safe articles quarterly mailed and on website
(7) Brochure development and production
(8) Fire Safe Council minutes distributed (email, mail and CA Fire Safe Council website).
(9) Participation in Trinity County Volunteer Chief's Association Meetings (quarterly).
(10) Tours conducted (Legislative delegations, homeowners, BLM RAC, Congressional delegations).

3.2 Outreach needs

(1) Develop a Fire Safe Council Annual Report
(2) Identify key locations for informational handouts/brochures etc.
  (a) Burn Permit
  (b) Building Permit
  (c) Home Insurance
  (d) Realtors Offices
  (e) Chamber of Commerce
(3) Create a Welcome Package for New Land/Homeowners
(4) Develop a Fire Safe coloring book for children
(5) More Signage where fuels reduction treatments have occurred (e.g. USFS and BLM projects along major roadways)
(6) Coordinate Volunteers for Education and Outreach efforts
(7) Engage non-traditional partners, including
  (a) environmental community;
  (b) high schools;
  (c) elementary schools;
  (d) regulatory agencies;
  (e) Industrial timber (*Jeff Bryant, NRAC is retired USFS heads Independent Forest Products Association*);
  (f) Real Estate Developers, Insurance *(TCRCD PowerPoint presentation plus presentation by Madeline Ransom*)
  (g) State-wide linkages –FSC, RCDs, RCRC
  (h) Senior Center / Social Services
(8) Presentations to Elected officials (semi annual presentation to Trinity County Board of Supervisors, annual tours and legislative visits).
(9) RAC –FSC takes annual prioritization list to RAC with in the first months of RAC meetings each year
(10) TCRCD Newsletter (Quarterly)
(11) FSC member/partner newsletter links
(12) Update and Maintain Website
(13) Press Releases regularly regarding TCFSC activities
(14) Poster contest for schools for Volunteer Fire Departments
(15) Continue to develop and run fire safe slides at Trinity Theater
(16) Sponsor Field Trips to fuels reduction demonstration projects and recent fire

areas

(17) Presentations to community groups, schools, Rotary, Lions, organizations, etc.

(18) FSC – monthly meetings

a. Events – link to/ support VFD fund raisers
b. FSC Booth at the Fair (have raffle to support tub-grinder purchase) – *August 2002 thereafter annually*
c. Fire fighting skills competition (*Fair 2002*)

(19) 4th of July Parade – FSC Banner in parade on Fire truck

(20) "Big Red Truck" Volunteer Fire Department Inspection Program (see Element 2).

(21) FSC to prioritize education and outreach activities annually and then volunteers from the Fire Safe Council to take the lead role in several of the highest priority education & outreach efforts.

ELEMENT 6: Funding Fire Management Activities

1. Goals

Use plan with clear priorities and a clear process for public participation and buy in to secure funding, including development of linkages and methods of leveraging funds.

2. Current Conditions

Funding of fire management activities has been somewhat opportunistic and loosely coordinated through the FSC. The efforts of the FSC have resulted in the development of priorities within the 5 divisions of the county. Some members of the FSC have led the pursuit of funding (WRTC, TCRCD, Post Mtn PUD), and the FSC has guided the efforts of the Trinity County RAC to fund priority projects throughout the county. Project funding still tends towards single-year grants; however, the Trinity County Fire Safe Council (and its members) has built a reputation for effective use of grants and leveraging the FSC partnership amongst granting entities.

3. Implementation

a. More funds need to be earmarked for projects throughout the five divisions of the county. Project funding should be widely disbursed to keep everyone involved and benefiting across geographic and organizational space; multi-year funding is often desirable, such as the Trinity County– RAC.
b. Find funds from non-traditional sources (e.g. foundations, NRCS).
c. Secure a depreciation funding mechanism to pay for equipment – a tax? An endowment?

d. Define county, federal, state responsibility – seek funds for a county level coordinator position.
e. Work to allow use of material for value added production, biomass plant etc. – (see PTEIR, tub grinder move around – use chips; timber bridge; small scale biogas heating.
f. Provide an annual report on funding for fire management projects (see attached example **in Appendix 2**).

ELEMENT 7: Identifying Regulatory Conflicts that affect Fire Management

1. Goals

1.1 Develop a system for highlighting regulatory conflict and incompatibility with links to the appropriate level of government to get resolution

1.2 Coordination of regulations across the public – private land divide. For example: CEQA / NEPA / programmatic THPs, PTEIR

1.3 In the short-term, provide adequate funding and capacity for current implementation and management activities

1.4 In the longer-term, build local capacity to do the regulatory work (NEPA)
Develop a local NEPA team to augment capacity of agency staff.
Develop training capacity at Shasta College Weaverville Resources Center
Have annual in November TCFSC Workshop to discuss regulatory conflict issues

2. Current Conditions

Regulatory programs have very few provisions specifically developed to encourage the implementation of fuels reduction and fire safe projects. State regulations for these types of activities are found in the Forest Practices Act and CEQA and apply to work conducted required for any activity that is the result of a discretionary action by a local or state agency. All federal activities (or federally-funded activities) require a NEPA documents. Fuels reduction projects do not pay for themselves. On private lands incentives are needed to encourage non-industrial timberland owners to participate. If there is no "marketing" of the fuels removed from the private lands, then the Forest Practices Act does not apply; however, any "marketing" of these materials requires some form of authorization from CDF. There are limited exemptions for defensible space (150 ft around structures) and the removal of hazard or dead & dying trees, but no expedited or simplified process for fuels management zones on the landscape (e.g. shaded fuels breaks), if the fuels will be on private lands (non-federal). The Forest Practices Act targets those activities that center around the marketing (buying/selling, trading for services, etc) of trees and CEQA is "marketed". THPs are time-consuming and costly investments for non-industrial

landowners. One on-going effort is to secure a Program Timberland EIR (PTEIR) targeted to fuels reduction with an eye towards marketing the fuels removed from non-industrial timberlands in the Weaverville Basin. This CEQA document is designed to streamline the THP process and reduce the costs to landowners, who are going to participate in the fuels d\reduction prescriptions and mitigative measures approved in the PTEIR. There are CEQA categorical exemptions for some fuels reduction/defensible space activities that are outside of the purview of the Forest Practices Act. Any CEQA lead agency can conduct the CEQA analysis (e.g. CDF, Trinity County, RCD).

All fuels reduction project son federal lands require that NEPA be conducted. These planning activities for fuels reduction projects have been under-funded in recent years. When funds are available often times there are not adequate agency staff (specialists) to conduct the NEPA analysis for fuels reduction projects. The Trinity County RAC has begun to address the funding issue by dedicating a portion of the RAC funding towards the NEPA analysis for projects prioritized through the FSC, and in one instance earmarked those funds for a local NEPA team (outside of the federal agency).

All fuels reduction projects on private lands that receive federal funding (e.g. National Fire Plan, Trinity County RAC, Jobs-in-the-woods) require NEPA. This planning and analysis likely will be conducted outside of the federal agencies, but the decisions will be made by a federal official (e.g. USFS District Ranger, Forest Supervisor, BLM Regional Manager).

3. Implementation

3.1 Develop a local NEPA team to augment capacity of agency staff.
3.2 Develop training capacity at Shasta College Weaverville Resources Center
3.3 Have annual (November) TCFSC Workshop to discuss regulatory conflict issues and funding needs.
3.4 Continue to work with Trinity County RAC to secure funding conducting NEPA/CEQA for prioritized fuels management projects as a means of leveraging implementation funding.
3.5 Use Weaverville Basin PTEIR as a model for future PTEIR development.
3.6 Use TCFSC partners to work within their "circles of advocacy" to reduce regulatory conflict (e.g. CARCD, RCRC, CARC&D).

ELEMENT 8: Coordination with the Trinity County Planning Department

1. Goals

1.1 The Fire Safe Council needs to provide input to Trinity County to ensure that key fuels management and fire safe issues are brought to the attention of the Planning Department for inclusion in the Trinity County General Plan and, where appropriate, in community plans.

1.2 Develop and maintain data sharing between Trinity County Planning Department and FSC

partners, such as TCRCD, WRTC, CDF, USFS, and BLM.

2, Current Conditions

2.1 Update of Safety element in 2002 – County consulted with TCFSC on fire safety

2.2 Data sharing from the Community Planning process (see Elements 1 & 3) for Trinity County's use

3. Implementation

3.1 Member of Trinity County Planning Department participation in TCFSC.
3.2 Trinity County Planning Department provide schedule of "plan" updates to Fire Safe Council annually.
3.3 Continue to coordinate with Trinity County Planning Department on updates of General Plan.
3.4 Continue to share data between Trinity County Planning Department and TCFSC partners (see 3.1).

ELEMENT 9: Monitoring of Plan Implementation and Effectiveness

1. Goals

1.1 Collect data on number of acres treated within Trinity County.
1.2 Monitor the changes in residents' attitudes and behavior regarding fire risk and hazardous fuels.
1.3 Monitor how this fire plan affects the ways that agencies work together to reduce fire risk and how these agencies work with private landowners.
1.4 Monitor the effectiveness of fuels reduction and forest health projects.
1.5 Track funding dedicated to implementing this fire plan.

2. Current Conditions

2.1 Currently agencies track fuels reduction projects, and they provide oral reports to the Fire Safe Council. The TCRCD and WRTC have mapped projects on GIS and have the ability to track projects by acreage, ownership (BLM, USFS, private landowners, etc.), Division or watershed and type of project (shaded fuel break, defensible space, etc).

2.2 There is no effort underway to measure the attitudes or changing behavior of residents, except anecdotally – level of interest in participating in a project implementation, resident interest as reflected in attendance at meetings or workshops, etc.

2.3 Currently the only methods for measuring agency collaboration are through casual observations similar to those for individual residents.

2.4 A Vegetation and Terrestrial Habitat Monitoring Plan for Fuels Reduction Projects (Appendix 3) has been developed to measure the effectiveness of fuels treatments.

2.5 The TCRCD tracks the funding of fuels reduction projects (Appendix 2) and reports this information to the Fire Safe Council

3. Implementation

3.1 Data gathering and management for fuels reduction treated as a result of this plan will be as follows;

a. Number of landowners doing work on private property
b. Number of acres treated
c. Number of federally-managed acres treated
d. Methods of treatment employed (shaded fuel break, defensible space, plantation thinning, etc.)
e. Mapping and sorting these data by watershed

3.2 The social aspects of the plan will require follow-up contact. A portion of those groups who received outreach material and/or technical assistance will be surveyed annually as follows:

Individuals

a. Are you familiar with, or have you read any newspaper/newsletter articles on the Trinity County Fire Safe Council?
b. Has reading any of these heightened your awareness of the wildfire risks in Trinity County?
c. Has exposure to the Fire Safe Council caused you to participate in any actions to reduce fire risk in your community or on your property??

Agency Personnel

a. Are you familiar with the Trinity County Fire Safe Council?
b. Has this familiarity affected your attitude towards interagency projects?
c. Has your exposure to the Fire Safe Council increased your interest in collaborative projects with private landowners?
d. Is public outreach a valuable land management tool for you and your agency with regards fire risk?

3.3 The effectiveness of on-the-ground fuels reduction projects will be monitored pursuant to the Vegetation and Terrestrial Habitat Monitoring Plan for Fuels Reduction Projects (Appendix 3).

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VII. APPENDIXES

APPENDIX 1

Current Fire & Fuel Conditions In The North Lake Area

(9/21/01 – Kenneth Baldwin)

Information used to develop this section came from the "1990 Shasta-Trinity N.F. Land and Resource Management Plan" (Shasta-Trinity N.F. LRMP, 1993), the GIS 90 database and a fire coverage database, conversations with various Weaverville Ranger District fire personnel, the "East Fork/Smoky Creek Watershed Analysis" for the Shasta-Trinity National Forest, the "Draft Recommendations on Trinity County Values at Risk from Fire and Pre-Fire Fuels Treatment Opportunities drawn from Community Meetings 1999/2000", and Kenneth Baldwin's personal knowledge of the area.

Climate and Fire Weather

The North Lake area has a Mediterranean climate characterized by long, dry, hot summers and wet, moderately cold winters. Yearly rainfall averages are 40 inches per year in the area near Trinity dam, 50 inches in the Trinity Lake area and north to Bonanza King Mountain, 55 inches in the upper Trinity River drainage, 60 inches in the mid-elevation band above the lake, and 70 inches at the higher elevations in the Wilderness and on the divide between the Sacramento and Trinity Rivers. Most (80+%) of the rain occurs between October and May, with occasional summer thunderstorms between June and September. Typical winter weather patterns are for storms to move in from the southwest, drop rain at lower elevations and snow at higher elevations, and move on within two to five days. When it is sufficiently cold, snow may fall over the entire planning area, and can accumulate to a depth of 1 foot or more at lower elevations and last 2 weeks or more. Snowfall accumulations are deeper and last longer as elevation increases.

During the summer, temperatures may peak in the upper 90's ^{0}F for several days at a time, with very low relative humidity and fuel moisture. Extreme fire danger can occur as early as June and is common in August and September. Summer precipitation is negligible, except for occasional thunderstorms.

Light summer upslope winds are common in the North Lake area during midday to afternoon. Mild down canyon winds occur in late evenings and at night as cooler, heavier air flows towards Trinity Lake from higher elevations. During thunderstorms, strong, erratic winds occur in conjunction with intense rain downpours.

Fire Risk (Chance of Ignition)

Fire is the most important natural disturbance agent affecting vegetation in the North Lake area. Most of the fires in this area, especially in the higher elevations, were probably low intensity

ground fires that did little damage to larger trees. But there have been at least 25 major fires ranging from 100 acres to over 6300 acres since the 1910's, some of which have threatened communities. In 1959 the Freethy Fire burned 2850 acres just south of Trinity Center and the Pole Gulch Fire burned 203 acres north of Alpine Campground. The Copper Fire, started in 1922, burned 1147 acres just east of Coffee Creek and the Trinity River. All of these were human-caused fires. The Ramshorn burn, of unknown origin, on the north side of Bonanza King burned approximately 10,000 acres in 1959. The Hatchet Fire, started in 1961 of unknown causes, burned 257 acres just west of Highway 3 and the vista point between Trinity Center and the head of Trinity Lake. An unnamed fire, started by a human in 1922 in the Boulder Creek drainage, burned 6348 acres. Most of these fires were largely stand replacement fires.

Summer lightning storms, which are the primary source of fire ignitions during dry, hot periods in late summer when fuels are most flammable, are the main cause of catastrophic fire starts. Studies in the Sierra (Weatherspoon C.P. and C.N. Skinner. 1996) indicate that the fire-suppression organization has been ineffective in reducing the number or size of large lightning fires because lightning fires tend to occur as simultaneous, multiple ignitions which, in unusually dry years, can quickly exceed the suppression capacity of the regional fire organization. Reductions in suppression forces on the Shasta-Trinity National Forest in recent years are likely to hamper suppression effectiveness in similar situations and may well lead to an increase in catastrophic fires.

Lightning from summer thunderstorms continues to be the main source of ignition in the North Lake area, causing 66% (1139) of the fire starts since the 1910's (62% in roaded areas, 76% in the Wilderness), with most of these fires starting on mid to upper slopes. Nearly all of the human caused fires are associated with communities and residential areas, developed and undeveloped campgrounds, and roads and trails. Of 598 total human caused fires, 80% were in roaded areas and the rest were in the Wilderness.

Some portions of the North Lake area have a high road density, with heavy recreation use during the summer. Trinity Lake, the Trinity River, and the Trinity Alps Wilderness are big recreational draws, and as would be expected, the campgrounds and resorts along the lake and river are heavily used, as are the access roads to trailheads into the Wilderness. The most heavily used roads are Highway 3, the main two-lane, paved road that bisects the area from north to south, Road 112 up the Stuart Fork to the trailhead, the paved roads to the campgrounds and resorts on the west side of Trinity Lake, the road to the Granite Peak trailhead, Road 115 up the East Fork of Stuart Fork to the Long Canyon trailhead, Road 123 from Trinity Center to the Swift Creek trailhead, Countyline Road (Road 106) to French Gulch and road access points to the east side of Trinity Lake, Road 37N52 from Coffee Creek to the Boulder Lake trailhead, Coffee Creek Road to the Caribou Lakes trailhead, the Eagle Creek loop (Road 140) to the Stoddard Lake trailhead, the Ramshorn Road (Road 25) to Interstate 5, the road to the Bear Lakes trailhead, and Parks Creek Road (Road 17) to Deadfall Meadows, the Pacific Crest trail, and Weed. As might be expected, and as verified from fire starts data, the most well used roads have the highest risk of human caused ignitions.

During the fall hunting season logging roads and undeveloped campgrounds in the area to the east and north of Trinity Lake are heavily used. The campgrounds along the east shore of Trinity Lake are also used by hunters, and boaters during the summer season.

Fire Hazard (Fuel Situation)

Before fire suppression began in this area it is likely that there were more fires (probably annually) and that they were generally of low to moderate severity and mostly stayed on the ground. It was a common practice for cattle and sheepherders to light fires at the end of the grazing season as they left an area and for Native Americans to burn periodically for cultural purposes. These fires burned out the dead and down fuels and ladder fuels (shrubs and small trees) from the understory, encouraged the growth of grass and shrub sprouts, and created stands of large trees with a relatively sparse understory.

For approximately 90 years, wildland fire suppression strategies and tactics on the Shasta-Trinity National Forest have been focused on controlling all fires at the smallest size and with the least possible resource damage. This has had the effect of increasing snags, dead and down ground fuels, and ladder fuels composed of shrubs and shade-tolerant understory trees. Although there are no formal fuel inventories to substantiate the magnitude of these increases, observations of unharvested and unburned stands since the early '70's confirm them. These conditions are most prevalent in the moderately dense to dense Douglas-fir and Klamath mixed conifer stands that predominate in the North Lake area and less prevalent in the open pine and incense cedar dominated stands found on ultramafic soils.

Recently, about nine years of drought (1986-1994) have resulted in an increase in conifer mortality from bark beetles and other agents, with a consequent increase of snags and dead and down woody fuels. This has increased the volume of flammable fuels in the forest by an unknown amount.

Extensive partial cutting by overstory removal, selection, sanitation, and/or salvage has been done since the mid 1950's in what is now Matrix and LSR on National Forest and TPZ on SPI. This harvesting left a forest which is now generally composed of a relatively sparse overstory of trees larger than 36 inches in diameter over an understory mosaic of relatively dense clumps, patches, and scattered individual seedlings, saplings, poles, and small saw timber interspersed with shrubs and bare openings. Openings created along roads have in many places filled in with shrubs and seedling, sapling, and pole size conifers.

Partial cutting has had the effect of removing many of the large, fire resistant trees, leaving groups and patches of smaller trees, which with their thinner bark and crowns close to the ground are susceptible to fire damage. It has also increased the quantity and depth of surface fuels and by opening the canopy, created a warmer, drier, and windier environment near the forest floor during times of significant fire danger. All of these factors increase the likelihood that fires will be more severe and will cause more damage to the forest.

Clear cut harvesting was eventually done in many stands that did not regenerate or grow satisfactorily following partial cutting, as well as in unentered stands. Formal or informal fuel inventories were done by USFS and SPI (and SP Land Co. before them) personnel on harvest units following clear cutting to determine site preparation needs for reforestation. Site preparation by broadcast burning and tractor piling and burning has been the main fuel treatment (80-90% of prescribed burning on the National Forest has been to prepare harvest units and brush fields for reforestation). This treatment effectively reduced dead and down fuels on the plantations, at least temporarily, but did little to reduce fuels in the surrounding forest. On the National Forest, political, legal, and/or budgetary obstacles to controlling unwanted vegetation in plantations with herbicides or by manual release, budgetary obstacles to pre-commercial thinning, and natural successional processes have resulted in the development of grass and shrub layers, which in combination with the generally well-stocked trees, are in some cases creating a volatile fuel hazard. Due to the small size of trees in these plantations, they are especially vulnerable to fire damage, as was demonstrated during the 1987 fires on the Hayfork Ranger District. This has been less of a problem on SPI plantations due to its aggressive use of herbicides and pre-commercial thinning, but there is still a problem with volatile grasses in some of its plantations.

Where both partial cutting and clear cutting occurred, stream buffers were left mostly undisturbed to provide shade, retain the structural integrity of the stream channels, and provide a filter strip. The highest density of large, fire resistant trees tends to be found in these zones. These zones also tend to have a moderate to dense midstory of conifers and hardwoods and moderately dense understory of trees and shrubs.

Shaded fuel breaks were constructed along strategic roads and ridges and fuel hazard reduction was done along some roads to slow fires ignited along the roads, to act as a barrier to the progress of fires moving toward the fuel breaks, and to act as an anchor point for back burning. In some cases these fuel breaks are in need of maintenance to insure their effectiveness.

Fuel loading in the North Lake area ranges from low to high, with many of the residential, resort, and campground areas having moderate to high fuel loads. An indication of fuel loading, as well as vegetation type, is indicated by the “Flame Length” data layer in the USFS GIS 90 data. Higher flame lengths generally indicate denser, taller, and/or more flammable fuels. Flame lengths along the most heavily used roads and in the campground and resort areas are about equally in the 0-4 foot and 4-8 foot flame length fuel classes, with some areas greater than 8 feet. Trinity Center and Coffee Creek are mostly in an area of greater than 8-foot flame length fuels, with some areas of 4-8 foot lengths. The residential areas in the Covington Mill area are primarily surrounded by 0-4 foot and 4-8 foot flame length fuels, with some greater than 8-foot flame length fuels.

The USFS map for fire risk potential in the Clear Creek LSR shows a moderate risk for most USFS lands in the North Lake area, except for areas of high risk along Highway 3 and in selected areas near the lake, and high risk for all private lands. The combination of moderate to high fuel hazards, high risk, and the physical and aesthetic values of the residents give the overall area a high fire hazard severity rating.

Values at Risk

The critical and unique resources which are at risk in the North Lake watershed are the communities of Trinity Center and Coffee Creek, the residential areas along Highway 3, Long Canyon Road, Coffee Creek Road, and the East Fork of the Trinity, the resort areas bordering Trinity Lake, Stuart Fork, Coffee Creek, and the Trinity River, various USFS and private campgrounds, USFS fire guard stations, LSR, Riparian Reserves and Spotted Owl Activity Centers in the Matrix, plantations in Matrix and LSR and on SPI lands, the NRA, high value focal (refugia) subwatersheds that are important within the analysis area and within the entire Trinity River watershed, and the forests and brush fields which protect the watershed from erosion.

The LSR is primarily a mosaic of sections of USFS lands (about 63,000 acres) interspersed with alternating sections of SPI lands that are managed intensively for timber production. The primary forest types found in the LSR are mid to late successional Klamath mixed conifer and Douglas fir, with stands of white and red fir at higher elevations. Most of the LSR is within four miles of the Trinity River, Trinity Lake, or Highway 3. Some of the National Forest within the LSR has been logged by partial cutting, with some clear cutting since 1980, and much more of the forest on the alternating sections of SPI has been harvested, mostly by clear cutting since 1980. Thus the LSR is critical for the survival and health of wildlife dependent on late successional forests.

Riparian Reserve is an expanded concept of what were once termed stream buffers. These buffers in Matrix (about 37,000 acres) are unique in that they are areas where contiguous stringers of moderately dense late successional trees are found in what is otherwise a fragmented forest sometimes sparsely stocked with large trees. These buffers were designated and left uncut in previous timber sales and are critical for preserving the health and integrity of watercourses and for providing travel corridors for dispersal of wildlife dependent on late successional forests.

Matrix lands on National Forest comprise about 52,000 acres of the North Lake area. There are numerous plantations on Matrix (and some on LSR) and on SPI lands. These plantations range in age from 1-20 years (mostly 1-15 years) and are generally well stocked, with trees varying from 2-30 feet tall. These plantations represent a substantial investment in time and resources by management, administrative, technical, and field personnel and contract labor as well as an investment in access roads, nursery and storage facilities, and fire infrastructure. Future timber outputs depend upon the continued production of these plantations. They are vulnerable to fire and are a critical resource in the North Lake area. Given the fire regime in this area, many of these plantations will likely experience wildfire before they reach rotation age.

Fire Infrastructure

Wildland fire protection in the North Lake area is divided between the Shasta-Trinity National Forest and the California Department of Forestry and Fire Protection, which have a cooperative agreement to share fire protection resources to augment the capabilities of each agency. Fires that threaten lands on multiple jurisdictions are managed jointly. Initial attack planning is based

upon using the closest suppression forces or resources. Training is coordinated and often conducted jointly. The Incident Command System is used by all agencies for managing fire suppression activities.

Trinity Center and Coffee Creek have volunteer fire departments that respond to structural fires in their communities and nearby residential areas.

There are currently two staffed lookouts, which can detect fires in these watersheds. The Forest Service lookout on Bonanza King provides early fire detection and is generally staffed from the first week in June (depending upon snow conditions) to late October or mid November (depending on budget constraints). Bonanza King lookout is located about 7 miles to the northeast of Trinity Center and looks directly into the Trinity Lake area. On a clear day the lookout can spot a fire in the area while it is still relatively small. Bully Choop, a State lookout located 32 miles south of Trinity Center, also looks directly into the Trinity Lake area. On a clear day the lookout can spot a fire in the area while it is still relatively small. It is generally staffed from the first week in June (depending upon fire weather conditions) to late September or mid October (depending on budget constraints and fire weather).

There is currently one mobile fire patrol person on the Weaverville District. The USFS has a division chief, battalion chief, and chief fire prevention technician stationed 32 miles southwest of Trinity Center in Weaverville, a Model 62 engine with a 500 gallon tank stationed 14 miles south at Mule Creek Guard Station and a Model 61 engine with a 500 gallon tank stationed 7 miles north at Coffee Creek Work Station. Both stations with engines have a 7-person crew on duty 7 days a week from June 1st to mid October, with a minimum of 5 people required for each engine. A Model 42 engine with a 500-gallon tank is stationed at Junction City and has a 5-person crew on duty 7 days a week, with a minimum of 3 people required for the engine. There is also a USFS water tender at Big Bar that can respond if needed. The closest air attack forces are stationed at the Northern California Service Center in Redding, with a response time, if they are available, of 20-30 minutes.

CDF maintains a battalion chief, fire prevention officer, and two foresters at their Weaverville Station on Washington Street. During fire season a 500-gallon engine with a 3-4-person crew is stationed there, with 2 engines 34 miles south at Fawn Lodge and one in Hayfork. The CDF Trinity River Conservation Camp at Trinity Mountain, has five 15-17 person crews that can cut fire line and mop-up fire. They are also available year round to do project work. The USFS has an agreement with CDF to respond only to wildland fires on private lands north of Slate Creek divide, but CDF has historically responded to structural fires if needed to protect wildlands.

Aerial resources include the Forest Service' 'Helitack 506', Forest Service and CDF retardant bombers, USFS lead plane and CDF air attack, CDF helicopters based in Tehama and Humboldt Counties, and the Forest Service's elite smoke jumper corps. The Forest Service helicopter, located at Pettijohn Mountain, can be on a fire in the North Lake area within 5-10 minutes of detection. This helicopter can deploy 2-5 fire fighters on scene and begin water bucket drops almost immediately. The retardant bombers, lead plane, air attack and smoke jumper planes are all stationed at Redding Airport and can be on scene within 20-25 minutes of dispatch. Additional retardant planes are located at Rohnerville Airport, in Humboldt County, Chico Airport, and Klamath Falls. Planes from these airfields can respond within 35-45 minutes to this area.

The smoke jumpers would not normally be used in a fire where road access is readily available, but they will jump into fires in the upper, less accessible portions of the watershed. The Forest Service reconnaissance flights occur during periods of critical fire potential, such as after a lightning storm has passed through the area or active fires are burning.

Fire Season Automatic Dispatch

During high fire danger dispatch periods (i.e. average summer days), any fire report in the North Lake area triggers the following series of automatic fire equipment dispatches:

- TCVFD and CCVFD
- USFS engine 41 (Mule Creek)
- USFS engine 42 (Coffee Creek)
- USFS engine 32 (Junction City)
- CDF engine 2475 (Weaverville)
- CDF engines 2466 & 2481 (Fawn Lodge)
- CDF engine 2468 (Hayfork)
- CDF engine 2478 or 2464 (Shasta)
- CDF bulldozers 2441 & 2440 (Redding)
- Helitack 506 or CDF helicopter
- 1 air attack and 2 retardant bombers
- 1 water tender (Big Bar)
- 2- CDF Trinity River Fire Crews

If the fire cannot be contained with these resources, additional resources are sent, if available. If a fire can be contained with fewer resources, resources are to return to their stations.

APPENDIX 2

Trinity County Fire Safe Council--Funded Fuels Reduction Projects

9/27/2002

State Water Resources Control Board Prop 204 **$400,000 (2000-2003)**

- Covington Mill Defensible Space
- Long Canyon Road Shaded Fuel Break
- Jones Plantation Thinning (USFS)
- Timber Ridge Defensible Space
- Post Mountain Demonstration
- Brown's Mountain Shaded Fuel Break
- Highway 299 Shaded Fuel Break - Phase II

Previous Quarters—TCRCD

Brown's Creek Fuels Reduction Project	$50,000	CFSC / SRF
Timber Ridge Fuel Break	$50,000	CFSC / SRF
Poker Bar Plantation Thinning and Clearing	$33,143	BLM
Grass Valley Creek Fire Management Plan	$47,466	BLM
Brown's Mountain Shaded Fuel Break	$11,000	NRCS/EQIP

Others

Post Mountain PUD	$50,000	CFSC / SRF
Southern Trinity	$30,000	CFSC / SRF
BLM-Highway 299 Shaded Fuel Break - Phase I	$85,000	BLM

Latest Quarter--TCRCD

Highway 299 Shaded Fuel Break-Phase III	$75,000	CFSC / SRF
Trinity County Fire Safe Council Education & Outreach	$50,000	CFSC / SRF
Trinity County Fire Safe Council Education & Outreach	$50,000	TC RAC title III
Volunteer Fire Department Inspections	$85,000	TC RAC title II
Timber Ridge Fuel Break (Public Land)	$46,647	BLM
Bar 717 Ranch Perimeter Fuel Break	$50,000	USFS
Lake Forest Fuels Reduction	$100,608	TC RAC

Others

Post Mountain PUD/Volunteer Fire Department	$50,000	CFSC / SRF
Lewiston Fire Volunteer Department	$10,000	BLM
Hawkins Bar Volunteer Fire Department	$10,000	BLM
Hayfork Basin Trails	$45,000	TC RAC
Hayfork Community Protection NEPA	$32,330	TC RAC
Post Mtn Fuels Reduction NEPA	$26,804	TC RAC
Weaverville Community Protection-Phase I	$42,340	TC RAC
Montgomery Fuels Reduction	$65,000	TC RAC
Mad River Rock Ridge Rd Fuels Reduction NEPA	$90,750	TC RAC

APPENDIX 3

VEGETATION AND TERRESTRIAL HABITAT MONITORING PLAN
FOR
FUELS REDUCTION PROJECTS

I. OBJECTIVE

The overall objectives of the fuels reduction projects are to reduce the risk of catastrophic fires, protect the public safety and property, protect and improve community watersheds, and increase fire fighters ability to safely defend areas from fire. The objective of this monitoring component is to assess the effects of fuels treatments on terrestrial habitat, fuel loads, and fire behavior (when possible). To accomplish this, the RCD will monitor the plant community, wildlife habitat, fuel loads, and soils. The monitoring plan will also look at the "relationship of fuel breaks to reintroducing fire into the ecosystem" as required in the scope of work. Monitors will evaluate plots that experience fires to determine how well fuels reduction areas are able to contain fire. These data will aid in future fire suppression and reintroduction of low-intensity fire. Analysis of all monitoring data will be used to evaluate future fuels treatments such as shaded fuel breaks and reintroduction of fire, if appropriate.

II. GOALS AND METHODS

The goal of this monitoring plan is to document qualitative and quantitative changes in the response to fuel reduction treatments. The level of monitoring will vary from project to project and depend on available funding, the level of landowner support, the vegetation type, location of the project (urban interface vs. remote areas), and type of project (roadside fuel break, defensible space, timber stand thinning, etc.). Level I Monitoring will focus on photo point monitoring with some quick and basic measurements of canopy cover. Level II monitoring will include plots that record: seedling density, pole density, composition of species, mature tree growth, wildlife habitat, dead and down fuels, as well as the Level I variables.

III. ADDRESSING CLIENT CONCERNS

The RCD will address the concerns of clients and respect property rights. Outreach material will be developed to explain the purpose of the monitoring project, showing clients how monitoring will directly benefit them. The RCD will notify clients that the monitoring component is voluntary. Clients will be contacted to review plans before implementation and before each site visit. Periodic, future monitoring will be built into the implementation plans for fuels reduction projects, including the frequency interval for Level I and Level II monitoring. The RCD will maintain a master list for all fuels reduction monitoring, including the dates/times of monitoring by project. The RCD will address other concerns of clients such as visual disturbances and safety as well. Monitors will share all data collected and findings with the clients, measuring the level of project success and recommending any additional treatments.

IV. LEVEL I MONITORING

Level I monitoring will give a qualitative view of the basic change in vegetation/fuels after several trips out to the sites. The initial visit will be before treatments usually with a return visit directly after treatments and annually thereafter. The photo point method is adapted from the Forest Service (FS) Photo Point Monitoring Handbook (GTR-PNW-526), the State Water Resources Control Board (SWRCB), and the National Park Service (NPS) Fuels Monitoring Program (FMP).

General Photo Point Guidelines

Monitoring vegetation changes utilizing photo points can be a valuable, yet inexpensive tool. It is important to follow some basic guidelines to obtain repeatable photos that show the same subject through time. The distance and azimuth from the camera location to the subject must be permanently marked, preferably using flimsy metal fence posts. When establishing photo points, one must assume that a different person will need to find and re-photograph the site. Maps and instructions to the site as well as a photo record sheet should be organized into a packet for those who revisit the site. Recommend using GPS points to re-establish camera point location. Monitors should also write general comments about each site, noting the weather, temperature, erosion condition, etc.

Choosing Random Photo Plot Locations

Plots will be chosen randomly throughout the project areas. Methods for choosing these random sites will depend on the type of project area. Photo plots in roadside fuel breaks can be evenly spaced along the length of the road. Other areas can use random azimuths and distances from landmarks within the given area, or random point generation from GPS polygons. Each random point must meet the following criteria: it must fall within the project area (except control plots), it must be free of human structures and equipment, and it must be safe (slope, widow makers, etc). It must also be representative of the project as well. For example, if a wetland is untreated within the project area, points will not be chosen within the wetland. Control plots will be established near project sites using the same methods.

Marking and Mapping Plots

Flimsy, stamped-metal fence posts with tags will be used to mark the plot center (camera location). Each plot center will have a location taken with a GPS unit. All four photo points will be marked with fence posts, as well, and distance and bearing from plot center to photo point will be documented. A witness site with bearing and distance to plot center will be established and permanently marked.

Thorough directions to each plot will be provided utilizing maps, landmarks, and GPS waypoints. A witness site will be selected to mark each plot, once set up. Witness sites should be objects that will remain from year to year. Monitors will measure and document the direction and distance from the central camera

location to the witness site for each plot. The witness site will then be mapped on the photo site location sheet along with the central camera location and photo points.

Taking Repeatable Photographs

Using a compass, tripod, and printed photo record (for return visits) to line up the shots will help facilitate taking repeatable shots. Photos will be taken in four directions at 90-degree angles to each other, choosing a random azimuth for the first one and adding 90-degrees to the three subsequent directions. Some leeway on azimuths could be given if a shot had a large obstacle, as long as subsequent shots were taken at the same azimuth. The center camera location will be marked with a fencepost, distance and bearing to each photo point in each direction will be documented on the "photographic site description and location sheet", and photo points will be permanently marked. (What is the return interval for each photo point, yearly, monthly, biannual, quarterly?) Each shot will be taken at approximately the same day and at approximately the same time as long as the conditions are similar to the previous photograph. (Does the F stop or resolution need to be identified depending on whether 35 mm or digital camera is used?) Each shot will aim for a 50/50 ground and sky horizon. This helps ensure even coverage of ground and canopy in general landscape shots and makes it easier to compare different sites. A photo identification card with the date, area, plot ID, and picture ID will be placed in each picture to prevent the photos from being separated from their identity. Print these cards on bright blue paper (Hammermill Bright Hue Blue or Georgia Pacific Papers Hots Blue) will assure a permanent record on the negative or image.

The tree canopy will be photographed perpendicular to the ground at each photo point within a plot, in order to measure changes in canopy cover over time. A camera leveling board will be utilized to assure vertical orientation of the camera. The focal length will be manually set to infinity to keep the focal distance uniform with subsequent photos. There is no other way to get comparable shots since there is no static subject on which to focus.

Recording the data:

Photo record sheets will be used to record all the necessary information (see photo record sheet). All pictures will be taken using a digital camera for consistency and longevity of the images. All pictures will be downloaded to computer hard drives each day and backed up on disk weekly.

Densiometer Readings

A densiometer is a hand-held concave mirror with squares etched into it. It will be utilized to quickly assess percent cover of the over-story and density of vegetation. Readings will be taken at each marked photo point in each plot.

V. LEVEL 2 MONITORING: PLOTS

The second level monitoring will provide both the qualitative and quantitative data necessary to meet the long-term project objectives. Adapting guidelines from NPS Fuels Monitoring Handbook, CDF and other agencies we will develop appropriate methods of sampling. It will probably be necessary to do a pilot project to test the methods before a more ridged protocol is set in place. This will avoid collecting unsound or unnecessary data. Nested radius quadrants will be used to collect different variables that require different sample sizes. Below are the basic variables for which data will be collected:

A. **Seedling Density:**
   Tree seedling density will be collected in a 1/100th acre quadrant with a radius of approx 11.78 feet. Each species will be identified and counted. This information will show regeneration rate, changes in habitat, and fuel structure. Seedlings are defined as trees with a diameter of ‹ 1 inch but › than one year old (first-year seedlings have a high mortality).

B. **Pole density:**
   Pole density will be collected in a 1/100th acre quadrant for the same reasons as above. Pole size trees are defined as ›1 inch but less than ‹6 inch diameter.

C. **Composition of Species:** Tree and shrub species within each plot will be identified to understand general changes in forest composition. Invasive species will be identified to determine if the fuels treatments are spreading them and what, if any, effect they are having on the fire regime. Potentially sensitive species that may drop out or appear in response to treatments should be identified and noted as well.

D. **Dead and down fuels:** The protocol and data sheet for this measurement will be adopted from the National Park Service Fire Monitoring Handbook (FMH) and Brown 1974. Dead and down fuels will be recorded along a fifty foot transect which will start from the plot center and extend out at a random azimuth (this azimuth will be used for each site visit). Dead and down woody material will be counted excluding pine cones, bark, needles, and attached branches of shrubs and trees. Particles intercepted along the transect will be grouped into size classes and tallied. The following lengths will be used:

Size Class	Suggested Length
0-0.25" diameter (1 hour)	tally from 0-6 ft
0.25-1" diameter (10 hour)	tally from 0-6 ft
1-3" diameter (100 hour)	tally from 0-12 ft
› 3" diameter (1000 hour)	measure each log from 0-50 ft

For particles greater than 3", differentiate on the tally sheet rotten and solid fuels. Do not record particles buried more than halfway into the duff at the intersection point.

The depth of the litter and duff layers will be measured at the following 10 points along the transect: 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50 feet. A hand trowel will be used to carefully pull up a profile of the layer at each point. Litter is the layer of freshly cast organic material that is still recognizable as pine needles, leaves, bark flakes, etc but does not include twigs and larger stems. Duff is the layer of organic humus below the litter that has partially decomposed but has some recognizable particles. This will be a very important measurement, particularly if you are going to try low intensity under-burning. Depths will be recorded to the nearest 10^{th} of an inch. See the FMH mentioned above (pages 103-105) and the Forest Plot Fuels Inventory Data Sheet.

E. **Overstory Tree Measurements:** The Over story plot will have a radius of 54 feet ($1/5^{th}$ an acre or 9000 sq ft). This is probably a good sample size, although for narrower shaded fuel breaks along roadways or some defensible space projects this size may be too large to get much vegetation in the sample plot. The following will be recorded for each tree in the plot: species, DBH, live/dead, crown position code (optional), and damage code (optional). Crown position codes refer to the place of the tree with in the local canopy (i.e. Dominant, Co-dominant, Intermediate, Sub canopy). Damage Codes will note blight, shelf fungus, fire scars, insect damage etc. See Over story Tree Data Sheet for details. Plot maps dissected in quadrants will record tree locations for future visits. This data will help to track the growth of mature trees, giving us valuable data about habitat changes and response to fire in the project areas

F. **California Wildlife Habitat Relationships (WHR) System:**
Using the WHR system, monitors will find the habitat type of each plot area. This system uses the presence of 1) dominant and co-dominant species and 2) physiographic criteria such as elevation, soils, and general distribution to determine specific habitats. Monitors will take field measurements (DBH, canopy closure, and crown diameter) to find out the habitat's seral stage. The associated wildlife community will then be determined using the WHR computer database. It is important to note that the scale of the habitat will play a large role in which species will actually use a given area, and monitors may not be able to accurately gage this. Monitors will create a list of possible associated wildlife from the database for each plot visit.

Figure 1.
Trinity County (+)

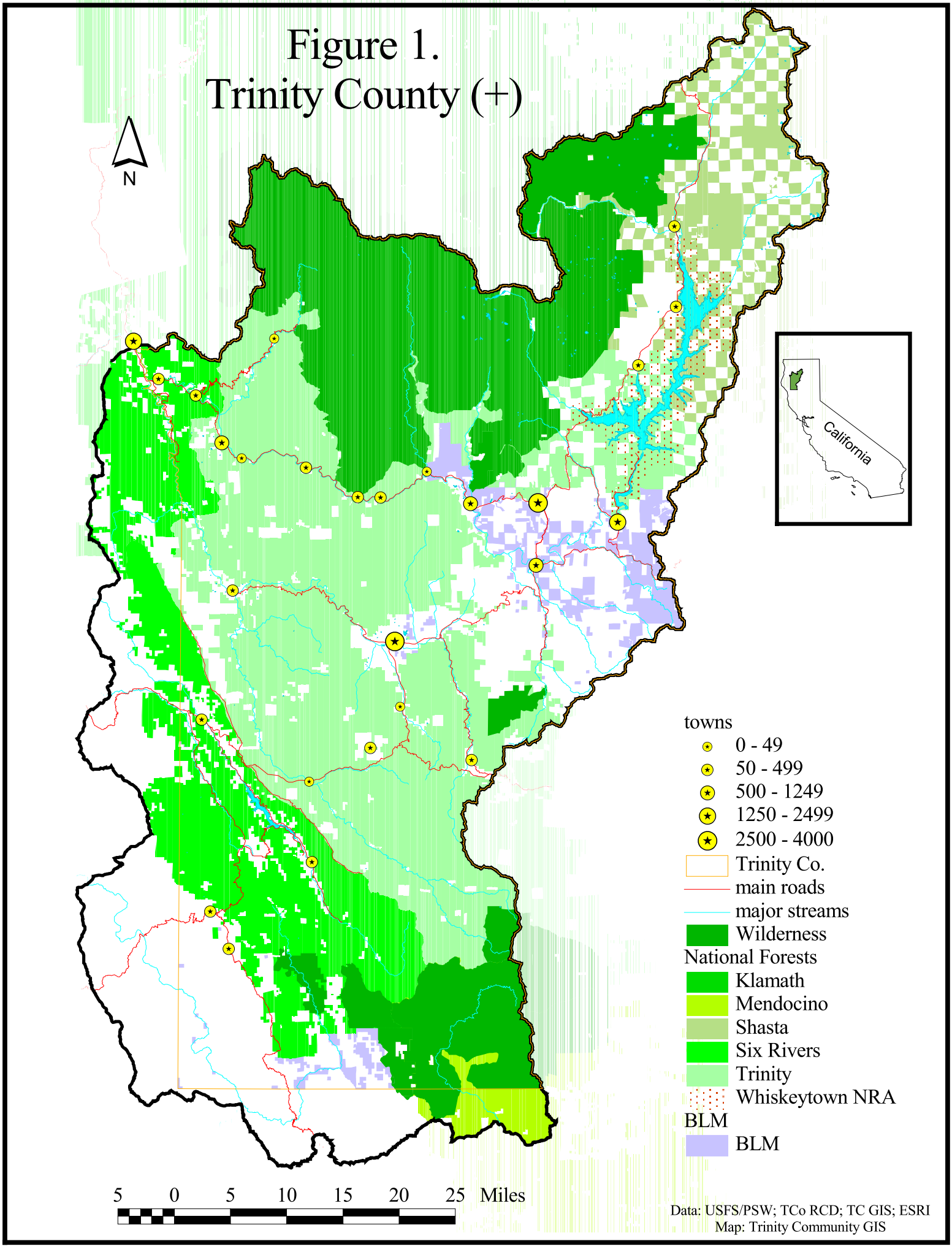

Figure 2.
Trinity County
Fire-Safe Divisions