Review Report

Lassen Volcanic National Park - Caribou Wilderness

Fire Management Plan

National Park Service: Western Region
U.S. Forest Service: Pacific Southwest Region
August 1984

I. EXECUTIVE SUMMARY

A team of two National Park Service and two U.S. Forest Service personnel was appointed to review application of a fire management plan to a prescribed natural fire which escaped on August 23, 1984. This is the teams report.

The escape resulted in a wildfire with suppression costs of approximately $463,000 and National Forest resource losses of approximately $142,000.

It should be pointed out that many benefits of the fire cannot be quantitatively measured (i.e., wildlife habitat improvement) and therefore are not addressed in this report.

The general conclusions of this review are:

1. The substantive provisions of the plan were followed.

2. The plan is basically sound, but there are opportunities for improvement.

3. The escape may have resulted from a combination of factors which are documented within this report.

II. INTRODUCTION

On October 6, 1982 a joint National Park Service, U.S. Forest Service, plan was approved for Natural Fire Management in the Lassen Volcanic National Park and adjoining Caribou Wilderness of the Lassen National Forest. Under the provisions of this plan, a lightning fire in the National Park was designed and managed as a prescribed fire. This designation was made on August 8, and the fire was declared a wildfire at about 0930 August 23 and suppression action was started. The wildfire was called the Badger Fire.

The Badger Fire burned approximately 1986 acres (1432 NPS, 464 FS) suppression costs were approximately $463,000. Resource losses consisted of mortality of commercial timber stands in the National Forest. Net Resource losses are estimated at $142,000. The fire was controlled at 1800 on August 26.

On August 27 a team was appointed to review application of the plan to prescribed fire management. This review cover events during the period July 8 to 0930 August 23, i.e., from prescribed fire ignition up to the date and time a wildfire was declared. Since the fire was in the National Park during this period, the review evaluates National Park Service use of the joint plan.

Review team member were:

Chris Cameron, NPS
Tom Gavin, NPS
Bill Beaufait, FS
Tom Fulk, FS

The review was conducted during the period August 27 to August 30, with discussions at the park on August 28 and 29. The team interviewed National Park Service, Forest Service, and National Weather Service personnel; documents and records were reviewed; a brief visit was made to the fire site.

III. FINDINGS AND RECOMMENDATIONS

A. MANAGEMENT

1. Although fires in the Park may affect non-wilderness Forest Service interests, the joint plan does not provide for joint management. It is a common plan which is used individually by each agency within its area of jurisdiction with no requirement or opportunity for mutual assistance.

2. The current Interagency Agreement For Prescribed Fire In California permits mutual assistance for prescribed fire management.

3. The National Park Service (NPS) has limited resources compared to the Forest Service (FS) for prescribed fire management. NPS personnel at Lassen Volcanic National Park in general have received less training in prescribed fire and have less experience.

A. Recommendation

Revise the plan to provide an opportunity for managers of both agencies to obtain assistance from the other agency if desired. This could be accomplished by executing a Project Agreement under provisions of the Interagency Agreement For Prescribed Fire in California. This arrangement will facilitate the use of resources from both agencies for mutual assistance, will facilitate training and employee development, and will enhance interagency coordination.

B. Fire Which are Threats

Fires may threaten the areas of another agencies' jurisdiction, but there is no opportunity in the plan for joint decision-making in these cases.

B. Recommendation

Revise the plan to provide for mandatory joint decision-making when a fire enters the Conditional Fire Management Unit. This unit would replace the narrow prescription zone delineated in the current plan.

C. Weather Forcast Services

1. Spot forcasts were obtained on 5 days of the 17 day period of prescribed fire status.

2. The general weather forcasts did not predict the wind speeds observed on the fire. General forcasts are not intended to provide site specific information.

3. Weather forcast dissemination to Park headquarters is by radio or telephone. This provides an opportunity for inaccuracy. Review of this situation was not conclusive, but the data which was presented to the review team suggests inaccurate or incomplete forcast dissemination may have occurred.

C. Recommendations

1. Provide the Northern California Fire Weather Service Center with the best available topographic maps of the area, and a copy of the Plan. Amend the Plan to ensure that the form or information required by the National Weather Service prior to the development of a spot weather forecast is included in the appendix.

2. Revise the Plan to require daily on-site weather data collection, within the conditional FMU, and daily spot forcasts within this zone when a prescribed fire is burning.

3. Revise the plan to include a requirement for a special warning or advisory supplemental spot forcast whenever in the judgement of the forecaster critical weather conditions can be predicted. Critical weather values should be established in the plan.

4. Provide a level of fire behavior expertise adequate to interpret the significance of spot vs general forcasts, and the influence of local terrain on weather and fire behavior.

5. Provide facilities for direct receipt of weather forcasts at park headquarters in hard copy form from the forecaster.

D. Boundaries

Maps in the plan should provide the required zone boundaries delineated on the basis of natural features which would best provide for effective suppression opportunities.

D. Recommendations

1. Map the fuel types including estimates of fuel loading, and relevant natural features independent of property lines.

2. Relocate the exterior boundary to these natural conditions. This may warrant the incorporation of present commercial timber lands into a Natural Prescription regimen of the Conditional FMU.

3. Fuel treatment on National Forest Land adjoining the plan area should be done to support plan objectives. For example, the timber sale planning process should result in activity fuel treatment and no increase in hazard. The National Park Service should address their support responsibilities with respect to this fuel treatment outside of that which can be accomplished via future timber sale contracts by USFS.

4. Make Ranger Districts not currently addressed in the FMP but adjacent to the plan's management boundary aware of their responsibilities once management boundaries are reestablished.

5. Establish a schedule within the Conditional FMU to address the acreages and priorities of the proposed treatment.

6. Revise the plan maps to eliminate the "apparent and misleading zone" between the Conditional FMU and the USFS/National Park Service administrative boundary once the new management boundary has been reestablished.

E. Fire Behavior

1. Torching, short-range spotting, and fire whirls ocurred on several occasions. The Prescribed Fire Manager documented a "low" fire intensity interpretation even through the Fire was within the 48 hour out-of-prescription provision of the plan.

2. Localized holding action, including line construction and burning out was required to contain the fire.

3. The fire was out of prescription on several days. Provisions of the plan were followed, and a 48 hour waiting period was started to determine if the prescription would be met on subsequent days. Under this procedure the fire burned out of prescription for a total of 5 days, with no out-of-prescription period exceeding the 48 hour standard. The 48 hour out-of-prescription provision of the plan is a violation of Forest Service policy, but is consistent with the plan.

E. Recommendations:

1. Change the plan to delete the 48 hour out-of-prescription provision within the conditional FMU and Caribou Wilderness area and shorten the out-of-prescription provision to 24 hours within the broad prescription unit.

2. Establish upper limit prescription values beyond which fires will suppressed, regardless of the 24 hour out-of-prescription provision within the broad prescription unit.

F. Forest Service Policy

Portions of the plan which direct Forest Service personnel, and the management of National Forest Land violate Forest Service policy in several ways:

1. The 48 hour out-of-prescription plan feature is inconsistent with the requirement that suppression action be taken when fires are out of prescription.

2. The Escaped Fire Situation analysis process (titled Fire Impact Analysis in the plan) is used to decide if an out-of-prescription fire can be designated a prescribed fire. This process is specified in policy for deciding between suppression alternatives only.

3. Local FS personnel define "contain" and "control" as prescribed fire management strategies, and report that the plan uses these terms in this way. Under FS policy these are wildfire suppression terms.

4. The plan calls for the use of Fighting Firest Fires (FFF) Funds for detection. (Plan, page 61)

5. The plan does not provide for designation of personnel to prescribed fire management positions by name, and according to qualifications.

F. Recommendation

1. Conform those portions of the plan for FS use to FS policy which directs F.S. personnel and affects management of National Forest system lands.

2. Regional Office staffs continue work in progress to develop joint prescribed fire qualification standards as stated in the Interagency Prescribed Fire Agreement for California.

G. Decision-Making

The plan provides for decision-making by specified line positions in both agencies.

1. The decision record shows decision making by other than the specified individuals.

2. Discussion revealed more intensive participation by the specified individuals. (This conflicts with the evidence of decision documents.)

G. Recommendation:

Follow the plan, for decision-making levels and decision process documentation.

H. Fire History

Current Plan indicated only Class A & B fires have been experienced in Lassen Volcanic NP since 1931.

H. Recommendation

Update the Plan to reflect 1982 - 1984 experiences recognizing the potential for larger fires.

I. Natural Fire Prescription Parameters

The IC (Ignition Component) does not predict spotting potential.

I. Recommendation

Delete the I.C. (ignition component) parameter from the prescription and use the E.R.C. (energy release component) for the possibility of reducing spotting potential.

APPENDIX

1. Weather Forecasts
2. Daily log of Badger Fire

DAILY LOG OF BADGER FIRE *

Lassen Volcanic National Park

On July 18, 1984 the West Prospect Lookout reported observing a lightning caused fire in T-31-N, R-5-E, Section 15. The fire was burning in a large white fir snag, in the upper third of a 20% north slope. The fire was named the Badger Fire. The Interagency Fire Crew 373 and the USFS helicopter 512 were dispatched to suppress the fire. The decision to suppress the fire was made because the park thought the Lassen N.F. was in a contingency plan #2. It was determined a day or two later that the Forest Service was not in a contingency plan #2 on 7/18. The fire was suppressed on 7/18 and checked by park personnel on 7/19 and 7/20. No visible signs of smoke or fire were present and the fire was declared out on July 20th.

On August 7, 1984 at 1810 hrs. the West Prospect Peak Lookout reported observing smoke rising from the same location as the Badger Fire. The fire was located within the narrow prescription unit of the Lassen Natural Fire Management Plan.

August 8, 1984

Two Park Technicians were dispatched to the Badger Fire to asses the fire.
Fire Behavior: fire was smoldering in a heavy duff layer within the old fireline.
Fire Size: 1/10th acre.
Fire Weather: Fire Weather data exceeded the park's prescription for the narrow prescription unit. The prescription was exceeded by temperature (above 80°F) and relative humidity (below 20%).

Decision: Ranger Giddings and Chief of Resource Management (CRM) Denniston decided to allow the fire to continue to burn. They set a 48 hr. deadline for the fire weather to fall within the prescription boundaries for the narrow unit. The fire will be monitored daily and reevaluated on 8/10/84. The spot weather forecast indicates the fire weather will be within prescription within 24 hrs.

August 9, 1984

A monitor is sent in to asses the Badger fire.
Fire Behavior: Fire still smoldering in the duff, with occassional flames in the small ground litter fuels. Fire still within the old fireline.
Fire Size: 1/10th acre.
Fire Weather: The fire weather still exceeded one element (temperature) of the park's narrow prescription. The spot weather forecast indicated the weather would be within prescription within 24 hrs.

Decision: Recheck the fire within 24 hrs., and make a decision whether to suppress the fire or manage the fire as a management burn.

* PREPARED BY THOMAS NASH, SUPERVISORY PARK RANGER.

August 10, 1984

Rangers Giddings and Nash accompany CRM Denniston into the Badger fire to monitor and assess the fire.

Fire Behavior: The fire had spread outside the old fireline. It was burning in ground litter, small brush and young regrowth fir trees. The fire would torch an occassional large fir tree. The rate of fire spread was calculated to range from 1 ft/hour on the north slope to 24ft/hour on the south and east slopes. Flame lengths were observed at 6-12" with an occassional 12-18" in heavy ground fuels.

Fire Weather: Weather data was collected at various locations surrounding the fire. The weather was within the prescription for the narrow prescription unit. Weather forecasted to remain the same and within the prescription.

Fire Size: 1.5 acres at 1700 hrs.

Decision: Allow the fire to continue to burn and monitor the fire daily.

August 11, 1984

Rangers Giddings, Kelley, Chapa and Krumland monitor the Badger fire. During the previous evening the fire had grown in size to approximately 3 acres. The fire was spreading primarily to the south.

Fire Behavior: The fire was slowly backing down the south, east and southwest slopes. The fire was primarily on the knob with 15-20% slopes. Rate of spread on the south slopes was approx. 5 ft/hour. The north slope did not have a forward rate of spread until approx. 1300 hrs. The fire had ignited four large Jeffrey pine snags (100-150' high) at the top of the knob. At approx. 1330 hrs. gusty south-southwest winds caused embers from the snags to ignite spot fires to the north and northwest of the main fire. The spot fires were approx. 150-200 ft. north of the main fire. The spot fires intensity grew, resulting in a run back towards the main fire. The south and west slopes of the fire continued to burn in ground fuels, heavy down fuels and young fir trees. By 1330 hrs. the rate of spread on the east, south and west slopes was 32 ft/hour. Flame lengths observed ranged from 8-12" and the fire did not have a defined head.

Fire Weather: Weather observations were taken at various locations around the fire's perimeter. The weather data was in prescription until approx. 1500 hrs. At that time the relative humidity dropped below 20%. The RH continued to be below 20% for the next two weather observations. In the afternoon, occassional wind gusts from the south, southeast and northeast were present.

Fire Size: 12 acres at 1700 hrs.

Decision: To monitor the fire daily and to reasses the fire within 48 hrs. if fire weather is not within prescription.

August 12, 1984

Rangers Elliot and Nash monitor the Badger Fire. The fire was continuing to spread in all directions from the top of the knob. The fire was still burning on 10-20% slopes.

August 12, 1984 continued

Fire Behavior: Fire was spreading at a rate of 1 ft/hour up to 24 ft/hour depending on the available fuels and fuel loading levels. The fire was primarily backing down the slopes burning in ground fuels, manzanita, young fir trees and occassional torching of large fir trees. Fire intensities were low except in areas such as fir thickets or areas of heavy down timber. Several snags were burning near the top of theknob. At approx. 1400 hrs. several large fir trees near the Cluster Lakes trail torched off causing spot fires to the north ofthe main fire. Spot fires were continuing to occur to the north and northwest of the fire in a pattern similar to 8/11/84. At approx. 1500 hrs. several spot fires were ignited east of the Cluster Lakes trail. The spot fires were burning in ground litter and regrowth fir trees. Between 1600-1700 hrs. a large spot fire ignited to the east and north of the main fire. The spot fire east of the Cluster Lakes trail, approx. ½ mile north of the main fire. This spot fire was at the base of a small ridge in heavy down timber. The ridges runs in a northwest/southeast direction. The winds were starting to gust from the south--southwest and were being funneled against the base of this ridge. The fire quickly started to spread in the thick lodgepole stand. Rate of spread was estimated at 3 chains per hour. Several large snag trees were ignited and a 80' high fire whirl developed over the heavy down timber. The fire was making a run up the southwest slope of the ridge. Spot fires were occurring to the north of this major spot fire.

Fire Weather: The weather data collected at various locations was all within the prescription limits. At approx. 1400 hrs. occassional wind gusts from the south-southwest were observed by the monitors. The 20 ft. level winds were estimated to be 10-15 MPH. At 1600 hrs. the wind was channeling down the east side of the knob, running along the Cluster Lakes trail. Mid flame wind speeds did not exceed 8 MPH. The wind gusts from the south-southwest help spread the large spot fire along the Cluster Lakes trail and up the ridge.

Fire Size: 25 acres at 1400 hrs.

Decision: Cluster Lakes trail is closed to visitor use. Nash requests a 10 man NPS crew for 0800 hrs. on 8/13/84 to contain the large spot fire east of the Cluster Lakes trail. At 1700 hrs. Nash checks the availability of a USFS helicopter. Susanville Fire Dispatch advises their resources are committed to a large fire at Eagle Lake. The Chief Ranger and CRM are notified. Nash prepares plan for initiating confinement operations for the northeast side of the fire.

August 13, 1984

The rapid spread of the fire in a northerly direction creates concern among NPS and USFS personnel. The primary concern is to keep the fire from spreading into USFS land and into commercial timber. At 0900 hrs. a squad of five NPS fire fighters arrive at the fire. Nash is advised by CRM Denniston to stand by on any suppression actions until a decision is made at Headquarters. A meeting is held at HQ between the Superintendent, Chief Ranger and CRM. The USFS is consulted on the fire and Forest Service personnel Dave Merrifield, Lyle Shook and Phil Carson arrive at the

August 13, 1984 continued
fire to determine a plan of action. Based upon the fire's intensity and rapid rate of spread to the north, a decision is made to construct fireline on the north and east flanks to contain the fire. The fireline will control the fire's spread to the north and protect USFS land. At approx. 1530 hrs. a 10 man NPS crew begins constructing fireline east from the Cluster Lakes trail. The line encircles the fire on the north and east side of the Cluster Lakes trail. Additional resources are requested including two 20 man crews, 2 engine crews, a helicopter and a division supervisor. The fire organization is changed from a NPS incident command system to a USFS/NPS unified incident command structure.

By 1800 hrs. the fireline is constructed around the north and east flanks of the fire. NPS and USFS crews hold the line and suppress spot fires to the north of the fireline. At 1200 hrs. crews begin burn out operations along the fireline. The fuels burn very good along the east flank and a good black line is in place.

At approx. 2400 hrs. the first 20 man crew arrives and they begin building fireline to the west of the Cluster Lakes trail, along the fire's north flank. Nash and Stauffer hike the fire's perimeter to assess confinement strategy and observe fire behavior.

Fire Behavior: Fire on the north and northeast flanks is spreading at a rate of 3 chains per hour in the morning and afternoon. Fire is burning in a relatively flat lodgepole/fir forest. Fire is spotting up to ½ mile distance, with torching of large trees. Several fire whirls are observed. Flame lengths are 1-2 ft., except in heavy down timber and dense thickets of trees. Fire does not appear to develop a well defined head fire, but instead makes fast, intense runs through areas of heavy fuels. Fire behavior on the south and west sides of the fire is similar to previous days.

Fire Weather: Weather is within prescription until 1500 hrs. when the relative humidity drops to 18%. Winds at the 20 ft. level are gusting from 15-20 miles per hour in the afternoon. Forecast is for the weather pattern to hold for several days.

Fire Size: 150 acres at 1700 hrs.

Decision: To control the spread of the fire to the north. This would allow the NPS to protect commercial timber lands located to the north of the park, on USFS land. USFS/NPS boundary is approx. 1 mile north of the fire. The fire will be allowed to burn to the south and east as long as the fire remains within prescription.

August 14, 1984

Confinement action continues on the north and east flanks of the fire. Resources committed to the fire include two 20 man crews, 10 park personnel, a helicopter and USFS division supervisor. Fireline is constructed to the west of the Cluster Lakes trail for approx. 1 mile to connect with a series of meadows and a small lake.

Fire Behavior: Fire is burning in a flat area, with lodgepole pine. Fuels concentrations/loading varies from sparse ground fuels in some areas to heavy loadings of young lodgepole and fir. The fire on the north and east sides continues to cause problems with spotting in the afternoon. The fire

August 14, 1984 continued
flanks to the south and west are primarily backing fires, with an occassional run through heavy fuels. Vegetation on the south and west sides is primarily pinemat manzanita, young firs and heavy ground litter. Torching of large trees is occurring. Rates of spread range from 6 ft/hour to 20 ft/hour. Fire behavior in general has quieted down over previous day.

Fire Weather: Weather is within prescription with relative humidities up and cooler temperatures. Afternoon wind gusts continue to occur, but winds are variable and not constant.
Fire Size: 200 acres at 1700 hrs.
Decision: To continue to confine the northward spread of the fire, while allowing the south and west flanks to burn. Burn out operations along the north fireline reduce some heavy fuel loadings near the lake.

August 15, 1984

Confinement action continues along the north and east flanks of the fire. The Superintendent and Chief Ranger inspect the fire and burn area. The NPS resumes sole incident command responsibilities with the USFS acting as a resource function.

Fire Behavior: Fire continues to burn out pockets of heavy fuels within the fireline. Spot fires to the north and east of the fireline occur due to variable gusty winds in the afternoon. Fire behavior is generally quiet.
Fire Weather: Weather is within prescription limits.
Fire Size: 200 acres at 1700 hrs.
Decision: Continue to confine fire on north and east, suppress any spot fires north of fireline. Allow south and west flanks to burn.

August 16, 1984

Fire activity has calmed down on the east and northeast flanks. The fire on the north is burning in a lodgepole forest. The topography is primarily flat on the north flank. The Lassen 20 man A.D. Crew and USFS helicopter 512 are released from the fire.

Fire Behavior: Fire is continuing to spread to the south and southwest. The fire is primarily a backing fire with occassional runs through heavy ground litter and small brush. At approx. 1500 hrs. the fire makes a brief run through a thick lodgepole stand on the northwest corner. This causes spot fires to ignite 150-200 ft. north of our confinement line. The spot fires burn 1/10 of an acre before being contained.
Fire Weather: Weather at the fire is within prescription for the narrow prescription unit. Afternoon winds continue to have occassional gusts. Wind gusts are variable in direction. Forecast continues to call for weather to be within prescription ranges.
Fire Size: 225 acres at 1700 hrs.
Decision: Continue present fire plans.

August 17, 1984

Fire has quieted down along all fronts. The night time temperatures are in the mid thirties with relative humidities above 85-90%. The primary concerns for the fire are the afternoon winds which blow between 1400-1700 hrs.

Fire Behavior: Fire's rate of spread has slowed down to a very low rate and the fire is just smoldering at night. During the afternoon hours small spot fires develop on the southeast flank. Several large fir snags are burning near the fireline at thislocation. The fire to the south and west is burning in heavy ground litter, regrowth fir and brush. The fire torches an occassional large fir tree.
Fire Weather: Weather is well within prescription range.
Fire Size: 225-250 acres at 1700 hrs.
Decision: Continue with current fire management plan.

August 18, 1984

Fire activity continued to be quiet along most of the fire flanks. The northwest corner near the lake and the southeast corner near Cluster Lakes continue to have occassional problems with small spot fires. The Mendocino crew constructs a low environmental impact holding line from the lake to the ridgetop (6800') into a pinemat manzanita flat. The ridgetop has sparse ground fuels. The sparse fuels and rocky ridge should provide a good natural break. The holding line and natural fire break are used to confine the fire's spread to the northwest.
Fire Behavior: Fire on the northwest corner is spreading through lakeshore vegetation at a slow rate. The fire on the south flank is spreading at a slow rate. Fire on the south is burning in pinemat manzanita, young fir trees and torching an occassional large fir tree. Fire on the north and east flanks is cool with no visible activity.
Fire Weather: Weather is well within prescription.
Fire Size: 250 acres
Decision: Continue with current plan of confining north and east flanks, while allowing south and west flanks to burn.

August 19, 1984

Fire intensity was minimal during the day. Crews begin to rehabilitate interior control lines.

Fire Behavior: Low intensity fire except on the south flanks where the fire was burning in manzanita and young regrowth fir trees.
Fire Weather: Within prescription.
Fire Size: 275-300 acres
Decision: Continue with current plan.

August 20, 1984

Fire intensity low with most of the north and east flanks quiet. Crew monitors the southeast and northwest corners of the fire. Fire near the lake on the northwest corner is burning in vegetation along the lakeshore.

Fire Behavior: Minimal fire activity, except on south and southwest flanks. The fire is also burning out islands of unburnt fuels well within the fire perimeter.
Fire Weather: Within prescription.
Fire Size: 300-325 acres
Decision: Release Mendocino crew in the morning (8/21) and man the fire with 8-10 NPS employees.

August 21, 1984

Fire activity continues to be minimal along the flanks. The fire is monitored by eight park service fire fighters.

Fire Behavior: Fire is primarily a low intensity burn, except for occassional torching of young fir tree thickets. The most active fire behavior is occurring between 1330 hrs and 1700 hrs. Rates of spread range from 5 ft/hour to 15 ft/hour. By 2000 hrs. the fire had laid down with minimal activity.

Fire Weather: Within prescription.
Fire Size: 325 acres
Decision: Continue with current plan.

August 22, 1984

A fireline was constructed directly south from the lake on the northwest corner to a rocky outcropping on the ridge. The fire reached this line at approx. 1430 hrs.; no erratic or intense fire behavior was observed. The fire was primarily a surface fire, with occassional torching of a tree. USFS FMO Lyle Shook, two USFS observers and the Chief Park Ranger Schneider were present along the fireline. Shook and Giddings discussed probable direction of spread, fire behavior and fire escape contingency plans.

Fire Behavior: Fire was primarily a surface fire on northwest corner, except for an occassional torching of a tree. Most of north and east flanks are quiet. South and southwest flanks fire continues to burn according to the park's plan.
Fire Weather: Weather is within prescription.
Fire Size: 350-375 acres.
Decision: Continue to follow park's fire management plan.

August 23, 1984

An NPS crew of 10 fire fighters hiked into the Badger Fire. A strong surface wind was present and Incident Commander Nash observed a column of smoke rising from the northwest corner of the fire. A spot fire had ignited north of our confinement lines, on the north side of a dry meadow. The spot fire was approx. 100 yds. east of the lake. A strong surface wind (20-25 MPH) was blowing from the south-southwest. The fire quickly spread to the north and northeast in a lodgepole forest. The rate of speed was estimated at 4-5 chains per hour, with numerous spot fires igniting north of the main spot fire. Fire behavior was extreme, with extensive torching of numerous trees. Fire had developed a well defined head and was making a run to the north, northeast.

Incident Commander Nash ordered a helicopter (bucket and crew), three 20 man crews, two air tankers and a USFS Division Supervisor. The NPS crew began building fire line along the east flank of the fire. The helitack crew arrived and began constructing fire line along the west flank. Air attack 06 coordinated the air operations and retardant drops. The air tankers placed a retardant line along the fire flanks and across the head of the fire. Dave Merrifield of the US Forest Service arrived on the scene. A unified command system was established between the NPS (Nash)/USFS (Merrifield). Additional resources were requested as the fire continued to spread to the north.

Initial suppression plan called for a pincher movement along the east and west flanks until the head of the fire could be confined. The wet Badger Flat meadows are located on the north side of the fire. The head ofthe fire reached the south end of the meadow with extreme intensity causing a crown fire to occur in the thick lodgepole stand. This intense fire behavior, coupled with the strong winds, caused numerous spot fires to ignite across the meadows, on the south aspect of a knob. The knob is located just north of the Emigrant trail and is on the boundary line between NPS/USFS land. The fire quickly spread through fine fuels on the ground to the top of the knob. The fire burned onto US Forest Service land at approx.1440 hrs.

Merrifield and Nash elected to use the Badger Mountain logging road in Sections 9 and 10, along with the West Prospect Peak lookout road as the primary control lines.

The west flank of the fire was contained by a handline constructed to the Badger Mountain logging road. The east flank was contained by a handline constructed to the Lookout road. At approx. 1800 hrs. burn out operations began along the Badger Mtn. logging road. The burn out operation continued along the Badger Mtn. logging road to the intersection of the Lookout road, then east to the hand constructed fireline along the east flank. The burn out operation was successful in stopping the forward spread of the fire. Occassional spot fires occurred throughout the evening, but all were controlled by fire crews.

Fire Behavior: Extreme fire behavior due to strong gusty winds, numerous spot fires, some crown fires, numerous torching of trees. Rate of spread at least 5-6 chains/hour.

Fire Weather: Strong, gusty winds from the south, southwest occurred early in the morning causing the spot fire. Strong winds for most of the morning and afternoon. Temperatures ranged from 62° to 70°F and relative humidities ranged from 18% to 24%.

Fire Size: at 1800 hrs. est.

900 acres	Lassen Volcanic National Park
400 acres	Lassen National Forest
1,300 acres	Total

Decision: To suppress the escape fire and to suppress the management burn.

BADGER FIRE REPORT

The Badger Fire is estimated at 1960 acres--1500 acres in the Lassen Volcanic National Park and 460 acres in the Lassen National Forest. A line has been constructed around 95% of the perimeter and crews will finish the line and mop up 150 feet within the line today. If everything holds through this burning period, the fire will be called contained today at 6 pm will full control estimated at 6pm tomorrow (8/26). Mopping up operations will continue. Demobilization of some equipment has started with heavy release of equipment and crews expected Sunday and Monday.

Cal Trans, National Park Service (NPS), California Department of Forestry (CDF), Bureau of Land Management (BLM), and Forest Service (USFS) are cooperating in fire suppression.

PERSONNEL/EQUIPMENT STATUS

18 hand crews	(15-USFS/ 3-CDF)
20 engines	(USFS)
4 water tenders	(3-USFS/1-Private)
2 helicopters	(1-CDF/ 1-USFS)
5 bulldozers	(3-USFS/ 2-Private)

Total personnel including overhead 561

The fire started by lightning early August within the Park in an area that has been identified as a prescription burn area by a joint Forest Service/ National Park Service Fire Management Plan. Fires burning in such approved areas are used as tools and are allowed to follow their natural ecological patterns. Park Service and Forest Service carefully watch these fires. The Badger Fire, after a couple of weeks was creeping along well within prescription. Thursday morning, winds suddenly accelerated and the fire began spotting to the north, pushed by southerly winds. The fire moved rapidly.