

White Paper

BISCUIT FIRE CHRONOLOGY

—
AN ANALYSIS

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January 2003

Biscuit fire Chronology

—

An Analysis

Executive Summary

The Biscuit fire, which burned a record 500,000 acres of southwest Oregon Forest in the summer of 2002, serves as a useful example of the problems facing the nation in management of its forests. The main problem is the lack of aggressive response to wildfires during times of high fire danger. At one time it was mandatory that all fires be controlled by 10:00 a.m. the morning after they were detected. Changes in forest management policy began to take place in the late 1960's. Fire was viewed as the major management tool for maintaining forests. While fire is a useful tool, it is a tool that can produce tremendous damage if it is not used properly.

This analysis examines the Chronology of Events of the Biscuit Fire during the first 10 days of the fire. The Chronology was published jointly by the Siskiyou National Forest (NF) and the Six Rivers NF. It is available on the Biscuit Fire Web site: www.BiscuitFire.com. A short history of the Siskiyou NF, in fire control, and the use of Smokejumpers as an initial attack force introduces this document. Many observations on fire control are directly applicable to other forests in Southwest Oregon and Northwest California. The events of the Biscuit fire are abbreviated and printed in italics whereas observations on these events are presented in normal type.

Several direct conclusions can be drawn from the Chronology:

1. Extreme fire conditions existed before and during the Biscuit fire.
2. Insufficient preparation took place given the actual and predicted fire conditions.
3. During a time of extreme fire danger emergency initial response to known fires did not take place.
4. During a time of extreme fire danger minimal effort was made to search for fires after it was known that fires had been started.
5. The person directly responsible for management of the forest area (District Ranger) did not have sufficient authority to commit suppression resources.
6. There was confusion over the chain of command.
7. Fires were not attacked at the time of lowest fire activity.
8. Too restrictive regulations prevented efficient attack on fires.
9. Too restrictive regulations were used as an excuse not to take action.
10. Priorities for committing suppression resources emphasized protection of private interests over protection of the natural resources.

The following recommendations are made based on the conclusions of the analysis.

1. Policies should be changed to emphasize that all fires shall be aggressively attacked at the earliest time when high fire conditions exist.
2. Any fire not controlled by 10:00 a.m. of the day following the day that the fire started shall be the subject of a Fire Board of Review to determine the cause and make recommendation for future actions.
3. Any fire started in a time of high fire danger shall be considered an emergency condition.
4. The District Ranger shall have both the responsibility and authority to order and commit suppression resources during times of high fire danger.
5. Organizations that do not have Stewardship responsibility over the natural resources in danger shall have only advisory fire control responsibility and authority.

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Historical Overview

An analysis of the chronology of the events of the Biscuit fire must be placed in context with the overall history of the Siskiyou forest. Two of the most important factors to be considered are the climate and usage of the forest lands. The interior valleys of Southwest Oregon and Northwest California have a general classification of a Mediterranean climate. The sparse rainfall and high temperatures during the summer months and heavy precipitation during the winter months produce the dense Douglas fir / brush forests that are characteristic to this region. The annual precipitation is strongly modulated by what is now called the El Nino / La Nina weather cycle.

The Siskiyou National Forest was characterized as the Number 1 fire forest in the United States before the late 1940's. The easily available historical records indicate that an average of around 35,000 acres per year were burned during this period. Large fire crews were stationed at several locations such as the Illinois Valley Ranger Station. Large herds of pack stock were maintained to transport personnel and materials to fires. The lack of forest roads contributed to the large amount of acreage burned each year. In the 1940's this pattern began to change. The Siskiyou Aerial Project was established in 1943. The establishment of the Smokejumper base was based on the concerns about natural forest fires and fires set by Japanese fire balloons. The need for lumber and forest products resulting from economic recovery at the end of WWII led to a concerted effort to expand logging in the late 1940's. Until that time logging in the Siskiyou forest had been limited by both the available technology and internal pressure within the Forest Service to preserve the forests rather than manage them as a national resource. The annual burn dropped to around 850 acres per year after 1943. The decision to close the Siskiyou Smokejumper base was made in 1981. Since the 1970's there has been an increased emphasis on the conservation approach to forest management. As a result, the average acreage burned per year has returned to the pre WWII level of around 35,000 acres per year.

High temperatures, low humidities and high burning index values are common in late June in Southwest Oregon. For many years, the first fire jump of the season occurred around 4 July. Thunderstorm activity is generally driven by one of two factors. The first factor is cold front activity advancing from the Pacific ocean. The second factor is air mass thunderstorms generated from moisture coming from the Gulf of Mexico. Until the coming of weather satellite data, the former thunderstorms created the greatest problems in fire control. Often, the only advanced warning received by fire control personnel was fire lookout reports of lightning activity over the Pacific ocean at night.

The use of mechanized equipment (primarily chain saws) is imperative in Douglas fir / brush forests. The growth habit of these forests leads to heavy brush conditions except in the densest of mature forests. When a major fire burns in these forests, brush takes over and many years are required naturally to achieve a climax Douglas fir forest again. This condition is exemplified for the Florence fire component of the Biscuit fire. The Silver Complex fire of 1987 killed much of the Douglas fir forest and the brush regrowth had reached heights of 6 feet in 15 years. Along the edges of the Silver fire, dense stands of fir reproduction had developed.

Siskiyou Smokejumper base -Lessons learned and forgotten.

The historical usage of Smokejumpers by the Siskiyou NF was highly dependant on the overall weather patterns. The present catch phrase used by the news media is the "El Nino / La Nina cycle." The number of fires jumped each year in the Siskiyou, Klamath and Rogue River National Forests cluster in years where thunderstorm initiated "Fire Busts" occur. During many fire busts, additional Smokejumper crews were moved to Cave Junction to handle the number of fires. When Smokejumpers were brought to Cave Junction they were interspersed with Siskiyou Smokejumpers on the "Jump List" and the most experienced Siskiyou Smokejumper was assigned as crew leader whenever possible. This procedure ensured that even the most experienced crews were led by personnel who had an intimate knowledge of the vegetation and terrain. A minimum of two jumpers were assigned per fire. The maximum number of Smokejumpers assigned per fire was strongly dependent on the number and type of aircraft available. Using large teams of Smokejumpers on large fires was not generally considered to an effective use of these personnel. The main advantage of Smokejumper usage lies in placing a few persons on a fire and controlling the fire before it can grow to a large size.

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The data in the following table are derived from news letters ("Gobi Gossip") sent from the Cave Junction base to the active Smokejumpers. Only the data from the Siskiyou, Klamath and Rogue River

Partial record of Smokejumper usage in number of fires jumped for the Siskiyou, Rogue and Klamath NF

Year	Siskiyou NF	Klamath NF	Rogue NF	Other	Jumps per fire	Note
1943				6	2	
1945				7	2.8	
1946				8	3.5	
1947				4	2.5	
1948				7	4.0	
1949				24	3.4	
1950				21	2.4	
1951				48	4.4	
1952				42	2.6	
1953				59	2.8	
1954				22	3.1	
1955				43	3.4	
1956	Fire Bust ?			77	3.2	
1957	--			10	5.2	
1958	-- Fire Bust	--	--	61	2.8	
1959	14 Fire Bust	3	0	22	3.4	LS
1960	11 Fire Bust	1	6	64	2.7	
1961	15 Fire Bust	4	7	107	2.4	
1962	3	8	2	31	2.2	
1963	--	--	--	61	2.6	
1964	1	5	0	14	3.1	
1965	33 Fire Bust	2	1	18	2.9	
1966	13 Fire Bust	4	4	28	3.5	
1967	4	3	14	69	3.6	
1968	6	5	7	27	6.1	
1969	4	16	6	19	4.7	
1970				103	3.7	
1971				79	3.4	
1972				130	3.5	
1973				103	3.3	
1974				81	3.8	
1975				75	3.5	
1976				66	3.3	
1977				62	2.9	
1978				36	2.1	
1979				58	2.9	
1980				25	4.8	
1981				15	3.4	
1987	Fire Bust	Silver Complex				LS
2002	Fire Bust	Biscuit Fire				

"Fire Bust = Major lightning fire outbreak, backup by other bases required." "LS = Late Season"
forests are detailed (where available) in the table. The number of Jumps per fire is an annual average. The Silver complex and Biscuit fires are included for comparison.

An analysis of Siskiyou NF forest records in 1965 showed that there were significant amounts of forest land that required immediate, aggressive action when a fire was detected. These areas consisted primarily of dense brush patches. The records showed that there were significant portions of the Siskiyou NF where a fire would probably grow to project size if it was not attacked within 30 minutes of sighting the first smoke. "Project Size" meant that the fire was not

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controlled by 10 A.M. the following morning. The manning guidelines for the Smokejumper base were somewhat flexible. The procedure was often dependent on the time of day that a storm was setting fires and the actual fire conditions. In the most extreme situations backup aircraft and crews were ordered as far ahead of time as possible. The important factor was to ensure that crews and materials were available when a request for service was received. Often, patrol flights of jump aircraft took off at first light. The operative guideline was that a maximum aggressive response would take place during times of high fire danger. Failure to launch an aircraft with Smokejumpers within 5 minutes of receipt of a fire request was subject to review by the Fire Board of Review.

Biscuit fire Chronology

The analysis of the Biscuit Fire Chronology document will show abbreviated entries from the chronology in italics and commentary in standard type.

Introduction

The Chronology begins with a discussion of the fire conditions that were being recorded prior to the fire. The discussion of weather is combined with a discussion of the Burning Index Values (BIV) and Energy Release Component (ERC). The wording in the chronology implies that extreme temperatures, BIV's and ERC's were being experienced. The high fire danger conditions were recognized and the chronology notes the available resources with emphasis on the low resource levels. In addition to the Preparedness Level 5 status, a weather front was moving in from the Pacific ocean with a predicted high probability of Thunderstorms.

Because of the major climatic cycles the temperatures, and hence the BIV and ERC values, are probably best described in terms of a binormal distribution. The record high temperature in Medford, OR for the month of June is 111 F and for the month of July is 115 F. During hot, dry years temperatures of 105 F are normal for Grants Pass and the Illinois Valley during late June and early July. There is no question that around 13 July, 2002 that the fire danger was high. This should have prompted an extreme state of readiness by fire control personnel. In spite of the fire danger conditions, there was little or no attempt to strengthen the locally available resources. There is no indication that any consideration was given to activating a Smokejumper Unit at the Illinois Valley airport. There is no indication that attempts were made to move any other aggressive, initial attack units into the Siskiyou, NF area. This emphasis on why "We can't do the things we need to do!" pervades the entire chronology document. In retrospect, it appears that the lessons learned in fire control over many years had been forgotten.

13 July 2002

One basic tenant behind the closure of the Siskiyou Smokejumper base was that a "Spike" base could be set up for operations in a short period. At 0800 MDT on July 13, the Smokejumper resources were as follows:

Alaska	40
Redmond/ North Cascades	18
Grangeville	26
West Yellowstone	16
Redding	18
McCall	12
Missoula	12

There were 110 Smokejumpers available in the 48 contiguous states at the start of operations on 13 July. Since lightning fires were started on the 12th and Red Flag warnings were issued on the 13th, why was no spike base in operation at Cave Junction on the morning of the 13th?

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Other resources available at 0800 MDT 13 July

Northern Ops. (California)

Type I crews 5

Type II Crews 24

R-6

Type II Crews 103

0800 *Extreme fire conditions exist with the chance of lightning*

0900 *All local resources committed to the Taylor fire.*

At this point all Siskiyou National Forest fire resources have been committed according to the Chronology. It should be noted that the legal description of the Taylor fire is incorrect. The fire was located in Township 35S not 36S.

At 1200 MDT, 13 July

4 Jumpers available at Redmond, Ore

6 Jumpers available at Redding, Calif

The flight time from Redding to Cave Junction is about 45 minutes and the flight time from Redmond is about 50 minutes. Smokejumpers were available at other bases at this time but a longer flight time would have been required. The usual procedure in the past would be to shift aircraft and personnel from one base to the next to keep adequate staffing at each base. Meanwhile, Smokejumpers were beginning to return to their bases after being released from fires.

1300 *Thunderstorm cell crossing coastline and heading inland.*

The thunderstorm cell was crossing the coastline that implies that the cell had existed for some time. Given the extreme fire conditions and an approaching thunderstorm cell, why is there no mention in the chronology of repeated attempts to establish an initial attack capability? The highest fire danger time of the day was here and no resources were being obtained.

1306 Taylor fire contained but not yet controlled. Available personnel still tied down for several hours.

1400 Lightning strikes reported in Six Rivers and Siskiyou National Forests.

Incident commander Thornhill replaced Incident Commander Del Monte.

No requests made for immediate resource commitment.

1517 Biscuit #1 fire reported

1553 Carter fire reported

No requests made for immediate resource commitment.

1608 Biscuit fire burning one log and edges burned out.

1631 Fire reported in Baldface Cr....

1716 Request made for Smokejumpers and the Siskiyou N.F. was told that none would be available for 48 hours

The statement that Smokejumpers were not available for 48 hours is not correct. Smokejumpers were available at Redmond and Redding. There were no requests received at either base nor were requests received at any other Smokejumper base. It appears that the chain of command broke down before the battle started.

1741-2002 Del Monte driving into the back country to view the Biscuit #1 fire.

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Didn't Del Monte already know the forest conditions? If he didn't because he worked in Region 5 then why was he the incident commander? At this level of command the incident commander should know the area like the back of his hand. It takes 2 to 3 hours to drive into this area which means that the IC is out of the command loop during this time.

1800 Taylor fire controlled.

Request made for Type 3 helicopter -call when needed for the morning of the 14th

Under most extreme conditions this means that the Crews can return to base for refit and redeployment while a watch crew is left to monitor the status of a fire. Was this crew available by 2000 or were they given the night off? Were there air recon flights made over the rest of the storm path (± 15 miles either side of track)? Was the observer trained to detect small fires? Were small fires detected and not listed in this report?

Whether or not a fire was inside a wilderness area, should have no importance. A wildfire is a wildfire. Here the lack of action led to a disaster. Was there a concerted effort made to detect any other fires whether inside or outside the wilderness area? The chronology is silent on this issue.

14 July 2002

Extreme fire conditions still exist

At 0800 MDT the manning records showed that the Smokejumper staffing was:

Redding, CA	5
Redmond, OR	20
Grangeville, ID	34

Total Smokejumpers outside Alaska 79

Northern Ops. (CA)

Type I	3
Type II	3

Region 6	
type II	39

0800 Del Monte, a Region 5 Incident Commander in charge of the Taylor fire in the Galice district of the Siskiyou.

The Taylor fire was again staffed. Was a watch not left on the Taylor fire for the night? The best opportunity to put a fire out is during the nighttime hours. It appears that the Siskiyou NF has allowed its readiness to degrade to the point that it was defenseless.

1032 Decision made to man the Carter fire

An aerial recon had to be made by helicopter before this decision was made.

The decision to suppress the Carter fire was made 18 ½ hours after the fire started. The high fire danger time of the day is approaching and reconnaissance is being made before a decision to attack is made. Again, a lack of knowledge by the Incident Commander delays response.

1040 Biscuit #2 fire detected.

1107 Permission sought:

Approval for a Type II crew

Use chainsaws in wilderness

Setup Type II Incident Command

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*Helicopters
Water pumps*

Elapsed fire clock ~ 19 hours

A request had to be made to use mechanized equipment in Wilderness area! That a request had to be made to use tools such as chainsaws may be an indicator of one of the problems underlying the present fire control management structure. A wildfire should be sufficient cause for use of any means. Chain saws are of particular importance for construction of fire line in the Siskiyou brush.

1200 Type II Team (Incident Command ?) Ordered

Note that it took an hour to obtain permission to order the Type II Teamt.

1300 Helicopter en route to Carter fire

Note: Sometime in the afternoon Director of Region 6 Fire and Aviation Management called to find out why a Type 2 team had been ordered.

Again -the chain of command had broken down -The team had been ordered because the Incident Commander needed them (period). Was there a reconnaissance of the area at first light? If none was made then why was none made? Waiting until the maximum fire activity time of day to decide to deploy resources is counter productive.

1332 The Carter fire IC and one person en route to Carter Fire

1448 Biscuit fires ~ 40 to 100 acres

This may be the first note of fire behavior of the day. Why was an observer not posted so that the increase in size could be observed and reported? Apparently there was no manning of the Biscuit fire at this point.

Elapsed fire clock ~ 24 hours

1450 Biscuit fires now ~200 acres

This growth is normal afternoon behavior on an unmanned fire during high fire danger conditions.

1455 First attempt at attack -2 air tankers and a lead plane ordered.

1548 Crew started walking to Carter fire

1840 Helicopter requested for Biscuit but would be ineffective because of distance to water source.

Why were a dip tank and a tank truck to support helitack operations not ordered in the morning or the night before? This area is notably lacking in water except at the canyon bottoms. The Biscuit fire now 300 acres and growing so the helicopter request is canceled.

1930 Bull dozers ordered for Biscuit fires.

Either the roads had been allowed to deteriorate since I was in the area four years before, or the roads had been destroyed as a part of the Roadless Area Plan. In any event the fire has grown to a size that heavy equipment will probably be needed and there is no easy means of getting that equipment to the fire area.

2117 Crew arrived at Carter fire -

Elapsed fire clock ~30 hours

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15 July 2002

The Chronology contains excuses for not taking aggressive action. At the time there was some credence in this plan but in retrospect the plan was responsible for the ultimate loss. The can't do's are showing up with regularity.

At 0800 MDT the following Smokejumper resources were available:

Redding	3	
Redmond		6
Missoula	28	
Total outside Alaska	76	

At this point the fires are approaching such a size that the chance of success of an Aerial initial attack was becoming marginal; however, if an attack had been made at dawn there was a chance that a large team might have gained control

0800 ? Northwest Interagency Coordinating group set fires at #11 priority for resources.

This organization also may be imbued with the notion of a "can't do" philosophy. First light at this time of year is around 0530 PDT but there are no records in the chronology of actions taking place before 0800. Why was there no sense of urgency by any management personnel?

0900 Del Monte elevated to Type III IC duties

It appears that Del Monte had been placed in an untenable position. If he is being elevated to a Type III Incident Commander status and requests have been made for a Type II Incident Command team it can be inferred that he was having to operate outside his level of expertise.

0944 Carter fire 50% contained but still growing at 5 acres

1051 Carter fire at 6 acres

1116 Second Type 2 crew started from Babyfoot lake trail head (3-4 miles hike) to Carter fire.

1214 Recon aircraft diverted from Carter fire area to the North

The chronology states that the flight crew had seen smoke far to the northwest and decided to investigate that smoke. The flight crew discovered the Florence fire while traveling to the smoke that they were investigating.

1237 Florence fire discovered.

Fire estimated at 5 to 7 acres.

Elapsed Fire clock ~ 46 hours

Smokejumpers were available at this time from Redding and Redmond and at midday, a Redmond aircraft with 5 Smokejumpers on board flew over the Umpqua, NF. The aircraft refueled at Medford (approximately 30 miles east of the Florence fire) and returned to Redmond without dropping Smokejumpers.

1325 Smoke reported in vicinity of Sourdough Guard station.

1330 Type II crew requested for Florence fire

The legal description of the Sourdough fire is in error. The Biscuit #1 and #2 fires are still unmanned. A decision is made not to man the Sourdough fire because of the distance between the Biscuit #1 and #2 fires. The comment is made

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that the decision not to man was in part due to the road being only usable for 4 wheel drive vehicles. Note -I have been over that road in 2 wheel drive vehicles several times in the past. If the road condition was so bad why was not a road grader sent in a week earlier? Even light maintenance of the road in advance might have made a difference.

1501 *Aerial Observer confirmed Sourdough fire*
1515 *Crew drove to Oak Flat to access the Florence fire*
1535 *Second crew arrived at Carter fire*
1735 *Decision made not to attack Sourdough fire.*

Excessive timidity led to not attacking Sourdough fire. Poor roads, poor communication and inability to make decisions plus questionable calculations (I do not believe that the status of analysis is sufficient to make adequate predictions of fire behavior.) led to not taking action other than road improvement. The "CANTDO" attitude appears again in citing reasons for not attacking the fires.

1830 *Aerial Recon reported that Florence fire is 15 -20 acres and spotting.*

The delay in detection had created a problem at this point.

2200 *Florence crew quit hiking after 4 miles and spent the night.*

The excuse for this behavior is the work rules. The crew was hiking on an established trail. Again a "Can't Do" attitude has won the day

16 July 2002

For the third time in this report the rules of engagement are cited as an excuse for NOT taking action on the Biscuit #1, Biscuit #2, Sourdough and Florence fires. The only actions were a crew hiking toward the Florence fire and bulldozers improving roads in the vicinity of the other fires. A helicopter was not available because of work and maintenance rules. This information should have been taken into account so that a minimum of air support would be available during the scheduled maintenance.

Initial Smokejumper attack resources available:

Redding	3
Redmond	6
Missoula	28

Total available in 48 states 76

First light is at about 0530 PDT but again no mention is made of any action taking place before 0800 PDT.

0815 *A crew arrives at Pine Flat (about 1 ½ miles from the Florence fire.)*

The elapsed time from dispatch of the Florence fire crew is approximately 15 hours. The early morning hours of opportunity in attacking the fire were lost.

1130 *After scouting the fire the decision was made NOT to attack because of the safety rules.*

Elapsed Fire clock ~ 68 1/4 hours

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1230 Florence fire now 60 to 70 acres.
1325 Carter fire contained.
1400 Aerial observer -Florence fire still 60 to 70 acres.
1500 Fire camp set up at Pine flat (near the mouth of Florence Creek).
Supplies helicoptered in and a trail to the fire is under construction.
Public excluded from fire areas
1630 Florence fire at ridge top.
1700 Roads and trails closed
1730 Florence fire spotting
1830 Florence fire estimated at 600 acres.
1853 Florence ground crews advised to leave the vicinity the following morning

Elapsed Fire Clock ~ 76 hours

In essence, defeat has been declared without attacking the Biscuit #1, Biscuit #2, Sourdough, and Florence fires.

17 July 2002

0800 ? Northwest Multi-Agency sets resource priority for Siskiyou fires at # 14 priority and is Number 3 priority for an Type 2 Incident management team.
Florence fire out of control and growing rapidly

Note that in spite of comments that "the Florence fire is now burning in an area burned by the Silver fire," the Florence fire had been burning in the Silver fire burn area since it started. This decision was based in part on the fact that the fires were several miles from human habitations. The fallacy of this criterion for attack on fires is that the fire may grow until it does threaten human habitations. This proved to be the case with the Biscuit fire.

18 July 2002

0800 ? NWMAC declares the fires at 13 priority
Subgeographic MAC set up at Roseburg to order priorities in SW Oregon

It appears that a power struggle is beginning to take place. Eventually the NWMAC will lose control and the SWMAC will have the authority to obtain the needed resources.

Road construction continues toward the Biscuit fire.
Carter fire patrolled by aircraft.
Crews (5) assigned to open the Bald Mountain road.

The Bald Mountain road is the only means of transporting personnel and supplies to the Florence fire component of the Biscuit fire. Had this road been destroyed as part of the Roadless Area Rule?

Elapsed Fire clock ~ 120 Hours

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20 July 2002

The NWMAC lists the complex of fires at priority 12
Road work continues on Florence fire so that hand crews and an Engine can get into the area.
Sourdough camp abandoned.

Elapsed fire clock 170 hr (1 week) and it appears that no action has taken place

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The Chronology of the Biscuit fire continues in much the same vein with the exception that the fire continues to grow in size and complexity. There are indications of a continuing lack of communication and uncertainty / unfamiliarity with local fire conditions. For example, a massive fireline was constructed South from Eight Dollar Mountain. The only problem with this is the fact that this ridge has almost no vegetation and in fact several miles of mountainous terrain cannot support the type of explosive fire behavior seen earlier. The commentary in the Chronology and comments by fire management personnel to the media express surprise about the "east" winds. The "east winds" are a common condition during the extreme fire season in SW Oregon. These winds are the compliment to the Santa Anna winds of southern California that plague fire control efforts Southern California. The most important feature that I have tried to emphasize in this document are the problems that arose during the initial stages of this fire.

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Conclusions

1. Extreme fire conditions existed before and during the Biscuit fire.

The existence of extreme fire conditions was reported in the chronology. The Chronology may have exaggerated the unusual nature of the conditions; however, there is no question that the conditions existed and were recognized.

2. Insufficient preparation took place given the actual and predicted fire conditions.

Fires were started in the vicinity by thunderstorm activity on the 12th and thunderstorm activity was predicted for the 13th. There was only one crew available on the morning of the 13th. That crew was committed to a man caused fire at 0900 on the 13th. At that point in time the Siskiyou NF was defenseless and no attempts had been made to obtain backup resources other than an agreement of mutual support from the Six Rivers NF. In effect, there were no advance preparations. Smokejumpers were available at 0700 PDT on 13 July. Had aggressive initial attack forces been demanded at 0800 for standby at the Cave Junction airport, those forces would have been in place and operational by the time that the first fire was reported. The disposition of other aggressive initial attack forces such as Rappelers is not discussed in the Chronology.

3. During a time of extreme fire danger, aggressive initial response to known fires did not take place.

The claim is made that a request for Smokejumpers was made a couple of hours after the first fire was detected and that the requester was told "No Smokejumpers would be available for 48 hours." This is in direct contradiction with the information obtained from various Smokejumper bases. Smokejumpers were available but no requests were received at any Smokejumper base. The Chronology is silent on the subject of requests for ground suppression forces. The only direct attack on any of the lightning caused fires was made on the Carter fire. The crew started walking to the fire approximately 26 hours after the fire had started. Delayed initial response often results in loss of life, loss of greater amounts of natural resources, greater potential for loss of private property and increased expenditure of tax money.

Consider four fire disasters caused by the lack of aggressive initial response. These fires are:

Mann Gulch	-2 day delay	-14 lives
Storm King Mountain	-3 day delay	-13 lives
Cerro Grande	-3 day delay	-\$700,000,000 (estimate)
Biscuit	-3 day delay	-\$170,000,000 + unknown indirect

In the case of Storm King Mountain, the official blame was the "Can Do Attitude" of Don Makey and his crew. The National Park Service admitted the fault for the Cerro Grande fire but claimed that were not alerted to the concerns of other organizations. With each of these fires, had there been prompt initial attack then in all probably each fire would have deserved no more than a footnote in an annual report.

4. During a time of extreme fire danger only a minimal effort was made to search for lightning caused fires after it was known that fires had been started.

The Biscuit #2, Sourdough and Florence fires seem to have been detected by accident rather than by a dedicated search. The Chronology reports that each fire had consumed several acres when the fire was first detected. These fires began to grow rapidly in size shortly after detection. The experience gained at the Siskiyou Smokejumper base showed that all fires needed to be attacked as soon as was possible after they started. Fire Lookout stations have been abandoned and the Guard Station at Sourdough seems to have been abandoned. Fires can be hard to detect when they initially start; but, a well-trained observer in a fixed wing aircraft, flown in a careful search pattern, can detect most fires when they are very small. There is no mention of dedicated searches for other fires in the Chronology.

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5. The person who was directly responsible for managing the forest area (District Ranger) did not have sufficient authority to commit suppression resources.

The District Ranger is the Steward of the lands in the district acting on the behalf the people of this nation. There is no mention in the Chronology of efforts by the Ranger becoming involved when requests for resources were denied. From this it is inferred that the Ranger did not have that authority. Moreover, priorities were being set by other organizations that did not have stewardship responsibility. Direct command authority seems to have risen to a level of management that critical situations may not be recognized until too late.

6. There was confusion over the chain of command.

Throughout the Chronology there are indications of a conflict between those organizations with responsibility of requesting suppression resources and the organizations with authority to assign resources. Requests for Smokejumpers were made but those requests were never received by any Smokejumper base. Resources were available and could have been on the ground in a few hours but those resources were never obtained at the critical time -within the first few hours after a fire has started. It appears that power struggles were going on between people and agencies during the critical period. Resources were assigned by one organization and then declined by other organizations.

7. Fires were not attacked at the time of lowest fire activity.

Fire fighters have long been taught that a forest fire has its lowest activity between midnight and dawn. The greatest chance of success and the least danger to personnel take place during those hours. During the period of consideration -the first 10 days of the fire -it appears that the first activity of the day took place at around 0800 and activity appears to stop at around 2000. In the case of the Taylor fire (man caused) it appears that the crew was sent home for the night and went back to the fire at 0800.

8. Overly restrictive regulations prevented efficient attack of known fires.

The various fire fighting agencies have become very risk adverse. By its very nature, fire control involves risk. The majority of accidents and deaths occur after a fire has grown to a large size and is becoming uncontrollable. Therefore, the minimum risk occurs when an early, aggressive initial attack is made. Delayed decisions to attack several small fires allowed the Biscuit fire to reach an uncontrollable size. In the Douglas fir / brush forests, construction of fire lines require that large amounts of brush be removed. Nearly an order of magnitude increase in the speed fireline construction can be realized by using chain saws. However, the present interpretation of the Wilderness act requires that there will be high level approval for the use of any mechanized equipment including chain saws. As a result, greater amounts of wilderness are destroyed by fire and crews are placed in harms way for longer periods. There has always been a delicate balance between allowing crews to work until they are so tired that the accident rate increases. Maintaining a safe balance used to be the responsibility of the crew leader. The crew leader knew the condition of the crew and the conditions that the crew faced. Now, work rules do not allow discretion on the part of the crew leader. The initial attack on the Florence fire was delayed because of the "required work / rest balance." Rather than attempting an attack on the Florence fire at the time of day that might have allowed control of the fire, the attack was delayed until mid afternoon of the next day.

9. Overly restrictive regulations were used as an excuse not to take action.

The repeated quoting of regulations as a reason for delayed action (or inaction) seems to suggest that management personnel are using the regulations to deflect criticism. There is a definite undercurrent of a negative "Can't Do" approach throughout the early stages of the Chronology.

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10. Priorities for committing suppression resources emphasized protection of private interests over protection of natural resources.

The priorities for commitment of suppression resources were being set by organizations that did not have stewardship responsibility over the affected areas. The Incident Commander of the Biscuit complex of fires was not able to obtain suppression resources for days. While none of the fires in the complex threatened private property at the beginning, the combined Biscuit fire threatened whole communities because it was allowed to grow unchecked. While it may seem harsh to criticize private individuals for building homes and businesses in highly fire prone areas those individuals were not forced to do so. The forests represent a natural resource owned by all the people. To allow the property of all of the people to be destroyed in order to protect the property of a few individuals may not be a proper balance. The priorities for initial attack have centered on risk aversion and not concentration on resource protection.

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Recommendations

Five recommendations should be immediately be incorporated into fire control and forest management plans.

1. Policy should be changed to emphasize that all fires shall be aggressively attacked at the earliest possible time during times of high fire danger.

If there is a high risk of fire, especially when the risk is high that a fire will become uncontrolled, then it is imperative that attempts should be made to control any fire as quickly as possible.

2. Any fire not controlled by 10:00 a.m. of the day following the day that the fire started shall be the subject of a Fire Board of Review to determine the cause of not establishing control and to make recommendations for future actions.

This policy was used for many years. It is a policy that reduces produces the maximum risk reduction and provides a knowledge base for future actions.

3. Any fire started in a time of high fire danger shall be considered an emergency condition.

This rule is a standard order within structural fire fighter organizations. It should be applied to wildland fire fighter organizations. Incorporation of this rule as a fundamental premise does not imply that firefighter safety should be ignored.

4. The District Ranger shall have both the responsibility and authority to order and commit suppression resources during times of high fire danger.

The District Ranger is the Steward of the lands within the district and cannot conduct that duty without commensurate authority. If a fire grows to a size that the locally available resources are not sufficient it may become necessary to bring other command organizations to bear. However, the District Ranger must remain within the command loop.

5. Organizations that do not have Stewardship responsibility over natural resources, placed in danger by fire, shall have only advisory fire control authority.

Any person that assumes responsibility must have the commensurate authority to act. The proper action to take must be based on direct knowlege of the local conditions.

Biscuit Fire Chronology - An Analysis

Acknowledgements

Individuals who have contributed directly to this paper include:

Wesley Brown member -National Smokejumper Association

Wesley is a retired teacher living near O'Brien Oregon. Wesley served as a Smokejumper for many years. He began his Smokejumping career at Cave Junction, Oregon.

John Marker Northwest Coordinator -National Association of Forest Service Retirees

John is a retired career USFS officer who served in many positions including Forest Supervisor on several National Forests. He remains very active in forest issues including co-authorship of "Forest Health and Fire An Overview and Evaluation" published by the National Association of Forest Service Retirees, October 2002

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Charles is a retired teacher living in Chico, California. He began Smokejumping at the same time as the author of this white paper. He has a long career in fire control including the organization of volunteer fire control teams in Northern California.

About the Author

Charles Mansfield

Charles has had a dual career. He received a Ph.D. degree in Physics from the University of Idaho in 1970. His career in Physics includes a Postdoctoral Fellowship at Johnson Space Center and serving as a Senior Scientist at Los Alamos National Laboratories. Since his retirement in 1993, he has operated several small businesses. As a scientist he has authored over 33 papers in various fields. His career in forestry began at around age six. His mother was often ill so his father, a career USFS officer serving as a District Ranger, took him along during many field trips. In addition to learning fundamental concepts about forest management he helped to suppress his first forest fire at age 7. He attended Oregon State University and received a B.S. in Physics in 1962. For two summers he worked on a USFS road survey crew as an Engineering Aid. In 1959 he was accepted as a Smokejumper at the Siskiyou Smokejumper base. In eleven years he parachuted to 63 forest fires in the western forests and attacked about 15 more fires as a member of ground support teams. For the past six years he and his family have explored areas of the Kalmiopsis wilderness area including leading a Smokejumper trail reconstruction team into the Kalmiopsis wilderness two weeks before the Biscuit fire started