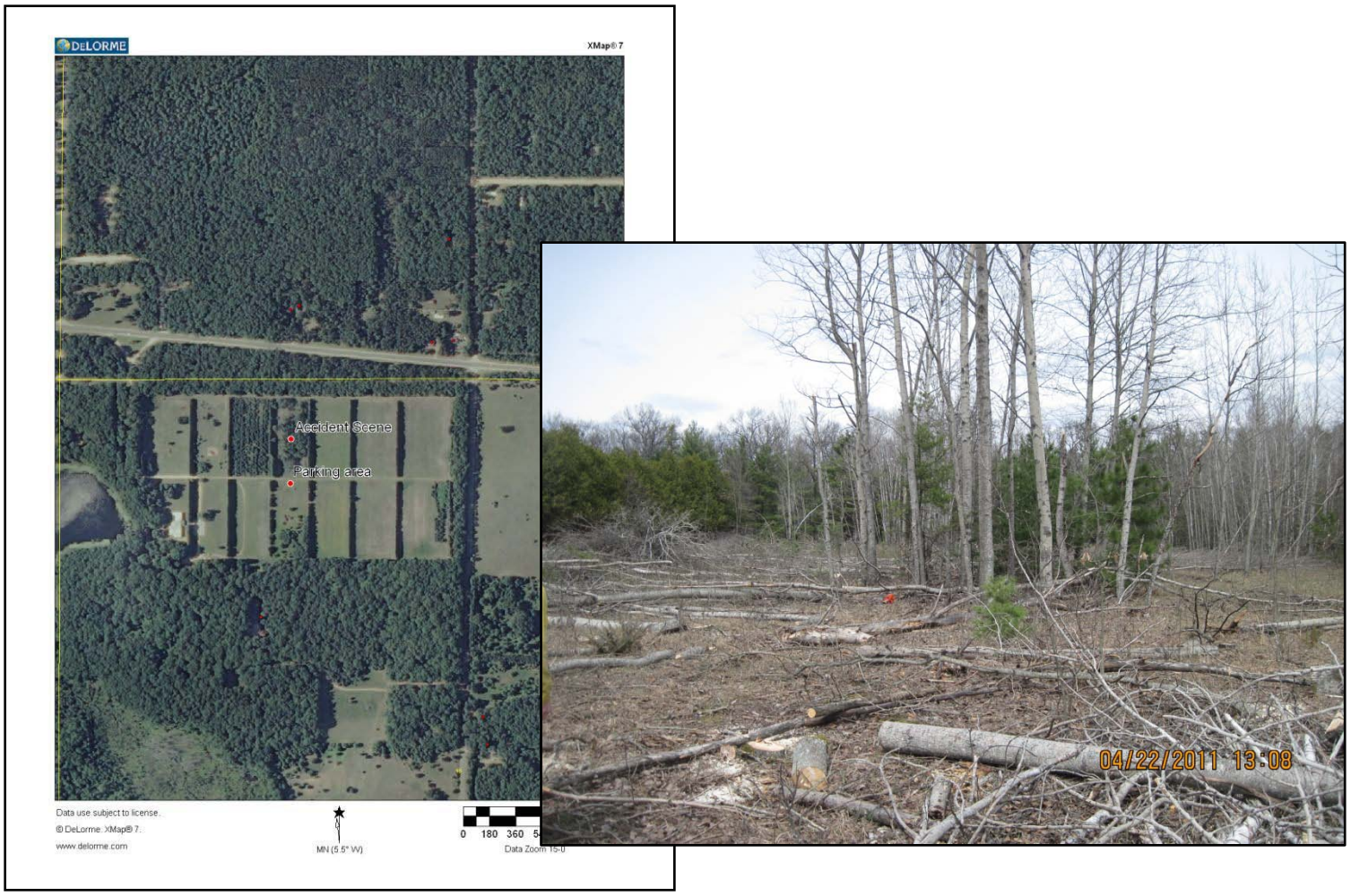
Chittenden Felling Accident



April 22, 2011

Cadillac/Manistee Ranger District

Huron-Manistee National Forest

INTRODUCTION

Shortly after this incident occurred, there was a discussion regarding how the Forest would proceed in reviewing the accident and sharing lessons learned. The decision was to conduct a Facilitative Learning Analysis (FLA). The Line Officer for this incident wanted to share with others the importance of building a contact list of personnel with FLA skills and to understand the FLA process. For more information on the FLA process, the complete guide is located at: http://wildfirelessons.net/documents/APA_FLA_Guides_2011.pdf

The FLA team would like to thank the Huron-Manistee National Forest for providing the employees the opportunity to conduct this Lessons Learned and distribute the information to others. *Please note: names of individuals were changed in the report.*

The FLA Team

Bob Magon, Dan Helterline, Ramona DeGeorgio-Venegas, Persephone Thompson

TYPE OF EVENT: Chainsaw Incident

I. Summary

The project was to rehabilitate a historic seed bed by removing all aspen. This was an ongoing project that started a few years before. During a felling operation, after completing the backcut, the sawyer was struck on the head by a tree from 20 feet away while exiting along escape route from the stump. The injured sawyer and one other individual walked to their vehicle and drove to the hospital. The injured sawyer received 10 staples to his scalp laceration. While protecting the sawyer from the impact of the tree, the hard hat caused a laceration of the scalp.

II. Describe the Events and the Outcome

The ongoing project was to clear trees away from seed beds on a Forest Service historical nursery.

Figure 1. Project site.

April 22, 2011 was the third day on this project for the year. Two fallers began the day cutting and they were going to be joined by two other fallers later on.

Each faller was working on opposite sides of the project area. Each faller was at the end of their second tank of fuel for the day. Marvin sized up a tree and noticed a small branch (2”> in diameter) that appeared to be interlocked with another tree to the east (approximately 20 feet away). He decided to do his cutting operations on the north side of his tree to avoid exiting the stump under the interlocked branch. He anticipated the small branch to either break free of the tree that was being felled or break off. Marvin ran out of fuel while in the middle of his backcut and did not want to leave the tree standing with a facecut and backcut almost complete.

As Sam was walking by Marvin’s cutting area to retrieve more fuel he was asked to come help Marvin complete falling his tree since he ran out of fuel. He asked Sam to finish the backcut because Sam still had fuel left in his chainsaw. Sam completed the backcut on the south side of the tree (opposite of Marvin). Sam took a few steps away from the stump along his escape route and turned to watch the tree fall. Marvin was standing 10-15 feet away also watching the tree fall. When the tree was a few feet away from the ground, Sam noticed Marvin’s eyes suddenly widen and Marvin shouted for Sam to look out.

As the original tree fell the interlocked branches did not break free or break off as Marvin anticipated. The small diameter branch stayed interlocked with the falling tree. The force of the falling tree pulled the interlocked branch and caused the top half of an aspen from 20 feet away to break off and fall with the original tree. Sam was struck on the back of the hard hat by the top half of this tree which knocked his hard hat off. Sam dropped to his knees from the impact and then jumped back up.

Figure 2. Tree sawyer was falling.

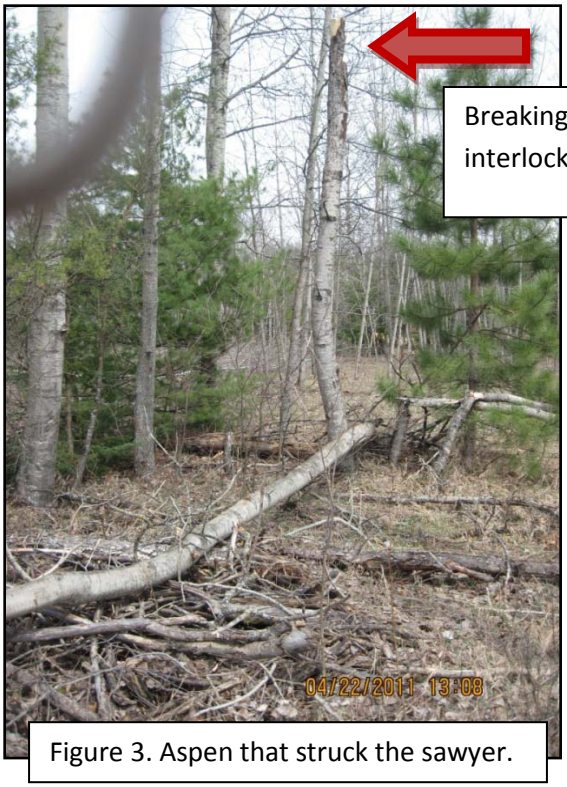


Figure 3. Aspen that struck the sawyer.

After getting hit with the tree Sam's first thought was to get back to work and finish the project. He grabbed his hard hat and put it back on. He noticed there was something on his neck. Marvin looked at it and realized Sam was bleeding and had a scalp laceration. Sam took his shirt and applied pressure to the wound. They walked to the truck over the cut tree area and Marvin drove them to the hospital.

En route to the hospital Sam and Marvin called their supervisor (who was en route to the project area) and explained what had happened. After talking to Sam, the supervisor noted Sam sounded coherent and calm about the incident. Sam told his supervisor he needed to go to the emergency room and get a few stitches. The supervisor had pulled alongside the road and waited for Marvin and Sam to pass him. While waiting he also made additional contact with two other Forest Service employees; one of which was an EMT and the other was a first responder. The supervisor asked them to check on Sam and Marvin and make sure they were alright to continue driving to the emergency room. They made radio contact and visual contact and relayed to the supervisor that Sam and Marvin were doing alright. Once Sam and Marvin passed the location where the supervisor had pulled over he then followed the sawyers to the hospital.

Phone calls were made to the local staff to initiate paperwork for Human Resource Management and the District Ranger was notified. The emergency room Doctor felt the laceration was not caused by the tree but was caused by the hard hat.

Figure 4. Branch held by hand was the interlocked branch (2”> diameter) that pulled the top out of the tree 20 feet behind Sam(faller).

Figure 5. Individual is standing in the location where tree impacted Sam’s head.
“A” is the tree that was being felled. “B” is the tree top from 20 feet away.

III. Sequence of Events

1030 Arrive at worksite. Continue working on cutting project.

1220 Work almost through second tank of gas.

1225 Injury occurred.

1229 Drive to hospital.

1230 While en route contacted supervisors.

1252 Arrive at hospital

1411 Sawyer released from hospital.

IV. Conditions

While Weather and Topography were not a factor in the incident there was a discussion regarding Vegetative cover type. The project area was in a mature stand of aspen and hazards were present that are typical to Hardwood stands. In Hardwood stands there is potential for canopy bind and problems with stem decay without visual indicators.

V. Lessons Learned and Recommendations from the FLA Participants

1. The sawyer who initiates the size up and begins cutting into the tree should finish falling the tree.

> *Background: During the FLA, Marvin mentioned that he should have finished cutting down the tree, because he did the original size up. Marvin wished he would have told Sam about the branch. If requesting a second sawyer to finish felling a tree, brief any replacement sawyers on your initial size-up. If you are asked to assist another sawyer make sure you do your own size-up on the tree.*

2. The style of the handlebar influences the side a sawyer approaches a tree.

> *Background: There was a discussion from all participants about the influence of a full wrap handlebar versus standard handlebar on chainsaws. Marvin felt comfortable working from the north side of the tree only because his chainsaw had a full wrap handlebar. A full wrap handlebar improves safety because it allows more versatility when choosing which side of tree is the preferred side when initiating the face cut and the backcut. Sam had a standard handlebar and thus cut from the south side of the tree.*

3. Personal Protective Equipment did its job.

> *Background: The participants were grateful that the injury was minor in relation to "what could have happened" if Sam was not wearing his hard hat. There was no noticeable structural damage to the hard hat. Only thing visible was a scuff on the back, exterior and one of the suspension tabs was popped out of its holder.*

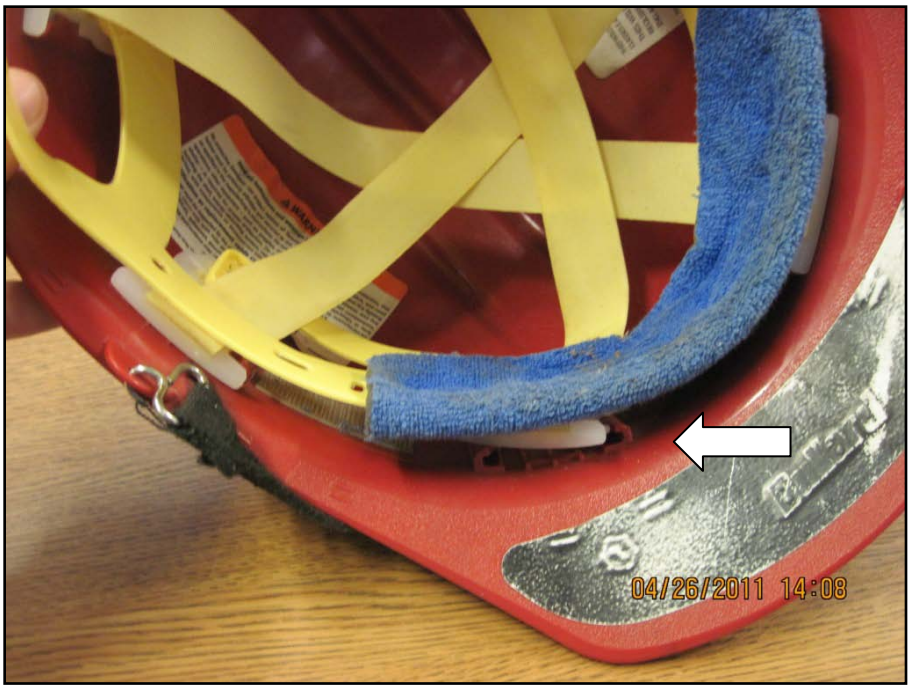


Figure 6. View of the suspension tab that popped out of the holder.

VI. Lesson Learned from the FLA team's perspective

1. Become familiar with possible structural imperfections and characteristics of various tree species within the project area.

2. Look up – look down – look around. During felling operations, continue to size up and assess the tree at a 360 degree area around the tree to be felled.

3. All project discussions, information and tailgate safety covered on the initial start day of a project should be reviewed each time a new crew member works in the project area.

4. During a medical incident, it is important to think about transportation via ambulance, especially with a head injury, and/or contacting the hospital prior to arrival to give them information about the nature of the injury. When the injured person arrived at the hospital they were delayed treatment due to completion of paperwork at the admitting desk. It took approximately 10 minutes until the scalp laceration was addressed by medical personnel.

5. The injury was caused by the hard hat. While the team looked at the incident the recent Tech Tip "Alternate Head Protection Available" *draft* released in March 2011 by MTDC came to our attention. In the Tech Tip it states, "Although Bullard Hard Hats meet safety standards a limited number of users now find the hard hats to be uncomfortable. The redesigned suspension system provides less space between the hard hat and users head and may allow sharp corners to cause pressure points." There was discussion among the team that we could not identify which part of the hardhat had actually caused the injury (there was no blood or hair found on the hard hat after the incident). However, we can easily see how one of the corners of the rear suspension system

bracket could have caused the injury upon impact of the tree to the hardhat. Hard hat was removed from service and replaced.

Figure 7. Injury caused by the hard hat.

During the FLA process, the team came across a few topics that caused some interesting dialogue among the members. The team would like to share the following questions and encourage discussion of these topics during safety meetings or 6 Minutes for Safety.

Discussion Topics

What is your local district or unit's protocols regarding incidents and accidents in the field and/or in the office? If someone is hurt, do you call 911 or drive them to the hospital? How does your local dispatch unit fall into that notification process? Do people know the phone number to the nearest medical facility?

How do you classify trees as "A", "B" or "C" trees? Can one person look at a tree and label it a hazard tree and another look at the same tree and feel comfortable? What are your local protocols for dealing with trees deemed a hazard? How do you ensure everyone on the project gets that information?