U.S. Department of Agriculture Forest Service	1. WORK PROJECT/ACTIVITY Trail Maintenance	2. LOCATION Pacific Northwest Region - Washington State National Forests –	3. UNIT Pacific Northwest Region
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)	4. NAME OF ANALYST Chiara M. Cipriano	5. JOB TITLE Acting Volunteer & Service Program Coordinator	6. DATE PREPARED 5/5/2020

7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE	10. POST ABATEMENT ACTION RISK RATING (from the Severity/Probability Matrix)		
See JHA's: Motor Vehicle Operations, General Field Work			**Severity**	**Probability**	**Risk Code**
Personal Protective Equipment (PPE) (must be in the possession of all persons whenever doing trail work)	Eye injuries, cuts, abrasions, puncture wounds,head injuries, falling objects.	• Hard hat and work gloves • Boots with slip-resistant heels and soles with firm, flexible support • Eye protection • Long sleeve shirt and long pants • Hearing protection if working around high decibel equipment such as a chainsaw • First aid kit • Radio and/or cell phone. • Extra food and water. • Navigation system and illumination device.	II	C	High (RAC 2)
Vehicle Operation	Fatigue, Narrow and rough roads, Poor visibility, Mechanical failure, Weather	• Volunteers using non-government vehicles are responsible for their own safety while operating a motor vehicle and for obeying all applicable laws.	I	A	Extermely High (RAC 1)
Trail Travel	Dehydration, Contaminated Water	• Drink 4+ quarts of water per day when the temperature is above 80 degrees. Increase fluids on hotter days or during strenuous activity. • Drink water from a potable source. If none available, use proper treating techniques: boil water for 3-5 minutes, treat it with iodine tablets, or use an approved filtration system. • Observe crew members for signs of dehydration. • Review map or ask crew leader about water sources, keeping in mind the seasonality of the water source.	II	A	High (RAC 2)

	Falling objects, snags, trail hazards, carrying tools	• Be aware of your surroundings and footing. • Look for widow makers and snags. • Be aware of water crossings, marshes, and altitude changes. • Maintain a safe walking distance between people, particularly when carrying sharp and/or heavy tools. • Keep sharp tools sheathed when not in use and carry on the downhill side of trail.	**I**	**A**	**Extremely High (RAC 1)**
	Weather, Hypothermia, hyperthermia, lightning strikes, sunburn	• Check weather forecasts and be appropriately prepared. • Be watchful of changing weather. Weather conditions can change rapidly, particularly at high elevations. • Dress in layers and wear wool or synthetics if rain or snow is expected. • Identify safe zones that afford protection in a lightning storm. • Wear protective clothing including long sleeved shirt, long pants, full-brimmed hat/hard hat. • Use sun block and lip balm. • Stay hydrated and take breaks in shade as necessary	**I**	**A**	**Extremely High (RAC 1)**
	Getting Lost	• Identify routes and local conditions and ensure group members know itinerary, particularly for those unfamiliar with area. • Travel in a group when possible. If one has to depart from the trail, advise a crew member. • Avoid traveling in the dark. • Designate a meeting spot should someone become separated. • Carry a map and compass or GPS. • Maintain communications with other crew members and Dispatch/ or crew leader	**III**	**A**	**High (RAC 2)**
	Heavy Brush	• Wear protective clothing such as long sleeve shirt, long pants, hard hat, work gloves, and protective eye wear. • Watch for others when discarding brush.	**III**	**C**	**Medium (RAC 3)**
Trail Work	Animals	• Be observant of snakes which like to live under logs and shady areas. • Be aware of rabid animals.	**II**	**C**	**High (RAC 2)**

	Insects, bees, ticks, spiders	• Identify crewmembers that are allergic and keep them out of work locations where bees are present. • Communicate bee hive locations to other crew members. • Be aware of hives in brush or hollow logs. • Use insect repellant. • Wear light-colored clothing to easier locate insects. Clothing should fit tight at the wrists, ankles and waist. Tuck in shirt tails. • Search your body, especially hair and clothing, for ticks and insects at least every 24 hours.	**I**	**C**	**High (RAC 2)**
	Poisonous Plants	• Educate crewmembers on plant identification. • Whenever the skin contacts a poisonous plant or noxious weed, wash the area with cold water within 1 to 3 minutes or as soon as possible. • Wear gloves when pulling weeds.	**III**	**C**	**Medium (RAC 3)**
	Other Trail Users	• Inform crew members when you see other trail users approaching work area. Work stops until the public is clear of work area. • If a potential hazard exists, crew members can stand watch at safe distances and stop users until the hazard is cleared. • Ensure users have a clear path around work site and communicate that path to them. • Place tools off the trail in a centralized location. • Keep sheaths on sharp edged tools when not in use.	**II**	**C**	**High (RAC 2)**
	Stock	• Inform fellow crew members when stock approaches. • Identify yourself and describe work operations to lead rider. Work stops until the stock has cleared the work area. • Stand off the trail on the downhill side. • Place tools a safe distance away from the trail. • Do not make sudden movements or loud noises. It may be helpful to take your hard hat off and speak to riders until animals pass.	**II**	**C**	**High (RAC 2)**

	Sharp Tools	• Keep sharp tools sheathed when not in use and carry on the downhill side. • Be aware of others around you. • Communicate with others when approaching from a blind spot. • Space yourselves when hiking.	**II**	**C**	**High (RAC 2)**
	Back Injury	• Use proper lifting techniques when lifting: Bend knees, not back. • Request assistance when lifting heavy items. • Communicate your intentions to those working with you to avoid surprises. • Favor rolling or dragging over lifting. • Use tools to limit exertion and “work smarter.” • Stretch periodically.	**II**	**C**	**High (RAC 2)**
	Tool Use	• Properly maintain and care for tools so they are sharp and serviceable. • Carry tool with sheath fastened. • Look around for others and hazards before swinging tools. Have firm footing and be balanced when swinging. Maintain tight grip on tool handles. • Never throw a tool. • When not in use, shield any sharp edges. • Limb logs on the opposite side of you. • Wear pertinent PPE. • Move large rocks with a lever or bar versus hitting with a tool. • Do not use tools that are in disrepair, such as a broken handle. • Repair broken tools. If cannot be prepared, flag and LABEL tool to avoid use by another crew member. • Avoid working in the dark.	**II**	**C**	**High (RAC 2)**
	Hand and Foot Injury	• Communicate when moving large or heavy objects. • Do not roll anything heavy when people are downhill. Anticipate the roll of any loose object. • Watch for limb and stubs on rolling trees. • Wear pertinent PPE.	**II**	**C**	**High (RAC 2)**
	Overhead Hazards	• Be watchful of loose limbs and dead/burned trees, particularly during windy conditions.	**I**	**C**	**High (RAC 2)**

		• Communicate to other crew members when hazards are identified.			
Communications	No communication	• Have agency compatible radios on crew. • Ensure radios have properly programmed frequencies, are in working order, and have an extra set of batteries before departure. • Ensure knowledge of usable repeaters and best locations to use radios during emergency. • Check-in before project and check-out after project with Dispatch or (for volunteers) the designated crew leader	**IV**	**D**	**Low (RAC 4)**
	Emergency Response	• For large or high-complexity projects, ensure Emergency Response Plan (ERP) is in place prior to beginning of project	**IV**	**D**	**Low (RAC 4)**
11. LINE OFFICER SIGNATURE	12. TITLE	13. DATE			

JHA Instructions (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) involved in the process, the date(s) of acknowledgment, and the name of the appropriate line officer approving the JHA. The line officer acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:

a. Research past accidents/incidents.

b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.

c. Discuss the work project/activity with participants.

d. Observe the work project/activity.

e. A combination of the above.

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in block 8. Abatement measures listed below are in the order of the preferred abatement method:

a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.

b. Substitution. For example, switching to high flash point, non-toxic solvents.

c. Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.

d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills, and portable water pumps).

e. A combination of the above.

Block 10: The values for Severity, Probability, and the overall Risk Assessment Code (RAC) will correspond to the Risk Management Matrix (attached).

Block 11: The JHA must be reviewed and approved by the appropriate manager / supervisor, as identified in the Risk Decision Authority Matrix.

Block 12 and 13: Self-explanatory.

Emergency Evacuation Instructions (Reference FSH 6709.11)

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

a. Nature of the accident or injury (avoid using victim's name).
b. Type of assistance needed, if any (ground, air, or water evacuation).
c. Location of accident or injury, best access route into the worksite (road name/number), identifiable ground/air landmarks.
d. Radio frequencies.
e. Contact person.
f. Local hazards to ground vehicles or aviation.
g. Weather conditions (wind speed & direction, visibility, temperature).
h. Topography.
i. Number of individuals to be transported.
j. Estimated weight of individuals for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment

We, the undersigned work leader and crew members, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents: **Trail Maintenance- MFRD 2016**

SIGNATURE	DATE	SIGNATURE	DATE

6713.4 - Exhibit 01

Risk Management Matrix

Safety Risk Assessment Codes							
HAZARD PROBABILITY							
			Frequent	Likely	Occasional	Seldom	Unlikely
			A	B	C	D	E
SEVERITY	Catastrophic	I	Extremely High (RAC 1)		High (RAC 2)		Medium (RAC 3)
	Critical	II	Extremely High (RAC 1)		High (RAC 2)	Medium (RAC 3)	Low (RAC 4)
	Marginal	III	High (RAC 2)		Medium (RAC 3)		Low (RAC 4)
	Negligible	IV	Low (RAC 4)				

6713.4 – Exhibit 02

Severity Definitions

Severity		Effect
Catastrophic	I	Death or permanent disability, system loss, major property damage
Critical	II	Permanent partial disability, temporary total disability in excess of three months, major system damage, significant property damage
Marginal	III	Minor injury, lost workday mishap, compensable injury/illness, minor system damage, minor property damage
Negligible	IV	First aid or minor medical treatment, minor system impairment

6713.4 – Exhibit 03

Probability Definitions

Probability	
A. Frequent	The event occurs often, frequently, or with regularity in one's career or the life cycle of equipment items
B. Likely	The event occurs periodically with some regularity but not frequently enough to be predictable
C. Occasional	The event occurs sporadically but not with consistent regularity or predictability in ones career of the life cycle of equipment
D. Remote	Possible to occur but the chances of the event occurring are remote
E. Unlikely	In this case, it is unlikely the event will ever occur