

**KNP COMPLEX
TREE STRIKE**

**FACILITATED
LEARNING
ANALYSIS**

October 7, 2021

Sequoia and Kings
Canyon National Parks

National Park Service

CAL FIRE

California Conservation
Corps (CCC)



The scene of the KNP Complex tree strike incident within an incident.

Purpose Statement

The primary goal of this review is to understand the decisions and actions that were made based on the conditions that existed when they were made, and to identify and share lessons learned within the interagency fire community.

Unfortunately, tree strikes to firefighters working along the fireline occur each fire season with a range of injuries from severe to mild. The KNP tree strike incident is highlighted for a Facilitated Learning Analysis (FLA) due to the number of patients and the initial reports that significant injuries to firefighters had occurred. The purpose of this FLA is to tell the story of the crews involved in the incident and how they were able to respond to the event and get the injured firefighters out of the field and to the hospital. The event highlights the importance of training, understanding the capabilities of adjacent resources and making time critical decisions to meet the objective of getting patients to definitive care. All four patients were treated and released from the hospital the same day, and while there will be some recovery, all of the individuals recognized the efforts to provide excellent care during the incident.

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Disclaimer

The details of this report were assembled solely through witness and patient interviews. Everyone has their own perception of what happened in the field that day. The report tells the stories of the firefighters on the ground through their understanding of the events and how they unfolded.

Even specifics about the accident scene itself were elusive since the area burned shortly after the accident occurred. The tree(s) that caused the accident were largely consumed in the fire, so even some of those details were constructed from witness accounts rather than from on-the-ground investigation.

Thanks

Special thanks to the firefighters involved in the incident, on-scene responders, overhead personnel, other witnesses, and other incident personnel who contributed interviews, photographs, and other content for this document.

Introduction

The KNP Complex was ignited by a lightning storm on the evening of September 9, 2021. While it eventually merged into one fire, it began as two separate fires, the Colony Fire and the Paradise Fire. The Colony Fire was located adjacent to the Marble Fork of the Kaweah River approximately 6 miles southwest of Lodgepole. The Paradise Fire was in the main fork of the Kaweah River 4 miles east of the Ash Mountain Headquarters. Both fires merged into one fire on September 17.

A Type 3 IMT was assembled by the National Park Service but the fire activity and issues with access triggered the transition to a Type 2 IMT. While the Type 2 IMT was mobilizing, the complexity increased necessitating the transition to a Type 1 IMT. A Type 1 IMT assumed command of the KNP Complex on September 16. Fire behavior and threats to the iconic sequoia trees and communities at risk garnered national news media attention and fire managers worked to increase containment to protect property and the giant sequoia groves. Another Type 1 IMT (SW Team 2 – Bales) transitioned in to take the fire on September 26. With continued national media attention and difficult fire conditions, and the SW IMT getting close to timing out, managers began to develop a plan to zone the fire and mobilized 2 Type 1 IMTs with an inbrief date of October 7, the day of the accident.

Fireline work in the division

Prior to the day of the tree strike incident, operations in Division C were limited. The fire had not made significant movements and resources were needed in other areas of the fire to protect values at risk. On October 5th and 6th, the Incident Management Team began assigning crews to Division C while exploring direct attack fireline options. The Mineral King Road was the only access, and the fire was established below and above the road, making access to the east flank difficult as resources had to drive through the fire into unburned areas to find spots to anchor in and begin line construction. Use of lookouts and road guards was well coordinated to provide critical intel on fire behavior and potential flare ups. Resources were forced to fall back to safety zones as fire behavior picked up each day, but they also developed plans and scouted opportunities to engage the fire.

Condition of the timber stand and the tree

By Tom Warner, Park Forester, Sequoia-Kings Canyon National Parks

The Mineral King Road traverses the interface between a mostly brush fuel model found below the road at lower elevations, and a timber vegetation type above the road. In the area where the crews began to construct their fireline, the fuel model was timber. Vegetation type is a Giant sequoia-sugar pine/Pacific dogwood forest association. Tree species present at site include white fir, incense cedar, sugar pine, giant sequoia, and ponderosa pine. The stand was fairly open with a brush understory and generally light dead and down fuel loading with jackpots of fuel from fallen snags. Pockets of regenerating pine and fir were also common. Foot travel in the area was not difficult except where brush made footing difficult. The slope was typical of the area, ranging from 12-40% with occasional rock outcroppings. Snags or standing dead trees in the area were measured at approximately nine per acre.

Elevation: 6830'

Aspect: East

Slope: – 20%

Vegetation Type: Giant sequoia - sugar pine/Pacific dogwood forest association

Species Composition/Stand Structure: White fir, sugar pine, incense cedar, giant sequoia, and ponderosa pine

Fire History: 1995; 2003 (Atwood) Rx Burn

Tree Mortality: 33% \geq 16" dbh (unpublished 2021 USGS data)

Snag Size/Density: Approx. 9 snags/acre (unpublished 2021 USGS data); some dead as many as 18 years; estimated minimum five to ten years since tree death.

The dead white fir tree involved in the incident was approximately 32" dbh (diameter breast height)/150' tall white fir, which, according to witnesses, had sloughing bark and few limbs. Based on the condition of the tree and recent fire (1995 and 2003) and drought (2012-16, 2020-21) history, it is estimated that tree had been dead a minimum of 5-10 years. According to witnesses, it failed within 30 minutes of catching fire, indicating an extremely rotten condition with little sound "holding" wood. The tree was subsequently almost entirely consumed by fire, leaving little evidence, except for a stump.

Analysis of the stump by members of the FLA team confirmed species and corroborated diameter estimate of witnesses. It also revealed what appeared to be an old (pre-1995 prescribed burn) fire scar on the east side corresponding to direction (100°) of failure. It is estimated that only approximately 25-30% of the original stump cross sectional area was present/sound at point of failure. The remainder had been consumed by previous fire(s), was rotten and/or consumed in KNP Complex fire.

According to the Sequoia-Kings Canyon National Park Fire Ecologist, the area has experienced two prescribed burns--in 1995 and 2003. The first burned fairly hot, creating some gaps. The second either burned up many of the snags that had fallen since the first or resulted in those residual standing snags burning and falling. According to unpublished 2021 USGS plot data, tree mortality in vicinity is approximately 33% (approximately 9 trees \geq 16" dbh per acre), comprised of sugar pine (57%), white fir (28%), and ponderosa pine (15%).

Resources develop a plan and engage

October 7 was CAL FIRE/California Conservation Corps Crews 1 & 2's first day assigned to the KNP Complex. These are California Type 1 crews operated by CAL FIRE in conjunction with a variety of state agencies: California Department of Corrections and Rehabilitation (inmate or parolee crews), California National Guard, CAL FIRE, or in this case, California Conservation Corps (CCC). These two crews were organized into a CAL FIRE crew strike team, called a "Gulf Strike Team," comprised of two Type 1 crews and a CAL FIRE captain serving as Strike Team Leader.

The morning started normally, the operational leadership held their morning pre-ops briefing and the strike team attended the 07:00 morning radio briefing broadcast by the IMT at the Woodlake CAL FIRE Station. Once the briefing concluded, the contingency group conducted their group breakout.

Resources were assigned to Contingency Group to work within Division A and Division C, prepping the Silver City and Mineral King area. When the need arose for additional crews to help with direct line construction in Division C, it was agreed between the Branch II Director, Division A and Division C Supervisors, and Contingency Group Supervisor to provide the Gulf Strike Team to Division C. The direction to the strike team was to construct direct fireline north of the Mineral King Road to keep the fire from advancing east further into the Atwell Grove and developments at Silver City.

The strike team was reassigned to Division C and briefed into Division C around 14:00. CAL FIRE/CCC Crews conducted a safety briefing to discuss all potential hazards the crews may encounter while working in Division C. This included their assignment to assist running hose so the hose lay could continue to be plumbed, and direct hand line construction. Fire behavior, weather, looking up and down for hazards, presence of snags, being safe, and communications were all discussed. During the safety briefing, the crew heard a large snag fall.

In Division C, the Interagency Hotshot Crew (IHC) was constructing direct containment line from the Mineral King Road upslope to prevent the fire flanking eastward. The IHC started at the Mineral King

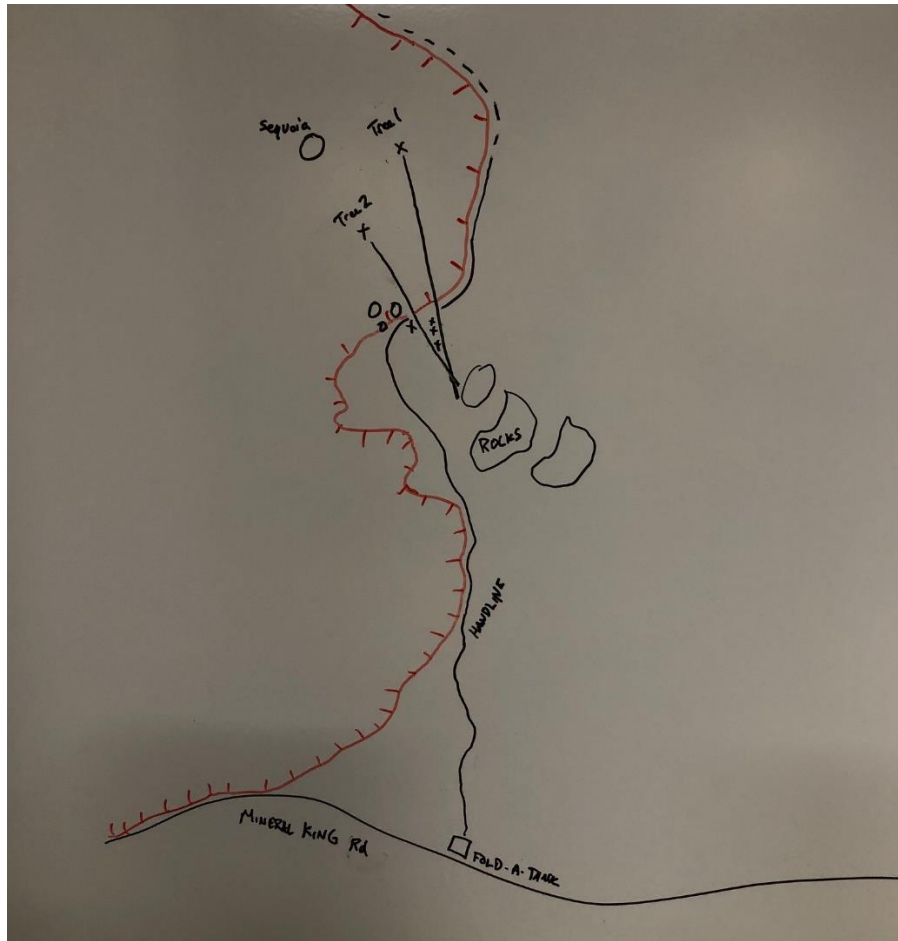
Road constructing line uphill. The line started indirect then picked up the fire's edge approximately 300' from the road, where the line became largely direct.

A hose lay was being constructed by members of a Type 6 Engine Strike Team (Foxtrot Strike Team) located on the Mineral King Road to support suppression efforts on the direct line uphill of the road in Division C. As the hose lay was being constructed, winds and fire activity along the line increased. By now, a trunk line was in place although there were some issues with having enough pressure to deliver the water uphill from the Type 6 engine located on the road. An inline Mark III pump was considered, but a Type 3 engine with a PTO pump was available and capable of the pressures necessary for delivering water up the line, which was becoming more urgent as fire activity was picking up, ember cast was crossing the line, and hot spots were beginning to emerge along the line. With the trunk line charged, additional hose and appliances were needed to construct the laterals off the trunk line. The Gulf Strike Team arrived and the sawyers tied in with IHC and bumped ahead to join line construction efforts. The remainder of the strike team was tasked with hauling hose and appliances up the line to complete the hose lay.

Three crew members hauling hose and appliances were accompanied by a CAL FIRE captain ahead of the remainder of the strike team, who stopped the crew members for a break near a rock feature at a midpoint on the hill. As they were preparing to continue moving up the line, they, and others working in the area heard the crack of a snag falling.

“Tree – Tree – Tree!!”

That sound was an approximately 28-36" DBH (diameter at breast height) white fir, that was estimated at 150 feet in length breaking free at its base. The tree was estimated to be standing approximately 130 feet from the line in the black. The tree fell from the black across the line. On its way down, some witnesses observed that it toppled a second tree, estimated to be approximately 16-18" DBH. Some witnesses and patients recalled the second tree falling, while others only observed the first, larger tree fall. The FLA team recognizes that perceptions during events like this can be subjective and some details may not be entirely recalled by witnesses. The consistent recollection from CCC crewmembers of the second tree leads us to believe that the second tree did fall as part of the incident.



A hand-drawn map of the incident scene showing the location of the trees in relation to the fireline. This map is not to scale.

“The black” in this area was experiencing low-intensity fire at the time of the tree fall, but many of the trees in the area had been weakened due to previous prescribed burns, wildland fires, bark beetle activity and multiple drought years. According to one witness, “Lot of standing dead, at least 50%, a lot more snags in this area than what we’ve seen all season. Snags are typical of a fire scar so you expect it, but these trees were much bigger.” According to multiple witnesses and personnel working in the area of the accident, falling trees were common.

According to stand exam data taken as part of the park’s fire effects program, it is estimated that the area has greater than 9 standing dead trees per acre. The Line Safety Officer for the division stated, “You were within the kill zone of a snag the whole time you were on the line – there were lots of dead standing snags.”

When the IHC heard the tree snap, they called out over the radio, “Tree! Tree! Tree!” to alert crewmembers, as is their protocol. The alert accidentally went out on the division’s tac channel and not on the crew’s net. This may have alerted more people on the division to the incident than would have heard had the broadcast gone out on the crew net. There were other accounts of firefighters calling out when trees were falling to alert others working in the area. Multiple people along the line heard and saw the tree coming down and issued warning shouts.

The CAL FIRE captain who was with the three crewmembers carrying hose recalls making a radio call and while waiting on a response from that call, “I turned around and I saw the tree coming down. By the time I turned around and started walking, I was able to get like three steps to the side and then I felt a hit.” This occurred at approximately 15:03.

The falling snag and the smaller tree had also hit the three crewmembers who were carrying hose and appliances with the captain. All four crewmembers recalled hearing someone yelling “Tree” (or something similar) prior to being struck by the falling snag. Three of the four patients saw the falling tree prior to being hit. All four made efforts to get out of the way of the tree, which likely contributed to their survival.

Knowing firefighters were working in the area, everyone moved towards the scene. The IHC crewmembers were close to the scene and radioed to their superintendent an initial triage of 4 patients with 2 red and 2 yellow. “When I got there, it was like a war scene with ash and dust and bodies all over the place.” Another witness assumed the worst. “I thought [the patients] were dead and then the dust settled, and I saw them start to move.” The IHC EMT arrived to the scene and immediately began patient care assisted by other crewmembers. Responders began to build the common goal of getting the injured firefighters down the fireline to the road as soon as possible.

The call for help – IWI initiated

Several firefighters witnessed the tree fall. Strike team members hauling hose and three IHC crew members who had gone to the road to assist with the hose-hauling mission were downhill of the group that was struck. Most of the IHC crew and members of the CAL FIRE strike team were uphill sawing and cutting line. When the snag fell, the IHC sent crewmembers down to check on the line and for injuries.

The call of the injured firefighters was broadcast by the IHC Crew Boss Trainee, “emergency traffic ... one fire captain and three firefighters are down.” This call mobilized firefighters in the immediate area to begin helping the injured. Some of the IHC members were managing the incident within an incident (IWI) on scene, assessing patients, and providing medical care. Triage of the four patients occurred quickly with the CAL FIRE captain of the crew 1 (Patient 1) presenting as the most critical patient with a head injury and loss of consciousness, another female crewmember (Patient 2) was also triaged as a “red” priority with possible back and arm injuries. The two other patients, a male and female (Patients 3 and 4), were assigned a yellow priority with leg injury to the male crewmember and hand/arm injury to the female crewmember.

The scene on the hill was being coordinated by the IHC Superintendent who tried to contact Division C Supervisor. The Division C Supervisor did not initially hear the call due to ambient noise in the location and radio traffic on a command frequency at the time. Hearing no response from the Division C Supervisor, the Foxtrot Strike Team Leader responded to the IHC Superintendent, gathered the information, and passed that on to one of his staff who he knew was standing next to the Division C Supervisor. The Division C Supervisor acknowledged the emergency traffic and called the KNP communications unit to report the incident, at which point the IWI was declared at 15:11. The Incident Management Team mobilized their IWI team and began immediate support coordination for resources on the fireline following their team procedures.

Care and transport of the patients

Initially, four ground ambulances were ordered, then that was revised based on patient condition to two being transported by air and two by ground. Division C Supervisor contacted the incident helicopter coordinator (HLCO), who had heard the emergency traffic on command and started towards the scene

from the other side of the fire. The HLCO contacted helibase and asked that all the agency aircraft configure for patient transport and stand by for dispatch to the Wolverton Helispot. HLCO was aware that the Sequoia-Kings Canyon National Park short haul helicopter was on a separate mission and was out of position for the evacuation of patients. Division C Supervisor also requested an air ambulance as he was concerned the road could be compromised and the injuries sounded severe. That air ambulance was ordered by the Air Operations Branch Director. Foxtrot Strike Team Leader began coordinating from the road and sent paramedics from the five engines in the strike team up the line to the patients with BLS gear. One IHC crewmember scrambled down to the road to locate a backboard or litter to transport patients. He retrieved a "Stokes" litter basket from the Foxtrot Strike Team and hustled it back up to the accident scene. Additional backboards and scoop litters were assembled and moved up the line to assist in patient transport off the line. A Rapid Extraction Module Support (REMS) team, located at drop point 30 (DP30), were notified and began making their way to the scene, which was a 40-60-minute drive up the Mineral King Road.

Everyone seemed to come together with a common goal to transport the patients down to the road as soon as possible. This was never directly briefed, but all personnel on scene seemed to have that as a common goal.

As patient care and packaging was ongoing, the fire became more active near the scene and trees were continuing to fall in the black. The decision was made to quickly evacuate the patients according to their triage level. All firefighters had the impression that the site of the accident was not a good place to remain and the decision was made to move patients a short distance away for further evaluation. Patient 1 was loaded onto a carryall, essentially a lightweight tarp with handles, away from the accident scene which felt unsafe and the patient was then transferred to a Stokes litter to be evacuated. This patient, the most urgent for transport, was deemed stable enough to immediately carry down the fireline to the road for further assessment by paramedics. The carryout team with Patient 1 was headed towards the road by 15:18, just 15 minutes after the tree strike occurred.

With the resources on scene maintaining an urgent priority to get the patients off the hill, the Stokes litter with Patient 1 was carried downhill along the fireline by IHC crewmembers, a paramedic from the Foxtrot Strike Team, and CCC crewmembers pitching in to keep the litter moving smoothly down the line. Sawyers from the CCC arrived and identified and improved a carry out trail to assist in moving the other patients down the fireline towards the road.



Firefighters clear the line for a carryout team transporting a patient to the Mineral King Road.

Meanwhile, the Foxtrot Strike Team Leader was arranging transport from the handline to the helispot in the back of pickup trucks. The drive to the helispot was estimated to take about 15 minutes and the Foxtrot Strike Team Leader worked with the Division C Supervisor to establish transport priority and timelines in order to give the HLCO information on timing of aircraft into the helispot.



A patient being loaded into an open-bed truck for transport to the Wolverton Helispot.

While Patient 1 was being carried out, paramedics from the engine strike team were hiking up with BLS gear to provide medical care. When they encountered the first team carrying Patient 1, they asked if the attending firefighters were medics. The firefighters on the litter team responded that they were, and the paramedics from the engine strike team continued up the line to reach the subsequent patients.

Two Interagency Hotshot Crews were working on direct attack below the Mineral King Road just west of the accident scene heard the radio traffic and sent several members off each crew to assist with patient care and evacuation.

While Patient 1 was being evacuated, the other patients were being packaged and evacuated from the accident site. Patient 2 was packaged in a Stokes litter and was being carried down the line by 15:25; Patient 3 was packaged on a backboard and was being carried out by 15:30. Patient 4 was ambulatory and was coming down the line under her own power being assisted by firefighters. By now, the REMS team arrived and took over care of Patient 4. According to one witness, there were “Tons of people -- 8 per patient carrying them out. Organization was good, calling out of hazards, picking each other up on steep parts. Conveyer belt of people transporting patients, kept staggering each other, looked organized with random personnel from various agencies.”

While the patients were being carried out, the fire became active in Division A, which caused vehicle traffic to be held at DP30. Additional SkyLife helicopters were ordered to transport all the patients rather than just the red-priority injuries.

When Patient 1 arrived at the Mineral King Road, he was loaded into the bed of a pickup truck for transport to the Wolverton Helispot. Two paramedics from the engine strike team assumed patient care for the truck transport to the helispot. Patient 1 arrived at the helispot at 15:42, approximately 39 minutes after the accident occurred. Since the first patient was being transported on contract helicopter rather than an air ambulance, two paramedics from the engine strike team accompanied Patient 1 during the flight to continue medical care while en route to Fresno, CA.

Patient 2 arrived at the helispot at 15:58 and Patient 3 arrived at the helispot at 16:01. HLCO directed air traffic as helicopters landed, were loaded with a patient, and departed.



A patient is carried to a SkyLife air ambulance for transport to definitive medical care.

While the patient evacuation was occurring, fire activity was also increasing in Division C near the incident location. Firefighters from the engine strike team were assigned to keep water pumping up the hose lay to support firefighters that were still constructing line above the accident site.

The patient numbers were different than the transport priority and it was clearly communicated that Patient 1 was the first priority, Patient 3 was the second priority, then Patients 2 and 4. While this could have created confusion, the Foxtrot Strike Team Leader was able to arrange transport of the patients down to the helispot in priority order. Everyone on the incident seemed to be aware that the patient numbers did not match the transport priority and there was no delay or operational confusion with this arrangement. Division C Supervisor knew the patients were being transported to the helispot in priority order because of the clear communications from the Foxtrot Strike Team Leader.

The final patient to be transported, Patient 4, was also transported by air medical helicopter from the Wolverton Helispot and en route to definitive medical care by 16:44. In a matter of 101 minutes, the personnel in Division C had triaged, packaged, and evacuated four injured firefighters and gotten them to higher levels of care.

Discussion

Standing dead trees (snags) and green trees remain a constant threat to responder safety. Due to extended drought conditions, there are millions of dead and dying trees across the country, and many more that are stressed due to insect or fire damage.

So what does this mean for wildland firefighters working under timber? This question was posed during interviews. Across the board the answer was consistent. This is the job; these are the conditions we face as wildland firefighters and we have to do the best we can to recognize and mitigate snag hazards. Indeed, part of the justification for hazard pay for federal firefighters points to the risks associated with the fighting of uncontrolled wildland fire. Crew members interviewed acknowledged recognition of this ever-present hazard; this hazard that has been part of wildland fire management forever. Firefighters want Agency Administrators to understand that they operate in an unpredictable, dynamic and risky environment every day. Agency Administrators want firefighters to understand that they should not take unnecessary risks while managing a fire. Decisions about what is necessary and what is not become less clear when looking through the objectives in the Incident Action Plan and during division breakout briefings. Still, this tree strike accident could have happened on a local response twenty-acre fire just as easily as a 100,000-acre campaign fire.

The risk trade-offs are difficult to quantify, and the decisions are often made based on probability of success and the willingness of the firefighters to accept the risks in front of them right now. Either way the decision goes, we end up assuming some risk. There is no “no risk” alternative in our fire management decisions, just as there is not a “no risk” alternative for driving to the grocery store. The importance of front-line firefighters engaging in deliberate discussions about the snag hazards associated with work on their piece of fireline cannot be understated. It is a discussion of trade-offs and risk tolerance. This incident highlights the risk that firefighters take on and the mitigations that are put in place to respond to an incident within an incident on the fireline.

We have come a long way in developing better medical responder-to-firefighter ratios and training in extraction methods. This incident demonstrates those improvements. Changing the risk or accepting potential injuries or deaths when working in the fire environment is still the challenge and is a complex topic that will need continued discussion and analysis at all levels of organizations.

Key Points Identified by participants

- All resources involved with the incident commented on the efficiency of getting the 4 patients to definitive medical care. The first on-scene resources, the gulf crew leadership, IHC crewmembers, the paramedics and leadership from the Foxtrot Strike Team, the Division Supervisor, and the HLCO all felt that the efforts to transport patients was the first priority. “We just knew we needed to get them headed down the hill towards the hospital”. This unity of effort resulted in the most critical patient arriving at the hospital in approximately 54 minutes after the accident occurred. The Safety Officer on the scene commented “I kept looking for holes to plug or problems to fix and I just couldn’t find any. Everyone was calm and focused, no one was rattled or over excited.” The FLA team discussed that this is likely a result of a higher focus on IWI’s by IMTs and individual crews. The Dutch Creek incident was specifically mentioned several times during incidents as being in the back of their minds as they plotted a course of action or assembled resources to respond. The CAL FIRE/CCC crews regularly practice for IWI situations. The Foxtrot Strike Team was made up of paramedics who regularly run medical calls as part of their day-to-day work. The hotshot crew practices and briefs to IWI preparedness throughout the season. All of this focus on response to unintended outcomes seems to have paid off with an efficient, calm and successful response to a serious incident on the fireline. Field resources should be encouraged to continue to prepare and practice for these events.
- During the incident, some of the terminology used by various fire crews came into play as a point of confusion. When paramedics from the local government engine strike team integrated with the scene, they encountered a patient in a litter and asked, “is there a medic with the patient?” The team attending the patient responded “yes”. It was later determined that it was an EMT (BLS) with the patient, not a paramedic. The FLA team found that the term “medic” is used by many crews as a generic term for a person capable and trained to provide first aid but not certified to the level of paramedic. This caused the paramedics responding to the incident to pass by a patient when they would have stopped to provide a higher level of care. The use of the generic term “medic” caused a miscommunication between resources on scene. The paramedics from the Foxtrot Strike Team learned to ask specifically if there is a paramedic (ALS) attending the patient rather than assuming the term “medic” meant a qualified paramedic was on scene. As wildland fire crews continue to be staffed with higher qualified EMS providers, the generic term “medic” is likely to cause this confusion into the future. Paramedics on wildland fire incidents should not assume a “medic” is a paramedic with ALS skills and equipment and should clarify if providers attending a patient are ALS or BLS providers. It was determined that this was the quickest and most universal language to get the best care to patients in the field.
- CAL FIRE operates Type 1 & 2 hand crews in conjunction with the California Conservation Corps (CCC), the California National Guard (CNG) and the California Department of Corrections and Rehabilitation (CDCR) to staff Fire Crews in accordance with their respective master interagency agreements. CAL FIRE is currently authorized to operate 16 CAL FIRE Firefighter Crews, 24 CCC Fire Crews, 4 Parolee Fire Crews, 13 CNG Fire Crews and 152 CDCR Inmate Crews. These crews are available to respond to all types of emergencies including wildfires, floods, search and rescue, and earthquakes. A “Gulf” strike team has a configuration of 2 California Type 1 crews and a Strike Team Leader. A “Hotel” strike team has a configuration of 2 Type 2 or 2 Type 2 IA crews and a Strike Team Leader. Understanding the various types of Gulf strike teams that could be assigned to a fire is important, but CAL FIRE emphasizes that each Gulf strike team meets their Type 1 standard.
- Moving patients on the fireline in complex terrain is one of the biggest challenges to IWI incidents. A tool that all CAL FIRE resources carry on the line is a BLS Emergency Line Pack. The BLS Line Pack includes a lightweight soft litter which is a portable patient transport unit “carry-all”. It is a

lightweight, disposable, woven material with nylon carry handles. This is a great tool to have where it is needed most with the crews. Several participants remarked on the utility of the carry-all and mentioned they would pursue getting them distributed out to their crews. These carry-alls can be combined with immobilization devices such as splints or backboards and provide many more options for moving patients of all sizes. “The carry-all came out of nowhere and was great when we had to move the first 2 patients out of the hazard area; that thing rocked.”



A MegaMover™ is an example of a carryall device like the one used to move patients during the KNP Complex Tree Strike.

FLA Team Members:

The FLA team was assembled jointly by the National Park Service and CAL FIRE. The team worked on site for 5 days gathering information and conducting interviews with individuals involved with the incident. The FLA team would like to thank the NPS, CAL FIRE, and CCC leadership for their encouragement to tell this story for the benefit of the wildland fire community. Similarly, the individuals and crews involved were interested in telling this story and to share their success and learning in bringing this incident to conclusion.

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