

Rapid Lesson Sharing

Event Type: Felling Tree Strike

Date: September 12, 2023

Location: Lookout Fire
Willamette National Forest
Oregon

Check Out the Many Valuable Lessons from this Felling Tree Strike Incident

Overview

A Type 2 Initial Attack (IA) cohesion crew was working on the Lookout Fire on the Willamette National Forest the afternoon of September 12. (A cohesion crew is formed by combining several individual fire resources off a single Forest to comprise a 10 to 20-person crew.) They were busy formulating options for cutting off a switchback in the road near the junction of Forest Service roads 705 and 695. Securing this trouble area with indirect handline would add additional containment to the fire and provide the crew with meaningful work after a lull in activity the past few shifts due to late summer rains.

During the planning, several hazard trees were identified along the route that needed to be removed before the crew could safely undertake the assignment. As the felling operations began, a swamper assisting the faller during the saw operation was struck by the hazard tree being felled. Instead of quartering the tree uphill to the left as intended, the tree fell 120 degrees off the intended lay—striking the swamper as they fled the stump.

Accident Narrative

On September 12 on the Lookout Fire's Division Lima, a mission briefing was held at 1510 with Charlie and Bravo squads along Forest Service Road 705. The briefing's purpose was to outline the route where the indirect handline would be constructed and to discuss the need for additional handline to eliminate the dogleg and improve future burnout operations.

During the briefing, several hazard trees were discussed. It was determined that these trees needed to be felled before the crew could proceed with their assignment. Two members of the Type 2 IA cohesion crew, who were certified as FAL3 (Faller 3, Basic Faller), were selected for the felling assignment. The intention was to provide them with training and proficiency opportunities. Therefore, both individuals were at the base of the snag, one as a mentor and the other a student.

The crew member who would be operating the chainsaw had been working for three fire seasons and had shown proficiency at their current certification level. They were on track to become certified as a FAL2 (Faller 2, Intermediate Faller). Their task involved felling a 30-foot-tall snag with obvious signs of rot that was located near where the handline would be constructed.



The swamper's line gear that took the direct hit—on the swamper's back—from the 30-foot tall falling snag. Notice how the line gear's hard plastic yoke was blown apart and the hard plastic water bottle was shattered.



This is the route where the handline was to be constructed to cut off the dogleg near Forest Service Road 705.

In addition, the second FAL3, who had less experience and fewer seasons, was assigned as a swamper for this particular task. As a swamper, their role was to closely observe the sawyer as they made each cut, with the intention of learning the proper techniques for felling a snag.

The swamper was also there to provide assistance if the sawyer required any help. It is worth noting that the faller and their swamper are close friends and typically work together on the same ranger district. Therefore, they were both excited about being part of this felling operation—the swamper to learn and the sawyer to have an opportunity to mentor their friend.

The work was being conducted under the supervision of their squad boss, who was multitasking by overseeing both their team and another nearby saw team. Additionally, the squad boss was also responsible for flagging the route that the handline would follow, while the diggers on the crew prepared to perform their respective roles.

The Tree Felling Process

Approximately 30 minutes after receiving their initial briefing, the sawyer began a traditional face cut by placing their gunning cut first, followed by the sloping cut. Using a 28-inch guide bar, the gunning cut fell a few inches short of completely going through the tree. As a result, the tip of the guide bar remained just inside the last few inches of rotten wood on the tree's offside.

When it came time to execute the sloping cut, an error occurred. The sawyer inadvertently mismatched the two cuts that form the undercut by only using the kerf that was visible to align their cuts. This error left a nearly 3-inch bypass on the tree's offside that was obscured from sight. This bypass would ultimately change the direction of the tree's lay and disrupt the orientation of the back cut.



The hazard tree and its stump.

“I never would have begun the back cut in the tree had I been able to see I had left a bypass cut on the far side.”

– Sawyer

During the cutting process, the back cut was initiated and a single wedge was placed early to prevent the guide bar from being pinched if the kerf closed. However, due to misaligned cuts, the hinge on the tree stump was almost completely severed as the back cut advanced.

As a result, the tree started to sag and pinch the guide bar. Recognizing the potential danger, the sawyer hastily instructed the swamper to quickly leave the cutting area without providing clear direction on which way to go. Seconds later, the sawyer stepped into their alternate escape path as they watched the tree begin to fall.

Due in part to the swamper's limited experience, they panicked and fled the stump without keeping an eye on the direction the tree was falling. Without proper guidance, the swamper instinctively chose to use the primary escape path.

The hazard tree, now visibly weakened, started to teeter on the stump and now hung over the primary escape path. Several crew members who were observing the saw operation began shouting warnings to the swamper, alerting them that the tree was now falling in their direction.

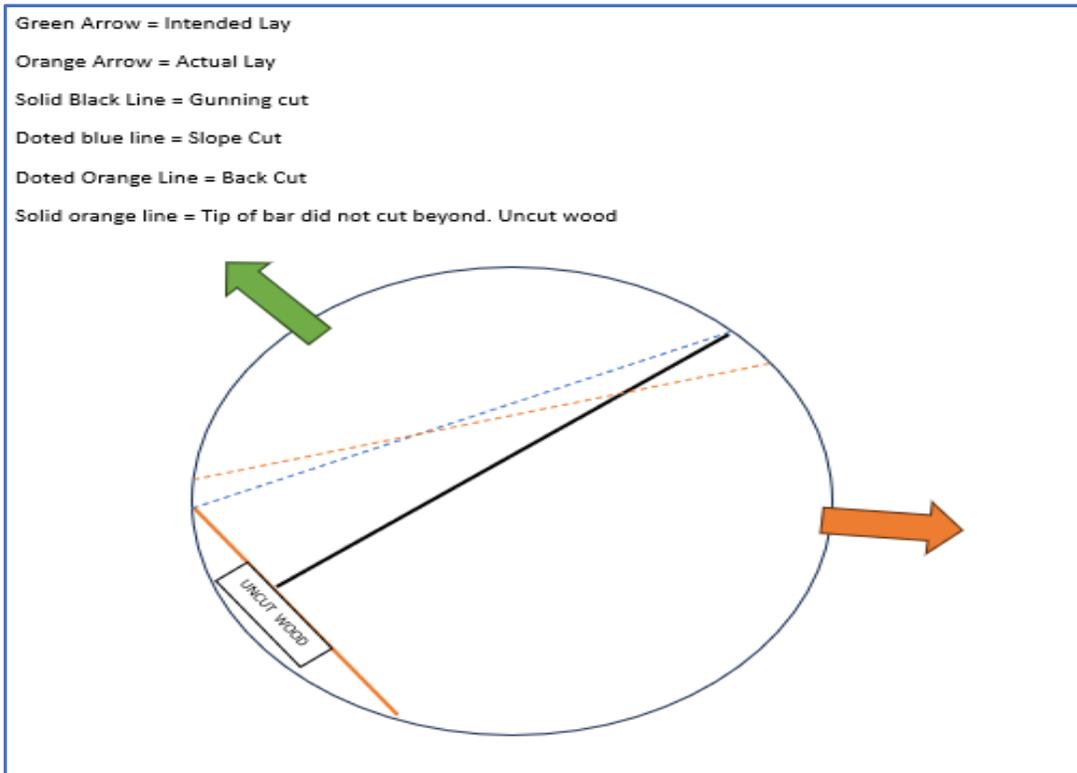


Illustration of the stump created by the crew boss.

The swamper only had a few moments to react as they turned to look before the tree came crashing down. Thankfully, the tree missed the swamper's head by mere inches, but struck them on the back, knocking them to the ground.

Increased Radio Traffic Impacts Medical Response

The initial notification of this incident was transmitted through the private crew channel. It was overheard by Division Lima (DIV) because they were standing near a crew member's radio who was serving as a lookout for the entire Division. This caused a series of communications on the fire's command channel, involving multiple people from DIV, Branch, IC, and Medical Unit, as they tried to determine the exact nature of the incident.

"It's been especially difficult as I felt responsible for injuring my close friend."

– Sawyer

This increased radio traffic limited the ability of the first responders to initiate the Incident Within an Incident (IWI) protocol. This additional radio traffic added to the stress levels and complexities faced by those responding to the incident.

A short time later, the 8-Line Medical Incident Report was read over the command channel, but the channel was never cleared for emergency traffic. This missed step resulted in additional radio traffic, which further added tension to the system and was seen as a hindrance to those providing care and working to transport the injured swamper to a higher level of care.

Excellent Medical Response Despite Communication Challenges

Despite these communication challenges, the medical response to the incident was excellent. This was partly due to the presence of several crew members certified as Emergency Medical Technicians (EMTs). Additionally, the Rapid Extraction Module Support (REMs 7) was also staged nearby and managed to reach the injured patient just 12

minutes after the initial call for assistance was made. Their prompt arrival enhanced the overall medical response to the incident.

Upon reaching the local area hospital, X-rays and additional examinations were conducted, revealing that the tree strike had dislocated the swamper's hip. The medical staff promptly reset the hip and treated other minor injuries. After receiving the appropriate treatment, the swamper was quickly released from the hospital.

Conclusion

In this tree strike incident we were incredibly fortunate to have successfully avoided what could have potentially resulted in a life-threatening or debilitating injury. The combined efforts of those involved, the appropriate medical response, and some good luck all contributed to the outcome.

The circumstances surrounding this incident were undeniably serious. This incident underscores why it is imperative that we continue to prioritize safety, adhere to established protocols, and remain vigilant to minimize the risk of similar incidents in the future.

Lessons

Medical Response

- ❖ We in the wildland fire community are becoming very proficient at providing medical aid when accidents occur. Having EMTs on the crew and medical resources staged throughout the fire area is working well to ensure positive outcomes.
- ❖ When a cohesion crew is formed, it is common for each individual unit to equip their trauma bags and first aid kits with different types of equipment such as skeds, backboards, or soft webbed personnel carriers. However, these differences can lead to knowledge gaps among crew members regarding which equipment should be used and how it should be implemented when developing a plan to transport an injured patient. To address this issue, it is important to develop standard operating procedures and ensure familiarization of shared medical supplies. This will help streamline medical response and the transport process for a patient.
- ❖ During a medical response incident, it is essential to assign a primary medical lead to prevent conflicts regarding the appropriate response. This is particularly important when there are multiple EMTs on a single responding crew, as training and opinions may vary. Designating a primary on-scene medical lead helps ensure a coordinated and efficient approach to providing medical care.
- ❖ During an IWI, it is essential to designate a scribe who will assist in filling out the 8-Line, capturing time stamps, and documenting other pertinent notes related to the incident. The scribe's role is crucial. It helps to ensure that accurate and detailed information is recorded to aid in post-incident recall.

Felling Operations

- ❖ During a felling operation, it is commonly believed that a sawyer can minimize risk by quickly making the necessary cuts to bring down a snag. However, instead of rushing the saw operation, it is better to slow down and methodically execute the cuts. It is advisable to ask for assistance or even consider turning down an assignment if necessary. By taking these precautions, the risk of accidents can be significantly reduced.
- ❖ Designate multiple escape routes. This means identifying several paths that you can quickly and safely retreat to should something go wrong during the felling process. Discuss and plan for scenarios where the tree might fall in the wrong direction. This involves considering various factors such as wind direction, tree lean, and potential obstacles in the surrounding area. By discussing these possibilities beforehand, you can formulate contingency plans and decide on the best course of action should the unintended occur.
- ❖ When attempting to move to a safe location, it is crucial to always keep an eye on the tree. This is important because it allows you to be aware of any overhead hazards and gives you the opportunity to change your course—or move out of the way—if necessary.

- ❖ When supervising a saw operation, it is important to verbally communicate and discuss the size-up process with the saw operator beforehand. This ensures that all aspects of the size-up process are understood and a solid plan can be developed to execute the operation safely and effectively.
- ❖ Wearing firefighter line gear is mandatory in many situations, including during saw operations like brushing. However, it is advised to remove the pack while engaging in felling operations. The pack can add additional weight and restrict movement, which can hinder mobility and potentially lead to fatigue.

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