Board of Supervisors
COUNTY OF TULARE
AGENDA ITEM

AGENDA DATE: May 24, 2011

Public Hearing Required	Yes ☐	No ☒	N/A ☐
Scheduled Public Hearing w/Clerk	Yes ☐	No ☐	N/A ☒
Published Notice Required	Yes ☐	No ☒	N/A ☐
Advertised Published Notice	Yes ☐	No ☐	N/A ☒
Meet & Confer Required	Yes ☐	No ☒	N/A ☐
Electronic file(s) has been sent	Yes ☒	No ☐	N/A ☐
Budget Transfer (Aud 308) attached	Yes ☐	No ☐	N/A ☒
Personnel Resolution attached	Yes ☐	No ☐	N/A ☒

Resolution, Ordinance or Agreements are attached and signature line for Chairman is marked with tab(s)/flag(s) Yes ☒ No ☐ N/A ☐

CONTACT PERSON: Jeff Forbes PHONE: (559) 636-5000

SUBJECT: Presentation on the activities of the Tulare County Resource Conservation District and the Sequoia Fire Safe Council and approval of the Community Wildfire Protection Plan.

REQUEST(S):

That the Board of Supervisors:

1) Receive a presentation on the activities of the Tulare County Resource Conservation District and the Sequoia Fire Safe Council.
2) Approve the Community Wildfire Protection Plan between Tulare County, the Tulare County Fire Department and the California Department of Forestry and Fire Protection.
3) Authorize the Chairman to sign the Community Wildfire Protection Plan.

SUMMARY:

The Healthy Forests Restoration Act (HFRA) was approved in 2003. This legislation includes statutory incentives for the US Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. In order for a community to take full advantage of this opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP). Local wildfire protection plans can take a variety of forms, based on the needs of the people involved in their development. Community Wildfire Protection Plans may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection—or all of the above. Approval of the CWPP will allow the Tulare County

Resource Conservation District to access funds for projects identified in the plan.

The Tulare County Community Wildfire Protection Plan (CWPP) is a collaborative between Tulare County, Tulare County Fire Department, and the California Department of Forestry and Fire Protection (CAL FIRE) that identifies vegetation manipulation projects to reduce hazardous fuels around communities. This CWPP is consistent with the 2003 *Healthy Forests Restoration Act*, which encourages collaboration among private and public agencies to address the accumulation of excessive vegetation in wildlands. Excessive vegetation promotes increased wildfire intensity and thus the threat to local communities. This CWPP includes the unincorporated communities and undeveloped land in the foothills and mountains of Tulare County. The estimated cost (2010 dollars) of implementing the 28 projects on 1,625 acres is $2.3 million, which is expected to be partially met through state and federal grants.

The geographic area for this CWPP includes private, state, and federal lands in eastern Tulare County, approximately east of Lake Kaweah and Springville, excluding urban and agricultural lands; and west of a line generally formed by the Kern and Little Kern rivers and major geographic features.

The representatives of the three signatory parties or their designated representatives can approve or amend this CWPP at any time to modify projects, methods of treatments, or priorities in response to changing conditions, funding, or personnel. The Tulare County Resource Conservation District or Sequoia Fire Safe Council (FSC) is responsible for maintaining all amendments and preparing periodical updates to the parties in this agreement. They will also be responsible for assisting with the design of projects and submitting grant applications for those projects. The Alder Creek or Upper Tule FSCs or Wilsonia Village, Inc. Fire Safe Committee may design projects in their communities in consultation with federal, state, and local agencies. State and federal agencies will be responsible for designing and obtaining approvals for all fuel-reduction projects on lands under their jurisdiction.

By entering into the CWPP, Tulare County is not bound to any action or financial responsibility. The signature demonstrates collaboration in the process, which will give funding requests a higher priority with grant makers. It is simply to allow the Tulare County Resource Conservation District to access state and federal funds. Some actions pursuant to the CWPP may require a County permit and/or compliance with County ordinances and regulations. The Tulare County CWPP does not provide or require specific regulations and the parties to the CWPP do not incur liability by entering this CWPP, nor are they required to take any specific actions pursuant to the CWPP.

SUBJECT: Presentation on the activities of the Tulare County Resource Conservation District and the Sequoia Fire Safe Council and approval of the Community Wildfire Protection Plan.

DATE: May 24, 2011

FISCAL IMPACT/FINANCING:

No net County Cost.

LINKAGE TO THE COUNTY OF TULARE STRATEGIC BUSINESS PLAN:

Entering into the Community Wildfire Protection Plan is linked to the Safety and Security initiative of the Tulare County Strategic Business Plan. The agreement will help plan and provide coordinated emergency preparedness, response, recovery, and mitigation capabilities for both natural and man-made disasters.

ALTERNATIVES:

The Board of Supervisors could choose to not enter into the CWPP. This is not recommended because the Tulare County Resource Conservation District would not be able to receive certain funds.

INVOLVEMENT OF OTHER DEPARTMENTS OR AGENCIES:

The Tulare County Fire Department reviewed the CWPP. County Counsel also reviewed the CWPP and has approved as to form.

ADMINISTRATIVE SIGN-OFF:

Jeff Forbes
Board Representative III

Cc: Auditor/Controller
County Counsel
County Administrative Office (2)

Attachment – Tulare County Community Wildfire Protection Plan

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF PRESENTATION)
ON THE ACTIVITIES OF THE TULARE)
COUNTY RESOURCE CONSERVATION)
DISTRICT AND THE SEQUOIA FIRE)
SAFE COUNCIL AND APPROVAL OF)
THE COMMUNITY WILDFIRE)
PROTECTION PLAN)

RESOLUTION NO. _____

AGREEMENT NO. _____

UPON MOTION OF SUPERVISOR _____, SECONDED BY SUPERVISOR _____, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD _____ _____, BY THE FOLLOWING VOTE:

AYES:
NOES:
ABSTAIN:
ABSENT:

ATTEST: JEAN M. ROUSSEAU
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

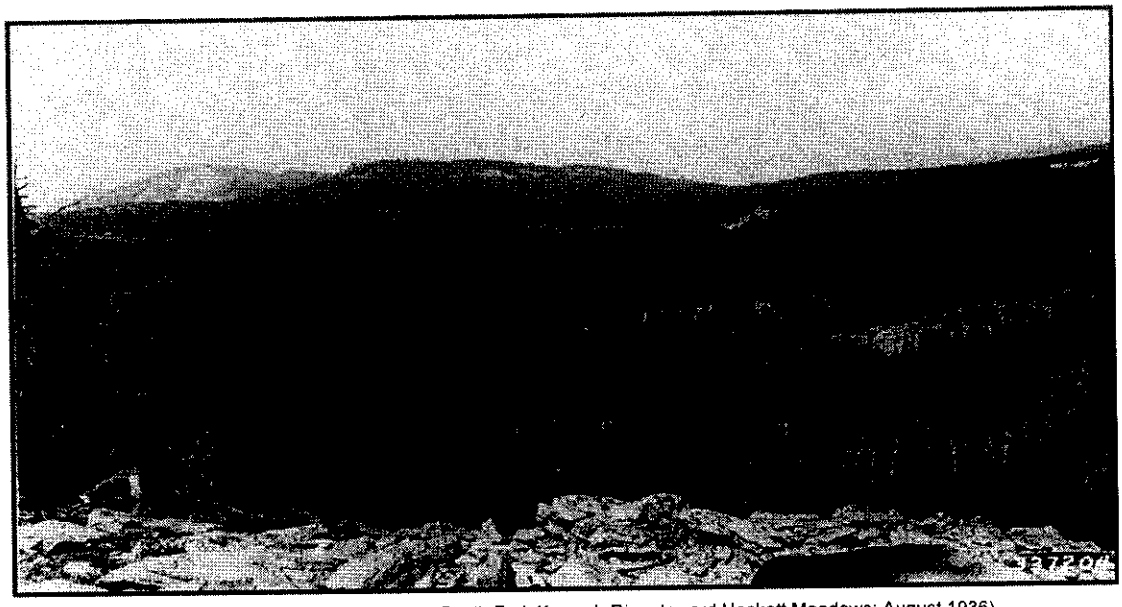
BY: _____
Deputy Clerk

* * * * * * * * * * * * * * * * * * *

The Board of Supervisors hereby:

1) Received a presentation on the activities of the Tulare County Resource Conservation District and the Sequoia Fire Safe Council.
2) Approved the Community Wildfire Protection Plan between Tulare County, the Tulare County Fire Department and the California Department of Forestry and Fire Protection.
3) Authorized the Chairman to sign the Community Wildfire Protection Plan.

FINAL TULARE COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN



(Sierran mixed-conifer forest above South Fork Kaweah River toward Hockett Meadows; August 1936)

Prepared for the Tulare County Resource Conservation District
and
Sierra Nevada Conservancy
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916/988-8043
and
Wildland Rx, Camino, CA

November 2010

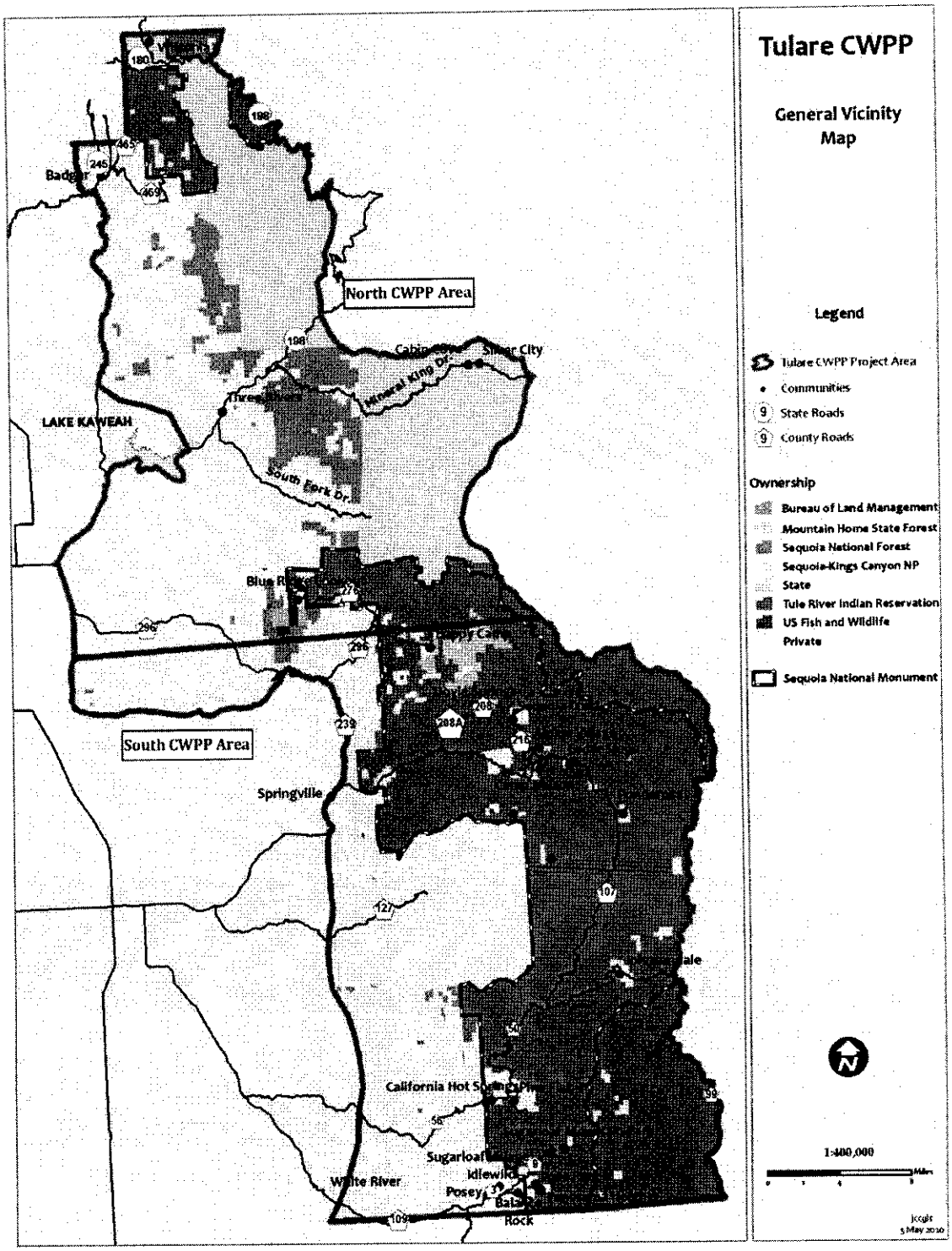
TULARE COUNTY
COMMUNITY WILDFIRE PROTECTION PLAN

_____	_____
Tulare County	Date
_____	_____
Tulare County Fire Department	Date
_____	_____
CAL FIRE	Date

EXECUTIVE SUMMARY

This Community Wildfire Protection Plan (CWPP) is a collaborative agreement between Tulare County, Tulare County Fire Department, and CAL FIRE that identifies vegetation manipulation projects to reduce hazardous fuels around communities. This CWPP is consistent with the 2003 *Healthy Forests Restoration Act*, which encourages collaboration among private and public agencies to address the accumulation of excessive vegetation in wildlands. Excessive vegetation promotes increased wildfire intensity and thus the threat to local communities. This CWPP includes the unincorporated communities and undeveloped land in the foothills and mountains of Tulare County (Figure E-1). This CWPP describes changes in fuel hazards and fire behavior since pre-European settlement and projects current fire behavior in the communities. It also describes 28 projects to treat approximately 1,625 acres of mostly private land in the CWPP area. The estimated cost (2010 dollars) of implementing the 28 projects on 1,625 acres is $2.3 million, which is expected to be partially met through state and federal grants.

Figure E-1. General vicinity map of the Tulare CWPP area



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List of Abbreviations

BLM	Bureau of Land Management
CEQA	California Environmental Quality Act
CWHR	California Wildlife Habitat Relationship
CWPP	Community Wildfire Protection Plan
dbh	diameter at breast height
°F	degrees Fahrenheit
FRCC	Fire Regime Condition Class
FRI	Fire Return Interval
FSC	Fire Safe Council
FWS	U.S. Fish and Wildlife Services
HFRA	Health Forests Restoration Act
mph	miles per hour
NPS	National Park Service
PRC	Public Resources Code
RCD	Resource Conservation District
SQF	Sequoia National Forest
WUI	wildland urban interface

SECTION 1. INTRODUCTION

Prior to European settlement, lightning and Native Americans ignited fires that burned approximately 4.4 million acres annually in California (Stephens et al. 2007). Those fires were generally low intensity because fuels did not accumulate as a result of the frequent fires. Federal and state policies evolved during the 1920s–1930s toward a strong fire suppression policy that focused on quickly suppressing all fires on the landscape, and those policies led to technological advancements that reduced the number of acres burned by large wildfires. The consequence of not allowing fires to burn resulted in the accumulation of fuels in forests and shrublands. Following the disastrous 2000 fire season, the National Fire Plan identified the need to reduce fuel hazards, protect communities, and restore ecological health to federal lands. The 150,000-acre McNally Fire in 2002 is a reminder that Tulare County in not exempt from catastrophic wildfires.

The National Fire Plan identified communities-at-risk to wildfires throughout the United States. Communities-at-risk in Tulare County included Badger, Camp Nelson, Pine Flat, Poso Park, R Ranch (Johnsondale), Springville, Three Rivers, Tule Indian Reservation, and Wilsonia (www.Cafirealliance.org). The Alder Creek Fire Safe Council (FSC) prepared a Community Wildfire Protection Plan (CWPP) for Sequoia Crest (Delfino 2008), and a similar plan was prepared for Wilsonia (Duba and Tripp 2008). In addition,

- the National Park Service (NPS) (Sequoia and Kings Canyon National Parks) has reduced fuel hazards near Cabin Cove and Silver City;
- the Sequoia National Forest (SQF) has been collaborating with the Upper Tule FSC to design and implement fuel-reduction projects and evacuation plans that would increase protection and safety to Camp Nelson and other communities (Upper Tule FSC, unpublished summary of projects);
- the Bureau of Land Management (BLM), Bakersfield District, has been collaborating on projects at Case Mountain, Three Rivers, and Blue Ridge; and
- fuel-reduction projects have been considered in several other areas in the county.

Most of the FSCs in Tulare County are extensions of homeowners' groups. Few are recognized as nonprofit organizations, and therefore, they cannot apply for fuel-reduction grants through the State Clearinghouse.

Purpose and Need

The Tulare County Resource Conservation District (RCD) and Sequoia FSC recognized the need for a comprehensive CWPP that would provide a mechanism to coordinate project

planning, stimulate interest in reducing fuel hazards, and improve efforts to secure funding for those projects.

The 2003 *Healthy Forests Restoration Act* (HFRA) identifies CWPPs, which allow communities[1] to

- identify and prioritize areas of hazardous fuel reduction treatments;
- recommend the types and methods of treatment on federal[2] and nonfederal land; and
- include recommendations to reduce structural ignitability throughout the at-risk community (HFRA section 101[3]).

Fuel-reduction projects identified in approved CWPPs receive priority for funding requests from the State Clearinghouse (HFRA sec 103 [d1]), and federal agencies shall consider recommendations identified in CWPPs (HFRA sec. 103[b]) and implement those projects on federal lands (HFRA sec. 102[a]).

Reducing the threat of a wildfire to a community will require the efforts of the local residents.

This Tulare CWPP is only a plan—it will not reduce the threat of a wildfire or increase protection for any community. Reducing the threat of a wildfire to a community will require the efforts of the local residents in coordination with federal, state, and local agencies, who may provide technical and financial assistance. Ultimately, however, actions that modify fire behavior or increase structural resistance to a wildfire are the responsibility of the local residents.

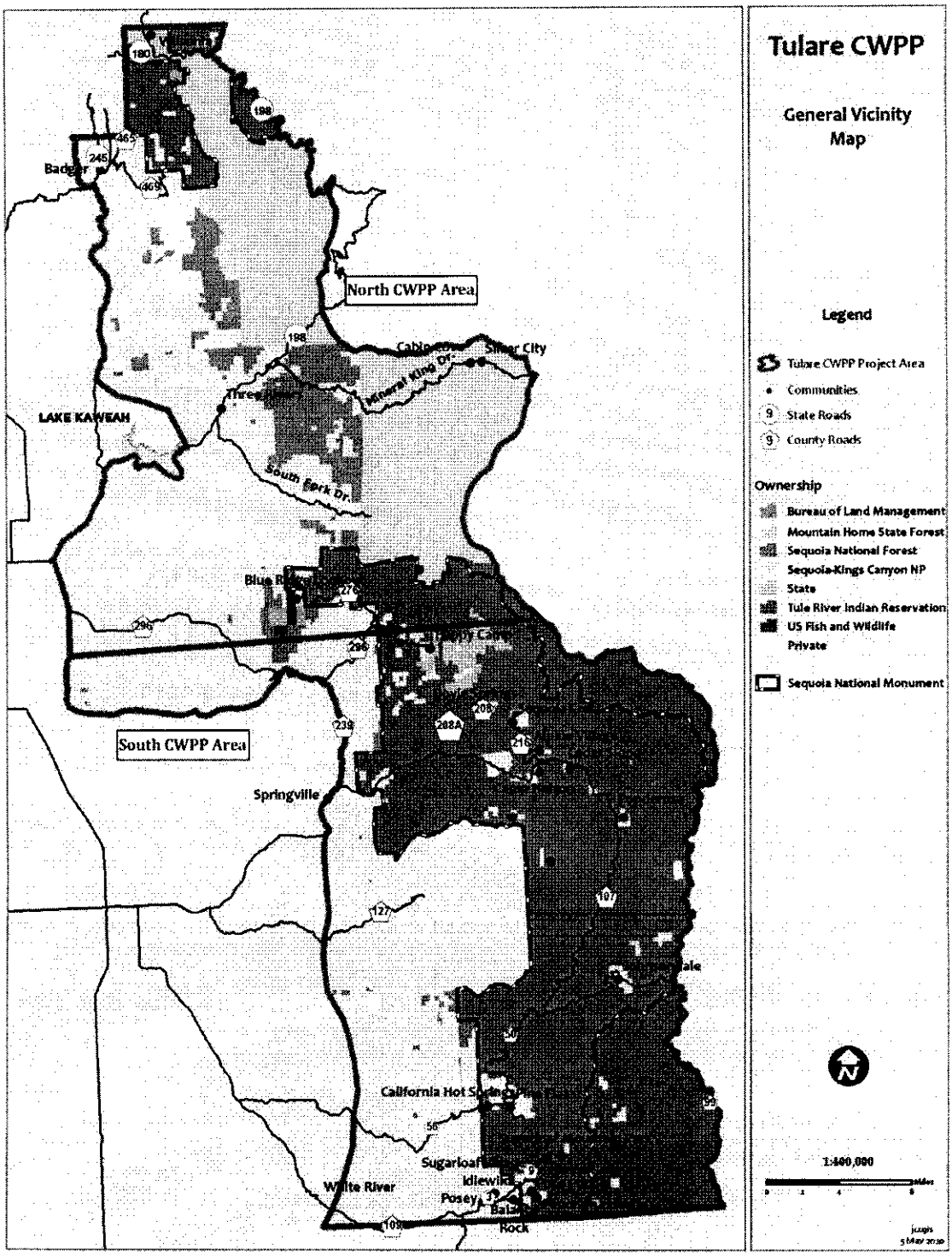
Geographic Area Covered by this CWPP

The geographic area for this CWPP includes private, state, and federal lands in eastern Tulare County, approximately east of Lake Kaweah and Springville, excluding urban and agricultural lands; and west of a line generally formed by the Kern and Little Kern rivers and major geographic features (Figure 1). Elevations range from approximately 900 to 10,000 feet. Given the large size of the CWPP area (approximately 762,440 acres), it was divided into north and south halves for the analysis and project planning. The northern and southern halves of the CWPP area include private lands and federal lands administered by the BLM, Bakersfield District; Sequoia and Kings Canyon National Parks; SQF; U.S. Fish and Wildlife Service (FWS), Blue Ridge National Wildlife Refuge; and lands administered by the state of California, most of which are in Mountain Home State Forest. The Tule Indian Reservation is also in the southern half of the area, but it is not included in this CWPP.

[1] Communities are defined as at-risk communities or a group of homes and other structures with basic infrastructure and services (utilities, transportation) within or adjacent to federal lands (HFRA sec. 101 [1]).

[2] Federal lands are those lands administered by the United States Department of Agriculture Forest Service or Department of the Interior BLM (HFRA sec. 101[3]).

Figure 1. General vicinity map of the Tulare CWPP area



Administrative Requirements

CWPPs are collaborative agreements between local government, the local fire department, and the state agency responsible for forest management, in consultation with interested parties and the federal land management agencies managing land in the vicinity of the at-risk communities (HFRA sec. 103 [3A]). This CWPP is an agreement between Tulare County, Tulare County Fire Department, and CAL FIRE. The BLM, NPS, and SQF are the consulting federal agencies. The interested parties are the Tulare County RCD; Sequoia FSC; Upper Tule FSC; Wilsonia Village, Inc. Fire Safe Committee; Alder Creek FSC; Sequoia and Kings Canyon National Parks; FWS; and Mountain Home State Forest.

The representatives of the three signatory parties or their designated representatives can approve or amend this CWPP at any time to modify projects, methods of treatments, or priorities in response to changing conditions, funding, or personnel. The Tulare County RCD or Sequoia FSC is responsible for maintaining all amendments and preparing periodical updates to the parties in this agreement. They will also be responsible for assisting with the design of projects and submitting grant applications for those projects. The Alder Creek or Upper Tule FSCs or Wilsonia Village, Inc. Fire Safe Committee may design projects in their communities in consultation with federal, state, and local agencies. State and federal agencies will be responsible for designing and obtaining approvals for all fuel-reduction projects on lands under their jurisdiction.

Organization of this CWPP

Section 1. Introduction — describes the purpose and need of the plan, the planning area, and administrative requirements.

Section 2. Overview — describes historical and current fuel hazards, fire behavior, and fire regimes in the CWPP area. This information was included to provide a framework to identify the problem and to justify and identify fuel treatments.

Section 3. Community Risk — describes several common attributes that communities share that contribute to their risk from a wildfire.

Section 4. Projects — describes the projects that were recommended to reduce the threat of a wildfire and loss of private property. The projects are divided into two categories: those that apply countywide and those that apply to individual communities.

Section 5. Community Projects — describes the fuel-reduction projects identified on private land in the north and south halves of the CWPP area.

Section 6. Literature Cited — identifies the references cited in this CWPP.

Section 7. Preparers and Contributors — lists of individuals, agencies, and stakeholders who prepared or contributed to this CWPP.

SECTION 2. OVERVIEW

California's Mediterranean climate of hot, dry summers results in recurring annual droughts that plants have adapted to either by (1) completing their growth cycle before summer, such as annual grasses; or (2) minimizing their growth during summer, such as shrubs. As the hot, dry summer progresses, the moisture content of shrubs declines, and they become drier and more readily ignited. By late summer the dried grasses and shrubs are capable of supporting and propagating fires, and this condition continues until fall rains and cool wet winters end the annual drought and reduce flammability of the vegetation. These plant adaptations to the annual weather cycle guarantees that wildfires will occur every summer and fall in California.

Pre-settlement Fire Regimes

The giant sequoia (*Sequoiadendron giganteum*) groves in the Tulare CWPP area have provided some of the best information on pre-settlement fire regimes[3] in California; specifically, a chronicle of fire history over the past 2,000 years (Swetnam 1993). Fires were more frequent prior to European settlement, and fire size was probably influenced by the accumulation of fuels. Although fire regimes (frequency and intensity of fires) vary by vegetation types, the regularity is very predictable (Sugihara et al. 2008). Fires were frequent in annual grasslands and blue oak woodlands (approximately every 3 years); however, plant mortality was low because the annual grasses had set their seeds prior to the summer and fall fires. The frequent fires eliminated many young oaks and pruned the lower branches of mature oak trees. The outcome was open stands of mature trees with sufficient separation between the grasses and lower branches in the tree canopy, resulting in infrequent crown fires. Fires were less frequent (approximately every 50 years) in chaparral, allowing fuels to accumulate, resulting in high-intensity crown fires that also initiated fires in adjacent vegetation types. Fire frequency was higher (every 10–13 years) in the lower-elevation conifer forests (ponderosa and Jeffrey pine and Sierran mixed-conifer types), which did not allow the fuels to accumulate, resulting in low-intensity fires (Sugihara et al. 2008).

Using fire frequency and the number of acres of vegetation types in the Tulare CWPP area, an estimated 132,560[4] acres burned annually prior to European settlement (Table 1) in the CWPP geographic area. Over 75 percent of those acres burned in lower-elevation annual grasslands, blue oak woodlands, and blue oak-foothill pine vegetation types, while the fewest acres burned in higher-elevation conifer forests (red fir and lodgepole/subalpine forests) (Table 1). Fire frequency (Appendix A) and intensity also varied with topography and weather, resulting in variable effects on vegetation.

[3] Fire regime refers to the frequency and intensity of fires.

[4] See Appendix A for an explanation of calculations.

Table 1. Amount of current vegetation types and estimated acres that burned annually prior to European settlement in the Tulare CWPP area.

Vegetation Type[a]	Total Acres	Acres Burned Annually Prior to Settlement[b]	Percent of Acres Burned Annually Prior to Settlement
Annual grassland	77,322	25,774	19.4
Blue oak woodland/ foothill pine	228,563	76,188	57.5
Mixed chaparral	84,858	1,697	1.3
Montane hardwood-conifer	122,005	9,385	7.1
Ponderosa-Jeffrey pine	45,459	4,546	3.4
Sierran mixed-Conifer	137,838	12,531	9.4
Red fir	46,459	2,323	1.7
Subalpine conifer-lodgepole pine	5,382	115	0.09
Total	747,886	132,560	100.0

Notes:
a. This does not include agricultural, urban, water, or barren cover types.
b. See Appendix A for an explanation of calculations. There are approximately 22,100 acres of giant sequoia groves in the CWPP area; 80 percent of those acres were mapped as Sierran mixed-conifer forest, and the remaining acres were mapped as other vegetation types.

Fires burned more intensively on the hotter, drier southern and western aspects compared to those on cooler northern and eastern aspects. Extended droughts increased dead material in the crowns of trees and shrubs and reduced soil moisture, which reduced decomposition of litter. All of this contributed to an accumulation of higher fuel loads. As a result, fire intensity likely increased during droughts when they burned through areas with increased fuel loads. Higher fuel loads increased fire intensity when fires burned through those areas. Extended droughts also increased the length of the fire season, allowing more acres to burn annually. Thus, the periodic accumulation of fuels resulted in larger, higher intensity fires.

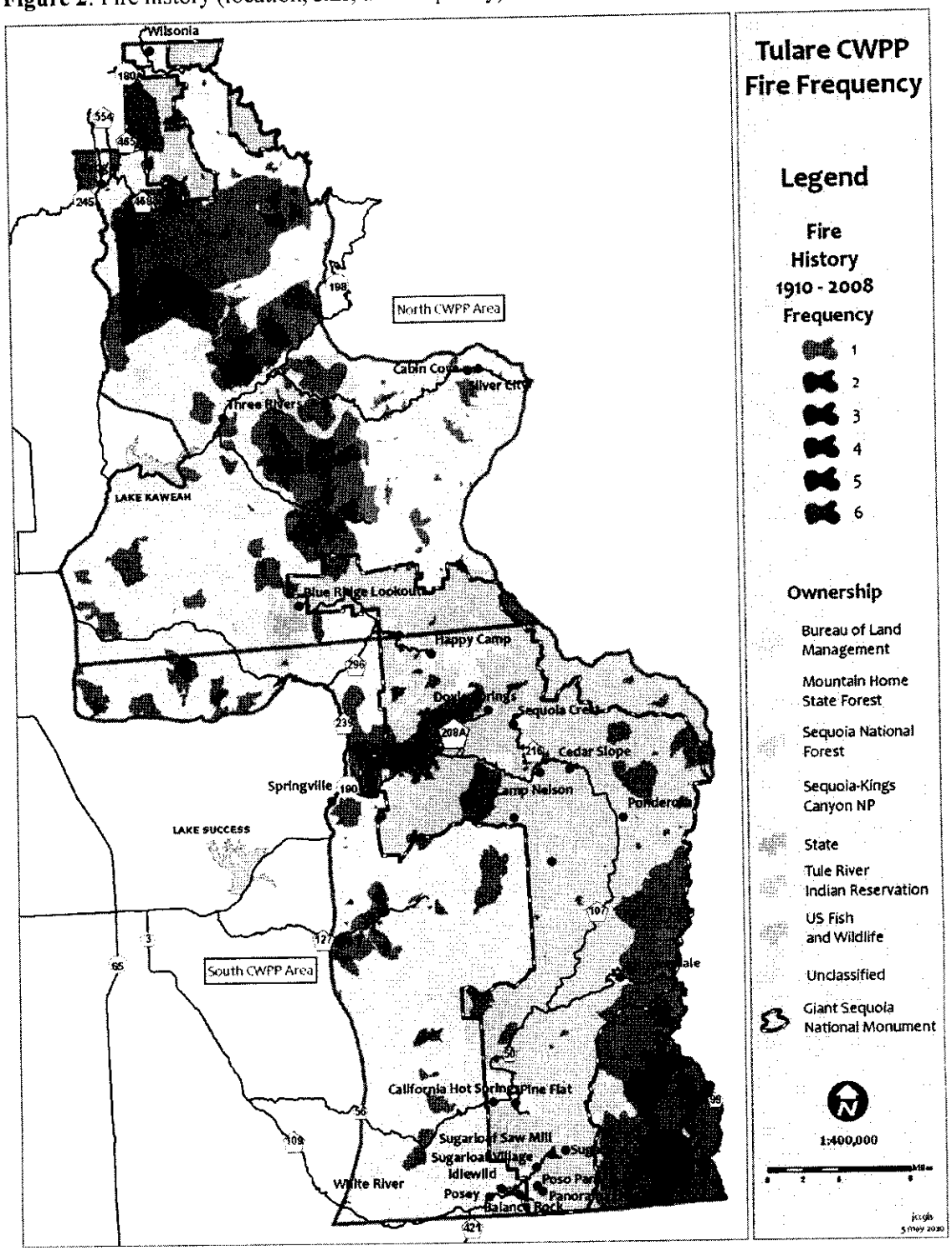
Table 1 also provides an estimate of how many acres would have to be treated annually to return the Tulare CWPP area to the pre-European disturbance regime (see the "Acres Burned Annually Prior to Settlement" column). This level of treatment (approximately 132,000 acres annually) is likely not feasible, given current policies and land use; however, other types of disturbance can mimic the results of the historic fire regime, resulting in less-severe wildfires.

Recent Fire Regime

Fire History

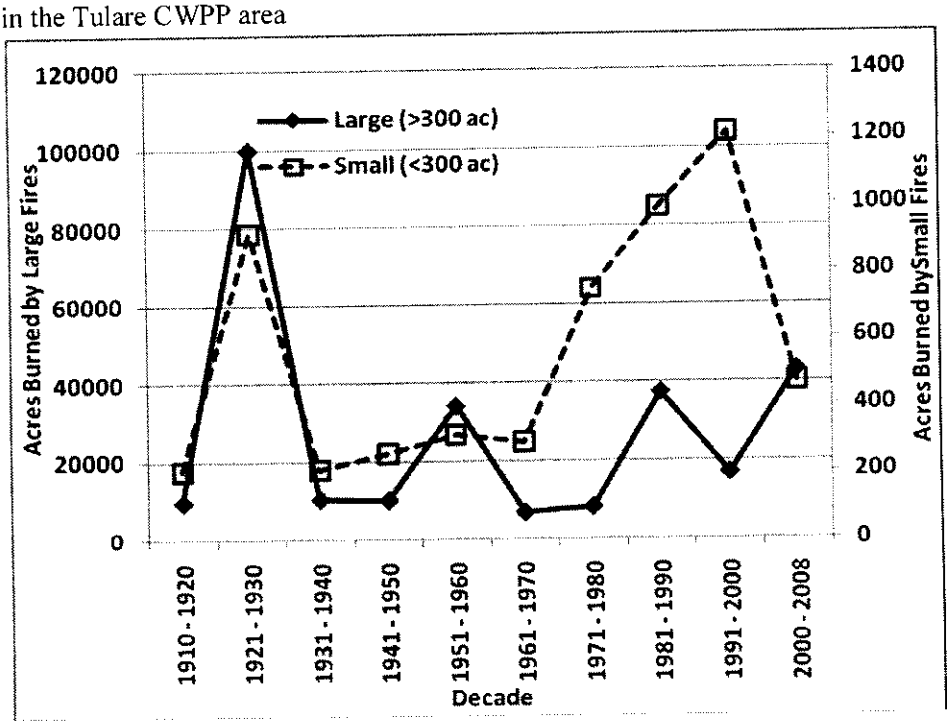
Recent fire history describes the location, frequency, and size of fires recorded by state and federal agencies in the Tulare CWPP area between 1910 and 2008 (SQF and CAL FIRE data). During the 98-year period, the number of fires occurring on a given piece of land ranged between zero and six throughout the CWPP area (Figure 2). Areas with recurring fires indicate a high frequency of ignitions, usually associated with roads, communities, or high-use recreation areas. Review of the available information supports this, as the majority of fires in the Tulare CWPP area have been started by humans, whether it was escaped campfires, children playing with matches, equipment, automobiles, cigarettes, or arson. Large areas of the CWPP area have been free of wildfires, which may be interpreted that those areas are safe from fires; however, in those areas that have not burned, fuels have accumulated, making fire behavior more erratic and increasing the need for fuel reduction.

Figure 2. Fire history (location, size, and frequency) in the Tulare CWPP area



Two of the largest fires in the Tulare CWPP area, the Kaweah Fire in 1926 (34,300 acres) and the South Fork Fire in 1928 (22,000 acres), occurred prior to 1929, which was prior to implementation of federal and state policies that stressed the suppression of all fires and the advent of modern suppression tactics and equipment. As suppression tactics became more effective, the number of acres burned by small fires (those less than 300 acres) and large fires (over 300 acres) declined through 1969 (Figure 3). After 1970 the number of acres burned by small fires steadily increased—this may be associated with the increase in the population and recreation use on the SQF and Sequoia-Kings Canyon National Park. However, after 1970, the increase in acres burned by large fires (over 300 acres), and the largest fire (McNally Fire—30,500 acres) recorded in the Tulare CWPP area in 2002, may be associated with factors other than human-use patterns. Studies in the giant sequoia groves concluded that, between 500 and 1800 A.D., fire size increased as the interval between fires increased and fuels accumulated (Swetnam 1993), similar to that recently observed in the Tulare CWPP area.

Figure 3. Changes in acres burned by small and large fires, by decade, in the Tulare CWPP area



Source: US Forest Service and CAL FIRE

Fuel Hazards and Fire Behavior

Fuel Hazards

Earlier logging practices removed the larger, more fire-resistant trees. The mature trees in the second- and third-growth stands that replaced those forests are now large enough to also be fire resistant; however, today's stands also include excessive numbers of small trees. Droughts have weakened many of the trees in forest stands, and heavy winter snows have broken the tops and branches, resulting in the accumulation of surface fuels. Young incense cedar (*Calocedrus decurrens*) and white fir (*Abies concolor*) that grow in the understory create ladder fuels capable of sending surface fires into the canopy of mature trees. Elimination of the periodic fires that occurred prior to European settlement has removed a key mechanism that reduced the accumulation of hazardous fuels in the Tulare CWPP area. CAL FIRE prepared a statewide map that ranked fuel hazards, based on surface fuel models and slope (www.frap.cdf.ca.gov). No fuel-hazard rankings were assigned to areas without wildland fuels (agricultural or urban areas) or alpine areas, where there are no or little fuels. Fuel hazards were ranked moderate (the lowest rank) in lower-elevation grasslands and blue oak-foothill pine woodlands and higher-elevation lodgepole pine (*Pinus contorta*) and red fir (*Abies magnifica*) forests (Figure 4). Fuel hazards increase in the foothills because surface fuel models, used in the fire behavior modeling, have higher rates of spread and longer flame lengths, and fuel hazards are ranked very high in mid-elevation Sierran mixed-conifer forests, where many of the communities are located.

Fire Behavior

The Wilsonia CWPP provided estimates of fire behavior during extreme and average weather conditions (Duba and Tripp 2008). The average weather used in the modeling was 75 degrees Fahrenheit (°F) with 5 mile per hour (mph) winds, while extreme weather in that modeling was 95°F with 25 mph winds (Table 2). The extreme weather conditions may be infrequent, but they do occur, and when they occur, they can have a significant influence on fire behavior. The rate of spread increases ten times and flame length triples. Flame lengths less than 4 feet generally mean the initial response crew can control the fire. The increase in flame length and associated heat means direct-attack suppression tactics cannot be used, limiting the effectiveness of initial attack. Scorch height triples, meaning needles in the canopy of trees will be adversely affected by the flames. Technically, grass fires are crown fires; however, they rarely result in high mortality to vegetation or the loss of structures, whereas crown fires in timber stands often result in 100 percent mortality and the loss of structures.

Figure 4. Fuel hazard ranking in the Tulare CWPP area

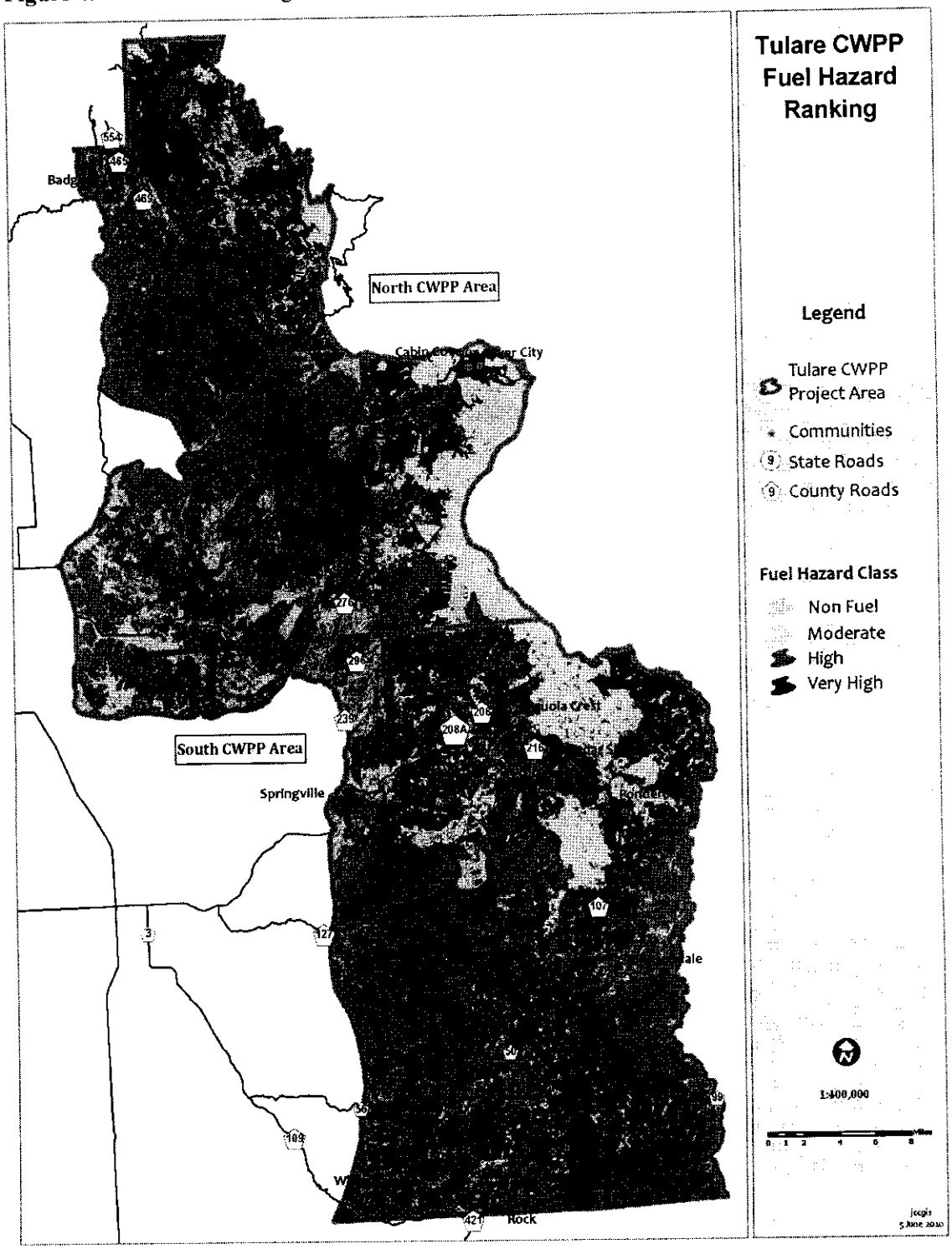


Table 2. Predicted fire behavior at Wilsonia, California

Fire Behavior	Average Weather (75°F with 5 mph winds)	Extreme Weather (95°F with 25 mph winds)
Rate of Spread (feet/hour)	567	5,484
Flame Length (feet)	5.1	14.9
Scorch Height (feet)	26	76

Source: Duba and Tripp (2008)

Fire Behavior Around Communities

Additional fire behavior modeling for this CWPP (using FlamMap) was done in a circle with a 0.75-mile radius from the center of each community (approximately 1,130 acres). (FlamMap is a spatial model that describes fire behavior at a landscape level; the 0.75-mile radius around each community was used to standardize the analysis so comparisons could be made among communities, and the dataset used in the analysis was provided by the SQF.) Weather conditions were extreme—90th percentile[5] fire weather: 82°F and 25 mph winds. The model determined the percentage of the area within each circle that would support flame lengths less than 4 feet, 4–8 feet, and greater than 8 feet, and the amount of potential crown fire was also determined. This effort determined that an average of 47 percent of the area around each community would support a fire with flame lengths greater than 4 feet, and on average, 38 percent of the areas would support a crown fire. These projections indicate that it may be challenging for initial attack crews to successfully contain fires that occur in or near communities, and the potential for greater losses increases.

Fire Regime Condition Class

The Fire Regime Condition Class (FRCC) is a national rating system to compare the departure of the current fire regime (fire frequency and intensity) from the pre-European fire regime. The three FRCCs are defined in Table 3, and their acres in the Tulare CWPP area are provided. Approximately 55 percent of the CWPP area is in FRCC 2, where the fire regime has moderately departed from the pre-European regime; and 23 percent of the area is in FRCC 3, where the fire regime has substantially departed (Table 3). Thus, the consequence of excluding disturbance (such as fire) and not reducing hazardous fuels increases the risk of losing key ecosystem functions and damage to or loss of private property.

[5] 90th percentile fire weather means that only 10 percent of the days in the historical database had weather conditions that exceeded this level.

Summary

California's Mediterranean climate, and adaptations that vegetation have made to that climate, make significant contributions to the probability that a wildfire will occur. Fire suppression policies that emphasize fire exclusion have allowed the unnatural buildup of fuels, which has likely contributed to larger fire sizes in recent decades. This is supported by the increase in the acres burned by large fires, the extensive area of high or very high fuel rankings, potentially catastrophic fire behavior in and near communities, and the large area where the current fire regime has departed from the pre-European fire regime. The chance of large catastrophic wildfires in the Tulare CWPP area has increased in recent decades as a result of the accumulation of hazardous fuels.

The chance of large catastrophic wildfires in the Tulare CWPP area has increased in recent decades as a result of the accumulation of hazardous fuels.

Table 3. Abundance of FRCC in the Tulare CWPP area

FRCC	Definition	Acres	Percent of Area
1	The current fire regime (frequency and intensity of fires) is within or near the pre-European fire regime.	145,683	19
2	The current fire regime has moderately departed from the pre-European fire regime, and there is a risk of losing key ecosystem components as a result of changes in the size, intensity, severity, or pattern of burning.	422,015	55
3	The current fire regime has significantly departed from the pre-European fire regime, and the risk of losing key ecosystem components is high as a result of changes in the size, intensity, severity, or pattern of burning.	181,754	23

Source: (www.frap.cdf.ca.gov); note that there are approximately 13,000 acres not classified as wildand fuels and therefore, not assigned to an FRCC.

SECTION 3. VALUES AND COMMUNITIES AT RISK

The Tulare CWPP area includes numerous communities, some of which have been designated at-risk (Calfirealliance.org); key infrastructure (highways, communication facilities, power lines, and water storage and conveyance facilities); municipal watersheds; forest resources; cultural resources; and threatened and endangered species habitat. Individually, any of these can be affected by a major wildfire, and when a major wildfire occurs, many of these will be damaged or lost by that single event. This CWPP focuses on reducing wildfire risks to communities; however, accomplishing that will also reduce the risk to other resources, identified above, that are included in the fabric of communities.

Each community in the Tulare CWPP area is unique; however, each community also shares several common attributes that contribute to their risk from a wildfire; those attributes are

- ignition source,
- suppression capability,
- structural ignitability, and
- defensible space.

Ignition Source

All fires need an ignition source. The probability of an ignition increases as human activities increase. Ignition sources associated with human activities include sparks from power tools, barbeques, downed power lines, faulty electrical wiring, discarded cigarettes, children playing with matches, campfires, outdoor stoves, piles of oily rags, welding equipment, debris burning, or motor vehicle exhaust. As a result, the probability of a fire originating in a large community is generally greater than in a small community, and the probability of an ignition in a small community is higher than one originating in unpopulated areas.

Suppression Capability

Suppression capabilities in the Tulare CWPP area are provided by CAL FIRE, SQF, NPS, Tulare County, and volunteers through mutual aid agreements. Most engine companies are not staffed with full-time crews, and some engine crews may not be specifically trained in structure protection, nor are most of the engines adequately equipped for structure protection. All of the engine companies are widely spaced apart, which delays response times (Duba and Tripp 2008; Delfino 2008). Response times are further hampered by narrow, winding, and often unpaved roads. In summary, suppression capabilities are limited and in no way reflect the level of protection afforded in most urban environments.

Structural Ignitability

Residences in the Tulare CWPP area are, in most cases, second homes used during vacations. Wood shake roofs, wood shingles, wood siding, and exposed porches and decks all increase structural ignitability. Thirty-one percent of the structures in Wilsonia have shake or wood shingle roofs, and 66 percent have flammable siding; while in Sequoia Crest, 13 percent have shake or wood shingle roofs (Duba and Tripp 2008; Delfino 2008). Assuming these results are representative of the majority of communities in the Tulare CWPP area, these highly flammable structures occur in areas where fuel hazards have increased over the last 100 years.

Defensible Space and PRC 4291

The California Public Resources Code (PRC) Section 4291 requires that owners of all buildings create defensible space around the perimeter of those buildings. This law requires all homeowners to maintain a fuel break within 30 feet of their home or a building by removing flammable material, but small twigs, pine needles, and green vegetation may be maintained to reduce soil erosion. Beyond the 30-foot-wide fuel break, fuels should be reduced in an additional 70-foot-wide zone beyond the 30-foot fire break or to the property line if it is closer. The vertical and horizontal continuity of fuels in the reduced fuel zone will be reduced (Figure 5). Fuel reduction between structures can be improved by adjoining landowners collaborating with fuel reduction; however, it is not required by PRC 4291.

Figure 5. California homeowner's responsibility for fuel reduction

Source: California PRC 4291.

The creation and maintenance of defensible space is a significant contribution that a homeowner can do to reduce the threat of a wildfire. It has been shown to be very effective, and it is not affected by state or public funding or other constraints that may influence an agency's ability to reduce fuel hazards or staff engines. In summary, state law requires homeowners to reduce hazardous forest fuels in a 100-foot-wide buffer around their homes, or up to their property lines if that is closer. The creation of defensible space is the homeowner's contribution and primary responsibility to reduce the threat of a wildfire.

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CAL FIRE, NPS, and SQF are responsible for PRC 4291 compliance inspections in the Tulare CWPP area, and compliance with PRC 4291 has varied over the years and geographically. No inspections occurred in many years (Duba and Tripp 2008; Delfino 2008), or when inspections did occur, the results varied. CAL FIRE reports 95 percent compliance (D. Marquez, pers. comm.); similarly, the SQF reported high compliance (R. Saunders, pers. comm.). Wilsonia reported 15 percent compliance; however, that improved after the NPS initiated inspections (Duba and Tripp 2008). Sequoia Crest reported 33 percent of the residences had good clearance in the 30-foot zone (meaning all weeds, grass, and dead vegetation had been removed; brush removed or appropriately thinned; conifers thinned and pruned; and all lumber, firewood piles, and flammable materials were not adjacent to buildings, except for a light litter layer on the soil) (Delfino 2008). In the 100-foot zone around residences, 29 percent were rated as good (Delfino 2008). The consultant's reconnaissance surveys indicated that, in most communities, compliance with PRC 4291 is closer to the statistics reported by Duba and Tripp (2008) and Delfino (2008) and not those of the agencies.

Inspections are a monitoring tool to determine how well homeowners comply with the state law. Although citations may be issued, they are generally rare. The more critical issue is whether or not homeowners and their neighbors are accepting the responsibility for the safety of their residences and community. Homeowners may be the only ones who can prevent the loss of their investments, especially given the projected fire behavior in each community, the known fuel hazards in the large wildland area surrounding all of the communities, the structural ignitability, and limited suppression capability. Homeowners should not wait for agency inspections; rather, community associations should insist that its residents comply with PRC 4291. Federal, state, and local agencies can provide literature and advice on how much vegetation should be removed to ensure fuel hazards are reduced and compliance with PRC 4291.

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Public Perception of Fuel Reduction

Extensive surveys have not been conducted throughout the entire Tulare CWPP area; however, a recent survey was conducted in Wilsonia (Duba and Tripp 2008), which may be used to identify key knowledge gaps. The survey showed that

- 65 percent of the respondents thought it was very likely that Wilsonia could be damaged by fire (the majority of the residents recognize fire is a potential threat to their property).
- 25 percent thought their structure and property were very fire safe; however, inspections indicated work was required on every property.
- 56 percent would be willing to make some fire-safe improvements on their structure but did not know what to do.

- 42 percent indicated they do yearly maintenance for fuel reduction (only 15 percent would comply with PRC 4291).
- 27 percent would be willing to do fuel-reduction work but did not know what to do.
- 15 percent did not have any way of disposing of plant material.

This survey indicates that the public is aware of the wildfire threat, and many are willing to reduce fuel hazards and modify their structures to reduce the threat of a fire; however, they need guidance. Approximately 40 percent of the respondents do annual maintenance, but about 25 percent of them were not sure what to do. These results seem to conflict with state and federal inspections, where almost 100 percent were in compliance.

This survey indicates that the public is aware of the wildfire threat, and many are willing to reduce fuel hazards and modify their structures to reduce the threat of a fire; however, they need guidance.

SECTION 4. PROJECTS

The projects recommended in this section to reduce the threat of wildfire and losses of private property are divided into two categories: those that apply countywide and those that apply to individual communities. The countywide projects are generally ones that will facilitate implementation of community projects; whereas, the community projects focus on fuel reduction in and around the communities. None of these projects affects compliance with PRC 4291.

Countywide

Form a Countywide Fire Safe Council

Many of the FSCs in Tulare County are currently extensions of local homeowners associations. They are not recognized as nonprofit organizations (U.S. Internal Revenue Code [26 USC 501(c)(3)]) that qualify to submit grants to public agencies for fuel-reduction projects. The Sequoia FSC previously acted as an umbrella organization to coordinate activities in the county. The Tulare County RCD is currently serving in that capacity and as a nonprofit organization to submit grants and update this CWPP, as necessary. The local FSCs and Tulare RCD should coordinate their efforts to form a countywide nonprofit FSC that will encourage and coordinate local FSCs or homeowner associations, request and administer funds, and coordinate with the different agencies that have responsibility for fire prevention and suppression, green waste disposal, and air quality in Tulare County. To be effective, this position should be half to full time. In other areas, funding for other Fire Safe Coordinator positions has traditionally come from federal appropriations (Titles II and III, which are funds to counties for timber removal on federal lands), federal and state grants, and from local fire departments.

Continue to Coordinate with Federal, State, and Local Agencies

The NPS, SQF, and California State Parks manage the majority of the land in the Tulare CWPP area. These agencies have already reduced fuel hazards around many of the communities in the area, even though community protection is not their primary responsibility. In many communities, agencies administer vacant parcels within the community. If that parcel is within 100 feet of a building and fuels are excessive, it may affect a private landowner's ability to protect their property. Therefore, vacant parcels administered by public agencies should be evaluated and treated, if necessary, on a scheduled basis, similar to PRC 4291's requirements.

The HFRA requires federal land management agencies to consider projects identified in CWPPs in their planning processes; therefore, continued coordination with those agencies will be necessary to ensure they implement and maintain those fuel-reduction projects that modify fire behavior.

Increase Public Education

There is a high degree of interest in reducing fuel hazards and the threat of wildfires in the Tulare CWPP area—this is based on the limited surveys and homeowner groups that have formed informal FSCs or that have coordinated with SQF, NPS, BLM, or local fire agencies and CAL FIRE. Many of the residents are not full time, and this presents a challenge to communicate with those absentee landowners. The re-established Sequoia FSC should be responsible for working with local FSCs and homeowner groups to determine permanent addresses of absentee owners, what information each community needs, and coordinating with state and federal agencies to provide that information.

- Emails are a simple and cost-effective method of sending information to all residents.
- The local television media could be contacted to develop a news segment on community involvement with fuel reduction.
- Secure a domain name and establish a website where information (projects, success stories, funding opportunities) can be published, stored, and retrieved.
- Simple BBQs (hot dogs and sodas) sponsored by the local or countywide FSCs or homeowner groups have been used in other areas to increase attendance at local FSC meetings and the interest and participation of landowners. Initial meetings should focus on the requirements of PRC 4291 and the homeowner's responsibility to themselves and their neighbors. Other meetings should include discussions on the need to reintroduce disturbance into wildlands.

Many landowners do not understand that forests are dynamic systems that have evolved with periodic disturbance. It is important that landowners understand that removing excessive fuels mimics the natural process, and that it is essential for sustaining healthy forests and shrublands and necessary for reducing the threat of fire in their community. Accepting the need for disturbance is often a significant hurdle when seeking approval for fuel-reduction projects on individual landowner's property.

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Assist Residents with Removing Excessive Fuels

Local government, nonprofit organizations, and homeowner associations have developed programs to assist residents with removing and disposing of excessive fuels from their property. Seniors and disabled residents commonly receive a discount or are not charged for the service. Chipper programs provide homeowners with a 2–3 person crew and a chipper to remove fuels. Individual residents can request a crew, or the crews can be scheduled through a central location. Fuels can also be removed using green waste bins that are delivered to communities and removed after about a week. Once removed, the fuels are usually converted into biomass for power, heat, or compost. These programs may be financed or partially underwritten by homeowner association dues, grants, or as mitigation for other programs (countywide reduction of green waste or air quality improvements).

A list of contractors can be developed and maintained so homeowners know who to call to clean pine needles and other debris off roofs and prune trees that are too close to chimney and stove pipes.

Assist with Environmental Compliance

All projects on private or state lands must comply with the *California Environmental Quality Act* (CEQA) or a functional equivalent, such as CAL FIRE's Timber Harvest Plan (if a forest product is sold). If prescribed burning is included in a project, a burn permit with a smoke management plan must be prepared and submitted to the Tulare Air Pollution Control District for approval. In most cases an initial study/negative declaration (checklist format) is sufficient to comply with CEQA. Compliance with PRC 4291 is exempt from CEQA (14 California Code of Regulations 15304).

SECTION 5. COMMUNITY PROJECTS

Fuel Reduction Projects

Fuel reduction projects were identified on private land in the north and south halves of the CWPP area by representatives from the Tulare RCD, the Upper Tule FSC, SQF, BLM, FWS, CAL FIRE, and the consultant team. These projects are summarized in Tables 4 and 5 (the two tables are in the appropriate north and south half discussions below). It is expected that projects will be modified as communities become more involved and collaboration with public agencies improves.

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Few projects were identified in communities at lower elevations that are located in annual grassland and blue oak woodlands because the grass fuels need to be removed each year. Mowing and disking remove fuels in grasslands, but these treatments cannot be accomplished on steep slopes. Prescribed burning is not limited by slopes; however, burning requires compliance with air quality regulations and limitations on prescriptions to reduce the risk of escaped fires. Grazing is an effective and less-regulated tool to reduce grassland fuels and should be considered as an effective fuel-reduction treatment.

Treatment Priorities

Treatment priorities should be established by the communities in cooperation with Tulare County Fire Department, CAL FIRE, Tulare RCD, and local fire and land management agencies, taking into account the community characteristics, homeowner participation, projected fire behavior (see Tables 4 and 5), and other factors. The lists of projects in Tables 4 and 5 are not exclusive or totally inclusive. Individual projects may be removed, their priority modified, or additional projects (see Appendix B) may be added, depending on changes in local conditions.

Previous Treatments

This CWPP also includes (where mapping data were available) fuel-reduction treatments that were completed adjacent to communities during the past 10 years (see Figures 6 and 9—these two figures are in the appropriate north and south half discussions). It is unknown how much fuel was removed during those initial treatments or how much fuel has accumulated since those projects were completed. It is recommended that the effectiveness of those previous treatments be evaluated to determine if they will only support a surface fire and will not support a crown fire. In those cases where the earlier treatments will now support a crown fire, those earlier treatment areas may need to be incorporated into the projects in this CWPP. Evaluation of earlier projects should also consider the prescriptions used in those earlier projects to determine if the prescriptions should be modified. Given the large amount of undeveloped public land adjacent to each community, it is essential that local FSCs

It is essential that local FSCs and homeowner groups continue to coordinate with those public agencies to ensure future projects are implemented and past ones are maintained.

and homeowner groups continue to coordinate with those public agencies to ensure future projects are implemented and past ones are maintained. In many cases, support for more aggressive treatments will have a greater effect on fire behavior, and the effectiveness of the project will last longer, thus reducing maintenance costs.

Project Information

Each project described below includes a map of its location, the number of acres of treatment, primary vegetation types, projected fire behavior without treatment, a prescription to remove or retain vegetation and modify fire behavior, treatment method, and estimated cost of the treatment. The 28 proposed projects total approximately 1,625 acres for a cost of $2.3 million. Treatment costs do not include planning, environmental compliance, or contract management. The estimated costs assume contract labor will be used; therefore, if other labor sources are available, costs should be adjusted. Project costs are in 2010 dollars, and future cost estimates should include an annual inflation rate of 3 percent.

Vegetation types are based on the California Wildlife Habitat Relationships (CWHR) mapping, and projected fire behavior is based on a data set developed by the SQF that was used in FlamMap modeling. The mapped treatment areas are preliminary project layouts. Recommended prescriptions were included to assist in developing cost estimates. Actual treatment areas and prescriptions may be modified as a result of landowner approval, environmental constraints, or cost.

Wildland Urban Interface

The wildland urban interface (WUI)[6] was identified on public lands adjacent to most communities. The boundaries of each WUI were established using the private land boundaries and roads or ridges. Although no projects were identified on public lands in the WUI, it is assumed that public land management agencies would treat a minimum of 20 percent of the land (SPLATS or "strategically placed treatments") in the WUI and maintain those treatments so they only support a

Although no projects were identified on public lands in the WUI, it is assumed that public land management agencies would treat a minimum of 20 percent of the land (SPLATS or "strategically placed treatments") in the WUI and maintain those treatments so they only support a surface fire.

[6] The WUI is the area within or adjacent to an at-risk community that is
- identified in recommendations to the Secretary in a CWPP or,
- if a CWPP has not been approved,
  - an area extending 0.5 mile from the boundary of the at-risk community, or
  - an area within 1.5 miles from the boundary of the at-risk community, including any land that has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community; a geographic feature that aids in creating an effective fuel break, such as a road or ridge top; or is in condition class III, as documented in a project-specific environmental analysis and is adjacent to an evacuation route for the at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community (HFRA 101 sec. 101[16]).

surface fire. Appendix B includes other mapping efforts that identified WUIs around communities. Those may also be considered during project planning to develop the most effective treatment strategies.

North Half of the Tulare CWPP Area

Previous treatments near Wilsonia and Silver City (see Figure 6) are also included; however, the effectiveness of those projects is unknown and should be evaluated.

No projects were identified in Wilsonia because they have an approved CWPP (Duba and Tripp 2008) or in Cabin Cove because it is all federal land. It is assumed that residents of both communities will continue to coordinate with the NPS, and the Wilsonia CWPP (Duba and Tripp 2008) will provide guidance in that community. Projects were identified in Badger and Blue Ridge (Table 4). Maps for projects in the north half (Figures 7 and 8) are located after the north half project descriptions.

Table 4. Summary of communities, projected fire behavior, and projects in the north half of the Tulare CWPP area.

Community	Active Homeowner's Association	Community at Risk[a]	Projected Fire Behavior[b]		Project	Priority
			Percent of Area with Flame Length Less Than 4 Feet	Percent of Area with Crown Fire Potential		
Badger	No	No	27	45	Badger Fuel Break	High
Blue Ridge	No	No	47	34	Blue Ridge Roadside Clearance	In progress
					Road 276 Roadside Clearance	
					Lower Grouse Roadside Clearance	
					Upper Grouse Roadside Clearance	
Cabin Cove	No	No	85	13		
Silver City	No		78	20		
Three Rivers		Yes	34	48	Identify location for water tank	
Wilsonia	Yes	Yes	81	16	See Wilsonia CWPP	

Notes:
a. www.cafirealliance.org
b. Within a 0.75-mile circle of each community

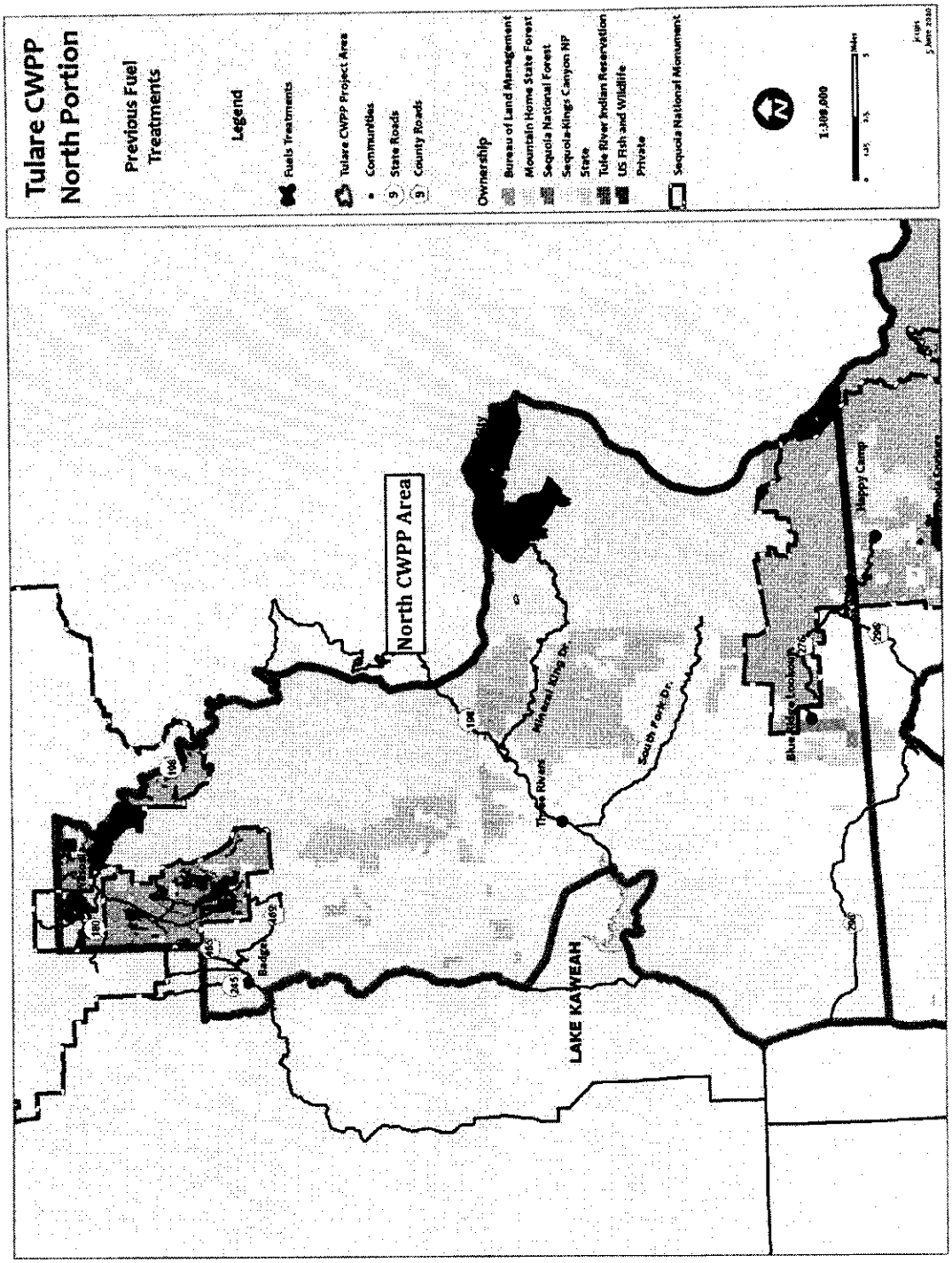


Figure 6. Fuel reduction treatments completed within the last 10 years in the north portion CWPP area

COMMUNITY — BADGER

The community profile and projected fire behavior were summarized above in Table 4, and one project has been proposed at this time.

Project: Badger Fuel Break
(see Figure 7)

- 202 acres of treatment at an estimated cost of $200,000
- Primary vegetation type: blue oak woodland
- Description: Create a 200-foot-wide fuel break (Figure 7) that reduces the probability of a crown fire. Hand prune the lower branches of blue oaks, less than 3 inches in diameter, so the limbs are 6–8 feet above the ground. Cut material will be piled and burned. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — BLUE RIDGE

The community profile and projected fire behavior are summarized in Table 4, and four projects have been proposed at this time.

Project: Blue Ridge Roadside Clearance
(see Figure 8a)

- 32 acres of treatment at an estimated cost of $35,000
- Primary vegetation types: blue oak woodland and montane hardwood conifer
- Description: Reduce surface and ladder fuels to modify fire behavior to provide an evacuation route (Figure 8a). Within 20 feet of the road, hand prune the lower branches of blue oaks, less than 3 inches in diameter, so they are 6–8 feet above the ground; thin other hardwoods by removing stems less than 4 inches in diameter so the boles are spaced 10–20 feet. Remove larger pieces of trees as fire wood. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

Project: Road 276 Roadside Clearance
(see Figure 8b)

- 36 acres of treatment at an estimated cost of $35,000
- Primary vegetation types: blue oak woodland and montane hardwood conifer and chaparral
- Description: Reduce surface and ladder fuels in montane hardwood conifer and chaparral to modify fire behavior to provide an evacuation route (Figure 8b). Within

20 feet of the road, hand prune the lower branches of blue oaks, less than 3 inches in diameter, so the limbs are 6–8 feet above the ground; thin other hardwoods by removing stems less than 4 inches in diameter so the boles are spaced 10–20 feet. Remove larger pieces of trees as fire wood. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

Project: Lower Grouse Roadside Clearance
(see Figure 8c)

- 10.5 acres of treatment at an estimated cost of $13,500
- Primary vegetation types: oak woodland and chaparral
- Description: Reduce surface and ladder fuels in oak woodland and chaparral to modify fire behavior (Figure 8c). Hand prune the lower branches of oaks, less than 3 inches in diameter, so the limbs are 6–8 feet above the ground; thin other hardwoods by removing stems less than 4 inches in diameter so the boles are spaced 10–20 feet. Remove larger pieces of trees as fire wood. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

Project: Upper Grouse Roadside Clearance
(see Figure 8d)

- 13.5 acres of treatment at an estimated cost of $27,100
- Primary vegetation type: blue oak woodland
- Description: Reduce surface and ladder fuels to modify fire behavior to provide an evacuation route (Figure 8d). Within 20 feet of the road, hand prune the lower branches of blue oaks, less than 3 inches in diameter, so they are 6–8 feet above the ground; thin other hardwoods by removing stems less than 4 inches in diameter so the boles are spaced 10–20 feet. Remove larger pieces of trees as fire wood. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

Figure 7. Community — Badger; Project: Badger Fuel Break

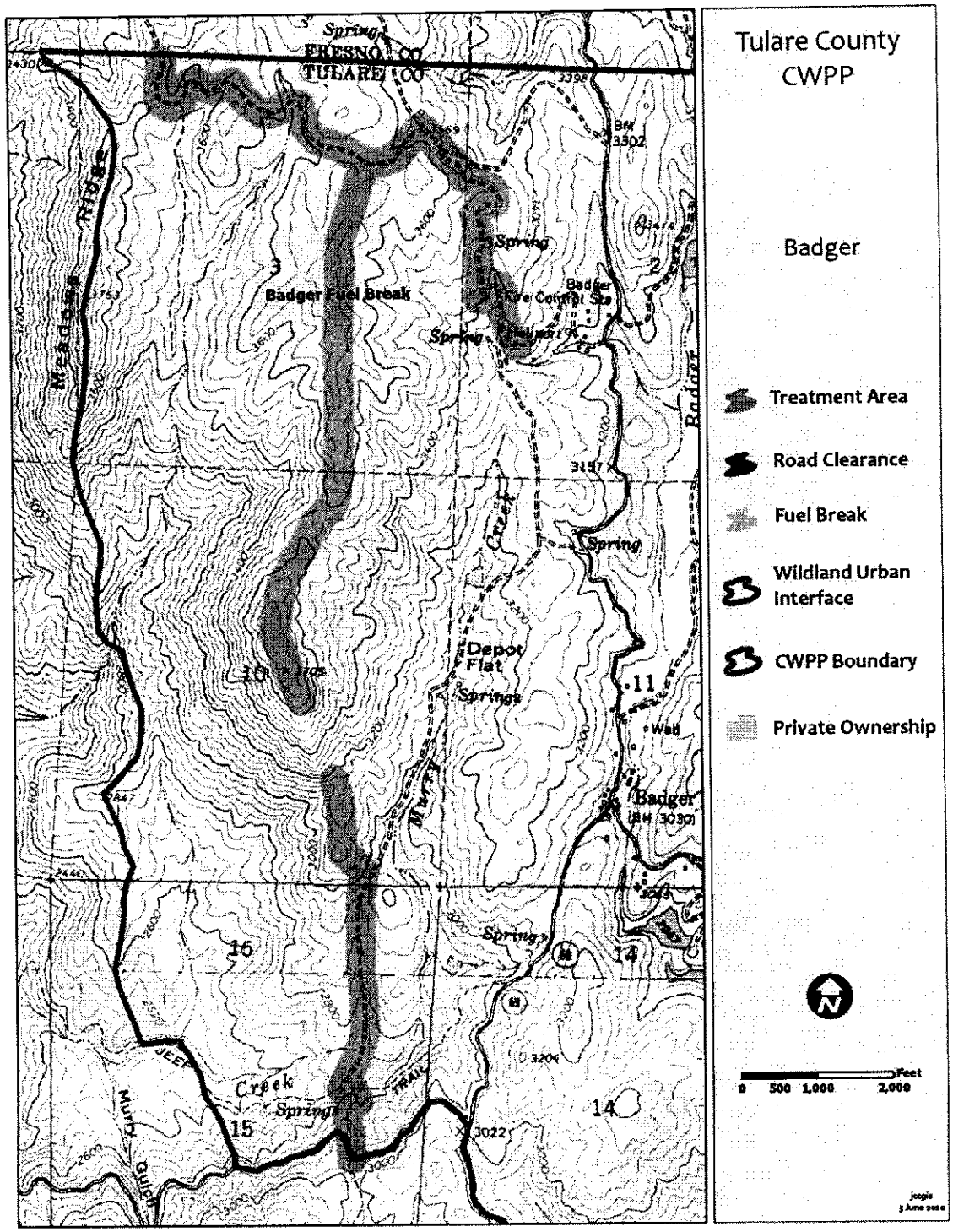
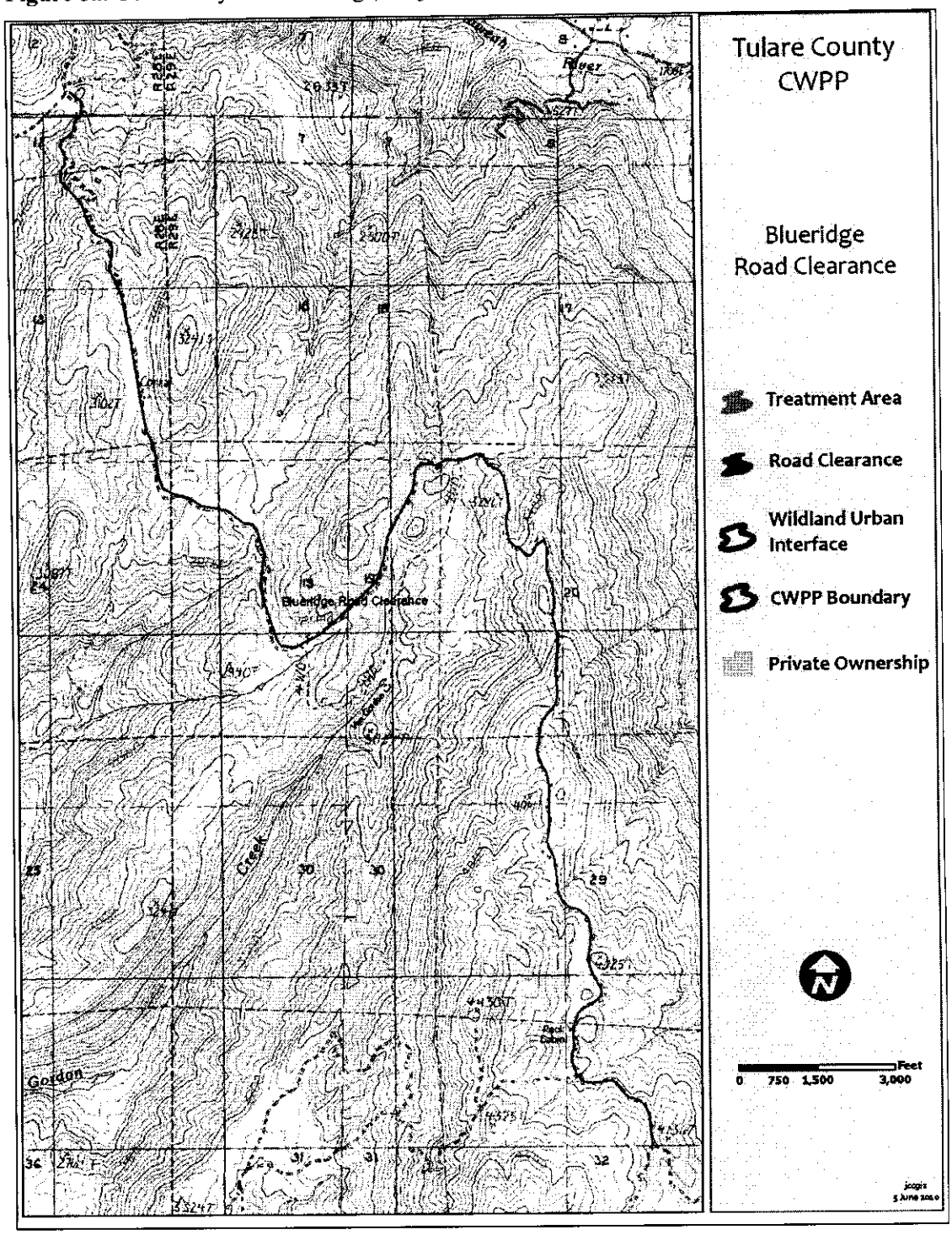


Figure 8a. Community — Blue Ridge, Project: Blue Ridge Roadside Clearance



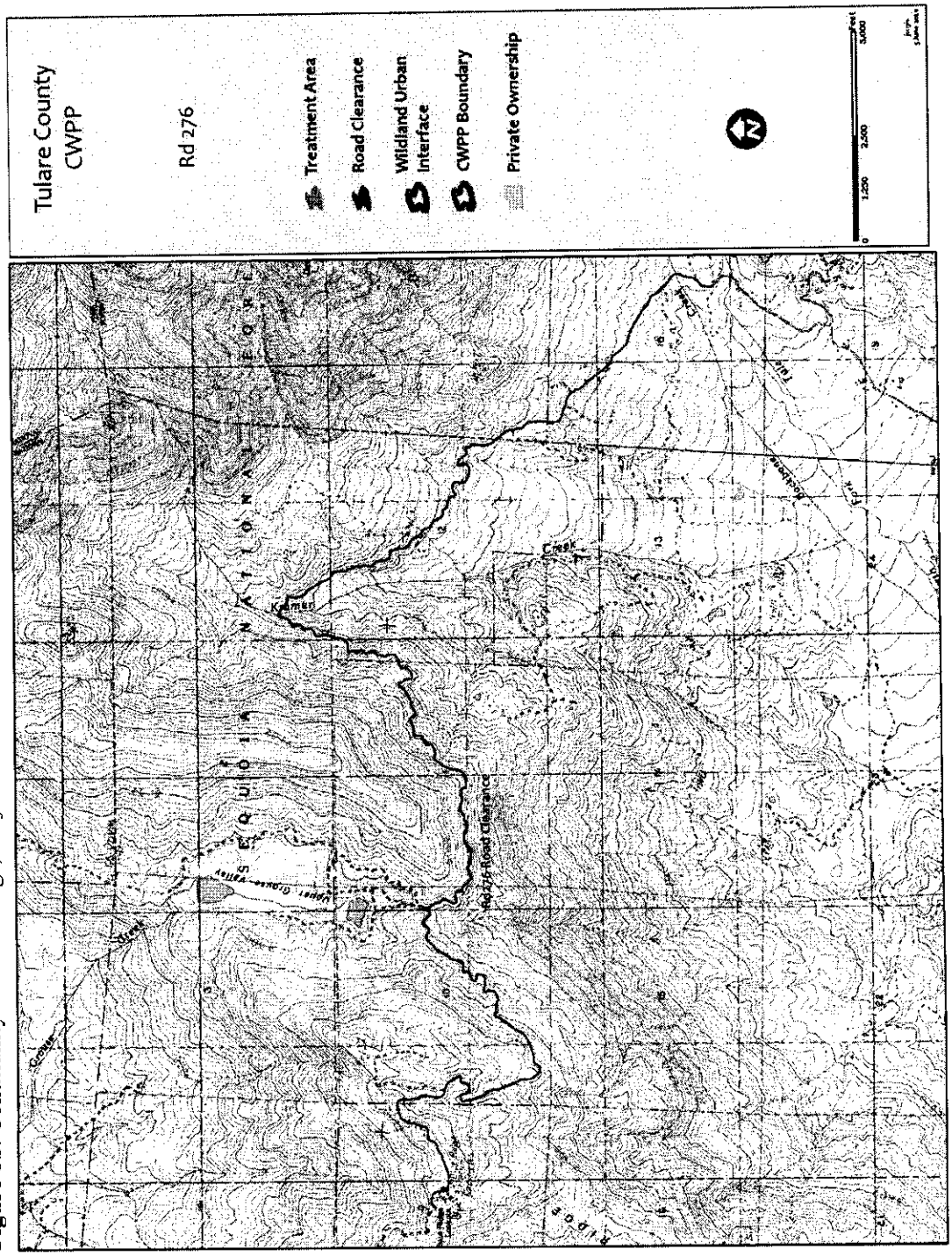


Figure 8b. Community — Blue Ridge, Project: Road 276 Roadside Clearance

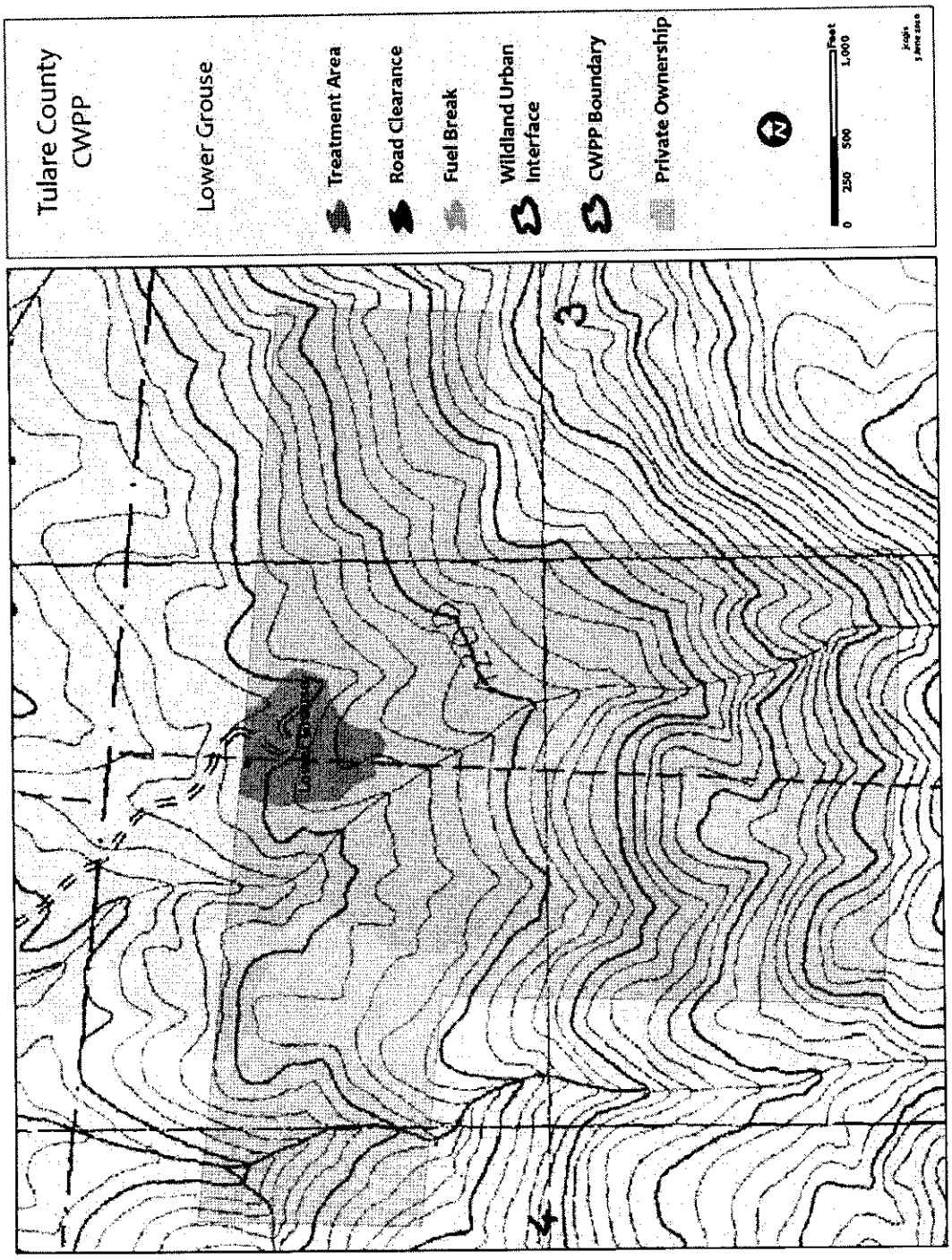


Figure 8c. Community — Blue Ridge, Project: Lower Grouse Roadside Clearance

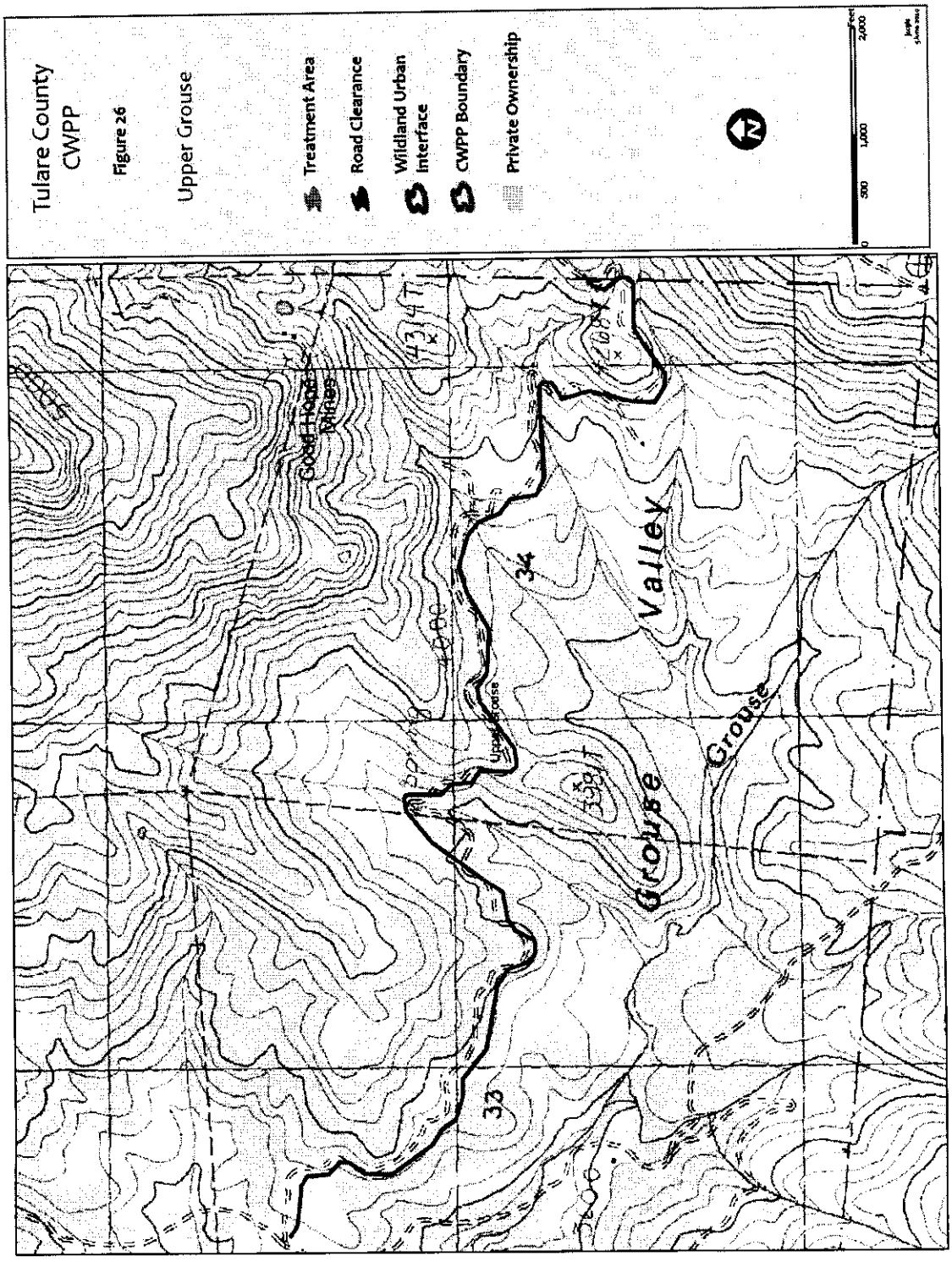


Figure 8d. Community — Blue Ridge, Project: Upper Grouse Roadside Clearance

South Half of the Tulare CWPP Area

Previous treatments in the south half (see Figure 9) are also included; however, the effectiveness of those projects is unknown and should be evaluated.

Fuel-reduction projects were identified in most communities. A larger number of projects were identified in the south half (see Table 5) because there are more communities and more private lands compared to the north half. Maps for projects in the south half (Figures 10–22) are located after all the individual project descriptions. Additional projects being developed by the Sequoia FSC are included in Appendix B.

Table 5. Summary of communities, projected fire behavior, and projects in the south half of the Tulare CWPP area

Community	Active Homeowner's Association	Community at Risk[a]	Projected Fire Behavior[b]		Project	Priority
			Percent of Area with Flame Length Less Than 4 feet	Percent of Area With Crown Fire Potential		
Alpine Village (see Figure 10)	Yes	No	81	80	Alpine Village Polygon	High
Balance Rock		No				
California Hot Springs (see Figure 11)		No	10	58	California Hot Springs Fuel Break	High
Camp Nelson (see Figures 12a, 12b, and 12c	Yes	Yes	76	22	Camp Nelson North	Moderate
					Camp Nelson South	Moderate
					Pierpoint	Moderate
					Mahogany Flat	Funded
Cedar Slope (see Figure 13)		No	86	15	Cedar Slope	
Crawford Camp (see Figure 14)		No	67	17	Crawford Camp Roadside Clearance	Low
Doyle Springs	Yes	No	40	61		
Happy Camp (see Figure 15)		No	56	44	Balch Roadside Clearance	Funded
Idlewild		No				
Johnsondale (see Figure 16)		Yes	52	24	Johnsondale Polygon	High
Panorama Heights (see Figures 17a and 17b)		No	37	46	Panorama Heights Polygon	High
			37	50	Panorama/Poso/Balance Rock Roadside Clearance	High
Pine Flat (See Appendix B)		Yes	31	45	Pine Flat Roadside Clearance	High
Ponderosa (see Figure 18)	Yes		89	8	Ponderosa 1	High
			89	8	Ponderosa 2	Moderate
			89	8	Ponderosa 3	Moderate
Posey (see Figure 19)			44	37	Posey–Sugarloaf Roadside Clearance	High
Poso Park		Yes				
Roger's Camp (see Figures 20a and 20b)	Yes	No	62	37	Roger's Camp Polygon	High
			62	37	Roger's Camp Roadside Clearance	High

Table 5. Summary of communities, projected fire behavior, and projects in the south half of the Tulare CWPP area (continued)

Community	Active Homeowner's Association	Community at Risk[a]	Projected Fire Behavior[b]		Project	Priority
			Percent of Area with Flame Length Less Than 4 feet	Percent of Area With Crown Fire Potential		
Sequoia Crest (see Figure 21)	Yes	No	68	27	Sequoia Crest South	High
			68	27	Sequoia Crest North	High
Springville		Yes	21	24		
Sugarloaf Sawmill						
Sugarloaf Mountain Park and Village (see Figures 22a and 22b)			36	70	Sugarloaf Mountain Park	High
Sugarloaf Mountain Park and Village (see Figures 22a and 22c)			36	70	Sugarloaf Mountain Village	High

Notes:
a. www.cafirealliance.org
b. Within a 0.75-mile circle of each community

COMMUNITY — ALPINE VILLAGE

The community profile and projected fire behavior are summarized in Table 5 above, and one project has been proposed for this community.

Project: Alpine Village Polygon
(see Figure 10)

- 90 acres of treatment at an estimated cost of $126,000
- Primary vegetation type: Sierran mixed-conifer
- Description: Reduce surface and ladder fuels to minimize crown fire potential. Masticate all types of vegetation and downed material on slopes less than 45 percent (80 acres). Remove conifers up to 10 inches dbh (diameter at breast height); residual trees should be spaced approximately 20 feet between the boles (tree trunks). Brush cover should be reduced by creating a mosaic of treated and untreated shrubs. Openings between shrubs should be twice the height of the shrubs, and 70–90 percent of the shrubs should be treated. The treated brush should be cut to a maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

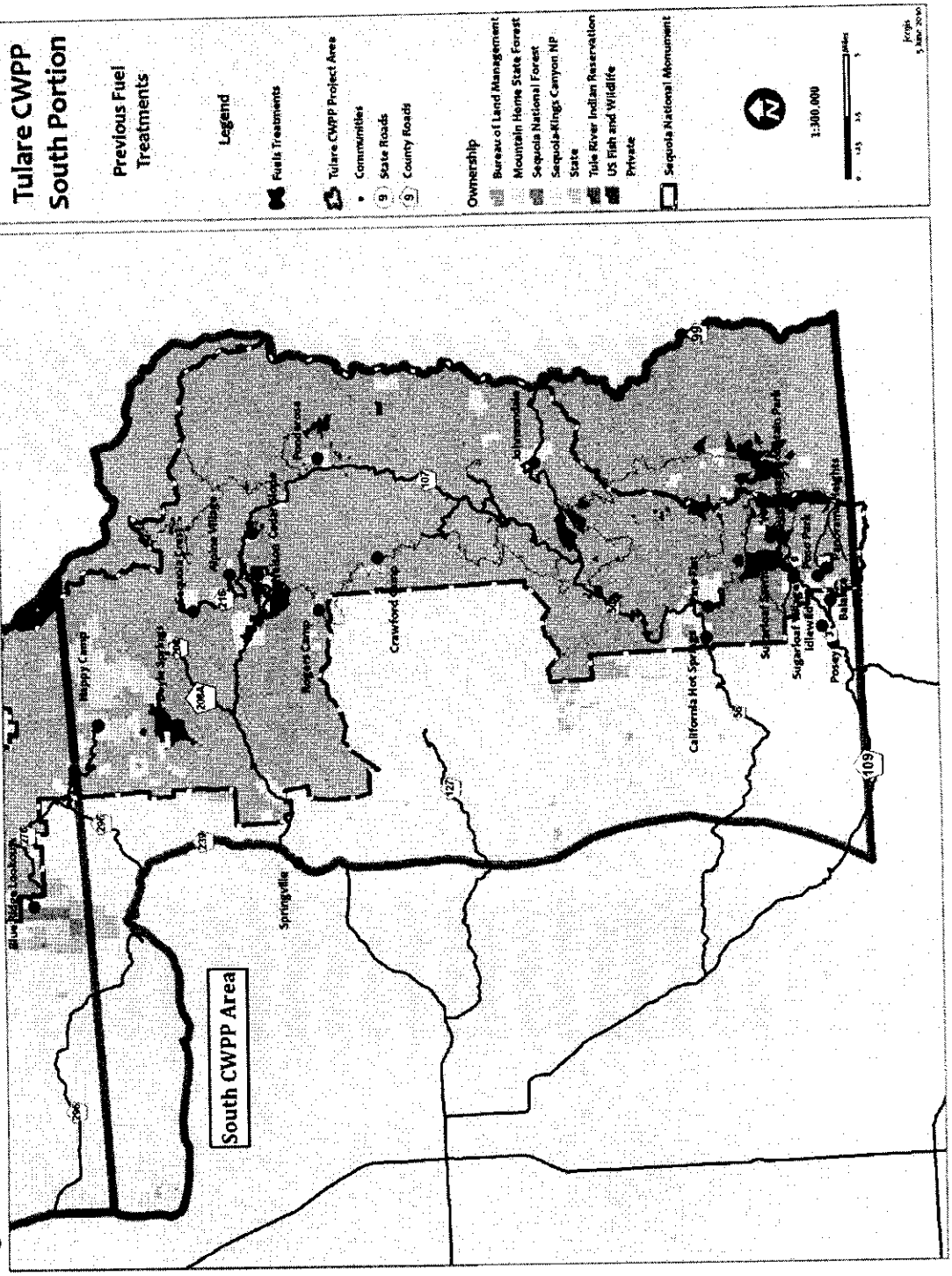


Figure 9. Fuel reduction treatments completed within the last 10 years in the south portion CWPP area

COMMUNITY — CALIFORNIA HOT SPRINGS

The community profile and projected fire behavior are summarized above in Table 5, and one project has been proposed for this community.

Project: California Hot Springs Fuel Break
(see Figure 11)

- 134 acres of treatment at an estimated cost of $188,000
- Primary vegetation type: blue oak woodland
- Description: Create a 200-foot-wide fuel break that reduces the probability of a crown fire by pruning the lower limbs of all blue oaks. Prune all lower branches less than 3 inches in diameter so they are 6–8 feet above the ground; pile and burn all cut material. All cut material, regardless of size, shall be piled for burning. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — CAMP NELSON

The community profile and projected fire behavior are summarized in Table 5, and four projects have been proposed for this community.

Project: Camp Nelson North
(see Figures 12a and 12b)

- 26 acres of treatment at an estimated cost of $37,000
- Primary vegetation type: mixed-conifer
- Description: Reduce surface, ladder, and crown fuels by thinning from below, mechanically removing conifers less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (26 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs. Openings between shrubs should be up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Camp Nelson South
(see Figures 12a and 12b)

- 47 acres of treatment at an estimated cost of $66,000
- Primary vegetation types: mixed-conifer and montane chaparral

- Description: Reduce surface, ladder, and crown fuels by thinning trees from below, mechanically removing conifers less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (47 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs. Openings between shrubs should be up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Pierpoint
(see Figures 12a and 12b)

- 13.5 acres of treatment at an estimated cost of $25,000
- Primary vegetation type: montane chaparral
- Description: Hand thin shrubs leaving a mosaic of treated and untreated shrubs. Openings between shrubs should be twice the original height of the shrubs, and up to 70–90 percent of the shrubs could be treated. Brush that is treated should be cut to the maximum of 6 inches in height. Keep 10–20 foot spacing between shrubs; pile and burn material. All cut material, regardless of size, shall be piled for burning. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

Project: Mahogany Flat
(see Figure 12c)

- 95 acres of treatment at an estimated cost of $146,000
- Primary vegetation types: montane chaparral and montane hardwood
- Description: Masticate all types of vegetation and downed material on slopes less than 45 percent (73 acres); hand thin remaining acres. For trees with multiple stems, remove stems less than 6 inches, retaining at least 50 percent of the stems. Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by creating a mosaic of treated and untreated shrubs. Openings between shrubs should be twice the original height of the shrubs, and up to 70–90 percent of the shrubs could be treated. Brush that is treated should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit

boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

COMMUNITY — CEDAR SLOPE

The community profile and projected fire behavior are summarized in Table 5, and one project has been proposed for this community.

Project: Cedar Slope
(see Figure 13)

- 31 acres of treatment at an estimated cost of $44,000
- Primary vegetation type: mixed-conifer
- Description: Thin trees from below, mechanically removing conifers less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (28 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs. Openings between shrubs should be up to three times the original height of the shrubs. Brush that is treated should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

COMMUNITY — CRAWFORD CAMP

The community profile and projected fire behavior are summarized in Table 5, and one project has been proposed for this community.

Project: Crawford Camp Roadside Clearance
(see Figure 14)

- 67 acres of treatment at an estimated cost of $126,500
- Primary vegetation types: mixed-conifer and montane chaparral
- Description: Reduce surface and ladder fuels to modify fire behavior and to create an evacuation route. Reduce fuels with hand tools within 20 feet of the road. Remove conifers less than 6 inches dbh so the boles are 10–20 feet apart. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — HAPPY CAMP

The community profile and projected fire behavior are summarized in Table 5, and one project has been proposed for this community.

Project: Balch Roadside Clearance
(see Figure 15)

- 22 acres of treatment at an estimated cost of $43,000
- Primary vegetation type: mixed-conifer
- Description: Reduce surface and ladder fuels to modify fire behavior and to create an evacuation route. Reduce fuels with hand tools within 20 feet of the road. Remove conifers less than 6 inches dbh so the boles are 10–20 feet apart. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — JOHNSONDALE

The community profile and projected fire behavior are summarized in Table 5, and one project has been proposed for this community.

Project: Johnsondale Polygon
(see Figure 16)

- 157 acres of treatment at an estimated cost of $220,000
- Primary vegetation types: mixed-conifer and montane chaparral
- Description: Reduce surface, ladder, and crown fuels by thinning from below, mechanically removing conifers less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (157 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs. Openings between shrubs should be up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

COMMUNITY — PANORAMA HEIGHTS

The community profile and projected fire behavior are summarized in Table 5, and two projects have been proposed for this community.

Project: Panorama Heights Polygon
(see Figures 17a and 17b)

- 29 acres of treatment at an estimated cost of $40,700
- Primary vegetation types: montane hardwood
- Description: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (29 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Panorama/Poso/Balance Rock Roadside Clearance
(see Figures 17a and 17b)

- 33 acres of treatment at an estimated cost of $66,000
- Primary vegetation types: montane hardwood and conifer forest
- Description: Reduce surface and ladder fuels to modify fire behavior and to create an evacuation route. Reduce fuels with hand tools within 20 feet of the road. Remove conifers less than 6 inches dbh so the boles are 10–20 feet apart. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — PINE FLAT

(see Appendix B)

COMMUNITY — PONDEROSA

The community profile and projected fire behavior are summarized in Table 5, and three projects have been proposed for this community.

Project: Ponderosa 1
(see Figure 18)

- 15 acres of treatment at an estimated cost of $21,000
- Primary vegetation types: mixed-conifer and lodgepole pine
- Description: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (15 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Ponderosa 2
(see Figure 18)

- 13 acres of treatment at an estimated cost of $18,000
- Primary vegetation types: mixed-conifer and lodgepole pine
- Description: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (13 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Ponderosa 3
(see Figure 18)

- 47 acres of treatment at an estimated cost of $66,300
- Primary vegetation types: mixed-conifer and lodgepole pine
- Description: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent. Trees should

be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

COMMUNITY — POSEY

The community profile and projected fire behavior are summarized in Table 5, and one project has been proposed for this community.

Project: Posey–Sugarloaf Roadside Clearance
(see Figure 19)

- 18 acres of treatment at an estimated cost of $36,500
- Primary vegetation types: Blue oak woodland and ponderosa/Jeffrey pine
- Description: Reduce surface and ladder fuels to modify fire behavior and to create an evacuation route. Reduce fuels with hand tools within 20 feet of the road. Remove conifers less than 6 inches dbh so the boles are 10–20 feet apart. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — ROGER'S CAMP

The community profile and projected fire behavior are summarized in Table 5, and two projects have been proposed for this community.

Project: Roger's Camp Polygon
(see Figure 20a)

- Acres: 57 acres of treatment at an estimated cost of $80,700
- Primary vegetation types: mixed-conifer and lodgepole pine
- Description: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (52 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be

cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Roger's Camp Roadside Clearance
(see Figure 20b)

- 31 acres of treatment at an estimated cost of $63,100
- Primary vegetation types: mixed-conifer and montane hardwood
- Description: Reduce surface and ladder fuels to modify fire behavior and to create an evacuation route. Reduce fuels with hand tools within 20 feet of the road. Remove conifers less than 6 inches dbh so the boles are 10–20 feet apart. Thin hardwoods by removing stems less than 4 inches in diameter so the boles are spaced 10–20 feet. Remove larger pieces of trees as fire wood. Create a mosaic of treated and untreated shrubs by removing shrubs so spacing of residual plants is twice their original height. Chip all slash and scatter or pile and burn along the road. Piles will be constructed no taller than 5 feet and placed away from trees to prevent damage when burning.

COMMUNITY — SEQUOIA CREST (ALDER SPRINGS)

The community profile and projected fire behavior are summarized in Table 5, and two projects have been proposed for this community.

Project: Sequoia Crest South
(see Figure 21)

- 250 acres of treatment at an estimated cost of $348,000
- Primary vegetation type: mixed-conifer
- Description: Reduce surface and ladder fuels to minimize crown fire potential. Masticate all types of vegetation and downed material on slopes less than 45 percent (233 acres). Remove conifers up to 10 inches dbh; residual trees should be spaced approximately 20 feet between the boles. Brush cover should be reduced by creating a mosaic of treated and untreated shrubs. Openings between shrubs should be twice the height of the shrubs and 70–90 percent of the shrubs should be treated. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Sequoia Crest North
(see Figure 21)

- 22 acres of treatment at an estimated cost of $31,000
- Primary vegetation type: mixed-conifer
- Description: Reduce surface and ladder fuels to minimize crown fire potential. Masticate all types of vegetation and downed material on slopes less than 45 percent (22 acres). Remove conifers up to 10 inches dbh; residual trees should be spaced approximately 20 feet between the boles. Brush cover should be reduced by creating a mosaic of treated and untreated shrubs. Openings between shrubs should be twice the height of the shrubs and 70–90 percent of the shrubs should be treated. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

COMMUNITY — SUGARLOAF MOUNTAIN PARK (PARK AND VILLAGE)

The community profile and projected fire behavior are summarized in Table 5, and two projects have been proposed for this community.

Project: Sugarloaf Mountain Park
(see Figures 22a and 22b)

- 20 acres of treatment at an estimated cost of $27,200
- Primary vegetation type: mixed-conifer
- Description: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (9.5 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

Project: Sugarloaf Mountain Village
(see Figures 22a and 22c)

- 114 acres of treatment at an estimated cost of $160,000

- Primary vegetation type: mixed-conifer
- Prescription: Reduce surface, ladder, and crown fuels to modify fire behavior within a community by mechanically removing trees less than 10 inches dbh. Masticate all types of vegetation and downed material on slopes less than 45 percent (114 acres). Trees should be spaced approximately 20 feet between the tree trunks. Brush cover should be reduced by removing up to 70 percent of shrubs so openings between shrubs are up to three times the original height of the shrubs. Treated brush should be cut to the maximum of 6 inches in height. No individual pieces of cut material shall be greater than 3 feet long. All masticated stumps shall be cut to within 6 inches of the ground. No debris shall average more than 4 inches in depth over the entire project area. All cut vegetation will be kept within the unit boundaries. Retain all downed material greater than 10 inches in diameter at the large end.

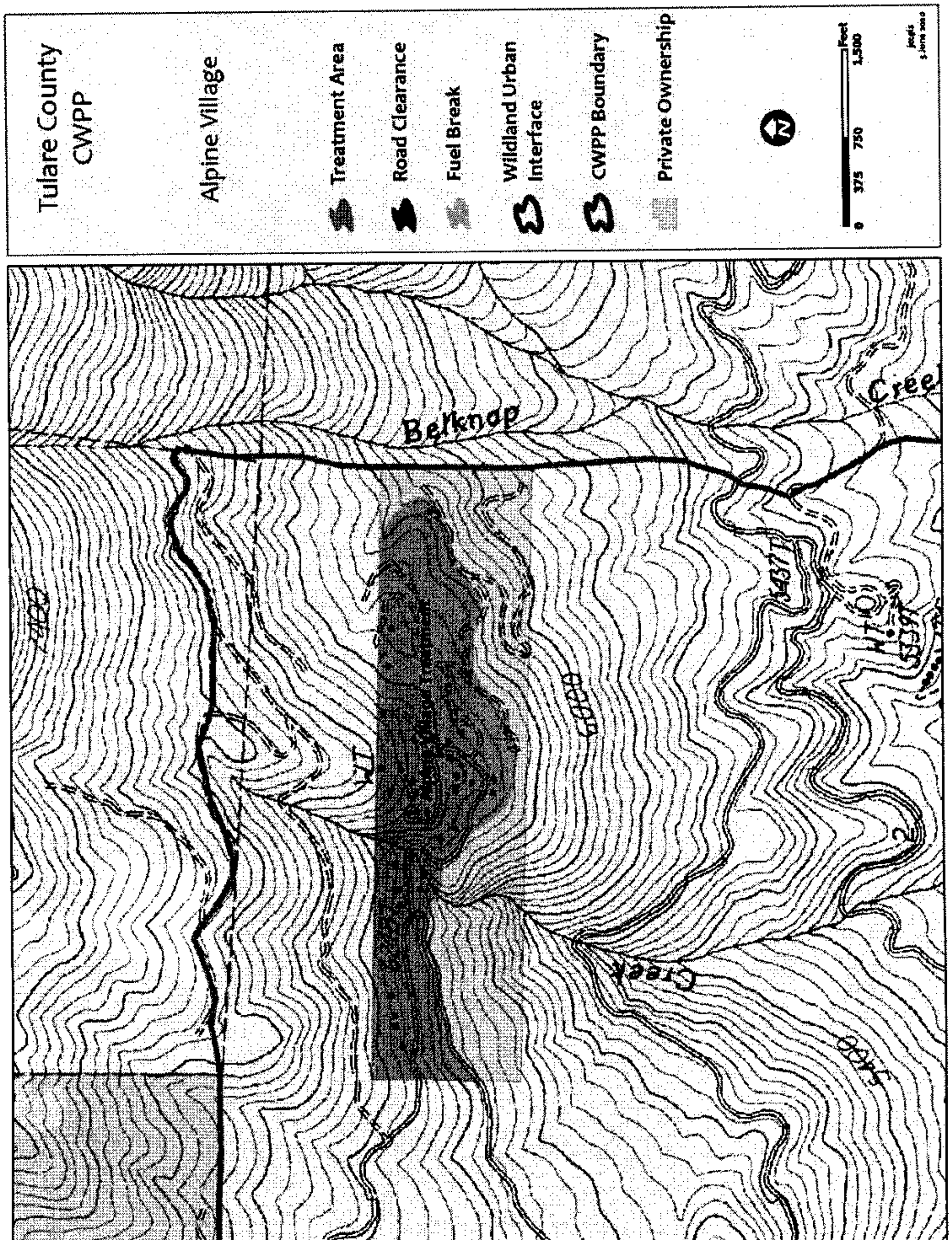


Figure 10. Community — Alpine Village. Project: Alpine Village

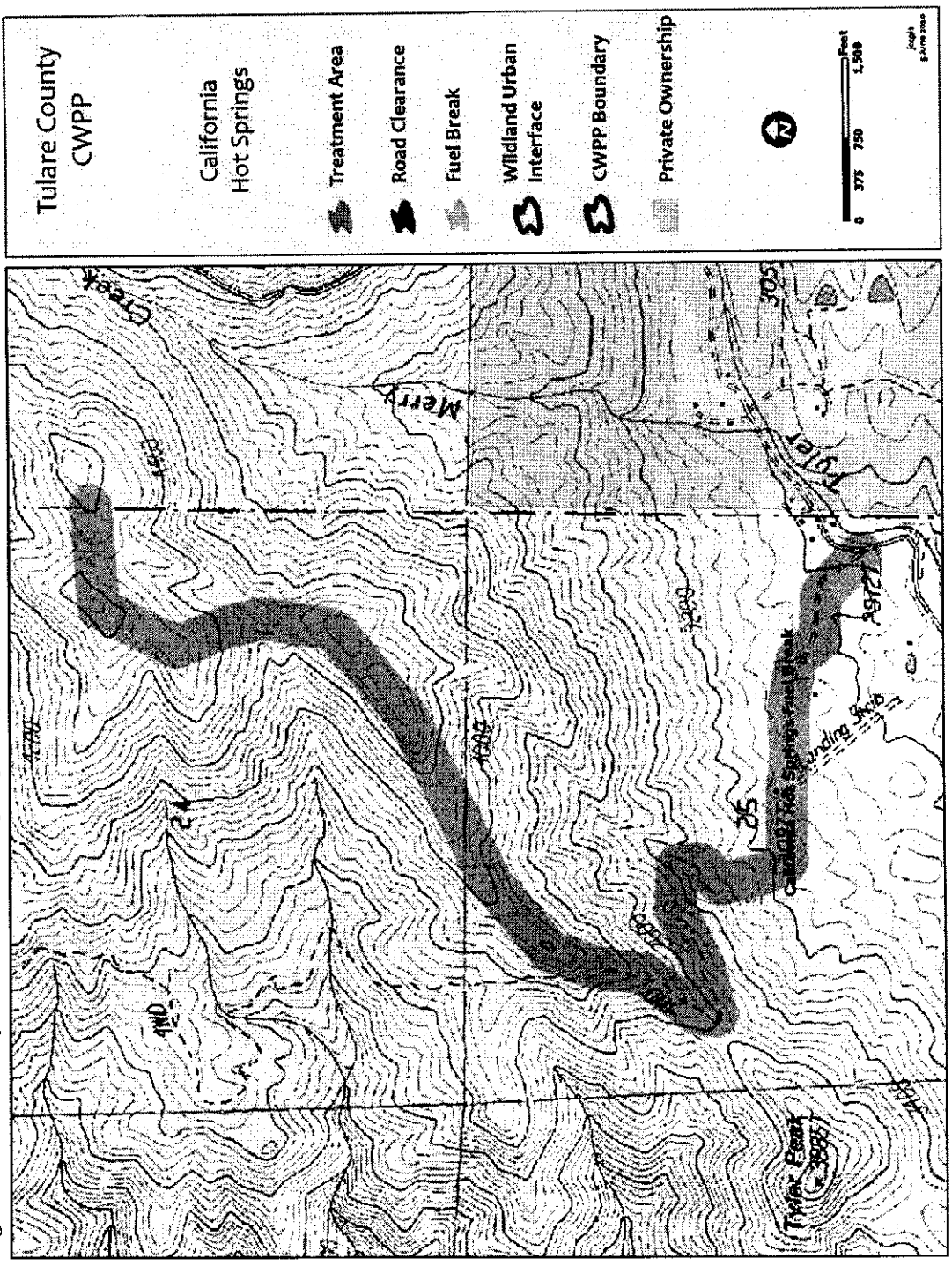


Figure 11. Community — California Hot Springs, Project: California Hot Springs Fuel Break

Figure 12a. Community — Camp Nelson, Project: Camp Nelson WUI

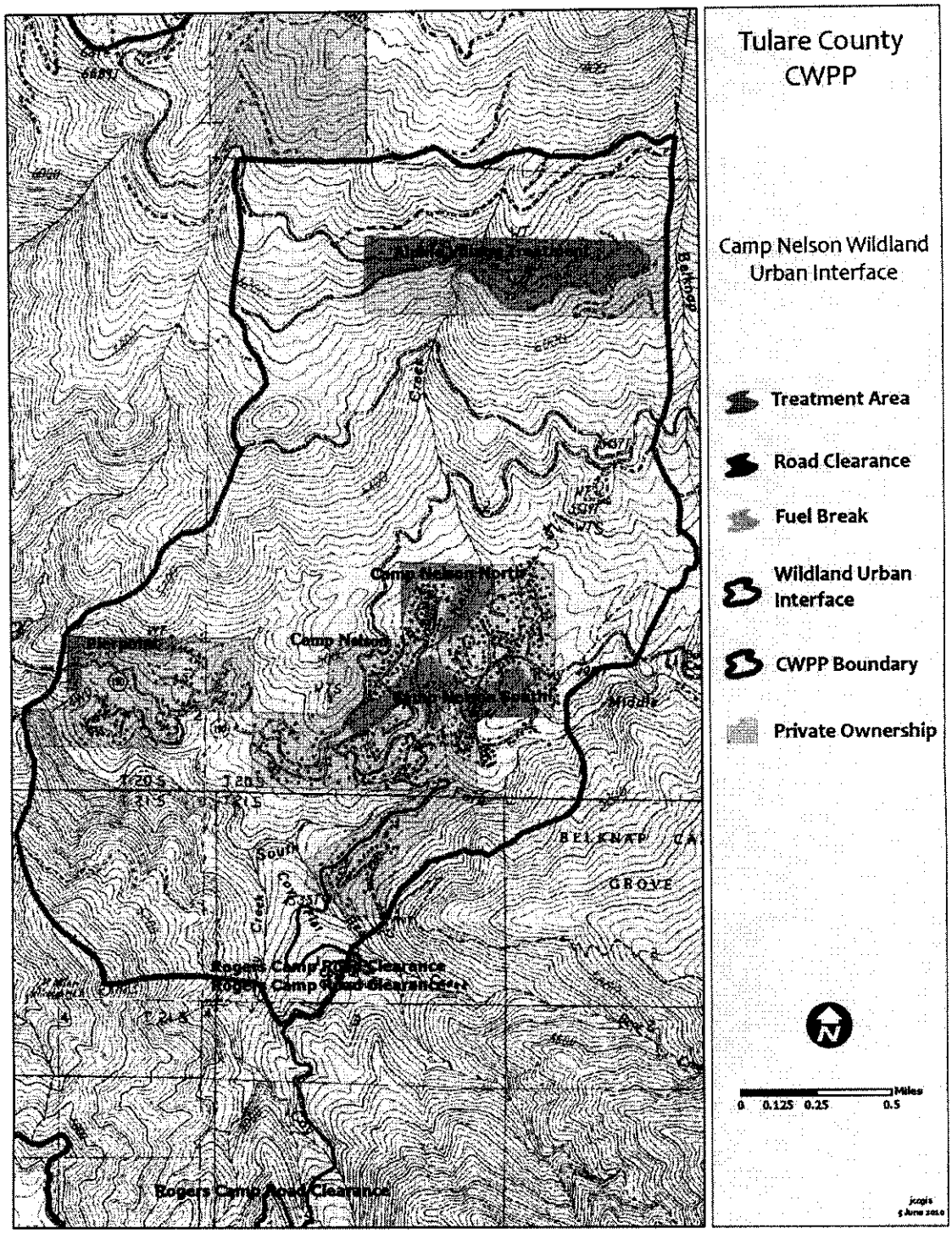
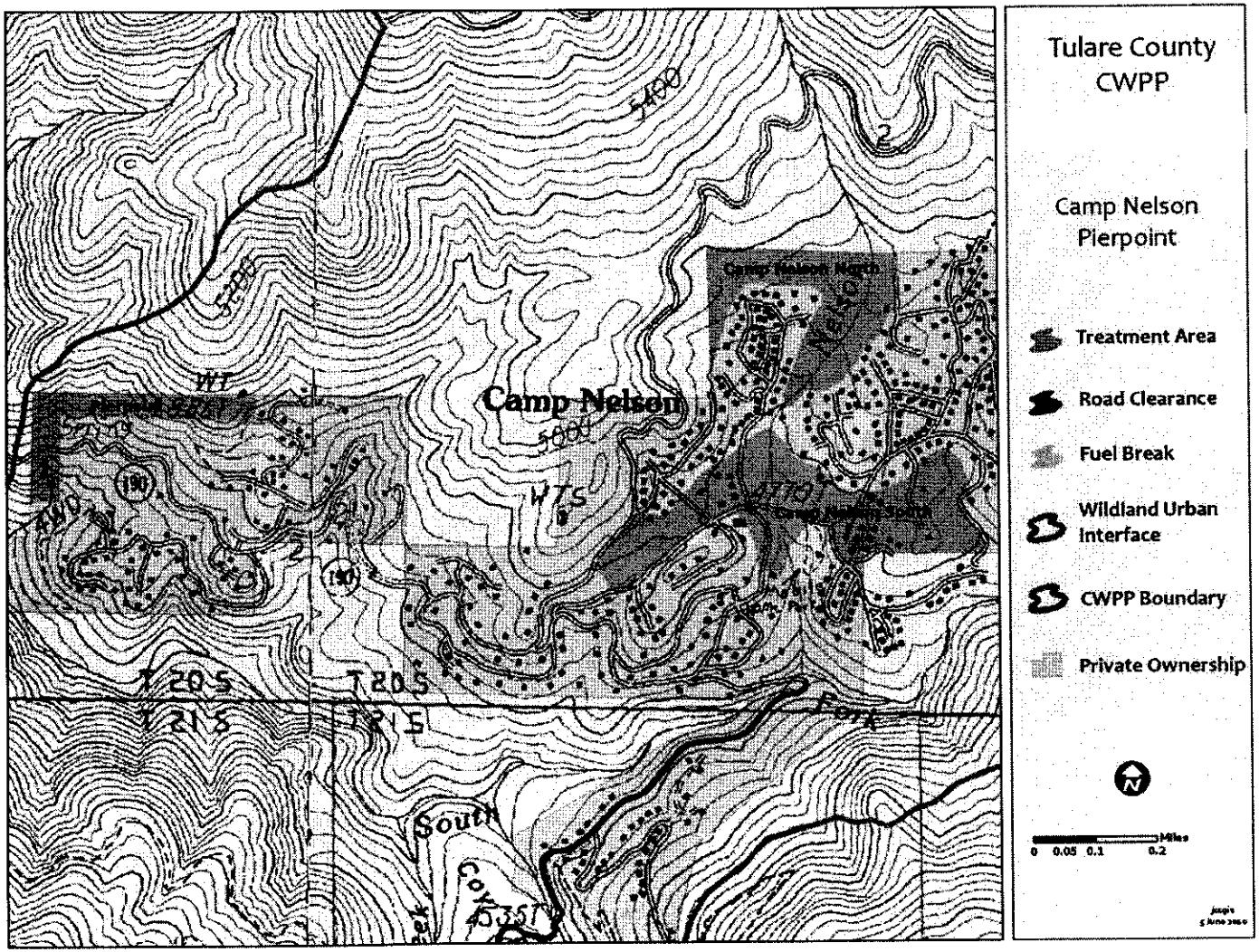


Figure 12b. Community — Camp Nelson, Projects: Camp Nelson North, Camp Nelson South, and Pierpoint



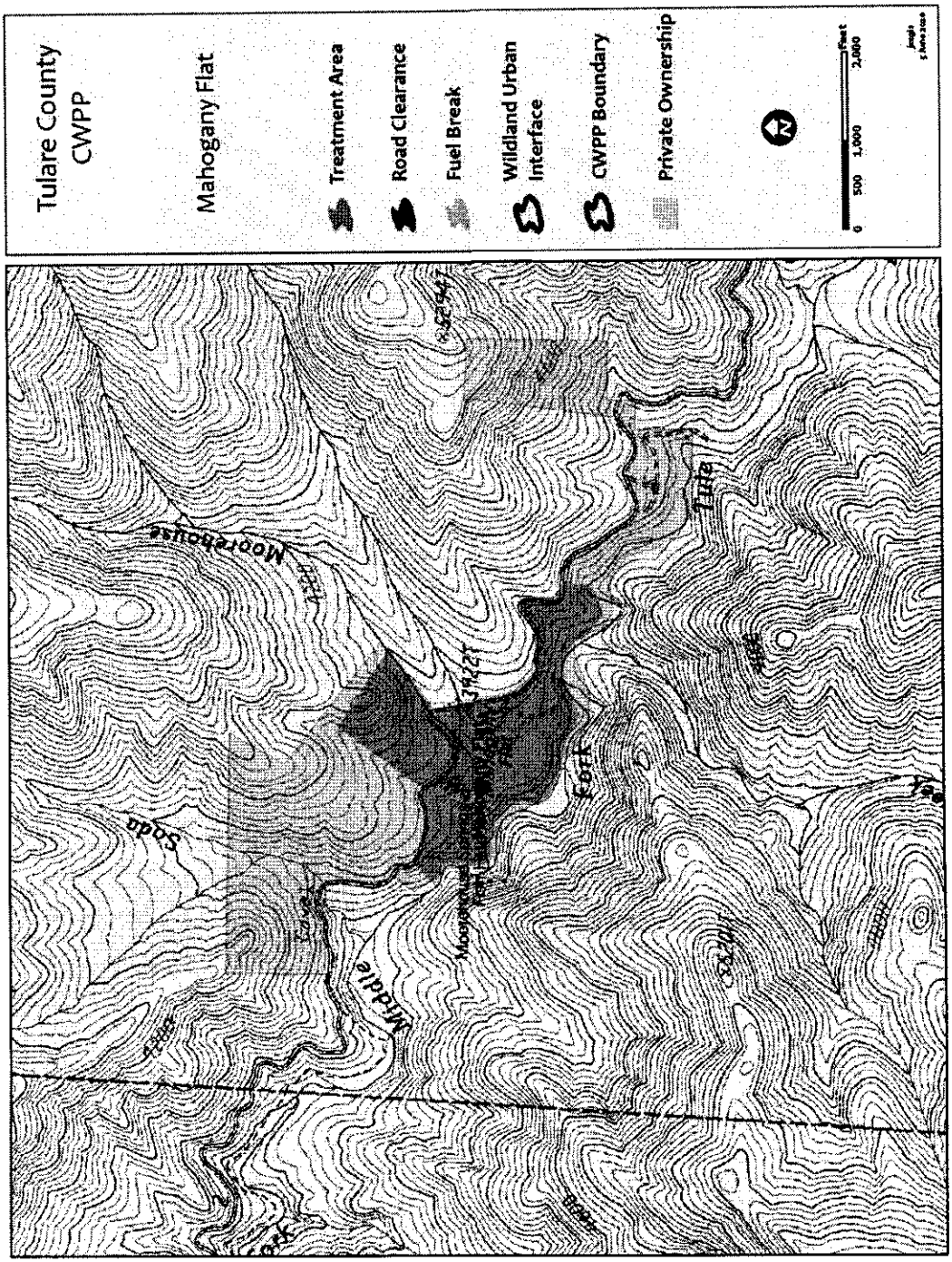


Figure 12c. Community — Camp Nelson, Project: Mahogany Flat

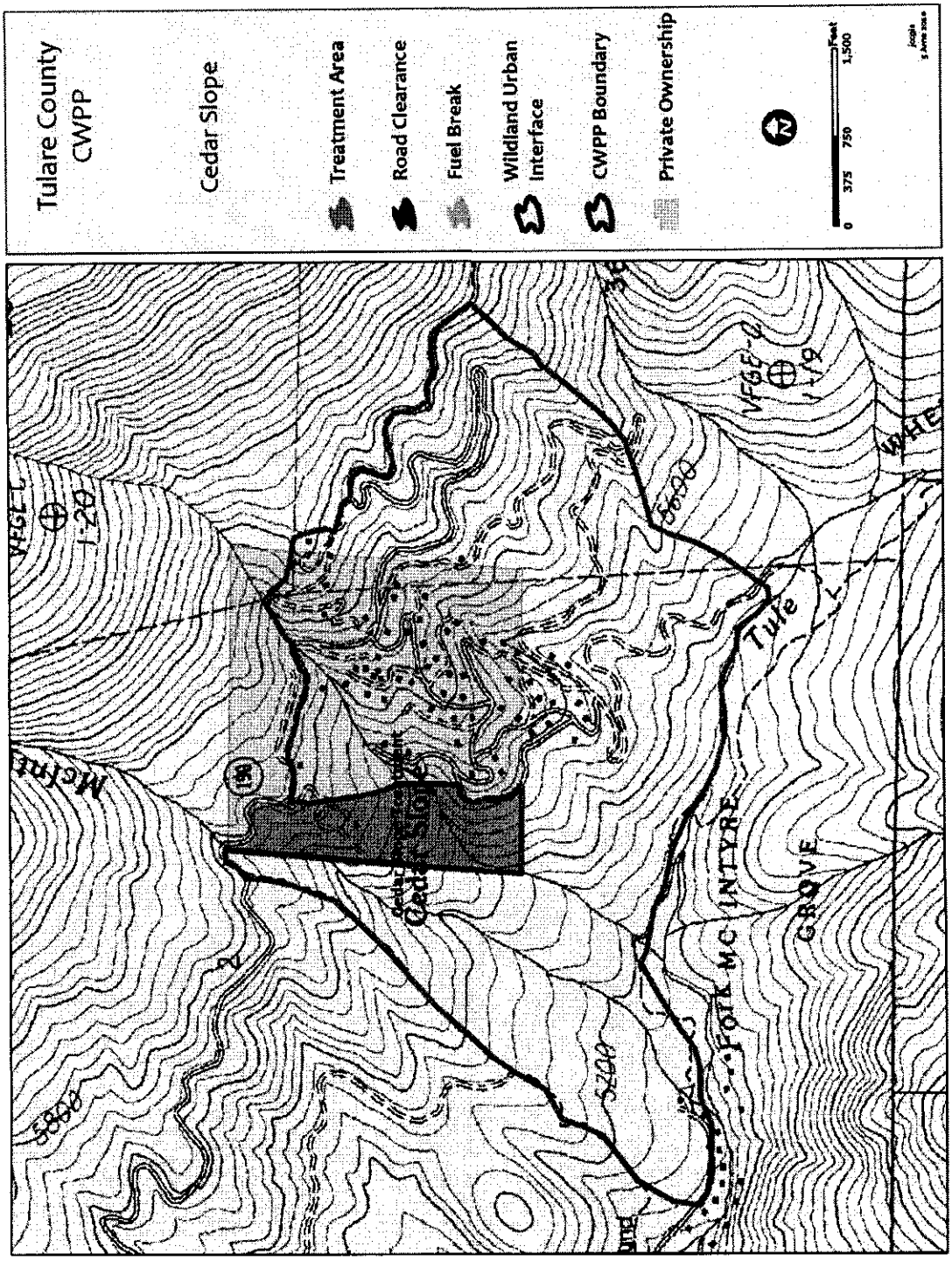
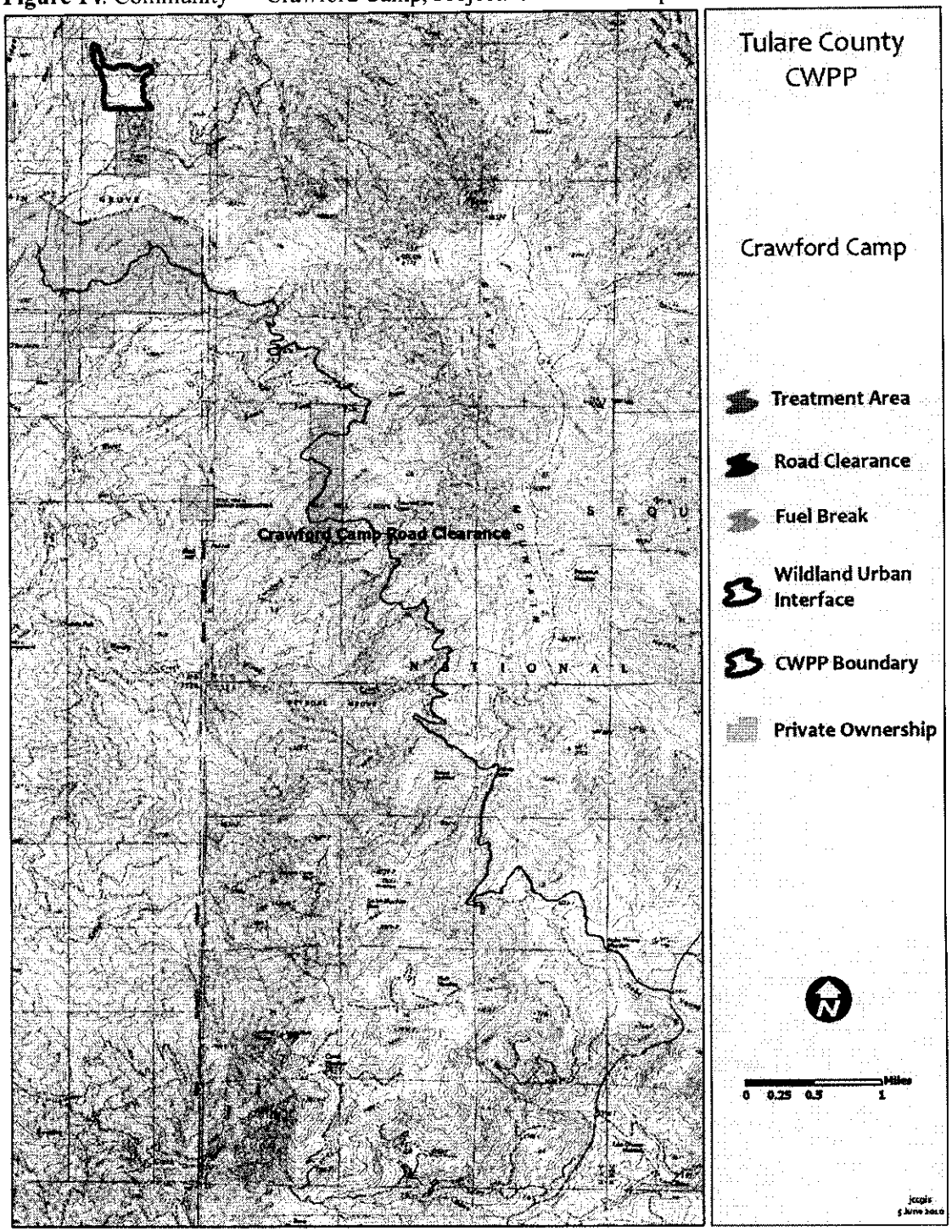


Figure 13. Community — Cedar Slop, Project: Cedar Slope

Figure 14. Community — Crawford Camp, Project: Crawford Camp Roadside Clearance



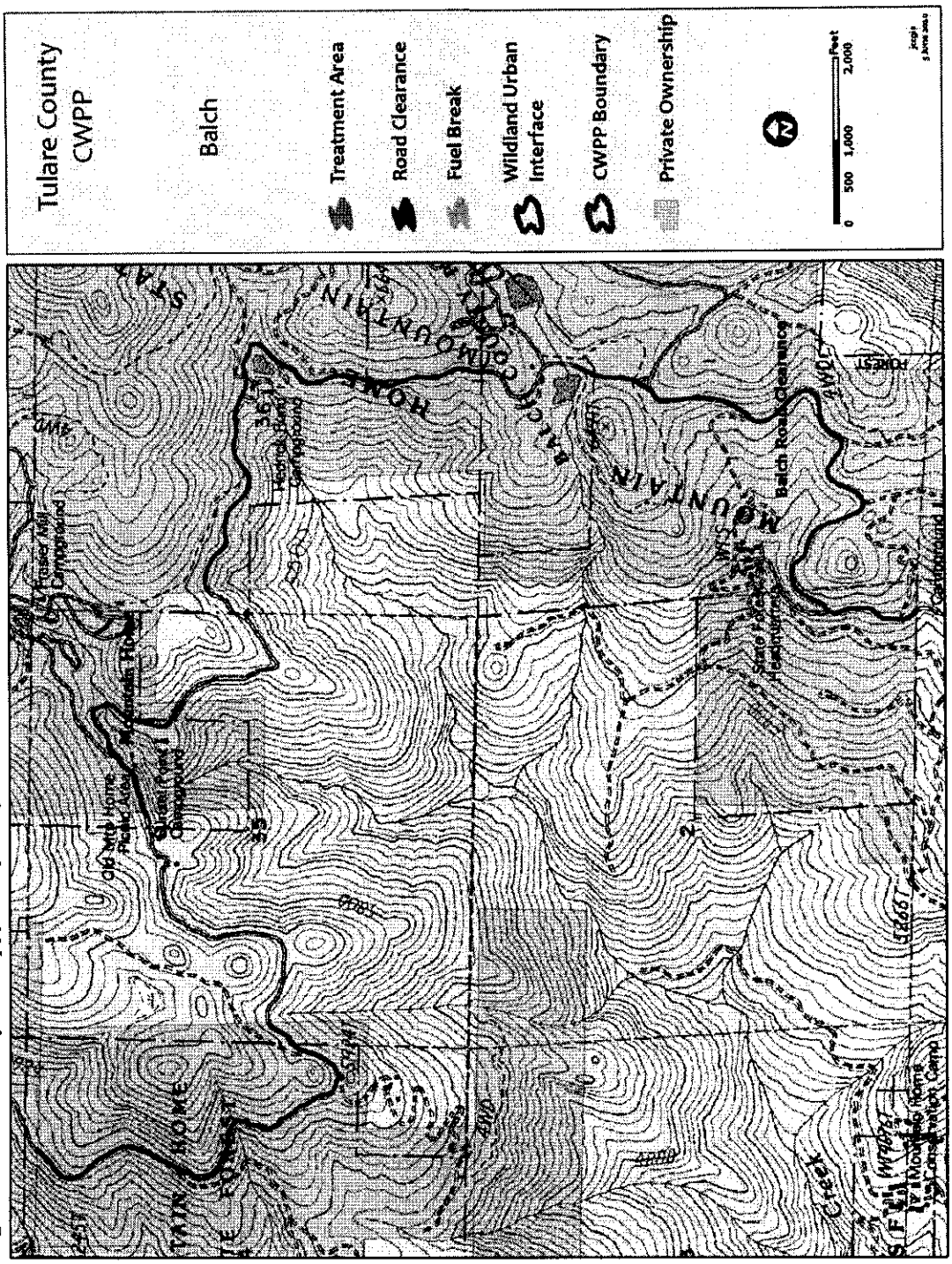


Figure 15. Community — Happy Camp, Project: Balch Roadside Clearance

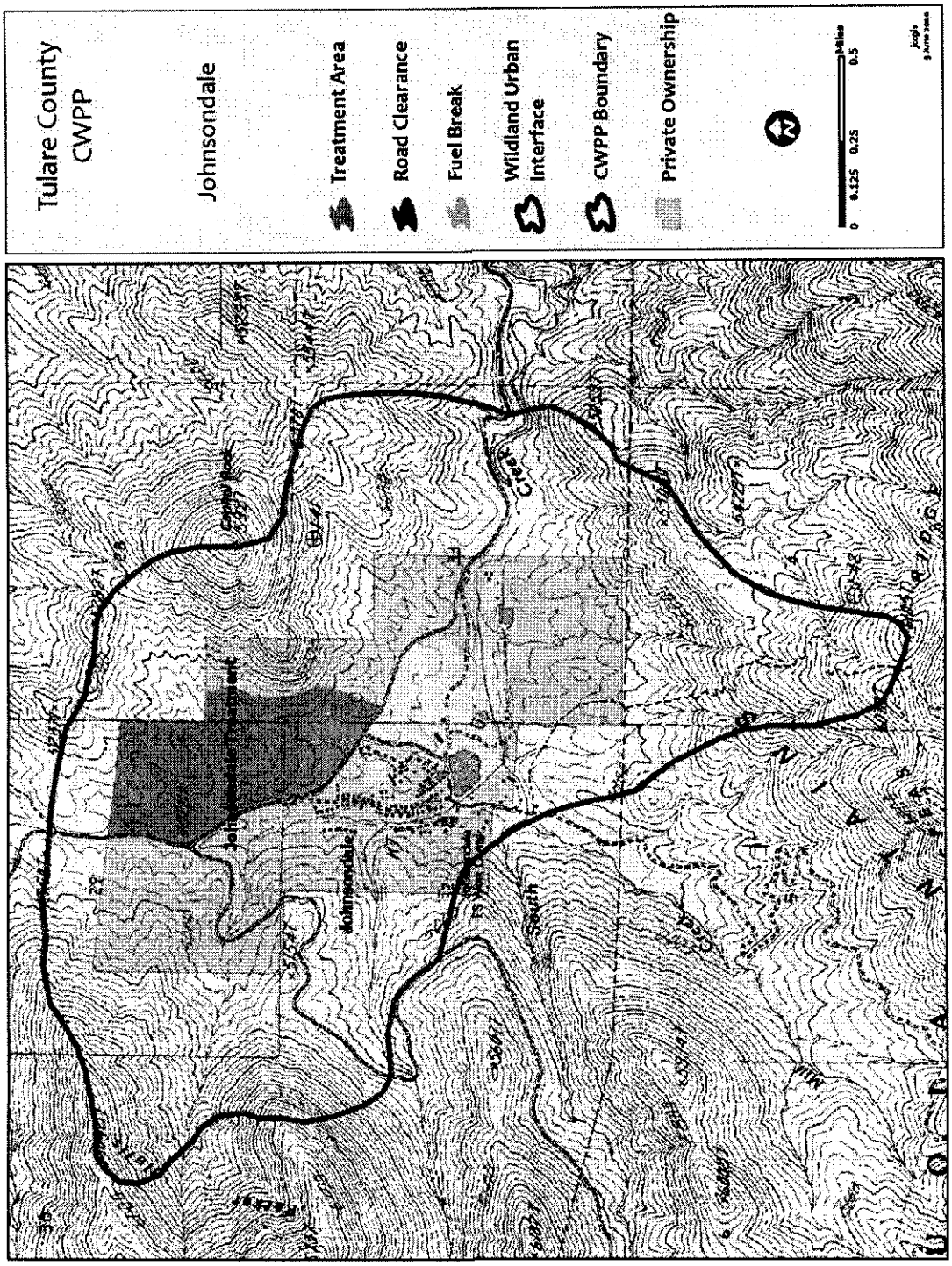


Figure 16. Community — Johnsondale, Project: Johnsondale

Figure 17a. Community — Panorama Heights, Project: Panorama–Poso Park WUI

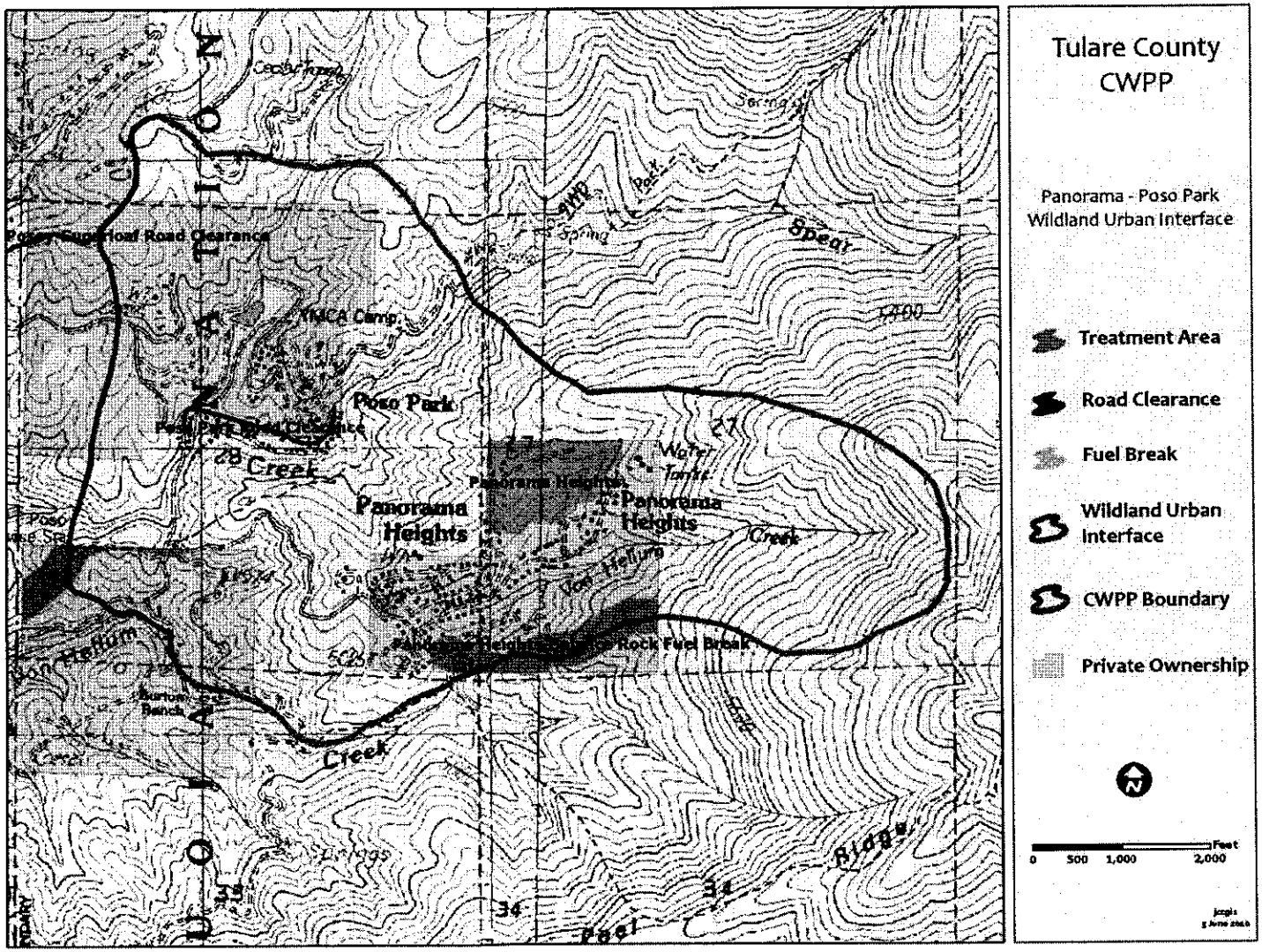


Figure 17b. Community — Panorama Heights, Project: Panorama Heights Polygon

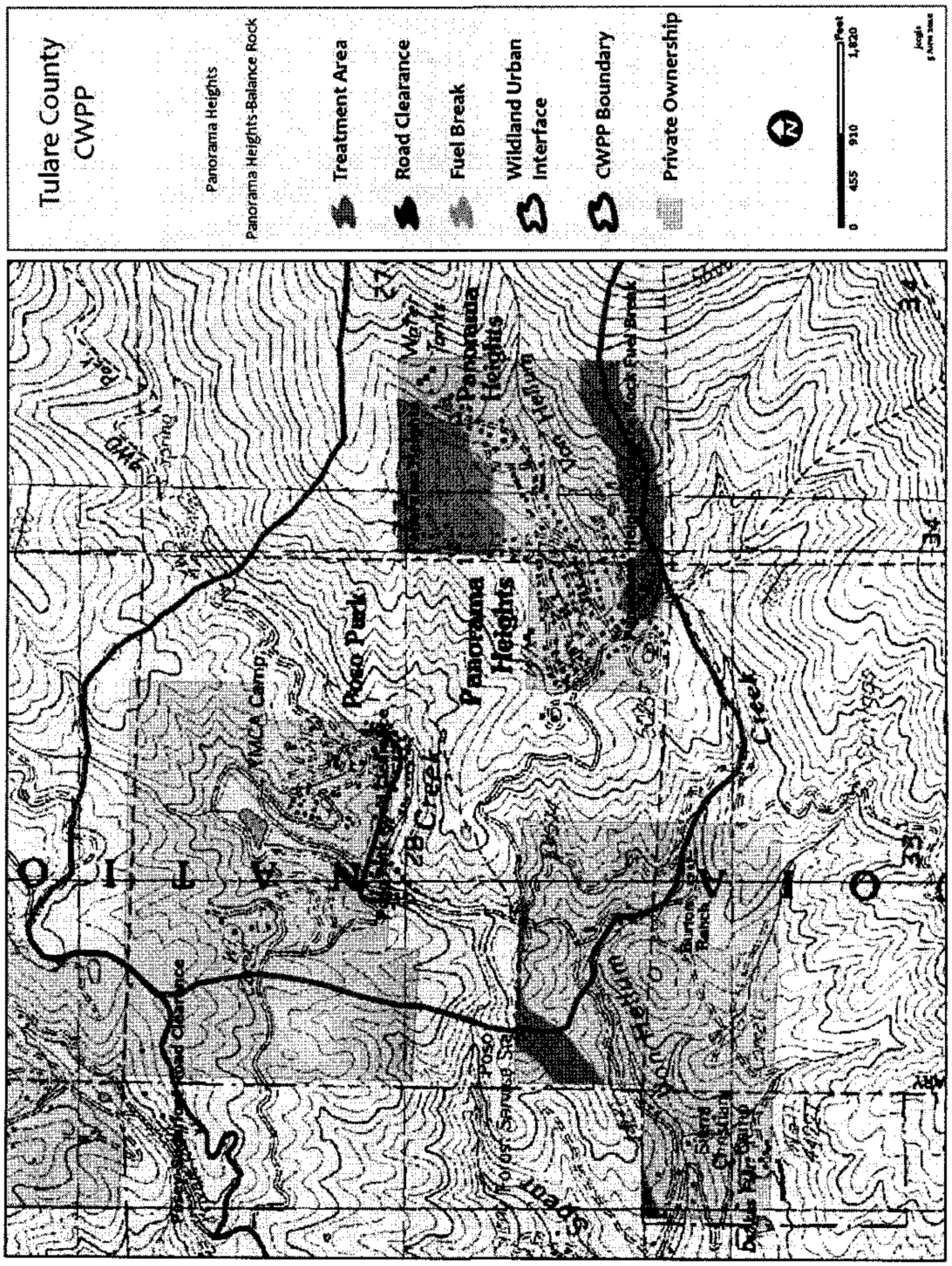
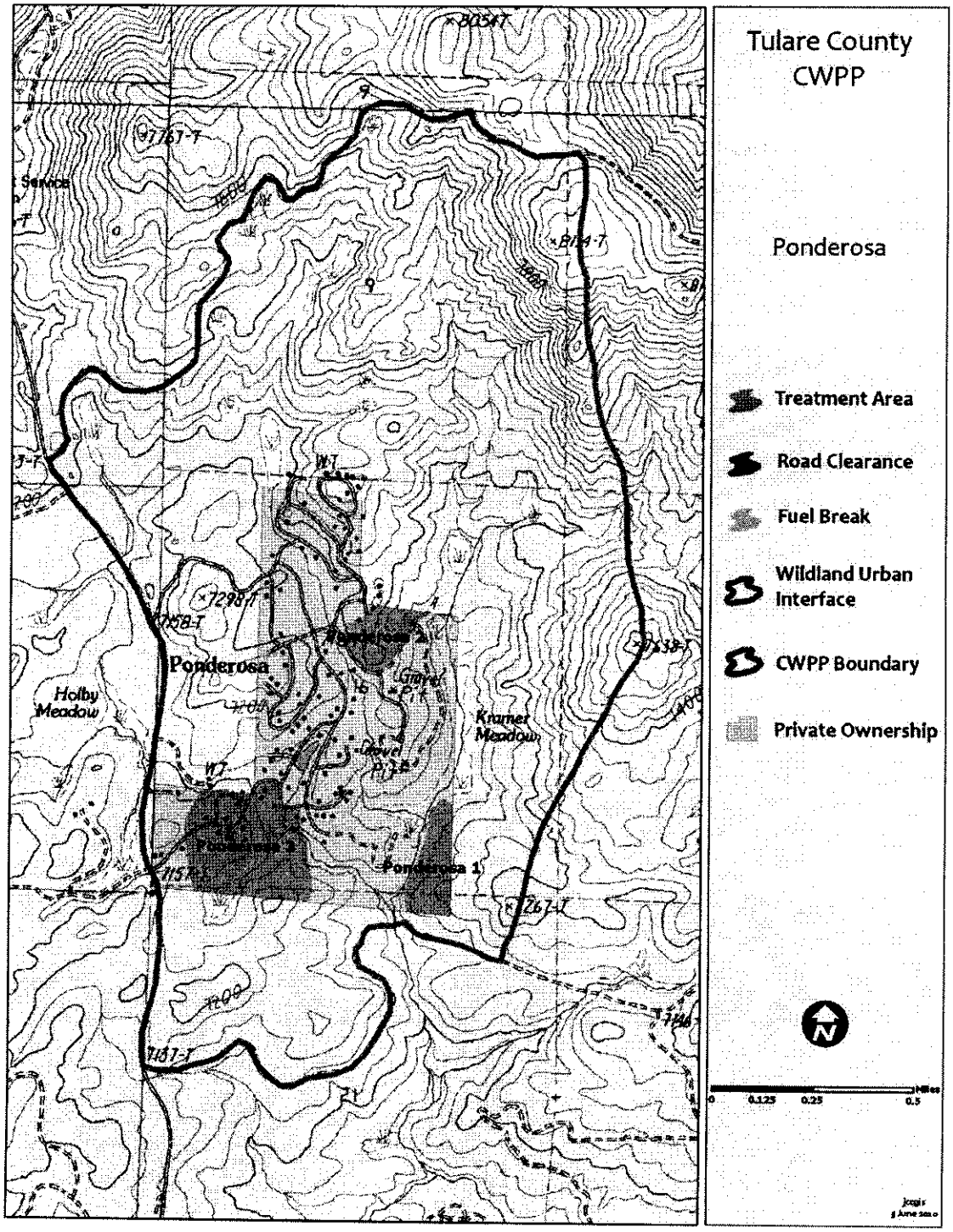


Figure 18. Community — Ponderosa, Projects: Ponderosa 1, Ponderosa 2, and Ponderosa 3



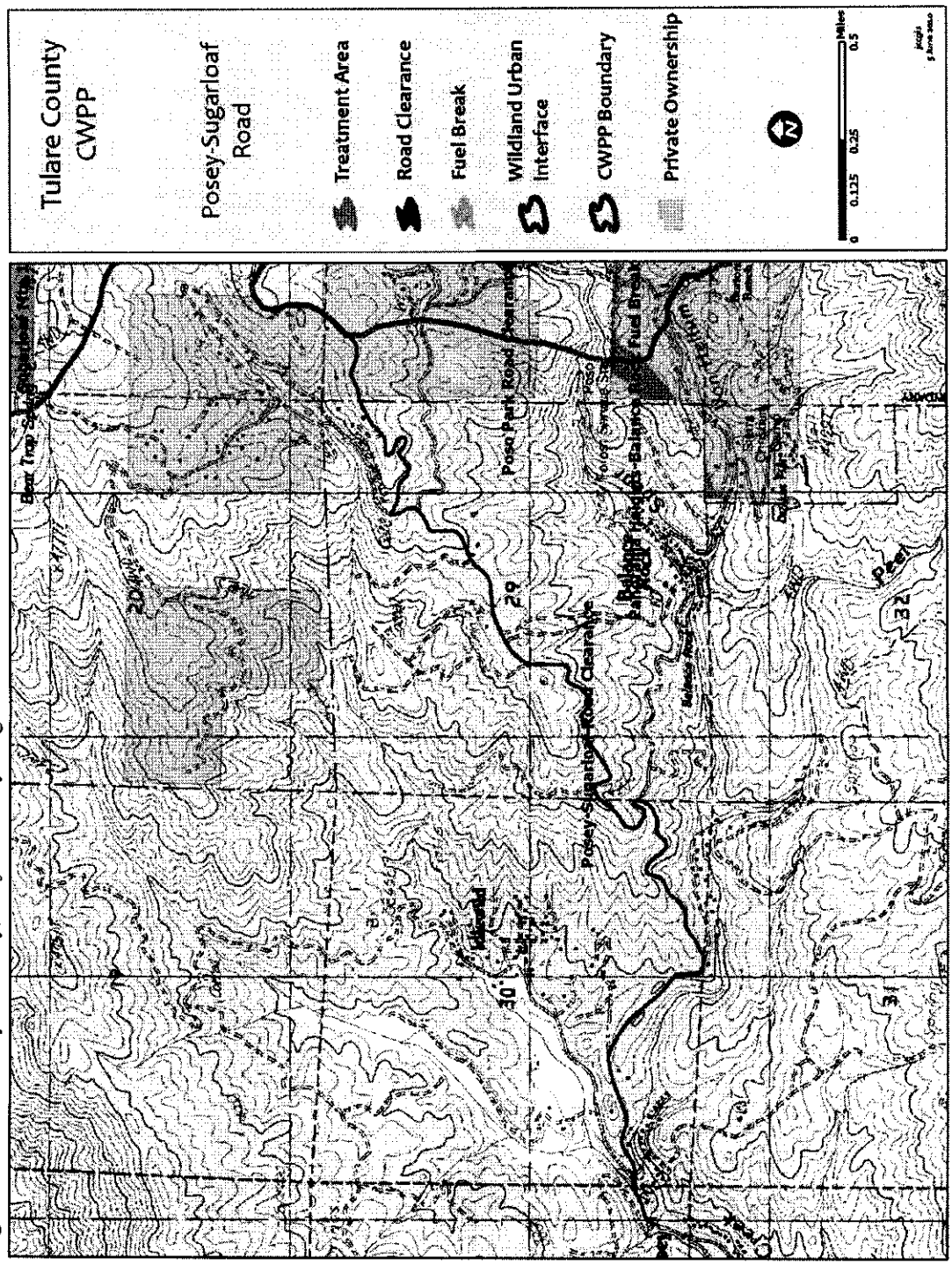


Figure 19. Community — Posey, Project: Posey-Sugarloaf Roadside Clearance

Figure 20a. Community — Roger's Camp, Project: Roger's Camp Polygon

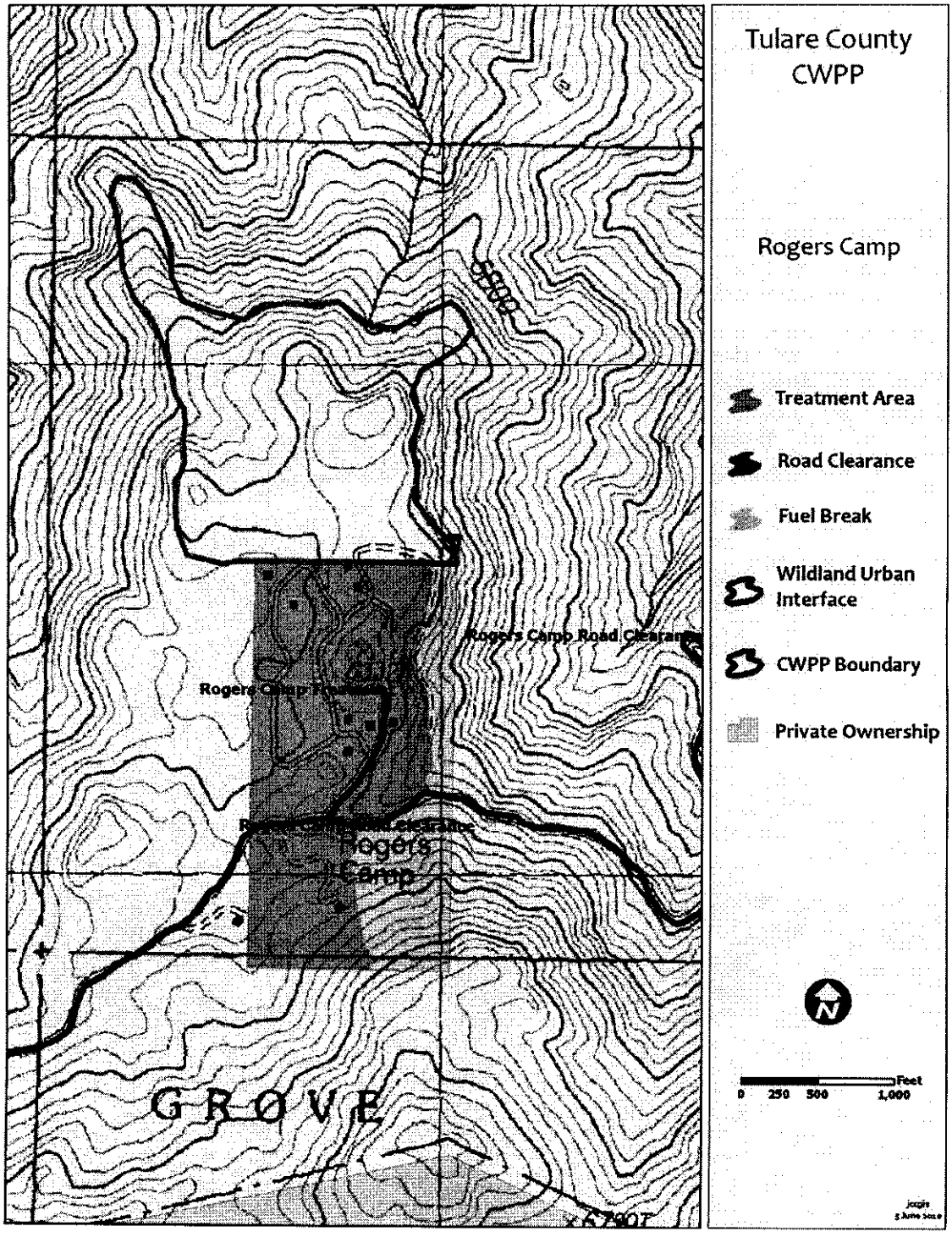
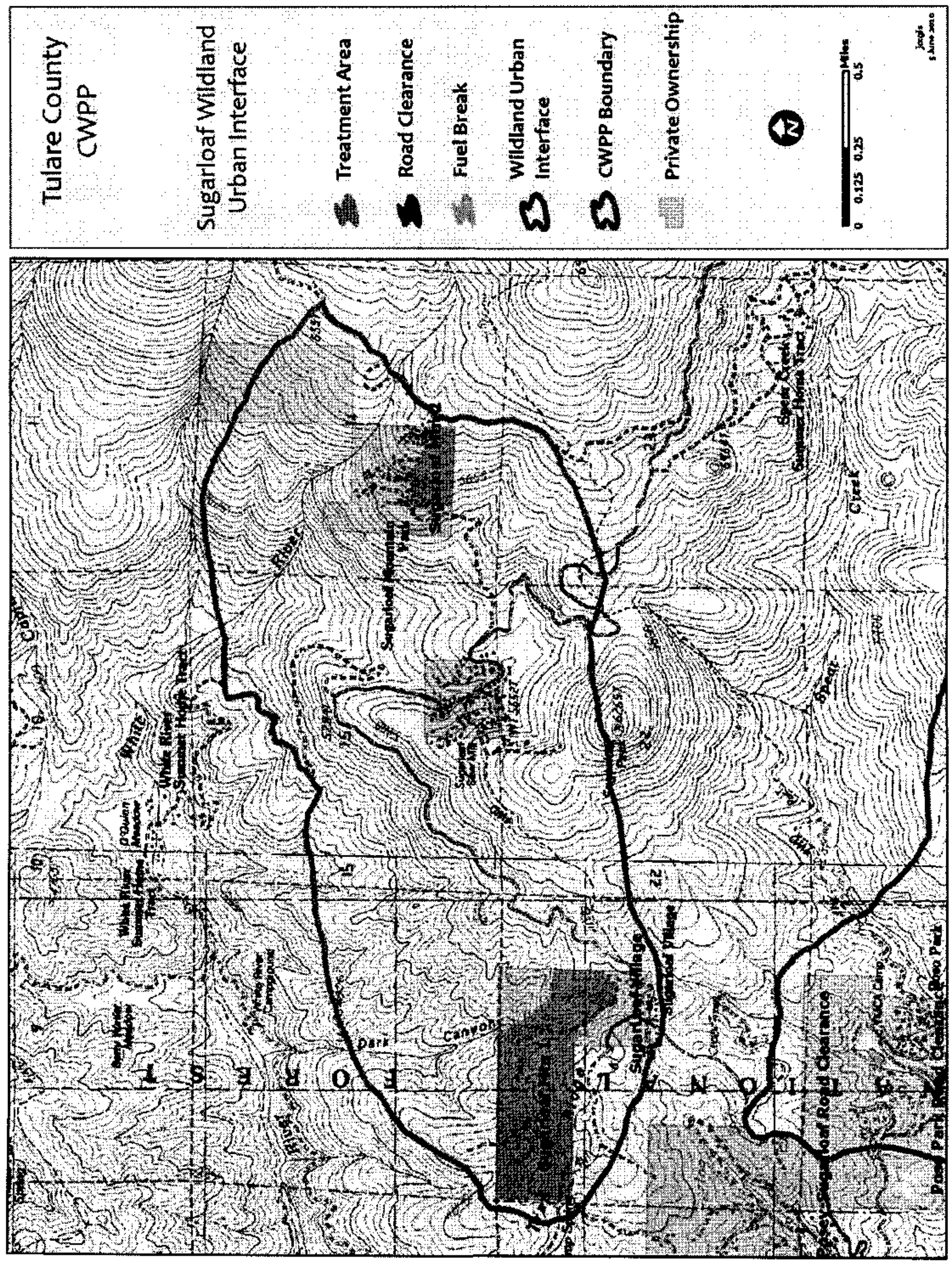


Figure 20b. Community — Roger's Camp, Projects: Roger's Camp Roadside Clearance

Figure 21. Community — Sequoia Crest, Projects: Sequoia Crest South and Sequoia Crest North

Figure 22a. Community — Sugarloaf Mountain Park (Park and Village), Project: Sugarloaf WUI



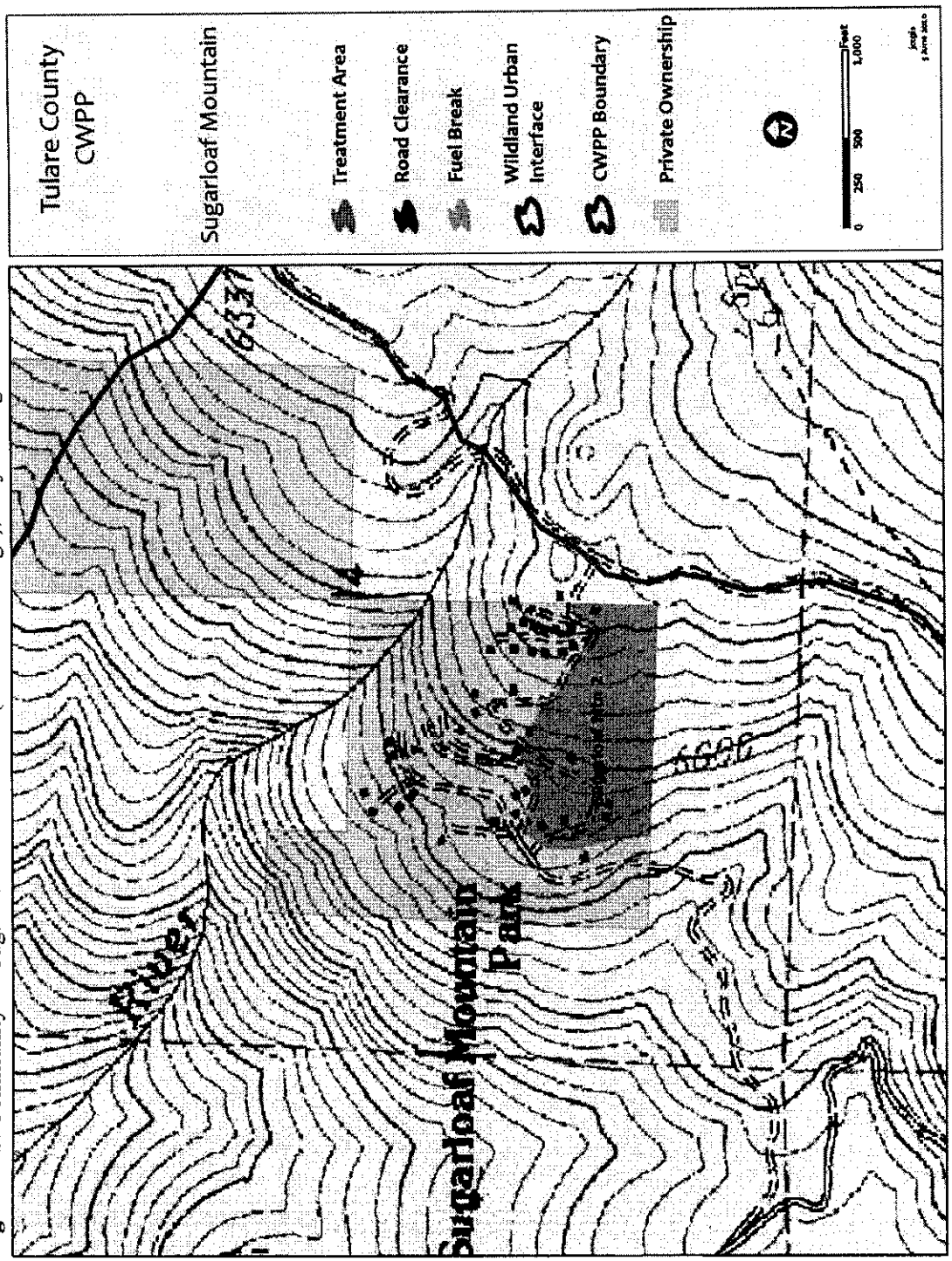


Figure 22b. Community — Sugarloaf Mountain Park (Park and Village), Project: Sugarloaf Mountain Park

Figure 22c. Community — Sugarloaf Mountain Park (Park and Village), Project: Sugarloaf Mountain Village

SECTION 6. LITERATURE CITED

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SECTION 7. PREPARERS AND CONTRIBUTORS

Preparers

The following individuals were responsible for preparing this CWPP:

- Steve Holl, Steve Holl Consulting
- Barry Callenberger, Wildland Rx
- Jim Crane, Jim Crane Consulting
- Susan Hale, Project Support Services
- DD Wildland Consulting

Collaborators

Numerous collaboration meetings were held with agency representatives and stakeholders to obtain and exchange information, discuss issues and opportunities for projects and for public education. The meetings were held in Porterville, Visalia, and Springville at CAL FIRE, SQF, and county offices. Representatives from the Sequoia FSC and Tulare County RCD also met with local stakeholders and agencies to identify and discuss potential projects and review future needs. A meeting was also held in Porterville to review and comment on the draft CWPP. Comments were received from the following:

Comments were received from the following:

- Bureau of Land Management, Bakersfield District
- CAL FIRE
- Camp Nelson Fire Safe Council
- Sequoia and Kings Canyon National Parks
- Sequoia Fire Safe Council
- Sequoia National Forest

- Sierra Forest Products
- Sierra Nevada Conservancy
- Tulare County Fire Department
- Tulare County Resource Conservation District
- Tule River Indian Reservation
- Upper Tule Fire Safe Council
- U.S. Fish and Wildlife Service

APPENDIX A

Estimated Acres Burned Annually
Prior to European Settlement in the Tulare CWPP Area

APPENDIX A

Estimated Acres Burned Annually
Prior to European Settlement in the Tulare CWPP Area

Acres of vegetation types were obtained from the CWHR database. The revised acres in Table A-1 resulted from combining vegetation types with similar ecological requirements and fire regimes. The Fire Return Interval (FRI) data were obtained from the referenced sources. The CWHR did not map the giant sequoia (*Sequoiadendron giganteum*) groves. The SQF mapped approximately 22,100 acres of groves in the Tulare CWPP area. Approximately 80 percent of the groves were included in Sierran mixed-conifer, 7 percent in ponderosa pine, 4 percent in red fir, and the remaining acres in the other vegetation types.

Table A-1. Acres of vegetation types from the CWHR database

CWHR Type	Acres in CWPP Area	Modification	Revised Acres	FRI (years)	Source	Acres Burned Annually
Agriculture	3,179	Not included				
Annual Grassland	77,322	No change	77,322	3	Stephens et al. 2007	25,774
Barren	7,988	Not included				
Blue Oak Woodland	146,041	Combined with blue oak-foothill pine		3	Stephens et al. 2007	
Blue Oak-Foothill Pine	82,522	Combined with blue oak	228,563	3	Stephens et al. 2007	76,188
Chamise-Redshank Chaparral	8,993	Combined with mixed chaparral, montane chaparral, unkown shrub type		50	Keeley and Davis 2007	
Jeffrey Pine	94	Combined with ponderosa pine		13	Skinner and Chang 1996	
Lodgepole Pine	4,880	Combined with subalpine conifer	5,382	46	Stephens et al. 2007	117
Mixed Chaparral	19,413	Combined with mixed chaparral, montane chaparral, unkown shrub type	84,858	50	Keeley and Davis 2007	1,697
Montane Chaparral	23,276	Combined with mixed chaparral, montane chaparral, unknown shrub type		50	Keeley and Davis 2007	
Montane Hardwood	119,347	Combined with montane hardwood conifer		13	Skinner and Chang 1996	
Montane Hardwood-Conifer	2,658	Combined with montane hardwood	122,005	11	Skinner and Chang 1996	9,385
Pinyon-Juniper	52	Not included		440	Stephens et al. 2007	
Ponderosa Pine	45,365	Combined with Jeffrey pine	45,459	10	Skinner and Chang 1996	4,546

Table A-1. Acres of vegetation types from the CWHR database (continued)

CWHR Type	Acres in CWPP Area	Modification	Revised Acres	FRI (years)	Source	Acres Burned Annually
Red Fir	46,459	No change	46,459	20	Skinner and Chang 1996	2,323
Sagebrush	22	Not included				
Sierran Mixed Conifer	128,547	Combined with unknown conifer type	137,838	11	Skinner and Chang 1996	12,531
Subalpine Conifer	502	Combined with lodgepole pine		46	Stephens et al. 2007	
Unknown Conifer Type	9,291	Combined with Sierran mixed-conifer				
Unknown Shrub Type	33,176	Combined with mixed chaparral, chamise-redshank, montane chaparral				
Urban	1,559	Not included				
Valley Oak Woodland	94	Not included				
Wet Meadow	932	Not included				
White Fir	7	Not included				
Water	421	Mot included				
		Subtotal modified vegetation types	624,105			
		Subtotal not included	13,861			
Total	762,140	Subtotal no change	123,781			
		Subtotal w/o not included	747,886			132,560

References

Keeley, J. E. and F. E. Davis. 2007. Chaparral. Pages 339-366 *in* Terrestrial vegetation of California, M. G. Barbour, T. Keeler-Wolf, and A. A. Schoenherr, editors. University of California Press, Berkeley, CA.

Stephens, S. L., R. E. Martin, and N. E. Clinton. 2007. Prehistoric fire area and emissions from California's forests, woodlands, shrublands. Forest Ecology and Management 251:205-216.

Skinner, C. N. and C. Chang. 1996. Fire regimes, past and present. Pages 1041-1069 *in* Sierra Nevada Ecosystem Project: Final Report to Congress. Wildand Resources Center Report 37, University of California, Davis.

APPENDIX B

Supplementary Maps and Projects

Appendix B: Supplementary Maps and Project

Appendix B includes additional maps of fuel hazards and fire behavior developed by the SQF and projects that have recently been identified by CAL FIRE and the Sequoia FSC. These projects may require additional planning or other documentation; they include the Pine Flat Roadside Clearance, Hot Springs Fuel Break, Mankin Flat Fuel Break, and Fairview project.

STATE OF CALIFORNIA—THE NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF FORESTRY AND FIRE PROTECTION

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Visalia, CA 93292-5650
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Website: www.fire.ca.gov

July 19, 2010

To Whom It May Concern:

RE: Pine Flat/California Hot Springs road brushing

Upon a request from the Tulare County Resource Conservation District I am providing a written breakdown for the request to provide road clearances and fuels reduction in the Pine Flat and California Hot Springs areas of southern Tulare County.

The request is to add to the Tulare County CWPP, the project of clearing fuels from road sides to 20ft, along with overhead clearances to allow taller and wider fire equipment access to residences in the two communities. The majority of the roads are private roads, with a few county responsibility roads. The main road, Mtn Rd 56, is unsafely overgrown with trees and brush. This creates unsafe conditions for fire crews trying to stop fire progression, and just as important, evacuations of residents and tourists.

Maps were given to Dave Witt that give perspective to the scope of the project.

If you have any questions regarding this issue please don't hesitate to call me.

Respectfully submitted,

Nicholas F. Perricelli
Fire Captain
Tulare Ranger Unit
Tyler Creek Forest Fire Station
(661) 548-6457

Figure B-1. Sequoia National Forest Fire Susceptibility

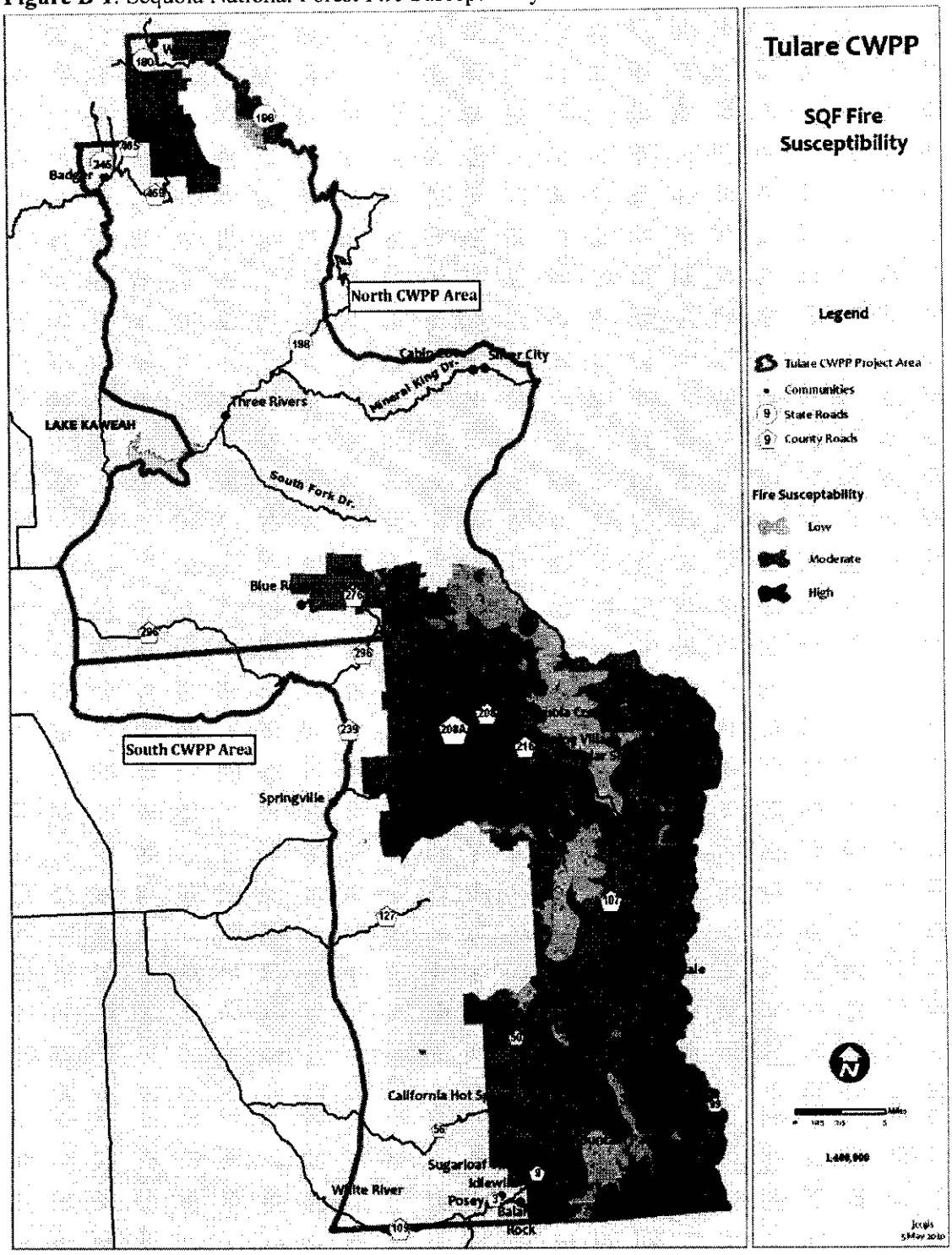


Figure B-2. Sequoia National Forest FlamMap

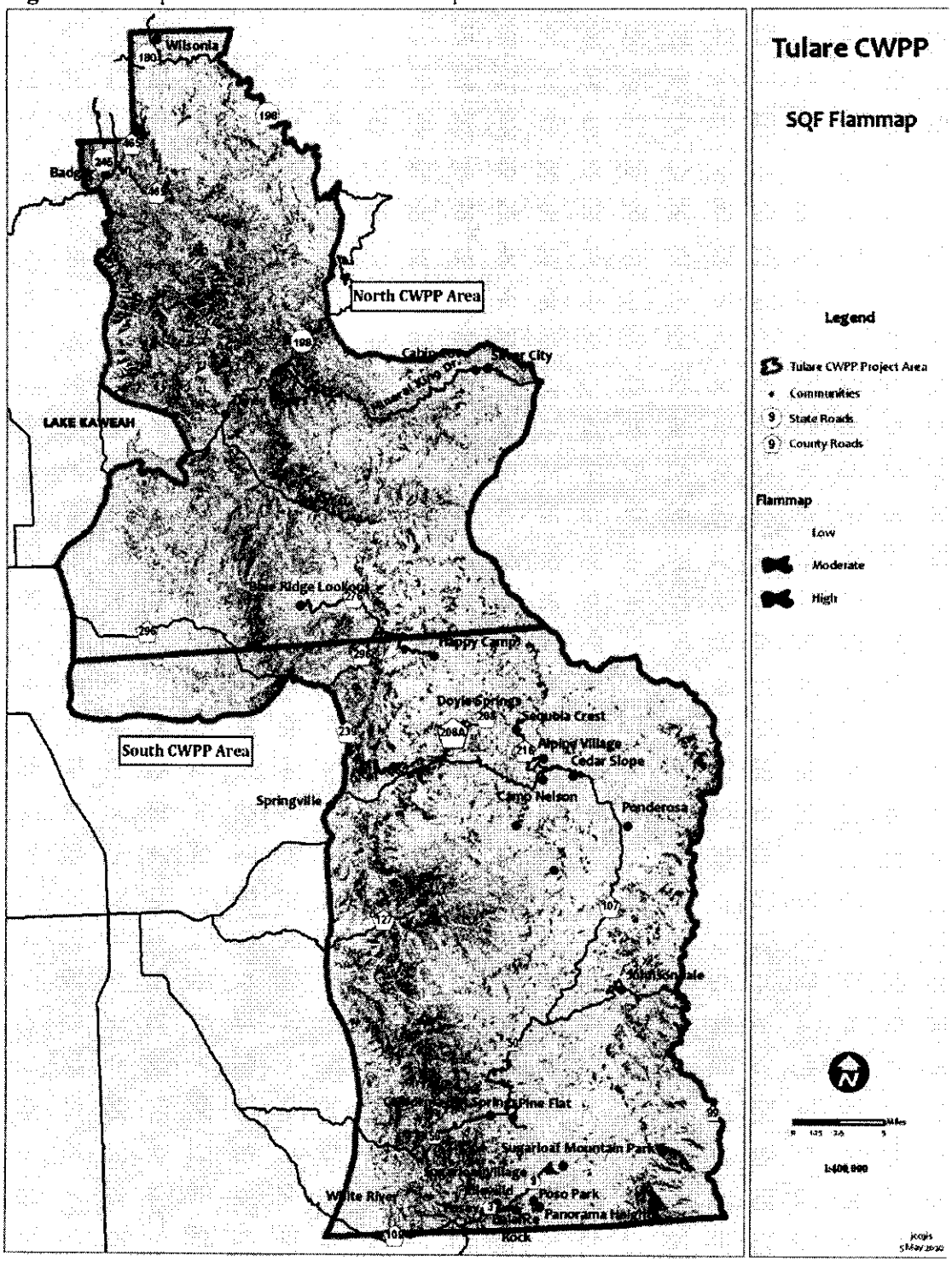
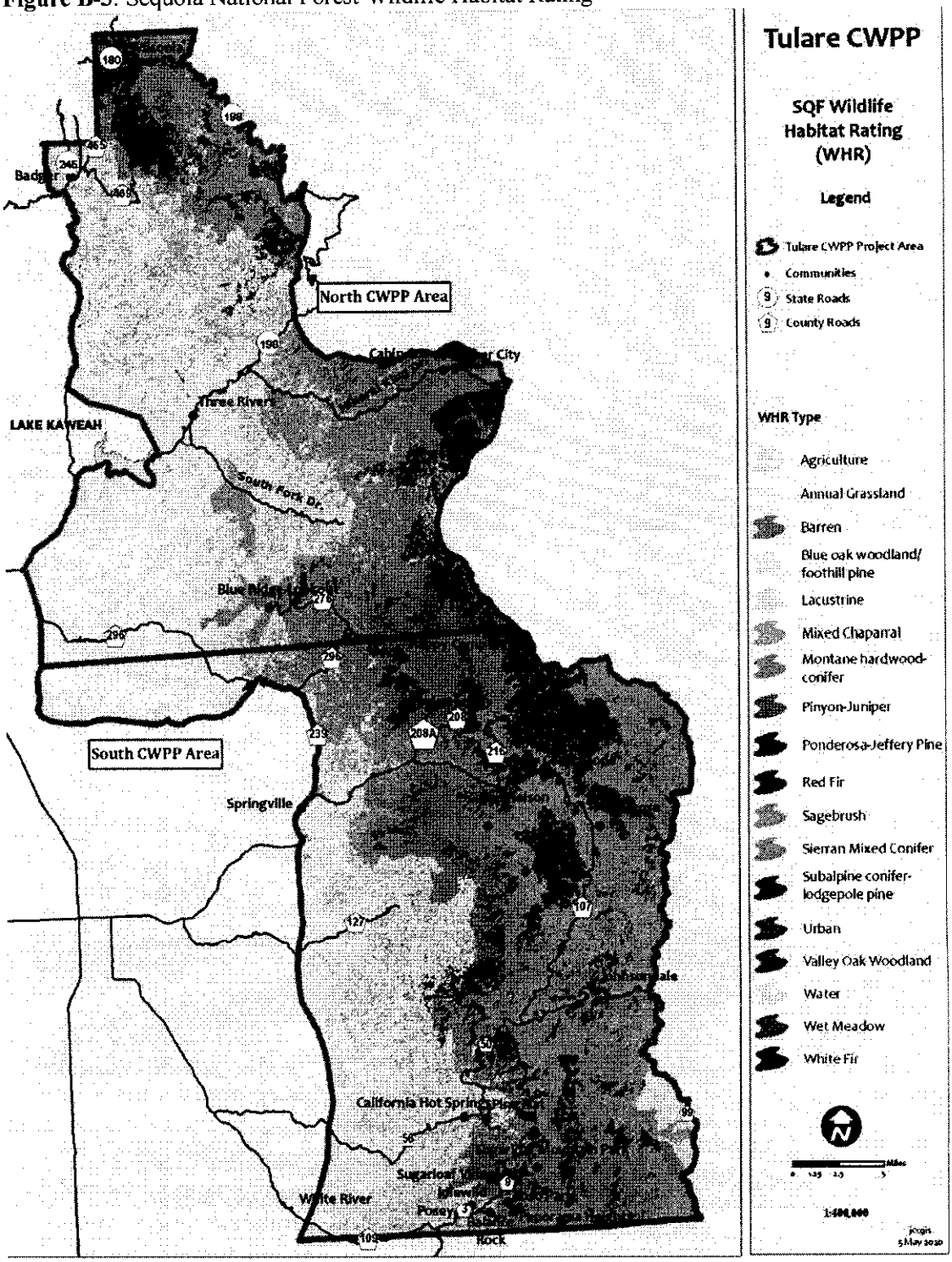


Figure B-3. Sequoia National Forest Wildlife Habitat Rating



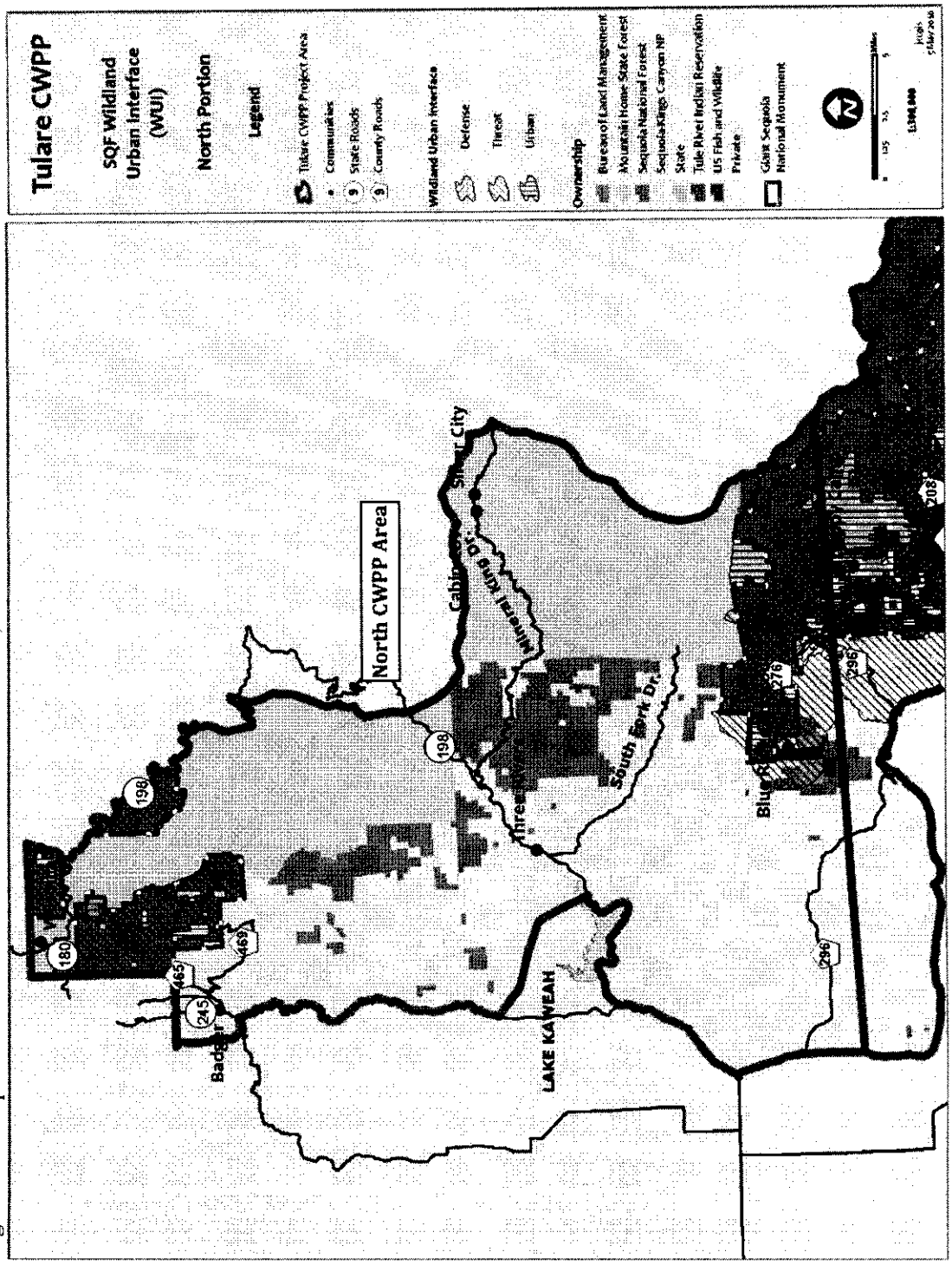


Figure B-4. Sequoia National Forest Wildland Urban Interface, North Half of the Tulare CWPP Area

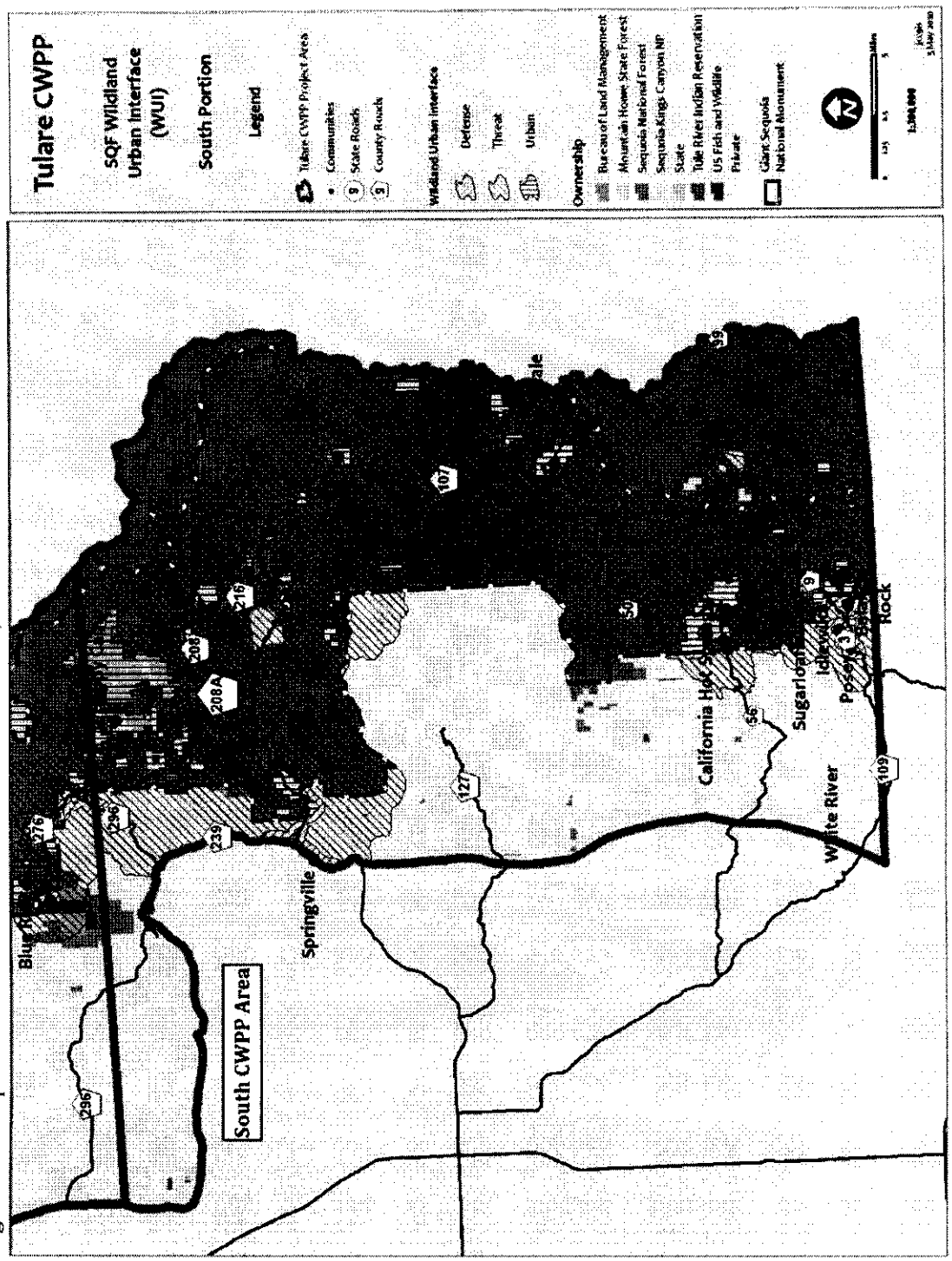


Figure B-5. Sequoia National Forest Wildland Urban Interface, South Half of the Tulare CWPP Area

Figure B-6. General vicinity of Sequoia FSC projects.

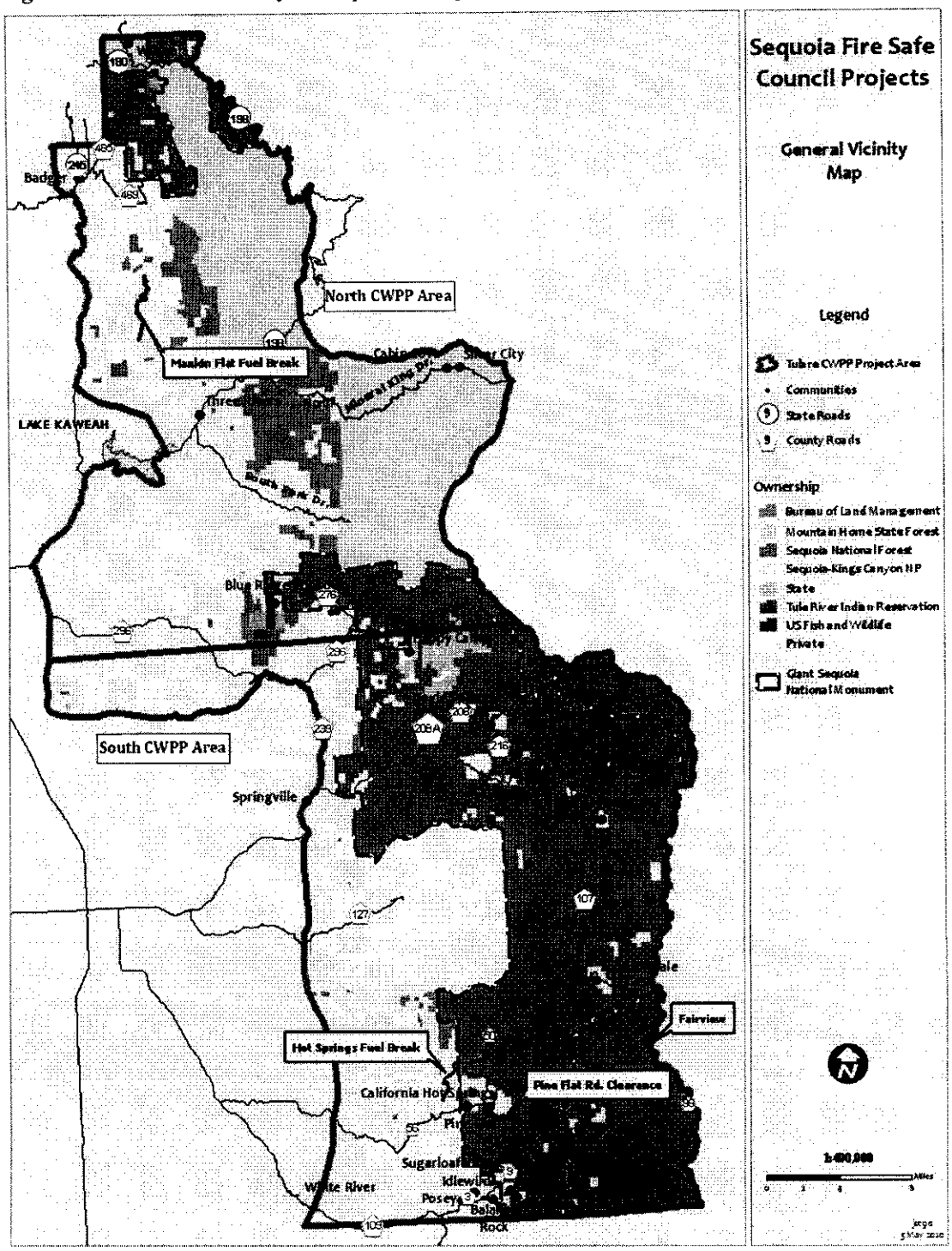


Figure B-7. Mankin Flat Fuel Break

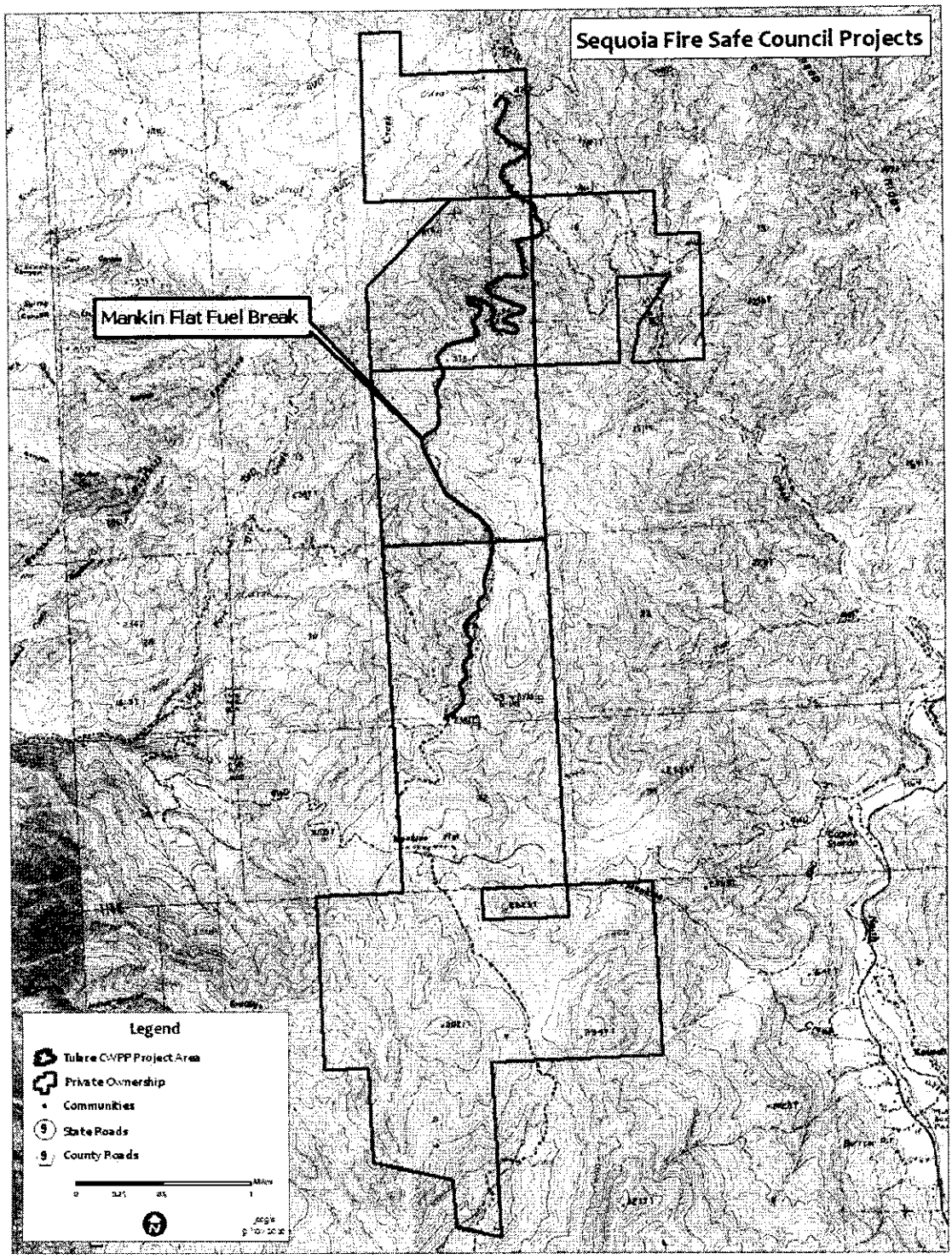
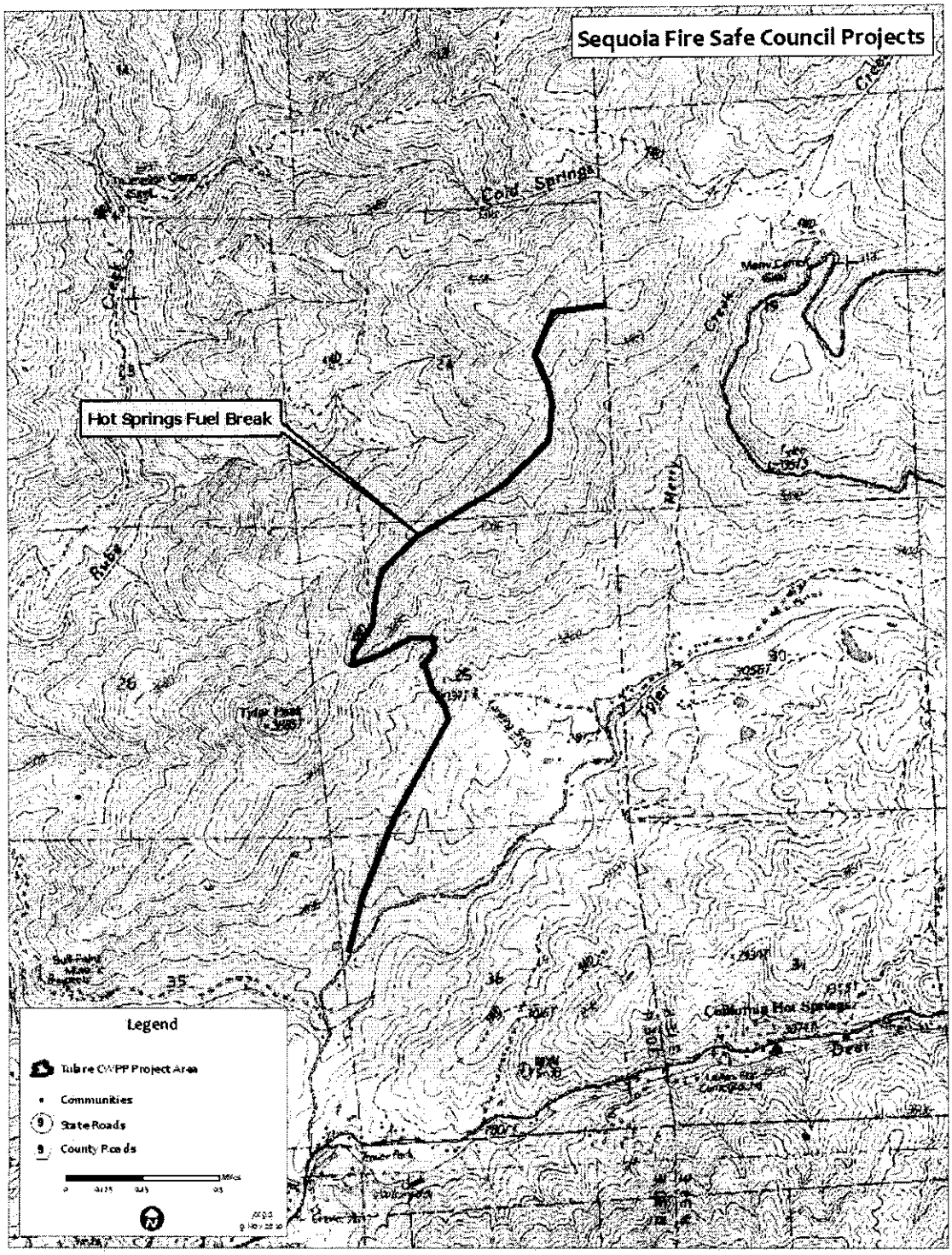


Figure B-8 Hot Springs Fuel Break.



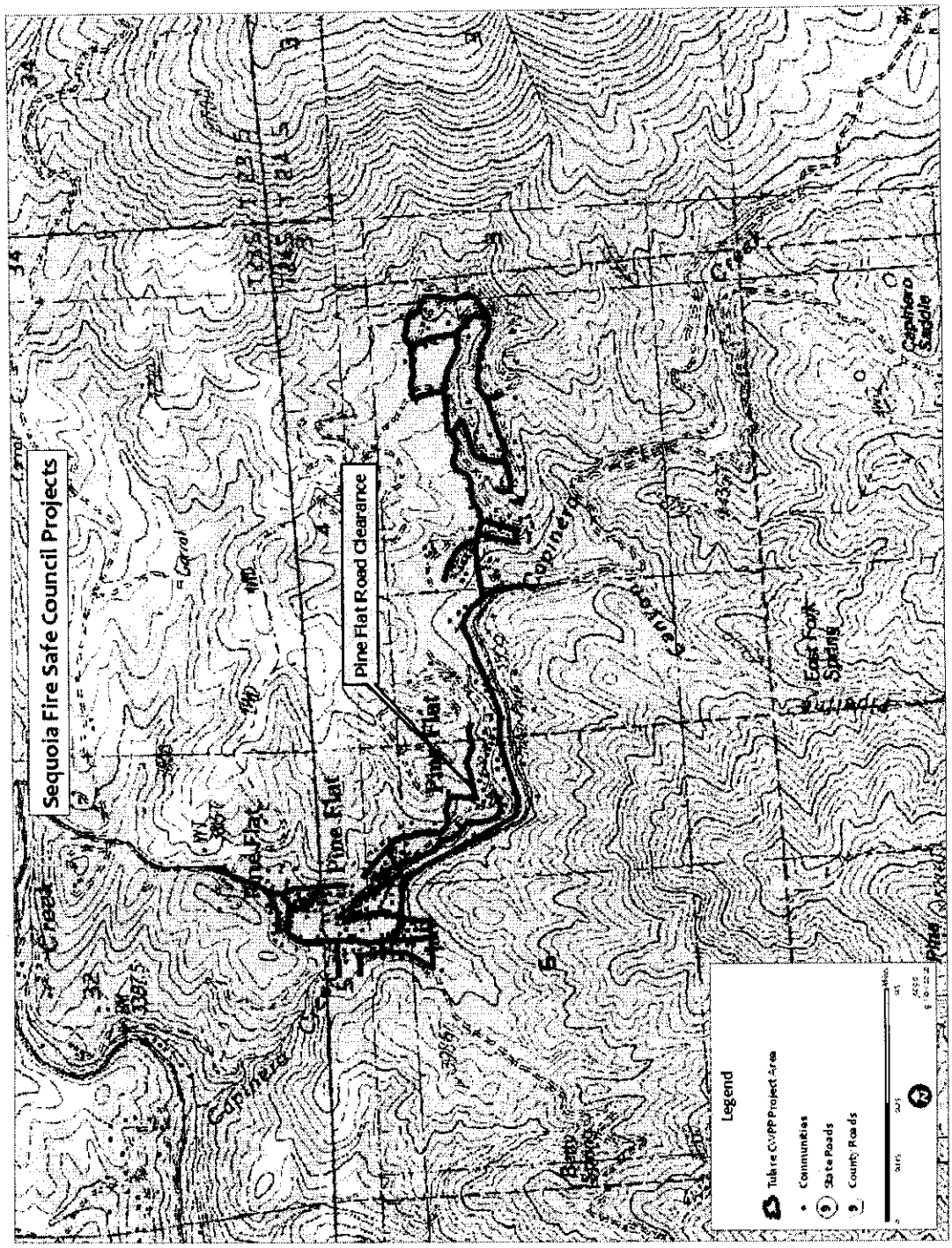


Figure B-9. Pine Flat Roadside Clearance

Figure B-10 Fairview Project