



Lolo Peak Fire Tree-Strike Fatality

Organizational Learning Report
August 2017



Contents

Lolo Peak Fire Tree-Strike Fatality Organizational Learning Report.....	2
Introduction	2
Condition of Influence: Risk	2
Fighting Fire in a Changed Environment with the Same Old Tools	2
The Mountain Pine Beetle and Dead Wood Fiber	3
There Is No Zero-Risk Option	3
Condition of Influence: Agency Administrator and Agency Representative Roles	4
Clarity of Roles and Responsibilities	4
Lack of Consistency in the Agency Administrator Qualification Process.....	5
Condition of Influence: Fighting Fire in Specially-designated Management Areas.....	5
Confusion over Approval Authority	5
Validated Misconceptions about Available Options.....	6
Condition of influence: Culture.....	6
Hierarchy’s Effect on Communication	7
Existing Cultural Norms Limit Discussions	7
Conclusion.....	9



Lolo Peak Fire Tree-Strike Fatality

Lolo National Forest, Montana – August 2, 2017

Organizational Learning Report

Introduction

Within the Forest Service, we hold safety as the top priority. Fatality incidents are brutal reminders of what is at stake. To ensure we are performing at our best and in the safest way possible, it is necessary that all levels of the organization learn from accidents. In reviewing the Lolo Peak Fire Tree-Strike Fatality, it has been prudent to explore learning opportunities from at least two perspectives. The first perspective consists of what can be learned from the saw operations (see the Field Report). The second perspective offers a critique of the larger system within which firefighters operate. This system encompasses the environmental conditions, social and economic pressures, relationships, policy and guidance, training, and all other things with which firefighters interact in their work environment. This Learning Review Report section is focused on the second perspective: our current system of fighting fire.

When exploring our system, it is important to keep in mind that this single incident is only an example of how we fight fire. Much of what happened on the Lolo Peak Fire was normal everyday work. It can be easy to pinpoint all of the ways that we could have done better on this specific fire, but in reality this exact incident will never happen again. Rather than trying to find ways that would have altered the outcome of this incident, instead we hope to highlight areas in the system of work that are common across many wildfire events.

The intent is to focus on ways that we can improve our approach to the next fire. While the Learning Review team has proposed several recommendations for Forest Service leadership to tackle, this report section is meant to bring readers along and allow them to dive deeper into the conditions that influenced Brent's death—to ask readers how those conditions might influence the work of firefighters across the Agency. Understanding these conditions of influence allows learning and improvements to be made.

The saying “lift where you stand” refers to the individual power that each of us holds. This power comes from our ability to seize opportunities to create change that lie in front of us every day. With the following section, we ask readers to “lift where you stand.” Take the time to reflect on the conditions of influence and how they play into your everyday work environment. How do these conditions of influence affect your decisions, your perceptions, your relationships, and your actions? What learning from the conditions that influenced Brent's death can you take back to your own unit?

Condition of Influence: Risk

The most common question after a fatality event seems to be “why was that person even there in the first place?” The Learning Review team asked that question many times. Why was Brent put in the position to be falling that snag? Hindsight allows those reviewing the incident to ask that question, but those involved rarely get to look through that lens. They make the best decisions possible based on the information they have at the time. Most times, these decisions seem to come down to a balancing act between risk and reward. If that is the case, are we setting up our people with the best tools possible to navigate these decision spaces?

Fighting Fire in a Changed Environment with the Same Old Tools

Over the last several decades our wildland fire work environment has been changing. The length of our fire seasons is increasing; fire behavior is becoming more intense and uncertain; stand conditions



are shifting; and our social and political pressures have changed vastly. These changes are undeniable, which begs the question, have we as an Agency been adapting to these changes? Past incident reviews have indicated that we are using the same tools, the same tactics, and the same seasonal workforce approach to fire suppression and management. By not adapting to these changes, are we exposing our firefighters to increased risk? If so, do we recognize this point nationally?

The Mountain Pine Beetle and Dead Wood Fiber

In the recent past, mountain-pine-beetle outbreaks have hit the Lolo Peak Fire area multiple times. The mountain pine beetle, a bark beetle, is native to pine forests of western North America. The beetle spends its entire life cycle beneath the bark of host trees. Major host trees include lodgepole, ponderosa, western white, sugar, limber, and whitebark pine. Mountain pine beetles can weaken and kill susceptible trees, resulting in standing dead trees, also known as snags. Bark-beetle infestations have caused the number of snags to increase drastically. Mountain pine beetles had hit many trees on Carlton Ridge, including the snag Brent was cutting. Firefighting and saw operations in areas with beetle-killed snags increases the need for sawyers to cut dead wood fibers.

Over the past decade, this scenario has become the norm, not the exception. Our firefighters are being asked to cut trees affected by many different infestations, but our knowledge base and training on how those infestations may affect a tree's integrity is lacking. Yet we still ask our firefighters to cut them down.

1. Have conditions changed on your unit that might make traditional strategies and tactics obsolete? If so, how have you been working to develop new strategies and tactics?
2. Building experience and proficiency with cutting snags and dead wood fibers requires practice. Is there a tipping point at which the exposure and risk outweighs the increase in experience and proficiency?

There Is No Zero-Risk Option

Embracing and recognizing that our firefighters work in an inherently risky environment becomes important when we start contemplating the belief that we can get to a point where all risks are reduced to zero. This goal is simply not feasible. The Lolo National Forest (Lolo NF) alone has experienced three tree-strike fatalities within the last year. This is not because of a lack of due-diligence; rather it stems from the fact that there are no zero-risk options.

A quick comparison of the Lolo Peak and Strawberry fires clearly illustrates this point. The Lolo Peak Fire was being managed with an indirect strategy, the Strawberry Fire with direct. The trees on the Strawberry Fire were fire-weakened; on the Lolo Peak Fire they were not. Brent was cutting his tree on flat ground next to a road with an AED¹ on site; Justin was cutting on steep terrain, far from any road, but with medical equipment and EMTs² nearby. Both resulted in the death of one of our own. Were the actions taken on one fire less risky than on the other?

1. How robust are your discussions around risk, and who should be involved?
2. Do you find that you, or those with whom you are talking, are trying more to sell a point-of-view than to engage in a true discussion on risk?
3. If we recognize that the common denominators of all tree-strike injuries and fatalities can be reduced to gravity and the proximity to the tree, only one of which we are able to control, how will that change your approach to felling operations?

While most firefighters would agree that the goal of a zero-risk environment is admirable, you would be hard pressed to find one that believes it is possible to achieve. Our firefighters already recognize

¹ Automated external defibrillator.

² Emergency medical technician.



the fact that there is no zero-risk option; they come to work every day knowing that it is a part of the system in which they operate, and they act accordingly. While they can change tactics and strategies to minimize their exposure to risk, the best way we can begin to come closer to a zero-risk option is to examine and change the system within which they work.

1. If every time you walked onto the fireline you accepted there was a chance you might not come home, would that affect the way you make decisions?
2. Line Officers, if you accepted that there is a chance that someone may die every time you send them out on the line, would that affect the way you make decisions?
3. How do we have this conversation across all levels of the Agency?

Condition of Influence: Agency Administrator and Agency Representative Roles

Clarity of Roles and Responsibilities

The Agency Administrator (AA) plays a critical role in the successful management of wildland fires. In addition to communicating with Incident Management Teams (IMTs), AAs spend much of their time coordinating with the Washington and Regional offices, private landowners, state Agency Representatives, and other such stakeholders. As the ultimate decision-maker on a fire, it is critical that the AA provide clear expectations, direction, and decisions, all in a timely manner.

1. As an Agency Administrator, are you ensuring that your leader's intent (task, purpose, and end state) for the fire is clearly described in the IMT's Delegations of Authority? Read more on leader's intent on the [Wildland Fire Leadership Development Web site](#).³
2. Have you seen in clear, direct terms that your leader's intent is understood by the IMT, partners, and most importantly, fire personnel?
3. When you develop objectives for an incident, are you also developing intent for those objectives?

The Agency Administrator role can be further complicated when a Forest has many fires burning simultaneously, as the Lolo National Forest did during the 2017 fire season. At the time of the Type 1 IMT's in-briefing on the Lolo Peak Fire, there were eight large fires burning and four other IMTs involved in operations on the Forest. The fires were spread across the Forest's four Districts with some crossing forest boundaries onto other National Forest System lands, as well as Bureau of Land Management and state-protected state and private lands. With so many large fires in progress, the Lolo NF's AAs were stretched thin. At times like this, Agency Administrators have the ability to delegate much of their authority to Agency Representatives (ARs) or other Agency Administrators to ensure the IMT has more immediate access to decision-makers.

1. Do you think "siege"⁴ conditions such as those experienced on the Lolo National Forest will become more prevalent considering recent trends in fire behavior? If so, is your unit prepared to deal with a "siege" of this proportion?
2. Do your Agency Administrators and Agency Representatives understand the complexity and time commitment of their roles on fires?
3. Is there a good plan in place on your unit to ensure AAs and ARs can find time to rest and recuperate, even under "siege" conditions?

Over the course of the Lolo NF's 2017 wildfire "siege," which lasted more than 70 days, the Forest hosted numerous off-forest AAs and ARs. The addition of Agency Administrators and Agency

³ Go to https://www.fireleadership.gov/toolbox/briefing_intent/affect.html.

⁴ The term "siege" emerged from focus group conversations as a term that effectively portrayed the onslaught of large fires the Lolo National Forest experienced during the 2017 fire season.



Representatives increased the complexity of relationships and initially caused confusion as to who was assigned to which fire and their roles and responsibilities. On the Lolo Peak Fire alone, there were two national forests involved; a delegated Agency Administrator; an Acting Agency Administrator who did not have written authority to oversee this fire; and an Agency Representative who was also an AR on another [Type 2] fire on the Forest. DIVS H recalled that there were “a lot of people in pickle suits” at the briefings and it wasn’t always clear who had the decision authority. This confusion highlighted how clarity in who is performing what role is critical for all parties associated with a fire.

1. How well does your unit accomplish this clarity?
2. In such a dynamic atmosphere, how would you ensure that both local Forest and IMT personnel retain clarity around who the decision-maker is?
3. Do delegations of authority for Agency Administrators and Agency Representatives routinely get shared with the appropriate audiences? Who are the appropriate audiences?
4. In your experience, have there been times when adjacent Line Officers, off-Forest AAs, Shadow AAs, or other personnel meant to assist during a fire unintentionally confused decision-maker clarity?

With an increasing number of large fires annually, it is becoming more likely that your home unit will see a fire season much like the Lolo NF did in 2017. This begs the question: Should there be an Agency-wide expectation of how “relief” Agency Administrators and Representatives are incorporated into ongoing incident management? If so, this task may be complicated by the fact that each Region has its own definition for the roles and responsibilities of their AAs and ARs, as well as different qualification processes.

Lack of Consistency in the Agency Administrator Qualification Process

In post-incident interviews, Acting AA expressed a desire for the Forest Service to adopt a more robust qualification process for certifying Agency Administrators. He has found it challenging to build trust when engaged in off-Forest assignments. Acting AA attributes this challenge to a lack of rigor in the current certification process that does not inspire confidence that a certified AA is truly knowledgeable about what is expected from someone filling the AA role. Acting AA had a strong, pre-existing working relationship with the Lolo NF Forest Supervisor but felt he needed to gain trust from other employees on the Lolo NF. Everyday operations are much more fluid; communication occurs much more smoothly; and the whole nature of doing the work is much easier when trust has been established.

1. How comfortable are you with the current Agency Administrator certification process?
2. Do you feel the same way about an AA you don’t know as you do about a Division Supervisor you don’t know? Why or why not?
3. In what ways can you work to increase trust, clarity of roles, and support of off-Forest “relief” Agency Administrators? What roadblocks must be overcome?

Condition of Influence: Fighting Fire in Specially-designated Management Areas

Confusion over Approval Authority

On the Lolo Peak Fire, two specially-designated management areas were involved. These were the Selway-Bitterroot Wilderness, designated by Congress in 1964, and the Carlton Ridge Research Natural Area (RNA), established by the Forest Service in 1987. These two units came into play when the IMT recommended the use of Carlton Ridge Road, the western portion of which bisects the two specially-designated management areas, as a control line. The plan, which entailed falling snags along the road, proposed to prep Carlton Ridge Road for possible burnout operations. The IMT proposed using motorized equipment (chain saws) to fall snags on the northern side of the road within the RNA and motorized equipment (feller-bunchers) on the southern side of the road within the Wilderness. Both



the Bitterroot NF Forest Supervisor and the Lolo NF Agency Representative, as well as the IMT, were unsure of where the decision authority rested to approve these operations. Ultimately, it was determined that in Region 1 the authority to approve motorized equipment in Wilderness rests with the Forest Supervisor, whereas for the RNA, the authority rests with the Regional Forester, following consultation with the Research Station Director. This appeared to be a cumbersome and somewhat confusing web of authorities to track down, which increased both unnecessary communication complexity and the length of the decision-making process.

1. As a Line Officer, do you understand what approval authorities are required for the different specially-designated management areas that lie within your authority?
2. How do you communicate to “relief” Agency Administrators the expectations and approval authorities for specially-designated management areas on your forest?
3. Can these kinds of variable approval authorities be addressed in a pre-season planning?

Validated Misconceptions about Available Options

The way our policy regarding specially-designated management areas is currently set up has an obvious effect on the way we manage fire: the issues associated with obtaining permissions has tainted much of the wildland fire community’s desire to work in them. In post-incident interviews, a member of the IMT recalled hearing a report that heavy equipment had accidentally treated land within the RNA boundary on the Lolo Peak Fire. While this report was later found to be inaccurate, the IMT member described the moments following this report as being very tense. He stated that when the news came over the radio, “Everybody froze.” In discussing this reaction further, Learning Review team members and focus group participants re-iterated the sentiment that working in designated areas can be challenging. While utilizing mechanized equipment in a specially-designated management area is not an impossible task, obtaining the required approvals can be viewed as a monumental one. Due to these challenges it becomes a task that is very often avoided, creating slides for Fire and Forest leadership that remind them there are fewer available tactical options than what truly exists.

1. What pre-season discussions do you have to prepare your Forest for the potential of managing fire in one of your specially-designated management areas?
2. Who should be participating in these conversations?
3. If we can’t provide all available tools to firefighters working in specially-designated management areas, should we even be asking them to engage a fire in those areas?

Condition of influence: Culture

“Culture” is defined as: a set of basic tacit assumptions about how the world is and ought to be that a group of people share and that determines their perceptions, thoughts, feelings, and, to some degree, their overt behavior.⁵

Like any organization, the Forest Service has its own unique culture, and even within the Agency, each community of practice has its own distinctive cultural practices and norms. While culture is something to be proud of, it can at times be a hindrance. Researchers who study culture have found that it is extremely difficult, perhaps even impossible, for members of a given culture to be able to identify issues within their own culture, much less to question those issues. This phenomenon may explain why it can be challenging to get a group of people from the same organization to move beyond routine – e.g., to come up with “out of the box” ideas or to challenge their “go-to” way of doing work.

⁵ Schein, E. (1996). “Three Cultures of Management: The Key to Organizational Learning.” *Sloan Management Review*. Fall.



Hierarchy's Effect on Communication

The Learning Review process for the Lolo Peak Fire fatality drew attention to the powerful role that our organizational view of hierarchy plays into how willing we are to speak up. This is best highlighted by the discussions that centered on how to treat Carlton Ridge Road within the RNA boundary.

During the briefing where the IMT proposed the plan to utilize Carlton Ridge Road to shrink the box, DIVS H and DIVS(T) both stated that they believed the Line Officers misunderstood what the IMT was proposing. From the Division Supervisors' perspectives, it seemed as though the Line Officers thought the proposal included using feller-bunchers in the RNA. Though no discomfort was ever verbalized by the Line Officers, DIVS H got a strong sense that the use of feller-bunchers in the RNA was not an option. When DIVS H then clarified that the proposal was only requesting the use of chain saws in the RNA, he got the sense that the clarification was received with a sigh of relief. The perceived body language and tone of the conversation led DIVS H and DIVS(T) to believe that the use of chain saws was by far the more acceptable plan.

In that same meeting, the Line Officers asked about the probability of success for holding Carlton Ridge Road. DIVS(T) found that to be an awkward question, stating in an interview that he thought to himself that the probability of success would be dependent on how heavy-handed the treatment was. Given enough time and resources he could achieve a very high probability of success. This sentiment was never verbalized.

1. Would you have been able to identify "weak signals" in the moment, indicating that additional communication or clarity was needed?
2. To what extent does time pressure, stress, or fatigue influence your ability to pick up on subtle signals?
3. Is there a way for these signals to be highlighted in the moment and communication challenges to be reduced?
4. Have you ever been reluctant to share information due to the hierarchal structure or assumptions about what leadership expects? Why?

From post-incident interviews it seems apparent that the people who had decision-making authority over the RNA were not nearly as concerned about the use of heavy equipment as the IMT had assumed. Acting AA even lamented in interviews that he often finds subordinates asking for what they think will be approved rather than for what they actually want. He would prefer they not try to "protect him" from making tough decisions. This points to a culture-induced communication breakdown that may inhibit information flow and perspective sharing in these situations.

1. Why do we as an Agency have a tendency to ask for what we think we can get or what is familiar, rather than offering all of the alternatives?
2. What type of work environment (relationships, leadership, etc.) needs to be in place to encourage personnel to share their perspectives and rationale freely during these kinds of exchanges?
3. How can you become more receptive to other concepts and ensure that your subordinates, co-workers, and supervisors understand that you are willing to hear all ideas and alternatives?

Existing Cultural Norms Limit Discussions

The wildland fire environment often adds an additional challenge to being able to question our "go-to" ways: extreme time pressure. Fire managers are often asked to make decisions and take action as quickly as possible in order to protect values at risk. When the human brain is asked to make decisions



quickly, it often relies on intuition and past experience.⁶ If we have a handful of “go-to” ways of doing business that have been successful in the past, those are often the easiest to implement using the intuitive part of our brain. Alternatively, when extreme time pressure does not exist, we have the ability to make a more analytically-based decision: to think through alternative plans of action, do research, seek feedback, and truly analyze options.

In the case of the Lolo Peak Fire, there was no extreme time pressure. This allowed the IMT and Agency Administrators the opportunity to develop and discuss alternatives. When a myriad of alternatives is developed like this, there is a requirement to choose one. Generally, a discussion is required to select the most appropriate alternative, offering an opportunity to have a meaningful conversation that may help in understanding and questioning the assumptions behind the cultural “norms” that we tend to implement. If these norms and “go-to” practices are able to be identified and questioned at a deep and meaningful level, alternative ways of doing work, accomplishing tasks, and meeting objectives can be discovered. It is through these discussions that valuable insights can be made and innovations fostered.

1. How can we address the perceived cultural “need” for Hotshot crews to “stay busy” and feel useful when they have completed an assignment, especially when another assignment has not yet been identified?
2. Have you ever given a Hotshot crew a tree felling assignment that you wouldn’t have given to an Engine crew or Type 2 crew just because they have more experience? If so, does utilizing a more specialized crew actually reduce the exposure to risk?
3. Have you ever asked yourself while on an assignment, why are we doing this? What task were you doing at the time, and did you ever think to verbalize this question?

Perhaps discussions around the proposed alternatives will facilitate a decision to implement a cultural practice, as is what occurred on the Lolo Peak Fire. Maybe the way we have always done things is the best way to proceed. However, every fire is different, and perhaps a new alternative will be selected and tested if we engage in meaningful, open dialogue. During any wildland fire incident, including the Lolo Peak Fire, there are numerous points where common practices can be questioned and innovative alternatives developed. These alternatives could provide a new way forward that could eventually become a new cultural norm.

1. What are the safety, environmental, political, and social conditions that typically drive the strategic and tactical decisions on your unit?
 - a. What strategies and tactics has your unit implemented to address these influences?
 - b. Are there other available options that have been avoided or missed because of a lack of familiarity?
2. In your next sand-table exercise or after-action review (AAR), take the time to examine moments that could have been used as an opportunity to discuss cultural norms and additional alternatives.

It is interesting to note that in post-incident interviews, several people involved stipulated that even if they had gained permission to utilize heavy equipment in the RNA, they would still have had the crew hand-falling snags with chain saws. In fact, this same scenario actually occurred during implementation of the “big box” strategy when the crews and heavy equipment were constructing indirect line in the flats.

1. It has been suggested that rapid/intuitive response is engrained in many fire organizations and is often the default response regardless of the time available for decision-making.⁷ How

⁶ Kahneman, D. (2011). *Thinking, fast and slow*. New York: Farrar, Straus and Giroux.

⁷ Zsombok, C.E and Klein, G. (1997). “Naturalistic Decision Making.” Routledge, NY: *Psychology Press*.



can you utilize “stop, think, talk, and act” to recognize this tendency in yourself and your unit?

Conclusion

Now that you have taken the time to read through the sensemaking, what conditions stood out to you? Are there changes you would like to make at your unit based on what you learned? Maybe you are already doing some of the implied changes. If so, how can you share those innovations with those in your sphere of influence? If we are not willing to look at how we personally can have a positive influence in improving the Agency’s performance as a whole, we will fall far below our potential. If, when we read accident reports we just point out what others should have done differently, there will be a lot of finger pointing but very little actual improvement. If we each take it upon ourselves to lift where we stand while coordinating our efforts with others who are lifting too, we will be in a much better place.

