Rapid Lesson Sharing

Event Type: Felling Kickback Chainsaw Cut

Date: March 5, 2026

Location: National Chainsaw Workshop, California

The Story and Lessons from this Kickback Chainsaw Laceration Incident

"I began my boring cut and the saw kicked back hard. The bar swung back and slammed into my left shoulder . . ."

The Injured C-Faller

Background

On a clear spring morning in the mountains of northern California, a group of C-Evaluators and U.S. Forest Service Regional Saw Program Managers were gathered for the final day of a national saw workshop.

The previous two days had been well spent with the group discussing and demonstrating advanced tree-felling methodologies with the intent of incorporating them into a national saw curriculum. While the development of this curriculum was the focus of the workshop, one of the attendees would also take the opportunity to recertify as a C-Faller/Evaluator (advanced chainsaw certification for highly complex felling and bucking operations).

On the morning of the accident, the first task planned for the day was to complete the recertification, which would entail two qualified evaluators observing and formally assessing a felling operation performed by the recertifying faller. The tree he would cut was a 55-inch DBH "pistol-butted" Douglas-fir on a steep slope. [Pistol-butt: a tree whose trunk curves sharply at the base before growing straight up.] The tree had caught the attention of the group on previous days. As one of the evaluators recalls, *"Due to the shape of the tree and the slope, it was one of the most complex trees in the stand."*

[See Independent Action: Cutting Pistol-Butted Trees on Steep Slopes blog post written by Jason Murieen, U.S. Forest Service Region 5 Saw Program Coordinator, who was also the coordinator of the workshop in which this felling injury occurred. https://wildfirelessons.wpcomstaging.com/2026/07/14/cutting-pistol-butt-trees-on-steep-slopes/]

The Felling Operation

After sizing up the tree, the faller verbalized the elements of the OHLEC process (a standardized five-step safety and risk assessment framework for tree felling) to the two evaluators. His plan was to take the tree straight downslope (aligned with the primary head lean) into an open lay. He would utilize a double Humboldt face cut using a Stihl 500i chainsaw equipped with a 28-inch bar. The bole of the tree had a distinctly oval shape with the long axis oriented parallel to the slope.

The faller's cutting plan was to line up his gunning cuts perpendicular to the slope and across the short axis of the bole. To complete his gunning and sloping cuts, the faller would stand just downslope of the tree to set up his back cut to avoid a large root on the uphill side (see photo on next page).

The faller fired up his saw and completed his initial cuts without issue. After knocking out the "pie"-shaped section and cleaning up the face cut, he elected to perform a boring cut straight through the hinge and into the center of the tree. His

The faller in this incident putting in the face cut.

intent was to remove wood from the middle of the tree to ensure that he had adequate bar length to complete his planned double back cut from the uphill side.

The following sequence of events can also be seen in the video at this link: https://youtube.com/shorts/KXAVHaS_ct4?feature=share

First, the faller verbalizes his intent to "bore the guts" to the evaluators. He then steps downslope in front of the tree, lifts the powerhead and throttles up the saw. As he begins his boring cut, his right hand holds the throttle handle with a palm-down (pronated) grip. His left hand is located near the lower corner of the handlebar with a slightly supinated grip. The kickback occurs almost immediately.

This photo shows the final stump and the tree's large uphill side root. (The tree was felled after the injured faller had been transported away.)

In a post-injury interview, the faller recalled the moment of the kickback:

"I began boring into the tree and the saw kicked back hard. The bar swung back and slammed into my left shoulder. I brought the bar down and away from my arm. Out of habit, I throttled the saw to clean the bar. My whole shoulder was slumped down. The cut looked deep. But it wasn't bleeding badly. I pushed my shoulder back up and put pressure on it to keep the wound closed."

IWI Response, Notifications, and Transport

The Course Coordinator was pre-identified as the Incident Within an Incident (IWI) Incident Commander (IC) in the project medical plan—which had been discussed daily during the morning briefing. He had been observing this felling operation.

After witnessing the kickback, he immediately radioed Forest Dispatch with emergency traffic. He initially declared a "Red" (URGENT: life-threatening injury) IWI due to the mechanism of injury.

The faller remained calm as he shut off the saw and set it down to apply pressure to the wound. He advised the evaluators that the cut was deep but not bleeding badly. They began walking up the hill to their vehicles, where they were met by another member of the group who had bleeding control supplies ready.

The wound was dressed and bandaged quickly; bleeding remained minimal. Vital signs and level of consciousness were assessed as normal with no signs of shock. The patient remained calm and reported pain at a "1 out of 10."

After hearing the call of emergency traffic over the radio, staff at the local Dispatch Center gathered the details of the incident and ordered a medical response, including ground and air ambulance. The IWI IC was calm and spoke clearly as he relayed information from the 8-Line/Medical Incident Report.

Per local protocols, Dispatch requested that the IWI traffic be rolled over to a county frequency used by the local volunteer fire department and ambulance company to ensure that all the responders were on the same channel. However, the IWI IC was unable to locate that frequency on the handheld radio he had borrowed from another employee to use during the workshop. As a workaround, another local cooperator frequency was identified and used for the duration of the incident.

30-Minute Drive to Meet Ground Ambulance

Back at the accident site, the group began the 30-minute drive down the mountain to meet the ground ambulance at the rendezvous point that had been pre-identified in the project medical plan. The patient remained calm, alert and stable throughout the drive. He called his home unit supervisor to advise him of what had occurred.

When they arrived at the rendezvous point, the paramedic staffing the ambulance was alone and stated up front that she would not be able to transport the patient. The IWI IC, in consultation with the patient, made the decision to transport the patient to the hospital in a U.S. Forest Service vehicle and to cancel the incoming air ambulance.

The patient relates:

"At this point, I was feeling fine, no signs of shock and not in a lot of pain. I didn't feel like I needed a helicopter ride, especially considering the risk to the aviators. Because the ground ambulance couldn't transport me, I asked to be driven in an agency vehicle.

Honestly, I was thinking mostly about the logistics of getting my rental vehicle returned and making my five a.m. flight home the next morning. I didn't realize how deep the cut was. I thought I'd just need some stitches. I grabbed my wallet and a few other items that were in my rental vehicle and we headed to the hospital."

Decision to Cancel Air Ambulance Causes Concern

At the Dispatch Center, the decision to cancel the air ambulance caused concern among staff, the Center Manager, and the Forest Duty Officer. The order had been placed immediately, based on the local EMS system protocol: *"Aircraft are to be ordered for any traumatic injuries that occur in this area."*

By the time this cancellation occurred, the aircraft was already nearing the area and the rationale for the decision to opt for ground transportation was not directly communicated. In hindsight, the IWI IC later related that he should have painted a clearer picture of the patient's stable condition and possibly downgraded the incident to a Yellow (PRIORITY: Serious Injury) severity.

At the Hospital

A Hospital Liaison had been ordered by Dispatch and met the patient, the two evaluators, and the coordinator at the local hospital, a small-Level IV Trauma Center.

Photo of the sawyer's left shoulder laceration.

When the dressings were removed, the laceration appeared to be approximately five inches in length and was several inches deep. [Be advised that the photo of this laceration, above, is an extremely graphic image.]

After a more detailed examination, the attending physician determined a need for surgery. The Hospital Liaison cancelled the patient's flight home that was scheduled for the next morning and helped make travel arrangements for the patient's wife to join him.

The on-duty surgeon initially expressed hesitation around performing the operation. Given the non-life-threatening nature of the injury, the surgery would be delayed by several hours based on the last time the patient had eaten a meal.

During this time, the surgeon contacted peers at other medical facilities, seeking consultation with other orthopedic specialists. He discussed with the patient the possibility of signing a hospital "Against Medical Advice" (AMA) form (a legal document used when a patient leaves the hospital prior to being safely discharged) and self-transporting to one of several higher-level trauma centers within a few hours' drive.

Ultimately, the surgeon determined that he was comfortable performing the operation. In an alarming breach of common sense, a member of the hospital staff who had just learned this, stated directly to the patient: "Wow, that's very brave of him"—referring to the surgeon.

Thankfully, the surgery was successful. It was confirmed that despite the depth of the wound, there was no damage to bone, connective tissue, or the axillary nerve that provides motor function to the shoulder. The patient spent approximately 60 hours in the hospital prior to being discharged. He has since recovered and has returned to full duty on his home unit.

Lessons

Chainsaw Operations Learning Themes

"Heroes can fall."

A key takeaway from one of the evaluators of this tree felling chainsaw cut injury incident.

The injured faller was seen by his peers as one of the most skilled practitioners at the workshop. He has 24 years of chainsaw operating experience, both as a professional faller in the logging industry and during 16 years as a hotshot crewmember. He, himself, is a C-Evaluator and Regional Saw Instructor.

This incident is an important reminder that even the highest level of expertise does not create immunity from accidents or eliminate the possibility of error.

"Everything you do with a chainsaw is a calculated risk."

The Injured C-Faller

During post-accident discussions, the evaluators emphasized that a recertification for a C-Evaluator is intended to be a demonstration of the highest level of proficiency. This requires a level of risk that is inherent to high-complexity felling operations.

In revisiting the original OHLEC process (a Forest Service 5-step safety and size-up procedure) and cutting plan, it was noted that due to the size of the tree and steepness of the slope, there was no alternative to standing downslope of the tree and cutting with the powerhead *above shoulder height*. While this practice is discouraged for beginning and intermediate fallers, it is important to understand that C-fallers and logging industry professionals often practice and utilize this skill out of necessity.

Inertia Brake (In)Effectiveness

It is notable that despite the force of the kickback, the chainsaw's inertia brake system did not activate. This system is designed to engage when a kickback occurs to stop the spinning chain in a fraction of a second.

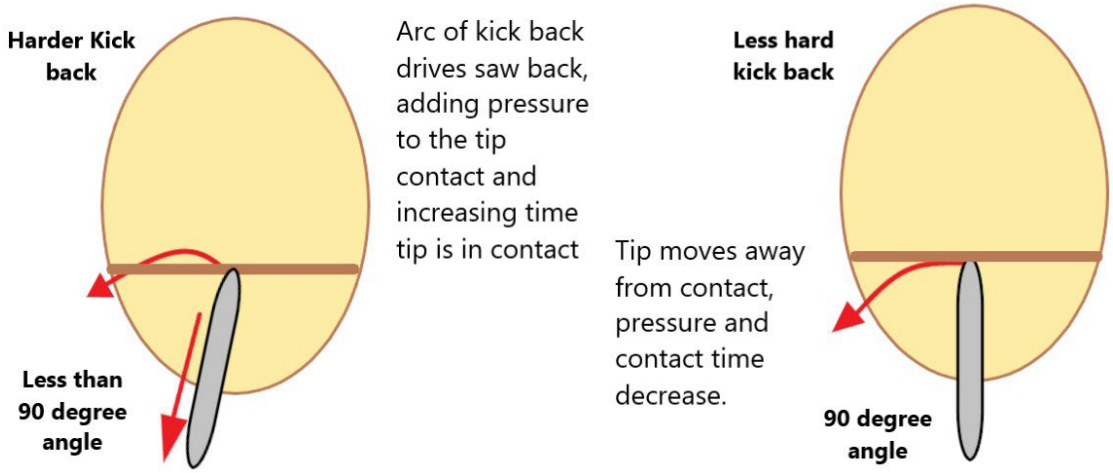
One of the evaluators remarked that *"inertia brakes are 50/50 at best."* Others who attended the workshop stated that they are aware of kickback injury events in which the brake did not engage. Saw operators must remain keenly aware of the kickback zone (the top quadrant of the nose of the guide bar); the precision that is necessary to safely perform a boring cut; and the fact that **chain brakes cannot be relied upon to prevent injury.**

A similar injury occurred in 2025 where the inertia brake did not activate, involving the same model of saw: https://lessonslearned-prod-media-bucket.s3.us-gov-west-1.amazonaws.com/s3fs-public/2025-11/Oregon%20Project%20Work%20Chainsaw%20Cut%20RLS.pdf

Tips on the Boring Cut Technique

The injured faller provided the following reflections and diagram (below) regarding the application of the boring cut and the force of the kickback. His analysis provides an opportunity for saw operators to understand the technical factors that influenced this event.

"From a chainsaw operating standpoint, there were three things I did that contributed to the kickback. The diagram illustrates what happens when the angle between the cut surface and the bar is less than 90 degrees. Ideally, you want to stand directly in front of the tree to achieve a 90-degree angle. In this case, the slope was falling off to the right. Because of that, I cheated left and reached toward the center. That put my bar angle at less than 90-degrees and contributed to a harder kickback"



"The second thing I did was start my bore at the intersection of the sloping cut and the gunning cut. Normally, I would come down a few inches onto the smooth, flat face on the sloping cut to make my bore. Sticking the tip in the intersection adds more areas for the spinning tip to inadvertently catch—especially in poor footing where you're slipping and twisting the saw. Every other tree I bored during the workshop was just down from the intersection.

The third thing is I run an aggressively sharpened saw, meaning my rakers are kept low. Low rakers add to kickback potential."

Injury Response Learning Themes

EMS System Limitations

Rural EMS systems often have significant limitations. When projects in rural areas include a high degree of injury risk, managers should consider having higher-level EMS resources (EMT/Paramedic) on site.

The standard protocol to launch aircraft for all traumatic injuries in this area can be seen as an acknowledgement by the local EMS authority of the inherent limitations of the EMS system. These limitations include reliance on an ambulance company staffed by volunteers, extended ground transport times, and the limited capabilities of the local hospital.

In this area where the workshop occurred, air ambulances launch from one of several larger urban centers in the region. These aircraft have onboard Advanced Life Support capability and typically recover to one of the regional Level 2 Trauma Centers, which are significantly better equipped to treat traumatic injuries.

IWI Planning

Pre-identified and well-communicated IWI and medevac plans are crucial. The IWI IC and others involved executed their plan effectively with support from the Dispatch Center. They acted decisively and adapted their plan in response to the radio frequency issue and when the ambulance was unable to transport.

As the IWI IC explained, *"Just because you have an ambulance waiting for you, doesn't mean it's really available to you."* Especially in rural areas, it may be important to confirm the availability and capabilities of EMS resources prior to beginning work.

During an IWI, consider erring on the side of caution when making medical transport decisions. Keep in mind the "What-Ifs" should the patient's condition worsen. This is especially true if on-scene medical care is limited to the Basic First Aid level. A significant mechanism of injury with potential to threaten life or limb can warrant expedited transport *and* a higher level of care than the nearest hospital can provide.

Avoiding dual roles is a best practice during IWIs. Separating the roles of IC, Patient Care, Scribe/Note-Taker, Driver, etc. allows the IC to focus on communication and the big picture and others to focus on their individual responsibilities.

Closing Thoughts

Chainsaw Use is Dangerous

After this accident, one of the involved evaluators relayed the fact that with a rate nearing 100 deaths per 100,000 workers, the most dangerous occupation in the United States is logging.

Chainsaw use—even for very experienced sawyers—carries inherent risks. Time spent running a chainsaw equates to exposure to these risks. Over any length of time, sawyers are moving numerically closer to the potential for injury.

The U.S. Forest Service does not employ loggers and does not fall anywhere near the volume of trees compared to the logging industry. Therefore, this agency finds itself less practiced at falling trees and, at times, falling trees that are more hazardous than those that are typically encountered in the logging industry.

As a sawyer, it is imperative that every cutting operation (limbing, bucking, brushing, and falling) is thought through and the risks of injury are considered.

This RLS was submitted by:
Neil Dresser, Denice Edgar, and John Chester,
with special thanks to Jason Murieen