

# Sustainable Resource Development Forestry Division Safety Program Safety Alert

No. 2007-02

July 16, 2007

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**Subject:** Hazard Tree Awareness on Fire Operations  
**Hard Hats Do Work!!**

**Area of Concern:** Anywhere in the Province



**Discussion:** On July 13, 2007, A 3 member Helitack crew was working on a hold-over fire from a lightning strike on the south side of the Wapiti River approximately 20 km. east of Grande Prairie. (See figure 4).

The crew had accessed the fire via helicopter the evening of the 12<sup>th</sup> at approximately 23:00 hrs, and did some initial work on the fire that evening before dark. The crew then pulled off the fire and camped overnight on a seismic line south west of the fire.

The crew started work on the fire on the 13<sup>th</sup> at approximately 08:00 hours digging out ground fire and falling snags and root burned trees within the burn.

Because of the distance from the fire to the river, and no water at the fire site, the crew requested bucket support on the fire and had a medium helicopter dropping water on the fire at approximately 11:58 hours.

The helicopter had made 5-6 drops before the incident occurred.

At approximately 12:15 the crew leader was in the process of bucking up a spruce tree within the fire, which he had fallen because of the concern of the burnt roots. At that point the crew was aware that the medium was coming back into the fire with another load of water, so they decided to move away from the intended drop site to the edge of the fire where they were out of the way and could observe the drop.

As the helicopter came over the fire; a standing dead aspen tree outside the fire perimeter, fell striking crew member a glancing blow on the side of his hard hat, hitting his shoulder, and scrapping down his side; knocking him sideways to the ground.

It should be noted that this tree was approximately 16 meters in length with a broken top (see figure 1), and 34 cm. in diameter at the point of impact (see figure 2) the root system was full of rot and there was fungus growths on the bole of the tree. (See figure 3).

He was immediately attended by a sector boss who had just arrived at the fire and the other crew members at the site; and he was then helped from the fire to a pickup spot to an A-star helicopter and medivaced to the forestry helipad at Grande Prairie, where he was met by an ambulance and transported to the Grande Prairie Hospital.

The injured worker was very lucky in that he didn't have any broken bones, just bruises, minor cuts and abrasions and possibly a mild concussion. He is being held in hospital so they can do some follow up X-Rays and examinations before releasing him.

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**What are the Lessons Learned?**

**The first point to make is that hard hats do work!!!! Make sure that everyone is wearing and using the correct PPE for the job at hand first time and every time you hit the line!!!**

- **Hazard trees at fire sites** – Crews need to take more time in assessing the trees both inside the burn, and outside the fire perimeter as to their potential hazard during fire operations. Priority must be given to trees immediately in the crew's work area and then a careful assessment should be made of trees outside the fire perimeter a distance depending on the height of the standing trees of the surrounding forest canopy. Any trees that have the potential of falling into or across the fire perimeter should be visually inspected.
- The crew carry out an assessment of the fire site when they come across trees with partially burnt root systems as to safety of working at such sites. Things to consider when assessing the potential hazards of both snags and green trees:
  - Trees have been burning for an extended period.
  - High-risk tree species (those that are known for rot and shallow root systems) are in the area.
  - Numerous downed trees.
  - Dead or broken tips and limbs overhead.
  - Accumulation of downed limbs.
  - Absence of needles, bark, or limbs.
  - Fungus growth on the stem of the tree.
  - Leaning or hung-up trees.
- Conduct a safety briefing with all crew members as to what safety procedures are to be taken to deal with the problem. Consider:
  - Identify and flag all high-risk snags and green trees.
  - Keep personnel out of the high-risk areas until the hazard has been removed.
  - Establish lookouts.
- All trees with fire damaged root systems, dead snags and with broken tops be fallen by a faller who is working with a spotter who watches for falling pieces and ensures that other crew members are kept well clear of the falling operation.
- Any trees that could be a potential hazard must be marked and all crew members made aware of their location. until they are dealt with.
- Even though the initial objective of any fire action is to contain the fire and extinguish it, crews must take more time in doing an initial assessment of all the hazards and ensure that everyone on the crew is made aware of these hazards before starting fire operations. A few minutes in the beginning can save someone hours and days of lost time and injury.
- **During bucket operations** - position crew members off to one side out of the flight path of the drop and ensure that people are looking in "all" directions during the drop to ensure they are not blind-sided by a sang or broken branch/top coming at them from different direction.
- Ensure that the helicopter drops from a safe height to eliminate as much of the downwash as possible. Accuracy is important, but safety considerations should take priority.
- Any drop assessments are to be done only when the helicopter is well clear, the drop zone and the treetops stop swaying from the down wash and/or water hitting them.

**Use It!!! Wear it!!! It can and will save you from injury!!!**

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**Area of Impact (figure1)**



**Length of Impact Tree  
Officer standing at point of impact (figure2)**



**Rotten Root Mass of Impact Tree  
(figure3)**



**View of Incident Site From the Air  
(figure 4)**

