

Black Cove Fire Tree Strike Injury FINAL REPORT

Date of injury: March 25, 2025



Executive Summary

A North Carolina Forest Service (NCF) Pickup Firefighter, while assigned to the Black Cove Fire in Polk County, was struck by a falling snag. The Firefighter was working in conjunction with a crawler tractor and hand crew installing indirect containment line down a ridgeline on Division-F, off Puzzle Gully Road. The timber growing along the ridgeline was a mix of pine and hardwood with an average 10–12-inch diameter at breast height (dbh) and 25–35 feet tall. A relatively low concentration of scattered standing and fallen dead snags were observed throughout the area. The pad of the crawler tractor installing the bladed containment line came in contact with the base of the standing dead snag. This contact disturbed the root system and subsequently caused the snag to fall and strike the firefighter from behind, pinning both legs to the ground and resulting in serious injury.

The crew module working in the area was the first on-scene, removed the tree from the firefighters' legs and initiated the Incident Within an Incident (IWI) Protocol. Within minutes the adjoining Division Supervisor (DIVS) and other firefighters arrived to aid with communication and provide basic medical attention. The North Carolina Helicopter Aquatics Rescue Team (NCHART) hoist helicopter (NC Air National Guard) was activated for extraction due to the nature of injury and physical location. The firefighter was transferred to an air ambulance and transported to the closest trauma center for advanced medical care.

Background

The Black Cove Fire was reported on March 19, 2025, in Polk County, NC. The fire resisted suppression action and grew rapidly in the first burning period while threatening communities and infrastructure. Concurrently there were two other fires, Deep Woods and Fish Hook, in the immediate area. The fires were in mixed pine/hardwood forest with heavy blowdown damage from Tropical Storm Helene (September 2024.) The storm damage made suppression efforts difficult and traditional initial attack firefighting tactics proved to be unsuccessful. On March 20, 2025, an NC Forest Service Complex Incident Management Team (IMT) was ordered to assist in managing the three fires. This IMT integrated with on-scene resources on the 21st and assumed command on the 22nd.

March 25th, 2025

DIVISION FOXTROT

Weather Conditions (1500 hours)

Clear: Visibility 10 miles

Temperature: 73° F

Relative Humidity: 19%

Wind Direction/Speed: West 16 mph with gusts to 25 mph

Incident Narrative

On March 25, 2025, the resources on Division F were establishing indirect containment lines off Puzzle Gully Road. A crawler tractor was to be utilized to install this containment line. Division Supervisors determined and flagged the line location prior to the crawler tractor engaging.

The firefighter serving as the Heavy Equipment Boss identified a need to adjust the line location. While the crawler tractor was stopped, he approached the heavy equipment operator to give him verbal directions on where to go next with the containment line.

He noticed a standing dead tree near the rear of the crawler tractor as he approached. After the exchange of information, the firefighter stepped away from the crawler tractor and the containment line at approximately 1500 hours and was struck from behind across his shoulders knocking his helmet off his head and his portable radio from his radio harness, pinning both legs below the knee to the ground.

He was unable to reach his radio, so he yelled for help. The equipment operator could not hear his call for help over the sound of his equipment. A crew module was staging up the ridge along the already constructed line and heard the calls for help. When they arrived, they found him pinned down to the ground and were able to lift the tree and free him.

A member of the crew module immediately contacted the Division Supervisor Trainee (DIVS-T) and informed him of the incident, incident location, and nature/extent of injuries. At 1505 hours the DIVS-T contacted the IMT and initiated IWI Protocol.

The NCHART helicopter was assigned to the Black Cove Complex and was on standby at Asheville airport. This hoist helicopter rescue team (NC National Guard crew and trained Emergency Rescue Technician) was activated to extract the patient by IMT personnel in at the ICP.

The adjoining Division Supervisor was nearby and responded to the scene after hearing the radio traffic. He recognized the need to “open up the area” to facilitate the rescue and instructed the heavy equipment operator on what was needed. The operator used his equipment to push open an area that would be suitable to extract the injured fire fighter.

IMT personnel requested an air ambulance from Greenville-Spartanburg to facilitate transportation of the patient to a local medical (trauma) center. Polk County Emergency Medical Services (EMS) already had a predetermined location for patient handoffs at the Polk Middle School. NCHART was able to hoist the patient from the incident location utilizing the clearing that incident personnel had constructed and transported him to the Polk Middle School Location where the medical helicopter was already on the ground and waiting.

Incident Narrative (Cont.)

The patient was successfully transitioned from the NC Air National Guard ship (NCHART) to the medical helicopter at 1607 hours. After assessing the patient, the air ambulance transported the injured fire fighter to the trauma center located in Greenville-Spartanburg at 1615 hours. The Incident within an Incident was declared over at 1620 hours and normal radio communications resumed.

IMT personnel (Safety Officer Complex (SOFC)) traveled to the hospital to meet the patient and his family since there was not Hospital Liaison assigned to the incident. Additional SOFC from the IMT traveled to the incident location to begin meeting with ground personnel where interviews were had and photos taken.

Lessons Learned

The following lessons were learned, and short discussions were developed from interviews with firefighters and support personnel involved in the Black Cove Fire Tree Strike Injury.

Unified Command Incidents must have a Single Communications Unit

At the time this incident occurred, the Black Cove Complex IMT was undergoing multiple transitions. The IMT was integrating unified command with Polk County Emergency Management (EM), North Carolina Emergency Management (NCEM) and NC Office of State Fire Marshals (NC OSFM). The incident command post (ICP) had been relocated to a new location. The IMT and NCEM communications units were in separate locations at the facility. This information was never communicated to IMT personnel.

All command and general (C&G) staff members knew that during an IWI the muster location for command and general staff would be at the Communications Unit. The Communications Unit was in a trailer on ground level of the building. However, NCEM and NC OSFM had established a second Communications Unit on the third floor, where most of the IMT was working. This led to confusion as to where to go and while this did not impede the process of providing patient care, it did cause unnecessary confusion.

In the future, as we incorporate multiple agencies into a single unified command structure, it is critical that all units work as one cohesive unit and everyone understands what their roles are, who they are working for, and where their workstations are. Clear leaders' intent must be given. A space must be dedicated for IWI muster and communicated to all command and general staff. If there is a change, that change must be communicated.

Having a single combined communication unit with dedicated radio operators will ensure that all incident communications (normal or emergency) are accurately received and reported.

Lessons Learned (Continued)

Look Up, Down, and Around – Know your Work Area before Engaging

When this incident occurred the firefighter approached the stopped/parked equipment, exchanged a verbal message relaying to the equipment operator what direction to go next and then stepped away so the equipment could continue working.

It is unclear from interviews the timeframe between the exchange of communication, equipment re-engaging, and the tree strike. Whether the firefighter paused at an unsafe distance or if the equipment operator began work too soon is unknown. However, the fact remains that the firefighter was still within the unsafe workspace and approximately 20 feet from the equipment when it resumed operation.

The minimum distance for ground personnel to safely work around heavy equipment in standing timber is 2 ½ times the canopy height. Heavy equipment operators should make every effort to identify any resources working in the area and ensure that they have a direct line of communication. Any time resources enter your workspace of 50' or 2 ½ times the canopy height, operations should be stopped and the equipment placed in park.

Ground resources must recognize that equipment operators have limited visibility when seated in their equipment. All personnel will use established communication methods to notify equipment operators prior to entering this space and again upon exit. Likewise, operators must use the same methods to communicate with ground personnel to ensure the area is clear before proceeding with operations.

Supervisors Must Verify Incident Qualifications of Assigned Resources

The NC Forest Service has a standard operating procedure (SOP) for trainee Forest Fire Equipment Operators (FFEO). It states that FFEO's who have not completed their 2-year training progression, are not to engage in fire suppression activities without a qualified Heavy Equipment Boss (HEQB) or another fully qualified FFEO working directly with them. This guideline was established by the NCFS Management Team in May of 2006 and reflected in those meeting minute notes.

Following this incident, it was determined that the FFEO had not completed his training progression. Additionally, the injured firefighter was functioning as a HEQB for this FFEO but training and experience records in the Incident Qualifications System (IQS) indicated that this individual was not qualified. Both individuals should have been treated as trainees on this incident and properly supervised by fully qualified fire fighters.

Lessons Learned (Cont.)

The Division Supervisor did not verify incident qualifications of his assigned resources prior to making assignments. Fireline supervisors must talk with their resources to ensure that they are qualified in their positions or properly supervised before beginning operations. Unqualified resources must be treated as trainees.

NC Forest Service fireline supervisors and IMTs verify fireline qualifications by checking of red cards, IQS, or IQCS records.

10 Standard Fire Orders

Fire Order Number 5: Post lookouts when there is possible danger.

From conversations with those involved, there was no lookout watching for the operator and fire fighter on the ground. While they were constructing indirect fire lines, there was still the potential for danger from snags in the area. A lookout could have seen the snag and warned the operator and fire fighter before the tree was struck, potentially avoiding an injury.

Fire Order Number 10: Fight fire aggressively having provided for safety first.

While there is little doubt that the fire fighters were aggressive, in this case there was an equipment operator on the incident who had not completed his training progression and was not fully qualified as well as a fire fighter on the ground with the equipment that was not a qualified Heavy Equipment Boss. Supervisors (DIVS) did not check qualifications of their assigned resources prior to engaging. They must have assumed that all assigned resources were qualified but did not do their due diligence in checking with those resources. Ensuring that resources assigned are fully qualified in their positions or properly supervised if they are a trainee is the first step in “providing for safety first”. This should have been discovered during a briefing.

What Went Well

Immediate Care and Patient Extraction to Advanced Medical Care

On March 21, 2025, when the IMT began to integrate with initial attack resources, safety officers recognized that there were areas of the fire that would take several hours to move an injured firefighter to advanced medical care.

Communications between the team, Polk County Emergency Management, and NC Office of State Fire Marshall began about bringing in an NCHART hoist ship and have them assigned exclusively to the Black Cove Complex. On March 23, 2025, the NCHART platform was positioned at Asheville Airport and placed on standby for the Complex.

What Went Well (Cont.)

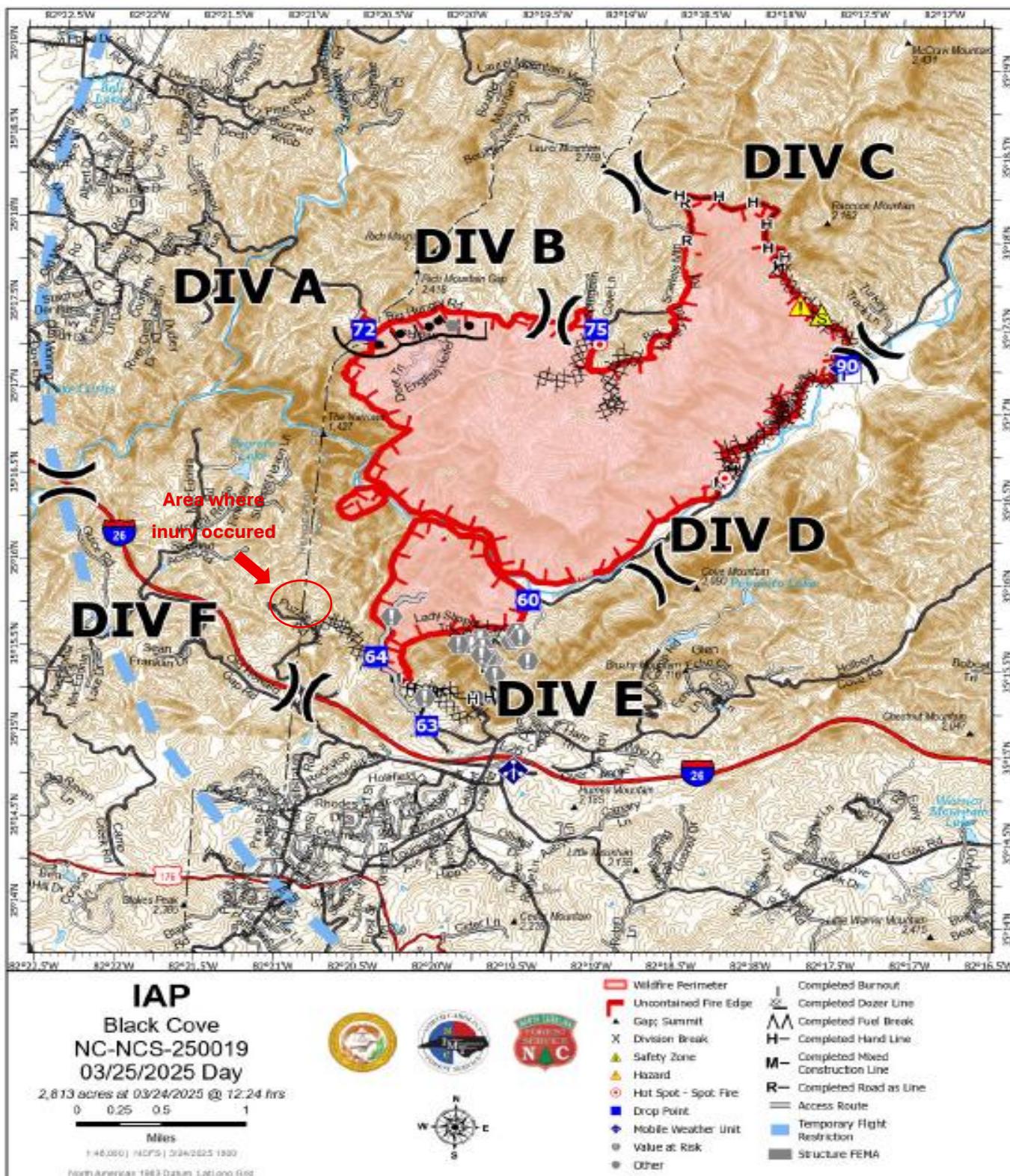
NC Air National Guard pilots and crew were briefed daily on incident operations. An NCHART dispatch protocol was developed by incident safety officers and communicated with all unified IC's and command and general staff. When the tree strike occurred the NCHART platform responded immediately upon request, and the patient was transferred to an air ambulance within 62 minutes at a predetermined location.

As soon as the IMT was notified of the injury through the approved IWI protocol, the team transitioned immediately into the IWI process. Command and General Staff personnel convened at the communications unit (once the decision was made to utilize the unified communications unit located on the third floor with the IMT), NCEM Operations Section personnel took the lead in getting the patient removed from the location. Most of the NCEM personnel had a medical responder background and were best suited to get help to the patient. They communicated with the NCHART ship very well.

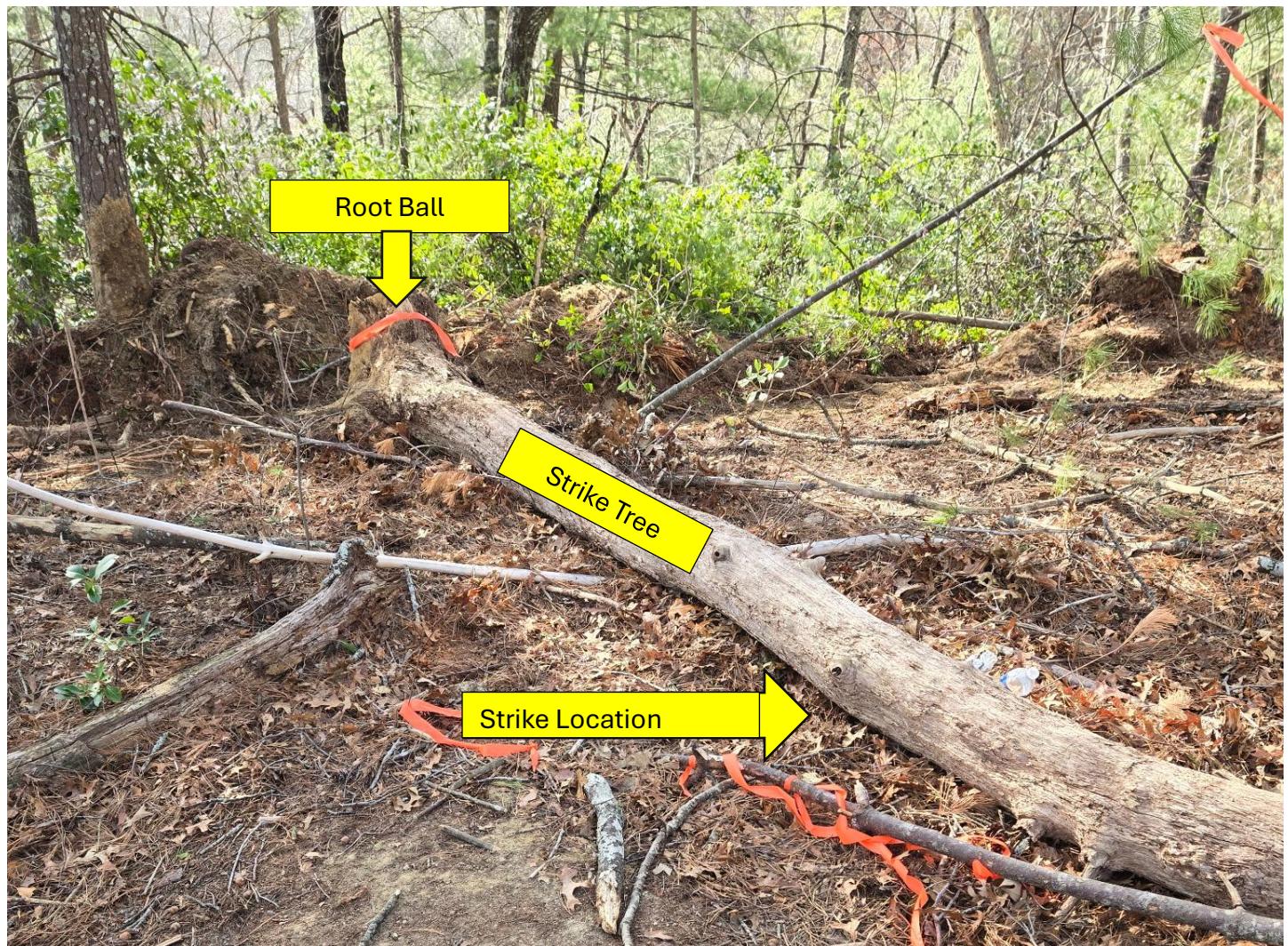
Safety officers assigned to the team dispatched from the ICP to both the hospital and the fire line to begin meeting with the patient and personnel on the ground who assisted with the extraction and witnessed the incident to begin preparing reports.

Additionally, the DIVS who responded from the adjoining division took immediate action upon arriving on scene. He took command of IWI, directed resources on the ground to construct an extraction point, provided direct communication between the IMT C&G and the injured fire fighter. This DIVS provided excellent leadership on the ground and displayed the 6th Fire Order; Be alert, Think clearly, Act decisively.

Appendix:



IAP Map of March 25th, 2025 (date of incident/injury)



1- Photo of Snag Tree