

Strategic Implementation Plan

Alps Complex



Shasta-Trinity National Forest

Big Bar Ranger District

June 30, 2008
(Revised 7/09/2008)

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INTRODUCTION

This strategic implementation plan was developed because fires within the Alps Complex on the Shasta-Trinity National Forest are expected to be long duration, as determined locally compared to historic fire potential and durations. The original 15 fires that made up the Alps Complex are located over a vast area, impacting multiple forests, agencies, and several communities. Values to be protected are relatively high, regional and national fire activity is high and current resource availability is low. National and regional preparedness levels have rapidly escalated and have reached the highest levels.

The afternoon of June 20, 2008 the Shasta Trinity National Forest began to experience numerous dry lightning strikes. Shortly after the lightning strikes were detected, fires began to be reported with some already reaching a ¼ of an acre or more in size. The lightning continued through Saturday and Sunday resulting in approximately 150 fires on the Shasta Trinity alone. The lightning started well over 800 fires across all of northern California. The weather, in the days following the initial lighting event was hot and dry. Inversions helped to moderate the fire behavior and growth, but limited the use of aircraft hindered fire fighting efforts, caused smoke to impact communities at unhealthful levels and allowed some fires to burn undetected.

The fires that are part of the Alps Complex are primarily in the Trinity Alps Wilderness. This is an area that has seen considerable fire activity over the years. Fires in the Trinity Alps Wilderness can easily grow to where they threaten communities. The local communities have been impacted by smoke in the past and this is a significant issue for them. The 299 highway is one of only two local access routes from interior to the coast and is used by commercial vehicles as well as locals and recreating visitors.

Current fire situation

Alps Complex: The complex has 11 fires that are being managed as of 7/08: Soldier, Carey, Bacon, Gorge, North Fork, Pony, Thurston, Devils, Granite, Willow, Gwin. All the fires in the Complex are within the Trinity Alps Wilderness. There are 2 active fires (Granite and Carey) which are being actively managed at this time. The Granite is currently 551 acres and Carey at 208 acres as of 7/8. There were three fires that were contained in the initial attack stage by Jumpers. These fires were the Willow, Devils and Pony and were contained on 6/26. The six remaining fires Soldier, Bacon, Gorge, Gwin, North Fork, and Thurston could not be located by aerial observation and identified as unable to locate (UTL).

Current Alps Complex Fires Situation (7/08/08)

Fire	Acres	Containment %	Estimated Containment Date
Granite	551	75	7/10
Carey	208	30	7/22
Willow	38	100	6/26
Devils	6	100	6/26
Pony	3	100	6/26
Bacon	2	UTL	-
Gorge	1	UTL	-
Gwin	7	UTL	-
North Fork	8	UTL	-
Soldier	2	UTL	-
Thurston	2	UTL	-
Total	826	75	

Source: Alps Complex Incident Status Summary (209) 7/8/08

The Alps Complex fires are in three Fuels Models: The higher elevations have Subalpine Fir and mixed conifer forests (Fuel Model 10). Mature stands at this elevation which have not experienced fire in the past 50 years contain a large dead and down large fuel component. The lower elevation forests, generally below 4000 feet, southern and western aspects and some ridge tops, are a mix of multiple species including Madrone, Buckbrush, Deerbrush, Oakbrush, and scattered conifers including Douglas Fir and Sugar Pine (Fuel Model 4). Live conifer fuel moisture is running around 130 to 150%. Previously burned areas within the last 10 years have lighter fuel loads with grass (<4500), Ceanothus, and Snowberry (Fuel Model 5).

Wildland fires determined to be unwanted should be suppressed as efficiently as possible. Other fires can be managed through less aggressive tactical approaches when values of resources at risk are low, threats to exceed management capability are low, firefighter exposure and risk are high, and expected costs of aggressive suppression actions are high.

The actions outlined in this plan are intended to include all available strategies and tactics. The concept of appropriate management response is integral to the Federal Wildland Fire Management Policy. The Appropriate Management Response (AMR) is any specific action suitable to meet Fire Management Unit (FMU) objectives. Typically, the AMR ranges across a spectrum of tactical options, from monitoring to intensive management actions. The AMR is developed by using FMU strategies and objectives identified in the Fire Management Plan. The AMR concept provides managers with the flexibility to implement a response appropriate to each individual set of circumstances and conditions and to utilize a full range of responses. It does not lock tactical options to fire type designations. As conditions change, the particular response can change to accomplish the same objectives.

<p>Management responses available to managers vary widely, can take on various forms, and can represent a combination of tactical actions on a single incident. The application of an AMR provides management the greatest flexibility possible and promotes opportunities to achieve greater balance in the wildland fire management program.</p> <p>What are the Principles of AMR?</p>	<ul style="list-style-type: none"> • AMR is an element of the Federal Wildland Fire Management Policy developed by the federal agencies with state representation in 1995, reviewed and updated in 2001, and given operational clarification for consistent implementation in 2003. • Every wildland fire that is not a prescribed fire will receive an appropriate management response. • An AMR is developed from the range of tactical responses. • In implementing an AMR, the full spectrum of tactical options, from monitoring a fire at a distance to intensive suppression actions are available. During the initial response to any wildland fire, decisions will reflect the goal of using available firefighting resources to manage the fire for the most effective, most efficient, and safest means available. • The AMR may be different in time, as well as place. Decisions will be made about a fire based on the situation at that moment. A decision to manage a fire with a certain strategy today may not be the same decision that would have been made yesterday, or could be made tomorrow.
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Consideration of a wider spectrum of management options is encouraged from which to make a calculated response based on the circumstances at a particular time with particular characteristics. Use of this concept dispels the interpretation or belief that there is only one way to respond to each set of circumstances. It is based on objectives, environmental and fuel conditions, constraints, safety, cost, and ability to accomplish objectives.

MANAGE WILDLAND FIRE		
APPROPRIATE MANAGEMENT RESPONSE		
Perimeter Control	Point Protection	Monitor
Confine, contain and control the edge of a fire for least possible acres burned.	Protect individual high value areas adjacent to or within a fire perimeter.	Reduce exposure to firefighters; keep cost commensurate to values at risk.

MANAGEMENT OBJECTIVES

Objectives of Strategic Implementation Plan

I - Objectives

The objectives below are taken from direction or guidance portrayed in other documents as shown and based on:

1. The Shasta-Trinity National Forest Land and Resource Management Plan (LRMP), See appendix B.
2. Specific objectives developed for the management of the fires from the Delegation of Authority issued to the Team (June 26, 2008) and,
3. Incident Objectives developed for management of the fires as shown in the Incident Action Plan.
4. Wildland Fire Situation Analysis (WFSA). See appendix C.

Land and Resource Management Plan (LRMP)

The Shasta-Trinity National Forest LRMP provides the following direction for fire management:

WILDERNESS

General Wilderness Objectives:

- Return fire to its natural role when not in conflict with public safety. Permit fire management activities that are compatible with wilderness objectives.
- 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 and/or restore the site.
- Locate incident bases and staging areas outside of Wilderness. 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.
- 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 tactics should be designed to reduce fire effects on vegetation.

LATE SUCCESSIONAL RESERVE**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 s 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.

Delegation of Authority Objectives

1. Safety will be the number one consideration in determining strategies and tactics to suppress fires. Protection of life and property is first priority. Expectation is to meet the intent of the May 14, 2008, Line Officer Team letter regarding responsibilities and fire management to ensure the highest level of safety implementation on the incident.
2. In addition to public and firefighter safety, protection of Threatened and Endangered Species habitat, anadromous fisheries and Wilderness values are a primary objective. An objective for the Alps Complex is to safely contain the fire with as little impact to Wilderness values as possible and in a cost effective manner. This will be measured by the lack of scars (or lasting impacts) left on the landscape when the fire is out. The use of Minimum Impact suppression Tactics (MIST) should be taken into consideration in the development of strategies and tactics in concert with appropriate response to the incident.
3. Fiscal integrity is a high priority in management of the incident. It is the goal of the Forest to manage the incident in the most cost-effective manner possible, as described in the May 14, 2008 Line Officer Team letter regarding responsibilities and fire management.
4. Private lands either within or adjacent to the incident will be given a high priority for protection. Involve the appropriate cooperators in the incident operations and actions.
5. Provide for a harassment free workplace. Take prompt action if any human resource issues occur on the incident.

Incident Action Plan Objectives

1. Implement tactical and threat mitigation measures that provide for firefighter and public safety through application of the Risk Management Process.
2. Follow Minimum Impact Suppression Tactics (MIST) protocols for holding and containment actions.
 - Bacon (1 acre): this fire showed heat on satellite imagery on 6/29, we have been unable to confirm this fire due to lack of visibility and/or aerial resources. FLIR military aircraft unable to locate heat on 7/4. An aerial recon of the fire location was completed on 7/5 and no visual smokes were observed but will continue to be listed as a Unable to Locate (UTL) fire.
 - Carey (208 acres): Containment strategy implemented on 7/3. First strategy is direct attack on active flanks then holding. This strategy would be approximately 200 acres. Second the indirect strategy would be to go indirect using Carey Ridge, drainages along the flanks and the trail system at the bottom below the fire. This option would involve approximately 428 acres. The third option would be to hold fire utilizing existing trails that circumnavigate Carey Ridge. The acres involved with this strategy would be 3367. Possible utilization of aerial resources for water drops if available. Logistical support very difficult and lengthy. Probability for containment would be dependent on strategy selected and resources available. The selected strategy is the direct attack option and having success .
 - Devils (1 acre): Fire identified as jumped and contained in our in-brief on 6/25. We have been unable to confirm this due to lack of visibility and/or aerial resources. There have been no heat identifiers on IR flights or satellite imagery. An aerial recon of the fire location was completed on 7/5 and no visual smokes were observed.
 - Granite (551 acres): Containment efforts have been concentrating on the Canyon Creek trail on the western edge and Bear Creek and/or Bear Creek trail on the eastern edge. We are attempting to utilize the sparse fuels to the north to contain the fire. To date, we have completed about 2 miles of containment lines and about 85% contained. Continued favorable weather and resources at hand leave us with a probability of containment by 7/10 at 95%.
 - Gorge (1 acre): This fire also showed heat on satellite imagery on 6/29, we have been unable to confirm this fire due to lack of visibility and/or aerial resources. FLIR military aircraft unable to locate heat on 7/4. An aerial recon of the fire location was completed on 7/5 and no visual smokes were observed but will continue to be listed as a Unable to Locate UTL fire. .
 - Gwin: Fire identified on initial report on 6/21 and given to us as a unable to locate UTL. At this time we also have not been able to confirm or deny the existence of this fire due unavailable resources and smoky conditions.

It is believed that this fire maybe a natural out but will continue to be listed as a UTL fire.

- North Fork: Fire identified on initial report on 6/21 and given to us as a UTL. At this time we also have not been able to confirm or deny the existence of this fire due unavailable resources and smoky conditions. It is believed that these fire maybe a natural out but will continue to be listed as a UTL fire.
 - Pony (1 acre): Fire identified as jumped and contained in our in-brief on 6/25. We have been unable to confirm this due to lack of visibility and/or aerial resources. There have been no heat identifiers on IR flights or satellite imagery.
 - Soldier: Fire identified on initial report on 6/21 and given to us as a UTL. At this time we also have not been able to confirm or deny the existence of this fire due unavailable resources and smoky conditions. It is believed that this fire maybe a natural out. An aerial recon of the fire location was completed on 7/5 and no visual smokes were observed but will continue to be listed as a UTL fire.
 - Thurston: Fire identified on initial report on 6/21 and given to us as a UTL. At this time we also have not been able to confirm or deny the existence of this fire due unavailable resources and smoky conditions. It is believed that this fire maybe a natural out. An aerial recon of the fire location was completed on 7/5 and no visual smokes were observed but will continue to be listed as a UTL fire.
 - Willow (100 acres): Fire identified as jumped and contained in our in-brief on 6/25. We have been unable to confirm this due to lack of visibility and/or aerial resources. There have been no heat identifiers on IR flights or satellite imagery.
3. Manage the incident in a cost-effective and efficient manner commensurate with personnel and public safety and values to be protected.
 4. Manage human resources in a manner that promotes mutual respect consistent with agency policies for preventing harassment.

This Strategic plan addresses the following items with the level of analysis being commensurate with the complexity of the event:

It considers fire behavior predictions and risk assessments and supports decision making. It identifies threats from the fire and addresses operational actions to mitigate or eliminate those threats.

The assessment evaluates the values to be protected, hazards presented by the fire and in the fire environment, and associated with management actions, and the probability of success as well as the consequences of failure of the selected alternative.

The 4-step risk assessment process (values, hazard, probability, and relative

risk) was used for the risk analysis.

Risk analyses considers both current risk and deferred risk, understanding that an acre protected from fire today will burn eventually, at a time and under circumstances that will present different challenges and opportunities than at present.

It is critically important to accumulate the best available information and compare and evaluate alternatives during decision making. Good, informed decisions can limit potentials for unnecessarily excessive or long-term suppression expenditures. The implementation stage is where decisions are fully implemented and the goals of achieving management efficiencies continue throughout implementation.

Continual monitoring, evaluation, and revision as needed contribute to improved management efficiency.

Wildland Fire Situation Analysis (WFSA)

The WFSA (draft July 1) recommends Alternative B; Utilize available resources to: 1. Protect local communities. 2. Protect the Hoopa Reservation 3. Protect outlying private property. 4. Minimize fire spread on to adjacent National Forests. 5. Protect identified values in the Trinity Alps 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.

Alps Complex WFSA Resource Management Objectives

Trinity Alps 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.

Summary of the Fire Risk Assessment

The assumptions that supported the FSPRO, FARSITE and FlamMap analyses are subject to change as conditions change. The models are only valid for the fuel and weather conditions for which they were run and for the timeframe they represent (start date June 29th for all runs). Wind events may occur. The head of the fire may move to new and unpredicted locations. Live fuel moisture's may change dramatically. As the fire season progresses, the decision environment will also change. Such changes and others may invalidate the assumptions underlying the initial analyses. As a result, previous risk estimates will no longer be accurate. Over time, it is essential that the assumptions underlying the risk estimates are periodically revalidated and that the simulations are re-run accordingly.

Currently the fires are burning in litter and dead fuels in a fuels complex composed of ground fuels (litter and downed dead), a brush and reproduction mid-story and a timber overstory. Fire behavior observed to date (very limited observations) has been low flame lengths (0.5') and low rates of spread ($< \frac{1}{2}$ chain/hour) with enough heat to stress kill some of the mid-story.

Observations

When asked what triggers large fire growth in the Trinity Alps Wilderness local experts replied that it was a combination of the following:

- Generally when the Forest has a lightning bust, numerous fires are reported and wilderness fires receive lower priority for IA than urban-interface fires.
- Wilderness fires come almost guaranteed with difficult logistics and potentially a smoke inversion. This ensures slower response times to flare-ups, spots and problem areas by ground and aerial resources.
- Once wilderness fires have gotten large while higher priority fires are suppressed, they are generally hard to catch.

Additional observations from the climatological record, current fuels conditions and modeling:

- Generally, wilderness fires are slope and fuels driven. There are no strong signature 'worst case' weather conditions (dry and windy) in the

climatological record until or unless northeasterlies develop, typically late in the season. Northeasterlies can bring strong winds and single digit relative humidity and can develop as early as late August. The Big Bar Complex in 1999 experienced the northeasterly weather pattern. Northeasterlies are not a common summer weather pattern. Although the westerly pattern that commonly develops in the summer can produce gusty (to 25 mph) winds, most of this is felt in the drainage bottoms aligned with westerly and southwesterly flow.

- Thunderstorm outflow winds can drive large fire growth but these are generally not reflected in the climatological record.
- In the absence of rain, drought conditions will continue to worsen following one of the driest March through May periods in recorded history.
- Brush and forb fuel components will cure earlier than average because of low spring moisture uptake.
- Grass and brush fuels at higher elevations of the current fires will cure over the next 30 days.
- Modeling a fire moving through 1000-hour time lag fuels (heavy dead, downed material) and rollout provides a challenge for modellers. Fire behavior models predict spread through surface fuels and or crown fire, but do not accurately model spread through rollout and discontinuous fuels.
- The presence of large, dead fuels in the fire areas precludes the idea of a fire ending event. Large dead fuels will hold heat through the forecast fire slowing events and will have the potential to move again if the weather pattern returns to high pressure dominated patterns.
- Recent fire scars will modify and direct fire spread and intensity. Spread rates can increase in lighter fuels; however, resistance to control will decrease.
- Weather stations were reviewed across the Geographic Area. Much of the analysis here used Friend Mountain RAWS; however, very similar results were obtained using other stations and the SIG used by Predictive Services which incorporates 15 regional stations.
- With one exception, the Bake-Oven fire (7/24/06), all fires in the fire record over 10,000 acres started in August, September or October.

Models

- ERC values are currently at or just below historical maximums for this time of year.
- 1000-hr fuel moisture is currently at or above historical minimums for this time of year.

- Historically, ERC values continue to climb through mid-August.
- Probability of a season ending event as determined at the Friend Mountain RAWS using an ERC drop below the 70th percentile with no recovery using the Rare Event Risk Assessment Process (RERAP – documentation in Appendix A):
 - 50% - October 4
 - 75% - October 22
 - 90% - October 30
 - 97% - November 9

Fire behavior models do not simulate fire moving through rollout or diurnal wind influences. Simulations do not take holding actions into account. Models will be updated as they reach their effective dates.

The current version of this document contains 7-day FARSITE and 14 day FSPro projections beginning July 7, 2008.

- FARSITE results (documentation in Appendix A):
 - FARSITE runs were made for the advantage to FARSITE is the use of gridded winds which incorporate the effects of topography on the wind stream.
 - Carey fire increases from 6/27 IR perimeter (~70 acres) to near 450 acres. Movement is mostly up drainage and down slope into Slide Creek. The fire does not reach the inholding or other mining areas in the seven day period.
 - Granite fire increases from 6/27 IR perimeter (~400 acres) to near 3000 acres. The fire moves to the ridgetop on the east above Stuart Fork Creek and crosses Canyon Creek to the west.
- FSPro results (documentation in Appendix A):
 - Although good calibration runs were made to current perimeters, fire intelligence has been too limited to generate high confidence in results.
 - There is an 80% probability that the Carey fire will move into Slide Creek over the next seven days.
 - There is an 80% probability that the Granite Fire will cross Canyon Creek to the west.

The fire spread probability models, which are based on climatological records, may under represent fire growth in extreme years. This year is presenting itself as an extreme year, certainly in terms of dry fuels conditions. It would be prudent to re-run the models as the season progresses and continue to assess scenarios.

Summary of Values

Public Safety

Provide for the safety of all personnel assigned to the incident. Assure that safety of firefighter, aviation, support personnel, and public is the highest priority at all times for the duration of the event. Plan and implement management actions that fully provide for personnel and public safety. Provide proper signing that gives the public sufficient warning as to management actions associated with this wildland fire. Ensure area and trail closures are in place and posted as needed. Prepare management action points to initiate structure protection and/or evacuation of residents at identified locations.

Recreation

Protect dispersed & designated recreation facilities, trailhead signs and other recreational information signs. Protect other Forest Service improvements such as bridges, lookouts, etc.

Environmental

Anadromous Fisheries. Utilize tactics that minimize impacts to fisheries habitat (Coho and Chinook salmon and steelhead). Fire Retardant/Chemicals will not be used within 300 feet of any stream course or lake unless necessary to prevent loss of life, injury, and structure protection.

Clean all water dropping buckets (helicopter), and draft hose in water with approved cleanser to prevent the spread of aquatic nuisance.

Watershed

Hazardous waste spillage or retardant use will be mitigated and prevention measures taken. Containment trays and spill kits will be available and will be used at all pump sites.

Air Quality

Smoke impact to local areas. Smoke may impact all residences and communities along the main state highway 299 as well as the Hoopa Valley Reservation. This scenic by-way is not only one of the main arteries into Northern California, but it is also a critical access point for recreationists into local communities. Air quality

concerns will be coordinated by the local Air Quality Management District.

- Shasta County (530) 225-5674
- Siskiyou County (530) 841-4029
- Trinity County (707) 443-3093

Economic

Minimize Impacts to local area residents and recreationists. Minimize economic impacts to local area residents (fishermen, rafters, boaters and outfitters).

Contact Larry McLean 530-623-1767 at the Big Bar Ranger District concerning outfitters and guides operating in this area.

Mitigation Actions

Management Action Points (MAP)

Implementation of stated actions in the table below should not occur without consideration of current and predicted weather conditions and evaluation of the probability of a successful outcome. These factors will determine the need for implementation of the stated actions as well as drive the location, urgency, and intensity of the actions. Resources needed are assumed to be resources available on the fire at the time action is taken for a given Management Action Point. **All actions will be based on current and expected fire behavior and availability of resources.**

(MAP)

Actions in the table below should not occur without consideration of current and predicted weather conditions and evaluation of the probability of these factors will determine the need for implementation of stated actions as well as drive to the location, urgency, and intensity of the actions. Limited to be resources available on the fire at the time the action is taken for a given a Management Action Point. All actions will be based on behavior.

Location/Condition	Action	Remarks
Location: 1 mile radius centered on the Old Denny Town site: 37N 12W 18S Condition: If fire approaches the described MAP or it is anticipated to cross MAP during any operational period.	At this time, two private citizens are mining near the Old Denny town site. If the fire reaches this MAP, the individuals would be encouraged to leave. If air resources are not available due to smoke, the trail system from either New River trailhead or China Gulch trailhead would be utilized to make contact with the owners of the Tough Nut mine, cabin, and outbuildings.	Structure at Old Denny is a dilapidated foundational wood structure that should not require any more than some fuel removal for protection considering value at risk. It is not considered historical. Mines in area are mercury mines. Caution should be used of abandoned mines and heavy metal (red/orange) rocks.
Location: Fire comes to within 1 mile of the Big Bar District boundary, known as Trinity Ridge. Condition: If fire approaches the described MAP or it is anticipated to cross MAP during any operational period.	Contact Big Bar District Ranger and Resource Advisor to initiate coordination with the Hoopa Valley Tribe and Six Rivers National Forest. Efforts should concentrate on assessing resources needed to initiate suppression actions along the 10N02 road system as well as the 8N03 road and nearby ridges.	Depending on location of fire activity, implement trail and/or area closures, coordinating with the district
Location: ridge line running north-south from Iron Summit mine, through Virgin Creek slides to the Virgin Creek Slide Creek influence Condition: Fire crosses describe ridge or is anticipated to cross MAP during any operational period	Contact Big Bar District Ranger and Resource Advisor to initiate coordination with the Hoopa Valley Tribe and Six Rivers National Forest. Efforts should concentrate on assessing resources needed to initiate suppression actions along the 10N02 road system as well as the 8N03 road and nearby ridges.	Depending on location of fire activity, implement trail and/or area closures, coordinating with the district
Location: 1 ½ mile radius centered on New River trailhead and 1 ½ mile radius centered on East Fork New River trailhead Condition: If fire approaches the described	Complete protection of trailhead infrastructures, signs, and structures. Resources will need to wrap two pack bridges and trail signs at trailhead as well as assess structures south of trailhead in coordination with the Iron Complex to compete	Firefighters will need to coordinate with Iron Complex incident personnel to ensure adequate communications and coordination.

MAP	Location/Condition	Action	Remarks
Granite fire			
MAP – 3a Canyon Creek	<p>Location: Line bisecting Sections 7/8/9 and 16/17/18 in T35N, R10W</p> <p>Condition: If fire approaches the described MAP or it is anticipated to cross MAP during any operational period.</p>	Initiate checking actions, on southern heel of Granite Fire. Concentrate on keeping fire to the East of Canyon Creek and north of MAP. Utilize natural barriers to the north and east of fire location to limit growth.	Implementing MAP actions beginning 6/29/08, day shift.
Map – 3b Ripstein campground	Location: 1 ½ mile radius centered on the Ripstein camp and mining activities 1 mile southeast of Ripstein.	Complete protection of trailhead infrastructures, signs, and structures. Resources will need to wrap trail signs at trailhead as well as assess structures south of trailhead. Provide adequate clearing near private property boundaries and water support. Notify District Ranger as a Public Event is scheduled at Ripstein Campground.	Mining activity could have hazardous materials and other mining equipment around.

Courses of Action

The Alps used three scenarios to illustrate specific tactical decisions points inside of the planning area which will show the resources needed and associated costs to achieve management objectives for each scenario.

- Scenario1 - Probability of success with no resources, Low - Moderate Fire Behavior, 7/04
- Scenario 2 - Probability of success with current resources, Low - Moderate Fire Behavior, 7/04 (2 – Type II IA Handcrews, 1 – Fire Use Module, 5 – Engines)
- Scenario 3 - Probability of success with adequate resources available, Low - Moderate Fire Behavior, 7/04 (Currently resources are scarce)

Courses of Action as of 7/04							
Scenario 1		Probability of success with no resources, Low - Moderate Fire Behavior, 7/04					
Value Identifier	Probability that Value Affected	Time to Value Affected	Management Action Points	Management Actions	Resources Needed (#s and Types)	Time to Accomplish	Cost
V1	80%	4 days	1a Old Denny	Reach full containment lines around Carey fire. Monitor fire with Fire Use Module	Aerial Patrols by Air Attack	Season Ending Event 11/15	10,000
V2	2%	14 days	1b New River/ East Fork Trailhead	Contact Hawkins Bar VFD to, complete structure mitigation measures on two private structure areas south of New River trailhead.	None	3 - days	
V3	7%	14 days	1c Trinity Ridge	Coordination between Hoopa Valley Indian Reservation, Six Rivers NF, and Shasta-Trinity NF.	None	1 - day	
V4	100%	ongoing	3a Canyon Creek	Close New River Trail system to public use			
V5	40%	7 days	3b Ripstein Camp	Contact Junction City RFD to complete structure mitigation measures on two private structure areas south of Canyon Creek trailhead.			

Courses of Action as of 7/04

Scenario 2		Probability of success with current resources, Low - Moderate Fire Behavior, 7/04 (2 – Type II IA Handcrews, 1 – Fire Use Module, 5 – Engines)					
Value Identifier	Probability that Value Affected	Time to Value Affected	Management Action Points	Management Actions	Resources Needed (#s and Types)	Time to Accomplish	Cost
V1	40%	4 days	1a Old Denny	Construct containment lines around Carey fire	2 – type 2IA crews 1 – Fire Use Module	7 days	\$100,000
V2	0%	7 days	1c Trinity Ridge	Operational personnel scout opportunities for control west of Trinity Ridge. Coordination between Hoopa Valley Indian Reservation, Six Rivers NF, and Shasta-Trinity NF.	None		\$0
V3	0%	7 days	1b New River/ East Fork Trailhead	Wrap trailhead signs, 2 pack bridges, FS facilities, and complete structure mitigation measures on two private structure areas south of New River trailhead.	None		\$0

Value Identifier	Probability that Value Affected	Time to Value Affected	Management Action Points	Management Actions	Resources Needed (#s and Types)	Time to Accomplish	Cost
V6	100%	ongoing	3a Canyon Creek	Construct 2 miles of line on west flank along Canyon Creek Trail, and two miles of line along east flank along Bear Creek Trail	1 – Fire Use Module 2 – Type 2IA Crews 1 – DIVS 5 – Engines	3 days	\$65,000
V7	<1%	7 days	3b Ripstein Camp	Wrap trailhead signs, FS facilities, and complete structure mitigation measures on two private structure areas south of Canyon Creek trailhead.	1 – Fire Use Module 2 – Type 2IA Crews 1 – DIVS 5 – Type 4 Engines	5 days	\$65,000

Courses of Action as of 7/04							
Scenario 3		Probability of success with adequate resources available, Low - Moderate Fire Behavior, 7/04 (Currently resources are scarce)					
Value Identifier	Probability that Value Affected	Time to Value Affected	Management Action Points	Management Actions	Resources Needed (#s and Types)	Time to Accomplish	Cost
V1	80%	4 days	1a Old Denny	Close New River trail system, provide structure mitigation measures at Old Denny town site, clear public out of area	1 – Type 3 helicopter 2 - Firefighters	2 days	\$10,000
V2	15%	10 days	1c Trinity Ridge	Operational personnel scout opportunities for control west of Trinity Ridge. Coordination between Hoopa Valley Indian Reservation, Six Rivers NF, and Shasta-Trinity NF.	1 – OSC2 1 – DIVS 1 - READ 1 – Type 3 helicopter	'2 days	\$15,000
V3	40%	10 days	1b New River/ East Fork Trailhead	Wrap trailhead signs, 2 pack bridges, FS facilities, and complete structure mitigation measures on two private structure areas south of New River trailhead.	1 – TFLD 1 – Fire Use Module	3 days	\$10,000

Value Identifier	Probability that Value Affected	Time to Value Affected	Management Action Points	Management Actions	Resources Needed (#s and Types)	Time to Accomplish	Cost
V6	100%	ongoing	3a Canyon Creek	Construct 2 miles of line on west flank along Canyon Creek Trail, and two miles of line along east flank along Bear Creek Trail	1 – Fire Use Module 1 – Type 2IA Crew 1 – DIVS 1 – Type 4 Engine	5 days	\$65,000
V7	20%	7 days	3b Ripstein Camp	Wrap trailhead signs, FS facilities, and complete structure mitigation measures on two private structure areas south of Canyon Creek trailhead.	1 – Fire Use Module 1 – Type 2IA Crew 1 – DIVS 3 – Type 4 Engines	5 days	\$80,000

INVENTORY OF VALUES

Map Attached

Segment I:

General Segment

- Public Safety
- Anadromous fisheries in New River and East Fork of New River as well as many tributaries

CAREY fire:

- Mary Blain Meadow: 1 Dilapidated cabin foundation with 2 private citizens at location
- Hoopa Reservation impacts and consultation if fires cross Trinity Ridge, western edge of District
- Tough Nut Mine and associated cabins, out buildings and private inholdings.

GORGE fire:

- Structures ½ mile south of New River trailhead
- Pack bridge at East Fork New River trailhead
- Pack bridge approximately 3 miles NE of East Fork New River trailhead

Segment II:

General Segment:

- Public Safety
- Anadromous fisheries in Big French Creek, New River, and many Trinity River tributaries

Segment III:

General Segment:

- Public Safety

GRANITE fire:

- Ripstein campground
- Canyon Creek Trailhead signs etc.
- Notify miners south of Ripstein campground and Bear Gulch
- Structures at Grasshopper Flat/Dedrick and along Highway 401

APPROPRIATE MANAGEMENT ACTIONS FOR COMPLEX FIRES: These are the current actions either ongoing or completed for the incident to date, prioritized:

1. Granite fire: Containment lines are completed from the intersection of the Bear Creek and Canyon Creek trails to the north respectively along those trails. The Canyon Creek trailhead was identified as a very popular recreation area and access to high mountain lakes. We were asked to utilize necessary actions to confine/contain this fire as a high priority for the Big Bar District. With the arrival

of a Fire Use Module, we were able to begin management actions on the Granite fire on 6/29 and completed the work 7/6.

2. Carey Fire: Carey fire was reprioritized by the District to on 7/1 due to the increasing size and fire behavior as well as potential to impact the Hoopa Valley Indian Reservation. At that time the fire was 20 – 30 acres burning in heavy regeneration fuels with snags. On 7/3 we started hiking in crews, 8 Smokejumpers jumped the fire on 7/4, and the Division Supervisor on scene recommended and implemented a cold trail and hot spot strategy. This current strategy is still being implemented and containment has progressed each day.

VALUES NOT IDENTIFIED AS THREAT at this time (6/30-7/5) BUT MAY NEED TO BE EVALUATED IN THE FUTURE:

- Hobo Gulch trailhead and campground
- North Fork Trinity River structures
- Line cabin in Manzanita RNA
- Anadromous fisheries in NF Trinity River & New River

(see attached Map for location of Management Action Points)

AGENCY PROTECTION RESPONSIBILITIES

- 1) Private property in New River Drainage (Denny): Hawkins Bar RFD
- 2) Private property in North Fork Trinity and Canyon Creek Drainages: Junction City RFD
- 3) All other Federally-owned lands within Alps Complex Confinement Area: Shasta-Trinity National Forest

(See attached Map for location of private property within segments)

MITIGATION ACTIONS

The Planning area encompasses 252,388 acres and is broken into 3 segments. These segments are divided into distinct areas, allowing for new starts and threats to the segments and/or values that have been identified. These threats are current as of the writing of this plan, for one week (7/07-7/13). Strategic Implementation Plan validation should occur when time frames expire on modeled simulation or when there is a significant change of condition. Validation is the responsibility of the organization managing the incident.

Segment I description: This segment begins at the wilderness boundary at the East Fork New River trailhead heading west along the wilderness boundary to the Big Bar Ranger District/Six Rivers NF boundary. The segment continues north along this boundary until it moves east at the junction with the Klamath National Forest at Salmon Mountain, continues east until it reaches trail intersections at election gap. The trail then heads south along the Mullane trail and East Fork New River until it reaches the starting point.

Defensibility: This segment's main barrier to spread are the Bake Oven fire (2006) which limits the fire behavior, other than this there are few natural barriers to keep fire within the MCA. The higher elevations within this segment may inhibit fire growth until live fuels become available to burn, later in the burning season. Most opportunities for containment actions in this segment lies in the road systems outside of the District or trail systems within the wilderness. Coordination with adjoining agencies and parties needs to happen as fire approaches District boundaries. One strategy that has been used with success is dozer lines at rivers, ridges and/or road systems and burning with either PSD machines or hand lighting at ridges, slowly, letting fire back and roll out until depth is gained.

MAPS within this segment: 1a, 1b, 1c

Segment II description: This segment begins at the wilderness boundary at the East Fork New River trailhead heading north along the East Fork New River and Mullane trail until it reaches the trail intersection at election gap. It then proceeds east along the Big Bar District/Klamath National Forest Boundary until it reaches ridgeline just north of Five Dollar Camp. Then proceed south along this ridge and the North Fork Trinity River to

Hobo Gulch trailhead and continue south along the wilderness boundary west of NF Trinity River and west along the wilderness boundary until it reaches the northeast corner of the Lower Waldorff Ranch. From this point moving west down the unnamed ridge until it intersects with the 5N13 Road, north along this road and the 6N04 road unit it reaches the wilderness boundary and the Green Mountain trailhead. Moving north again along the wilderness boundary until the starting point.

Defensibility: The northern segment's main barrier to spread, again, is the Bake Oven fire (2006). South and west barriers are limited until the fire has reached or nears road ways. Limestone ridge, the main ridge running north-south bisecting this segment has been identified as a good natural barrier to spread. Utilizing equipment and timing, one could keep the fire within the wilderness by timely burning with PSD or hand ignition along cleared trail, hand, or equipment lines. Fire that establishes itself on or near the wilderness boundary without nearby road system or dozer access would more than likely require considerable effort to hold.

MAPS within this segment: 2a, 2b,

Segment III description: This segment begins at the Hobo Gulch trailhead and proceeds north along the North Fork Trinity River until it reaches the Big Bar/Klamath NF boundary south of the Five Dollar Camp. Then it proceeds southeast and south along the Big Bar RD boundary until it again reaches the wilderness boundary at Glennison Gap. The segment follows the wilderness boundary around the southern end of the wilderness until it ends at the Hobo Gulch trailhead.

Defensibility: This segment does have some limited natural barriers at the northern portion of Canyon Creek and the Salmon Mountains. The western border of this segment, North Fork Trinity River and trail system also is a good barrier with crews and portable pumps. However, on the southern end there are limited barriers to keep fires from moving out of the wilderness. As the fire does move south there are increased road systems out of the wilderness that provide opportunities for containment. Coordination with adjoining agencies and parties needs to happen as fire approaches District boundaries and State DPA.

MAPS within this segment: Fires threatening MAPs in this segment have been transitioned to GB IMT1 on 7/4

Monitoring

Fire weather, observed fire behavior, fire movement toward MAPs, fire effects and smoke will be monitored using IR, MODIS, aerial observation and ground resources to ensure successful accomplishment of the objectives and to continually acquire information relevant to the fire situation. Strategic Implementation Plan validation should occur when time frames expire on modeled simulation or when there is a significant change of condition.

Validation of WFSA

Selected Alternative

Utilize available resources to: 1. Protect local communities. 2. Protect the Hoopa Reservation. 3. Protect outlying private property. 4. Minimize fire spread on to adjacent National Forests. 5. Protect identified values in the Trinity Alps Wilderness. 6. Protect environmental values.

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

Contain fires and groups of 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.

Local communities, Reservations, and private property will receive the highest level of protection that can be achieved with available resources. 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.

Fire Information Communication Plan for the Alps Complex

Situation

The afternoon of June 20, 2008 the Shasta Trinity National Forest began to experience numerous dry lightning strikes. Shortly after the lightning strikes were detected, fires began to be reported with some already reaching a ¼ of an acre or more in size. The lightning continued through Saturday and Sunday resulting in approximately 150 fires on the Shasta Trinity alone. The lightning started well over 800 fires across all of northern California. The weather, in the days following the initial lightning bust, was hot and dry. Inversions helped to moderate the fire behavior and growth, but limited the use of aircraft hindered fire fighting efforts. The inversions also caused smoke to impact communities at unhealthful levels and allowed some fires to burn undetected.

The fires that are part of the Alps Complex are primarily in the Trinity Alps Wilderness. This is an area that has seen considerable fire activity over the years. Fires in the Trinity Alps Wilderness can easily grow to where they threaten communities. The local communities have been impacted by smoke in the past and this is a significant issue for them. The 299 highway is one of only two local access routes from the interior to the coast and is used by commercial vehicles as well as locals and recreating visitors.

Fisheries is an important resource in this area including 30%-40% of northern California steelhead, spring Chinook salmon runs and one threatened species of Coho salmon.

Firefighting resources are limited due to the current fire situation in California. Management strategies will focus on confine, contain and control and tactics that can be light on the land within the wilderness boundaries.

Objectives:

Provide local communities, agencies and user groups with timely, accurate information on current and predicted fire behavior in the Trinity Alps Wilderness.

Provide information to target audiences on strategy and tactics being employed and the expected results.

Increase the “comfort level” of target audiences that the team and the agency are taking appropriate actions in dealing with the wildfires in the wilderness.

Strengthen understanding of and support for the forest’s fire management program.

Audiences

External Audiences

Media
Local Communities
Hoopa Valley Tribe
Recreation users
Travelers

Interested Groups

Backcountry Horseman
Retirees
Guest Ranches
In-holders

Internal

SHF Public Affairs Office
Agency employees
AC – Info center
JIC

Messages

Safety is the primary concern for managing the fires in the Trinity Alps Wilderness and is always a factor in the development of the appropriate management response.

In developing strategies to respond to the fires in the Trinity Alps Wilderness, fire managers are considering all the options available to minimize risk to firefighters, communities and the landscape and to use firefighting resources where they can be most effective in protecting values at risk.

These strategies and tactics include consideration of firefighter and public health and safety, current and predicted weather and potential fire behavior, values to be protected from or benefiting by fire, management priorities, resource availability and cost effectiveness.

Looking longer term, the team also is considering the possible ecological effects of using or suppressing the fire. These effects include rehabilitation needs; the frequency, duration and intensity of smoke; fire effects on soils, vegetation and wildlife; and overall effects on the landscape of having fire present or excluded. The Team is also looking at reducing hazardous fuels, increasing vegetative diversity and helping the landscape be more resistant to catastrophic fire.

Given the current fire situation in California and limited firefighting resources, strategies reflect the goal of deploying available firefighting resources in the most effective, most efficient and safest means possible.

The selected response strategy for this fire is balanced between the fire's current and potential threats, and the agency's responsibility to safely suppress or manage the fire using the most effective and economical means available.

One of the primary focuses for the fires in the wilderness will be to contain, confine and control. Contain and confine are similar strategies where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors to restrict the spread of the fire beyond an established perimeter. Control represents the completion of a control line around a fire and the elimination of immediate threats to the control line so that it should hold under the foreseeable conditions.

This team has a cadre of trained experts who utilize their knowledge, experience and computer modeling tools to predict fire behavior, simulate the predicted direction of fire spread over time and the probability of a rare significant fire event.

There is one species of threatened Coho salmon affected by activities in this watershed as well as Chinook salmon runs and 30%-40% of Northern California's steelhead fisheries. These fires may have some short-term impacts on these species but based on the experience with prior fires in this area it is anticipated that there will be no long-term adverse effects on the fisheries.

Firefighters working in the wilderness area will utilize Minimum Impact Suppression Techniques (MIST). These are firefighting techniques that effectively meet suppression and resource objectives with the least environmental, cultural and social impacts.

Air quality is a major concern. Smoke impacts have been particularly severe in this area where the combination of weather and topography has resulted in multiple days where inversions have held smoke close to the ground.

Strategies

Proactively communicate clear, consistent messages about the current and expected fire behavior, the effectiveness of current and planned actions and clearly explain the reasons behind the selected strategies and tactics.

Tactics

Facilitate one-on-one meetings with users groups and interested publics.

Provide daily update – for trap line, media, information centers, front liners, etc.

Provide accurate user friendly maps

Provide talking points and encourage leaders/officials to communicate with the public during meetings and events.

Conduct and participate in public meetings in the local communities.

Action Plan			
Action	When	Who	Date Completed
Develop and get approval for Talking Points	6/27/08	Information Officer with approval of IC and Plans	6/28/08
Produce & Distribute Update	Daily	Information Officer	Ongoing
Identify Community needs and develop products/maps to meet their information needs		Information Officer	ongoing
Contact Backcountry Horseman	6/27/08	Information Officer	6/28/08
Contact retirees	6/27/08	Information Officer	6/28/08
Participate in PAO conf call	Daily	Information Officer	ongoing
Contact Hoopa Indian Tribe	6/28/08	IC/Information	ongoing
Add Tribe to daily distribution list	6/28/08	Information	6/28/08
Provide maps and updates to all field going team members	6/28/08	Information & Team members	Ongoing
Share SIP with Hoopa Tribe	When available	IC & Information	7/3/08
Respond to media request	Ongoing	Information Officer	ongoing
Develop Pod Cast & Article for Forest PAO	7/7/08	Information Officer	7/7/08

Strategic Implementation Plan – Decision Support Team Members

Kim Soper IC
Chris Ourada Deputy IC
Dan Washington Plans Chief
Anne Jeffery Public Information Officer
Venetia Gempler Public Information Officer (t)
Michelle Hawks GIS Specialist
Zack Muirbrook GIS Specialist (t)
Cindi Sidles Long Term Risk Specialist
Gayle Sorenson Long Term Risk Specialist (t)
Brad Washa Fire Behavior Analyst
Chris Church Fire Behavior Analyst
Dave Ramirez FUM2 (t)
Irene Burkholder Finance Chief

Signatures

Prepared By:

Soper / Ourada: Fire Use Management Team

Signature:

Title: Incident Commander

Date: 07/03/08

Shasta-Trinity National Forest Concurrence

Signature:

Title:

Date: 07/03/08

Appendices

Appendix A. Fire Risk Assessment

Weather Conditions and Drought Prognosis

The assumptions that supported the FSPRO, FARSITE and FlamMap analyses are subject to change as conditions change. The models are only valid for the fuel and weather conditions for which they were run and for the timeframe they represent. Wind events may occur. The head of the fire may move to new and unpredicted locations. Live fuel moisture's may change dramatically. As the fire season progresses, the decision environment will also change. Such changes and others may invalidate the assumptions underlying the initial analyses. As a result, previous risk estimates will no longer be accurate. Over time, it is essential that the assumptions underlying the risk estimates are periodically revalidated and that the simulations are re-run accordingly.

The current fire risk assessment analyzes fuels, weather and fire behavior for two of the eleven Alps Complex fires. The two are Granite and Carey. The remaining unanalyzed fires were suppressed, burned out on their own to natural barriers or have never been found again since initial discovery. Should some of the other fires become active; analyses for those fires will be added to this report.

Fuels and Topography Description

The fires are spread across the wilderness. The complex fires are burning between ~ 3800' and 6000'. Slopes on all fires are 80% or higher except where they occupy less steep spots on ridge tops.

Fuels across the complex are mostly timber with brush understory and a moderate to heavy downed fuel component. The Carey fire is burning within the 1999 Megram fire scar. The Granite fire is burning in fuels with no recorded recent large fire history. The California fuels layers were used to model fire behavior on the Granite fire and the 2008 Rapid Refresh Landfire fuels layers were used for the Carey fire. The California models over predicted fire behavior in recent fire scars. Fuel model TU1 (165 – dry climate timber-grass-shrub) from the 2008 Rapid Refresh of Landfire was used to model fire behavior for the Carey fire.

Generally overstory species are Douglas Fir, Ponderosa Pine, Sugar Pine and Incense Cedar. Mid-story species are Madrone and reproduction Douglas Fir. Brush is primarily oak, buck brush, snowberry and deer brush. Minor amounts of manzanita are found at the lower elevations. There are areas of tree top blowdown accumulation in all areas. Currently the fire is burning in litter and downed fuels with enough heat to stress kill the mid-story. Fire behavior has been low to moderate with burning under a smoke inversion on most days. Brush species are relatively green and are slowing fire behavior at this time. Patches of snow remain at higher elevations, on north and east facing slopes and in higher drainage bottoms.

Seasonal Outlook and Drought Prognosis

Winter snowpack was normal to slightly above normal at most locations in the wilderness. Spring precipitation across the wilderness ranged from 10-50% of average, one of the driest springs in recorded weather history. The current drought monitor issued July 3rd in Figure 1 below shows most of the area as having moderate drought

U.S. Drought Monitor

California

July 1, 2008
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.2	99.8	89.2	18.1	0.0	0.0
Last Week (06/24/2008 map)	0.2	99.8	89.2	18.1	0.0	0.0
3 Months Ago (04/08/2008 map)	36.8	63.2	39.6	5.5	0.0	0.0
Start of Calendar Year (01/01/2008 map)	8.9	91.1	84.7	58.0	14.6	0.0
Start of Water Year (10/02/2007 map)	0.0	100.0	92.6	64.6	33.8	0.0
One Year Ago (07/03/2007 map)	0.0	100.0	92.3	65.3	35.2	0.0

Intensity:

 D0 Abnormally Dry	 D3 Drought - Extreme
 D1 Drought - Moderate	 D4 Drought - Exceptional
 D2 Drought - Severe	



The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, July 3, 2008

Author: Rich Tinker, CPC/NOAA

Figure 1. July 1, 2008 Drought Monitor. The Alps Complex falls within the abnormally dry area. The Drought Monitor is updated weekly and posted on Thursdays. It can be found at: <http://www.drought.unl.edu/dm/monitor.html>.

Temperature and precipitation outlooks for the 30-day period of July and the 3-month period of July, August and September are included below. Precipitation for the 3-month period shows an increased chance for below normal precipitation averaged across July, August and September. The remaining charts generally indicate normal conditions.

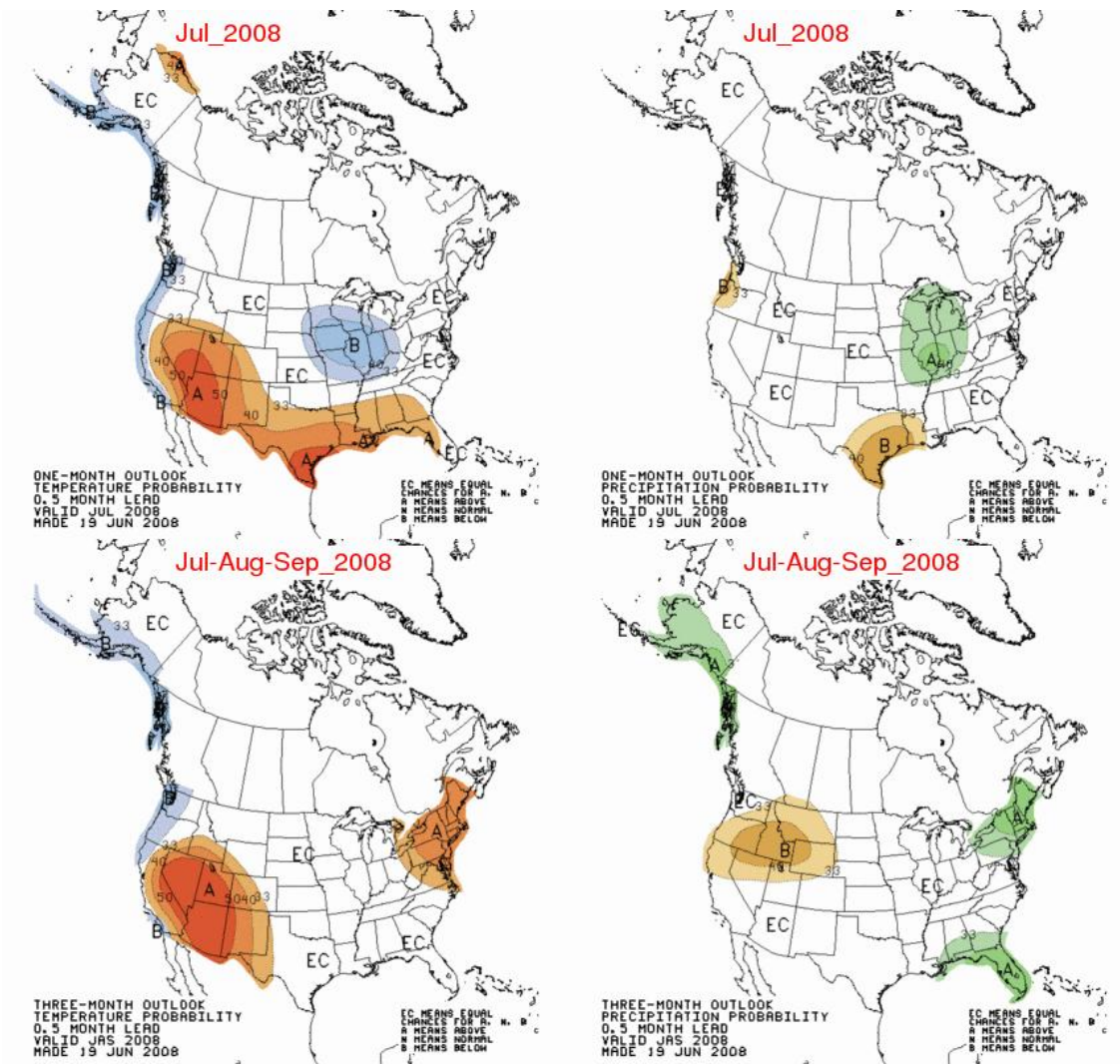


Figure 2. Temperature and precipitation outlooks. Top: July. Bottom: 3 month outlook for July, August and September.

North Ops Predictive Service personnel released the fire season outlook product on June 25th; this document can be found at: http://gacc.nifc.gov/oncc/predictive/outlooks/seasonal_outlook.pdf. This group predicts above normal fire potential for the fire area based on predicted early curing of live fuels precipitated by the drier than normal spring (Figure 3).

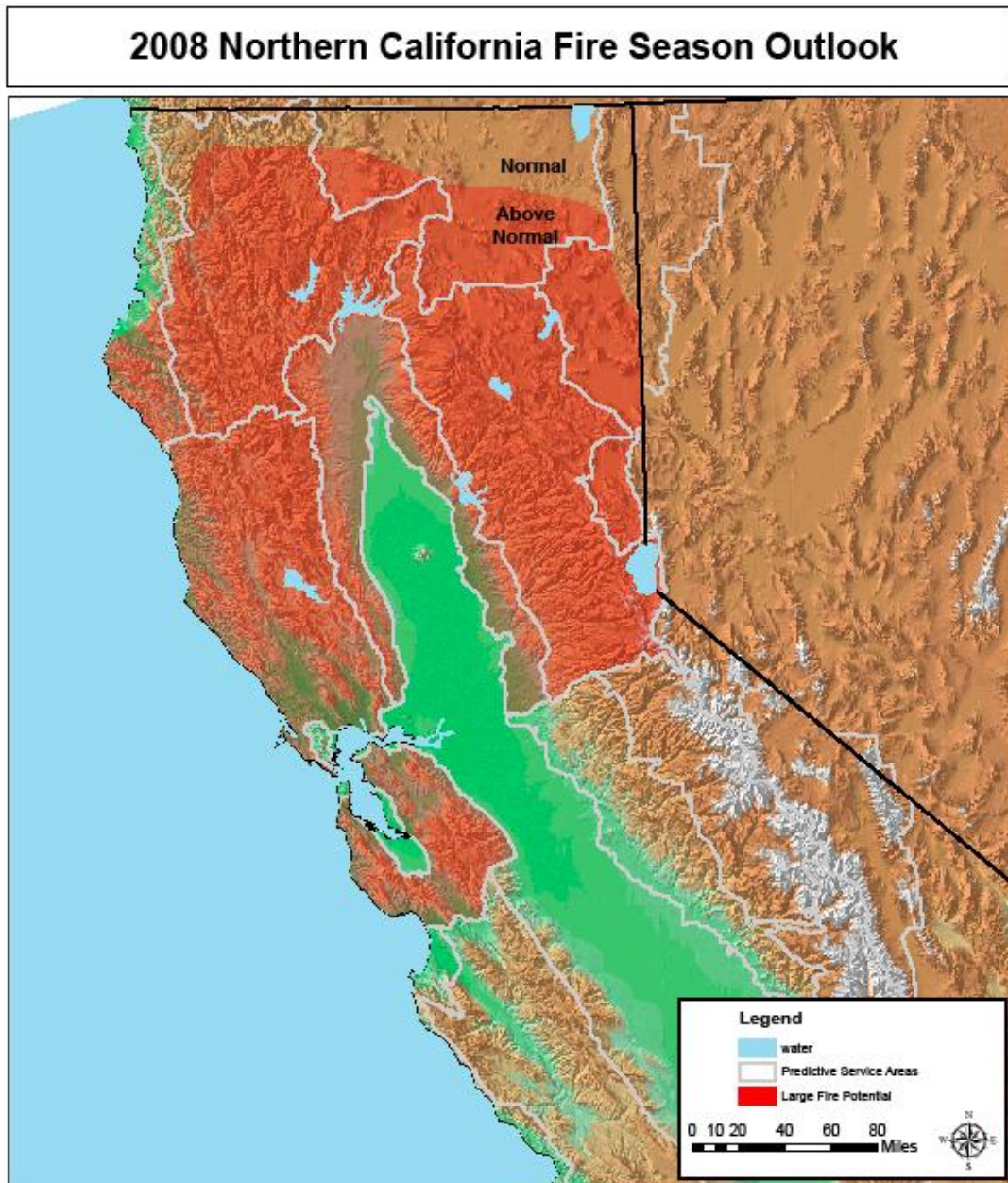


Figure 3. Northern California GACC Predictive Services fire season outlook for fire potential.

Seasonal Trend

Energy Release Component (ERC) is an index related to the potential energy of a fire at the flaming front and is generated from weather and fuels inputs. It is considered a good measure for seasonal dryness trends in large fuels, making this a good indicator for potential on the wilderness fires of the Alps Complex. ERC is most often used with Fuel Models G and H which represent dense conifer stands with heavy accumulation of litter and downed woody material. Fuel Model G is used for all Stations and inputs on the Alps Complex.

The current ERC indices at Friend Mountain, Yolla Bolla and Big Bar in Fuel Model G (heavy dead fuel component) through July 7th are at or near record highs for the time of year. ERC's have moderated over the last few days due to cooler, moister conditions under the inversion. For all stations analyzed, average and historical maximum ERC continues to climb through mid-August, secondary peaks occur in early fall, mid-September to mid-October.

The figure below utilizes the Friend Mountain RAWS located 25 miles south-southwest of the Alps Complex at 4,396'. The data set incorporates 18 years of data with the current year overlain. This station was chosen based on the need for higher elevation climatological information and information received on station reliability disseminated by Predictive Services at the Northern California GACC.

At this station, for the average data set, the peak is August 17th, for the historical maximum data set, the peak is August 16th (set in 2002). All historical maximums at this site have been set in this decade. Secondary historical maximums were set on September 25th and October 16th in 2002.

A review of nearest RAWS reveals remarkably consistent climatology around the area. Strong, gusty winds over 20 mph are rare. All stations exhibit a mild, diurnal wind pattern, at least for the 10-minute averages. We realize that gusts to 20+ may be hidden in these averages.

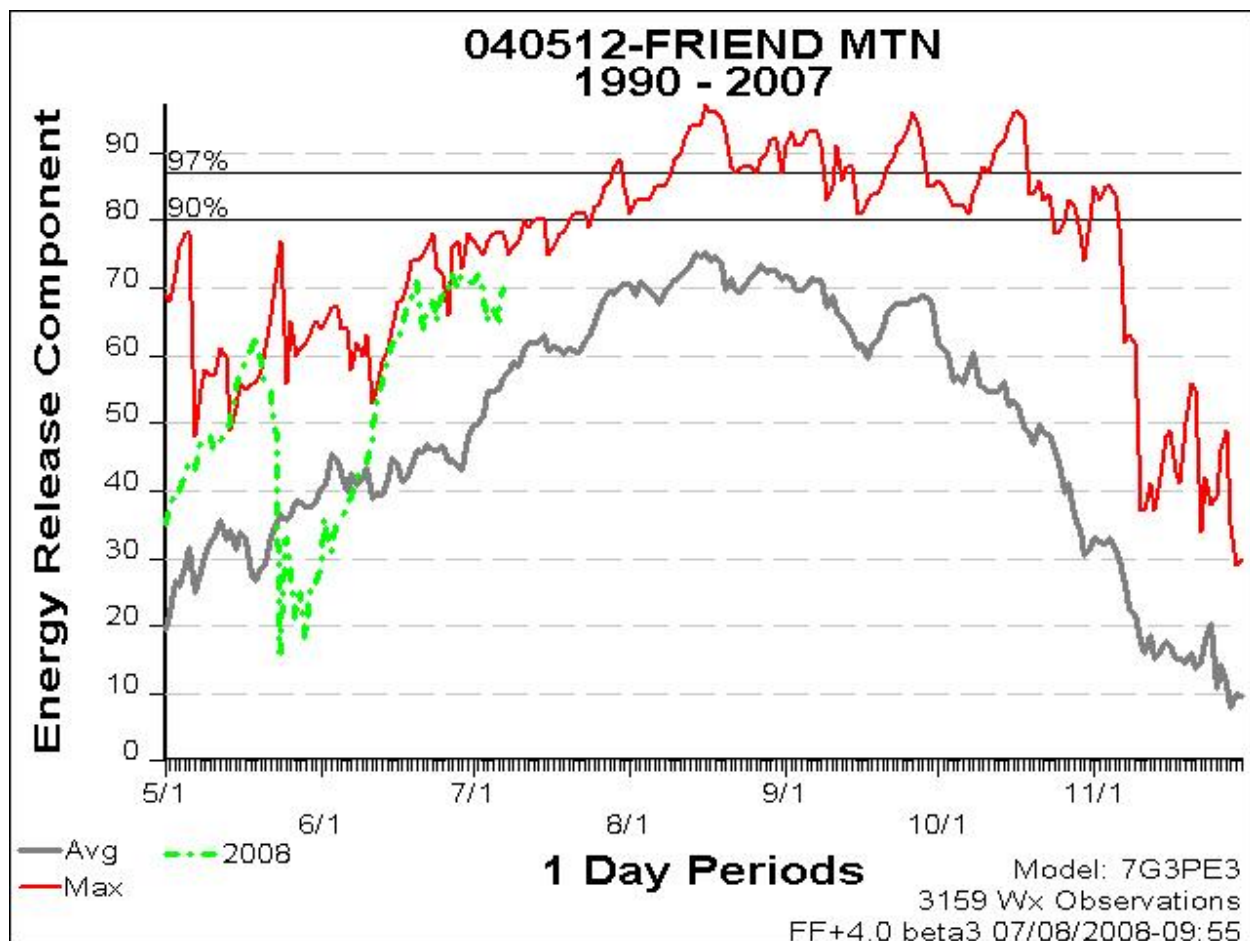


Figure 4. Average (gray) and maximum (red) ERC values for Friend Mountain RAWS for the period 1990-2007 with the current year overlain.

Currently the region is experiencing continuing dry conditions that are rapidly curing live fuels. 1000-hour fuels are at or slightly above record lows for this time of year. Calculated values for 1000-hour fuels are 9% for Friend Mountain and 10% for Big Bar RAWS, this corresponds to measured values of 10% on the Granite Fire taken July 2nd.

At present, high elevation forbs, grasses and brush species are green and acting as a heat sink (i.e., slowing fire spread). Low elevation annual grasses and brush in the river corridors are available to burn. Measured live fuel moisture in Manzanita at 2600' declined from winter dormancy values through the dry spring period March through May; old growth leaves were measured at 75% on June 6th. Expect currently green brush and forbs to cure early and contribute to fire activity by mid-July.

Strategic Analysis

This analysis was undertaken with the understanding that no holding actions have taken place on the Granite and Carey fires.

Tools used in this analysis include the Fire Area Simulator (FARSITE), weather analysis in Fire Family Plus, the Rare Event Risk Process (RERAP) and Fire Spread Probability

(FSPro). The products derived from these tools were more focused on the fire spread potential in seven days, rather than estimating potential to the end of the season. Each analysis tool and the associated results are discussed in more detail below. Other data sources used for the analysis include the U.S. Drought Monitor, the National Climatic Data Center, Western Regional Climate Center, the Northern California Geographic Area Coordination Center Predictive Services, local fire managers and field observations.

There are limitations to all of the long-term decision support models. All of these models are based on historical weather records and standardized fuel model mapping. Although expert opinion is used in making adjustments in much of this information, there is a lot of variability in natural systems that can not be modeled. There are still a lot of unknowns for these wilderness fires mainly due to difficulty of logistics and smoke inversions. Fire behavior and fire growth are not well enough known to calibrate the models with high confidence. The weather this fire season may not be truly reflected in the historical weather records and mapped fuel conditions rarely contain all the details that influence fire spread. There are assumptions within the fire spread models that also need to be considered. The results from these models are based on the best available data, models and information but are also limited by this same information.

Weather Stations

No weather stations are located in the Wilderness. Due to differences in the models in how the weather and winds are used, and fire elevation and position location, several weather stations were used:

Friend Mountain RAWS: Friend Mountain RAWS was used to evaluate climatological records for seasonal trends and large fire growth at higher elevation. This station was also used for ERC classes in FSPro for the Granite and Carey fires. The station has been operational from June 1, 1990 to the present. Elevation is 4396'. Daily 1300 observations were used.

Backbone RAWS: Backbone RAWS was used for wind inputs into the Granite and Carey fires FSPro models. The station has been operational from October 5, 2000 to February 2008. The station was repaired and became operational on July 2, 2008. Elevation is 4653'.

Big Bar RAWS: Big Bar RAWS was used for FSPro simulations on adjacent fires with the potential to threaten the Trinity River corridor and to gauge hotter and drier conditions. The station has been operational from June 1, 1961 to the present. Elevation is 1500'.

For the modeled FARSITE runs, National Weather Service forecasts and gridded winds were used to simulate likely scenarios.

Data from all stations were examined in Fire Family Plus using daily observation and the event locator options. Data was found to be adequate for reliable short-term and long-term projections.

Weather stations were reviewed across the Geographic Area. Much of the analysis here used Friend Mountain RAWS; however, very similar results were obtained using other stations and the SIG used by Predictive Services which incorporates 15 regional stations.

Fuel Models

Two sets of fuels layers were used for these analyses. The California fuels layers available through the Wildland Fire Decision Support System (WFDSS) and the rapid refresh LANDFIRE data from the Landscape Fire and Resource Management Planning Tools Project were used with the Scott and Burgan (2005) 40 fuel models. The California layers are locally preferred and were used for all fires except the Carey fire. The Carey fire is burning in the perimeter of the 1999 Megram fire scar and although these fuel layers have been updated post-fire (to SB2, moderate load activity fuel or low load blowdown), modeled runs in this fuel type over predicted observed fire spread. Rapid refresh landfire data was used and much more accurately depict actual fire growth to date. The California layers calibrate well to actual fire growth for the remaining fires not burning in recent recorded large fire scars. It is likely that the California layers will work well for those fires in recent fire scars once brush fuels become available to burn.

Large Fire Growth and Season End

When asked what triggers large fire growth in the Trinity Alps Wilderness, local experts agree that the major contributor is the fact that when there is a lightning bust, large numbers of starts are reported. Wilderness fires receive lower priority than those ignitions near values at risk. By the time resources are available for wilderness fires the fires have gotten large and difficulty of logistics and smoke inversions reduce response capabilities.

Large fire growth seems to be largely a dry fuels condition coupled with steep terrain and difficult logistics. Windy conditions do occur but are not well represented in the fire season climate record and include thunderstorm outflow and development of northeasterlies – typically a fall pattern. Northeasterlies can develop as early as August and played a major role in the growth of the Big Bar Complex in 1999. The northeasterlies are associated with strong winds and single digit relative humidity.

The current year began with an average to slightly above average snowpack followed by the driest March to May period on record (North California GACC Predictive Services Fire Season Outlook report issued 6/25/2008). This has lead to drier early season fuels conditions for live and dead fuels as moisture uptake was limited. This will lead in turn to earlier than average curing and contribution to fire behavior in live fuels.

An analysis generated by Area Command for the Shasta-Trinity fire complexes based on the Predictive Service Area Special Interest Group looked at similar early season ERC record setting years, including 1976, 1985, 1992 and 1997. For these early season years, ERC's dropped below average by the first of July and slowly climbed to

average values by early to mid September.

Probability of Season Ending Event

Generally during long duration fires, season end is evaluated to support operational decision-making. Although the Granite and Carey fires are suppression events, season end was evaluated here because of the potential for these wilderness fires to persist late in the season due to difficult terrain and logistics. Empirically, local experts feel that fire season is over by October 15th. No readily measurable event precipitates season end, it is more a combination of shortening day length, lower sun angle, lower daytime temperatures and higher overnight humidity recovery. ERC comes closest to approximating these factors with weather, fuels and latitude inputs.

To determine the likely date of occurrence and probability of a season ending event for the Granite and Carey fires, historical data from the Friend Mountain (1990-present) RAWS was analyzed. Friend Mountain was chosen as the most representative station for these fires, primarily for its higher elevation location (4500') where the majority of area stations are positioned in drainage bottoms.

To model season end, fire history on the Shasta-Trinity National Forest was reviewed to determine ERC values for large fire (300 ac) start dates, recognizing that for many fires, the spread date occurred later at higher ERC. Eighty percent of fires 300 acres have an ERC of 68 or higher at discovery. The 70th percentile ERC (67) was chosen to evaluate season end. The latest date for each year in the historical record at which ERC (G) dropped below the 70th percentile and did not recover was input into the term module of the RERAP program. In cases where the ERC dropped steeply below the 70th percentile and rebounded for only one day to the 70th or slightly above, the earlier date was chosen. Probabilities for season end dates are as follows:

50%	-	October 4 th
80%	-	October 22 nd
90%	-	October 30 th
97%	-	November 9 th

Precipitation events were also analyzed to look for opportunities for suppression tactics. One-quarter inch of rain over a 3-day period was examined, those probability dates parallel the season end dates above, occurring only 6 days earlier for each probability.

Projections were run for the Carey fire to the private inholding 1.8 miles northeast of the current fire perimeter (Figure 5 below). Two evaluations were made; one used average climatological probabilities (15% low, 75% moderate, 7% high and 3% extreme) for July and the other used adjusted climatological probabilities (0% low, 37% moderate, 53% high and 10% extreme). These probabilities refer to the percent of days in a given time period in each of the weather categories. The adjusted probabilities were based on percent of days in each category for July 2002 which best approximated the 2008 early season ERC curve. The remainder of time periods for both runs used average climatological probabilities.

A full analysis using FSPPro, FARSITE, FlamMap, and Wind Ninja was done on the Carey and Granite Fires. The fire behavior models were difficult to calibrate. The fuel models were accurate representations of the vegetation, but these fires started, and are burning more than a month earlier than large fires typically occur in this area. Most of the observed spread has been by roll out, which can not be modeled accurately. The fires burned on the surface and the brush generally has live fuel moistures too high for the fire to spread through them. The models were adjusted to help account for these factors and it is expected that they will be more accurate as we progress into the true fire season.

WFDSS - FSPPro – Fire Spread Probability Model

What is FSPPro?

- WFDSS-FSPPro is a spatial model that calculates and maps the probability of fire spread, in the absence of suppression, from a current fire perimeter or ignition point for a specified time period.

What does FSPPro do?

- WFDSS-FSPPro combines data layers including the standard fuel models (13 or 40), current weather projections, historical weather scenarios, fuel moisture classifications, and wind speed and direction,
- FSPPro can project probabilities of fire spread in specified increments (eg. 7, 10, 14 days),
- It is not a fire perimeter like a FARSITE projection.

How does FSPPro help decision-making?

- The model helps to assess a fire's growth potential by visually indicating the highest probability for spatial spread,
- Managers can develop appropriate strategies and tactics to meet objectives consistent with resource allocations,
- The model identifies probabilities of fire spread which potentially will provide managers a sound basis for prioritizing firefighting resources,
- It can also aid in communications with affected partners, the media, and the public.

Initial FSPPro Runs for the ALP Complex fires were done by Chuck McHugh from the Missoula Fire Lab. The runs for this analysis were copied from Chuck's initial runs and minor edits were made to bring them up to the current date based on fuel moisture sampling data and local information about particular RAWS stations.

FSPPro Assumptions for the Carey Fire:

A fourteen day run was made for the time period from the 7th July to the 21st. The Friend Mtn. RAWS station (040512) was utilized as the most representative for fuels/ERC calculations. The Backbone RAWS station (040518) was utilized as the most representative for winds. The Friend Mtn. and Backbone RAWS station are at higher

elevations and would represent the Wilderness the best.

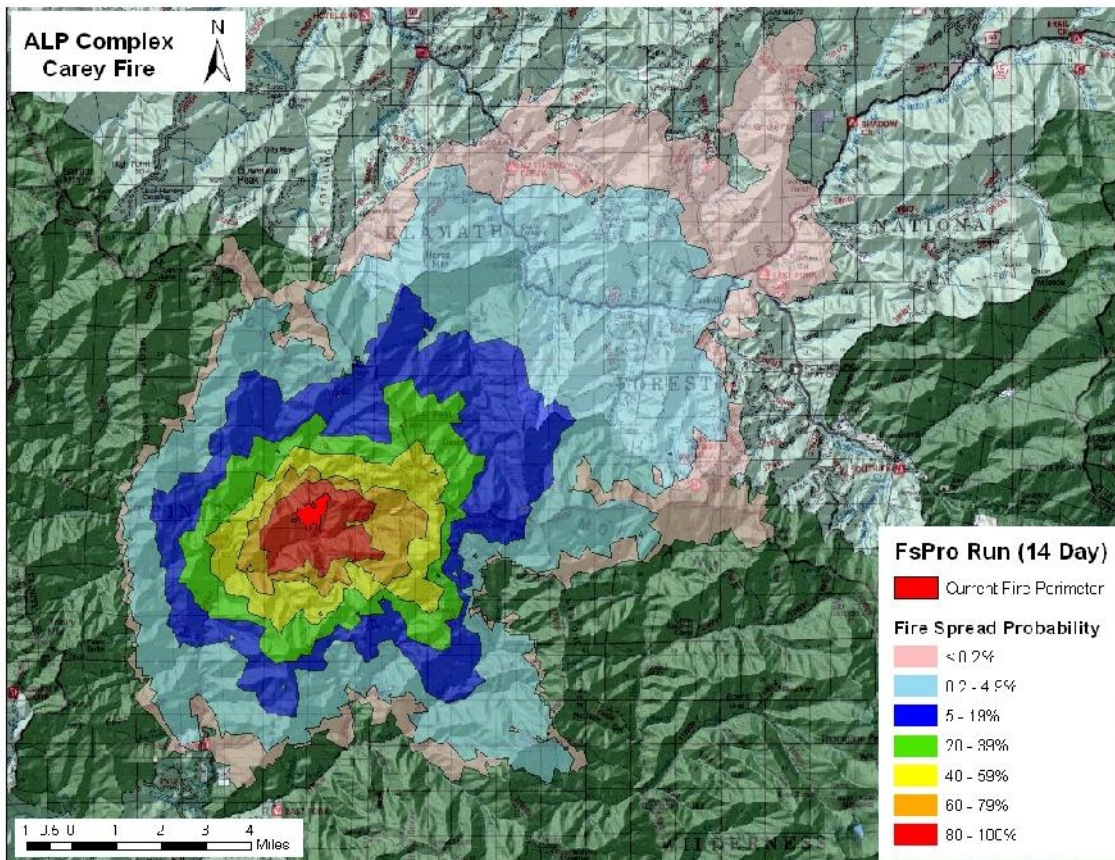
A forecasted ERC and wind speed and direction were utilized for the first three days of the simulation. Beyond 3 days, the model uses climatology with a “memory” of current ERC levels to pick weather variables.

Date	Wind Direction	Windspeed (mph)	ERC
7/2	240	5	53
7/3	250	7	53
7/4	270	7	53

The Landfire Rapid Refresh Landscape data was used for this analysis. This fire lies completely inside the 1999 Megram Fire. The fuels in the California LCP designate this area as mostly Fuel Model 202. This is an activity fuels model equivalent to light logging slash. This model seems to over predict spread. The Landfire Rapid Refresh uses fuel model 161, a timber-grass-shrub model, which shows much more reasonable fire spread rates. This problem will probably be resolved as the season progresses and spread rates generally increase as fuels dry out and become available to burn.

For the final run the program ran through 1000 simulated fires, for 14-days, with an output resolution of 90 meters.

The 80-100% probability is for the fire to move off Carey Ridge and engulf the Slide Creek drainage. There is a Cinnabar Mine and piece of private property up Slide Creek from the fire. It is in the 80-100% probability ring for this 14 day projection period. Suppression action is being taken on this fire, which is not modeled by FSPro.



FSPro Assumptions for the Granite Fire:

A fourteen day run was made for the time period from the 7th of July to the 21st. The Friend Mtn. RAWS station (040512) was utilized as the most representative for fuels/ERC calculations. The Backbone RAWS station (040518) was utilized as the most representative for winds. The Friend Mtn. and Backbone RAWS station are at higher elevations and would represent the Wilderness the best.

A forecasted ERC and wind speed and direction were utilized for the first three days of the simulation. Beyond 3 days, the model uses climatology with a “memory” of current ERC levels to pick weather variables.

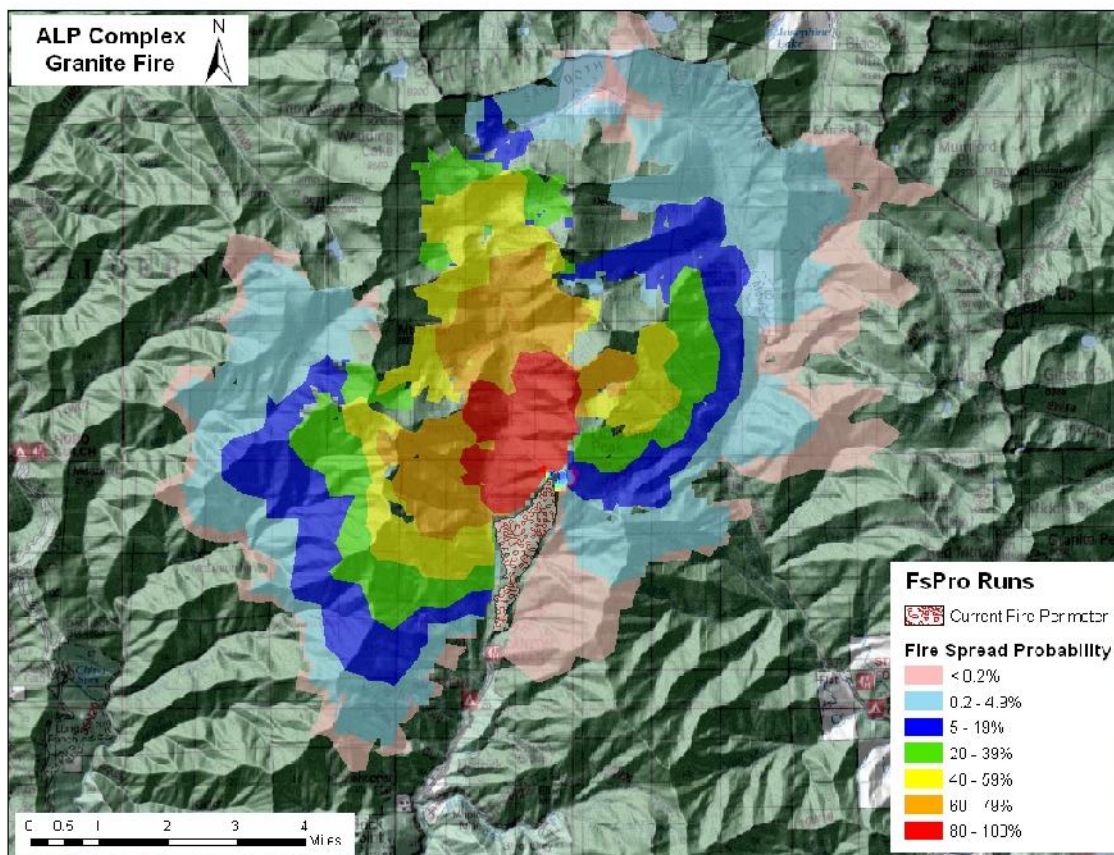
Date	Wind Direction	Windspeed (mph)	ERC
7/8	30	4	75
7/9	70	8	79
7/10	330	5	81

The California Landscape data provided the fuel model, canopy cover and crown characteristics for this analysis. This layer is updated yearly and preferred over Landfire by analysts throughout the state.

For the final run the program ran through 1000 simulated fires, for 14-days, with an output resolution of 90 meters.

Model results for the Granite fire suggest that the fire will grow quite a bit in the next two weeks. This is likely an over-prediction, but could occur as live fuel moistures continue to go down, making the brush more available to burn.

The Canyon Creek Trailhead and Ripstein campground are down drainage from the Granite fire and are of concern for fire moving south down the Canyon Creek river corridor. They are considered fairly safe at this time since active suppression has contained the fire on the southern end. This run does not predict the campground or trailhead to be threatened in the next two weeks.



GRIDDED WINDS

What is WindNinja?

- WindNinja is an interface to a computational fluid dynamics model (CFD) to simulate the mechanical influence terrain has on air flow. CFD technology was initially developed by the aerospace and automotive industries to simulate fluid flow around and through aircraft, automobiles, pipes, etc. These programs were modified to provide data that shows how terrain features influence wind for use by wildland fire managers.

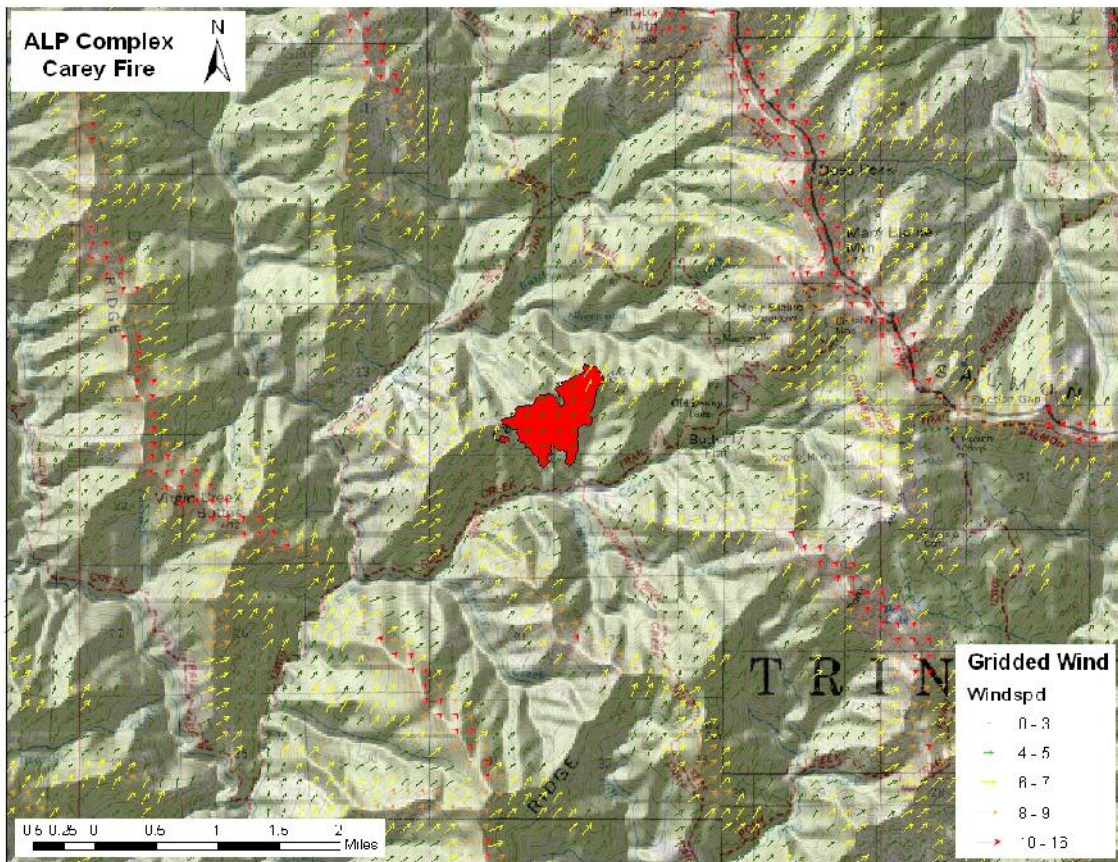
- In layman's term, WindNinja treats wind streams much like water. In pushing a 'flood' of wind across the landscape at varying windspeeds, fire managers can observe how localized terrain features cause wind speed and direction to 'swirl', 'eddy' and 'flow' in very localized patterns across the landscape. In steep terrain it can be particularly interesting to see how the local winds can shift 90 to 180 degrees from the dominant flow.

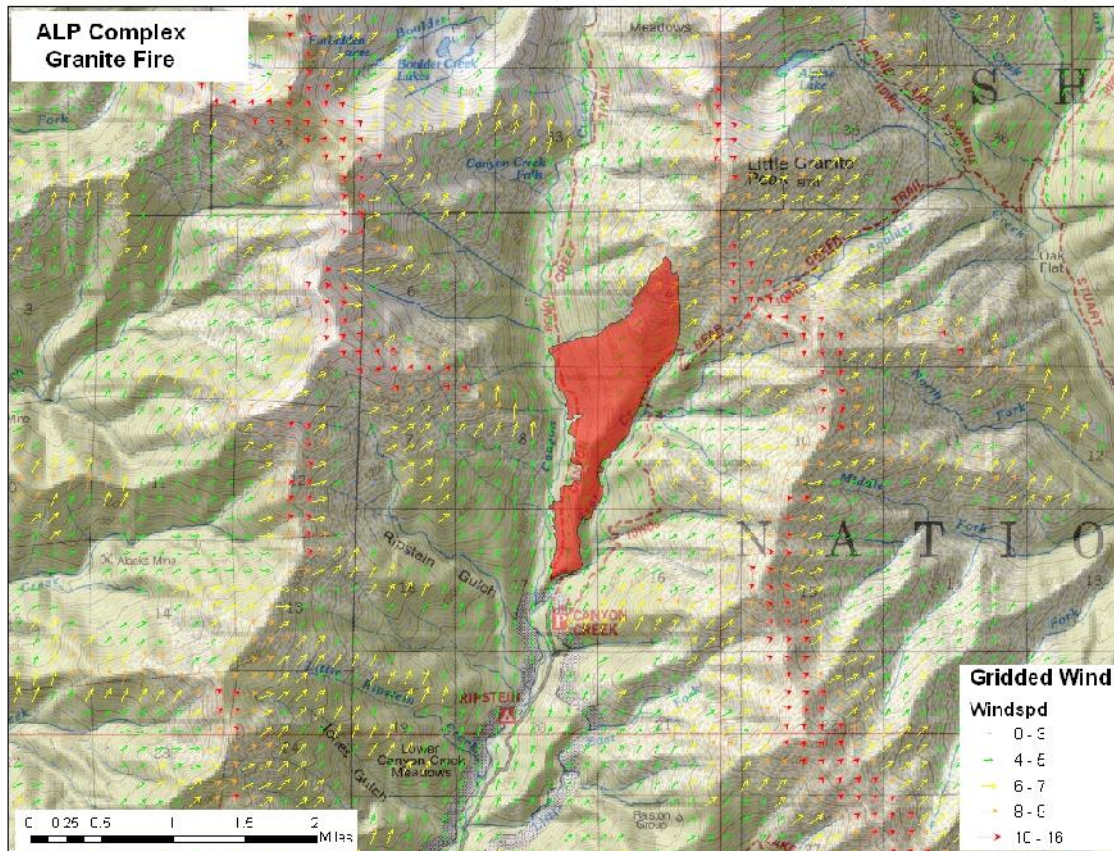
What does WindNinja do?

- WindNinja produces an output that shows 20 foot wind velocity and direction in raster and vector format that can be displayed on a variety of maps.
- Surface winds for an instant in time are calculated using terrain information obtained from a digital elevation model (DEM) and a user-defined upper-level wind speed and direction.

Many contemporary fire modeling programs, like FARSITE and FLAMMAP will take this gridded wind. In deeply variegated terrain like the Trinity-Alps Wilderness, terrain plays a very important role in channeling winds. Simulations with gridded winds assume a neutrally stable atmosphere and **do not include** buoyancy effects (diurnal and fire induced winds). Gridded wind is not a forecast, but a snapshot in time of what the local surface winds may be given the synoptic wind scenario.

The maps below are meant to show how terrain around the fires will likely influence the general southwest wind pattern that is forecast to dominate the area. As the fires move into the higher windspeed areas, spread rates would be expected to increase along with the probability of spotting.





FARSITE

What is FARSITE?

- FARSITE – Fire Area Simulator models fire perimeters and associated fire behavior (rate of spread, flame length, etc.) for a specific ignition during a user-defined time period where weather, winds, and fuel moistures are dynamic. FARSITE is unique in that it incorporates the timing of fire spread across the landscape.

What does FARSITE do?

- FARSITE simulates fire spread across a landscape using complex interactions of surface fuels, canopy fuels, topography, fuel moisture, and weather.
- FARSITE simulates a single fire event where weather, wind, and fuel moisture are dynamic.
- FARSITE does not simulate fire spread through rolling material and does not simulate diurnal, terrain-influenced winds.
- FARSITE can simulate spotting fire behavior; therefore, a different perimeter can be expected for each FARSITE run.

How does FARSITE help decision-making?

- Managers can understand what portions of a fire may grow under a variety of wind and weather scenarios (dry cold front passage v. moderate weather).

- Managers can see what day a fire may potentially breach a Management Action Point or how long it might take to get there.
- Managers can see if a Management Action Point breach is by surface fire or spotting.
- If point protection is an objective, managers can see the fire behavior expected around that point and design appropriate mitigations to protect assets.

When should FARSITE be used?

- If there is a time element needed for decision-making, FARSITE is an appropriate tool. Unlike other fire spread predictive models, FARSITE does not output a probability of an event occurring (FSPro, RERAP), but tells a manager the outcome of a specific scenario over time.
- If a manager wants to understand what the fire might do under a specific weather scenario, such as if the forecasted dry cold front materializes, FARSITE is the most appropriate tool.

FARSITE Assumptions Used for the ALP Complex Fires:

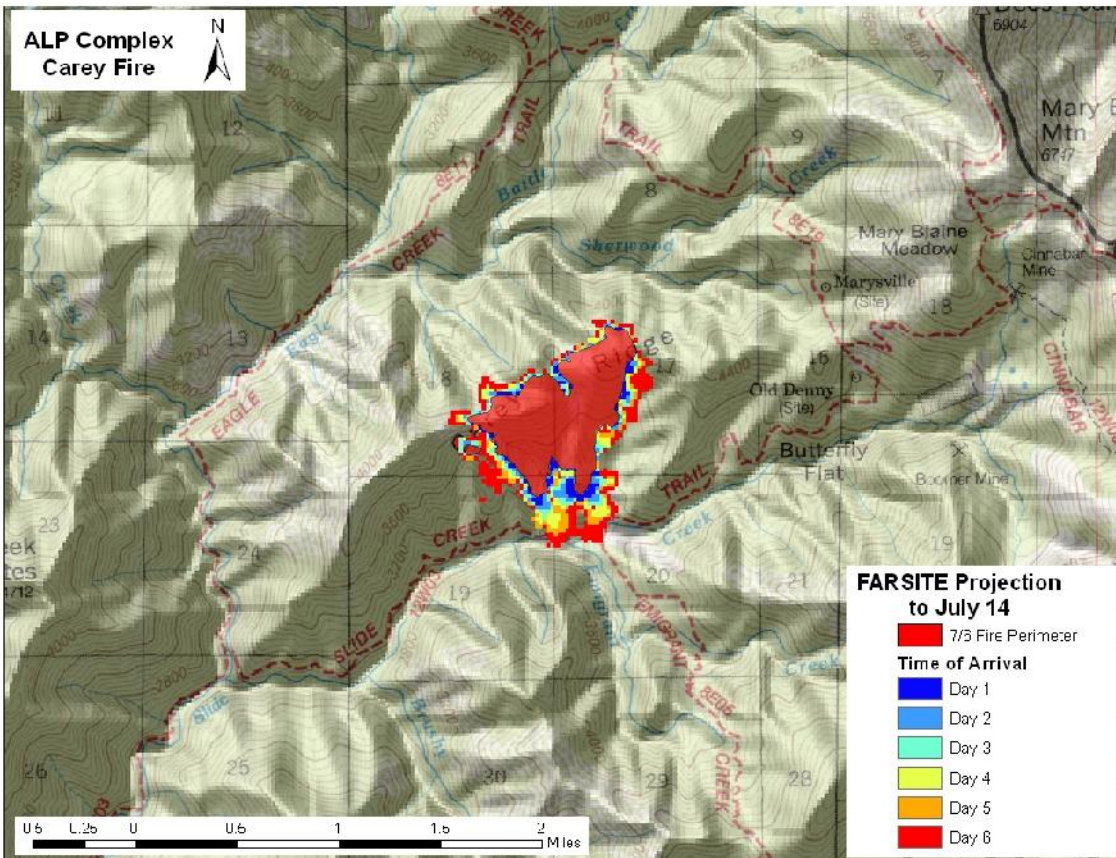
- Initial fire spread was initiated from perimeters for the fires obtained from IR Flights on 7/6/08.
- An LCP file was obtained from WFDSS and is the “California Landscape” layer for the Granite Fire and the Landfire Rapid Refresh layer for the Carey Fire. These are the same layers that were used for the FSPro runs.
- Surface and canopy fuels were obtained from the LCP files.
 - All simulations were run with crown fire enabled, embers from torching trees enabled, and 1% of embers ignited into spot fires (this is a moderate setting).
 - Parameters used include a 30 minute time-step, 60m perimeter resolution, and 30m distance resolution.

The simulation was designed to simulate fire spread based on current and expected weather conditions.

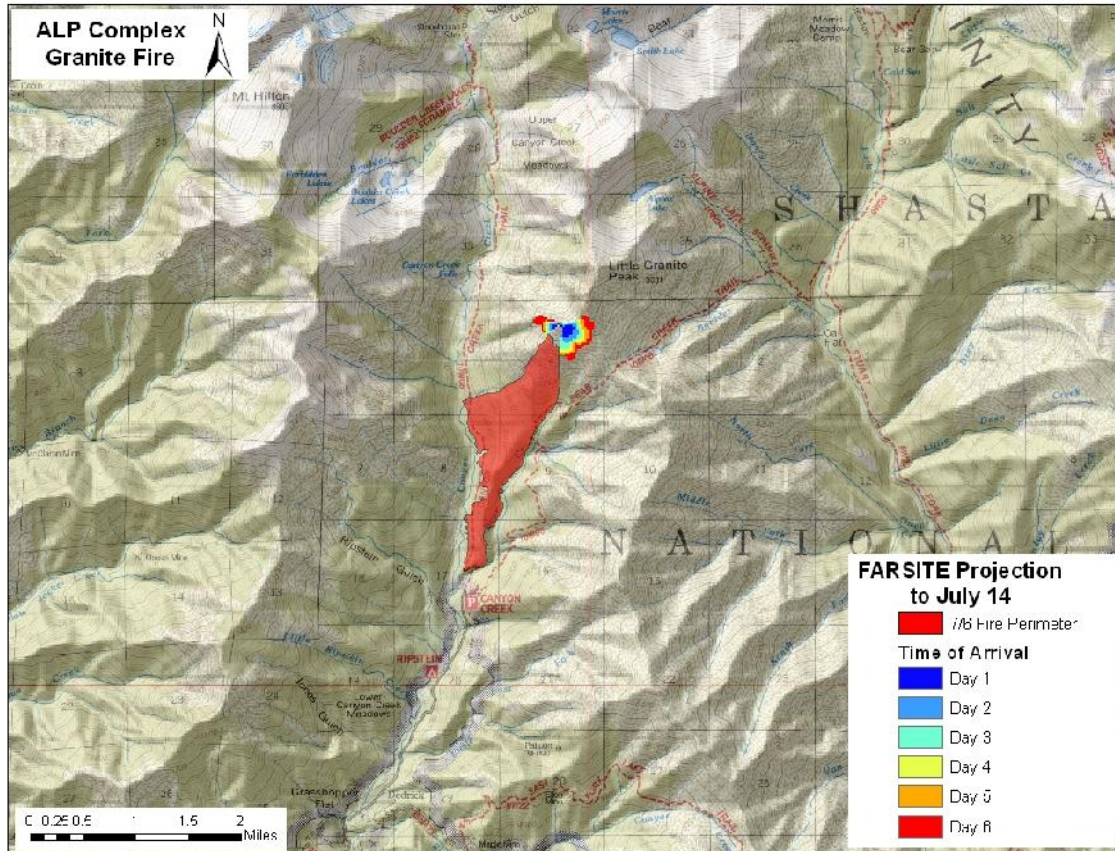
- Forecasted weather and wind was requested from the NWS Farsite Interface to populate the model for 7/7 through 7/14. The wind file was converted to a gridded wind file (ATM) by replacing the forecast speed and direction values with the equivalent gridded wind files.
- Fuel moistures were conditioned from 6/28 through 7/7 with historic observations from the Friend Mountain RAWS.
- Live herbaceous fuel moistures were reduced to 90%, live woody was set at 110%. 1, 10, and 100 hour fuels were assigned at 9%, 10%, and 11%, respectively.
- Burn period was set from 1500 to 1800. This may seem short, but with the strong smoke influenced inversion, there has been little active burning.
- Simulations were run for 7 days of fire spread because that is the timeframe of a reasonably accurate fire weather forecast.

- If managers desire to understand when and where the fire will reach MAPs, the simulation could be re-run with immediate past weather, forecast weather, and a new perimeter file showing the fire's current location.

The Carey fire is on Carey Ridge between Eagle Creek and Slide Creek. The FARSITE simulation predicts fire growth from about 208 acres to about 380 acres. Some growth is predicted in all directions, but the most movement would be down slope toward slide creek. This fire is burning inside the 1999 Megram fire. Reports from the field indicate that the fire is burning mostly at night and moving downslope with the diurnal winds. This simulation seems to capture some of that. The fire is being actively suppressed at this time, so spread from all areas of the perimeter is not likely to occur.



The Granite Fire is on steep rocky slopes in the Canyon Creek drainage. The fire has been spreading mostly by roll out. It is being suppressed along the trails in the Clear Creek drainage and in the Bear Creek drainage. Only the far north end burns unchecked. It is very rocky on that end, but the fire has been able to spot and creep through the fingers of vegetation. This simulation predicts about 75 acres of growth over the next week, so the size would increase from about 525 acres to 600 acres.



What is FlamMap?

- FlamMap computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, etc.) over an entire area, using constant weather and fuel moisture conditions. A fire perimeter is not predicted because there is no time element in FlamMap.
- An additional module in FlamMap predicts fire flow pathways (MTT: Minimum Travel Time), displaying the fastest, most likely route of a fire through a landscape.

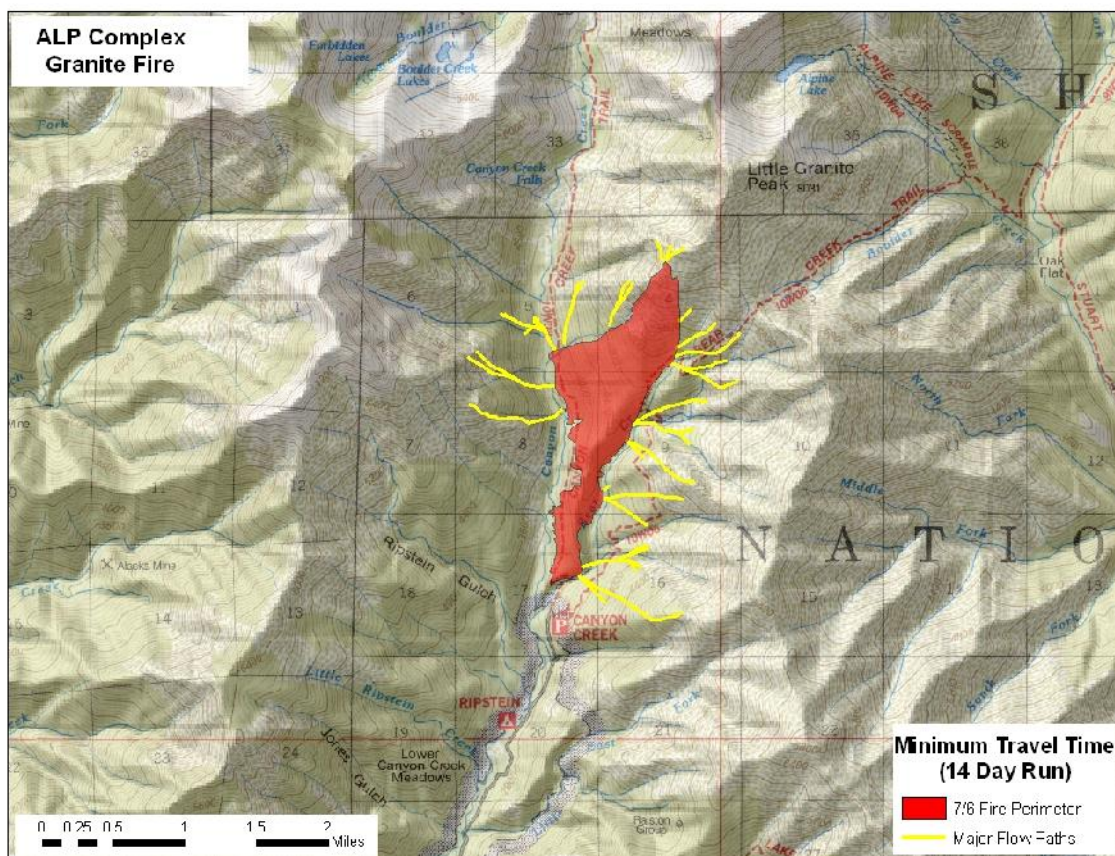
What does FlamMap do?

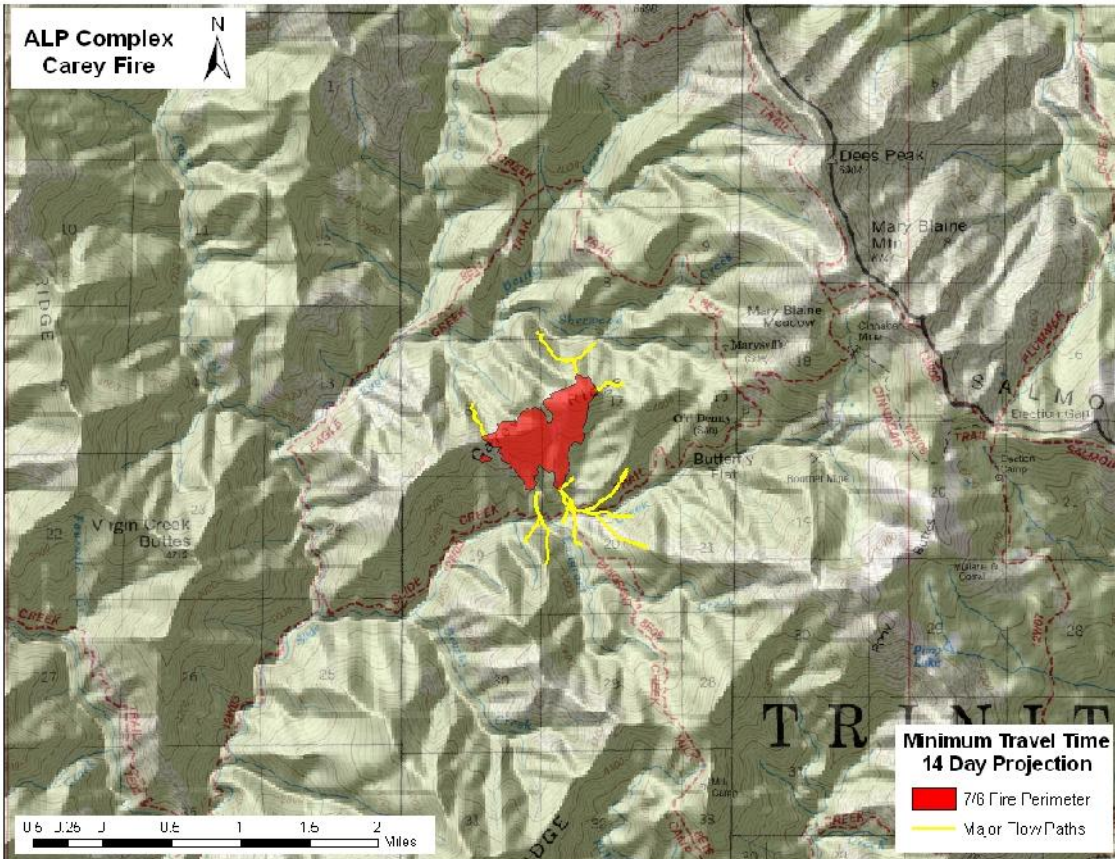
- FlamMap simulates fire behavior (for example, fireline intensity, flame length) for every point on a landscape using complex interactions of surface fuels, canopy fuels, topography, fuel moisture, and weather.
- FlamMap calculates fire behavior for every location, regardless of whether the fire is expected to arrive at that point.
- MTT uses the FlamMap rate of spread output to draw the fastest fire routes across the landscape. The final output shows an outer fire edge, which is the cumulative effect of several “days” of burning at the specified wind/weather condition. It is not the same as a fire perimeter simulated under constantly changing weather conditions as in FARSITE.

How does FlamMap help decision-making?

- FlamMap answers the question: if the fire arrived here under these specified conditions, how would it behave at this point? FlamMap can display potential fire behavior over a large area.
- The minimum travel time (MTT) feature displays the minimum fire spread travel paths; a manager can decide where the most appropriate “choke-point” might be for a portion of the fire.

The FlamMap run for the Granite fire was done with 5 mph southwest gridded winds. These gridded winds give ridgetop winds of 10-15 mph and lower speeds on lee slopes and in drainages. All the fuel moisture and weather conditioning files were the same as used in the FARSITE runs explained above. The results show the fire mostly wanting to spread uphill. No lines are heading toward the Ripstein campground. Except for the north end which is still active, these lines indicate where a fire is most likely to spread if a spot gets across the control lines.





The assumptions that supported the FSPRO, Gridded Wind, FARSITE, and FlamMap analyses are subject to change as conditions change. The models are only valid for the fuel and weather conditions for which they were run and for the timeframe for which they represent (July 5th, 2008 or earlier for all runs). Major wind events may occur. The head of the fire may move to new and unpredicted locations. Live fuel moisture's may change dramatically. As the fire season progresses, the decision environment will also change. Such changes and others may invalidate the assumptions underlying the initial analyses. As a result, previous risk estimates will no longer be accurate. Over time, it is essential that the assumptions underlying the risk estimates are periodically revalidated and that the simulations are re-run accordingly.

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Document prepared by:

Cyndi Sidles, Long Term Analyst

Scott Tobler, FARSITE and FSPro Analyst

Gayle Sorenson, Long Term Analyst trainee

Intelligence support from:

Predictive Services, Northern California Interagency Fire Center

Chuck McHugh, Rick Connell and Caroline Noble, Decision Support, Zimmerman Area Command

Laura Ridley-Graham, Fuels Specialist, Shasta-Trinity National Forest

Larry McLain, Shasta-Trinity National Forest

Loren Everest, Resource Advisor, Shasta-Trinity National Forest

Julia Ruthford, IMET, Iron Complex

Mark Pellerito, IMET(t), Iron Complex

Appendix B. Shasta Trinity National Forest – Fire Management Plan Resource Objectives

Wilderness

General Wilderness Objectives:

- Return fire to its natural role when not in conflict with public safety. Permit fire management activities that are compatible with wilderness objectives.
- 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.

Late Successional Reserve

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.

Appendix C. Wildland Fire Situation Analysis

Iron and Alps Complex

Trinity River Management Unit Shasta-Trinity National Forest

Complex Overview

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 WSFAs 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 WFSAs.

The decision space determination (WFSAs 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.
- Keeping the fire from spreading on to the Six Rivers and CALFIRE Direct Protection Area.
- 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 2 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% FSPPro 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 onto 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.

- Alternative A (Minimize Area Burned) – Aggressive suppression would be used to attempt to arrest perimeter growth as quickly and as much as practical.
- 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.
- 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.

3. Cost

- a. The IMTs 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 employing an appropriate cost apportionment methodology philosophy 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 \$81,600,000 and the number of acres potentially affected is 170,000.

Draft Iron / Alps Wildland Fire Situation Analysis

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

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.

Insert ERC Chart

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

..RED FLAG WARNING IN EFFECT FROM NOON TODAY, JUNE 28,2008 TO 11 PM PDT THIS EVENING FOR ZONES 203 204 211 AND 283...

DISCUSSION:

THE THREAT CONTINUES FOR SCATTERED THUNDERSTORMS THIS AFTERNOON AND EVENING OVER THE TRINITY ALPS AND SISKIYOU MOUNTAINS. THUNDERSTORM CHANCES HAVE DECREASED CONSIDERABLY ACROSS MENDOCINO COUNTY. THE MAIN CHANGE IS DUE TO THE NORTHERLY MOVEMENT OF THE UPPER LEVEL LOW OFFSHORE CAUSING THE FOCUS OF INSTABILITY TO SHIFT NORTHWARD WITH TIME. LITTLE OR NO RAIN IS EXPECTED WITH THE STORMS THIS AFTERNOON AND LOCALLY GUSTY AND ERRATIC WINDS CAN BE EXPECTED IN AND NEAR THE THUNDERSTORMS. CONDITIONS WILL CONTINUE TO IMPROVE OVER THE DISTRICT THROUGH MONDAY AS THE EFFECTS OF THE UPPER LOW MOVE NORTH OF THE REGION. SLIGHTLY INCREASED HUMIDITIES AND LOWER INLAND TEMPS EXPECTED NEXT WEEK AS ONSHORE FLOW DEVELOPS...STRONGEST ON WEDNESDAY.

CAZ203-204-211-283-300315-

UPPER SMITH...INLAND PORTION OF THE SMITH RIVER DRAINAGE WITHIN THE SIX RIVERS NF.- LOWER MIDDLE KLAMATH...INLAND PORTION OF THE KLAMATH RIVER DRAINAGE WITHIN THE SIX RIVERS NATIONAL FOREST AND THE UKONOM DISTRICT OF THE KLAMATH NATIONAL FOREST.- HUPA...THE HOOPA INDIAN RESERVATION AND THE LOWER PORTION OF THE TRINITY RIVER DRAINAGE WITHIN THE SIX RIVERS NATIONAL FOREST.- TRINITY...WESTERN PORTION OF THE SHASTA TRINITY NATIONAL FOREST.-

645 AM PDT SUN JUN 29 2008

...RED FLAG WARNING IN EFFECT FROM NOON TODAY TO 11 PM PDT THIS EVENING...

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY...THEN BECOMING MOSTLY CLOUDY. AREAS OF SMOKE THROUGH THE DAY. SCATTERED SHOWERS AND THUNDERSTORMS IN THE AFTERNOON. MAX TEMPERATURE.....89-99 VALLEYS...81-91 HIGHER TERRAIN.

24 HR TREND.....LITTLE CHANGE.

MIN HUMIDITY.....15-21 PERCENT VALLEYS...23-33 PERCENT HIGHER
TERRAIN.

24 HR TREND.....DOWN 3 PERCENT.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...UPSLOPE/UPVALLEY 2 TO 3 MPH...BECOMING
SOUTH 3 TO 4 MPH...WITH GUSTS UP TO 8 MPH
IN THE AFTERNOON.

RIDGES/UPR SLOPES....VARIABLE 2 TO 4 MPH...BECOMING SOUTH 5 TO
7 MPH...WITH GUSTS UP TO 11 MPH IN THE
AFTERNOON.

LAL.....1...THEN 3 IN THE AFTERNOON.

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

.TONIGHT...

SKY/WEATHER.....SCATTERED SHOWERS AND THUNDERSTORMS IN THE
EVENING. MOSTLY CLOUDY...THEN BECOMING
PARTLY CLOUDY. AREAS OF SMOKE.

MIN TEMPERATURE.....52-64.

24 HR TREND.....DOWN 3 DEGREES.

MAX HUMIDITY.....78-93 PERCENT VALLEYS...60-75 PERCENT HIGHER
TERRAIN.

24 HR TREND.....LITTLE CHANGE.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...SOUTHWEST WINDS 3 TO 4 MPH...WITH GUSTS UP
TO 8 MPH IN THE EVENING...BECOMING
DOWNSLOPE/DOWNVALLEY 1 TO 3 MPH.

RIDGES/UPR SLOPES....SOUTHWEST WINDS 4 TO 5 MPH...WITH GUSTS UP TO 11 MPH IN THE
EVENING...BECOMING DOWNSLOPE/DOWNVALLEY 2 TO 4 MPH.

LAL.....3...THEN 1 AFTER MIDNIGHT.

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

.MONDAY...

SKY/WEATHER.....PARTLY CLOUDY. AREAS OF SMOKE THROUGH THE DAY.
ISOLATED SHOWERS AND THUNDERSTORMS IN THE AFTERNOON.

MAX TEMPERATURE.....89-99 VALLEYS...80-90 HIGHER TERRAIN.

MIN HUMIDITY.....15-23 PERCENT VALLEYS...20-30 PERCENT HIGHER
TERRAIN.

20-FOOT WINDS.....

VALLEYS/LWR SLOPES...UPSLOPE/UPVALLEY 2 TO 3 MPH...BECOMING
SOUTH 3 TO 4 MPH...WITH GUSTS UP TO 9 MPH
IN THE AFTERNOON.

RIDGES/UPR SLOPES....SOUTH WINDS 6 TO 9 MPH.

LAL.....1...THEN 2 IN THE AFTERNOON.

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

EXTENDED FORECAST FOR DAYS 3 THROUGH 5...

...NORTHWEST CALIFORNIA COAST...

.TUESDAY...MOSTLY CLOUDY. PATCHY FOG. LOWS 49 TO 57. HIGHS 66 TO
79. NORTHWEST WINDS 5 MPH.

.WEDNESDAY...MOSTLY CLOUDY WITH SLIGHT CHANCE OF SHOWERS. PATCHY
FOG. LOWS 49 TO 57. HIGHS 63 TO 76. NORTHWEST WINDS 5 MPH.

.THURSDAY...MOSTLY CLOUDY WITH SLIGHT CHANCE OF SHOWERS. LOWS
50 TO 58. HIGHS 63 TO 76. WEST WINDS 5 MPH.

...NORTHWEST CALIFORNIA INTERIOR...

.TUESDAY...PARTLY CLOUDY WITH ISOLATED SHOWERS.

AREAS OF SMOKE. LOWS 49 TO 58. HIGHS 83 TO 95 VALLEYS...79 TO 92 HIGHER TERRAIN. WEST WINDS 5 MPH.

.WEDNESDAY...AREAS OF SMOKE IN THE EVENING. PARTLY CLOUDY WITH SLIGHT CHANCE OF SHOWERS. LOWS 50 TO 58. HIGHS 82 TO 92 VALLEYS...74 TO 86 HIGHER TERRAIN. NORTHWEST WINDS 5 MPH.

.THURSDAY...PARTLY CLOUDY WITH SLIGHT CHANCE OF SHOWERS. LOWS 50 TO 58. HIGHS 80 TO 91 VALLEYS...74 TO 85 HIGHER TERRAIN. WEST WINDS 5 MPH.

.6 TO 10 DAY OUTLOOK...FRIDAY JULY 4 THROUGH TUESDAY JULY 8, 2008...

FOR NW CALIF...ABOVE NORMAL TEMPERATURES AND NEAR NORMAL PRECIPITATION.

National and Regional Fire Preparedness, and Suppression Resource Availability

National Preparedness Level 4

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. Minimize fire spread on to adjacent National Forests. 5. 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 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
Fire Use Management Team
Adequate operational overhead
Smokejumpers
Hotshots
Hand Crews
Air Support
Engine support
Watertenders
Fallers
Dozers
Fire Use Modules

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 ICs 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 ICs and AA will document Key Decisions related to costs and cost management
- During Action Reviews (DAR) - as needed, the ICs 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: _____

Agency Administrator Approval

Date/Time

Daily Review

\$52,000,000 130,000

Estimated target suppression cost and size

N ati on al P r e p a r e d n e s s L e v e l	R e g i o n a l P r e p a r e d n e s s L e v e l	Suppress ion cost to date	Size to date	Sel ect ed alt ern ati ve re ma ins val id (Y or N)			
					By	Date	Time

Final Review

The elements of the selected alternative were met on:

Date: _____ Time: _____

By: _____

Agency Administrator

Values at Risk

Item	Value at Risk (\$)
Residences and Private Structures	78,000,000
477 structures threatened from RAVAR modeling (see attached)	
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.	
Brooks Ranch	0
Ripstein Campground	0
Canyon Creek Trailhead	0
Northfork Trailhead	0
Hobo Gulch Campground	0
Grasshopper Flat/Dedrick Structures	0
East Fork New River Trail Bridges	0
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</p> <p>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</p> <p>Minimize potential loss of timber values and plantation investments.</p>	7	0.09
Environmental		
<p>Wild and Scenic River</p> <p>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</p> <p>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</p> <p>Be mindful of the smoke production from the fires and from burning out operations.</p>	5	0.06
<p>Retardant Use</p> <p>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</p> <p>Minimize spread of noxious weeds.</p>	8	0.10
Social		
<p>Public information</p> <p>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</p> <p>Minimize impacts to cultural sites.</p>	8	0.10

Local Vendors
Utilize local vendors and contractors as appropriate.

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 cablecars 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

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

Time to Control: 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.

Alternative A. Minimize perimeters

Item	Values At Risk	Protected in Target Outcome (25%)	Protected in Extreme Outcome (75%)	Expected Values Protected
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	
Brooks Ranch	0	0	0	
Ripstein Campground	0	0	0	
Canyon Creek Trailhead	0	0	0	
Northfork Trailhead	0	0	0	
Hobo Gulch Campground	0	0	0	
Grasshopper Flat/Dedrick Structures	0	0	0	
East Fork New River Trail Bridges	0	0	0	
Total (rounded)	\$84,000,000	\$39,000,000	\$84,000,000	\$73,000,000

Alternative B. Priority 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	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	
Brooks Ranch	0	0	0	
Ripstein Campground	0	0	0	
Canyon Creek Trailhead	0	0	0	
Northfork Trailhead	0	0	0	
Hobo Gulch Campground	0	0	0	
Grasshopper Flat/Dedrick Structures	0	0	0	
East Fork New River Trail Bridges	0	0	0	
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	
Brooks Ranch	0	0	0	
Ripstein Campground	0	0	0	
Canyon Creek Trailhead	0	0	0	
Northfork Trailhead	0	0	0	
Hobo Gulch Campground	0	0	0	
Grasshopper Flat/Dedrick Structures	0	0	0	
East Fork New River Trail Bridges	0	0	0	
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
<p>Rating: 8 / 10</p> <p>Marijuana plantations are likely to exist near remote fires, and may be encountered during suppression efforts.</p>	<p>Issue: Marijuana Gardens</p>	<p>Rating: 5 / 10</p> <p>If the fire burns the maximum conceivable area, it is likely that DTO plantations will be encountered during suppression activities.</p>
<p>Rating: 3 / 10</p> <p>Exposure to steep terrain will be occur if forces are deployed in the vicinity of individual fires, many of which are in remote and rugged locations.</p>	<p>Issue: Steep, difficult terrain</p>	<p>Rating: 6 / 10</p> <p>In the extreme outcome, much steep terrain will burn, but forces may be unable to deploy effectively in those areas.</p>
<p>Rating: 5 / 10</p> <p>Smoke obscuring visibility may create high risk to firefighters in remote terrain where the probability of entrapment is high.</p>	<p>Issue: Poor visibility</p>	<p>Rating: 4 / 10</p>
<p>Rating: 5 / 10</p> <p>Greater number of firefighters, the greater the exposure to poison oak.</p>	<p>Issue: Poison Oak</p>	<p>Rating: 2 / 10</p>
<p>Rating: 5 / 10</p> <p>Fewer days of burning would minimize the number of days of exposure.</p>	<p>Issue: Firefighter and Public Health</p>	<p>Rating: 3 / 10</p> <p>This assumes that thee will be smoke in the air until late fall</p>
<p>Rating: 5 / 10</p>	<p>Issue: Driving Hwy 299</p>	<p>Rating: 3 / 10</p>
<p>Rating: 6 / 10</p>	<p>Issue: Cable and Powerlines</p>	<p>Rating: 3 / 10</p>

Alternative B. Priority Protection

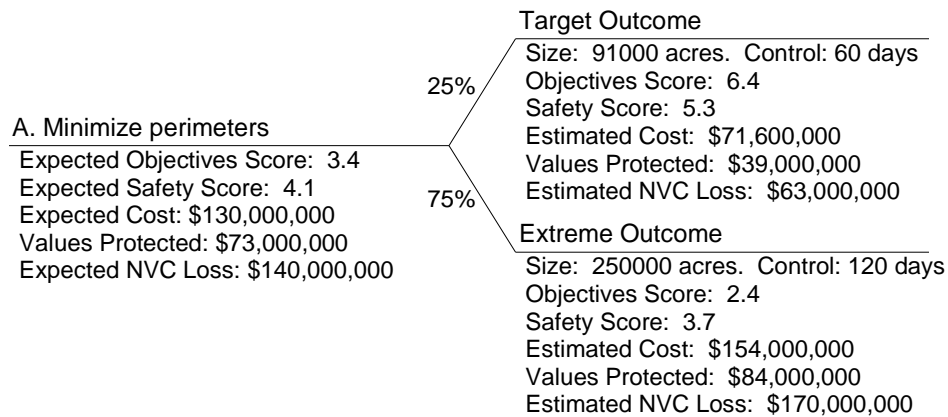
Target Outcome	Fallback Outcome	Extreme Outcome
<p>Rating: 7 / 10</p> <p>Priority protection will limit the radius of individual or conjoined perimeters, thus somewhat limiting the chance of encountering DTO plantations.</p>	<p>Issue: Marijuana Gardens</p>	<p>Rating: 5 / 10</p> <p>If the fire burns the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

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

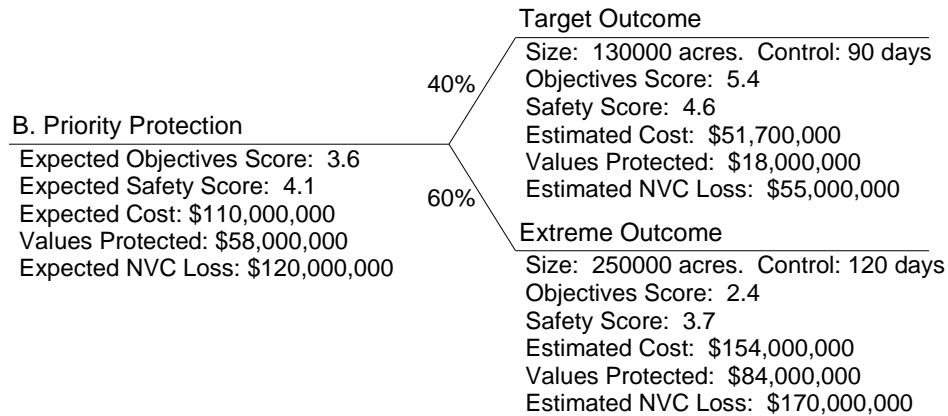
Alternative C. Macro Protection

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

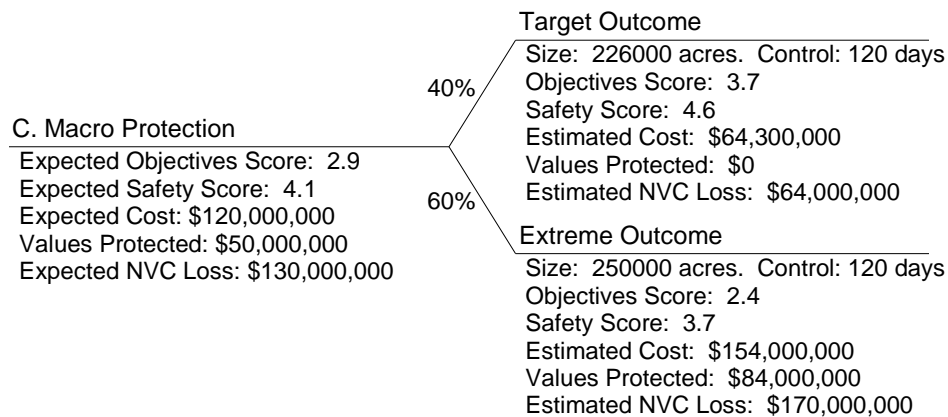
Decision Tree



Basis for probabilities for strategy
Basis for probabilities for strategy
Resources are not immediately available to implement this alternative.
Competition for resources is intense!
It's early in the fire season.



Basis for probabilities for strategy
Basis for probabilities for strategy
This alternative has a higher probability of success than A because it meets priority objectives using resources as they become available.



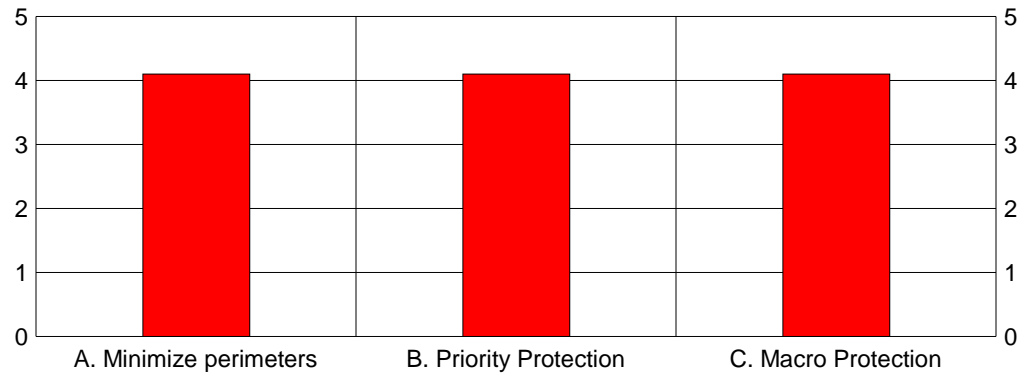
Basis for probabilities for strategy
Basis for probabilities for strategy
This Alternative has a comparable probability of success as Alternative B.
Alternative C is driven by greater competition for resources.

Comparison of Alternatives

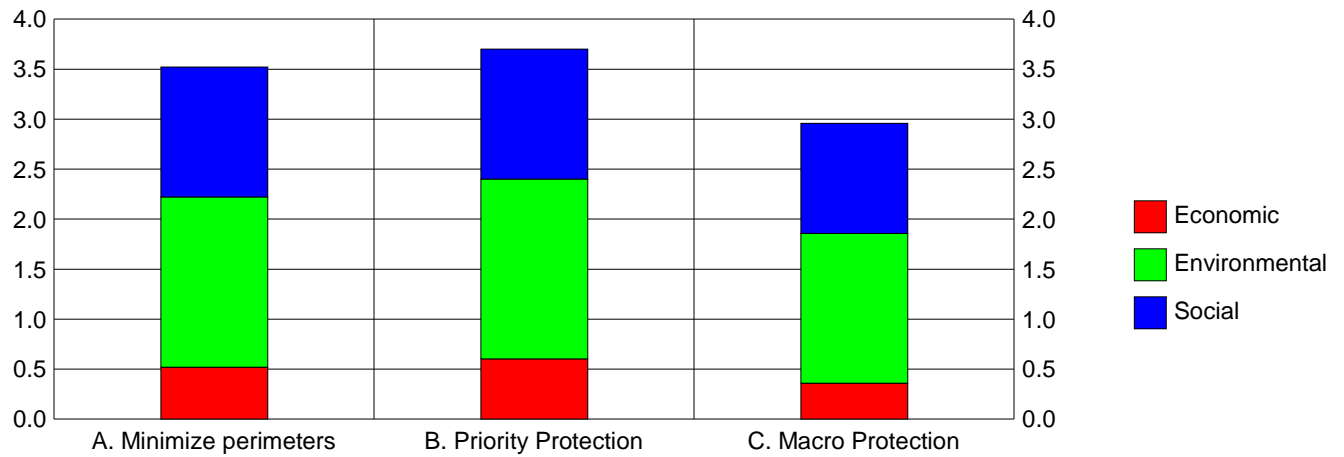
		Alternatives									
		A. Minimize perimeters			B. Priority Protection			C. Macro Protection			
Estimated Target Suppression Cost		\$72,000,000			\$52,000,000			\$64,000,000			
Expected Suppression Cost		\$130,000,000			\$110,000,000			\$120,000,000			
Expected Values Protected		\$73,000,000			\$58,000,000			\$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		t	B		t	B		
Probability (%)		25	0	75	40	0	60	40	0	60	
Wgt											
Objective											
Economic											
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

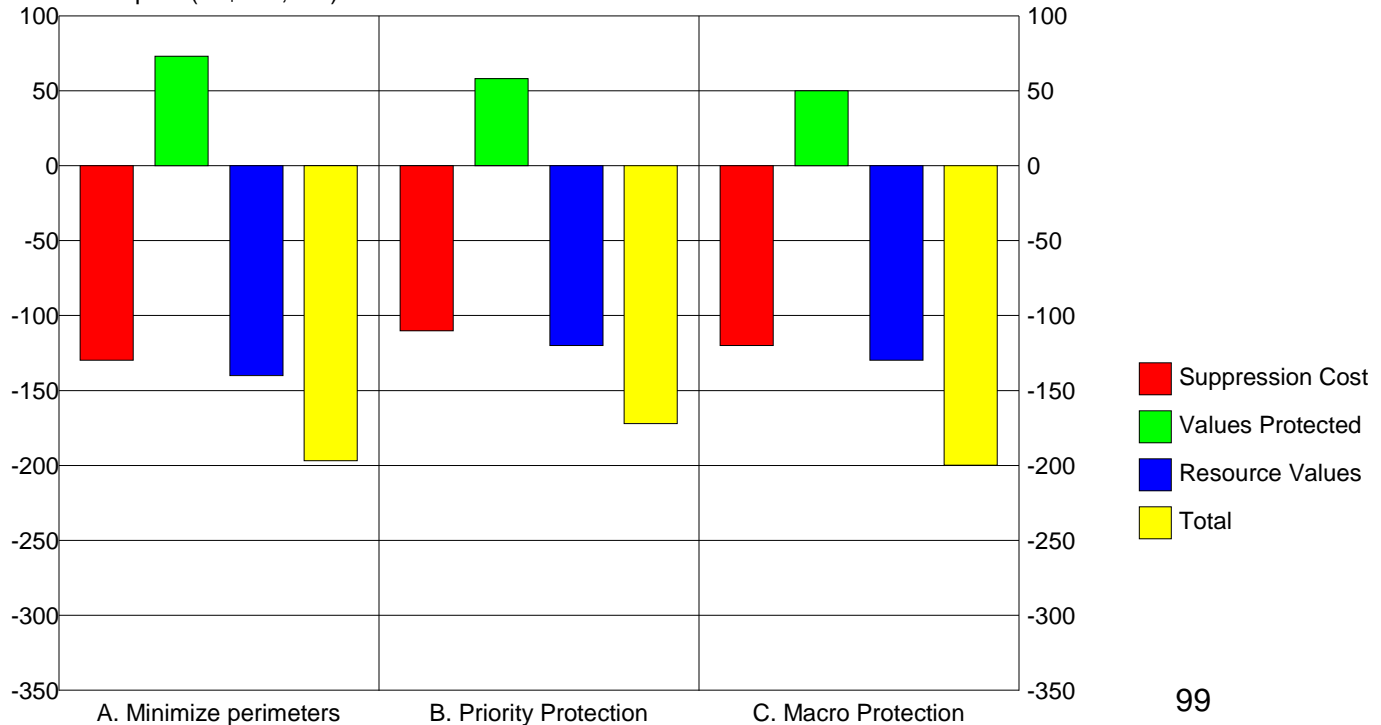
Safety Score (0=worst, 10=best)



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 WFSA invalid or requires 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.

Appendix D. Management Acton Points / Values Map

