

## **A Blackwater Comparison**

Karl Brauneis

### **Abstract**

A subjective comparison to contrast firefighting in 1937 with today is presented in chart form. The chart contrasts the Blackwater Fire of 1937 to the Blackwater Fire of 2003. Both Blackwater fires are located on the Shoshone National Forest in western Wyoming. A comparison chart was developed in an attempt to identify the “Achilles Heel” of fatality fires. What are the positives and negatives of today and yesterday? Is it possible to blend the strength’s of 1937 with the strength’s of today for the best in fire management? Following the subjective chart is a summary of rationale for each category. The chart is numbered from 1 to 10 or low to high with respect to positive weight. The purpose of this exercise is to stimulate discussion through out the fire management organization. It is my sincere hope that the poster and paper can be viewed in the crew barracks, ranger stations, ready rooms and mess halls of our facilities to focus attention on “Organizational Influences” with respect to firefighter safety.



### **Blackwater Fire Fatalities on August 22, 1937 following the “Blowup”**

Photograph Courtesy The Hiscock Studios and the Fifield Family Collection

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Historical reference - contact information and hyperlinks may be obsolete

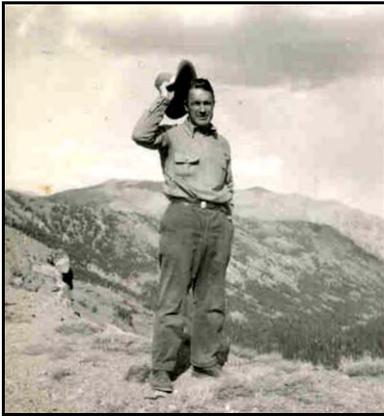
**BLACKWATER COMPARISON CHART**

Determining Factor	1937	2003
Physical Fitness		
CCC Crewmember	8	
Fireline Leadership (General)	10	6
BPR Crew 1937	9	
Hot Shot 2003		7
Type II Crew		5
Smokejumper	0	0
General Understanding of Fire Behavior	5	8
General Understanding of Fire Weather	2	8
Ten Standard Firefighting Orders	0	6
LCES	0	9
Line Officer Involvement	10	5
Logistics	6	6
Understanding of Fire Management Policy	10	6
Effectiveness of Fire Management Policy - Blackwater	2	10
Fire Training	4	9
Communications	1	10
Response Time General	10	8
Engagement Time of Local Resources – Specific to Blackwater	10	4
Firefighter Availability	10	2
Protective Gear (Fire Shelter Excluded – See Below)	4	6
Aviation Resources	5	8
Detection	8	6
Fire Shelter	0	6
Map Reading and Comprehension of Terrain	8	4
Turn Down Policy	0	8
Situational Awareness	(?)	(?)
Total	122	147

## ANALYSIS

### Physical Fitness

The Civilian Conservation Corps (CCC or Triple C) engaged in a very structured physical fitness program. A variety of sports were also played of which the most popular was boxing. The sport of boxing is a grueling and physically demanding sport. During this time of America's great middleweights, boxing captured the interest and desire of our nations youth. In addition, organized calisthenics, running and physical conditioning hikes were the norm. At the time Mike Vinich (Hudson, Wyoming) was a star running back for the Lander Valley football team. He often helped his crew foreman lead the conditioning hikes for Wapiti CCC Co 1852. This was a Man's world and young men in particular were judged according to their physical and mental toughness. In short, the Germans and Japanese would learn first hand the strength of America's youth. The Tensleep Triple C crew consisted of numerous enrollees from West Texas. Although not born at altitude, they would have time to acclimate while stationed on the Bighorn National Forest. The Bureau of Public Roads Crew (BPR) was made up of older men who were even tougher than the CCC "boys".



#### **District Ranger/Fire Boss Charlie Fifield**

Raised in Saskatchewan, Canada, few could keep up with him in the woods. His response time to the Blackwater Fire on August 20, 1937 was phenomenal.

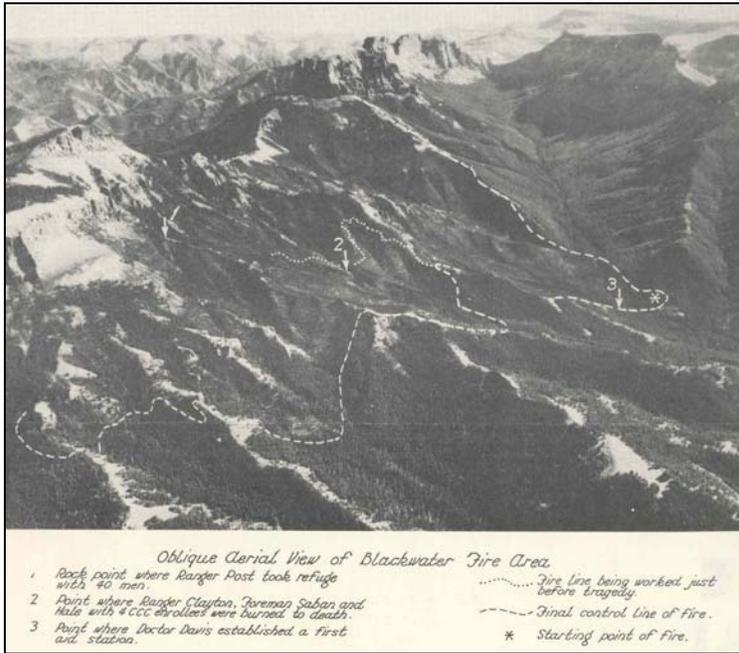
**Photograph Courtesy the Fifield Family**

Forest Rangers at the time could be considered in peak physical condition before the advent of standard motorized transportation following World War II. District Ranger and Blackwater Fire Boss Charlie Fifield was raised in Saskatchewan, Canada. Charlie would run in snowshoes next to the team and sleigh on their trips to town for supplies. According to Charlie's son, very few could stay up with him in the woods. It was well known that the U.S. Forest Service often hired for rangers the toughest men in the valley (Norman Maclean; USFS 1919: The Ranger the Cook and a Hole in the Sky).

Today's firefighters must pass a basic pack test. There are however no minimum physical fitness standards for any firefighters except the smokejumpers. In my experience, even the smokejumper standards have been lowered (see Smokejumpers – Firefighters from the Sky, National Smokejumper Association). A minimum physical fitness standard for Hot Shots could be adopted to improve the overall physical capabilities of today's firefighters.

The development of the Forest Service Parachute Project and subsequent Smokejumper program had some of its founding seeds sown in the 1937 Blackwater Fire Investigation. It is ironic that Smokejumpers were not deployed on the 2003 fire for a mission that they were

developed to perform. Still, the Smokejumper program can be viewed as a success. There were simply not enough of them to go around in 2003.

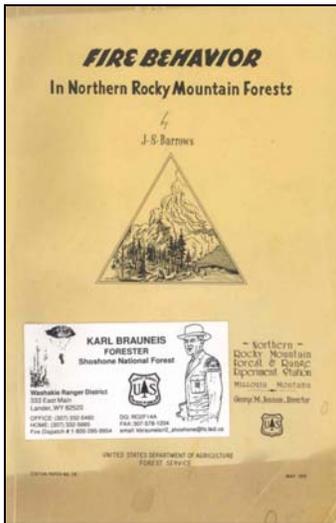


Aerial Oblique Photograph of the 1937 Blackwater Fire depicting key points and fire perimeter.

Rocky Mountain Region Bulletin of October 1937

### Understanding of Fire Behavior

Rangers had a working knowledge of fire behavior back in 1937. However, a scientific document available for general training was not available until the publication in 1951 of “Fire Behavior in Northern Rocky Mountain Forests” by J.S. Barrows through the Northern Rocky Mountain Forest and Range Experiment Station. There is a wealth of fire behavior information available to today. Still, a working knowledge is required to successfully apply the scientific information. The Campbell Prediction System has done much to help connect the two worlds of a working and scientific paradigm.



Fire Behavior In Northern Rocky Mountain Forests by J.S. Barrows was a landmark publication in May of 1951

### **Understanding Fire Weather**

Fire Weather appears to be the Achilles heel concerning fatality fires. The understanding of fire weather was minimal in 1937. An organized fire weather forecast system was still years ahead in the making. Today, the use of fire weather forecasts and the observation and communication of spot weather forecasts and updates is a key to safe and aggressive firefighting.

### **Ten Standard Fire Orders**

The best tool for today's firefighter is The Ten Standard Fire Orders. The Blackwater fire was studied, along with others to develop the Orders. Still, there is some question in my mind as to how many firefighters really understand them and how they were designed for use. A recent return to the "Original Intent" Fire Orders make the decision process of the "orders" applicable again.

### **Lookouts, Communication, Escape Routes, Safety Zones (LCES)**

The work of Paul Gleason in the development and widespread acceptance and use of LCES is to be commended. Firefighters are safer today because of LCES.

### **Line Officer Involvement**

In 1937 all Forest Service Line Officers were directly involved in fire. Staff briefings and Line Officer training cannot take the place of actual experience and involvement. This was a lesson re-learned at South Canyon in 1994 and again at Cramer in 2003.

### **Logistics**

Logistical support has held about even from yesterday to today. Because the old Forest Service was a horse and mule outfit, firefighters could be supplied and supported at any location. The Forest Service spent considerable time; effort and dollars to assure that the logistical supply mission was successful (Para-Cargo / Nine Mile Remount Depot). These efforts continue today.

### **Understanding of Fire Management Policy**

Personally, I enjoyed fighting fires under the old 10 AM Policy. The policy was straightforward and as a firefighter you had total commitment and support of the agency. "Hit 'em Hard and Keep 'em Small" was a phrase that all officers in the Forest Service understood. Today's Fire Policies provide much more latitude in decision-making. Most often a better more cost effective way can be determined in the suppression of larger wildfires with latitude in decision-making. Still, today's policies can become a two-edge sword as fires are managed under an expanding urban interface (South Canyon – 1994). Fire duration can also add to increased risk. Today's policies are greater in number, more complex and often difficult to understand and explain. An increased risk of lawsuits has resulted in the exodus of many good fireline supervisors from the system (Thirtymile, 2002 / Cramer, 2003). There fore, one can assume, that the general understanding of fire policy at the firefighter level is less now than in 1937.

### **Training**

The fire training of today is far superior than that afforded firefighters in 1937.

**Communications**

The advent and use of modern radios, cell and satellite phones have made the fire environment a much safer place to work. The technological gains in the field of communication are so drastic, that I chose to evaluate it separately from LCES. Still, the intent to communicate must be instilled at all levels of the organization per the Standard Fire Orders.

**Response Time in General**

Good for both 1937 and 2003. One must give the edge to 1937. However, fire management officers acted as soon as they received word that a fire might exist in the Blackwater Drainage in 2003.

**Engagement Time of Local Resources**

The 1937 Blackwater Fire was engaged aggressively using standard fire fighting techniques. It could serve as a model of how to effectively respond and engage. Certainly the Fire Policy at the time supported and encouraged the active response documented. On August 16, 2003 the Blackwater fire was reported and jumpers ordered. Due to a lack of available resources under a multiple start scenario, it took until August 19<sup>th</sup> to staff the 2003 fire.

**Firefighter Availability**

Perhaps one of the most glaring differences between 1937 and 2003 can be found in the availability of firefighters. In 1937, everyone in the Forest Service fought fires as a number one priority. In addition, a semi trained and fit fire organization existed in the Triple C's. Today, the overall loss of the militia ("Every Forest Officer is a Firefighter") has hurt the agencies ability to field firefighters. This was defiantly the case in 2003. Under the National Fire Plan many new "Hot Shot" crews have been formed. It is interesting to note that the one group of firefighters – the Smokejumpers – who could have had the biggest impact on this type of fire were unavailable at the time they could have done the most good. Certainly a case could be made for reducing the number of "Hot Shot" crews in order to boost the Smokejumper program.

**Protective Gear**

Improved since 1937 and a general plus for today's firefighters. One can argue the false sense of security the equipment might give (South Canyon, 1994) and the added weight. The heavy cotton denim dungarees, khakis and wool afforded the best natural fiber protection available to the 1937 firefighters.

**Aviation Resources**

Improved since 1937 and a plus for today's firefighters with the advent of Smokejumpers, Aerial Retardant, Helitack and helicopter support. Both air detection and air cargo re-supply were available in 1937. Assistant Forest Supervisor Krueger flew air detection and patrol for the 1937 Blackwater fire. He provided "aerial scout" reports on a daily basis.

### Detection

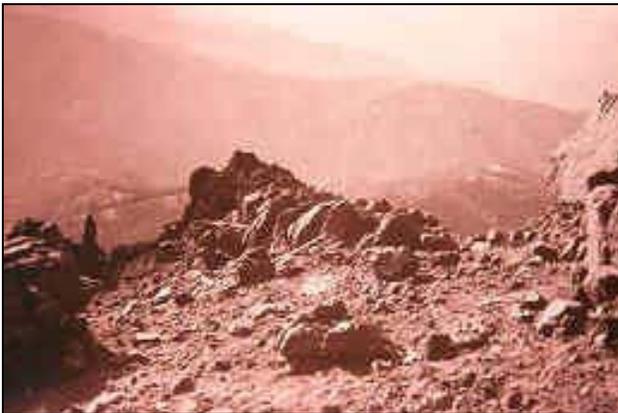
Aerial resources were used in both 1937 and 2003 to detect both Blackwater Fires. A major plus can be given to the “Old” Forest Service for its development of an integrated fixed detection lookout system. Part of the agency response to the 1937 Blackwater Fire was a new L-4 Lookout on the re-named Clayton (A.G. Clayton) Peak.



Fire Patrol Aircraft of the 1930's at Glacier National Park. Forest Aviation was “Christened” in 1917 under Chief Forester Henry S. Graves. Photograph Courtesy of U.S. National Park Service and Stan Cohen “A Pictorial History of Smokejumping”.

### Fire Shelters

Fire Shelters would have eliminated the fatalities and injuries that occurred at Post Point (Paul Tyrrell, Ambrocio Garza, and William H. Whitlock). It might also have saved Billy Lea (ran through the fire) and Roy Bevens (Clayton Gulch) who survived the burn over but died later from their burns. It is doubtful if fire shelters could have saved the other trapped firefighters in Clayton Gulch, or the remaining “5 Horsemen” who broke and ran through the fire. I assigned a number for each firefighters life that would have been saved (5) and (1) for those injured under this scenario (6).



Post Point Safety Zone 1937

Too small for 40 men it could have made the perfect fire shelter deployment zone

### Map Reading and Comprehension of Terrain Features

During my 30-year career in the Forest Service it has been difficult to watch the corporate loss of map reading and topography recognition skill within the organization. This skill loss seemed to accelerate with the advent of the Global Positioning Systems (GPS) and computer programs designed to do the thinking for us. Today, very few firefighters can determine fire behavior through their field fireline notebook. Another contributing factor could be the recruitment of firefighters less adaptable to the wildland fire environment. Many older foresters and rangers will not give up their map, aerial photograph, compass, altimeter, clinometer and hand dial watch. Why? It gives them better situational awareness and they do not have to rely on civilization to replace worn batteries.

Today, the Tactical Decision Making Games using Sand Tables provide an excellent tool to regain some of these lost skills in a classroom setting. Still, only through time spent in the field at work or play – hiking, hunting, fishing ...etc can these skills be honed.

### Turn Down Policy

The Turn Down Policy is a very real and positive tool for today's firefighters. Through this process, a dialog can be developed that will help solve the problem at hand in a safe way.

### Situational Awareness

This category will change with respect to position studied. Few district rangers of today will have the situational awareness of a ranger serving in the 1930's. On the other hand, today's smokejumper carries more training and experience than the average smokechaser of 1930.

### SUMMARY

The comparison chart was constructed with the intent of identifying the strengths and weaknesses of two different fire organizations in place over 60 years apart. What if the best of both worlds were mixed together in a new fire organization? What would it look like? Would it have an Achilles Heel?

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### **The Author**

Karl Brauneis of Lander, Wyoming is a Forester on the Shoshone National Forest. He has fought forest fires since 1972 and has served as a Smokechaser, Fire guard, Hot Shot, Smokejumper, Burn Boss and Fire Management Officer. Karl is the author of several articles dealing with firefighting from a historic and operational perspective. He serves as a lead instructor at the Wyoming State Fire Academy and has spent the last 16 years studying the Blackwater Fire of 1937. Karl is a recipient of the 2004 Paul Gleason Lead by Example Firefighter Award. He and his wife Marilyn have three children – Kristin runs track for the University of Wyoming; Keith is a Red Shirt Freshman for the Cowboy's and Mitchell runs Cross Country and Track at Lander Valley High School.

