

Rapid Lesson Sharing

Event Type: Tree Strike

Date: September 15, 2022

Location: Cedar Creek Fire, East Zone
Oregon

The Importance of Saw Team Spacing and Work Area Control

Introduction

“LOOK OUT!” Yelled the lead sawyer to his trainee who immediately looked up just in time to make eye contact before the top of a 10-inch diameter breast height (DBH) tree approximately 15-20 feet tall striking the trainee from behind—contacting the back of the helmet and shoulder on the right side before knocking the firefighter to the ground.

For six days this Type 2 contract crew had been working hard brushing out a forest road near Drop Point 105 on the Cedar Creek Fire. After a long day toiling under intense Central Oregon conditions—including extreme heat, cold, wind, and rain—the crew was just about to finish another shift when they found themselves involved in a code “YELLOW” (*PRIORITY 2 Serious Injury or illness – Evacuation may be DELAYED if necessary*) medical emergency on the fire’s East Zone.

The Story

On September 15, nearly halfway through a 14-day tour, the crew had become accustomed to the task of clearing brush and smaller diameter trees along a contingency line and had been removing ladder fuels to a depth of 100-feet off the road’s center line.

The tactic chosen to accomplish the work was to position saw teams in a single line spaced 15-20 feet apart and perpendicular to the road’s edge, progressing as one unit after an area had been cleared of vegetation. This tactic had been used the previous five days without incident and proven successful in meeting the incident’s objective. Having just finished the last break of the day, it was now around 1730 when the sawyers fired-up their saws to make one last push toward the finish line.

The crew’s lead sawyer decided to capitalize on the work that remained by providing a training opportunity for a new sawyer who had not yet had a chance to operate a chainsaw on a wildland fire incident. The thought was this would give this person a chance to run the chainsaw while also helping to improve overall production rates as the other four weary saw teams neared the end of shift.

The lead sawyer and sawyer trainee—known as Saw Team 5—would take the easiest ground at the last position in line farthest from the road. The lead sawyer noticed the trainee was not feeling well and that handling the saw required them to work slowly and take frequent breaks as the trainee struggled to maintain normal strength. Although physical symptoms of illness were observed, the two-person team took frequent breaks and worked slowly as they decided to push on.



The 10-inch diameter lodgepole pine that struck the nearby sawyer trainee. (The tree bole was bucked after the tree strike incident.)

Just a few minutes had passed since reengaging saw operations after their last break. Now Saw Team 3 and Saw Team 4, working adjacent to one another—one above and one below spaced 15-20 feet apart—found themselves involved in separate felling operations taking place simultaneously.

Although being in slightly different scenarios, both teams were working to remove trees that had not fallen to the intended lay after standard felling cuts had been made. Saw Team 4 had hung-up their tree in another standing tree and were working to bring it down using a “Fence Posting” method. Saw Team 3 had a back-leaning tree partially entangled in a larger green tree that would not commit to their original undercut. They therefore decided to make a series of additional cuts to create a modified “Scissor Cut” that would serve to coax the tree down.

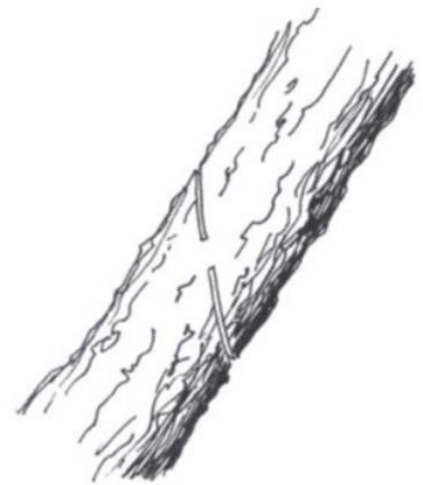
Both methods that these two saw teams were engaged in proved to be successful in bringing their trees to the ground.

Scissor Cut

The lower undercut is on the bottom of the tree while the upper under cut is opposite side which allows the cut section of the tree’s bole to fold after all cuts are made.



Figure: Fence Posting



Bypass Cut or Fence Posts

Kerf cuts that cause the tree to drop straight down. Fence posting quickly drops the leaner straight down. This can lead to a situation where the hung-up tree is nearly vertical with a potential to fall in an almost 360-degree radius and often unpredictable direction.

A hung-up tree is most often a sign of a high complexity cutting operation. The complexity can either increase or decrease with each action taken. Identify which circumstances are the most likely to reduce complexity and the associated risk when selecting which mitigations to implement.

The lead sawyer and sawyer trainee of Saw Team 5 had stopped work to rest and began watching Saw Team 4, which was closest to them, as they slowly brought their tree down using the fence posting method. The repeat cuts and subsequent action of the tree falling now kept the bulk of Saw Team 5’s attention.

That’s when the second tree that Saw Team 3 had been working on became untangled after the last series of cuts had been made, which caused the tree to fall in the direction of the sawyer trainee on Saw Team 5. Even though both saw teams were aware of the other’s location, it was thought that their spacing was adequate—as long as everyone was looking out for one another.

“When there is a job to do, the rest of the world kind of fades away.”

Saw Team 3 Sawyer

As the sawyer of Saw Team 3 observed the tree he had just cut falling directly toward the sawyer trainee on Saw Team 5, he froze and could not yell, say, or do anything. Luckily, the tree brushed against another tree before striking the sawyer trainee in the helmet, shoulder, and back—which helped to lessen the effects of what would have been a direct hit.

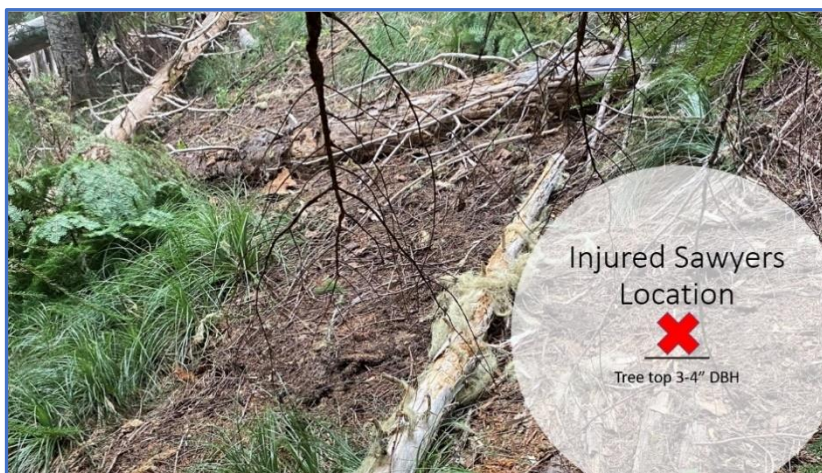
With the sawyer trainee now knocked to the ground and the sawyer responsible feeling terrible and incredibly concerned for his crewmember's wellbeing, the sawyer on Saw Team 3 began to run to the injured firefighter's aid. It was then that the second tree that Saw Team 4 had been working to chunk down became dislodged, falling at an angle across the exact path where the sawyer from Saw Team 3 was positioned as he ran toward the injured sawyer trainee's aid.

The top of the tree struck the ground a mere 12 inches in front of him and broke apart. Although somewhat frightened by the near miss that had just taken place, their focus remained on the sawyer trainee who had been struck by the tree they had just cut down a moment earlier.

Incident Within an Incident (IWI) Protocol

Having narrowly averted a second tree strike with what could have easily resulted in two firefighters being seriously injured and necessitated a need to triage medical emergencies unfolding at the same time, the attention of the group was quickly diverted back to the injured sawyer trainee.

The sawyer trainee was one of the crew's eldest members, known for being a bit of a "tough guy" and highly respected as a retired Army Ranger. After the two saw teams had a chance to perform a quick assessment of this situation—which included the injured sawyer trainee standing up and claiming: *"I'm fine"*—the group gathered their wits about themselves and decided they would simply *"shake it off"* and go back to work.



The sawyer from Saw Team 3 turned, fired-up their saw and began the bucking cuts that would allow the tree involved in the incident to be removed and cleared away with the rest of the brush. It was shortly after saw operations were restarted that the crew's lead sawyer, still caring for the injured sawyer trainee, noticed the trainee's condition beginning to deteriorate.

That's when the lead sawyer halted all work and the IWI protocol was initiated.

Medical Response

A Rapid Extraction Module Support (REMS) unit was first to respond and provide medical aid to the injured sawyer trainee. Initial assessments quickly found the patient experiencing discomfort and complaining of pain in their neck, back, and shoulder.

Witnesses and medical personnel observed the injured patient experiencing periodic moments of unconsciousness and vomiting. The patient status was quickly upgraded to a YELLOW priority and ground transportation was initiated with a plan to rendezvous with air transport resources for a patient handoff. Air transportation was later canceled as the patient's status stabilized and it was determined the patient could be safely transported by ambulance to the local area hospital where he was treated for his injuries and released.

Lessons Learned

Work Area Control

When working alongside other saw teams in close proximity day-after-day it's easy to become complacent as standard spacing guidelines are routinely broken when crewmembers enter and exit the immediate cutting area to haul away brush or while performing other line construction activities.

As safety distances shrink, so do the tolerances normally provided during felling operations—even when crewmembers are within striking distance during “small” diameter tree felling.

- ❖ Prior to saw operations, sawyer/swamper teams will establish responsibilities and verbal and nonverbal communications.
- ❖ Saw teams should avoid working directly above or below one another. Teams must coordinate with others to minimize exposure and ensure adequate spacing.
- ❖ Warn anyone who is working in or below an active cutting area. Allow workers time to move to a safe location. Verify their safety visually, verbally, and/or with hand signals.
- ❖ Check to be sure the cutting area is clear of people. If a swamper, crew member, or felling boss is present, they must remain no less than 2½ tree lengths away from the tree to be felled.



Many important lessons have emerged from this tree strike incident when this 10-inch diameter lodgepole pine struck the nearby sawyer trainee.

Well-Being and Human Factors

A high percentage of occupational accidents can be attributed to human factors and are often what lead individuals to act or behave in ways counter to standard training practices. This causes someone recounting the details of an unintended outcome in hindsight to ask the question: *“How could this have happened?”*.

When accidents occur, they are caused by both unsafe acts and unsafe conditions. The physical and mental conditions of sawyers are just as important as the protective clothing they wear and the required safety features of the gear they use.

Over a short period of time, operating a chainsaw can become physically challenging. As fatigue sets in, our decision-making ability decreases, and the risk of accident or injury greatly increases. Personal fitness, strength, and mental health all have a potential to affect the various aspects of saw operations.

- ❖ Always perform a hazard analysis when entering new work areas and mitigate the hazards or establish a no-work zone.
- ❖ Sawyers are responsible for establishing cutting area and work area control.
- ❖ Sawyers may find themselves in a situation where they need to provide direction to a supervisor or senior member of a crew—they need to feel confident and comfortable doing so.
- ❖ Sawyers need to constantly monitor both their mental and physical health as well as that of those working around them to prevent a potential accident from occurring or finding themselves in a compromised position.

- ❖ Be intentional when seeking training opportunities for individuals and base decisions on solid risk management practices.
- ❖ Sawyers and supervisors understand the importance of operating in a learning culture where accidents are reported and analyzed so that everyone may benefit from lessons learned.

This RLS was submitted by:

**Aaron Pedersen
Fire Operations Specialist,
Pacific Northwest Region
Saw Program Manager**

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