

Wildland Fire Situation Analysis

Iron and Alps Complex

**Trinity River Management Unit
Shasta-Trinity National Forest**

July 5, 2008

Complex Overview

The Big Bar District of the Trinity River Management Unit (TRMU) encompasses 475,000 acres of diverse ecosystems, which includes the second largest wilderness area in California and is among the top ten largest in the United States. The unit is based in Weaverville and contains the Weaverville and Big Bar Ranger Districts.

In general, the unit is surrounded by huge granite outcroppings and is mainly comprised of rugged wilderness. The Trinity Alps Wilderness is home to about 100 remote lakes and more than 50 peaks over 7,000 AMSL with the highest being 9,002 AMSL Thompson Peak.

Another major feature of the unit is the Trinity River. It rises in northeastern Trinity County, along the east side of the Scott Mountains. The river includes large-scale hydraulic mining and because of the river's swift current makes it a popular destination for whitewater rafting and kayaking. Portions of the river's tributaries are nationally designated as Wild and Scenic.

Northern California has experienced its driest spring in recorded history. Record ERCs on the Shasta-Trinity National Forest (SHF) were set by May 25. The wildfire situation was set when a dry lightning storm occurred Friday, June 20, 2008. This storm event caused over 600 wildland fires in the North state. Initially, there were 65 lightning strikes in the northwestern area of the Shasta-Trinity NF, from which there were about 48 fire starts, or a 75% lightning strike to fire start efficacy; an indicator of just how receptive and available the fuel bed is for wildfire starts and resultant spread. There are currently about 150 fires on the Shasta-Trinity. Many are still unstaffed. This event alone will produce weeks to months of suppression efforts in the areas hit hardest. Other events this summer, should they occur, will exacerbate an already above normal season. For more information on the Northern California condition go to http://gacc.nifc.gov/oncc/predictive/outlooks/seasonal_outlook.pdf

WFSA Strategy

The Forest Supervisor made the decision to minimize the impact of developing many WFSAs for the large fires or cluster of fires on the Trinity River Management Unit (TRMU). The decision resulted in the concept of building a large decision area within which to build one WFSA.

The decision space determination (WFSA alternative) for the fires on the TRMU was made using the Wildland Fire Decision Support System (WFDSS) tool set. Fires of critical concern that represented the workload for an incident management team were identified by TRMU employees and NorCal Team 1. These fires or grouping of fires are:

- Eagle
- Cedar
- Don Juan/Ironside/Zeigler
- Buckhorn/Clem/Green
- Granite
- Carey
- Baken/Gorge

The overall strategy for these incidents includes:

- Protect local communities and outlying private property.
- Apply Minimum Impact Suppression Methods in the Wilderness.

This will be done while keeping an eye on a host of environmental issues while assuring for fire fighter and public safety. Full containment of all fires is the strategic objective.

The Forest is using the WFDSS as the strategic tool for assessing management options for appropriately managing the myriad incidents. The TRMU incidents are currently being managed by one Type 1 Team and a Fire Use Management Team. FSPro runs were requested for the fires of concern. The analyses display the probability of the selected fires to burn if uncontained and given an historical set of weather occurrences. 750 different “fires” were simulated (gamed) over a seven day period to get a reasonable estimation of the potential of the fires.

The outer extent of the probability rings indicates that within the weather dataset, there are historic climatologic conditions that have occurred that could generate a wildfire of significant size. There is a set of conditions, within the historical weather data set, that could produce a 50,000 acre wildfire. Due to the very dry season to date, the analysis for this WSFA looked at the outer extents of the FSPro analysis.

1. Analysis Area

The gross total for the Decision Space Boundary is 521,624 acres; 508,455 acres is Federal Direct Protection Area (DPA) and 13,169 is CALFIRE DPA.

Within the Federal DPA:

- 28,205 acres is private

Within the State DPA

- 5,682 acres is Federal (5,365 is BLM)

The outer edge of the .2 to 4.9% FSPro probability ring was used for the determination of the planning area/decision space boundary. The most proximate topographic control features were used; rivers or ample water courses, or ridge tops. Human-made features were also considered. The encroachment on to the Six Rivers national Forest was suggested by Kent Swartzlander, IC, NorCal Team 2, who is also the Forest FMO for the Six Rivers National Forest.

There are a number of issues of concern. This has been an exceptionally dry spring and the forest is very early in its fire season. Not all fires are receiving suppression action due to the firefighting resource needs throughout California. CALMAC is setting priorities warranted by the extreme situation existing in California—this set of fires is not always the highest priority. And, finally, it is important to note there are four to five months remaining in the western fire season. The fire behavior to date, the overwhelming number of fire starts from the lightning, and the current size of these fires drive the conclusion that the forest will have many acres of fire with which to contend.

2. Alternative Development

All Alternatives considered lie within the Decision Space (WFSA) Boundary. Alternatives are differentiated by objectives and the resultant expected acres affected, and estimated costs to achieve these objectives.

There are three alternatives considered for the analysis. All three are within the common boundary described above. See map attached.

- a. Alternative A (Minimize Area Burned) – Aggressive suppression would be used to attempt to arrest perimeter growth as quickly and as much as practical.
- b. Alternative B (Priority Protection) – This alternative focuses on a strategy that would place protecting communities and private property within the scope of available fire fighting resources. Once objectives are achieved in assuring protecting private values, then a focus would be placed on minimizing perimeter growth.
- c. Alternative C (Macro-Point Protection) – This alternative would focus on the same values at risk as described in B. above, but would minimize the effort on perimeter

control where practicable, but excluding perimeter control in the Trinity Alps Wilderness.

3. Cost

- a. The IMT's first priority is to contain new starts and to find fires where they can achieve quick success. The IMT is transitionally focusing on the larger, more complex fires. Their focus will be on the fires of concern within the next several days. Costing will apply the appropriate historical average acre costs for the fires of concern within the analysis rings. This series of fires is strategically being managed for full containment.
 - i. Costs for Alternative A are estimated at an aggressive suppression cost. The Pigeon Fire of 2006 is a good approximation of a fire with cost for a very complex interface situation. The Bar Fire wilderness costs will be applied to the fire area within the wilderness.
 - ii. Alternative B used an average cost of the Pigeon and the Bar fires. The Bar Fire wilderness costs will be applied to the fire area within the wilderness.
 - iii. Alternative C was estimated using the cost associated with the Bar fire alone. This was a long duration fire that employed the full-range of the appropriate management response tool set.
- b. The Forest is using appropriate cost sharing with CALFIRE.

Recommended Alternative

The Recommended Alternative is the Priority Protection Alternative, Alternative B. The WFSA has the detailed decision rationale. The assigned IMT is expected to develop and share with the Agency Administrator a Strategic Approach for implementing the preferred alternative. This plan should provide a series of scenarios considering forecasted or probable fire behavior (FSPro modeling, etc) and resource availability. The rough draft or "concept" of the Plan should be presented to the Agency Administrator within 48 hours of approval of this WFSA with finalization occurring 48 hours after concurrence of the "concept" with the AA.

The estimated budget associated with the preferred alternative is \$51,700,000 and the number of acres potentially affected is 130,000.

The Alps Complex Long Term Implementation Plan (LTIP) has been presented to the Forest. It has been tacitly approved pending recommendations on tactical approaches. The Iron Complex is completing a Strategic Implementation Plan, which will be similar to the Alps Complex LTIP except that there are near to mid-term containment objectives to be accomplished.

Wildland Fire Situation Analysis

WFSA Information

WFSA Number: 2

Jurisdiction(s): Shasta-Trinity National Forest

Fire Name: Iron and Alps Complexes

Geographic Area: Operations Northern California

Incident Number: CA-SHF01057

Unit: Trinity River Management Unit

Date/Time Prepared: 06/26/2008 1427

Accounting or Management Code: P5D8HV

Fire Situation

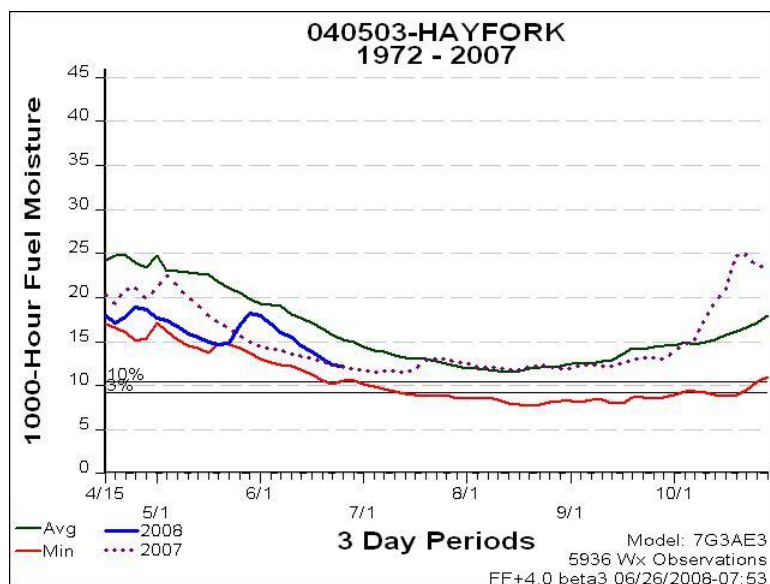
Start Date/Time: 6/20/2008 1630

Current Fire Size: 16,000 + acres

Fuel Conditions

Fuel conditions on the forest are dominated in the lower elevations and on south facing slopes by chaparral and hardwoods, as single stands or as understory in the conifers. Many of these stands have a high dead component because of storm damage. Conifers are found in drainages, on north slopes and on all aspects at higher elevations. Many of these mid and upper elevation conifer stands have also been damaged by winter storms.

ERC in the local area was 58 on Friday, June 27 and expected to be in the low to mid 60's throughout the week (66 = 90th percentile). High elevations have fir; many areas with a heavy dead and down large fuel component (FM10). Valley bottoms are composed of madrone and manzanita with compressed litter. Surface fire spread is representative of FM 8 with crown activity being modeled by FM4. Some pockets of pine with a timber and grass understory (FM2) occur on south aspects.



Topography

The west side of the Trinity Alps Wilderness and surrounding areas consists of rugged timbered terrain, with high granite peaks and mountain lakes. In some of the higher areas there are very few trees surviving on thin and poorly developed

soils. Conifers predominate above 4000'. Oak, laurel, madrone and other hardwood trees grow on the lower slopes. On many south-facing slopes there is dense brush. Steep canyons combined with heavy fuels conditions have the potential to create severe fire behavior. Topography in the Big Bar area is some of the most challenging and extreme that some fire crews have been exposed to.

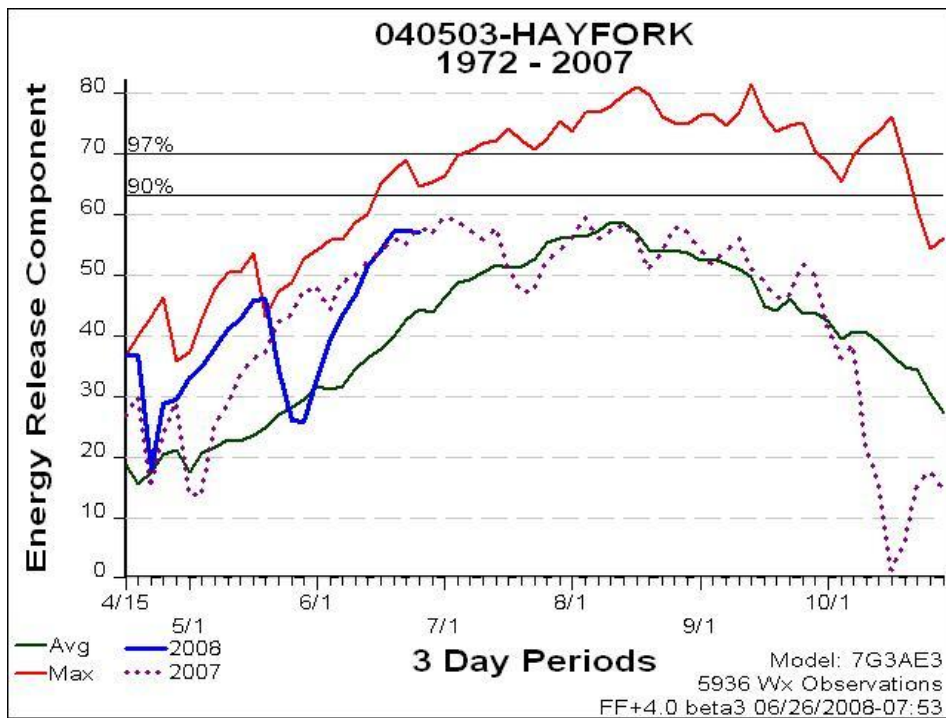
Jurisdiction and Land Ownership in the Fire Area

Currently there are about 30 known fires on the Trinity River Management Unit (TRMU). More fires are expected. The majority of the fire area is on National Forest System lands or private lands under Shasta-Trinity NF Direct Protection Area (DPA). Some CALFIRE DPA has already been impacted; more spread can be expected on State DPA and/or BLM lands in the future. 5% of the current affected area is private. There is a possibility that over 10% of the future fire spread area could be on private land.

Fire Behavior - Current and Forecast

Current: Fire behavior has been variable with low to moderate rates of spread. Primary spread will be through backing, short runs, occasional single tree torching to group torching. Roll out is a major concern. Areas near thunderstorms may experience gusty and erratic winds. Anticipate increased spread rates, spotting, and active burning as the summer progresses and the fire season continues to get hotter and drier.

Region 5 has issued a Fire Behavior advisory.



Forecast Weather (3 and 10 day) and Current Seasonal Conditions

July 5, 2008 (Inserted from Eureka Weather Service)

DISCUSSION:

AN UPPER LEVEL SHORT WAVE TROUGH WILL SUPPORT ANOTHER ONSHORE MARINE PUSH TONIGHT...WITH GOOD HUMIDITY RECOVERIES ACROSS THE DISTRICT. HIGH PRESSURE WILL QUICKLY BUILD OVER THE REGION SUNDAY AND BRING CONSIDERABLE WARMING AND DRYING SUNDAY THROUGH THURSDAY.

CAZ277-283-061430- WESTERN MENDOCINO NATIONAL FOREST / EASTERN MENDOCINO UNIT.- TRINITY...WESTERN PORTION OF THE SHASTA TRINITY NATIONAL FOREST.- 311 PM PDT SAT JUL 5 2008

.TONIGHT...

SKY/WEATHER.....PARTLY CLOUDY. AREAS OF SMOKE.

MIN TEMPERATURE.....50-59.

24 HR TREND.....LITTLE CHANGE.

MAX HUMIDITY.....70-85 PERCENT.

24 HR TREND.....DOWN 4 PERCENT.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...NORTHWEST WINDS 2 TO 4 MPH IN THE EVENING...BECOMING
DOWNSLOPE/DOWNVALLEY 1 TO 3 MPH.

RIDGES/UPR SLOPES....NORTHWEST WINDS 3 TO 5 MPH IN THE EVENING ...BECOMING VARIABLE 2 TO 4
MPH.

LAL.....1.

CWR(>.10).....0 PERCENT.

.SUNDAY...

SKY/WEATHER.....SUNNY. AREAS OF SMOKE.

MAX TEMPERATURE.....87-97.

24 HR TREND.....UP 5 DEGREES.

MIN HUMIDITY.....15-23 PERCENT VALLEYS...19-27 PERCENT HIGHER TERRAIN.

24 HR TREND.....DOWN 5 PERCENT.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...UPSLOPE/UPVALLEY WINDS 1 TO 3 MPH.

RIDGES/UPR SLOPES....VARIABLE WINDS 2 TO 4 MPH.

LAL.....1.

CWR(>.10).....0 PERCENT.

.SUNDAY NIGHT...

SKY/WEATHER.....CLEAR. AREAS OF SMOKE.

MIN TEMPERATURE.....51-61.

MAX HUMIDITY.....67-77 PERCENT VALLEYS...54-64 PERCENT HIGHER
TERRAIN.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...DOWNSLOPE/DOWNVALLEY 1 TO 3 MPH.

RIDGES/UPR SLOPES....VARIABLE WINDS 2 TO 4 MPH.

LAL.....1.

CWR(>.10).....0 PERCENT.

.MONDAY...

SKY/WEATHER.....SUNNY. AREAS OF SMOKE.

MAX TEMPERATURE.....92-103.

MIN HUMIDITY.....13-23 PERCENT.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...UPSLOPE/UPVALLEY 1 TO 3 MPH.

RIDGES/UPR SLOPES....VARIABLE WINDS 2 TO 4 MPH.

LAL.....1.

CWR(>.10).....0 PERCENT.

EXTENDED FORECAST FOR DAYS 3 THROUGH 5...

...NORTHWEST CALIFORNIA COAST...

.TUESDAY...PARTLY CLOUDY. AREAS OF SMOKE. LOWS 51 TO 59. HIGHS 71 TO 84. NORTH WINDS 5 MPH.

.WEDNESDAY...MOSTLY CLEAR. AREAS OF SMOKE. LOWS 52 TO 60. HIGHS 71 TO 84. NORTH WINDS 5 MPH.

.THURSDAY...PARTLY CLOUDY. PATCHY FOG. LOWS 51 TO 59. HIGHS 74 TO 87. NORTH WINDS 5 MPH.

...NORTHWEST CALIFORNIA INTERIOR...

.TUESDAY...CLEAR. AREAS OF SMOKE. LOWS 54 TO 62. HIGHS 92 TO 105 VALLEYS...89 TO 102 HIGHER TERRAIN. NORTH WINDS 5 MPH.

.WEDNESDAY...CLEAR. AREAS OF SMOKE. LOWS 56 TO 64. HIGHS 93 TO 105 VALLEYS...90 TO 103 HIGHER TERRAIN. NORTHEAST WINDS 5 MPH.

.THURSDAY...MOSTLY CLEAR. AREAS OF SMOKE. LOWS 56 TO 64. HIGHS 94 TO 106 VALLEYS...92 TO 105 HIGHER TERRAIN. NORTHWEST WINDS 5 MPH.

.6 TO 10 DAY OUTLOOK...FRIDAY JULY 11 THROUGH TUESDAY JULY 15, 2008...
FOR NW CALIF...ABOVE NORMAL TEMPERATURES AND BELOW NORMAL PRECIPITATION.

National and Regional Fire Preparedness, and Suppression Resource Availability

National Preparedness Level 5

Northern California GACC Preparedness Level 5 - CALMAC is fully activated. Agencies are below drawdown levels. Class D and larger fires are common in one or both Coordination Centers. Either or both Coordination Centers cannot fill many outstanding resources requests and are sending these orders to NICC. Use of local government resources is common. Reassignment of personnel and resources between incidents is common. Current and short-range weather forecasts predict very high to extreme fire danger. Long range forecasts for the next week for either Coordination Center indicate continued very high to extreme fire danger. Activation of National Guard or military personnel and resources is being considered or has occurred. Orders for California resources are causing the state to drop below agency drawn down levels. State and Local government personnel are being used to fill out of state resource orders. Actual and long range fire danger predictions are for very high or extreme. Personnel and resources are at or below agency minimum draw down levels.

Presidential Declaration of Federal Disaster Assistance - The President today (June 28, 2008) declared an emergency exists in the State of California and ordered Federal aid to supplement State and local response efforts in the area struck by wildfires beginning on June 20, 2008, and continuing.

The President's action authorizes the Department of Homeland Security, Federal Emergency Management Agency (FEMA), to coordinate all disaster relief efforts which have the purpose of alleviating the hardship and suffering caused by the emergency on the local population, and to provide appropriate assistance for required emergency measures, authorized under Title V of the Stafford Act, to save lives and to protect property and public health and safety, and to lessen or avert the threat of a catastrophe in the counties of Butte, Mendocino, Monterey, Santa Clara, Santa Cruz, Shasta, and Trinity.

Widespread lightning has caused numerous fires in northern California and suppression resources have been ordered from other states. IA, extended attack and transition to IMTs are continuing throughout northern California. Several small fires within the Iron and Alps Complexes and elsewhere have been contained or lined. NorCal Team 1, Kent Swartzlander, ICT2 was assigned initial command of the Iron Complex. FUMT Soper was assigned to the Trinity Alps wilderness. A Type 1 IMT, Paul Broyles, has been assigned to the Iron Complex, releasing the T2 Team for other incidents. An Area Command Team, Zimmerman, is in place to manage the overall fire situation on the Shasta-Trinity NF.

Decision Summary

Selected Alternative

B. Priority Protection

Most Cost Effective Alternative: B. Priority Protection

Selected Alternative Description

Utilize available resources to: 1. Protect local communities. 2. Protect the Hoopa Reservation 3. Protect outlying private property. 4. Protect identified values in the Trinity Alps Wilderness.

This alternative focuses available resources to contain new starts near high priority areas and will delay action on low priority areas until sufficient resources arrive.

Contain groups of fires and fires that have merged geographically to minimize the threat to communities, life and property. Focus suppression efforts to prevent spread in the direction of the identified priority values at risk.

Acreage estimate was generated from FSPRO modeling, assuming the 5-19 percentile probability ranking for fire spread for the non-wilderness and .2 to 4.9% for the wilderness.

Local communities, Reservations and private property will receive the highest level of protection that can be achieved with available forces. Wilderness fires will be managed to protect identified values. Environmental impacts will be managed to the best of our abilities while achieving protection of community and Wilderness value.

Rationale for selecting this alternative

The fire situation on the TRMU is very dynamic. There were at one point approximately 80 fires on the District. 25 fires have been contained. 6 fires immediately threaten homes and communities. This workload in conjunction with the over 300 fires within the Shasta and Trinity counties, creates a situation where there are not enough firefighting resources to work all of the fires.

Alternative B makes best use of limited firefighting resources to protect communities and prioritizes objectives as firefighting resources become available. Given the current situation, this Alternative will best address not only fire fighter and public safety concerns, it also addresses the environmental issues the TRMU manages e.g. anadromous fisheries, Northern Spotted Owl territory concerns, Trinity Alps Wilderness, Wild and Scenic River values, etc. This alternative also best addresses the issues and concern over firefighter and public safety.

The likelihood of success of the perimeter protection strategy (Alternative A) is extremely low, since sufficient firefighting resources to accomplish its objectives are not immediately available. In addition, other western regions are coming into the active portion of their fire season, increasing the competition for firefighting resources.

The macro protection strategy (Alternative C) provides high costs and loss. There would be unacceptable impacts to private lands. Impacts to fisheries, spotted owl habitat, etc would be extensive due to the high number of acres that would be affected. Poor air quality in these incised valleys, associated with longer planned containment times in Alternative C would impact public health, recreational (tourist) opportunities, etc. These issues do not have an immediate dollar value.

WFSA revision or amendment thresholds and protocol

Thresholds for consideration for WFSA revision:

- If expenditures are approaching 75% of the budget, please advise the AA
- If acres burned is expected to exceed 130,000 acres, advise the AA
- If any additional fires approach State DPA, the Mendocino and Six Rivers National Forests outside the WFSA boundary, advise the AA.

This WFSA remains valid even if it exceeds the identified acres and costs up to 25%. In discussions during During Action Reviews, the Agency Administrator and IC are expected to discuss the appropriateness of exceeding the benchmarks based on the uncertainty within which wildland fire suppression is managed e.g. fire behavior and resource availability.

Critical fire management resources

- Type 1 team
- Area Command
- Adequate operational overhead
- Smokejumpers
- Hotshots
- Hand Crews
- Air Support
- Engine support
- Watertenders
- Fallers
- Dozers

Special considerations

This WFSA covers the entire Iron and Alps Complexes. It reflects a large-scale, strategic picture of fire strategy to manage a growing fire complex with considerable uncertainty with respect to fire spread and the availability of sufficient resources to effectively contain many scattered fires and groups of fires.

The Iron and Alps Complexes contain multiple fires from dry lightning storms on June 20 and 21. Over 30 individual fires are known but more are being reported. The fires range over the entire Trinity River Management Unit. Many fires are unstaffed due to limited resources, and are beginning to coalesce into larger fires.

Special Issues:

Some fires are burning within Inventoried Roadless Areas - state notification of suppression activities within them is required.

Some fires have very poor road access and many forest roads are in poor condition.

Much of the Trinity River is Northwest Forest Plan Key Watershed, critical habitat for coho salmon and essential Habitat for Chinook salmon and steelhead. The Trinity River is listed as a 303d impaired water body under the Clean Water Act.

The fire situation throughout northern California is severe, and the Iron and Alps Complexes are currently a lower priority than some other large fire complexes, despite the high threat level to infrastructure, structures and natural resources.

Some fires are burning in Northern Spotted Owl critical habitat.

The Trinity River, New River, and North fork Trinity River are part of the Wild and Scenic River system.

Ironsides Mountain is used for ceremonial activities by the Tsnungwe Tribe.

Accountable Cost Management

Cost management is important but is not the only factor for considering the strategy and the corresponding tactics for achieving the course of direction (the Preferred WFSA Alternative). The focus is on managing the risk to firefighters and the public while striving to protect identified values.

- The IC and the Agency Administrator must have a discussion on the Leader's (Agency Administrator) Intent.
- Strategic Implementation Plan – The IMT is to develop a Strategic Implementation Plan that meets the objectives outlined in Alternative B of this WFSA. Consider several scenarios as appropriate. Resource availability and conservation, as well as expected fire behavior should be factors. Priority deployment of resources will be based on the Plan.
- Key Decision Log - The IC and AA will document Key Decisions related to costs and cost management
- During Action Reviews (DAR) - as needed, the IC and the Agency Administrator will perform DARs with the objective of validating suppression objective accomplishment and changing course of action if required.

Analysis prepared by: Loren Everest, TRMU, WFSA Lead

Jay Perkins, Long Term/WFSA Planner

Agency Administrator Approval

Date/Time

Values at Risk

Item	Value at Risk (\$)
Residences and Private Structures 477 structures threatened from RAVAR modeling (see attached)	78,000,000
Burnt Ranch Campground	0
Ironside Lookout	0
Gray Falls Campground and Picnic	0
Burnt Ranch Fire Station	0
Big Flat Campground	0
Helena townsite	0
Historical property	
Eagle Ranch	0
Historical Property	
Pigeon Point Campground	0
Junction City Campground	0
Skunk Point Campground and Picnic	0
Weaver Bally Lookout	0
Wild and Scenic River	0
Trinity Mainstem, New River and Power North Fork Trinity River	
Power transmission lines	0
16 Miles of line	
Highway 299	0
Domestic Water Supplies	0
Power lines	5,600,000
PG&E costs are about \$20,000 per pole to replace with 15 to 20 poles per miles. Miles of powerline come from the RAVAR report attached.	
 Total value at risk (rounded)	 84,000,000

Resource Management Objectives

Trinity Alps Wilderness

Wilderness General Objectives:

- Permit fire management activities that are compatible with wilderness objectives. Return fire to its natural role when not in conflict with public safety.
- Wildfire suppression tactics will favor the use of natural barriers, topography or watercourses, and low impact techniques. After fires are declared out, take appropriate action to rehabilitate and/or restore the site.
- Locate incident bases and staging areas outside of Wildernesses. When necessary, within a Wilderness, use small (50-60 people) suppression camps in areas where degradation of water quality can be avoided. Return sites to a pre-use condition.
- Permit helispots when approved by the Forest Supervisor. Use natural openings to the extent possible

Strategic Management Objectives:

- Firefighter and public safety are the highest priority for all fire management activities.
- Permit lightning caused fires to play, as nearly as possible, their natural ecological role within wilderness (FSM 2324.2).
- Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or wildland fires that escape from wilderness (FSM 2324.2).
- Fire management activities should be done in a manner that is compatible with wilderness management objectives.

Management Constraints Affecting Operational Implementation:

- All fire management activities will consider safety of personnel and the public as the highest priority.
- Strive to achieve Class I air quality standards.
- Minimizing suppression activity impacts should take priority over minimizing acres burned when appropriate.
- Wilderness visitors, neighbors, and nearby communities should be notified of all planned and unplanned fire management activities which have the potential to impact them, either directly or indirectly.
- Minimum Impact Suppression Tactics (MIST) should be used during all fire activities.
- Any firing techniques used as a suppression tactic should be designed to reduce fire effects on vegetation.
- Minimize use of retardant as much as possible. Utilize water instead of retardant if possible

General Forest

Strategic Management Objectives:

- Reduce the risk of stand replacing fires by altering fuels profiles with appropriate treatments.
- Protect Forest investments, such as plantations, campgrounds, and administrative sites from threat of damage from wildland fire.

Management Constraints Affecting Operational Implementation:

- All fire management activities will consider safety of personnel and the public as the highest priority.
- Treatment of natural fuels or fuels resulting from resource activities will be determined during ecosystem analysis project level decision).
- Smoke management and air quality will be a consideration during all project planning.
- Forest investment protection (plantations and campgrounds, etc) will be a consideration during all project planning and WFSAs.
- Design fuel treatment and fire suppression strategies, practices, and activities to meet Aquatic Conservation Strategy objectives in riparian reserves.
- Implement suppression strategies to provide the least possible adverse impact to cultural resources.
- MIST tactics are preferred in all FLRMP defined recreation areas and in Research Natural Areas (RNA).
- No natural fuel treatments will be made within RNA's without appropriate planning and approval by the Research Natural Area Committee (RNAC).

Late Successional Reserve (LSR)

Strategic Management Objectives:

- Protect existing late successional habitat from threats (of habitat loss) that occur inside and outside LSR's.
- Promote the continued development of late successional characteristics.
- Protect mid and early-seral vegetation from loss to large-scale disturbance events.
- Promote connectivity of late successional habitat within LSR's.

Management Constraints Affecting Operational Implementation:

- All fire management activities will consider safety of personnel and the public as the highest priority.
- Minimum Impact Suppression Tactics (MIST) should be used whenever possible during all fire activities in LSR's, however mechanical fireline construction (dozer) will be permitted.
- Any firing techniques used as a suppression tactic will be designed to minimize fire effects on LSR habitat.
- Resource specialists will be consulted as available during wildland fire activities.
- Efforts should be made to retain all snags, except when they are a safety threat to firefighters.
- Design fuel treatment and fire suppression strategies, practices, and activities to meet Aquatic Conservation Strategy objectives in riparian reserves.
- Retention of coarse and large woody debris will be a consideration when planning or carrying out any fire management activity.
- Wildland fire occurring in areas of LSR adjacent to urban interface areas will receive an appropriate suppression response.

Roadless Areas

Roadless Areas are not a resource management area in and of themselves, however they overlay areas of LSR and General Forest. Roadless Areas do not limit the opportunities available to fire managers, but they place a reporting burden on the Forest and require special rehabilitation after control is achieved.

Strategic Management Objectives:

- New firelines or system roads opened with bulldozers in roadless areas will require State of California notification
- New firelines must be closed and blocked to prevent OHV use once fires are controlled.
- Level 1 roads opened for use must be rehabilitated after the fire is controlled.

Interface and Private lands

Strategic Management Objectives:

- Maximize protection of interface areas and private lands.
- Promote cooperative relationships with other agencies and private landowners in order to assess and implement hazard reduction projects on both public and private lands.

Objectives

Objective	Priority (high=10)	Weight
Economic		
<p>Recreation Minimize degradation to scenic qualities associated with Wild and Scenic river corridors and Trinity River that contribute to recreational and tourist draw.</p>	6	0.08
<p>Timber Minimize potential loss of timber values and plantation investments.</p>	7	0.09
Environmental		
<p>Wild and Scenic River Minimize visual and other environmental impacts along the Trinity River, New River and North Fork Trinity River.</p>	9	0.12
<p>Threatened and Sensitive Wildlife Species Minimize impacts to old growth habitat areas (spotted owl critical habitat). Protect critical habitat for salmon and steelhead by avoiding use of retardant within 300 feet of streams.</p>	8	0.10
<p>Air Quality Be mindful of the smoke production from the fires and from burning out operations.</p>	5	0.06
<p>Retardant Use Map all fire retardant applications. Notify IC and Agency Administrator of any applications within 300 feet of water. Record retardant type and volume.</p>	9	0.12
<p>Noxious weeds Minimize spread of noxious weeds.</p>	8	0.10
Social		
<p>Public information Keep the public well informed. Update the County Board of Supervisors and county emergency services on a regular basis. Coordinate any warnings and proposed evacuations with the Trinity County Sheriff's office.</p>	9	0.12
<p>Cultural Sites Minimize impacts to cultural sites.</p>	8	0.10
<p>Local Vendors Utilize local vendors and contractors as appropriate.</p>	9	0.12

Safety Issues

Safety Issues

Marijuana Gardens

Gardens may be present in remote locations. Be aware of people and weapons near gardens.

Steep, difficult terrain

Hazards exist related to steep terrain, including rolling rocks and burning fuel, as well as potential threats from fire on steep slopes below forces.

Poor visibility

Poor visibility hampers fire detection, and situational awareness with respect to proximity of nearby fires (see unburned fuel safety issue). Additionally, smoke impacts the ability of getting aircraft into the air. There numerous hazards even when conditions are good: cable across the rivers, communications towers, etc. Assure medivac plans do not rely on aircraft.

Poison Oak

Many out of area crews can not readily identify Poison Oak. It is prevalent across the landscape.

Firefighter and Public Health

Though little can be done, consideration of burning out and other fire effects as they relate to smoke production should be considered for the long-term health of fire fighters and the public.

Driving Hwy 299

Use cautions on Highway 299, watch for falling rocks, fire debris. Be aware of possible closures.

Cable and Powerlines

Cables for mining and cable cars exist on the Trinity and New Rivers. PG&E and Trinity PUD powerlines run parallel to the Trinity River. Extreme caution should be exercised when flying in the vicinity of the rivers.

Alternatives

Alternative A. Minimize perimeters

Minimize impacts to private property and timber resources. Use aggressive suppression methods to contain and control individual fires as quickly as possible to free up suppression resources for reassignment. If fires can be contained and controlled at minimum size, environmental impacts will be lessened by keeping fires from spreading far into LSR and W&S river corridors. In the Trinity Alps, there would be an emphasis on minimizing acres burned once the threat to homes, commercial properties and other values threatened were abated.

Acreage estimate was generated from FSPRO modeling, assuming the 40-59 percentile probability ranking for fire spread.

Target Outcome

This alternative would minimize fire size and duration, however there are not enough fire fighting resources immediately available to implement this alternative.

Extreme Outcome

Similar to Alternative C but there is a real probability based on based past event such as the Big Bar Complex of 1999 and the Bar Complex of 2006, that the fire could get much bigger than expected or planned.

Probability: 25%
Final Fire Size: 91000 acres
Time to Contain: 40 days
Time to Control: 60 days

Probability: 75%
Final Fire Size: 250000 acres
Time to Contain: 90 days
Time to Control: 120 days

Alternative B. Priority Protection

Utilize available resources to: 1. Protect local communities. 2. Protect the Hoopa Reservation 3. Protect outlying private property and infrastructure. 4. Minimize fire spread on to adjacent National Forests. 5. Protect identified values in the Trinity Alps Wilderness. 6. Protect or minimize the impacts to critical wildlife and other issues e.g. Northern Spotted Owl, Coho salmon habitat, etc.

This alternative focuses available resources to contain existing fires and new starts near high priority areas and will delay action on low priority areas until sufficient resources arrive.

Contain groups of fires and fires that have merged geographically to minimize the threat to communities, life and property. Focus suppression efforts to prevent spread in the direction of the identified priority values at risk e.g. residences, commercial properties, infrastructure, etc.

Acreage estimate was generated from FSPRO modeling, assuming the 5-19 percentile probability ranking for fire spread for the non-wilderness and .2 to 4.9% for the wilderness.

Target Outcome

Local communities, Hoopa Reservation and private property will receive the highest level of protection that can be achieved with available forces. Wilderness fires will be managed to protect identified values. Environmental impacts will be managed to the best of our abilities while achieving protection of community and Wilderness values.

Extreme Outcome

Similar to Alternative C but there is a real probability based on based past event such as the Big Bar Complex of 1999 and the Bar Complex of 2006, that the fire could get much bigger than expected or planned.

Probability: 40%
Final Fire Size: 130000 acres
Time to Contain: 60 days
Time to Control: 90 days

Probability: 60%
Final Fire Size: 250000 acres
Time to Contain: 90 days
Time to Control: 120 days

Alternative C. Macro Protection

This alternative would focus on the same values at risk as in Alternative B, but would minimize or reduce the effort on perimeter control where practical. Expectations are that the fire will be contained within the administrative boundary of the Shasta-Trinity National Forest (SHF) but actions may be taken if and/or when fires exceed the SHF boundary within the analysis/decision space area. Acreage estimate was generated from FSPRO modeling, assuming the 0.2-4.9 percentile probability ranking for fire spread.

Target Outcome

If weather and topography combine unfavorably with limited fire suppression resources, many fires may combine or grow in size to occupy much of the Trinity Alps Wilderness in the Big Bar Ranger District.

Extreme Outcome

Similar to Alternative C but there is a real probability based on based past event such as the Big Bar Complex of 1999 and the Bar Complex of 2006, that the fire could get much bigger than expected or planned.

Probability: 40%
Final Fire Size: 226000 acres
Time to Contain: 90 days
Time to Control: 120 days

Probability: 60%
Final Fire Size: 250000 acres
Time to Contain: 90 days
Time to Control: 120 days

Estimated Suppression Costs

Alternative A. Minimize perimeters									
		Target Outcome					Extreme Outcome		
FMU	%	\$/acre	Cost			%	\$/acre	Cost	
02-Wilderness - Trinity Alps-1	50	615	27982500			50	615	76875000	
06-Trinity Forest - SFMU, TRMU-1	50	615	27982500			50	615	76875000	

Target Outcome

Estimated suppression cost:
\$71,600,000

Basis for cost estimate:

Suppression will be very aggressive on the non-wilderness especially in the Urban interface. There are no urban issues within the wilderness; hence, there would not be an overly aggressive perimeter control focus. Costs are based on Pigeon fire for the non-wilderness (\$1,261/acre) and the Bar fire of the Bar complex for the wilderness (\$285/acre)

Extreme Outcome

Estimated suppression cost:
\$154,000,000

Basis for cost estimate:
Historic average cost per acre

Alternative B. Priority Protection									
		Target Outcome					Extreme Outcome		
FMU	%	\$/acre	Cost			%	\$/acre	Cost	
02-Wilderness - Trinity Alps-1	70	615	55965000			50	615	76875000	
06-Trinity Forest - SFMU, TRMU-1	30	615	23985000			50	615	76875000	

Target Outcome

Estimated suppression cost:
\$51,700,000

Basis for cost estimate:

The focus will be on focused value protection first and then on perimeter control. There are no urban issues within the wilderness, hence, there would not be an overly aggressive perimeter control focus. Costs are based on Pigeon fire for the non-wilderness (\$480/acre) and the Bar fire in the wilderness. (\$285/acre)

Extreme Outcome

Estimated suppression cost:
\$154,000,000

Basis for cost estimate:
Historic average cost per acre

Alternative C. Macro Protection									
		Target Outcome					Extreme Outcome		
FMU	%	\$/acre	Cost			%	\$/acre	Cost	
02-Wilderness - Trinity Alps-1	80	615	111192000			50	615	76875000	
06-Trinity Forest - SFMU, TRMU-1	20	615	27798000			50	615	76875000	

Target Outcome

Estimated suppression cost:
\$64,300,000

Basis for cost estimate:

This is a non-aggressive fire suppression alternative. Point protection where needed would be the focus. This estimate is based on a cost of \$285 (inflated to 2008) per acre. This is the cost per acre spent on the Bar fire.

Extreme Outcome

Estimated suppression cost:
\$154,000,000

Basis for cost estimate:
Historic average cost per acre

AAC Tables

Fire Management Unit: 02-Wilderness - Trinity Alps-1

From	To	Cost
0	0.25	\$9737
0.26	10.00	\$4401
11.00	100.00	\$3995
101.00	300.00	\$1678
301.00	1,000.00	\$2514
1,001.00	9,999,999.00	\$615

Fire Management Unit: 06-Trinity Forest - SFMU, TRMU-1

From	To	Cost
0	0.25	\$9737
0.26	10.00	\$4401
11.00	100.00	\$2496
101.00	300.00	\$1887
301.00	1,000.00	\$2514
1,001.00	9,999,999.00	\$615

Values Protected

Note: Outcome values are rounded to 3 significant digits counting from the left.
Totals are rounded to 2 significant digits.

Item	Alternative A. Minimize perimeters			Expected Values Protected
	Values At Risk	Protected in Target Outcome (25%)	Protected in Extreme Outcome (75%)	
Residences and Private Structures	78,000,000	37,300,000	78,000,000	
Burnt Ranch Campground	0	0	0	
Ironside Lookout	0	0	0	
Gray Falls Campground and Picnic	0	0	0	
Burnt Ranch Fire Station	0	0	0	
Big Flat Campground	0	0	0	
Helena townsite	0	0	0	
Eagle Ranch	0	0	0	
Pigeon Point Campground	0	0	0	
Junction City Campground	0	0	0	
Skunk Point Campground and Picnic	0	0	0	
Weaver Bally Lookout	0	0	0	
Wild and Scenic River	0	0	0	
Power transmission lines	0	0	0	
Highway 299	0	0	0	
Domestic Water Supplies	0	0	0	
Power lines	5,600,000	2,100,000	5,600,000	
Total (rounded)	\$84,000,000	\$39,000,000	\$84,000,000	\$73,000,000

Item	Alternative B. Priority Protection			Expected Values Protected
	Values At Risk	Protected in Target Outcome (40%)	Protected in Extreme Outcome (60%)	
Residences and Private Structures	78,000,000	17,000,000	78,000,000	
Burnt Ranch Campground	0	0	0	
Ironside Lookout	0	0	0	
Gray Falls Campground and Picnic	0	0	0	
Burnt Ranch Fire Station	0	0	0	
Big Flat Campground	0	0	0	
Helena townsite	0	0	0	
Eagle Ranch	0	0	0	
Pigeon Point Campground	0	0	0	
Junction City Campground	0	0	0	
Skunk Point Campground and Picnic	0	0	0	
Weaver Bally Lookout	0	0	0	
Wild and Scenic River	0	0	0	
Power transmission lines	0	0	0	
Highway 299	0	0	0	
Domestic Water Supplies	0	0	0	
Power lines	5,600,000	700,000	5,600,000	
Total (rounded)	\$84,000,000	\$18,000,000	\$84,000,000	\$58,000,000

Alternative C. Macro Protection

Item	Values At Risk	Protected in Target Outcome (40%)	Protected in Extreme Outcome (60%)	Expected Values Protected
Residences and Private Structures	78,000,000	0	78,000,000	
Burnt Ranch Campground	0	0	0	
Ironside Lookout	0	0	0	
Gray Falls Campground and Picnic	0	0	0	
Burnt Ranch Fire Station	0	0	0	
Big Flat Campground	0	0	0	
Helena townsite	0	0	0	
Eagle Ranch	0	0	0	
Pigeon Point Campground	0	0	0	
Junction City Campground	0	0	0	
Skunk Point Campground and Picnic	0	0	0	
Weaver Bally Lookout	0	0	0	
Wild and Scenic River	0	0	0	
Power transmission lines	0	0	0	
Highway 299	0	0	0	
Domestic Water Supplies	0	0	0	
Power lines	5,600,000	0	5,600,000	
Total (rounded)	\$84,000,000	\$0	\$84,000,000	\$50,000,000

Resource Value Losses

Note: Outcome values, including totals, are rounded to 3 significant digits counting from the left. Expected Impact is rounded to 2 significant digits.

Alternative A. Minimize perimeters

Item	Target Outcome (25%)		Extreme Outcome (75%)	Expected Impact
Mature Timber	54,200,000		149,000,000	
Immature Poles	6,200,000		17,000,000	
Seed and Saplings	1,890,000		5,190,000	
Forage	18		50	
Water Storage	8,380		23,000	
Fisheries - Wm/Cd Wtr	94,000		258,000	
Fisheries - Anad Sport	2,080		5,730	
Wildlife - Big Game	25,900		71,100	
Wildlife - Other	18,300		50,300	
Recreation - Disp/Dev	848,000		2,330,000	
Recreation - Wilderness	128,000		352,000	
Total (rounded)	\$63,000,000		\$170,000,000	\$140,000,000

Alternative B. Priority Protection

Item	Target Outcome (40%)		Extreme Outcome (60%)	Expected Impact
Mature Timber	46,500,000		149,000,000	
Immature Poles	5,310,000		17,000,000	
Seed and Saplings	1,620,000		5,190,000	
Forage	36		50	
Water Storage	7,180		23,000	
Fisheries - Wm/Cd Wtr	160,000		258,000	
Fisheries - Anad Sport	1,790		5,730	
Wildlife - Big Game	37,000		71,100	
Wildlife - Other	26,100		50,300	
Recreation - Disp/Dev	886,000		2,330,000	
Recreation - Wilderness	256,000		352,000	
Total (rounded)	\$55,000,000		\$170,000,000	\$120,000,000

Alternative C. Macro Protection

Item	Target Outcome (40%)		Extreme Outcome (60%)	Expected Impact
Mature Timber	53,800,000		149,000,000	
Immature Poles	6,160,000		17,000,000	
Seed and Saplings	1,880,000		5,190,000	
Forage	72		50	
Water Storage	8,330		23,000	
Fisheries - Wm/Cd Wtr	301,000		258,000	
Fisheries - Anad Sport	2,070		5,730	
Wildlife - Big Game	64,300		71,100	
Wildlife - Other	45,400		50,300	
Recreation - Disp/Dev	1,260,000		2,330,000	
Recreation - Wilderness	509,000		352,000	
Total (rounded)	\$64,000,000		\$170,000,000	\$130,000,000

Computation of NVC Losses by FMU and FIL

Alternative A. Minimize perimeters

FMU	FIL	\$/acre	%	Target Outcome		Extreme Outcome		
				Acres	Impact	%	Acres	Impact
02-Wilderness - Trinity Alps-1	1	0	11	10010	0	11	27500	0
	2	0	13	11830	0	13	32500	0
	3	-2	11	10010	-20821	11	27500	-57200
	4	-14	9	8645	-121895	9	23750	-334875
	5	-38	3	3185	-121348	3	8750	-333375
	6	-52	2	1820	-95004	2	5000	-261000
06-Trinity Forest - SFMU, TRMU-1	1	-322	11	10010	-3223220	11	27500	-8855000
	2	-829	13	11830	-9807070	13	32500	-26942500
	3	-1770	11	10010	-17717700	11	27500	-48675000
	4	-2370	9	8645	-20488650	9	23750	-56287500
	5	-2340	3	3185	-7452900	3	8750	-20475000
	6	-2370	2	1820	-4313400	2	5000	-11850000
Total			100	91000	-\$63,000,000	100	250000	-\$170,000,000

Alternative B. Priority Protection

FMU	FIL	\$/acre	%	Target Outcome		Extreme Outcome		
				Acres	Impact	%	Acres	Impact
02-Wilderness - Trinity Alps-1	1	0	15	20020	0	11	27500	0
	2	0	18	23660	0	13	32500	0
	3	-2	15	20020	-41642	11	27500	-57200
	4	-14	13	17290	-243789	9	23750	-334875
	5	-38	4	6370	-242697	3	8750	-333375
	6	-52	2	3640	-190008	2	5000	-261000
06-Trinity Forest - SFMU, TRMU-1	1	-322	6	8580	-2762760	11	27500	-8855000
	2	-829	7	10140	-8406060	13	32500	-26942500
	3	-1770	6	8580	-15186600	11	27500	-48675000
	4	-2370	5	7410	-17561700	9	23750	-56287500
	5	-2340	2	2730	-6388200	3	8750	-20475000
	6	-2370	1	1560	-3697200	2	5000	-11850000
Total			100	130000	-\$55,000,000	100	250000	-\$170,000,000

Alternative C. Macro Protection

FMU	FIL	\$/acre	%	Target Outcome		Extreme Outcome		
				Acres	Impact	%	Acres	Impact
02-Wilderness - Trinity Alps-1	1	0	17	39776	0	11	27500	0
	2	0	20	47008	0	13	32500	0
	3	-2	17	39776	-82734	11	27500	-57200
	4	-14	15	34352	-484363	9	23750	-334875
	5	-38	5	12656	-482194	3	8750	-333375
	6	-52	3	7232	-377510	2	5000	-261000
06-Trinity Forest - SFMU, TRMU-1	1	-322	4	9944	-3201968	11	27500	-8855000
	2	-829	5	11752	-9742408	13	32500	-26942500
	3	-1770	4	9944	-17600880	11	27500	-48675000
	4	-2370	3	8588	-20353560	9	23750	-56287500
	5	-2340	1	3164	-7403760	3	8750	-20475000
	6	-2370	0	1808	-4284960	2	5000	-11850000
Total			100	226000	-\$64,000,000	100	250000	-\$170,000,000

NVC Tables

Only negative values are included for this fire.

Fire Management Unit: 02-Wilderness - Trinity Alps-1

	FIL 1	FIL 2	FIL 3	FIL 4	FIL 5	FIL 6
Mature Timber	0	0	0	0	0	0
Immature Poles	0	0	0	0	0	0
Seed and Saplings	0	0	0	0	0	0
Forage	0	0	0	0	0	-0.01
Water Use	0	0	0	0	0	0
Water Storage	0	0	0	0	0	0
Fisheries - Wm/Cd Wtr	0	0	0	0	-12.75	-16.06
Fisheries - Anad Sport	0	0	0	0	0	0
Fisheries - Commercial	0	0	0	0	0	0
Wildlife - Big Game	0	0	0	-0.85	-1.03	-1.27
Wildlife - Other	0	0	0	-0.6	-0.73	-0.9
Recreation - Disp/Dev	0	0	-2.08	-6.43	-10.94	-15.28
Recreation - Wilderness	0	0	0	-6.22	-12.68	-18.65
Improvements	0	0	0	0	0	0
Totals	\$0	\$0	-\$2	-\$14	-\$38	-\$52

Fire Management Unit: 06-Trinity Forest - SFMU, TRMU-1

	FIL 1	FIL 2	FIL 3	FIL 4	FIL 5	FIL 6
Mature Timber	-214	-666.65	-1546.53	-2123.76	-2064.69	-2064.69
Immature Poles	-79.81	-122.89	-166.7	-166.7	-166.7	-166.7
Seed and Saplings	-27.64	-39.37	-48.43	-48.43	-48.43	-48.43
Forage	0	0	0	0	0	0
Water Use	0	0	0	0	0	0
Water Storage	-0.07	-0.15	-0.22	-0.22	-0.36	-0.36
Fisheries - Wm/Cd Wtr	0	0	0	0	-4.4	-5.55
Fisheries - Anad Sport	0	0	0	0	-0.38	-0.48
Fisheries - Commercial	0	0	0	0	0	0
Wildlife - Big Game	0	0	0	-0.85	-1.03	-1.27
Wildlife - Other	0	0	0	-0.6	-0.73	-0.9
Recreation - Disp/Dev	0	0	-10.62	-32.74	-55.75	-77.87
Recreation - Wilderness	0	0	0	0	0	0
Improvements	0	0	0	0	0	0
Totals	-\$322	-\$829	-\$1,773	-\$2,373	-\$2,342	-\$2,366

Safety Assessment

Alternative A. Minimize perimeters

Target Outcome	Fallback Outcome	Extreme Outcome
Rating: 8 / 10 Marijuana plantations are likely to exist near remote fires, and may be encountered during suppression efforts.	Issue: Marijuana Gardens	Rating: 5 / 10 If the fire burns the maximum conceivable area, it is likely that DTO plantations will be encountered during suppression activities.
Rating: 3 / 10 Exposure to steep terrain will occur if forces are deployed in the vicinity of individual fires, many of which are in remote and rugged locations.	Issue: Steep, difficult terrain	Rating: 6 / 10 In the extreme outcome, much steep terrain will burn, but forces may be unable to deploy effectively in those areas.
Rating: 5 / 10 Smoke obscuring visibility may create high risk to firefighters in remote terrain where the probability of entrapment is high.	Issue: Poor visibility	Rating: 4 / 10
Rating: 5 / 10 Greater number of firefighters, the greater the exposure to poison oak.	Issue: Poison Oak	Rating: 2 / 10
Rating: 5 / 10 Fewer days of burning would minimize the number of days of exposure.	Issue: Firefighter and Public Health	Rating: 3 / 10 This assumes that there will be smoke in the air until late fall
Rating: 5 / 10	Issue: Driving Hwy 299	Rating: 3 / 10
Rating: 6 / 10	Issue: Cable and Powerlines	Rating: 3 / 10

Alternative B. Priority Protection

Target Outcome	Fallback Outcome	Extreme Outcome
Rating: 7 / 10 Priority protection will limit the radius of individual or conjoined perimeters, thus somewhat limiting the chance of encountering DTO plantations.	Issue: Marijuana Gardens	Rating: 5 / 10 If the fire burns the maximum conceivable area, it is likely that DTO plantations will be encountered during suppression activities.
Rating: 5 / 10 Under the priority protection strategy, steep terrain will likely be encountered, although perimeters may be designed to reduce this risk somewhat.	Issue: Steep, difficult terrain	Rating: 6 / 10 In the extreme outcome, much steep terrain will burn, but forces may be unable to deploy effectively in those areas.
Rating: 4 / 10 If fires coalesce, smoke may rapidly reduce visibility in defensible locations.	Issue: Poor visibility	Rating: 4 / 10
Rating: 4 / 10 Reduced exposure compared to A	Issue: Poison Oak	Rating: 2 / 10
	Issue: Firefighter and Public Health	

Rating: 4 / 10
More days to subject the public and firefighters to smoke

Rating: 3 / 10
This assumes that there will be smoke in the air until late fall

Rating: 4 / 10

Issue: Driving Hwy 299

Rating: 3 / 10

Rating: 4 / 10

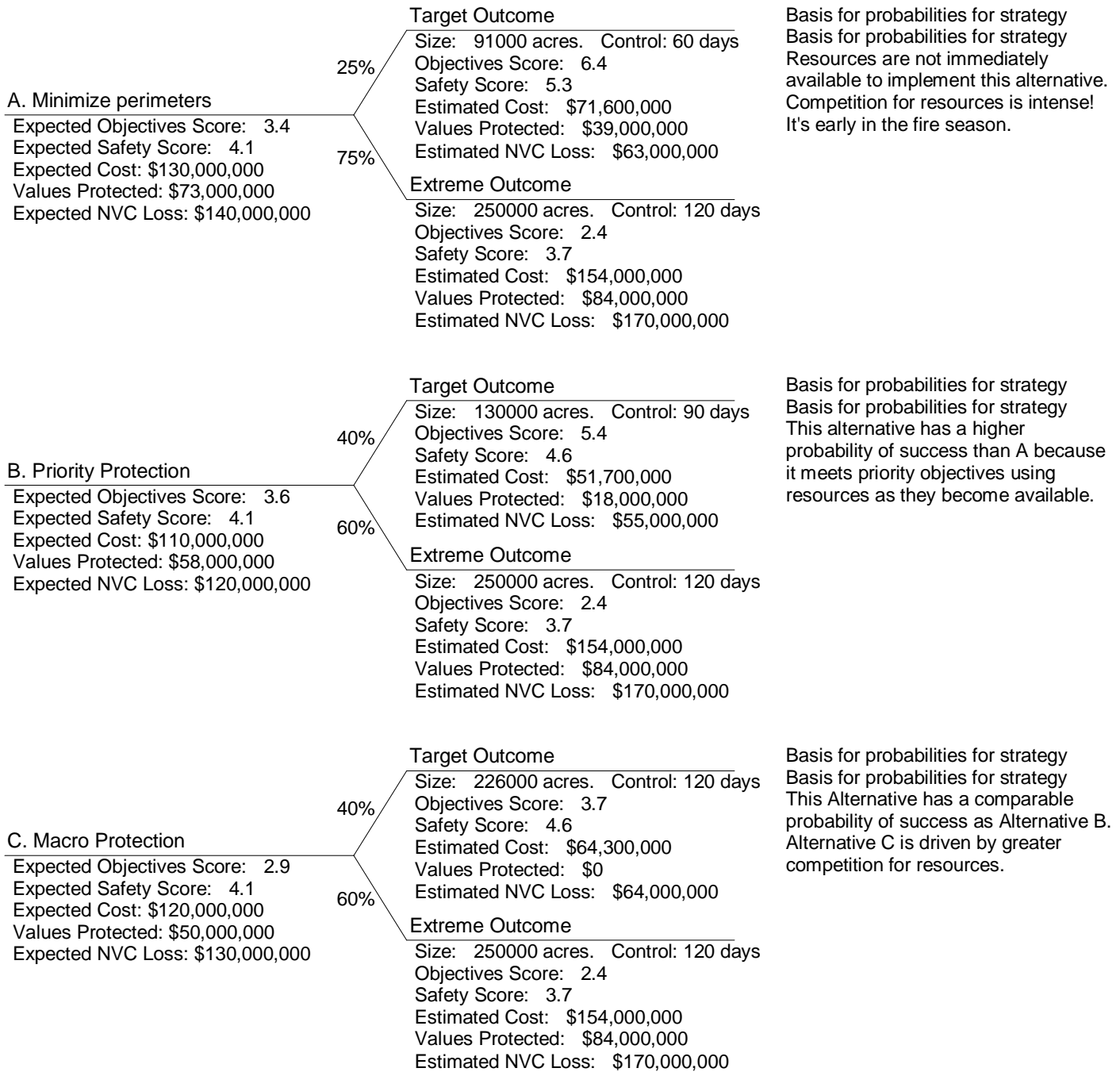
Issue: Cable and Powerlines

Rating: 3 / 10

Alternative C. Macro Protection

Target Outcome	Fallback Outcome	Extreme Outcome
Rating: 7 / 10 If the macro protection alternative is chosen, most marijuana plantations will be inside the control lines, minimizing risk to firefighters.	Issue: Marijuana Gardens	Rating: 5 / 10 If the fire burns the maximum conceivable area, it is likely that DTO plantations will be encountered during suppression activities.
Rating: 6 / 10 Using terrain features and natural or existing firebreaks should expose forces to less rugged terrain.	Issue: Steep, difficult terrain	Rating: 6 / 10 In the extreme outcome, much steep terrain will burn, but forces may be unable to deploy effectively in those areas.
Rating: 4 / 10 Smoke will obscure interior visibility using this strategy, but should be less of a safety hazard due to the positioning of forces.	Issue: Poor visibility	Rating: 4 / 10
Rating: 3 / 10 May expose fewer firefighters to poison oak than the other alternatives.	Issue: Poison Oak	Rating: 2 / 10
Rating: 4 / 10 This assumes that there would be smoke in the air until the season ends late fall.	Issue: Firefighter and Public Health	Rating: 3 / 10 This assumes that there will be smoke in the air until late fall
Rating: 4 / 10	Issue: Driving Hwy 299	Rating: 3 / 10
Rating: 4 / 10	Issue: Cable and Powerlines	Rating: 3 / 10

Decision Tree

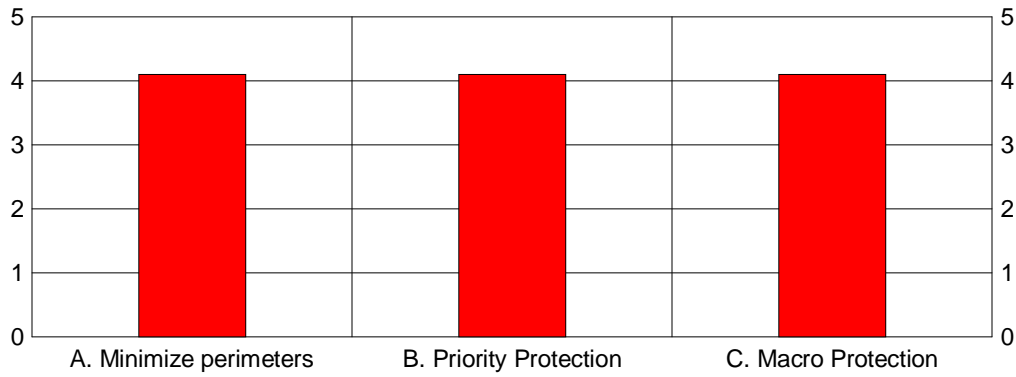


Comparison of Alternatives

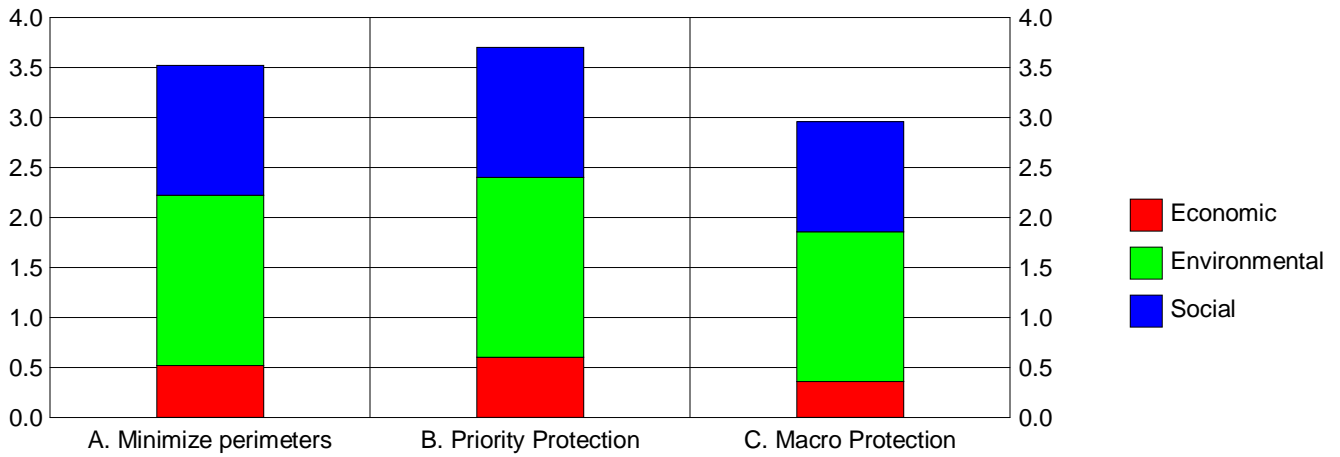
	Alternatives										
	A. Minimize perimeters				B. Priority Protection				C. Macro Protection		
Estimated Target Suppression Cost	\$72,000,000				\$52,000,000				\$64,000,000		
Expected Suppression Cost	\$130,000,000				\$110,000,000				\$120,000,000		
Expected Values Protected	\$73,000,000				\$58,000,000				\$50,000,000		
Expected Resource Loss	\$140,000,000				\$120,000,000				\$130,000,000		
Total Expected Financial Impact	-\$197,000,000				-\$172,000,000				-\$200,000,000		
Expected Objectives Score	3.4				3.6				2.9		
	Outcomes				Outcomes				Outcomes		
	Alt. A				Alt. B				Alt. C		
	Tg	F	Ex		Tg	F	Ex		Tg	F	Ex
	t	B		Alt. A	t	B		Alt. B	t	B	
	25	0	75		40	0	60		40	0	60
Objective	Probability (%)										
Economic	Wgt										
Recreation	0.08	8	1	2.7	6	1	3.0	3	1	1.8	
Timber	0.09	8	2	3.5	7	2	4.0	3	2	2.4	
Environmental											
Wild and Scenic River	0.12	8	2	3.5	6	2	3.6	3	2	2.4	
Threatened and Sensitive Wildlife Species	0.10	6	3	3.7	5	3	3.8	4	3	3.4	
Air Quality	0.06	7	1	2.5	4	1	2.2	2	1	1.4	
Retardant Use	0.12	7	3	4.0	6	3	4.2	4	3	3.4	
Noxious weeds	0.10	2	2	2.0	4	2	2.8	6	2	3.6	
Social											
Public information	0.12	7	2	3.2	6	2	3.6	3	2	2.4	
Cultural Sites	0.10	7	2	3.2	5	2	3.2	3	2	2.4	
Local Vendors	0.12	5	5	5.0	5	5	5.0	5	5	5.0	
Expected Safety Score	4.1				4.1				4.1		
Marijuana Gardens	0.14	8	5	5.7	7	5	5.8	7	5	5.8	
Steep, difficult terrain	0.14	3	6	5.2	5	6	5.6	6	6	6.0	
Poor visibility	0.14	5	4	4.2	4	4	4.0	4	4	4.0	
Poison Oak	0.14	5	2	2.7	4	2	2.8	3	2	2.4	
Firefighter and Public Health	0.14	5	3	3.5	4	3	3.4	4	3	3.4	
Driving Hwy 299	0.14	5	3	3.5	4	3	3.4	4	3	3.4	
Cable and Powerlines	0.14	6	3	3.7	4	3	3.4	4	3	3.4	

Comparison of Alternatives

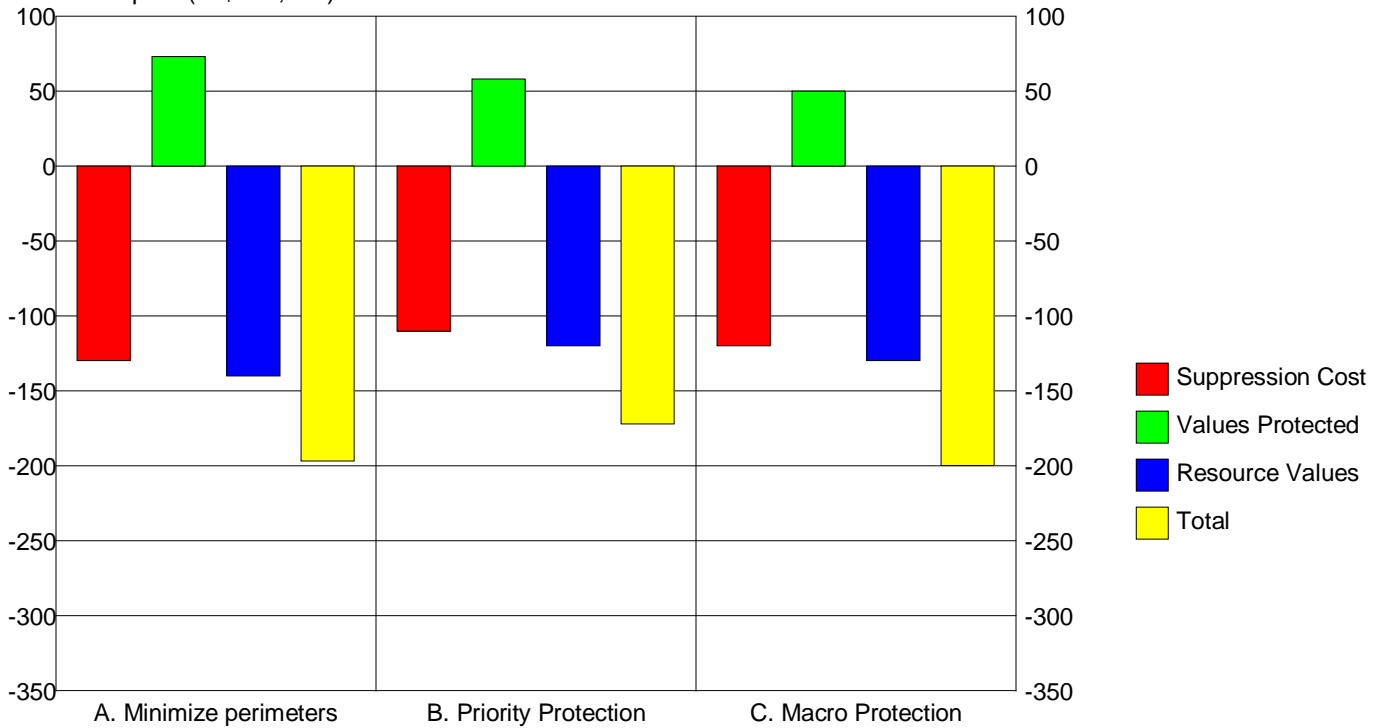
Safety Score (0=worst, 10=best)



Objectives Score (0=worst, 10=best)



Financial impact (in \$000,000)



Incident Complexity Analysis

Incident Complexity Rating: Type

Rationale:

NO YES FACTOR

A. Fire Behavior

- Burning index predicted to be above the 90% level.
- X Potential exists for "blowup" conditions (fuel moisture, winds, etc.).
- Crowning, profuse or long-range spotting.
- X Weather forecast indicating no significant relief or worsening conditions.

B. Resources Committed

- X 200 or more personnel assigned.
- X Three or more divisions.
- X Wide variety of special support personnel.
- Substantial air operation which is not properly staffed.
- X Majority of initial attack resources committed.

C. Resources Threatened

- X Urban interface.
- X Developments and facilities.
- X Restricted, threatened or endangered species habitat.
- X Cultural sites.
- X Unique natural resources, special designated zones or wilderness.
- Other special resources.

D. Safety

- X Unusually hazardous fire line conditions.
- Serious accidents or fatalities.
- X Threat to safety of visitors from fire and related operations.
- X Restrictions and/or closures in effect or being considered.
- No night operations in place for safety reasons.

E. Ownership

- X Fire burning or threatening more than one jurisdiction.
- Potential for claims (damages).
- X Different or conflicting management objectives.
- Disputes over suppression responsibility.
- X Potential for unified command.

F. External Influences

- Controversial wildland fire management policy.
- X Pre-existing controversies/relationships.
- Sensitive media relationships.
- X Smoke management problems.
- X Sensitive political interests.
- Other external influences.

G. Change in Strategy

- Change to a more aggressive suppression strategy.
- X Large amounts of unburned fuel within planned perimeter.
- X WFSAs invalid or require updating.

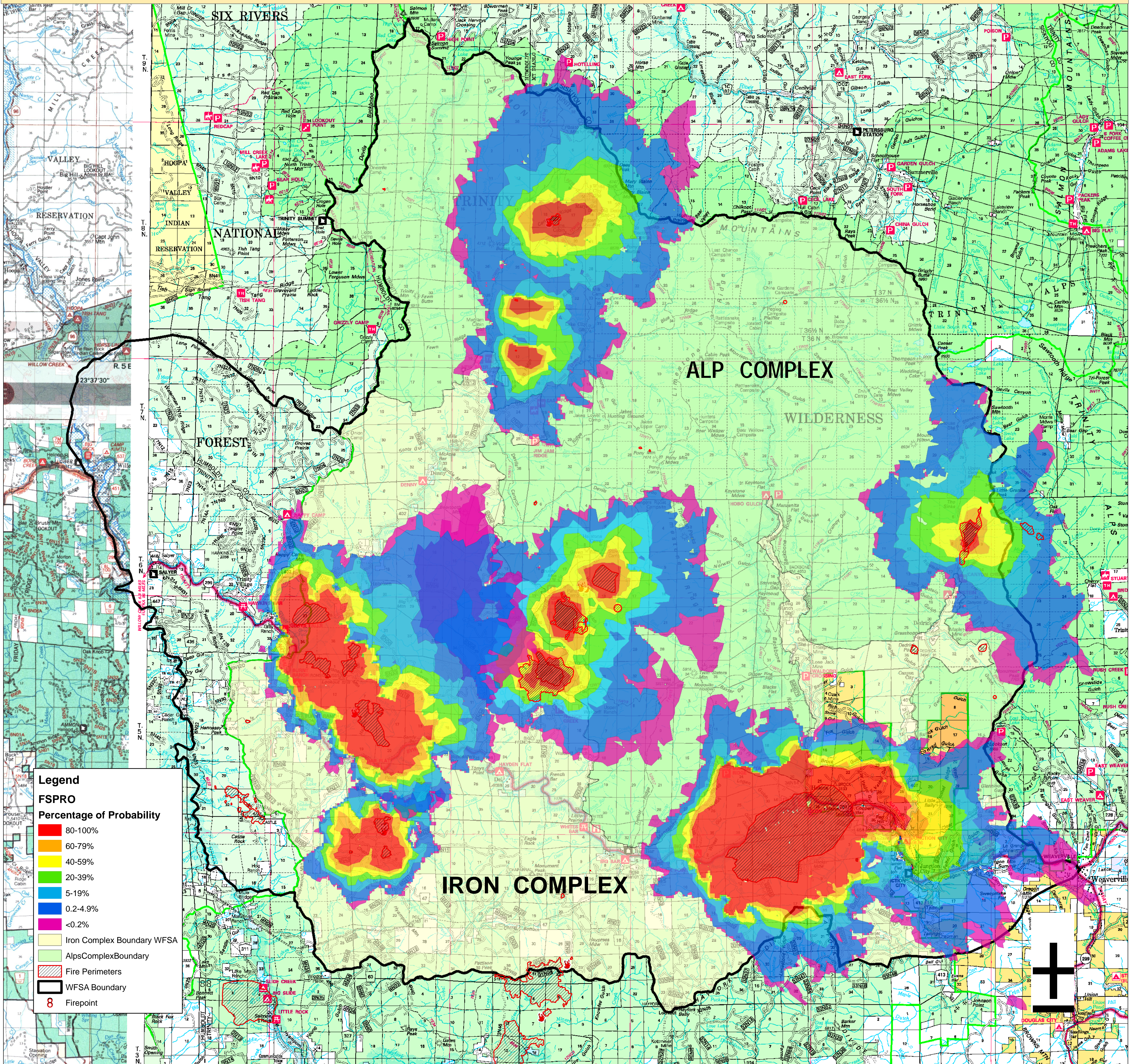
H. Existing Overhead

- Worked two operational periods without achieving initial objectives.
- Existing management organization ineffective.
- Overhead overextended themselves mentally and/or physically.
- Incident action plans, briefings, etc. missing or poorly prepared.



Wildland Fire Situation Analysis - Iron and Alp Complexes

July 01, 2008





WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



Incident Name:	Iron Complex – Zeigler...	Analysis Tier Level:	Tier I – Primary Assets Only
State(s):	California	FSPRO Projected From:	26 June 2008
		RAVAR Requested:	26 June 2008
Report Date:	26 June 2008		7-day projection
RAVAR Analyst:	Kevin Hyde (METI) RMRS Missoula – 406.329.2137 kdhyde@fs.fed.us	FSPRO Analyst:	Rick Connell rconnell@fs.fed.us 307.899.0431
RAVAR Code:	A_T1_080626_kh		

NOTE: This report accompanies a RAVAR analysis map.

All RAVAR products are intended for STRATEGIC use only. It is always advised that values analyzed and displayed on RAVAR maps be verified by local knowledge.

FSPRO Basis for Analysis:

- ❖ FSPRO Analysis – **7 day** starting **26 June 2008**; Projected spread assumes NO further suppression
- ❖ NOTE: The < 1% spread probability zone is displayed on the map (pale pink zone) but assets within are not summarized. This zone represents “the rare event” – confidence in this prediction is undetermined.

Tier I Analysis – Primary Assets Only

General Assessment:

- ❖ This report summarizes three fires within the Iron Complex – Zeigler, Ironsides, and Don Juan. These are located on the Shasta-Trinity National Forest, Trinity County, northeast of Hwy. 299 near Trinity Village.
- ❖ *Assuming no further suppression*, the 7-day fire spread projection indicates that the three fires will merge (>80% probability). Spread may move SW downslope toward Hwy 299 and to the NE.
- ❖ Communities and settlements threatened:
 - Within or immediately proximate to projected spread zone
 - Grey Ranch – **W**, < 0.5 mi. from perimeter – 31 building clusters
 - Burnt Ranch – **W**, < 0.5 mi. from perimeter – 121 building clusters
 - Cedar Flat – **SW**, < 1.0 mi. from perimeter – 10 building clusters
 - Hoboken – **NE**, < 2.0 mi. from perimeter – 12 building clusters
 - Near projected spread zone:
 - Hawkins Bar/ Trinity Village – **NW**, 2 mi. from perimeter – 245 building clusters
 - Del Loma – **SE**, 4.0 mi. from perimeter – 24 building clusters
 - Denny – **NE**, 6.0 mi. from perimeter – 15 building clusters
 - Highest density of threatened structures lies along and south of the Hwy 299 corridor with scattered and isolated structures to the **NE**
- ❖ Major Infrastructure:
 - Highways, Major Roads:
 - Hwy 299 corridor currently **SW** of fire perimeter
 - Denny Road to **N** – Access to remote structures
 - Powerlines – Major transmission line located > 6 mi **S** of current perimeter
- ❖ Water Resources: *No specific infrastructure identified none identified per available data*

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WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



- ❖ Other resources threatened:
 - Lookout tower located on Ironside Mountain reported in 209 but not identified in available data
 - Sensitive watersheds and fisheries reported in 209 but not specifically identifiable with available data
 - Wild and scenic rivers – The Trinity River and New River threatened at all probability levels
 - A small number of campgrounds and picnic areas are located along the highway and river corridors

Values assessed in this Report:

- ❖ **NOTE: Analysis of assets within the 80% Spread Probability Zone includes values-at-risk that may be within the active fire perimeter; any assets within the active perimeter are not independently analyzed.**
- ❖ Primary land jurisdictions (Table 1)
- ❖ Subtotals of USFS jurisdictions within designated roadless or wilderness areas (Table 2)
- ❖ Building cluster points per Trinity County GIS parcel layer (Table 3)
- ❖ Wild and Scenic River Corridor (Table 4)
- ❖ Other Landmarks (Table 5)

Information proximate to FSPro analysis area that is mapped but not itemized in this report:

- ❖ Trinity Village/Hawkins Bar
- ❖ USGS Gaging Station on Trinity River Near Cedar Flat

Jurisdictions within FSPro Spread Zones:

Table 1

Jurisdiction	USFS - Total		Private	
	In Zone	Cum.	In Zone	Cum.
FSPro Zone				
> 80%	10,967	10,967	283	283
60 - 80 %	2,171	13,137	128	411
40 - 60 %	2,688	15,825	50	461
20 - 40 %	3,329	19,154	203	664
5 - 20 %	7,053	26,207	315	979
1 - 5 %	15,492	41,699	445	1,423

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WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



USFS Designated Roadless and Wilderness Areas: These acres are subtotals of USFS-Total jurisdiction acres

Table 2

Designation	USFS - IRA		USFS - Wild	
	In Zone	Cum.	In Zone	Cum.
FSPro Zone				
> 80%	23,941	23,941	42,991	42,991
60 - 80 %	27,002	50,943	12,639	55,630
40 - 60 %	36,686	87,629	16,969	72,599
20 - 40 %*	47,061	134,690	21,053	93,652
5 - 20 %*	23,204	157,894	30,398	124,050
1 - 5 %*	8,420	166,314	475	124,525

Estimates of Structure Values at Risk: Estimate is derived from analysis of Trinity County GIS parcel data; count represents building clusters*.

Note: Recreation residences and special use structures data are not available from USFS and are not identified or analyzed in this report.

Table 3

Fire Spread Probability Zone	Acres Threatened		Structure Value TRINITY County			
	Acres by Zone	Cumulative Acres	Count by Zone	Cumulative Count	Value by Zone	Cumulative Value
> 80%	11,250	11,250	9	9	\$1,463,067	\$1,463,067
60 - 80 %	2,299	13,549	5	14	\$812,815	\$2,275,882
40 - 60 %	2,738	16,286	7	21	\$1,137,941	\$3,413,823
20 - 40 %	3,532	19,818	17	38	\$2,763,571	\$6,177,394
5 - 20 %	7,368	27,186	21	59	\$3,413,823	\$9,591,217
1 - 5 %	15,930	43,116	34	93	\$5,527,142	\$15,118,359

* Building Clusters represent the center of parcels where county assessor records indicate taxable improvements are present. One or more structures and/or other improvements may exist proximate to these point locations. Accuracy of cluster points decreases with large parcel areas. Valuation of building clusters is based on inflation adjusted average home value of \$162,563 for Trinity County per U.S. Census data.

Commercial assets may be undervalued.

***** Report continues on next page *****



WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



Wild & Scenic River (ac):

Table 4

Wild & Scenic River (ac)		
FSPro Zone	In Zone	Cum.
> 80%	1,870	1,870
60 - 80 %	396	2,266
40 - 60 %	473	2,739
20 - 40 %	361	3,100
5 - 20 %	655	3,755
1 - 5 %	920	4,676

Other Landmarks:

Table 5

OTHER LANDMARKS	FSPro Zone
Burnt Ranch Campground	> 80 %
Ironside Lookout	> 80 %
<i>none identified</i>	60 - 80 %
Gray Falls Campground	40 - 60 %
Picnic Area - FS	40 - 60 %
Burnt Ranch Station	20 - 40 %
<i>none identified</i>	5 - 20 %
<i>none identified</i>	1 - 5 %

END OF REPORT

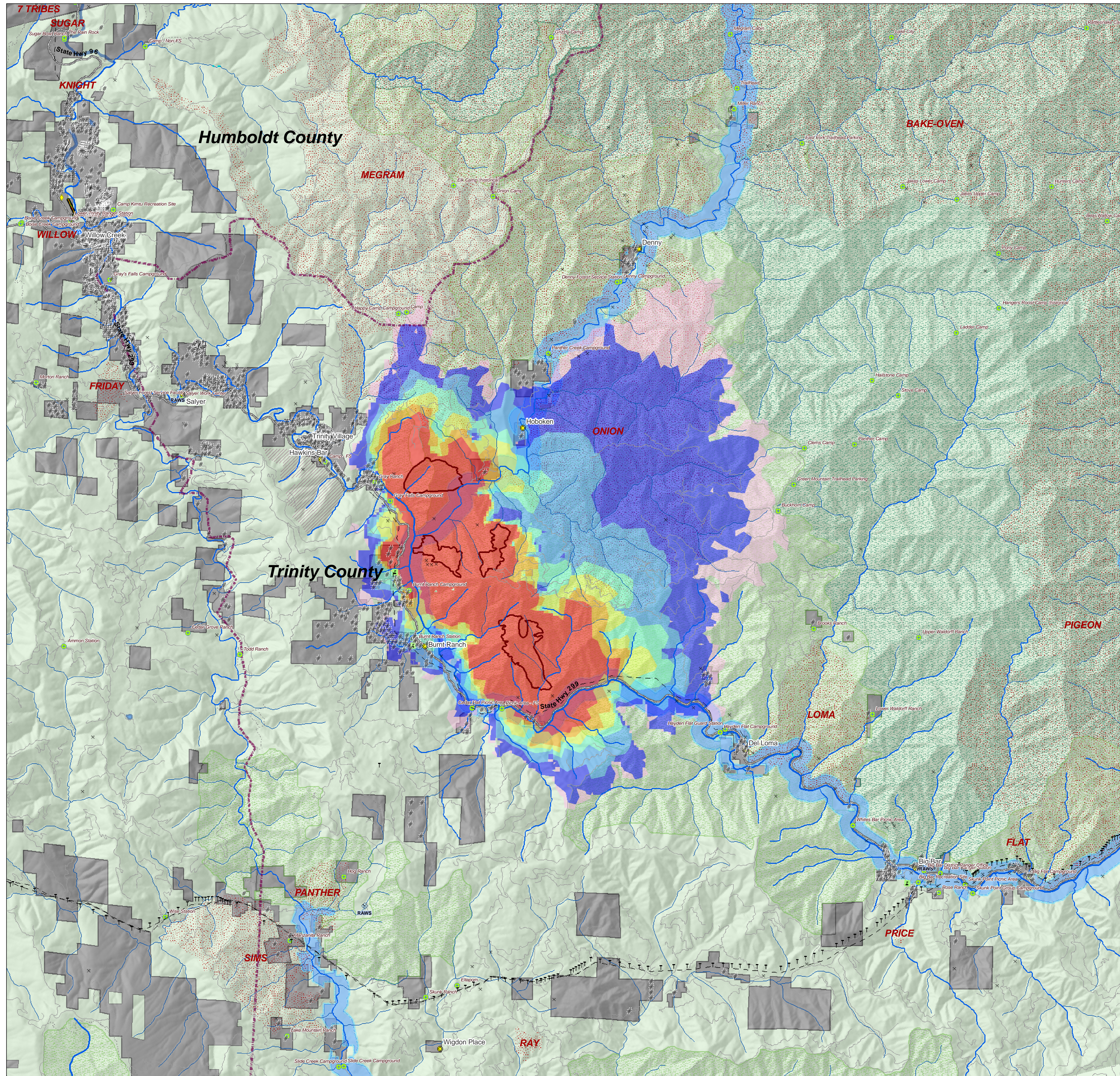


Iron Complex, CA Ziegler, Ironside, Don Juan

26 June 2008 - A_T1_080626_kh

Major Values-at-Risk per
FSPRO Fire Spread Probabilities:
7 days as of 26 June 2008

- Current Fire Perimeter 0626
- Past Fires 1994-2007
- FSPRO Fire Spread A1_080626**
- > 80 %
- 60 - 80 %
- 40 - 60 %
- 20 - 40 %
- 5 - 20 %
- 1 - 5 %
- < 1 %
- Building Clusters *
- RAWs Stations
- Water Supply: Intakes
- Water Pipeline - Aqueduct - Canal
- Powerlines
- Industrial Plant
- Power Pylon
- Communication Towers
- Airport Runways
- Schools
- HAZMAT: Mines
- HAZMAT: Hazardous Waste
- Other Landmarks
- Interstates
- Major Roads
- Local Roads (USFS)
- Trails (USFS)
- County Boundary
- Jurisdiction**
- Private
- USFS
- Inventoried Roadless
- Designated Wilderness
- Primitive RNA
- Wild-Scenic-Rec Rivers



CAUTION: Defer to air photos or local knowledge for exact structure and other feature locations.

*Building Clusters represent the center of parcels where county assessor records indicate taxable improvements are present. One or more structures and other improvements may exist proximate to these point locations.

NOTE: Recreation residences and special use structures data are not available from the USFS and are not justified or analyzed in this report.



WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



Incident Name:	Eagle	Analysis Tier Level:	Tier I – Primary Assets Only
State(s):	California	FSPRO Projected From:	26 June 2008
		RAVAR Requested:	26 June 2008
Report Date:	26 July 2008		7-day projection
RAVAR Analyst:	Jeff Kaiden, RMRS	FSPRO Analyst:	Rick Connell
	Missoula – 406.542.4166		R2 – 307.899.0431
	jkaiden@fs.fed.us		rconnell@fs.fed.us
RAVAR Code:	T1_A_080626_jk		

NOTE: This report accompanies a RAVAR analysis map.

All RAVAR products are intended for STRATEGIC use only. It is always advised that values analyzed and displayed on RAVAR maps be verified by local knowledge.

FSPRO Basis for Analysis:

- ❖ FSPRO Analysis – **7 day** starting **26 June 2008**; Projected spread assumes NO further suppression
- ❖ NOTE: The < 1% spread probability zone is displayed on the map (pale pink zone) but assets within are not summarized. This zone represents “the rare event” – confidence in this prediction is undetermined.

Tier I Analysis – Primary Assets Only

General Assessment:

- ❖ The fire is located on the Trinity National Forest **2 miles NW** of Junction City. The Eagle fire is a part of the Iron complex.
- ❖ *Assuming no further suppression*, the 7-day fire spread projection indicates generally omnidirectional spread with a tendency to run **SE** in the lower probability zones (1-20%)
- ❖ Communities threatened:
 - Helena: proximate to the **N** extent of the mapped fire perimeter within the >80% zone.
 - Junction City: **2 miles SE** of the mapped fire perimeter within the 20-40% zone.
 - Weaverville: **8 miles E** of the mapped fire perimeter outside all FSPRO zones.
 - Big Bar: **3 miles W** of the mapped fire perimeter outside all FSPRO zones.
 - Dense conglomeration of structures proximate to the **E** mapped fire perimeter within all FSPRO zones.
 - Clumping of structures **1 mile W** of the mapped fire perimeter within the greater fire spread probability zones (>40%)
- ❖ Major Infrastructure:
 - State Highway 299 run **E/W** through all FSPRO zones.
 - Communication Towers: *none identified per available data*
 - Oil and Gas Pipelines: *none identified per available data*
 - Powerlines run **E/W** through all FSPRO zones proximate to State Highway 299.
- ❖ Water Resources:
 - The Water Treatment Plant in Weaverville is located **8 miles E** of the mapped fire perimeter downstream of rivers flowing through the 1-5% FSPRO zone

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WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



- ❖ Other resources threatened:
 - Ski Resort Cables are located proximate to the community of Helena within the N extent of the mapped fire perimeter.
 - NOTE: Multiple mines are scattered throughout the mapped extent and may pose hazards to firefighting personnel
 - The Junction City elementary School is located 2 miles SE of the mapped fire perimeter within the 5-20% FSPro zone.
 - The Trinity Wild/Scenic River is flows through all FSPro probability zones

Values assessed in this Report:

- ❖ **NOTE: Analysis of assets within the 80% Spread Probability Zone includes values-at-risk that may be within the active fire perimeter; any assets within the active perimeter are not independently analyzed.**
- ❖ Primary land jurisdictions (Table 1)
- ❖ Subtotals of USFS jurisdictions within designated roadless or wilderness areas (Table 2)
- ❖ Building cluster points per Trinity County GIS parcel layer (Table 3)
- ❖ Powerlines (Table 4)
- ❖ Trinity Wild/Scenic River (Table 5)
- ❖ Other Landmarks (Table 6)

Jurisdictions within FSPro Spread Zones:

Table 1

Jurisdiction	USFS – Total		BLM		State		Private	
	In Zone	Cum.	In Zone	Cum.	In Zone	Cum.	In Zone	Cum.
FSPro Zone								
> 80%	15,073	15,073	3,103	3,103	4	4	1,733	1,733
60 - 80 %	1,047	16,120	700	3,803	7	11	430	2,163
40 - 60 %	1,241	17,361	1,782	5,586	64	75	416	2,578
20 - 40 %	2,106	19,467	2,158	7,744	128	203	816	3,394
5 - 20 %	4,368	23,835	2,404	10,148	46	249	1,505	4,900
1 - 5 %	10,901	34,736	2,918	13,066	98	347	3,662	8,562

USFS Designated Roadless and Wilderness Areas: These acres are subtotals of USFS-Total jurisdiction acres

Table 2

Jurisdiction	USFS - IRA		USFS - Wild	
	In Zone	Cum.	In Zone	Cum.
FSPro Zone				
> 80%	7,182	7,182	544	544
60 - 80 %	640	7,822	151	695
40 - 60 %	644	8,466	243	938
20 - 40 %	797	9,263	569	1,507
5 - 20 %	1,200	10,463	1,403	2,910
1 - 5 %	1,169	11,632	3,705	6,615

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WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



Estimates of Structure Values at Risk: Estimate is derived from analysis of Trinity County GIS AND/OR Assessor data; count represents building clusters*.

Note: Recreation residences and special use structures data are not available from the USFS and are not identified or analyzed in this report.

Table 3

Fire Spread Probability Zone	Acres Threatened		Structure Value Trinity COUNTY			
	Acres by Zone	Cumulative Acres	Count by Zone	Cumulative Count	Value by Zone	Cumulative Value
> 80%	19,913	19,913	153	153	\$24,872,139	\$24,872,139
60 - 80 %	2,185	22,097	51	204	\$8,290,713	\$33,162,852
40 - 60 %	3,503	25,600	25	229	\$4,064,075	\$37,226,927
20 - 40 %	5,207	30,808	36	265	\$5,852,268	\$43,079,195
5 - 20 %	8,324	39,132	51	316	\$8,290,713	\$51,369,908
1 - 5 %	17,579	56,710	68	384	\$11,054,284	\$62,424,192

* Building Clusters represent the center of parcels where county assessor records indicate taxable improvements are present. One or more structures and/or other improvements may exist proximate to these point locations. Accuracy of cluster points decreases with large parcel areas. Valuation of building clusters is based on inflation adjusted average home value of \$162,563 for Trinity County per U.S. Census data. Commercial assets may be undervalued.

Table 4

Power Transmission Lines (mi)		
FSPro Zone	In Zone	Cum.
> 80%	9.0	9
60 - 80 %	0.8	10
40 - 60 %	0.5	10
20 - 40 %	2.2	13
5 - 20 %	1.3	14
1 - 5 %	2.2	16

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WFDSS - RAVAR
Rapid Assessment of Values-at-Risk



Table 5

Trinity Wild & Scenic River (ac)		
FSPro Zone	In Zone	Cum.
> 80%	1,772	1,772
60 - 80 %	54	1,826
40 - 60 %	117	1,943
20 - 40 %	227	2,171
5 - 20 %	379	2,550
1 - 5 %	511	3,060

Table 6

OTHER LANDMARKS	FSPro Zone
Big Flat Campground	> 80 %
Eagle Ranch	> 80 %
Helena	> 80 %
McGillivrays Ranch (historical	> 80 %
Pigeon Point Campground	> 80 %
Squaw Camp	> 80 %
<i><none identified per available data></i>	60 - 80 %
<i><none identified per available data></i>	40 - 60 %
Junction City Campground	20 - 40 %
Junction City Guard Station	5 - 20 %
Chapman Ranch	1 - 5 %
Skunk Point Group Campground	1 - 5 %
Skunk Point Picnic Area	1 - 5 %
Weaver Bally Lookout	1 - 5 %

END OF REPORT

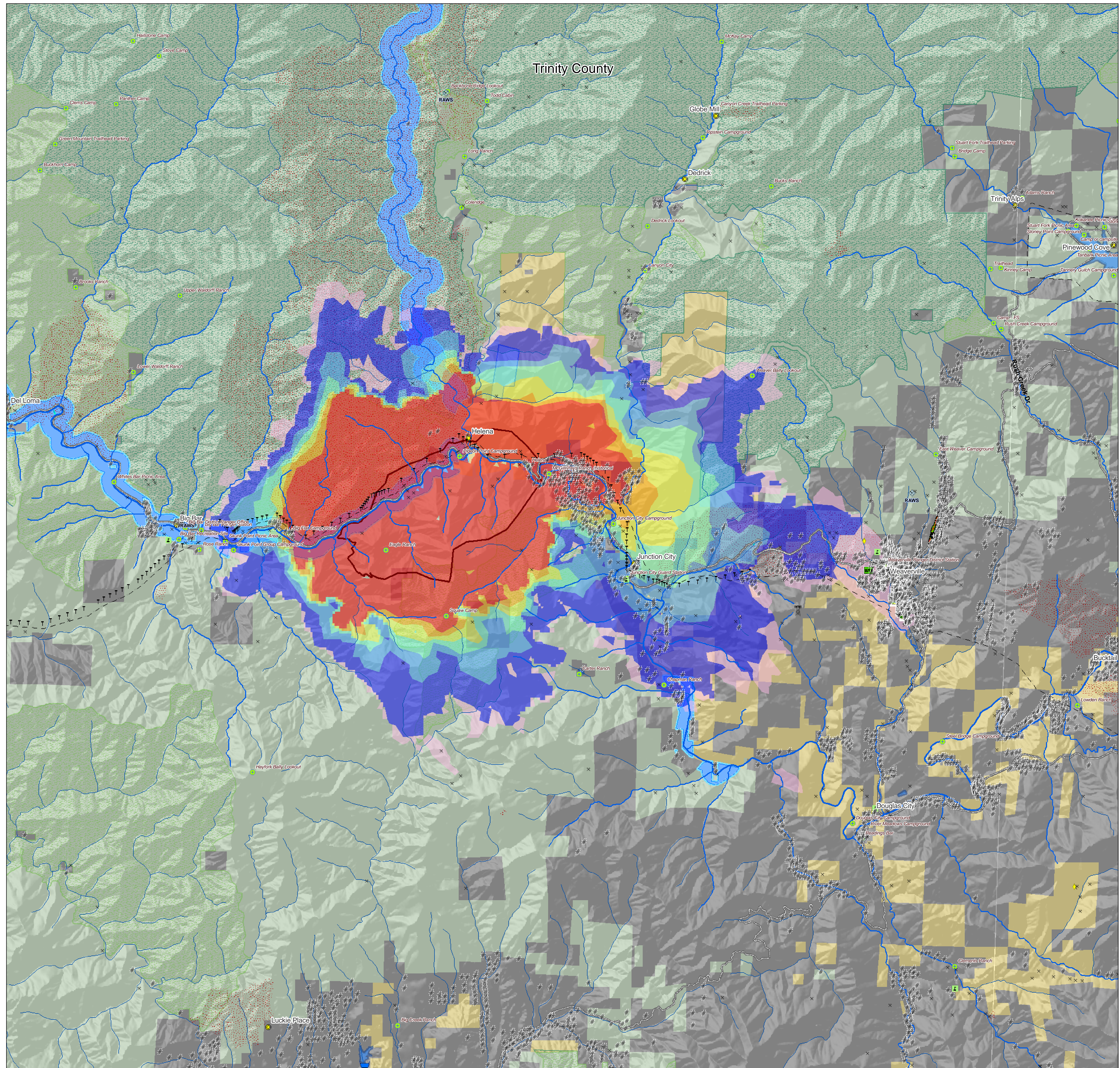


Eagle, CA

26 June 2008 T1_A_080626

Major Values-at-Risk per
FSPRO Fire Spread Probabilities:
7 days as of 26 June 2008

- Current Fire Perimeter 26 June AM
- Past Fires 1994-2007
- FSPRO Fire Spread Probabilities**
- > 80 %
- 60 - 80 %
- 40 - 60 %
- 20 - 40 %
- 5 - 20 %
- 1 - 5 %
- < 1 %
- Building Clusters Trinity County
- RAWs Stations
- Water: Dams > 100af
- Water Treatment Plants
- Water Pipeline - Aqueduct - Canal
- Powerlines
- Industrial Plant
- Power Pylon
- Power or Pumping Substation
- Communication Towers
- Airports
- Airport Runways
- Ski Resort Cables
- Hospitals
- Schools
- HAZMAT: Mines
- HAZMAT: Hazardous Waste
- Other Landmarks
- Major Roads
- Jurisdiction**
- Private
- State
- BLM
- USFS
- Inventoried Roadless
- Designated Wilderness
- Wild-Scenic-Rec Rivers



*Building Clusters represent the center of parcels where county assessor records indicate taxable improvements are present. One or more structures and other improvements may exist proximate to these point locations.

CAUTION: Defer to air photos or local knowledge for exact structure and other feature locations.

**Recreation residences and special use structures data are not available from the USFS and are not identified or analyzed in this report.

NOTE: Multiple mines are scattered throughout the mapped extent and may pose hazards to firefighting personnel