

<p>U.S. Department of Agriculture Forest Service</p>	<p>1. WORK PROJECT/ACTIVITY Backcountry Trail Work, Travel, and Environment</p>	<p>2. LOCATION Flathead National Forest</p>	<p>3. UNIT Spotted Bear Ranger District</p>
<p>JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)</p>	<p>4. NAME OF ANALYST  Dave Arbach, Hans Castren</p>	<p>5. JOB TITLE Forestry Technician, Natural Resource Specialist</p>	<p>6. DATE PREPARED 01/03/2011</p>
<p>7. TASKS/PROCEDURES</p>	<p>8. HAZARDS</p>	<p>9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE</p>	
<p>*Foot Travel (11.2-11.32)</p> <p>*</p> <p>*Fording Rivers &amp; Streams</p>	<p>Physical Exhaustion</p> <p>Personal Injuries (general)</p> <p>Slipping &amp; Falling</p>	<p>-Pace yourself. -Know your limitations. -Report for work in reasonable shape. -Stay in constant visual or verbal contact with your fellow crew members. -Crew leaders are responsible to keep their crew moving as a single unit and should travel as fast as the slowest member.</p> <p>-Proper Personal Protective Equipment (PPE) should be in good condition &amp; worn at all times: -Eight inch high leather boots with lugged soles when working with tools; hiking boots may be worn when just walking and not working with tools -Leather gloves -Wear a long sleeve shirt to prevent cuts and scrapes. -A hardhat is to be worn at all times in the woods when working with hand tools and/or if wind conditions warrant. -Eye protection -At least one person in the crew must carry a first aid kit in their pack at all times -Two way radio (see Communication Plan) All crews must have at least one two way radio.</p> <p>- Avoid fording rivers and streams when possible. - Do not ford a stream unless you are certain that <b>all</b> members of your group can ford safely. - When streams are muddy or you can hear rocks rolling along the stream bed, they are likely too high to cross safely. - Stream levels tend to be higher during and immediately after rain storms. Stream levels tend to be higher on hot afternoons and lower on cool mornings. Plan accordingly. - When fording is unavoidable, select the safest location. Select a site with wide, shallow, slow moving water. Stream bottoms covered with gravel and cobbles are safer than boulders. Select fords where the stream is straight rather than at a curve. Fording multiple channels or braids is generally safer than crossing a single large channel. Avoid fords with hazards directly</p>	

		<p>downstream such as rapids and log jams.</p> <ul style="list-style-type: none"> <li>- Use a trekking pole or stout walking stick to probe the stream bottom ahead of you and stabilize yourself.</li> <li>- Shuffle your feet rather than taking long strides. Walk on stream bottom rather than stepping from boulder to boulder.</li> <li>- Loosen your shoulder straps and unbuckle your waist belt and chest strap prior to fording a stream. Discard your pack if you fall and are being swept downstream.</li> <li>- Do not ford streams barefoot. Wear wading shoes, rubber soled sandals or hiking boots.</li> </ul>
7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE
*Working and Traveling in Cold Weather Conditions (54.22) (54.22b)	<p>Blisters</p> <p>Hypothermia</p>	<ul style="list-style-type: none"> <li>-Wear boots that are adequately broken in. carry "camp shoes"</li> <li>-Stop and tend to hot spots when they first appear</li> <li>-Carry first aid kit with stocked blister kit. Have duct tape available.</li> <li>-Wear 2 pairs of socks ( 1 cotton, 1 wool)</li> </ul> <p><b>-HYPOTHERMIA IS A MEDICAL EMERGENCY</b></p> <ul style="list-style-type: none"> <li>-The potential for hypothermia can occur on cold, wet, &amp; windy days with temperatures at or above freezing, (32 degrees F)</li> <li>-Get adequate rest.</li> <li>-Anticipate bad weather. Carry additional warm clothing with you and dress in layers, polypropylene or wool underneath, with windproof and waterproof material on top are ideal. Ensure that your hand, feet, face, neck and head are covered and well protected.</li> <li>-Keep active to maintain the body's metabolism and keep your body temperature high.</li> <li>-Prevent dehydration by drinking warm water. Avoid drinking cold water, snow or ice. Avoid caffeinated beverages</li> <li>-Travel in pairs as a minimum. Never travel alone in isolated areas (sec 11.1). A line officer or other competent person must approve and document the assignment of employees to work alone in undeveloped areas (sec. 21.14). 54.22</li> <li>-Find shelter and firewood before dark</li> <li>-A 30 gallon plastic bag can be a good shelter in an emergency</li> </ul> <p><b>-HYPOTHERMIA SYMPTOMS INCLUDE:</b></p> <ul style="list-style-type: none"> <li>-Feeling cold, pain in extremities, shivering, numbness,</li> <li>-Muscle stiffness (especially in the neck, arms, and legs)</li> <li>-Poor coordination, drowsiness, slow or irregular breathing and heart rate</li> <li>-Cool skin, and puffiness in the face</li> </ul>

\*Working and Traveling in Hot Weather Conditions  
(54.11) (54.21)

Hot Conditions—  
Dehydration, Heat  
Stress, Sunburn

- Thinking processes slow and victims become apathetic and disagreeable
- As the body core cools further, mental function is impaired to far greater extent, leading to confusion, disorientation, and lethargy
- Slurred speech and loss of vision occur just prior to terminal coma

**-HYPOTHERMIA FIRST AID:**

- Call for medical help. Transport the victim to a hospital for care as soon as possible
- Give artificial respiration when necessary
- Move the victim into a warm area. If shelter is not available, build a fire. Prevent further heat loss
- Get the victim out of frozen, wet, or tight clothes
- Bundle the victim in warm clothes, blankets, or sleeping bag

-If the victim is mildly impaired, give the victim warm liquids (no caffeine or alcohol)

-If the patient is semiconscious, try and keep the person awake. Remove the patient's clothing and put the patient in a sleeping bag that has been previously warmed by another person not compromised by hypothermia. Do not give liquids until fully conscious

-Transport the victim to the nearest hospital. Keep the person lying down and as still as possible

-Do not assume the hypothermia victim is dead even though the person may appear to be. There may be no detectable heartbeat, breathing, or other signs of life. Rescue breathing may be given en route to the hospital.

-Handle severe hypothermia patients extremely gently! Any jostling or rough movements could cause patient to enter cardiac arrest.

-Carry and drink plenty of clean or purified water, even when you are not thirsty

-Keep exposed skin covered by wearing a hard hat, bandana, and long sleeved shirt. Wear sunglasses that filter out 100% of UV rays. Use sunscreen

-Keep hydrated. Drink water before, during and after work. Ensure that everyone in the crew has adequate water supplies until the next resupply.

-Plan work activities in accordance with cool and hot hours of the day. If possible work in the shade during the heat of the day

-Pace yourself to prevent exhaustion and overheating

-HEAT CRAMPS are identified by muscular pains and cramps, with leg and abdominal muscles usually affected first. Remedies include stretching and gently massaging cramped muscles and applying a

\*Thunderstorms (54.23)

Lightning

heating pad or hot water bottle to help relieve muscle spasms

HEAT EXHAUSTION is characterized by fatigue, weakness, and collapse. The skin becomes pale, cool, and clammy, accompanied by nausea, dizziness, a throbbing headache, breathing problems, and diarrhea. Recommended actions include moving to a cool, shady place, lying with the feet raised 8 to 12 inches above the head, and loosening clothing and applying cool compresses to the skin. If there is no improvement quickly, seek medical attention at once

HEAT STROKE IS A MEDICAL EMERGENCY. Unacclimatized employees are especially prone to heatstroke. Symptoms are confusion, high body temperature, hot (often dry) skin, rapid pulse, convulsions, loss of consciousness, and coma. LACK OF SWEATING IS ONE SIGN OF IMMINENT HEATSTROKE. DO NOT DELAY TREATMENT, IT MUST BE IMMEDIATE. COOL THE BODY DOWN QUICKLY. Administer fluids and TRANSPORT THE VICTIM TO A MEDICAL FACILITY AS QUICKLY AS POSSIBLE

- Do not use radios or telephones.
- Put down all tools
- Avoid grouping people together
- Avoid the tops of ridges, hilltops, wide open spaces, ledges, rock outcrops, and shelters in exposed areas. Avoid tall objects such as lone trees. Your best protection outside is a canyon, ditch, or head-high clumps of trees.
- The best protection in open country is to make yourself as small a target as possible. Drop to your knees, bend forward with your hands resting on your knees, and keep a distance of twice the height of the nearest tree between you and the tree. Keep your feet together.
- Move away from horses and stock

-Persons struck by lightning may receive a severe electrical shock and burns, including entry and exit wounds. These individuals carry no electrical charge after exposure to lightning and can be touched safely. VICTIMS OF A LIGHTNING STRIKE MAY SUFFER RESPIRATORY AND/OR CARDIAC ARREST. THEREFORE, ADMINISTER CPR IMMEDIATELY IF NEEDED AND FIRST AID, AS REQUIRED

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Wind

- Wear your hardhat at all times. Extreme winds can blow down large tracts of timber and branches in relatively short times
- If caught in a timbered area during periods of high winds, get into a natural opening large enough to give protection from falling trees and

Human, Wildlife Interaction

Bear Encounters or Attacks  
Reference H&S Handbook  
53.7,53.71,53.72

limbs

- All bears are potentially dangerous. Bears may attack for no apparent reason. Bears may become aggressive and attack to protect their young or a food source. Bears may attack when surprised or threatened. Bears may stand on their hind legs or approach to help see and identify you, this may not be a sign of aggression.

- Minimize your likelihood of encountering bears by working in groups and making noise when possible. Use extra caution when working or travelling in areas with fresh bear sign or areas known to be frequented by bears.

- If you encounter an animal carcass with bear sign, leave the area immediately and tell your supervisor and any other people in the area.

- If you do encounter a bear in close proximity, remain calm and move away slowly. By moving slowly and speaking in a low voice you can help the bear identify you and reduce the threat. Do not shout or act aggressively. Shouting or acting aggressively could cause the bear to charge.

- If you encounter a bear that appears aggressive, move away slowly but deliberately. If pursued, you may distract the bear by dropping an item such as a hat or coat. Climb a tree if you can get out of the bear's reach, at least 10 feet above ground. Contact your supervisor immediately.

- If you are attacked, or feel an attack is imminent, prepare to defend and protect yourself. Tools, rocks or sticks may be used defend yourself. To protect yourself in an attack, assume a position face down with your legs tucked to your chest and your hands clasped behind your neck. Contact your supervisor and any other people in the area as soon as possible.

- When camping in bear habitat, follow the food storage order and keep all food, dishes and trash away from your sleeping area. Minimize food odors in sleeping area, tent and sleeping bag. If a bear enters your camp, make noise and confront the bear. Fires, noise and human activity generally discourage bears from entering camps. If the bear is aggressive or appears ready to attack, prepare to defend and protect yourself.

Bear Spray  
Reference R1 H&S Supplement 6700-97-2, 6742 thru 6744.

- **BEAR SPRAY** - Bear spray contains a highly concentrated pepper oil that has been shown to be highly effective when used properly, to avoid or stop bear attacks. Bear spray is available for employees that are trained to use it. You are strongly encouraged to carry bear spray when working, travelling or camping in bear habitat.

Mountain Lions  
(53.72)

-Make noise while you work and travel to prevent surprising a lion.  
-Give the lion a way to escape. Talk calmly yet firmly.

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<p>*</p>	<p>Insects (53.61) (53.61a)</p>	<ul style="list-style-type: none"> <li>-Stop or back away slowly. Never crouch, try to hide, turn away or run away.</li> <li>-Try to appear larger by raising arms or object over the head.</li> <li>-If the lion behaves aggressively, throw stones, branches, or whatever can be reached without crouching around or turning away.</li> <li>-Fight back if attacked. Protect head and neck.</li> </ul> <ul style="list-style-type: none"> <li>-Be prepared for mosquitos and flies by carrying repellent and wearing protective clothing (nets, long sleeves, pants).</li> <li>-Watch out for bee nests. Carry sting swabs to ease the pain if stung and a sting kit if you are allergic</li> <li>-Let your crew know if you have allergic reactions, and inform them as how to treat you if stung</li> <li>-If attacked by bees, shield your face and leave the area</li> </ul>
<p>*Hunting Season (21.31)</p>	<p>Accidental Shootings</p>	<ul style="list-style-type: none"> <li>-Wear hunter orange safety vest during hunting season</li> <li>-Post signs near work sites to warn hunters of crew location</li> <li>-Reschedule jobs to allow crew to safely work away from hunters when possible</li> <li>-Visit hunting camps and warn hunters in the camp that crews are working in the area</li> <li>-Avoid wearing clothing during hunting season that is the same color as the game animal being hunted</li> <li>-Avoid using stock during hunting season that is the same color as the game being hunted</li> </ul>
<p>*Trail Clearing</p>	<p>Use of Hand Tools-- Injury</p>	<ul style="list-style-type: none"> <li>-Inspect tool handles and heads for flaws and needed repairs</li> <li>-Wear gloves, sturdy boots, long sleeved shirt, long pants, hardhat, and eye protection.</li> <li>-Carry all tools in scabbards. Do not carry tools over your shoulder, except as described under crosscut saws and chainsaws.</li> <li>-Ensure proper footing before beginning to use your tool.</li> <li>-Provide for adequate spacing, at least 10' between your neighbor. Clearly communicate when you need to pass by and wait for people to stop working before moving through.</li> <li>-Keep tools sharp to prevent bounce back</li> <li>-Do not stand behind someone swinging a hand tool</li> </ul>
<p>*Heavy Lifting (52.42)</p>	<p>Muscle Strains</p>	<ul style="list-style-type: none"> <li>-Before lifting heavy objects, plan where the object will be placed and clear the route.</li> <li>-Before lifting heavy objects stretch and loosen muscles to reduce the chance of muscle strains or other injuries</li> <li>-Use your knees not your back when lifting, keep body straight and do not twist while lifting. Ask for help if necessary and use a pry/rock bar</li> </ul>

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Use of Crosscut  
Saws—Injury  
(22.48h)

if needed for leverage.

- Required PPE includes first aid kit, hardhat, eyeprotection, sturdy 8 inch high boots, and gloves.
- Always transport a crosscut propoerly sheathed.
- Always inspect the saw before use.
- Carefully sheathe and unsheathe the saw with teeth facing away from your body.
- Pick up the saw with teeth away from your body. Rotate the teeth toward your body before handing the saw to another volunteer,
- When attaching handles, keep the teeth away from your body and secure a firm grip on the saw.
- Assess the work site. Establish escape routes and safety zones.
- Prior to cutting, remove vegetation. Establish firm footing.
- When using a two person crosscut for bucking, ensure that any person placed downhill is in a safe position. If if is not certain that the person in the downhill partner would be in a safe position, always single buck.
- When beginning to cut, ensure hands are in proper position. Do not push the saw.
- Do not reach across any moving saw. Maintain control and safe body position while sawing.
- Keep in communication with your partner at all times about holding wood, binds, limbs and knots that might affect safety.
- When a situation is deemed unsafe, use alternative methods or cancel the task.

\*Backcountry Living/Survival (11.21)

Getting Lost

The following personal protective equipment is required for backcountry living, whether on foot, stock, or raft:

- First aid kit.
- Map and compass.
- Cigarette lighter, matches, fire starter in waterproof container to start a warming fire
- Water, water purifier or iodine tablets.
- Adequate food for at least 1 to 3 days longer than the duration of the trip. Have some emergency food for extended duration.
- Flashlight with extra batteries and bulb.
- Two way radio with extra batteries.
- Eye protection and sunscreen.
- Lightweight shelter and appropriate clothing for climatic conditions.
- Pocket knife.
- Rain gear.
- Extra clothes.
- Signal mirror or whistle.
- Additional PPE identified above for trail maintenance and travel in

*	Giardia	<p>the backcountry.</p> <ul style="list-style-type: none"> <li>-Giardia is an intestinal disorder caused by a microscopic organism found in mountain streams and lakes. Although giardia can be incapacitating, it is not usually life threatening. After ingestion by humans, giardia normally attach themselves to the small intestine.</li> <li>-Symptoms usually include diarrhea, increased gas, loss of appetite, abdominal cramps, and bloating. These discomforts may first appear a few days to a few weeks after ingestion of giardia, and may last up to six weeks.</li> <li>-Giardia is curable with medication prescribed by a physician.</li> <li>-To prevent giardia, boil drinking water for at least 1 minute. At high altitudes (above 10,000 feet), you should maintain the boil for 3 to 5 minutes. Filtering drinking water with a filter that removes particles as small as 1 micron will prevent giardia.</li> </ul>
*	Hantavirus (53.73a)	<ul style="list-style-type: none"> <li>-Hantavirus is a cause of acute pulmonary disease and death.</li> <li>-The primary carrier is the deer mouse. Other rodents that may be carriers include squirrels, rats, chipmunks, and other kinds of mice.</li> <li>-Transmission occurs by inhalation of the aerosolized virus when dried materials contaminated by excreta are disturbed; introduction into broken skin, eyes, nose, mouth; or ingestion of contaminated food or water. People have also become infected after being bitten by an infected animal.</li> <li>-Symptoms may appear 1 to 6 weeks after contact.</li> <li>-Symptoms include fever, nausea, headache, muscle aches and cough.</li> <li>-Avoid direct contact with rodents (live or dead), their droppings, urine, nests, or items that may be contaminated. Do not feed mice, chipmunks, or other rodents.</li> <li>-Always wear rubber gloves when cleaning areas where rodents have been.</li> <li>-Do not sweep or vacuum until the area has been soaked with disinfectant and let soak thoroughly for 10-15 minutes (bleach solution of 1 part household bleach to 10 parts water).</li> <li>-Where there is a heavy rodent infestation, wear certified respirators, coveralls, rubber boots, head cover, latex gloves and goggles.</li> </ul>
*Camp Safety	Camp Hazards	<ul style="list-style-type: none"> <li>-Choose a camp location at least 200 feet from any standing water including streams, lakes, and marshes.</li> <li>-Avoid natural hazards including overhanging rocks, snags, and rock slide areas when choosing a camp location.</li> <li>-Store tools in a specified location in camp. Do not leave tools scattered around the tents and in the kitchen area.</li> </ul>

<p>*Hazard Trees</p> <p>Backcountry Ranger Station Flammable Storage</p> <p>*</p>	<p>Falling</p> <p>Fire Hazard</p>	<ul style="list-style-type: none"> <li>-Use Leave No Trace practices including camp sanitation</li> <li>-Food and garbage should be stored in bear proof containers</li> <li>-Keep food protected from weather, flies, and rodents</li> <li>-Train employees in proper use of specific camp equipment including camp stoves, water filters, map and compass, and radio communication</li> <li>-Store flammable like coleman fuel away from the wood stove or propane stove</li> </ul> <ul style="list-style-type: none"> <li>-Stay out of areas with burned snags if winds are excessive</li> <li>-Do not camp in areas that have numerous dead standing snags</li> <li>-Remove the hazard tree if it can be done safely</li> <li>-Wear proper PPE – hard hat in burned areas that have numerous snags</li> </ul> <ul style="list-style-type: none"> <li>-Do not store flammables under stairways, flammables under stairways ignite during structure fires and burn the stairs, cutting off the escape route.</li> <li>-Do not store flammables (cardboard, paper, white gas etc.) next to propane furnaces or propane hot water heaters.</li> <li>-Do not store ANYTHING in front of electrical pannels (within three feet).</li> </ul>
<p>10. LINE OFFICER SIGNATURE</p>	<p>11. TITLE</p> <p style="text-align: center;"><b>District Ranger</b></p>	<p>12. DATE</p>

Previous edition is obsolete

(over)

**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) writing the JHA, the date(s) of development, and the name of the appropriate line officer approving it. The supervisor 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 portable water pumps)
- e. A combination of the above.

**Block 10:** The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.

**Blocks 11 and 12:** 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 frequency(s).
- e. Contact person.
- f. Local hazards to ground vehicles or aviation.
- g. Weather conditions (wind speed & direction, visibility, temp).
- h. Topography.
- i. Number of person(s) to be transported
- j. Estimated weight of passengers 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:

<b>SIGNATURE</b>	<b>DATE</b>	<b>SIGNATURE</b>	<b>DATE</b>
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<b>Work Leader</b>			