204 Cow Fire, August 29. 2019

USFS Pacific Northwest Region, Malheur National Forest

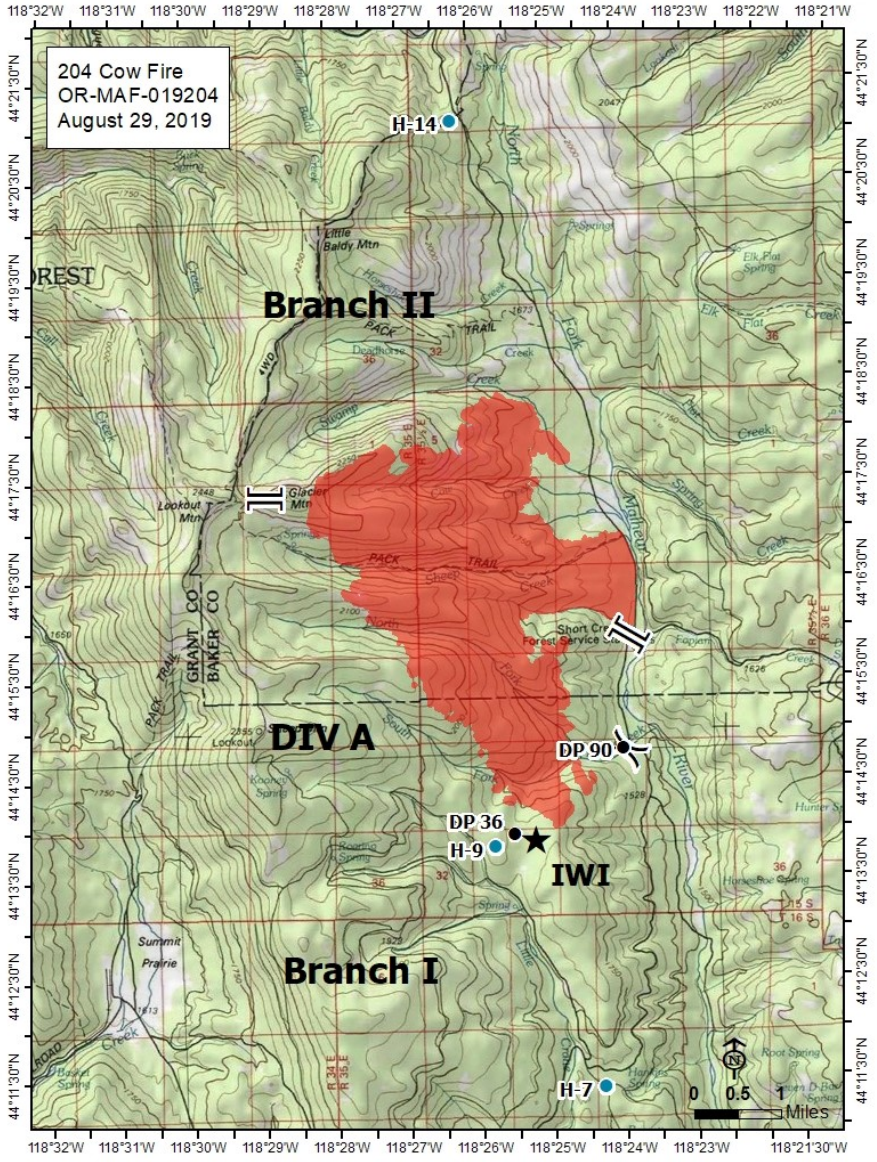
Tree Strike Injury Facilitated Learning Analysis

SUMMARY:

On August 9, 2019, a lightning storm passed through the Malheur National Forest, igniting several fires. Some of these fires occurred in an Inventoried Roadless Area (IRA) with previous fire history including snags and dead/down material as well as beetle kill. The area was then monitored by frequent aerial detection. On August 14, one fire had grown to 1.5 acres. On August 19, it was 3 acres, and by August 20, at 1500 hours, it had increased to 70 acres. This fire was named the 204 Cow Fire, and a Type 2 Incident Management Team was soon delegated authority to suppress the fire.

NARRATIVE/CHRONOLOGY:

On August 29th, an interagency hotshot crew (IHC) was assigned the mission of catching spot fires on a portion of the 204 Cow Fire, designated as Division A. The IHC was engaged in identifying primary and contingency line locations, and locating and catching spot fires outside the primary line. The tactics for Division A had recently transitioned from building indirect fireline by prepping a road/ridge system around the fire with the intent of burning the lines out to addressing spot fires in the area. The fire had made a run to the south the day before, stalling out near the pre-identified control line. The resources in the area were highly aware of snag hazards and were making sound risk-based decisions on line locations, due to the snags. The IHC was split into several groups to address numerous small spot fires. The IHC saw team (IHC 1 and IHC 2), engaged on a 1/10 acre spot and cut saw line through some recent logging slash around the spot. On the edge was a burning stob about 10-12 feet tall and approximately 30" DBH. The IHC saw team sized up the stob and determined it should be cut, but it and the surrounding area were too hot to address without cooling.

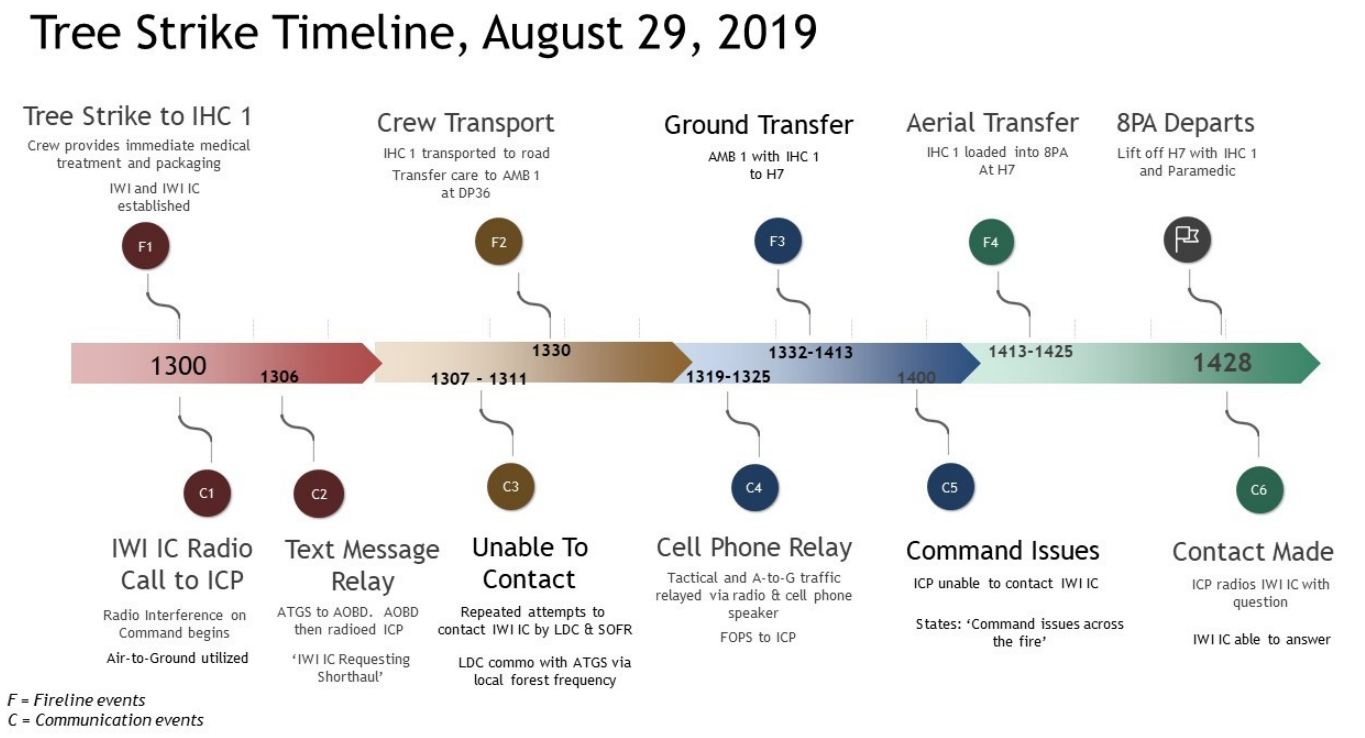


After discussing their options, the saw team decided to call in a nearby skidgine to apply water to the stob to cool it before cutting. The stob had a slight lean and a small cat face on the side of the lean. IHC 2 then stepped away from the stob to make radio contact with the skidgine. IHC 1 moved over near the stob to use a handtool to clear away slash from the intended lay. IHC 2 observed movement in their peripheral vision, looked over to see the stob falling over directly onto IHC 1, knocking IHC 1 face first onto the ground. IHC 1 quickly reacted by scrambling 20 feet forward away from the stob to an unburned area where IHC 1 came back to rest face down. Crewmembers then helped IHC 1 to a safe location away from the fire. IHC 2 immediately called via their radio crewnet for assistance and injury assessment of IHC 1. One of the crew's two EMT's, (IHC EMT) responded first, as they were close by. IHC EMT left IHC 1 face down and began an initial assessment for injuries including checking airway, vital signs, and chief complaints. Due to mechanism of injury and potential spine injury, IHC EMT decided to leave the patient face down until enough responders arrived to safely turn IHC 1 over to a face up position. The remaining IHC crewmembers began retrieving medical supplies from their vehicles including trauma kits and backboard/litter and also started to cut a P-Line (path) to the nearby road (about 400 feet) for evacuation and transport.

Once the incident-within-an-incident (IWI) occurred, the IHC Superintendent (IHC Supt) immediately called the 204 Cow Fire Incident Command Post (ICP) to report the IWI per the pre-identified and briefed response plan. After this initial call, the incident's command repeater system stopped functioning and the IHC was no longer able to consistently and effectively communicate with ICP. The IHC Supt assigned another IHC crewmember to be the IWI incident commander (IWI IC). The IWI IC was also not able to communicate via the command repeater. The IHC Supt made contact with the incident Air Attack Group Supervisor (ATGS) to relay information and answer relevant questions. The IWI IC tried using the command repeater and two of the local forest repeaters that were part of the incident communications plan but did not make contact with ICP. The ATGS made contact with the Air Operations Branch Director (AOBD) back at ICP via cell phone text message information regarding the need for the short-haul helicopter (8PA) that was currently assigned to the sub-geographic area. On August 29, 8PA was completing aerial ignition operations and recon for the 204 Cow Fire. 8PA was shut down at H 14 when the IWI occurred. The IWI IC was communicating via the assigned TAC channel to relay information to overhead. The command frequency came back up long enough for the IWI IC to communicate the Medical Incident Report to ICP that the patient was determined a "yellow" severity (serious injury) and would need medical transport. The IMT's team of three Safety Officers (SOFR's) positioned a SOFR at the local dispatch center to provide additional communication options, via cell phone.

The incident's contract advanced life support ambulance (AMB 1), stationed in the adjacent division, was contacted and instructed to respond to the IWI location to conduct patient care and transport. While the IHC was working on the patient, the field Operations Section Chief (Field OPS) was monitoring the IWI on his vehicle radio with limited information and broken audible transmissions. Field OPS and trainee decided to position themselves on a known high point which was also one of the few locations that had consistent cellular service. Once in this location, the Field OPS was able to make contact via cell phone to ICP through the Planning Operations Section Chief (Planning OPS) and was able to broadcast the communication that was occurring via the TAC channel over a cell phone speaker to ICP. This was one of the few ways the IMT could receive critical information to help make decisions as to the appropriate response and support to the IWI. By this time, IHC 1 was being carried via spine stable litter to the road to transfer to AMB 1. Once AMB 1 arrived, the IHC EMT transferred medical care to the paramedic on AMB 1, a higher qualified provider, per standard protocol. Due to the nature of the injury and condition of the road system, AMB 1 assessed and determined IHC 1 should be flown rather than endure a bumpy ground ambulance ride. Through conversations with the IWI IC, AMB 1, ATGS, and Field OPS, a decision was made to utilize H7 instead of H9 due to the short distance the patient would need to be carried uphill to the helicopter at H9. AMB 1 would be able to physically drive up to 8PA's location at H7. It was decided that AMB 1 would drive a short distance to the pre-identified helispot (H7) that had navigable road access. 8PA, which had reconfigured from their earlier mission and was prepositioned nearby at H9, was then repositioned to H7 to meet the ambulance and internally transport the patient to the John Day airbase.

Through the unconventional communication between the IWI responders and the IMT at ICP, the decision was made to have the air ambulance helicopter (Air AMB) meet 8PA at the John Day airbase and transfer IHC 1 to Air AMB. This information was relayed via cell phone from SOFR1 in camp to SOFR2 in dispatch. Once IHC 1 was delivered and medical care transferred to the Air AMB crew, they decided to fly IHC 1 to St Charles Hospital in Bend for further care. From the time of the stob striking IHC 1 to departure from the incident, less than 1 ½ hours elapsed. Once at St Charles, IHC 1 was evaluated and further tests were conducted which determined there was no serious injury or damage to the spine. IHC 1 was released later that evening and is expected to make a full recovery.



LESSONS LEARNED

Communications

- Incident communications have long been problematic and often times difficult to fully provide consistent service for firefighting personnel. Some problems that are encountered include: interference with surrounding incidents, mountain top battery/solar issues, access to good locations for mountain top repeaters for radio coverage, aging equipment, and adequate numbers of quality and qualified personnel to design, set up, and maintain systems. Communications Unit Leaders are being tasked with designing communications systems that are far different in scope and scale of what the systems were designed and used for in the past. Larger incident footprints encompassing vast terrain features create linking and connection challenges. Our ultimate goal is to provide constant and effective radio coverage across an entire landscape of operations for an incident.

- Command frequencies are highly relied upon by fire personnel in emergency situations. Pre-planning and contingency planning by incoming Incident Management Teams and local units to create redundant systems could ensure fire personnel have a communications gateway in the event of a system failure. One solution the IMT had in place was including two of the local repeater frequencies in the communications plan.

  This is to ensure a redundant system is in place should the incident's command radio system fails. IMT's often use local frequencies upon arrival to an incident until the Incident communications system is operational. IMT's often clone incident communications frequencies and no longer list or brief to local frequencies as a backup. IMT's should keep local communications plans in radios and brief resources to their availability for back-up communications as well as potential use for surrounding initial attack responsibility or support. Fireline resources should familiarize themselves with the local frequencies and repeater locations.

- At 0900 on 8/29/19, a Communication Technician (COMT) and Radio Operator (RADO) assigned to the 204 Cow Fire made a routine visit to the CMD 8 repeater, located at Table Rock. The COMT immediately noticed that the 'whip' portion of the antenna was missing. The COMT notified the IMT communications unit of the issue, but was unable to locate the missing whip. The COMT installed a spare 1/4 wavelength whip, noting the set screws, which secure the whip to the repeater, were loose. The COMT tested the system with a watt meter, determining that about 80% of TX power was being reflected back to the transmitter. COMT noted this was not ideal, (standard is 5/8 wavelength) but a marked improvement until COMT could retrieve the correct device from ICP, return to CMD8 site and complete proper device installation.

- The Cow Communications Unit experienced multiple communications issues during the duration of the incident, as follows; "Hot Mic" on the command system, interference on Tac 1 frequency (168.0500), and interference on the A/G Primary frequency (166.9375). An additional issue was also noted by the Communications Unit: the C-3 repeater pair issued by NIFC has a high likelihood of having interference issues when the TAC 1 frequency is being utilized on the incident. This issue can be exacerbated if fire personnel are utilizing mobile radios to communicate on Tac 1 as there is higher likelihood that the additional power output will desensitize the repeater receiver. This issue could have played a role in the communications issues during the IWI as the Division on which the IWI occurred was assigned Tac 1 and the repeater that serviced the area was using the C-3 frequencies. In the event the adjacent channel issue is paired with a compromised antenna, the communications difficulties experienced by the personnel during the IWI are not hard to imagine.

- Faced with a command frequency failure on the 204 Cow Fire during the Incident-within-an- Incident, the affected resources found unconventional ways to communicate time critical information. Their actions speak to the doctrinal culture of wildland fire and the ingenuity and creativity that often makes us successful. A few examples of this for the 204 Cow Fire are; using the ATGS on the air-to-ground frequency to pass response needs to ICP via cell phone text message, the Field Ops using a cell phone to transmit responder conversations on the tactical frequency to ICP to help them better understand what is happening, responders using local repeaters to relay communications difficulties and important information to a local dispatch office knowing that the information could be relayed via phone between the dispatch office and ICP. Another example is the IMT placing a SOFR in the local Dispatch Center with cell phone communication to the ICP.

Crew and responders

- When the Incident-Within-an-Incident occurred on the 204 Cow Fire, the IHC immediately started taking action by communicating and making decisions based on available resources and severity of injuries. Additional division overhead responded to the scene but most did not insert themselves into the IWI response. We believe this was due to the IHC's established flow and rhythm and that inserting themselves would have proven more detrimental than helpful. Just two weeks earlier, the IHC that was managing the IWI had assisted with a response to an accident involving a private citizen. This accident occurred in a wilderness

area and also resulted in patient extraction via air ambulance. We believe that if the responding resources didn't possess and exhibit the experience and training that an IHC has for these situations, that the overhead on the incident would have provided additional assistance to the IWI to ensure its success.

Dispatch

- The Dispatch Center had worked with the geographic coordination center to request pre-positioning a NPS short-haul helicopter in the local area due to the elevated level of activity including the 204 Cow Fire. The regional protocol is to assign the short-haul helicopters to an area with activity but not to directly assign them to an incident. This strategy is used to ensure that the resource is available for a larger area and other incidents. This strategy also encourages nearby incidents to use the resource for their full capability of missions with the intent that they can reconfigure for short-haul operations if needed. The 204 Cow Fire was using the short-haul helicopter for PSD operations as well as recon. When the IWI occurred, the transition from PSD to short-haul or internal transport configuration happened seamlessly and the resource was ready to respond for either mission in a very short timeframe.

IMT

- The IMT managing the 204 Cow Fire had a serious Incident-within– an-Incident the prior fire season. After this incident and at the end of the fire season, the IMT reviewed and revised their team IWI protocols to better prepare themselves for the next IWI. One of these changes was to better coordinate with the local dispatch center. The IMT safety officers had early meetings with the local dispatch center and the local 911 center to come to agreements for how the IMT and the dispatch centers would work together to respond to IWI along with Initial attack incidents. The dispatch center and IMT agreed that due to the close proximity of the Incident Command Post to the dispatch center that in the event of a serious IWI, the IMT would send a Safety Officer to the center to coordinate the response. This relationship and understanding proved valuable during the IWI and reduced confusion about who was ordering what and where it was coming from.

RECOMMENDATIONS

Communications

- If a known issue occurs or exists with a command repeater, immediately follow-up with OPS, Safety and the affected DIVs to find a work-around before you need one i.e. place a human repeater that is able to communicate with fire resources in the affected area and back to communications on a known good repeater, until the situation is remedied. IMT's should ensure internal lines of communication allow for problems to be identified and elevated for resolution as rapidly as possible. Potentially affected fire personnel must be notified of appropriate alternate or interim plans.

- A recommendation has been made to the NIFC Communications Duty Officer (CDO) that whenever a C-3 system is deployed that the incoming COML is made aware of the possible interference issue with Tac 1. The COML can then choose to either not utilize Tac 1 or assign it to a division that is not in close proximity to the location of the C-3 repeater.

- Due to the weather extremes typical of radio repeater sites, extra effort must be taken to adequately secure equipment. Before Installing any communication system antennas, ensure the whip set screws are secure using the Allen wrench provided in the kit. Do not place flagging tape on the whip itself, as this can cause vibra-

tion and potentially loosen the set screws. Only install flagging below the ground plane of the antenna to avoid this issue.

Crew and Responders

- Snags vs stobs: Snags are and have been a primary concern for firefighters for decades. There are countless incident reports on snag incidents ranging from minor injuries or close calls to fatalities and serious injuries directly attributed to firefighters falling snags or working in the area around snags. Snags were at the forefront of discussion from the start of the 204 Cow Fire. The strategy chosen on the incident was driven by the desire to keep firefighters away from snags as much as possible. On the other hand, stobs have not been attributed to many injuries and are often seen as more of a nuisance to firefighters. They are difficult to cut due to lack of weight, and often require much more time and energy to fall. What we do know is that even though a stob may lack the height of a snag, they are still a hazard and should not be discounted as a threat to injury. This incident brings to light that while all hazards on the fireline are not equal, they all do require a high level of situational awareness and firefighters need to treat every hazard with the same level of concern.

IMT & Dispatch

- Ensure alignment with local dispatch center, assigned IMT and Medical Unit regarding Incident-Within-an-Incident and Medical Response protocols including local emergency service resources, 9-1-1, etc.

"Just because we've normalized this work doesn't make it any less dangerous.", IHC

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