

Mott Canyon Hazard Tree Incident



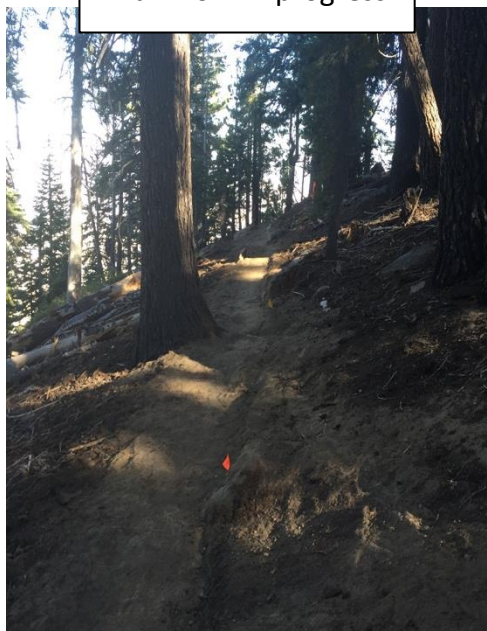
Lake Tahoe Basin Management Unit
August 25, 2016

On August 25, 2016 while constructing a trail, John, a member of the Tahoe Rim Trail Association (TRTA) working under a Volunteer Service Agreement with the Lake Tahoe Basin Management Unit was struck by a snag and air lifted to a local hospital.

The TRTA has a thirty-year history of conducting backcountry camps, hikes, volunteer group work days, recreational trail design and construction without a serious accident or injury. Over 10,000 volunteers have provided 200,000+ hours of work as trail workers, guides, wilderness medics, camp cooks, and trail angels. The TRTA maintains approximately 200 miles or trail in the area. Volunteers are supervised by a certified Crew Leader. Each work day starts with a thorough safety briefing and description of work/guidelines and criteria. Everyone is provided personal protective equipment (helmet, gloves, needed equipment, etc.) and guidance on how to use the tools.



Trail work in progress



To become a Crew Leader one must attend a three-day course, spend on the job training with a certified Crew Leader and work with small groups until they show competence to serve as crew leaders. They also have to attend technical training and be able to exhibit skill in moving/splitting rocks, bucking trees, and other technical aspects of trail construction and trail rerouting.

The TRTA has an Agreement with the Lake Tahoe Basin Management Unit (LTBMU- USDA Forest Service) to conduct volunteer work on federal lands. Trail work is proposed, planned and approved by the Recreational Trails Coordinator (Forest engineers and Trail Coordinator).

Hazard trees are numerous within the Tahoe Basin. Volunteer crews cut (buck) fallen trees off the trail system each spring. They are not allowed to fall standing trees.

The process for removing hazard trees in work areas is to notify the Forest Service so a qualified faller can cut the tree. Pre-season trail assessment(s), communication and planning by TRTA and the Forest Service that has at times, limited personnel and conflicting priorities decreases delays of trail work around hazard tree location(s). This collaboration has been very successful.

The Mott Trail reroute was designed to replace a half- mile of ski area service road currently used as a part of the Rim Trail. The road is down a steep grade and needed to be replaced by a foot trail. The new location was designed, planned, flagged and approved by the Forest Service last winter.

The work consists of building the tread, moving and laying rocks and clearing brush. The TRTA is trained by the Forest Service to use grip hoist and pulley systems to move rocks too heavy to move by hand.

On Tuesday August 23, the Volunteer crew worked under a 30' tall 14-inch diameter snag all day. The group was rigging, moving rocks and constructing the trail tread. The crew noticed the snag but decided it was solid and did not present a hazard. Towards the end of their work day someone inspected the snag more closely and noticed rot at the

“We have an Emergency Action Plan and train all of our people on it.”
Wilderness First Responder

base. The group decided that before they worked on the trail again, they would have to take the snag down.

On Thursday, August 25 there were seven different work groups (20 volunteers) assigned to the trail segment. They had a pre-work briefing, discussed work assignments, specific tasks, safety issues/concerns and identified the highest qualified medical person (Wilderness First Responder).

"I heard a crack and saw it falling - I yelled to John but it fell too fast."

The group from the previous day went back to the snag area. Because they are not allowed to cut standing trees and knowing that asking someone from the Forest Service to come cut it would halt their progress, they prepared to pull it down using the same equipment they use to move big rocks. As John was preparing the rigging another crew member was above the snag and heard it crack. He saw the snag begin to fall and yelled at John to warn him but the snag fell too fast. The snag hit John on the left rear side of his hard hat and shoulder. He was 35 feet away from the base of the snag.



Scuff marks on John's hard hat

Looking back at stump from where John was struck

*"The hardhat probably saved his life. We put on our hardhats as soon as we leave the vehicle."
Wilderness First Responder*



The snag



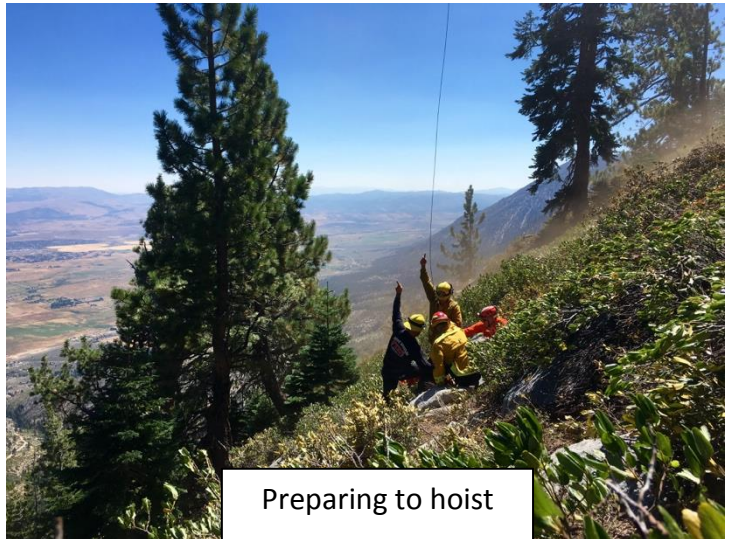
The stump

“If we had known the tree was that rotten, we would not have worked under it.”
Trail Crew Volunteer

The blow propelled John off the trail, rolling him about 55+ feet down the hill through brush and rocks. Members of his work crew rushed to help him and notified the supervisor by radio. The supervisor immediately sent the identified Wilderness First Responder to the site. She arrived in minutes. She did an initial assessment – John was conscious, complained of neck pain and was not entirely coherent. The Wilderness First Responder advised the supervisor to call 911 because this was a medical emergency.

The supervisor called 911. Because the location would be hard to describe he asked the dispatcher to have the responding Tahoe-Douglas Fire Department (TDFD) to contact him by cell phone. They did and he directed them to the site and additionally sent two crew members to guide them in. Given the location local Search and Rescue was also dispatched. Tahoe-Douglas Fire Department EMS personnel arrived first. They stabilized John with a neck collar and backboard.

Search and Rescue (SAR) personnel arrived within a short period of time with a stokes litter and additional medical supplies. SAR personnel requested an emergency hoist helicopter to get John off the hill and to a hospital. A California Highway Patrol Hoist helicopter was over the site within 45 minutes and dropped the hoist package. The group moved John 20 feet to get away from a tree for the hoist. EMS personnel set everything up and John was hoisted into the helicopter. They flew to a nearby parking lot and transferred him to an ambulance who took him to the local hospital. John was treated for a concussion and a C1 vertebrae fracture and discharged two days later.



Preparing to hoist

Aftermath:

Forest Service Leadership met the day after the incident (Friday August 26) and took the following actions:

1. Implemented a Safety Stand Down to discuss hazard trees and trail operations.
2. Hosted an open meeting with Forest Service personnel, cooperators, permittees, and partners (approximately 120 individuals attended); Topics included:
 - a. Leaders Intent (tree mortality, risk assessment, Life First)
 - b. Hazard Tree Identification, guidelines, protocols and policy
 - c. Group breakouts (risk assessment discussions, project guidelines, processes, etc.)
 - d. Lessons Learned from this and other incidents
3. Stop all complex trail construction conducted by volunteers for a period of time.
4. Sent videos related to hazard tree identification and mitigation for review by permittees, partners and cooperators.

Successes:

- The emergency medical Plan was understood and was implemented successfully.
- Medical procedures, protocols were understood and implemented successfully (assessment and stabilization)
- Unassigned personnel were organized and moved out of the way. They were staged and ready to move the patient if needed.
- The proper use of personal protective equipment (PPE), hardhat saved John from a serious injury or worse.
- The TRTA has conducted after action reviews, reviewed their procedures, protocols and had discussions on hazard exposure, completed risk assessments and analysis on the many different projects that they have proposed and are planning.
- Partners, cooperators, permittees and volunteers reviewed the videos on tree mortality, hazard tree identification and had multiple group discussions on the topic.

Lessons:

- Knowing how to generate a Latitude and Longitude from a smart phone is a good skill to have for emergency situations – prepare your workforce with this skill.
- There is always a “gap” between how managers believe work is getting done on and how work is actually getting done. Although this tree fell on its own, this incident served to daylight the fact that volunteers were using pulley systems to mitigate standing hazard trees. Use dialogue and frequent interaction to minimize gaps within your workforce.
- Volunteers are employees – treat them as such. Involve *all* of your workforce in work related social events as well as formal safety discussions such as Life First engagements.
- When considering a “safety stand down” – clearly articulate the intent and what is to be accomplished. A specific time frame on how long the work stoppage will last is crucial to planning efforts. An indefinite pause can come across as a punishment and may discourage future reporting of less serious incidents.
- Understand the unintended consequence of limiting the tools/techniques available to your workforce. Volunteers have been restricted from cutting standing trees because of the risk involved. This restriction and the time lag with the preferred method of notifying the Forest Service to cut trees led to the work around of pulling trees over. Through frequent interaction and dialogue continue to search for ways to empower efficient work while continuing to mitigate risk and exposure.