

Staff Ride

Resources



Wildland Fire Leadership Development Program

1937 Blackwater Fire – Facilitators Field Reference, April 2005

STAFF RIDE DIFFICULTY RATING:

Physical

Arduous – All walking segments are on a trail system in mountainous terrain and an average slope of 40 percent. Average elevation for the area is approximately 7,610 feet.

Bottom elevation: 6,200 feet.

Top elevation: 9,020 feet.

From the memorial site to the last stand is approximately 6 miles one-way. From “Lower Camp” (accessed only by 4x4 standard type passenger trucks or vehicles) it is approximately 4 miles.

Logistics

Moderate / Difficult – Adjacent to a major paved highway. The Highway Memorial (Stand 1) is less than one-hour drive from Cody, Wyoming. Cody has ample overnight accommodations. Access to the site is seasonal and dependent upon snow load and spring break-up. In normal snow years the trail up to the fire site may not clear until late June. Standard 4x4 passenger trucks/vehicles can access “Lower Camp.” However, parking space is very limited. Leave card in vehicle windshield with date/time/itinerary/# in group/etc.

Hazards

Bears: This area is frequented by Grizzly bears and there is a high population of Grizzly Bears. It is highly recommended that participants’ carry approved pepper spray and be trained in the use of pepper spray and how to respond when confronted by Grizzly Bears.

Other users: This trail is frequently used by local lodges for trail rides with horses. If you meet horseback riders step off on the downhill side of the trail and wait for the horses to pass. Try not to spook them. There are occasionally mountain bike riders on the trail. While not too much of a risk if they are going up the trail...they tend to descend the trail at high speeds.

Weather: Given the nature of the terrain, storms can appear quickly. Lightning is very frequent with thunderstorms. Snow can happen year round in the high country of the Shoshone National Forest. Be prepared for all types of weather and check forecasts prior to your trip.

Snags: Both inside and outside the burn areas dead trees abound in the area. Be aware of the potential for snags to come down without notice. If significant winds are forecasted do not enter the area. If you experience high winds consider returning to the trailhead.

NOTE TO FACILITATORS: This is a suggested format. Do not feel limited by the identified stands or discussion items. It is provided as a word document so that users may adapt and revise it to fit their specific audience and time demands.

Stand 1 – Highway Memorial

Maps

Travel Map

Blackwater Map A - Topo map showing stand locations

Access

NAD 27 Conus GPS Coordinates: 44° 27' 30" x 109° 44' 49"

From Cody, Wyoming take Highway 20 east toward Yellowstone National Park – East Entrance, go approximately 35 miles. Just after the Rex Hale Campground, turn left into the Highway Memorial for Stand 1.

*** Depending on the number of people in your party, the trailhead parking area next to the Highway Memorial site can provide a place to park extra vehicles if shuttling personnel to "Lower Camp" (44° 26' 26" x 109° 44' 52") approximately 1.8 miles. ***

Terrain Orientation

State Highway 20

North Fork of the Shoshone River

Blackwater Fire Memorial Monument

Blackwater Creek

Lower Camp

Events to Describe

Overview of the Civilian Conservation Corps program

1930's Firefighting

1930's "Dust-bowl" era

The 1937 Fire Season

Discussion Topics

The Civilian Conservation Corp (CCC) crews of the 1930's were formed under Franklin D. Roosevelt's New Deal in the hopes of relieving unemployment by providing conservation work across the nation. The CCC was run by the War Department and fire suppression command, control and organization was modeled after the military.

Each camp had a camp commander, an assistant commander, a lieutenant, a doctor and an education advisor. All were Army personnel. Fire crews were trained and supervised by specific government agencies. Training for firefighting was "introductory" at best.

Crews were generally consisted of 20-25 people. These crews were involved in firefighting around the country. Each camp was assigned a fleet of trucks, tractors and basic fire tools.

The Blackwater Fire was over 60 years ago. The knowledge and experience of how to fight wildland fires was very elementary at this time. Not only were communications done through hand written notes with runners, but logistical supplies were delivered via horse pack strings. Aerial delivered retardant, helicopter bucket drops, or sling loads were not invented yet. And finally, there was no LCES, 10 and 18's or PPE. Most of the men wore jeans, a full brim felt hat, and cowboy boots.

The casual observer must wonder if the "dust bowl" conditions of the 1930's are contributed to the drought and severe weather conditions. The temperature on August 20th was 85 degrees with a relative humidity of 16 percent. Under these conditions the smoke was rising vertically. The day has often been described as extremely "hot and dry, with the sun boiling down and no discernible winds."

Blackwater Fire background – At approximately 1530 on Saturday, August 21, 1937 an unknown and unpredicted dry cold front hit the Blackwater fire area. Winds shifted from a general southwest flow to the northwest as wind speeds increased to 30 miles per hour. The resulting firestorm trapped groups of firefighters in separate locations (Clayton Gulch and Post Point) along the fireline. Fifteen firefighters gave their lives in service and over 32 were injured.

The fire started on August 18, 1937 as the result of lightning and was detected from the Pahaska Tepee at East Yellowstone Entrance at 1535 hours on Friday, August 20, to District Ranger Charles Fifield at the Wapiti Ranger Station. Assistant Forest Supervisor Carl G. Krueger, who was currently conducting an aerial recon for a reported smoke in the Sunlight Basin, with Pilot Bill Monday spotted the fire at about the same time Pahaska made the report. At this time, the smoke was seen by Krueger, the column was moving straight up with little wind, and the fire appeared to have burned over only a couple of acres.

Ranger Fifield responded at 1600 with men from his CCC camp and arrived on scene at 1710 hours. The travel route consisted of 13 miles of highway, an old logging road, and unused trail; this made Ranger Fifield's response time approximately 1-hour and 18 minutes, which is exceptionally good time. The point of origin was traced to a Sub-alpine Fir located on the west bank of Blackwater Creek approximately 3.8 miles from the Highway Memorial.

Foreman Bryan Sullivan and his crew of seven CCC's were the first to arrive on the fire and begin work. By 2000, 58 CCC's were on the line, with seven men supervising and forming the overhead. The fire was estimated to be about 200 acres at this time.

The fire was headed towards Coxcomb Peak in an almost pure stand of Douglas-fir. The objectives at this time:

1. Keep the fire from getting into the heavily timbered basin (one of the main forks of Blackwater Creek;
2. Strike hard and swiftly.

Forest Supervisor Sieker arrived at the fire, after an 86-mile trip from Sunlight, at about 2000, having learned from Krueger's airplane reconnaissance that the fire on the Blackwater promised to be far more serious than the one in the upper Sunlight Basin. Sieker and Fifield estimated the fire wouldn't spread much during the night and enough line could be constructed to hold the fire to its present boundaries.

Two things were needed: men and equipment. Supervisor Sieker left to order additional men so that 150 men would be on the fire by daybreak.

On the night of the 20th, about 65 men were divided and construction of line advanced around the flank of the fire from Blackwater Creek each way. The fire pump on the west sector during the night held a dangerous section of line and prevented spread up Blackwater Creek, embodying a basin of heavy timber.

Handout Tactical Decision Game #1 or Strategic Discussion Points #1 prior to leaving Stand 1: **Tell participants to have their responses ready when they arrive at Stand 2.**

NOTE TO FACILITATORS: The tactical decision games are a good method to generate group interaction if participants have predominately fireline operations backgrounds (for example firefighter type 1, single resource bosses, strike team/task force leaders, or division supervisors). The strategic discussion points are a good method to use for generating group interaction if the participants have incident management or program management backgrounds (for example fire management officers, IMT command and general staff, or agency administrators).

Stand 2 – Trail Ridge

Maps

Blackwater Map B – Topo map with fire progression (8/19-20/1937)

Blackwater Map C – Orthophoto comparing fire perimeters of 1937 & 2003

Access

NAD 27 GPS Coordinates 44° 24' 43" x 109° 45' 03"

From Stand 1 either drive or hike** approximately 1.8 miles to the south on Forest Road 435 to the upper trailhead. This location is where the “Lower Camp” was established to support the fire and was also the end of the road in 1937. Follow the trail south along Blackwater Creek for approximately 2.5 miles to Stand 2 on Trail Ridge.

*** Depending on the number of people in your party, the trailhead parking area next to the Highway Memorial can provide a place to park extra vehicles if shuttling personnel to “Lower Camp” (44° 26' 26" x 109° 44' 52") approximately 1.8 miles. ***

Terrain Orientation

Blackwater Creek Drainage

Blind Creek

Clayton Gulch

Post Point

Double Mountain

Clayton Mountain

Events to describe

Strategy and tactics

Location of resources

2003 Blackwater Fire comparison with the 1937 Blackwater Fire

Discussion Topics

Conduct Tactical Decision Game #1 or Strategic Discussion Points #1

Around midnight on the morning of August 21st, an unexpected wind, for short duration, cause Ranger Fifield to concentrate forces on the North side of the fire – along Trail Ridge. By daylight, despite unfavorable weather, the line was still holding.

The shift change began along this ridge during the late morning of August 21st. Smoke was hanging in the drainage and the fire was backing down the north side of Trail Ridge. The Tensleep CCC relieved the Wapiti CCC Crew at around 1200. The Yellowstone CCC had arrived at 0230 that morning and continued to work. The BPR Crew had arrived at 1030 that morning and continued to work.

At noon, Assistant Forest Supervisor Krueger made an airplane reconnaissance of the fire, returned to the Cody office at 1330 and the proceeded to the fire with the intention of relieving Ranger Fifield. Ranger Alfred G. Clayton, of the South Fork District of the Shoshone National Forest, had arrived at the fire camp at about noon, when it was planned by the Forest Supervisor to turn the fire over to Clayton and Krueger to permit himself and Fifield to secure some rest.

At the time Krueger made his air reconnaissance the fire was quite hot on the steep, Douglas-fir covered slope above the line which was being constructed northeastward from the Trail Ridge and had spotted over into the headwaters of Blind Creek on the Elk Fork drainage. The fire was not, however, making much progress at the time and the wind was quiet.

The initial strategy was to anchor and flank the fire. Hose lays were used from the creek bottom up the southern edge (right flank). Trail Ridge was considered the northern edge (left flank) and is where most of the crews were constructing handline construction while picking up spot fires as they went.

The objective at this time was to extend the control line towards the timberline and hold the existing line. Ranger Clayton and Ranger Urban J. Post from the Big Horn National Forest were selected for the advance line work because of their long firefighting experience. Ranger Post was assisted by Junior Forester Paul E. Tyrrell and Foreman James T. Saban (a former Forest Ranger with much firefighting experience) who was in charge of the Tensleep CCC's.

Ranger Post and Tyrrell took the lead and deployed his men with orders to push the fireline toward the rim rock above, while Saban brought up the rear with a group of enrollees carrying back pack hand pumps. Ranger Clayton followed to improve the line and catch any new spot fires. Ranger Post found nothing to cause him concern and expressed the fire would be well in hand in 3 or 4 hours. Post's men actually got to work on the line at about 1515 hours. As the day progresses the crews crossed Trail Ridge and dropped into the next gulch (now known as Clayton Gulch).

At this time, the men are unaware that the relative humidity is 6% with a temperature of 90^o down at camp.

2003 Blackwater Fire

From Trail Ridge, you can see the fire scar from the 2003 Blackwater fire which was started by lightning on August 16th. This fire was initially managed as a Type 3 incident with several hotshot crews, with logistics support by the Wapiti Ranger District.

On August 21st, the fire grows significantly so the Type 3 organization pulled back heading to the 1937 memorial on the mountain. The fire is not engaged again until August 23rd.

The fire transitions to a Type 2 Incident Management Team.

On August 25th, as a dry air mass moves over the fire with a relative humidity of 14%, a Haines Index of 5 and the stand of 60% dead timber caused all resources to pull off the fire again. The fire remains un-staffed on August 26th because of the continued critical fire weather.

The fire management objectives given to the Type 2 team by the Forest was to keep the fire confined in the Blackwater drainage and not all of the perimeter needed to be contained; only the northern edges.

Handout Tactical Decision Game #2 or Strategic Discussion Points #2 prior to leaving Stand 2.
Tell participants to have their responses ready when they arrive at Stand 3.

Stand 3 – Clayton Gulch

Maps

Blackwater Map D – Topo map with fire progression (8/20-21/1937)

Access

NAD 27 GPS Coordinates 44° 24' 43" x 109° 44' 27"

From Stand 2 follow the trail up Trail Ridge and across Clayton Gulch eastwards approximately 0.7 miles to the Clayton Gulch memorial. The actual memorial site is just above the gulch on the east side.

If time is not available for your group to hike the entire distance to Stands 3 and 4 there is an excellent overlook point on Trail Ridge approximately 1/4 mile above Stand 2. This is Stand 2A. From this overlook one can see Clayton Gulch, Post Point, and the drainage where the fire spread from below to overtake the firefighters working in those locations. The discussions for Stand 3 and 4 can be effectively conducted at this Stand 2A location (NAD 27 GPS Coordinates 44° 24' 44" x 109° 44' 49").

Terrain Orientation

Trail Ridge

Clayton Gulch

Post Point

Clayton Mountain

Events to Describe

Condition of the timber stand

Wind Pattern(s)

Communications

Safety Zone and Escape Routes

Discussion Topics

Conduct Tactical Decision Game #2 or Strategic Discussion Points #2

During the morning of August 21st the fire had a slight southwest wind which is a typical airflow over Wyoming's Wind River and Absaroka Mountains.

The BPR and Tensleep CCC crews were cutting under slung line across the drainage. Ranger Clayton who had come up from behind the crew looking over the line was discussing the situation with Foreman Saban (Tensleep CCC) and Junior Assistant Hale (Wapiti CCC). Saban and Hale with 5-6 men of the Tensleep enrollees stopped and dammed up the creek to fill backpack pumps.

As Ranger Post and his men gain the ridge to the north, they notice the smoke below Ranger Clayton and his group. Clayton also notices the smoke and prepares to abandon line construction to attack the new smoke. Ranger Clayton and Ranger Post both noticed the spot fire, but had no way of communicating to one another.

The last word received from Ranger Alfred G. Clayton was a written note to Ranger Post: *"Post, We are on the ridge in back of you and I am going across to "spot" in the hole. It looks like it can carry on over ridge east and south of you. If you can send any men please do so since there are only 8 of us here."* Clayton

Sometime around 1530 the wind increased from the northeast blowing embers over the line and briefly subsided. When the wind began again it was associated with a frontal passage and it blew strongly out of the northwest. The spot fire rapidly runs up drainage trapping Ranger Clayton and his men at the dam in the drainage. Whether Clayton and his men actually started down to the spot or not was never determined.

Handout Tactical Decision Game #3 or Strategic Discussion Points #3 prior to leaving Stand 3.
Tell participants to have their responses ready when they arrive at Stand 4.

Stand #4 – Post Point

Maps

Blackwater Map D – Topo map with fire progression (8/20-21/1937)

Access

NAD 27 GPS Coordinates 44° 24' 50" x 109° 44' 00"

From Stand 3 hike approximately 0.5 miles due east gaining elevation to the rocky outcropping identified on the map as Post Point.

Terrain Orientation

Post Point

Clayton Gulch

Spot Fire Location

Clayton Mountain

Events to Describe

The spot fire

Ranger Post's escape actions

Management response

Discussion Topics

Conduct Tactical Decision Game #3 or Strategic Discussion Points #3

Shortly after Ranger Post received the note from Clayton, the wind began whipping back and forth fiercely driving the surface fires into the crowns. From Ranger Post's position, he quickly realized the seriousness of the situation, pulling all his men; he proceeded to what he considered a safe place, since he was unable to return along the fireline to Trail Ridge.

BPR Foreman Bert Sullivan took the lead while Post and Tyrrell brought up the rear. The fire consumed the fuels above Post's crew cutting off their escape to timberline, thus making Post Point the men's best chance for survival. Five men panicked and ran downhill through the fire, of these five, only one survived. Post, Tyrrell and Sullivan made every attempt possible to keep the men in place, of the 37 who stayed at Post Point, only 3 would perish.

Paul Tyrrell knocked down some of the panicked men only to lie on top of them as a human shield to protect them from the "fiery blast". A few days later, Paul's severe burns took his life, he passed away at 1300 on August 26, 1937.

The fire rushed uphill from the "spot" in two waves. The group on the ridge top tried to move around to avoid the flame fronts, but there was little room on the ridge.

The final fire size was 1,700 acres and it took more than 400 CCC's and miscellaneous forest officers for a total of 520 men to bring the fire under control.

David P. Godwin, Division of Fire Control, Washington – concluded:

- The leadership on the fire was intelligent and protective of the men. It is evident that this fire was handled in a manner reflecting sound experience and knowledge...failure of the Tensleep crew to arrive earlier on Saturday probably contributed to the disaster.
- David Godwin established the Parachute Project in 1939 at Winthrop, WA a mere two years following the Blackwater tragedy.

Fire behavior specialist A.A. Brown completed the fire behavior report for the Blackwater fire. Mr. Brown identifies the following factors as key to the "Blow Up":

- The ragged edge of the fire.
- Under burning of surface fuels that pre-heated the canopy crown.
- The heavy fuel model that the fire burned in – today's fuel model 10.
- Spot Fires

We can also add the following factors:

- Frontal Passage - The most obvious, but overlooked due to the limited understanding of fire weather at the time was the passage of a dry cold front. The winds shifted from southwest to northwest and increased to 30 mph. Local firefighters expect and plan for winds due to the frequency/consistency of winds.
- Drought - In addition, the long-term drought of the 1930 "dust bowl" years would have intensified by 1937 contributing to the explosive conditions.
- Terrain - Finally, the orientation of the fire within the North Fork of the Shoshone River drainage could help funnel and increase wind speed over the fire area with the passage of the northwest cold front.

- Other Ignitions - While spots generated by the fire are a common concern of firefighter even today how aware were firefighters in 1937 or even today of the potential for another ignition source to influence strategies and tactics on the initial event? Are lookouts today so focused on the fire at hand that another situation like this could evolve?

Handout and Conduct TDGS #4

After conducting Tactical Decision Game #3 or Strategic Discussion Points #3, allow time for participants to explore the area. Select an appropriate location to conduct Tactical Decision Game #4 or Strategic Discussion Points #4.