SOP No. 1 Wildland Hiking Techniques and Outdoor Hazards

1. PURPOSE. The purpose of this SOP is to outline steps to maximize personnel safety while hiking in wilderness areas. Historically, the majority of worker injuries within PICHTR and OANRM are the result of hiking injuries. It often seems that hiking is a natural function that anyone can perform without the need for specific training. As a result of the ability to hike being taken for granted, the inherent skills and awareness of hazards from hiking slips, trips, and falls are not in the forefront of worker’s minds as they perform this task. HIKING IS THE NUMBER ONE INJURY HAZARD TO PICHTR/OANRM WORKERS!

2. SCOPE. Includes procedures for field operations.

3. RESPONSIBILITIES; All NRM Staff must be trained in wildland hiking techniques to include; completion of an interview covering each employee’s hiking experience regarding years hiking, type of terrain, conditions, geographical locations, and backpack loads carried; review and discussion of the SOP Wildland Hiking Techniques; review and discussion of the Risk Assessment for Backpacking and Hiking in Work Areas; and viewing the USFS Hiking Video. New employees during their probationary period will be carefully evaluated by a NRM Manager, Supervisor or Coordinator, to evaluate the worker’s existing hiking experience, skills, and physical conditioning. Inability to perform under typical work conditions will be grounds for termination. Ongoing follow-up safety behavior observations will be conducted on regular basis to maintain hiking safety awareness.

   a. Natural Resource Management Supervisors: Review procedures with Natural Resource Management staff quarterly to ensure understanding and compliance.

   b. Natural Resource Management Technician: Execute fieldwork in accordance with SOP.

   c. Failure to comply with this SOP may result in disciplinary action.

   d. Depending on the circumstances, if staff are not prepared to do field work because they lack essential gear (e.g. spiked footwear, flight gear, eye protection), they will not be permitted into the field and may face disciplinary actions including leave without pay for the field work time missed because they were unprepared.

4. PROCEDURES. DPW Environmental performs field work in remote wilderness areas. Much time is spent traversing rugged terrain in route to or from the work site. Often this travel occurs off of established trails and across uneven and precipitous terrain. This SOP outlines steps to maximize safety in this work environment.
• Conduct a safety brief to crews for the prevention of slips and falls. This includes identifying hazards, ensuring adequacy of PPE, and ensuring that staff meet the technical skill levels required for the day’s hiking activities.

• High-visibility bright colored clothing is required for all field operations. Long and short-sleeved shirts are provided for all staff and volunteers by OANRP.

Staff conducting field work in remote areas. Note high visibility clothing.

• When contouring a steep slope, do not lean into the hill. This tends to loosen footing. Erect posture with hips out or slightly leaning out gives more secure footing.

• Plan ahead, select safe routes, look for changes in ground surface, slick spots, or unusual hazards.

• Select each stepping spot carefully and do not shift body weight until you are sure the spot is solid.

• When traversing open lava fields (particularly a’a lava) or areas with extensive talus slopes, gloves are required to be worn at all times. Gloves should be thick enough to prevent hand lacerations in the event of a fall (e.g. leather gloves).

• Know how to fall to avoid hard impacts. Keep flexible with knees slightly bent. This helps your legs act as a shock absorber.

• If you feel yourself slipping, pick a landing spot. Before traversing a steep area survey the area, look for features to hold onto and good landing spots.

• Do not stick your arms out to break a fall. Keep your arms slightly bent in front of your head.
• When slipping, lean into the slope and grasp for something to help arrest your descent. Do not lean out away from the slope as this may result in a head over heels tumble.

• “Curse your fall.” This means shout out an exclamation as you fall. This ensures you exhale as you land which in turn releases air from your lungs. This can help minimize damage to your internal organs.

• In heavy undergrowth, lift your knees high to clear obstacles. Slow down and exaggerate steps in the area of exposed roots to keep from catching your toes.

• Avoid walking on logs unless they have been tested for secure footing.

• On slippery, loose ground, or going downhill, keep most of your weight on your heels. Shorten your stride, keep knees bent, and lean slightly backward.

• When moving uphill or in sandy soils, lean slightly forward, turn feet outward, shorten stride, and use as much of the inside of the foot as possible.

• Make sure of secure footing and safe working positions. Walk, never run down slopes.

• Rocky slopes, especially loose rock and steep country, are treacherous. Have one hand free, preferably on the uphill side, for protection against falls or obstructions. Always carry tools on downhill side.

• Maintain safe walking and working distance between people (10 feet minimum). Keep sharp tools sheathed or covered when carrying them at one’s side while hiking. Stagger out across the slope such that people are not directly below other personnel higher on the slope.

• Be sure other workers in vicinity know where you are.

• Safety eyewear is required whenever there is a chance of eye injury. This includes areas with thick vegetation and in dusty environments. It also includes working with any tools that project debris (e.g. picks, hatchets, grinders, files). Eye protection must be worn by all staff when operations enter sites outside of open trails and open area worksites. An “open” work site or trail is defined for this purpose as an area devoid of all eye hazards within four feet of employees.

  o All eye protection must carry a Z87 stamp or be rated by the manufacturer as meeting the Z87 OSHA standard. CE marking is not regulated in the U.S. and research indicates there is no guarantee that this eyewear meets a Z87 standard.

  o The project will provide standard eye protection. Should these standard pairs not fit well, staff can be reimbursed twice a year for up to $50 per pair of approved eye protection or $100 for one pair annually. As with all program gear, eye protection should only be used for work purposes.
The program will provide prescription eye protection as required by OSHA. All purchases must be approved in advance and must be the most economical model possible.

Working with helmeted face shields also meets eye protection requirements. “Bug eye” screen goggles do not meet ANSI Z87 requirements.

- When hiking in areas with potential for foot puncture injuries (e.g. old fence skirting or areas with extensive small, pungee type stumps), additional foot protection is recommended in the form of hiking boots or puncture resistant insoles in tabis.

- When hiking through thick brush, be aware of the risk of branches/canes/foreign objects entering the ear. Injury can result from branches/blackberry canes entering the ear canal. This is an uncommon accident, but the risk is serious: a punctured ear drum, scratched ear canal, embedded splinter, or loss of hearing could result. It is not feasible to wear ear protection while hiking (reduces ability to communicate - which is itself dangerous), so be conscious of the risk:
  - Bend branches/canes away from your intended path and ensure that they will not spring back at you or co-workers behind you, avoid really thick vegetation where possible (not always possible, we know).
  - Clear established trails from head height hazards.
  - Wear hats/beanies as these can also offer a fair degree of ear protection.

- Helmets are required in areas with significant overhead hazards. NRS are required to wear helmets in the following areas. Helmets should be required by supervisors in others areas with similar hazards. Only frequently visited areas are listed here. Helmets with straps may be any of the following types; kevlar (UXO), rappelling, hard hat (sling or fire helmets).

  - Both Makua Nerang reintroduction gulches
  - Koiahi
  - Waianae Kai slot gulches
  - Punapohaku, via lower access
  - Upper Maakua Gulch (Koolau Mtns.)
  - Areas of recent forest fires with large burnt trees and snags

- Always be on guard against injury from falling trees, snags, limbs, rolling logs, or rocks. Never run blindly if a rolling rock, log, or tree is heard. Try to determine the direction of fall, then move out of the path. Avoid lingering at the base of cliff areas including waterfall areas. Alert your co-workers to any hazards (e.g. precarious hanging branches, goats/hikers above, or large loose boulders).

- When hiking or cutting trail through dense growth that obscures visibility of the ground in front of your path, be sure of your footing to avoid falls into ground depressions or drop-offs. Slow down and tread carefully while hiking through tall grass or brush to
avoid banging your legs or head against hidden boulders, tree trunks and branches. Alert your co-workers for any hazards if they are behind you.

- Protection against lightning strikes: Upon hearing thunder, watch for any lightning and plan to suspend activities and seek shelter immediately by hiking to an adequate safe area or returning to base. **The supervisor in the field will need to use the available weather information and their best judgment to make a determination on whether to wait in place, seek shelter at base or other adequate area, or continue field work if the risk is low and the storm is a safe enough distance away.** If thunderstorms are anticipated and field work will still take place, determine the safest shelter in the area and account for the time it takes to get there during risk assessments and contingency planning (e.g. hike time back to trucks or cabins). Field teams caught in a thunderstorm should delegate one person to monitor weather information (e.g. Doppler radar on phones and information from base). Another person should be delegated to watch for lightning and listen for thunder to calculate proximity.

30/30 Rule: If the lightning flash to bang (thunder) is 30 seconds or less, lightning is less than 6 miles away and emergency weather plans should be implemented (divide flash to bang time in seconds by 5 to get miles away). Wait 30 minutes since the last sighting of lightning to resume outdoor activities. Waiting 30 minutes allows the storm to be approximately 12 miles away.

Small structures like fabric tents, cabin porches, hunting shelters, snail jails, weather stations, radio antennae and towers, and isolated small groups of trees are not safe and should be avoided. Also, avoid ridgelines, mountain tops, all fencelines and unexploded ordnance areas (UXO). Lightning can travel long distances along fences. Move out of and away from streams or other bodies of water. Large structures with plumbing and electrical wiring are safer shelters to direct lightning more safely into the ground. Do not wait for the rain to start if thunderstorms are in the area to begin hiking out of work sites. If you are sheltering in a vehicle, roll windows all the way up and avoid areas of conduction (car radios, ignition etc.). If in an UXO area, cease operations and return to base or a safe shelter.

If in the open and unable to find shelter, crouch down (separated from co-workers), feet together, and remove metal objects from head and body. Do not lie down and try to avoid being the highest object in the vicinity.

- **SELFIE STICKS OR SELFIE PICTURES ARE NOT ALLOWED:** Use of selfie sticks and/or taking selfie pictures will not be allowed if you are performing work requiring your full attention, use of both hands (e.g., for control, leverage or balance), or when working in locations where a fall could lead to serious injuries or be fatal. This includes but not limited to rappelling, hiking narrow ridge-top trails, or other activities where use of both hands are necessary to traverse safety.