

Risk Assessment Analysis					Project Risk Assessment	Project: Tree Hazards (working within proximity of)				
Identification of Hazards and Risk Assessment						Mission Objectives:				
Subsystem	PRE-MITIGATION					Mitigation(s), Warnings and Reminders	POST-MITIGATION			
	Hazards (Loss of)	Likelihood	Severity	Risk Level	Likelihood		Severity	Risk Level	Additional Local Mitigation	Acceptable Yes/No
Emergency Preparedness	Lost, missing, or overdue employee	Remote	Catastrophic	SERIOUS	Follow unit check-in/check-out protocols. Ensure a communication and backup communication device is available and employees are trained.	Improbable	Catastrophic	MEDIUM		
	Emergency response to illness or injury	Remote	Catastrophic	SERIOUS	All work projects must have a document emergency medical plan. Employees shall be briefed on protocols and procedures before work begins. Consider periodic scenario training / discussion to increase employee awareness. At least one employee in every work group shall be certified in First Aid / CPR. An appropriate first aid kit must be immediately available. Work groups will contain no less than 4 people.	Improbable	Catastrophic	MEDIUM		
Hazard Trees	Dead and leaning trees (snags)	Remote	Catastrophic	SERIOUS	Take notice and use caution, when there are numerous dead trees on the ground, as this could be a sign that some type of disturbance may have been, or still is present in the area. If a dead tree falls, it has the potential to hit and knock down other trees.	Improbable	Catastrophic	MEDIUM		
	Damage to trunk	Remote	Catastrophic	SERIOUS	Be watchful of tree that have been partially cut/sawn or hit by vehicle/heavy equipment/falling tree. Current or previous fire.	Improbable	Catastrophic	MEDIUM		
	Root or Trunk rot	Remote	Catastrophic	SERIOUS	Look for conks (a rounded, fruiting body of fungus that can be found in various colors and sizes). Fungi are external reproductive structures that are usually visible and are a great indicator of what is going on inside a tree. As is, ants and abundant woodpecker holes, can indicate rot or other infestation. Be especially wary of conks near the bottom of a tree, this can mean the roots may be unable to properly hold the tree upright. Sprung roots - mounded soil or exposed roots, basil resin flow can also be sign of weakness.	Improbable	Catastrophic	MEDIUM		
	Dead Branches	Remote	Critical	MEDIUM	Be aware of not only dead trees covered with dead branches, but dead or defoliated branches on LIVE trees. Do not forget that disconnected dead branches that may have been caught in other trees may be waiting to fall, as well. Mistletoe, is another indicator that a limb is not healthy. Current or previous fire, also makes limbs likely to fall.	Improbable	Marginal	MEDIUM		
	Cracks	Remote	Catastrophic	SERIOUS	Be observant of cracks in trunks and branches. Decay of the heartwood plays a major role in tree failure. Look for fire scars, mechanical wounds and coks. If striking the tree with the the flat end of an axe produces a hollow sound, this may be an indicator of heartwood decay.	Improbable	Catastrophic	MEDIUM		
	Loss of foliate and thinning crowns	Remote	Catastrophic	SERIOUS	These are two easily visible indicator that a tree is not healthy and could have some sort of root problem, insect infestation or disease agent. It is very important to look for additional clues that will help you determine what the actual problem is, and how it may be weakening the tree or roots.	Improbable	Catastrophic	MEDIUM		

	Beetle Kill	Remote	Catastrophic	SERIOUS	Be watchful and notice areas of beetle infestation. It is important to look at all the trees in the area, keeping in mind that red trees are not the only weak ones, but the green trees are also. And present risk of toppling or dropping branches.	Improbable	Catastrophic	MEDIUM		
Operation in proximity to Aerial Hazards	Injury to person or property	Probable	Catastrophic	HIGH	Appropriate PPE: boots, gloves, hardhat, long-sleeves, eye protection, etc.. Inspect area for likely hazards before working or moving through the area. Maintain situation awareness, do not become complacent. Identify safe zones in work areas. Knowledge and emphasis of what makes a tree hazardous. Watch for; hazardous trees, dangerous weather changes, high winds, snags, or fallen trees/branches are hazards as well. Resource knowledge, skill, experience, education of environment and alertness; help to reduce risk. LCES (Lookouts, Communications, Escape Routes, and Safety Zones) at work site. Look up and Live.	Occasional	Critical	SERIOUS		
Tree Felling Operations	Injury to person or property	Probable	Catastrophic	HIGH	Proper training / qualification / authorization for operation of equipment. Establish cutting area control, and escape routes. Refer to policy and direction for procedural felling operations (include in pre-work, tailgate safety meeting). Walk away - right to refuse, if you feel unsafe (work within your abilities). Consider other felling/removal methods such as blasting, burning, cable, heavy equipment; that may reduce exposure time or risk. Ask, is this the right tool/method for the job?	Occasional	Critical	SERIOUS		
Heavy Equipment Operation	Injury to person or property	Frequent	Catastrophic	HIGH	Proper training / qualification / authorization for operation of equipment. Operate equipment according to all established protocols, and as instructed in the manufacturer's manual. Use a spotter when maneuvering. Use proper safety protocols if operating on/near roadways, or in area of possible pedestrian traffic. Maintain constant situational awareness. Heavy equipment increases likelihood of falling branches and leaning/unhealthy trees. Other members of work party to maintain safe distances from heavy equipment, and cautious of falling/shifting debris.	Occasional	Critical	SERIOUS		
Vehicle Operation	Injury to person or property	Frequent	Catastrophic	HIGH	Use restricted to certified and authorized personnel. Reduce speed appropriately for driving conditions. Back in and park in safe areas (one and a half tree lengths from nearest possible hazard). Appropriate tools and supplies in vehicle in even of emergency. Utilize guides when parking near groups of people or in dangerous areas. Abide by all traffic safety laws.	Remote	Marginal	MEDIUM		
Aviation Operations	Injury to person or property	Probable	Catastrophic	HIGH	Conduct crew and passenger briefings. Only experienced, authorized personnel conduct operations around/with aircraft. Maintain situational awareness. Clear area of trees, brush, snags, and debris that could harm the aircraft or personnel. Rotor wash will easily bring down snags, limbs, debris, and even healthy trees. Water and fire retardant, comes down with a lot of force, it is dangerous, and everything in its path is a potential projectile. Equipment/supply drops by line or parachute, will bring down limbs and possibly even healthy trees. Hazard trees are even more dangerous around aircraft and mechanical equipment.	Remote	Critical	MEDIUM		



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