



Region 4 Saw Accident / Near Miss Review 2020-2023

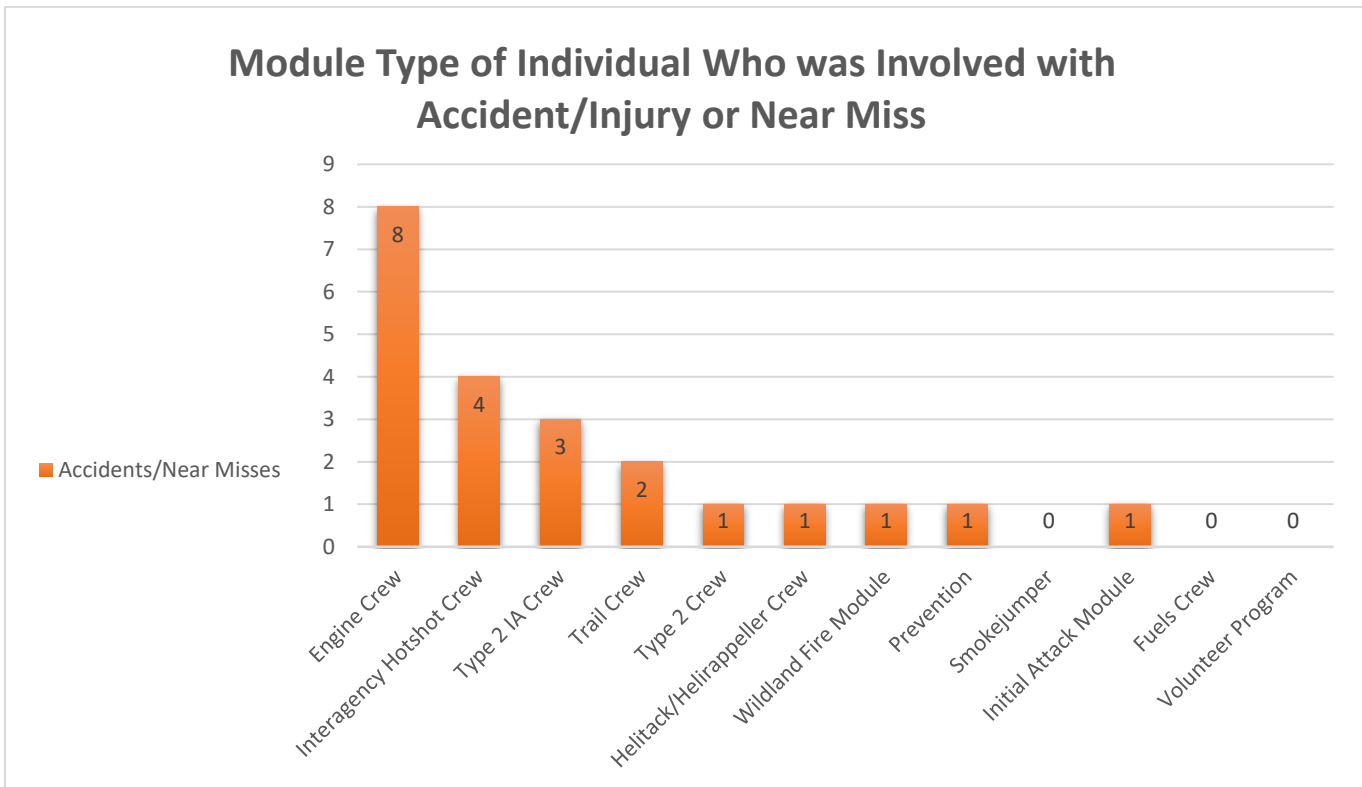


Figure 1 – This “Word Cloud” was generated using the descriptors from the 25 injuries and near misses included in this review.

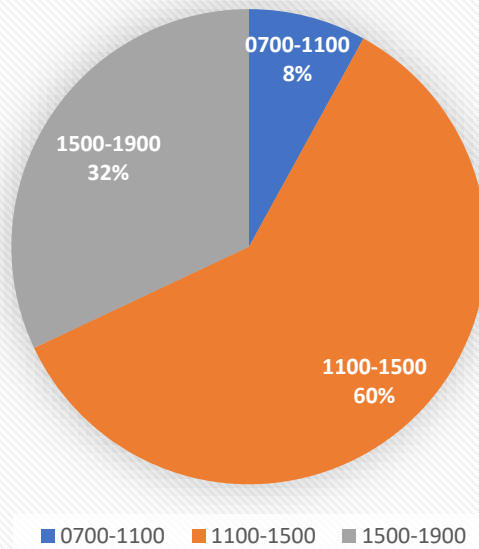
This review was modeled after the Lessons Learned Center [2004-2019 Tree Felling Accident Analysis](#). The intent of this review is to analyze data of accidents and near misses within Region 4 from 2020-2023 that were submitted using the [R4 Saw Accident and Near Miss Reporting Form](#). Submitting a saw related accident or near miss via this form is voluntary. The willingness of sawyers to share their story when things don't go as planned, will continue to help us build a safer and more efficient saw program. Data that has been collected with this form is used to identify potential trends, evaluate the effectiveness of sawyer training, saw risk assessments, and other elements of USFS work associated with saw use. *(Note: It is understood that this report does not capture all accidents and near misses as there may have been situations where this was not used or those involved were unaware of this reporting option.)*

From 2020-2023, there were 25 reported incidents. 15 of the 25 reported incidents resulted in injury; the other 10 incidents were a "near miss". The breakdown of incidents by year are as follows:

<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
10 incidents	1 incident	9 incidents	5 incidents

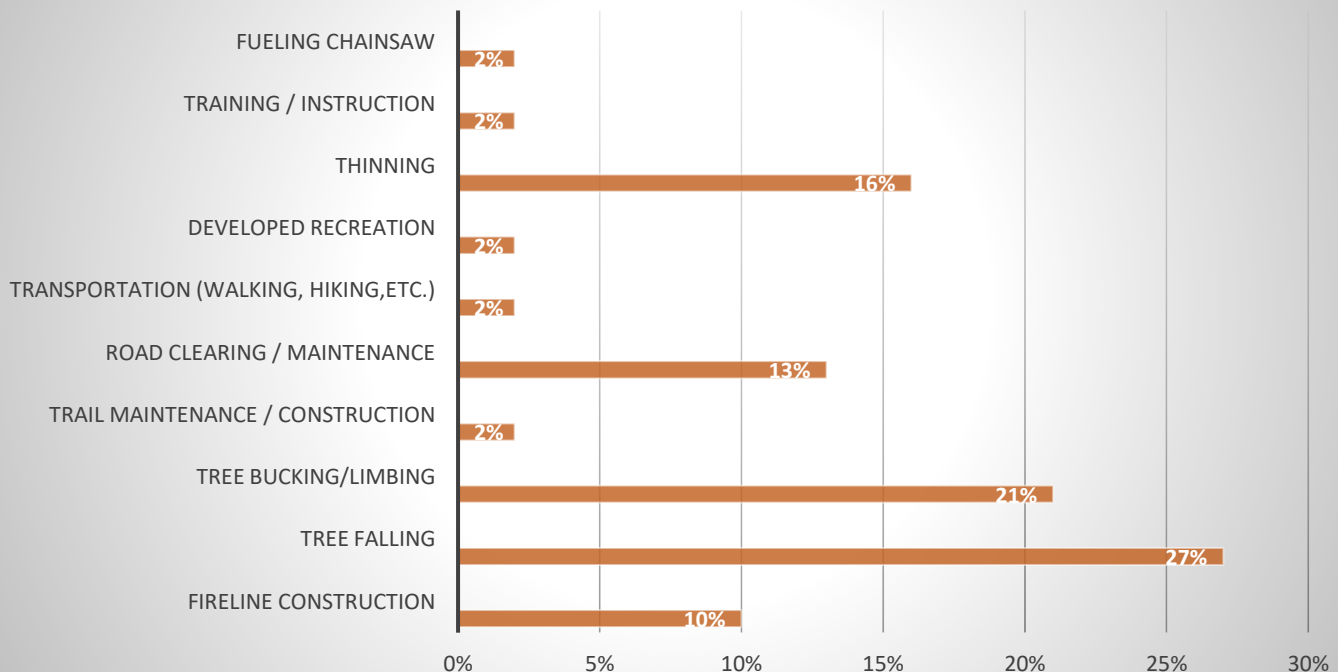


Approximate Time of Day Accident/Injury or Near Miss Occurred



Chainsaw use takes place daily during field season from varying user groups including fire, recreation, volunteer groups, and cooperator programs among many others. There are many tasks and assignments that sawyers perform throughout the field season. Here is a breakdown of the work being performed when an incident occurs (*Note: there could be multiple reports per incident, for example, tree felling while constructing fireline*):

Nature of Work When Incident Occurred



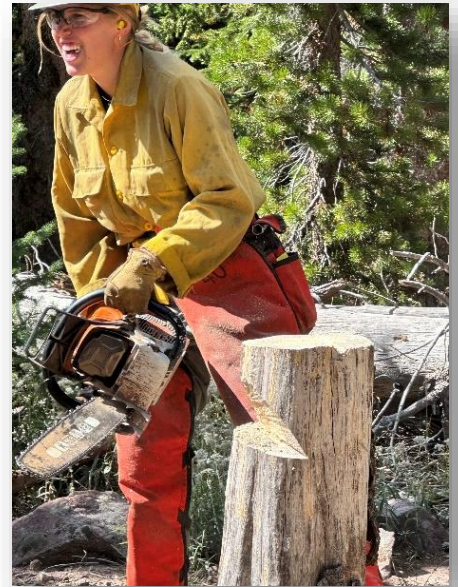
64% of incidents directly involved a sawyer at the 'A level' or a sawyer being evaluated to become an 'A sawyer.'

In section 2358.06e of the National Saw Policy, it states that an A Sawyer *“May fall, buck, limb, and brush in the least complex situations under the immediate supervision of a B or C level sawyer.....”*

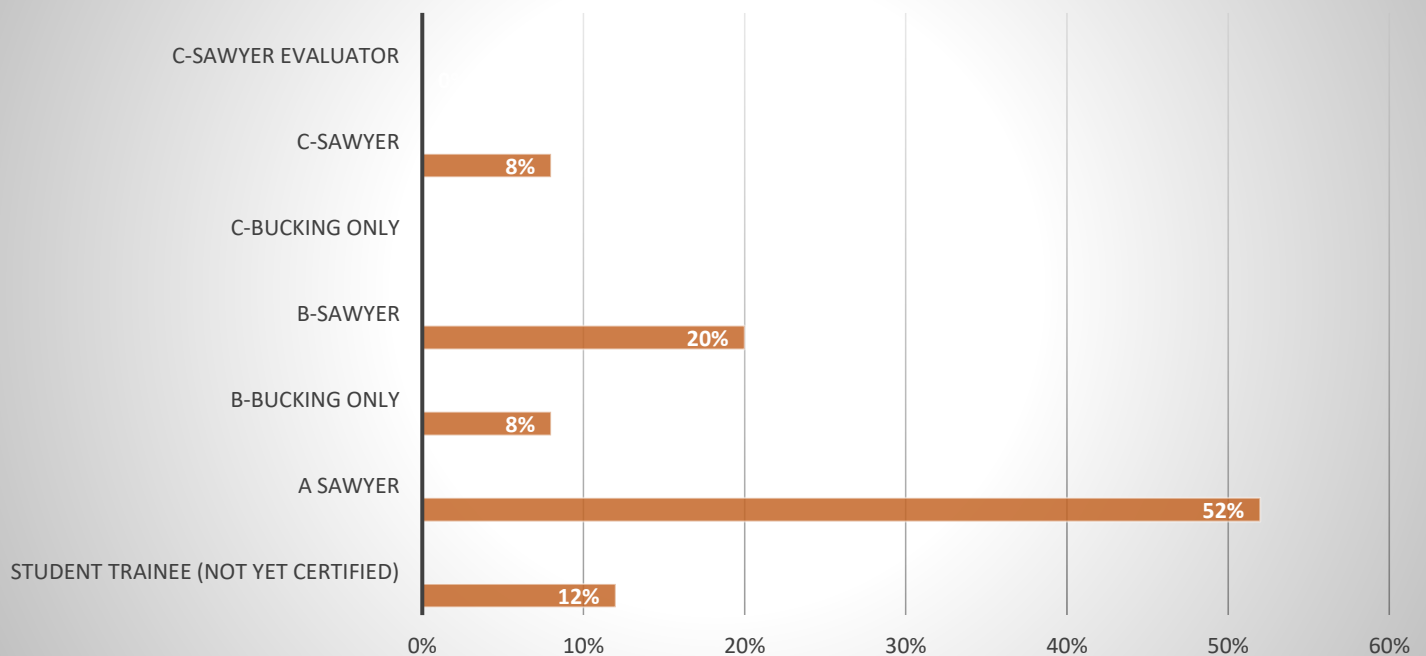
In section 2358.05-Definitions: **“Immediate Supervision.** *On-site supervision with a clear view and control of the sawing operation that allows the supervisor to warn, advise, and/or assist the sawyers being supervised, when needed.”*

- **How many A sawyers do you feel a B sawyer should supervise at one time? What factors do you feel could influence this decision?**

Here is a lesson learned from one participant: *“The sawyer at the time of the incident was an 'A' sawyer, but was working with a fully qualified 'B.' The B certified "swamper" was in the throes of pile building while the accident occurred. This was addressed as well; that though we strive for production and efficiency, we will sacrifice some of the production to better train and supervise our subordinates.”*



Qualification Level of Sawyer Involved in Incident



“13 percent of the injuries reported involved the swamper being cut by the chainsaw.”

There can be many external and internal pressures while operating chainsaws on fire assignments. Oftentimes there is pressure for a saw team to set a high pace for the rest of the crew to achieve maximum fireline productivity.

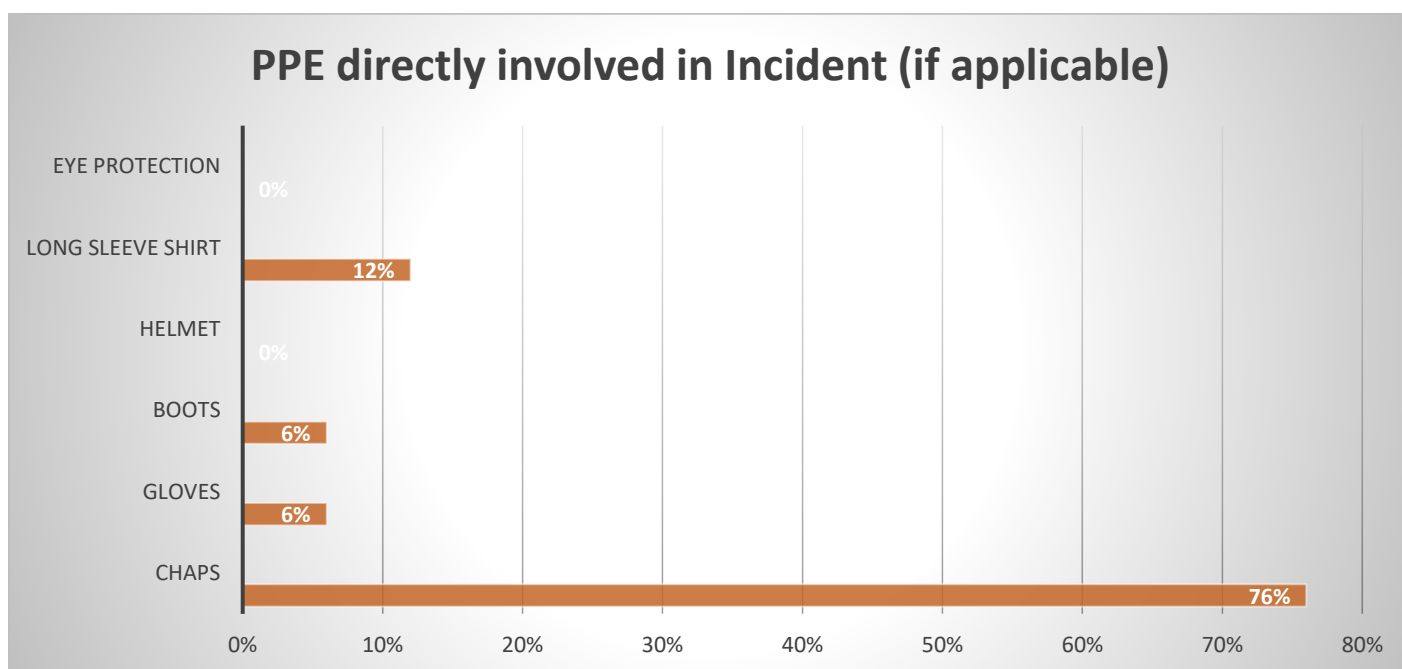
- ***Is there a general rule for how close a swamper should work next to the sawyer?***
- ***What factors could influence the spacing between a sawyer and swamper?***
 - ***What does your module do to ensure good communication between the sawyer and swamper?***

Here is a Rapid Lesson Sharing (RLS) from the Moose Fire on Salmon Challis NF from 2022 that involved a swamper being struck in the leg by a chainsaw due to kickback.

Moose Fire Chainsaw Cut 2022



Lesson Learned from the Moose Fire RLS: “Chaps need to be cinched down tight and swamper needs to be aware of sawyer's safety bubble. Wearing longer chaps could've prevented such a large cut.”



Chaps were involved in 76% of incidents directly involving PPE.

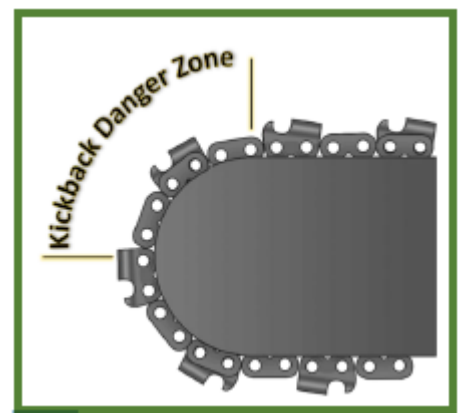
Specific Recommendation from the [2020 Utah Chainsaw Kick-Back Incident RLS](#) - "Chainsaw chaps do work when properly worn and fitted. Tighten chap leg straps so chaps are snug around legs. If chaps are worn loosely, they will not be able to do their job. If there is a chain strike, the chain will shift the chaps to the side, expose the legs, and result in a cut."



Kickback of the saw was a direct cause of 6 injuries. 3 of these injuries occurred when initiating a boring backcut during a felling operation.

In *Developing Thinking Sawyers*, kickback is described as the following: "**Kickback** can occur during saw operations when the upper portion of the bar nose contacts a solid object or becomes pinched. This can force the bar violently up and back toward you in an uncontrolled arc.

Common kickback injuries involve saw cuts to the face, neck, and shoulder. Remain vigilant for this potential danger and plan all cuts to avoid it."



- **At what certification level do you feel boring techniques should be taught to new sawyers? Why?**

Idaho Chainsaw Boring Backcut Kick-Back Accident 2020

This is a Rapid Lesson Sharing submitted by the Boise NF regarding a kickback incident during a felling operation of a 30" 'stovepipe'.



Here is another RLS report from Region 4 involving a boot strike:

Utah Bucking and Limbing Boot Strike 2020

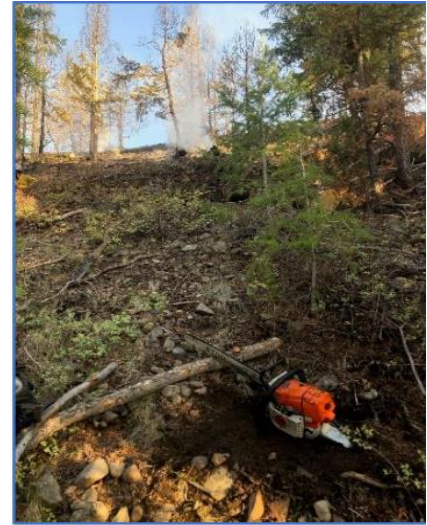
"During the cutting sequence, the chainsaw came into contact with the sawyer's boot while running under power in mid-cut. The sawyer immediately stopped the chainsaw, ceasing operations, and reported the incident to his squad leader."



Here are two RLS reports that took place in southern Utah regarding fuel geysering incidents:

Hatch Mountain Fire Fuel Geysering

- “By following all the procedures of dealing with a potential fuel geysers, we were able to walk away from this safely with just a little bit of fuel on the clothes.”
- The spray happened just like NTDP’s video of a fuel geysers in the lab.”



Looking up at the fireline from where this fuel geysers incident occurred.

Pine Hollow Fuel Geysers



The 2009 Stihl 460 that had been in excellent running condition that caused this fuel geysers incident.

- “Due to frequent training on fuel geysers and associated refueling procedures, the saw was removed from heat and ignition sources before the incident occurred. Outcomes would have been much more tragic had the fuel ignited.”

- ***“Is Fuel Geysers still an issue? I haven’t heard much about that in a while...”***

Safe fueling procedures and handling will always be important when operating chainsaws and other gas-powered equipment. It is critical that we emphasize safe fueling procedures during our training and refreshers. For more information regarding safe fueling procedures and where to go to report a geysers incident you can go here: [National Fuel Geysers Awareness, Equipment Technology Committee](#).



What is a fuel geysers?

The rapid and energetic expulsion of heated fuel in a closed container when a fuel container is quickly depressurized. Heat and agitation causes the pressure increase. A delayed fuel geysers can occur after the fuel container is opened.

Here are some additional Lessons Learned shared from those involved in incidents over the last four years:

- "Students that don't possess the physical strength yet to wield a larger saw should start with a lighter smaller saw to build the strength needed to perform in a safe and efficient manner. Have smaller options of saws available for folks not ready/capable to run a 30-pound professional saw."
- "Have new sawyers use lighter saw model until strength is in a place they can handle larger heavier pieces of equipment. Ensure proper fitness level is there prior to participating in strenuous activities such as chain saw operations."
- "Normalization of risk is real and when you get in a hurry and skip procedures (secure felling area) the consequences can be severe. Slow down, follow procedures, and ensure a safe/secure felling area. Slow down, take your time, and follow procedures and training. Human factors (pressure from the highway department and internal pressure to complete the project quickly) and normalization of risk."
- "The crew sat down for a full-on AAR shortly after the incident. The importance of proper footing and chain-break usage were stressed HEAVILY. "
- "Additionally, fatigue was also a contributing factor (foot placement, upper body endurance,) and a strict 1 to 1 (tank for tank) schedule was implemented to keep sawyers from exhausting themselves."
- "Chaps need to be cinched down tight and swamper needs to be aware of sawyer's safety bubble. Wearing longer chaps could've prevented such a large cut."
- "Crew conducted an AAR to go over the incident and learn to anticipate kick back and the correct body positioning to avoid this possibility in the future."
- "After talking to the sawyer, it was determined that he had bad hand placement. He learned the importance of tip awareness and the proper hand position to utilize the chain brake."
- "I also learned to have a greater respect for the blood bubble. Finally, I learned that it is way better to break a chainsaw than to risk losing a limb."
- "The immediate discussion was on moving slowly and with purpose. We also discussed proper adjustment to saw chain idle so that it stops as designed."