Pole Creek Prescribed Fire
Facilitative Learning Analysis

US Forest Service, Intermountain Region, Sawtooth National Forest
Sawtooth National Recreation Area

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INTRODUCTION

On Friday, September 12, 2008 ignition of a blackline was started in preparation for the Pole Creek Prescribed Fire on the Sawtooth National Recreation Area (SNRA). The planned actions for the day were to burn approximately one mile (10 acres) of blackline along a private property boundary in preparation for an upcoming prescribed fire for wildlife benefit. During the ignition an escape occurred on an un-staffed western portion of the blackline. The fire intensity and size of the escape grew to exceed the capabilities of on site resources resulting in a conversion to a wildland fire.

The Burn Boss, Burn Boss Trainee, Area Ranger, Forest Fire Staff and Forest Supervisor conducted an After Action Review (AAR) and felt there were lessons to be learned and shared. It was agreed a team should be assembled to conduct a Facilitative Learning Analysis (FLA) to review the incident and bring forth lessons learned.

Requirements of the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide and FSM 5140 for an escaped prescribed fire that has been declared a wildfire were reviewed.

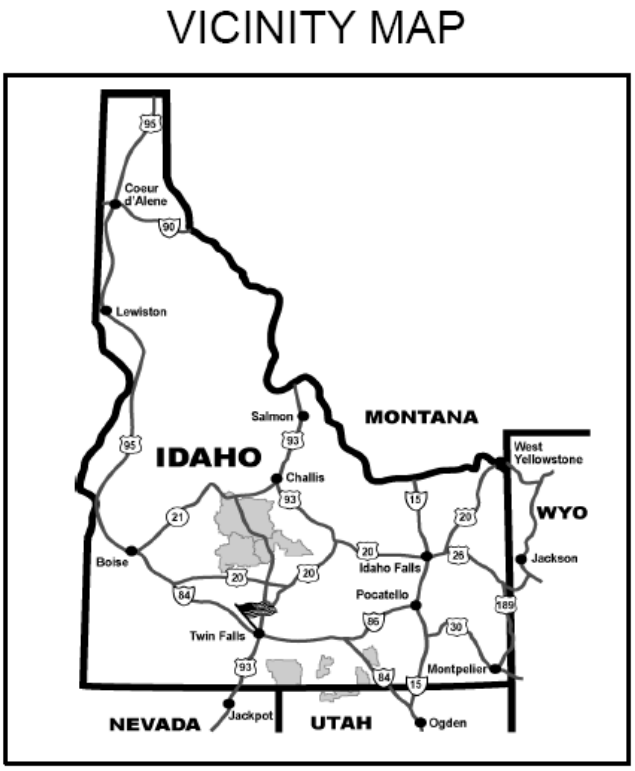
The focus of an FLA is not to place blame on any parties involved; but to tell a story by fostering a learning environment for other firefighters, fire managers and land managers across the nation recognizing similarities that may prevent future escapes.

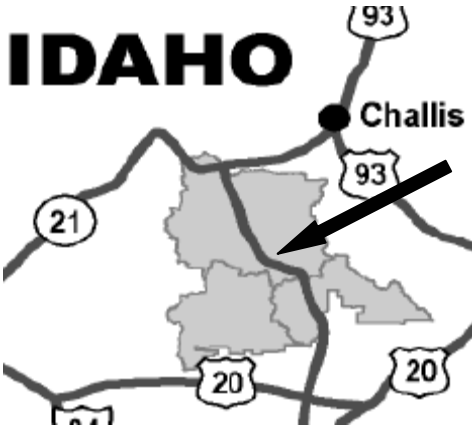
It is hoped that both firefighters and managers will use the “Story of Events”, “Discussion Points” and “Lessons Learned” in a learning environment such as pre-burn briefings and prescribed fire burn boss refreshers. A sand table exercise (STEX) can also be used to help tell the story. Realizing that every prescribed fire project is unique, the focus of this FLA is not the Pole Creek Prescribed Fire, but the fire you’re about to ignite.

This FLA has been made possible by the cooperation and support of the parties involved and the Sawtooth National Forest. The FLA team would like to express our deep appreciation of their willingness and honesty to share their story.

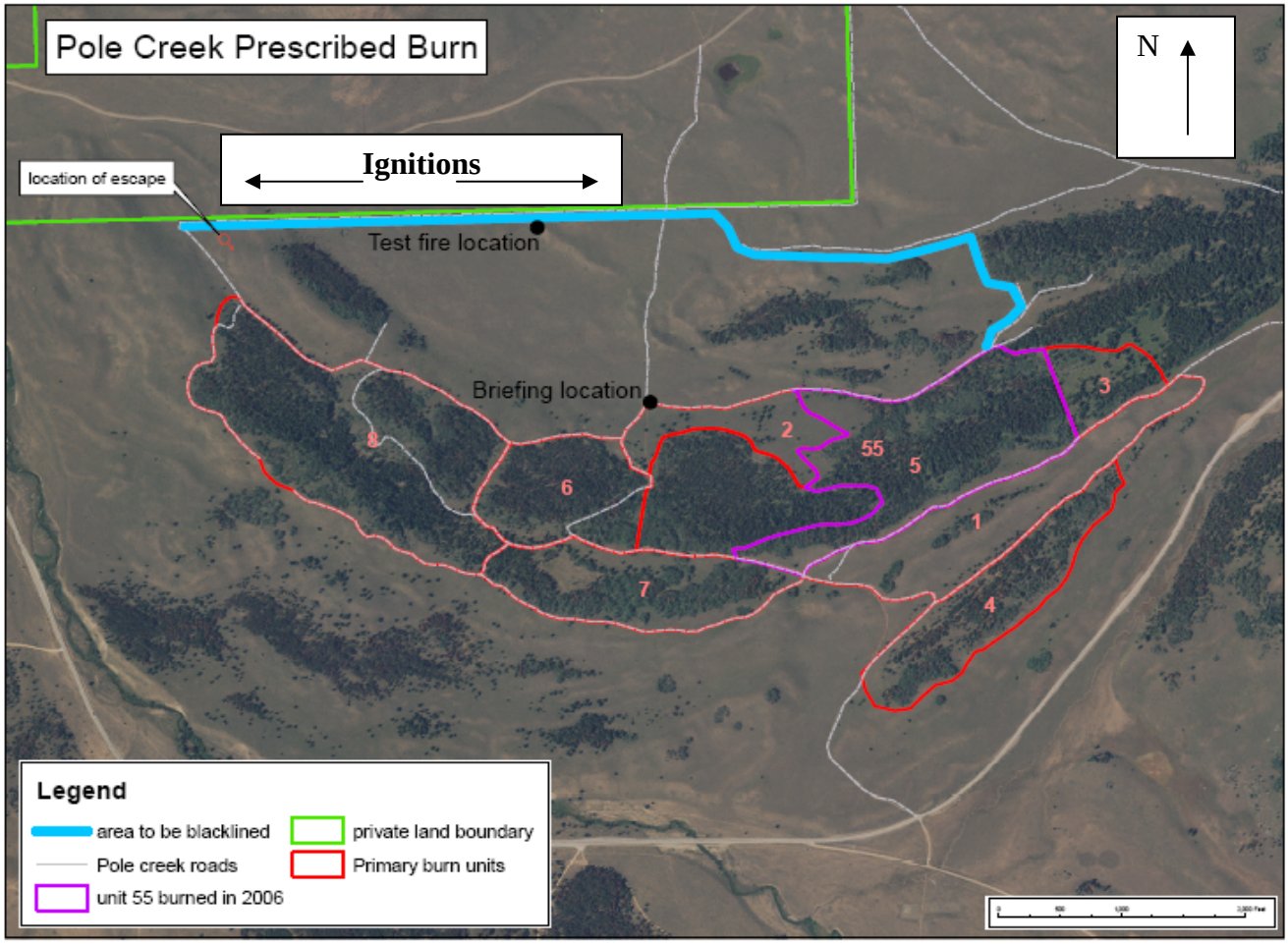
The following document contains a story of the events leading to the incident, the results of an on scene field review with involved personnel and the lessons learned from that review. The names of the parties involved are not included in this report, only position titles are used. The objective is to focus on the lessons learned to enhance future management actions.

Figure One - MAPs





Location of Pole Creek Prescribed Fire Unit



CONDITIONS and ENVIRONMENT

Objective: To prepare the northern portion of the burn unit boundary to minimize the potential of fire leaving the unit by creating a blackline. Ignition of the wildlife burn was planned for a couple of weeks later, as weather permitted and when funding became available.

Fuels: The unit identified to be burned is composed primarily of lodgepole pine, aspen and scattered sub-alpine fir (fuel model 9/10). The surrounding fuels were primarily grass and sage brush mix (fuel model 2). The blacklining activities were taking place in the grass/sagebrush along the north perimeter of the unit boundary.

Fuel conditions were seasonally dry. All grass fuels were cured, and live fuel moistures were estimated to be between 80-90% in the sage brush and less than 120% in the lodgepole pine. The energy release component was at the 78th percentile. A significant portion of the lodgepole pine had been impacted by Mountain Pine Beetle. The mortality has added both a vertical and horizontal fuel component.

Topography: The entire burn project is located at the southern portion of Stanley Basin and is characterized by small rolling hills adjacent to steep mountainous terrain. The burn project area is immediately north of Highway 75 and south of the Pole Creek Road.

Weather Discussion: The following spot weather was created by National Weather Service using the onsite portable RAWS measurements:
Discussion*: An upper level disturbance in southeastern Idaho will push out of the area tonight. A high pressure ridge building across the west coast behind this system will bring dry conditions with relatively light winds. Look for humidity to drop into the low teens Friday afternoon.*
Sunny skies
High temperature 71 degrees
Minimum relative humidity 13%
20 foot wind speed down slope/down valley 2 to 5 MPH becoming southwest 5 to 10 MPH in the afternoon.

Measured Onsite Weather: Temperatures ranged from 34 degrees (0730) to 68 degrees (1400), relative humidities ranged from 51% (0730) to 15% (1400) and winds from the north/northwest 0-7 mph.

Resources Used: RXB2, RXB2 trainee, 4 burners, three type 6 engines, and one type 3 engine (local fire department) for a total of 19 personnel.

STORY OF EVENTS

0700 - 0920

Resources left their duty stations and reported to the burn unit. Briefing and assignments were given.

0920

Test fire was lit in the middle of the planned blackline and declared successful at 0949. Blackline operations continued with ignition operations proceeding both east and west simultaneously.

1200

Blacklining on the west end completed ignition. It was decided to bring the west end resources to the east end to work on an additional piece of line. West end resources stayed on far west corner for approximately one half hour securing line and refilling engines prior to leaving.

1500

Fire behavior increased in intensity. RXB2 noted decrease in relative humidity and slight increase in winds. Burning operations switched from a west to east movement (with the wind) to an east to west movement (against the wind). This was a tactical change.

Both operations were close to finishing blacklining.

Crewmember noted smoke in far west corner and called RXB2 on radio. RXB2 immediately ceased ignition operations and sent an engine to investigate while all other resources were organized.

1520

RXB2 called dispatch notifying them that blacklining operations have exceeded containment. The request is made for more resources and a wildland fire is declared.

On September 13, 2008 the fire was contained within the project boundary with a local Type 3 IMT. Containment was achieved quickly due to availability of suppression resources, no injuries occurred or damage to private property.

DISCUSSION POINTS

Facilitated Learning Analysis Team and District/Forest Participants

Cultural Perceptions ~ How we as an organization or firefighting culture see the world around us.

1. Preparing for a burn is not actually burning.

There was a perception that preparing the unit for actual ignition, blacklining in this case, did not warrant the same management practices intended for the actual ignition of the wildlife burn. Dedicated resources for patrolling and monitoring did not occur throughout the entirety of the burn. Resources used for patrolling and monitoring continued as ignition resources on a different location within the project area. This resulted in an area of the blackline that was out of sight of ignition resources and resulted in an escape which eventually consumed approximately 550 acres.

This cultural perception was discussed amongst the FLA team and the local unit both at the inbriefing and throughout the field review. There was consensus amongst the team and the local unit that "fire is fire" meaning whether it is blacklining, prescribed burning or a wildland fire. Agreement was reached that once "fire is put on the ground" all rules of fire management apply.

Lessons Learned:

- Assign a Lookout. This resource could also be the weather observer, communications link and patrol.
- Dedicate a patrol module for the duration of the implementation activities.
- Although the blackline was a mile long, there were two miles of fire edge that held heat and needed to be patrolled on the north and south sides of line.

2. Expectations to meet budgets, project accomplishments and limited burn windows.

In regards to budgetary expectations, appropriated fuels dollars had been returned to the Regional Office as part of fire transfer. The effect of this transfer was that blacklining efforts were being carried out with preparedness funds and limited partnership funds (Mule Deer Association). The local unit was trying to complete burn preparations by minimally impacting the funding sources such as overtime with the preparedness funding and saving partnership funds for actual burn implementation.

Lessons Learned:

- It is important to recognize budgetary concerns but they should not compromise operational activities.

The Decision document was signed in 2004, and burning occurred in 2005 and 2006. Burning did not occur in 2007, due to a large wildland fire on the administrative unit, regional planning levels and the lack of burn windows. Fire managers felt a necessity to complete the prescribed burning activities due to previous missed opportunities.

Lessons Learned:

- Successful burn projects should not be driven by annual expectations.

During this FLA, the local unit expressed their frustration with the limited number of burn windows they have available for implementation activities. This area is a high elevation forest type, therefore trying to emulate the natural role of fire in a stand replacing or mixed fire regime is difficult with the limited (number of days) burn windows provided by weather. The effect of these limitations caused a sense of urgency to complete the blacklining activities so the burn could be implemented when burn windows occurred.

Lessons Learned:

- If you have limited number of burn windows do not force the opportunity to burn if conditions are not viable in one season because there will be future burn windows. Patience is a necessary component of a successful prescribed fire program.

3. <u>A possible human factor that can impact decision making.</u>

During the FLA it was discussed that the RXB2 was suffering from a severe cold during the blackline operations. This physical condition could have had an affect on his decision making abilities.

Lessons Learned:

- Every member of a burning program should discuss if they are physically or mentally prepared for the assignment. It is important for someone else to know you are having problems.
- It is important to recognize limitations whether they are your own or others.
- It is important to understand when you are a leader or supervisor the delicate balance between responsibility to self and to others.

The FLA team is concerned that the cultural perceptions above may exist within other fire organizations. It is our hope that the lessons learned here will help others identify cultural perceptions that may occur in their own organizations.

Operational Procedures

1. Identify and modify trigger points for all aspects of fire management

During the field portion of the FLA the RXB2 said he felt a lesson he learned was to establish appropriate trigger points. Potential "triggers" the RXB2 identified were the drop in relative humidity, increase in probability of ignition, a change in tactics that resulted in stretching resources thin and being too comfortable with the operations ("*Are things going too good*?", "*Are we being greedy*?"). Great results were being seen so they thought they could do more.

Lessons Learned:

- Establish relevant trigger points tailored toward the operation at hand.
- When critical elements change, adjust trigger points to reflect current conditions.
- Situational awareness is essential even when operations are going as planned.

2. Complete reliance upon mechanical equipment for success.

The RXB2 trainee stated the voice reporting component on the portable RAWS was not working properly. The day of blacklining operations they had a local technician working on the portable RAWS station to get this function to work properly.

Lessons Learned:

- A combination of traditional weather gathering techniques and RAWS can be utilized before, during and after burning to understand the weather environment.
- Do not solely rely on RAWS technology for weather observations and information.

Engine 1431 had problems during the escape and the local unit felt this allowed the escaped fire to grow uncontrolled. The unit had experienced numerous issues with this particular engine and had been unable to get them resolved. When the escape occurred on the western edge of the unit boundary, Engine 1431 reported to the area to provide a size up. They were close to containing the fire when the pump failed. While engine personnel attempted to get the pump running the fire advanced into the timber.

Lessons Learned:

- Personnel should not rely upon equipment that is known to have mechanical issues.
- It has been identified that many engines produced at certain agency facilities are plagued with problems. This is an agency issue that needs to be resolved at a regional

level. Many Forest employees feel less than confident in using these engines in any operation.

3. Utilizing the National Weather Service as an effective tool.

The RXB2 trainee submitted a spot weather request to the National Weather Service on September 11th (1 day prior to the blackline operation) expecting to obtain a report the following morning. The weather service provided the spot weather forecast approximately 30 minutes after the request was submitted. The local unit had wanted this forecast provided the morning of the 12th with the most current weather from the onsite RAWS station. Despite this weather forecast not being what the local unit had anticipated they did not provide this feedback to the weather service nor did they request an additional forecast on the morning of the 12th. Regardless of the weather forecast being based off of onsite weather from September 11th the forecast was representative of weather conditions experienced while blacklining.

Lessons Learned:

- If weather forecasts are not the products anticipated place another request. Provide feedback to the weather service so they can better meet your expectations.

4. Burning at the high fire intensity end of prescription.

Operations were initiated early in the morning in order to have fire on the ground during conditions predicted to be hot and dry. This was in order to ensure a "good, clean black". The escape occurred during the hottest and driest part of the day (approximately 1530).

Lessons Learned:

- When operations are conducted during critical burn periods evaluate conditions, tactics and strategies to ensure situational awareness is matching reality.

5. Inexperienced eyes are valuable assets.

The local fire departments provided personnel and equipment (Type 3 engine) to support the operations and enhance their knowledge of wildland fire. During the FLA the fire department members discussed their lessons learned which will allow them to be better partners for future fire management.

Lessons Learned:

- Ask questions even if you are the least experienced person or from another organization.
- Take the time to recognize questions and responses (physical and verbal) to gather situational awareness.

Commendable Moments and Outcomes of the Story

The FLA team felt it was important to point out certain elements that were commendable for the local fire organization. We would like to share these with the fire community. They are as follows:

- Quick decisions were made by the RXB2 to recognize the situation and called for additional resources. He repositioned onsite resources to secure the north flank in a timely manner. He ensured the safety of onsite resources and the public (closed Highway 75).

- RXB2 recognized his physical limits (had a severe cold) and requested an ICT3.

- The resulting wildland fire emulates the natural fire regime providing for good ecological benefits.

- The operations provided learning opportunities for local fire departments.

- The Sawtooth Valley has experienced ongoing insect mortality therefore creating a fuel bed that would support a high severity fire. This situation is an opportunity to be utilized as a teaching environment for the public to recognize the need for future prescribed fire opportunities and for the local unit to interact with the public.

The FLA team was compromised of the following personnel:

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Tami Parkinson, Boise National Forest

Persephone “Bob” Thompson, Humboldt-Toiyabe National Forest

Roger Staats, Payette National Forest

Allen Hubbs, Sawtooth National Forest