U.S. Forest Service
Fire Operations Risk Management
Hazard Tree Risks and Mitigations

All employees working in and traveling through the forest are at risk of injury from falling snags, trees, and limbs.

Many areas in of our nation's forests are experiencing declining forest health conditions causing extreme hazard tree dangers. Broken tops, widow-makers, and root rot in many tree species are contributing to elevated hazard levels. Beetle infestations, wind events and abundant moisture have led to the creation of abnormally high safety hazards which are difficult to mitigate. This Hazard Tree safety advisory is designed to raise awareness among firefighters and all field going employees of the increasing risks from **falling tree hazards in forested lands** across the United States.

One way to deal with this type of risk is to avoid working in these high-risk areas. If any individual feels an assignment is unsafe they have the obligation to identify safer alternatives, if any, for completing the assignment. Employees are empowered to turn down an assignment if it is identified that the risks involved cannot be safely managed (reference Incident Response Pocket Guide, page 17).

This advisory serves as a "Heads Up" to firefighters and employees working in or mobilizing to forested regions that are especially affected by mountain pine beetles. Millions of acres in the western United States are plagued with dead or dying trees, most infected by insects. In Forest Service Regions 1, 2, 3, 4, 5 and 6, pine beetle infestations and snags are an ever-increasing hazard after years of drought, fire exclusion, and bug kill.

In Region 2 on the Arapaho and Roosevelt - The photo to the right is from a falling incident – clearly a "near miss" that occurred while working on a fuels project. *"The wind was less than 5 mph in the area and the trees were not touching each other. This rotten tree fell towards the sawyer when he was making the back cut on a nearby tree, (observe the red wedges.) Fortunately, the swamper noticed the other tree falling and was able to get the sawyer out of the way in time. Both the sawyer and swamper were able to escape being hit by the rotten tree."*

OTHER SAFETY ISSUES

- For decades, hazard trees have been associated with numerous deaths and injuries to people assigned to both fire operations and forestry project work. Incidents involving hazard trees and accidental deaths are one of the top concerns of Federal resource management agencies. The mountain pine beetle epidemic means that there are more standing dead trees than ever before, raising an acute need to be careful when working in these forest types, as trees can fall at any time. Hazard trees in or outside of infested areas can be dead, dying or even appear as green trees – yet many are unstable and are one of the most common hazards encountered in a forested environment. During the last couple of years there

have been an alarming number of near misses and injuries related to tree felling, fire fighting, and resource management projects. Recent close calls continue to be regularly reported.

- **A new near miss on the R3 South Fork fire**: *"While scouting an area during chainsaw operations in a bug kill area, a treetop broke loose hitting a firefighter with a glancing blow to the shoulder. Fortunately, the firefighter was treated and released with minor injuries."*
- **Another near miss incident within the last few days, on the Medicine Bow Routt:** *"I was out doing Goshawk surveys, walking up a hill to next call point, heard a gust of wind coming up from the trees behind me so I turned around to watch for falling trees (behind me). When I turned back around (now forward) I could see a large, probably 12"+ dbh lodgepole pine falling across my path about 10 feet or so ahead of me. It was a lodgepole pine, gray (with no needles), a very small root wad, and located on the moist side of the hill. The weather was mostly calm, with periodic wind gusts. Fortunately: no damage, no injury."*

Mitigations: All employees or crews should withdraw immediately if reliable radio communication is lost.

- **Develop and review Job Hazard Analyses and Risk Assessments:** Make sure they are current and applicable and reviewed prior to beginning work**.**
- **Training:** All firefighters and employees should be given basic training in recognizing potential hazard trees.
- **Briefing:** Brief all incoming resources on hazards specific to your area. When assigned to an area off your home unit, request a thorough in-briefing before beginning work.
- **Identify and evaluate work areas:** Evaluate the potential for increased fire behavior in these areas and identify and mitigate overhead hazards.
- **Implement LCES** (Lookouts, Communications, Escape Routes, Safety Zones) and any other hazard control measures. Look up, Look down and All Around for hazard tree indicators and high risk tree species**.**
- **Mitigate the hazards** with steps agreed to by you and your supervisor and known to all.
- **Establish an emergency medical plan** and ensure that it is current and known by all. Ensure adequate communications are established at all work locations.
- **Situational Awareness = SA = Staying Alive:** Check weather forecast before leaving, but be prepared if it's wrong.
- **Place camps and park vehicles** in areas where they will not be hit if a tree falls. Also take lunch and rest breaks in open areas, free of potential hazard trees.
- **Have an ax, saw or chainsaw** to remove fallen trees from roads in case you become trapped.
- **Are you prepared? Do you have the right Personal Protective Equipment?**
- **Fire Personnel** should follow current Risk Management and Risk Refusal procedures as specified in the PMS 461, Incident Response Pocket Guide.

SNAG (Hazard Tree) SAFETY:

Size up snag hazards in work area.
Never become complacent.
Always look up.
Get weather reports.

Scout out parking, sleeping, work areas, and safety zones.
Advise co-workers of known hazards.
Face your hazard and take appropriate action.
Examine work area for other hazards.
Take extra caution around heavy equipment.
You are ultimately responsible for your own safety

For more information on hazard trees try these websites:
http://www.nwcg.gov/branches/pre/rmc/httf/links.html,
http://www.fs.fed.us/r1/projects/haztree_index.shtml,
http://www.wildfirelessons.net/documents/Principles_Of_Hazard_Tree_Risk_Mgmnt.pdf,
http://www.nwcg.gov/pms/pubs/nfes1077/nfes1077.pdf

Many of you have had personal experiences with hazard trees. Share those experiences and lessons with others. It may save a life.