

FIELD OPERATIONS

(Reviewed 9/26/2007)

These Field Safety rules and regulations are meant to ensure the safety and well-being of all field workers. Please make any suggestions for their improvement to the Safety Officer. This SOP is subject to periodic review and modification.

Field Personnel

1. Only staff, graduate students, interns, and approved volunteers (see below) are permitted to do field work. Pets and children are prohibited from accompanying field teams. Researchers or other colleagues from other state and federal agencies may accompany field personal, but only with authorization from project leaders. Always consult with your supervisor if you are uncertain regarding someone's eligibility to accompany you in the field.
2. For a person to be approved for volunteer field service, a Volunteer Agreement form must be filled out and signed by the project leader no later than 5 business days prior to the date the volunteer can begin working. If less than 5 days approval is need, the volunteer form must also be signed by the Centers Deputy Director. The responsible Project Leader will contact administration with the name of the volunteer and dates of work. The volunteer will then report to administration to complete and sign the Volunteer Agreement. Administration will forward the agreement form to the Project Leader for signature.
3. Each project must develop a written means by which the approximate location of all crew members can be determined when working in the field. In addition, each project must develop an Emergency Action Plan that will detail the procedures to be taken whenever a request for help is received from crew member/s or a crew member fails to return or is not heard from at a designated time. All field crew members must be familiar with the Emergency Action Plan. The Safety Officer must have a copy of the Emergency Action Plan on file.
4. All jobs considered risky or dangerous or require special equipment or Personal Protection Equipment must have a Job Hazard Analysis (JHA) before the job is started. If there is no JHA for the job or task, then a new JHA must be written and reviewed by the Project Leader and the Safety Officer. If you are not sure whether or not a job is considered as risky or dangerous, contact the Safety Officer.

5. It is important to lift heavy objects properly thus protecting your back from possible strained muscles or injured bones. If you are not sure of proper lifting techniques, contact the Safety Officer. When in doubt about lifting heavy or awkward objects, do not hesitate to ask for help.
6. If any employee feels that they are being asked to do something that they feel is un-safe or that they feel that they are being placed in an un-safe or uncomfortable work situation, they should express their concern to their supervisor and work will be halted until the situation is resolved.
7. It is the employee's responsibility to notify the supervisor regarding any health problems that might put the employee at additional risk of injury in the field. Such problems include fever, aches, fatigue, colds or other ill health, as well as allergies and other long-term and chronic health concerns.
8. Any injury incurred on the job will be reported to the supervisor immediately. Failure to report injury may result in the denial of worker's compensation claims and/or disciplinary action.
9. If you will be flying in helicopters for work related activities, you are required to take the Office of Aircraft Service's B3 – Basic Aviation Safety training. See the **Aviation Safety Program** for details.
10. If you will be flying in commercial airlines, you are not permitted to take any fuel for cook stoves with you or have it packed in your luggage. All fuel must be purchased at your destination. Empty fuel containers and stoves with attached fuel containers that at one time contained fuel are also prohibited. You can be fined and/or arrested for attempting to bring these items on commercial airlines. For a listing of what is not allowed on commercial airlines, visit the FAA website at: <http://ash.faa.gov/hazmat.asp> or the Transportation Security Administration web site at: www.tsa.gov.
11. If you will be working with firearms, you are required to take the USGS firearms safety training. See the **Firearms Safety** Program for details.
12. Employees are prohibited from entering caves for any type of scientific research. If you must enter a cave, you will need to develop a Job Hazard Analysis and a safety protocol which will be reviewed by the Project Leader and the Safety Officer prior to entering caves.

Safety Clothing and Equipment

1. Field workers shall wear footwear that will suit the terrain and conditions that they will be working in. Sturdy boots that provide ankle support and traction are

- recommended for drier areas and high rubber boots may be more desirable for wet areas. Bare feet, shoes, sneakers, slippers are not allowed. Tabis may be used under special conditions with prior approval from the Project Leader or Safety Officer.
2. When working in the wet forest, rain gear and outerwear (i.e., sweater or jacket) shall be carried in the field at all times. Rain gear must include rain pants and rain jacket. The combination of clothing must be adequate to keep the worker warm and reasonably dry until returning from the field or reaching field shelters.
 3. When working in the field, carry enough water to last out the day plus extra in case of unplanned overnight stay. The amount of water you carry will depend on the climate where you will be working and the amount of physical activity you will be doing. The recommended amount of water you should drink is 3 to 4 liters per day. During sustained hard exercise, especially in hot environments, plan on drinking 8 Oz. of water every 20 minutes
 4. Each field crew member shall carry a First Aid Kit, which includes a space blanket, while in the field. The First Aid kit should be inspected monthly and items that have been depleted or removed should be replaced. Additionally, each vehicle should carry a road emergency kit which includes both first aid items and items needed for road emergencies. Contact the Safety Officer for recommendations as to what items should be included in a these kits.
 5. Each person working in the field should carry a source for starting a fire. This could be a box of water proof matches, a lighter, or a magnesium flint. They also should carry a whistle to assist with being located in case of an emergency. If you will be working late in the evenings, you should carry a flashlight or a head lamp.

Portable Radios & Cellular Telephones

1. When using portable radios, the following protocol should be followed:
 - When calling another person, state the person's name who you are trying to contact or their assigned radio call number first followed by your name or number, e.g. Fred...George or 606...610.
 - When you receive a call, say the name or radio call number of the person trying to contact you followed by "this is" your name or radio call number, e.g. George...this is Fred or 610.. this is 606.
 - Keep conversation to a minimum. If you have been talking more than 30 seconds, pause your conversation with the word BREAK, wait for 5 seconds and then continue the conversation. This will allow others who need to use the same frequency a chance to deliver their message.

- Do not start broadcasting a message if someone else is using the frequency. Wait until the person is finished or breaks their conversation before starting yours.
 - Finish you broadcast by stating your name or radio call number and the work CLEAR, e.g. Fred CLEAR or 606 CLEAR.
2. Each crew member should carry a radio or cell phone whenever they are in the field.
 3. Perform a radio check with a designated contact person when staying overnight in the backcountry to establish your location.
 4. Protect radios from moisture, dust and hard impacts.

Travel on Foot

1. Be sure that equipment and supplies are carried in a manner consistent with safe travel over rough terrain. Backpacks should be in good repair and fit properly. Do not over estimate your load carrying capacity. A good rule of thumb is not to carry more than 33% of your body weight.
2. Always be aware of what's around you (on ground and overhead). Pay attention to where you are walking. Stop if you need to observe something.
3. Be conscious of surroundings - when disoriented, familiar objects can set you on track. Even if you have a GPS, **CARRY A COMPASS** as back-up, and an area (field) map showing locations of pertinent transects, roads and trails, and other landmarks, especially in unfamiliar surroundings and/or when fog, rain, or darkness can set in.
4. Never overextend your capabilities.
5. Be sure permission is granted before entering private property.
6. Report accidents immediately to your supervisor, no matter the seriousness of the accident. When in doubt, fill out a work injury report as soon as you can after the accident. See **Accidents and Injuries**.
7. Use common sense and don't take chances.
8. If you do get lost or become disoriented **STAY WHERE YOU ARE**. You may be overcome by panic. Sit down and quietly organize your thoughts on where you are. A few moments of recollection may clarify your situation. If not, find a

- comfortable place to rest. Use your whistle or other means to attract the attention of anyone around you. Do not try to leave the area if there are no signs of where to go. Do not follow a stream down hill; it will almost certainly go over a waterfall at some time. Do not travel at night.
9. You can assist a helicopter search during the day by starting a smoky fire or use a smoke flair, but be extremely careful not to set the surrounding vegetation on fire. Search and rescue helicopters on some islands have FLIR infrared detectors, so they can detect a person in the open, or even a lighter or a flashlight on a mountainside at dusk or at night.

Driving Off-Road 4-Wheel Drive Vehicle

1. Persons without experience in driving off-road vehicles should not drive off road. If training in off road driving is necessary, you will be required to take the “Coaching The Off-Road Driver” video course and ride with experienced off-road driver before being permitted to drive off-road on your own.
2. On private land, the owners and their workers have the right of way. Drive slowly so as not to kick up dust.
3. Report any vehicle problems to your supervisor.
4. Report accidents immediately to your supervisor.
5. Use common sense.
6. Obey the rules of the road even when driving off-road.

Herbicides and Pesticides

1. If you will be working with herbicides/pesticides, you must have received the “Hazardous Communications Standard” training plus have read the written **Hazardous Communications Program.**
2. If you are not certified to handle herbicides or pesticide, you must either work under the supervision of a person who has a certificate for herbicide or pesticide application.

3. To become familiar with the herbicide or pesticide that you will be working with, you must read the entire Material Safety Data Sheet (MSDS) for that/those material.
4. You must wear the appropriate Personal Protection Equipment (PPE) as stated in the MSDS for the herbicide or pesticide that you are working with. USGS will supply the appropriate PPE, but you are responsible for maintaining that equipment and replacing it before its integrity is compromised by use.
5. You must always abide by the instructions on the herbicide or pesticide label.
6. In case of an accident, you must notify your supervisor immediately.

Working in water

1. If you will be working in and around streams, ponds, lakes, or oceans you must read the chapter on **Water Safety**.
2. When working in streams, always be aware of the weather conditions. You are not to work in streams when heavy rains are forecast for your area.
3. Wear footwear appropriate for the task, e.g., rubber boots, tabis (i.e., those designed for wading). Do not jump from rock to rock. Always ensure that your footing is safe.
4. When working in and around streams, be aware of the likely hood on contacting Leptospirosis. If you have a break in your skin that could be exposed to water, let your supervisor know so that protective measures can be taken or you can be assigned to other duties. If 2 to 20 days after working in or around a stream, you come down with flu-like symptoms that persist for more than 2 days, consult your physician and inform him/her that you may have been exposed to **Leptospirosis**.
5. Never drink untreated water from streams or any source other than a municipal supply. If you suffer from diarrhea and have a hydrogen sulphide taste in your mouth after belching, consult your doctor and inform him/her of the possibility of your having Giardiasis or amoebic dysentery. If your doctor confirms that you are suffering from any such disease you must notify your supervisor immediately.

Safety When Working With or Around Animals

Rodents (rats and mice) and cats are known to carry a variety of diseases, most of which have not been reported from Hawai'i. There is a known risk of leptospirosis,

toxoplasmosis, plague and murine typhus. If you are working with mammals or areas that may have been contaminated by their droppings, you are required to take the following precautions.

- Exposure to body fluids

You may be exposed to body fluids from small mammals during trapping, animal tagging, removal of animals from traps, or digging in the ground, so you must take a variety of precautions. If you must handle live mammals, avoid any direct contact with mammals through the use of barriers such as bite-proof gloves, with disposable gloves underneath. For handling carcasses, use non-allergic disposable gloves which can be properly disposed of afterwards by using a baggie or some other type of tight sealing container.

If you are not leaving the carcass in the field, place it in a sealed baggie or plastic bag. If you are examining stomach samples or other body parts, use disposable gloves. Use eye glasses or lab glasses with side covering and a mask to prevent fluids from hitting your eyes, nose, and mouth. Any contact with fluids on skin should be washed off immediately with an antibacterial soap. Contact with eyes, nose or mouth should be washed out with saline solution (eyes) or regular water (mouth). Such examinations should take place in a well-vented room or outside. People who have suppressed immune systems or women are pregnant should avoid close contacts with cats, alive or dead, because of the risk of toxoplasmosis.

If you will be digging in the ground, be sure you have no open wounds that can be the source of infection entry. If you do have open wounds, wear gloves.

- Exposure to airborne disease

If you are cleaning an enclosed area with rodent, bat or cat droppings, do not sweep it. Use disposable gloves if touching contaminated areas. The area should be sanitized with by using a chlorine bleach solution (for a 200 ppm bleach water solution, use 1 tablespoon of household bleach with 1 gallon of water). The person doing the cleaning should wear gloves and respiratory. Similarly, any bedding from mouse or cat traps should be handled only in the open, not inside an enclosed area. The droppings may carry leptospirosis and other diseases, so they should be treated as potentially infectious and buried away from streams and water courses or double-bagged and disposed of according to local regulations at sanitary landfills.

- Exposure during field work

In Hawai'i, the only known significant risks are from leptospirosis, amoebic dysentery and murine typhus. To reduce the chance of contacting any of these diseases, avoid entering freshwater if you have breaks in the skin or submerging your head in fresh water. Please see the existing **Water Safety** rules for working in water.

Handling Birds

Avian flu is a viral disease and it can be very contagious and even deadly in poultry. Of great concern are the highly pathogenic avian influenza (HAPI) H5N1 viruses that have killed millions of birds and infected humans.

- Avian flu signs and symptoms in humans.

These range from fever, cough, sore throat, and muscle aches; to diarrhea, eye infections, pneumonia and sever respiratory diseases. The symptoms may depend on which virus caused the infection but are often similar to those associated with human seasonal influenza.

- Signs of avian flue illness in birds.

Sudden death, lack of energy, appetite and coordination, purple discoloration and/or swelling of various body parts, diarrhea, nasal discharge, coughing, sneezing, and reduced egg production and/or abnormal eggs.

- General precautions.
 - Wash hands thoroughly and frequently, for 15-20 seconds, preferably with soap and water.
 - Clean and disinfect any suspected infected areas.
 - Get informed about avian flu.

- Basic Control Measures

Wear appropriate, preferably disposal, personal protective equipment (PPE); or wear equipment that can be disinfected.

- Gloves, shoe covers, safety goggles.
- Outer garments with a waterproof apron.
- Wear at least the minimum level of respiratory protection, N95 or higher respirator.
- While wearing PPE, avoid eating and drinking.