

PCSU HAWAII
STANDARD OPERATING PROCEDURE GUIDELINES FOR
FIELD OPERATIONS

2014-2015

NOTE. This is the basic PCSU SOP for field operations. Individual projects may have additional or supplemental SOPs. Please read this as soon as you get it, even if you have read it before (skip sections marked * UNLESS they apply to you). There are changes from the 2013-2014 SOP and reading it again may refresh your memory. These guidelines are designed primarily to keep all of us safe and healthy and cannot cover every possible potential accident hazard that you may encounter in the field. It is your responsibility to remain alert and aware of hazards. Your coworkers will appreciate knowing that they can expect the same concern about safety from you that you expect from them. When you are through, please sign the form on the last page of this document, and return it to your supervisor. **Please also ask your Supervisor about your project's safety plans applicable to you, or from your collaborating or host agency. It is your responsibility to be familiar with them.**

Many thanks-David Duffy, PCSU Unit Leader

Supervisor and Project Safety Officer:

Name (fill in) of Supervisor _____

Work #: _____ Home: _____ Cell: _____

Name (fill in) of Project Safety Officer: _____

Work #: _____ Home: _____ Cell: _____

Responsibilities:

- 1) Arranging and scheduling training (e.g., radio operators, first aid, and aviation safety).
- 2) Developing and updating field safety Standard Operating Procedures (SOPs).
- 3) Completing Supervisor's Report Injury and submitting it within 24 hours of report of injury or illness by employee.
- 4) Completing and submitting any necessary PCSU accident/injury follow up report.

Field personnel:

These Field Safety rules are meant to ensure your safety and well-being as well as that of your co-workers. Please make any suggestions for their improvement to your Supervisor or your project's Safety Officer. This SOP is subject to periodic review and modification.

1. Only staff, interns, students, and approved volunteers are allowed to assist with fieldwork. **Friends, pets, and children are prohibited from accompanying field teams.** Employees of county, state, and federal agencies, partner agencies, private landowners, or foreign governments on official business connected with the project may accompany people working in the field. **Researchers or other colleagues from other institutions are not allowed to accompany field teams without prior permission.** Always get approval from your Supervisor if you are uncertain regarding someone's eligibility to accompany you in the field.

2. Fieldwork planning will be done in conjunction with your Supervisor and completed and approved prior to departure. Each Field Team will sign out on the project's field activity board, indicating the itinerary and destination (including appropriate plot or transect number(s) where appropriate) and the estimated return time. You or one of your co-workers is responsible for arranging for a contact person if the Field Team will be returning after 1630 hours. The contact person is responsible for notifying your project's Manager and Safety Officer if the field team will be overdue.
3. When possible, avoid working in the field by yourself. Notify your Safety Officer or Supervisor if you are working alone; ensure that they know where you are and when you are expected to return. Take a radio or cellular telephone if you will be working off the road or in a remote area. Where cellular and radio coverage is not available, you must carry an EPIRB (Emergency Personal Indicator Radio Beacon) or PLB (Personal Locator Beacon) with 406MHz with GPS.
4. When working in the sun, you should always wear a hat and a pair of sunglasses to protect yourself from harmful ultraviolet rays. You should also use sunscreen lotion on exposed skin.
5. Be aware of weather forecasts and unexpected weather changes, and be prepared to alter your fieldwork and field clothing accordingly. When poor weather sets in, allow extra time to return to your base of operation.
6. If you are using methods or equipment that requires safety or other equipment, you must use it as specified in the specialized training or operating instructions you have received. Notify your Supervisor or your project's Safety Officer if protective equipment is not available or in poor condition. Review all applicable safety procedures before heading into the field.
7. Take care of your assigned protective equipment; keep them clean and functional at all times. Report and return all out of date or ineffective items to your Supervisor.
8. Learn how to lift heavy or bulky objects properly. Ask for help when lifting such objects.
9. In areas concerning your work group's safety, the on-site Supervisor's decision is final; however, an individual may refuse to engage in what they believe is an unsafe operation.
10. It is your responsibility to notify your Supervisor regarding any health problems that might put you or your coworkers at additional risk of injury in the field. Such problems include fever, muscle aches, fatigue, colds or other ill health, as well as allergies and other long-term and chronic health concerns.
11. If you are injured on the job, it is your responsibility to notify your Supervisor **IMMEDIATELY**. Failure to report the injury in a timely manner may result in the denial of worker's compensation claims and/or may result in disciplinary action.
12. Operate vehicles in a safe manner consistent with Standard Operating Procedures for Vehicles for your project and the agency whose vehicle you are driving. You should ask your Supervisor for a briefing on the vehicle's safety procedures before you drive it for the first time. Each member of the staff who operates a vehicle for official business must successfully complete a defensive driving course once every 3 years.
13. If you are flying in a helicopter more than once a year, you are required to take the basic helicopter or aviation safety training. Staff involved in fieldwork utilizing helicopters must follow your project's Standard Operating Procedures for Helicopter operations and be trained and certified to the level you are performing. Project staff may be passengers in military or local government-operated helicopters when these are available. As a passenger, you must wear the appropriate personal protective equipment (PPE) for the mission based on your aviation training. Consult with your PI prior to planning to utilize non-OAS carded aircraft/pilots.
14. Know your project's Emergency Action Plan.

EMERGENCY ACTION PLAN

- 1) A contact person is responsible for making sure that an emergency alert and/or an emergency response process is being prepared if a fieldworker has not returned when scheduled, no radio/cell contact has been received as planned, and the person’s whereabouts are unknown or uncertain.
- 2) An alert is issued thirty (30) minutes after missing the scheduled call-in time. Contact person or another person should stay near the phone at the fieldworker's office or lab. The Safety Manager and Project Leader/Coordinator/Manager should be notified about the situation.
- 3) One hour after the missed call-in time, the project’s search procedures should begin.
- 4) One person should remain near the phone, and at least one person familiar with the field area should begin tracking the scheduled route. Pairs of trackers should be used when possible. They must have functioning communication gear.
- 5) Tracking personnel should call back to the lab/office every 20 minutes to see if fieldworker has made contact.
- 6) Tracking continues until the missing fieldworker is located or word is received that she/he is safe.

EMERGENCY RESPONSE PLAN

EMERGENCY.....call 911

GIVE: NAME

LOCATION OF EMERGENCY

TYPE OF EMERGENCY TYPE

OF HELP REQUIRED

Notify any other supervisory personnel as applicable and provide them with the same information. If your project is located within a national park or wildlife refuge, notify the appropriate federal staff (law enforcement rangers or dispatch office.)

Safety Clothing and Equipment

- 1. Field staff will have highly visible safety vests with reflective tape during remote fieldwork and will put the vest on whenever the need to be visible is required. In lieu of a high visibility safety vest, field staff may wear a high visibility work shirt as provided by the project.
- 2. Field staff will wear sturdy boots that provide firm ankle support and traction. Bare feet, flat shoes, sneakers, slippers are not allowed. Spiked tabs are allowed under special conditions with prior approval of your Supervisor, the Project’s Safety Officer, and PCSU.
- 3. Field staff will take rain gear and outerwear (i.e., sweater or jacket) into wet forest locations and when weather forecast calls for any possibility of rain during the workday. Rain gear will include rain pants and rain jacket. The appropriate clothing taken into the field must be adequate to keep the worker warm and reasonably dry until returning from the field or reaching field shelters, or for surviving an unplanned overnight stay in the remote field.

4. Field staff will carry enough water with them in canteens or other suitable containers to survive an unplanned, overnight emergency stay in a remote field location.
5. Each field staff will carry a personal First Aid kit while in the field. Additionally, each vehicle should carry a fully stocked First Aid kit. A crew-size First Aid kit carried by one person for the rest of the group is permitted.
6. At least one field staff per field crew will have a current Standard First Aid and CPR certificate. Most PCSU field staff should have both. It is highly recommended that field staff also take Wilderness First Aid training.
7. Field staff will take a personal Survival kit into the remote field; the kit will minimally include a fire starter (such as a box of matches kept in a Ziploc-type plastic bag), a space or emergency blanket, a whistle, a signal mirror, a whistle, and a small waterproof flashlight. Please note that HAZMAT items in your personal survival kit are not permitted on commercial airplanes.

Portable Radios, Cellular Telephones, and EPIRB (Emergency Personal Indicator Beacon) or PLB (Personal Locator Beacon) with 406 MHz and GPS

1. Follow your project's portable radio/cellular telephone Standard Operating Procedure. Each crew will have at least one portable radio or cell phone and an extra, fully charged battery per crew. Additional radios or cell phones are required if workers will be out of sight and earshot of one another. A generic radio use SOP is as follows:
2. Monitor radio traffic and think out your communication before you transmit. Be brief and concise.
3. Perform a radio check with your project headquarters or with NPS dispatch when staying overnight in NPS backcountry or adjacent lands. Use radio checks on state or private agency frequencies with their permission. The purpose of the radio check is to establish locations where contact is possible.
4. Maintain battery life and "memory" by thoroughly draining batteries before recharging.
5. Protect project radios and cell phones from moisture, dust, and hard impacts.
6. If portable radio or cellular coverage is not available, the crew must have a 406 MHz EPIRB or PLB with GPS.

When Traveling on Foot in Remote Areas

1. You should always wear the appropriate and proper safety gear when hiking.
2. You should have your personal First Aid and Survival kits, a radio, cell phone or EPIRB/PLB as required, water, and appropriate clothing and safety gear dictated by the area you will be hiking.
3. Carry your equipment and supplies in a well-fitting and appropriate size daypack and in a manner consistent with safe travel over rough terrain. **DO NOT OVERESTIMATE YOUR LOAD CAPACITY AND YOUR ABILITY TO CARRY HEAVY PACKS.**
4. You must be aware of your surroundings at all times (on ground and overhead). Rocks underfoot can shift. Stay far enough back from the person in front to avoid branch whiplash.
5. Be conscious of your setting - when disoriented, familiar objects can set you back on track. Even if you have a GPS, **CARRY A COMPASS** and map as back-up, with 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 set in.

6. Always be sure someone in the laboratory, office, or base camp knows where you are and when you expect to return.
7. You should never overextend your capabilities; know your limits.
8. Be sure you have permission before entering private property.
9. You must report field accidents immediately to your Supervisor or as soon as practicable. If you are in a remote location when you get hurt, you must evaluate your situation carefully.
 - A. If there is a coworker with you and you are able to walk to your base camp or to your vehicle, have your coworker take some of the load from your field pack to lessen your load.
 - B. If you are able to return to your base camp, and wish to “rest” and not request a pullout, you will need to consult with the Field Supervisor whether this is the appropriate action or get a consensus from the field crew if there is no Supervisor.
 - C. If you are unable to move from the accident scene and you are not in an area with reliable radio or cell phone coverage, your coworker may need to move to a better location to notify the office/Supervisor/emergency services of your situation and initiate an emergency removal. If this is not possible, activate your EPIRB/PLB.
 - D. If you were travelling alone, you will need to make all the appropriate calls yourself or activate your EPIRB/PLB.
10. If you are lost or become disoriented, **STAY WHERE YOU ARE**. You may feel an initial sense of panic, but 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 downhill; it will almost certainly go over a waterfall at some point. Do not travel at night.
11. You can sometimes assist a helicopter search during the day by starting a smoky fire, but be extremely careful not to set the surrounding vegetation on fire. If you are in the open and weather permits, use your signal mirror, or space/emergency blanket as a signal. Search and rescue helicopters on some islands have FLIR (forward looking infra-red) capabilities allowing them to detect a person in the open, or even a lighter or a flashlight on a mountainside at dusk or at night; but do not rely on a nighttime rescue; stay put and wait until the next morning. If rescuers may be using night vision goggles, do not shine your flashlight at them and never at any helicopter as you will blind the pilot(s).

Driving Off-road in a 4-Wheel Drive Vehicle*

1. If training is necessary, inform your Supervisor. If you do not have 4-wheel drive training or experience, you should not drive off-road. You must have a valid driver’s license before driving any vehicle whether on the road or off-road.
2. Even if you are an experienced off-road driver, remember the basics and take time to read the 4-wheel drive portion of the vehicle manual.
3. Your vehicle should always carry emergency equipment (vehicle First Aid and your basic Survival kit, etc.).

4. When you are going into an off-road area, always be sure someone in the laboratory or office knows where you are and when you are expected to return.
5. If you need to enter private land, make sure you have permission. When encountering the owners or their workers allow them the right-of-way. Drive slowly so as not to kick up dust.
6. Report immediately any vehicle problems to your Supervisor or Project Safety Officer (i.e., maintenance issues, worn tires, slipping out of gear, brakes not holding etc.)
7. Report all vehicle accidents to your Supervisor immediately or as practicable.
8. Obey the rules of the road even when driving off-road.

Helicopter Operations*

1. All project staff involved in helicopter work more than once a year shall have completed the OAS A-100 Basic Aviation Safety course within the last 3 years; first time users should take the course from the PCSU's IAT instructor while experienced personnel may take the online training via the IAT website. Those with a current B-3 course do not need to take the A-100 until their B-3 has expired. Do not engage in helicopter activities for which you have not received training.
2. All project staff involved in external load operations shall take the initial OAS A-219 Helicopter Transport of External Cargo course from the PCSU's IAT instructor. Employees performing external loads hook ups frequently should document their work. Those performing infrequent external load hook ups may need to take a refresher within four or five years of their initial training. The Project Safety Officer should determine when a refresher is needed for their staff.
3. For project staff involved with helicopter or fix-wing mission flights over the ocean or along coastlines, you should receive the OAS Water Ditching and Survival training. To know the exit procedures better, new employees should take the course for two consecutive years. Refresher training requirements are an individual's choice.
4. ALL staff involved with a helicopter operation must wear the appropriate PPE.
 - A. For passengers, "nomex" flight suit (in lieu of a flight suit, wildland firefighter "nomex" trousers/long sleeve shirt may be substituted) "nomex"/leather gloves, SPH-5 flight helmet, and above the ankle boots with all leather uppers are required outerwear; only natural fiber clothing or "nomex" may be worn under the flight suit.
 - B. Those working around the helicopter but are not passengers, nomex outer wear (flight suit or "nomex" pants/long-sleeve shirt), all leather boots, "nomex"/leather gloves, hearing protection, eye protection as necessary, and a hard hat with chin strap are required.
 - C. Project PI may grant exceptions to the required PPE on a case-by-case basis.
5. Flight plans are required prior to the start of each helicopter operation.
6. A mission risk assessment is required prior to the start of the operation.
7. Flight following is required on all helicopter missions. An OAS-approved vendor's Automated Flight Following should be used when available; get permission from the vendor to access their AFF system.
8. Emergency procedures should be determined in advance and staff trained to follow the procedures when an aircraft is overdue or missing, or when there is a helicopter accident. Except in

extraordinary circumstances, the primary responsibility for helicopter incidents rests with local law enforcement or search and rescue.

Firearms*

If your work requires you to use a firearm, you must have passed a firearms certification provided by the National Rifle Association or a federal agency and the State of Hawaii Hunter Safety Program, with renewals determined by the certifying entity. Be familiar with the firearm SOP that was written for your project and for projects that you may partner with. PCSU will determine refreshers requirements on a project-by-project basis.

You must abide by all state and federal laws and must pass a criminal background check.

Firearms issuance will follow your project's firearms SOP, including the same individual signing out and returning the weapon and munitions to the project's Firearm Custodian.

When issued a project firearm, you accept the responsibility to return it in a clean and ready to use condition.

If you have a personal firearm you wish to use in lieu of a project firearm, you must have permission from your Program Manager and PCSU. All personal weapons will require proof of ownership and registration. Unregistered rifles owned prior to 1994 will need to be registered. When transporting the weapon to/from work and to/from the fieldwork site, keep the weapon unloaded in a locked gun case; handguns will also require a trigger lock. You may only use project-issued ammunition.

When you sign out a weapon or if using your personal weapon, an appropriate amount of ammunition will be issued to you. All ammunition is accountable to you and all unused rounds must be returned upon completion of that field activity.

You must obtain prior approval from the landowner to carry a firearm on their property.

Herbicides*

1. If your work requires you to apply herbicides, you must either work under the supervision of a person who is a certified restricted pesticide applicator or have a current certificate yourself.
2. You must wear the appropriate safety equipment and clothing at all times while preparing and/or dispensing the herbicide. You are responsible for maintaining that equipment and clothing and replacing it BEFORE its integrity is compromised due to wear and tear.
3. You must always abide by the instructions on the pesticide label.
4. In case of an accident, especially where you get chemicals on your skin, you must notify your Supervisor as soon as practicable after you have completed rinsing off the chemicals.

Machetes*

If you are uncomfortable using a machete, do not use it; let someone else do the cutting.

Use the machete or knife properly; get training from an experienced person to understand how to use it.

Sharpen only the upper half of the machete; that is the business end!

When not in use, you should have the machete in its case or sheath. Keep the machete in its sheath when hiking. Make sure the machete cannot cut through or slip out of the sheath.

Use safety eyewear to protect against possible injury from vegetation swinging back towards your face.

If clearing thick vegetation or creating trails, keep at least 15 feet away from the next person; under these conditions, know where your coworkers are at all times.

If clearing trails or areas that are moderately vegetated, keep the spacing between you and your coworkers even greater. If you stop to cut something, make sure the person following you knows your intentions and stops.

Make sure the handle of the machete has a wrap that will provide non-slip grip even when wet; replace the wrap frequently. In lieu of using a wrap, wear high quality synthetic gloves that are snug even when wet with a wristband to keep the glove from shifting while being used; fingers and palms should be padded and have non-slip qualities.

Prior to cutting, check the vegetation you are planning to remove. Have a mental plan on how you will proceed with your strokes and where the vegetation will fall, ensuring the safety of those around you as well as yourself.

While cutting, make sure of your footing; if you slip with the machete, make sure it is away from your body and limbs. Do not use it as a prop to gain your balance.

As you cut in a downward motion, make sure your down stroke will not cut through the target plant and continue towards your thigh, knee, shin, or foot.

When cutting at head level or higher, make sure that the cut vegetation does not fall on you, be too high that you miss or only get a glancing cut such that you lose control of the machete.

When clearing uluhe, wear leather gloves to protect your hands from the sharp points.

When cutting tall grass or light brush at its base, swing horizontally, preferably away from you, and be aware that you may hit a rock or other hidden item that will stop your movement immediately. Wearing a padded glove may help.

Do not cut upright woody vegetation in a vertical angle that it will create a punji stick; cut low and as horizontally as possible. If there is a sharp point remaining, blunt it.

After returning from the field, clean your machete, sharpen properly with a file, oil to keep from rusting; dry a wet sheath, do not store a machete in a damp sheath. Check if handle wrap needs replacing.

Checking Equipment

You must check all your issued field equipment frequently, especially before heading into the field.

- A. Check for effective function such as knives/machetes, chainsaw chain sharp, boots have treads, raingear has no holes, and daypack or internal frame packs/ruthsacs zippers are working.
- B. Safety latches working properly, such as in a weapon, knife, chainsaw.
- C. Switches working such as turn on and off knobs in radios, cellular phones, EPIRB/PLBs, and chainsaws.
- D. Handles are safe such as machete handles wrapped or not cracked, long handled tools not cracked or splintered.
- E. Batteries charged such as for radios, GPS, flashlights, cellular phones, cameras. Carry spares.

- F. Critical items are in working condition such as radios, cell phones, GPS, flashlight, pens, cameras, EPIRB/PLBs.
- G. PPE are in good shape and functional such as chainsaw chaps, gloves, flight suits, flight helmets, flyer's gloves, earplugs, safety glasses/goggles, respirators, hard hats.

If you used any equipment while in the field, check them after returning from the field to ensure they will work properly when taking them out again.

Working in water*

1. If you are working in streams, always be aware of the weather conditions especially upstream. You are NOT to work in streambeds when heavy rains are in the forecast.
2. Wear footwear appropriate for the task, e.g., rubber boots, spiked tabs (i.e., those designed for wading). Do not jump from rock to rock. Always ensure that your footing is safe.
3. If, after working in a stream, pond, marsh or in some way associated with water, you come down with flu-like symptoms that persist, consult your physician and inform him/her that you may have been exposed to **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.
4. Never drink untreated water from streams or any source other than a municipal supply. If you suffer from diarrhea and have a hydrogen sulfide 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. You will not work in the field until your doctor has confirmed that you are free of the disease.

Working in Caves*

PCSU personnel may from time to time need to enter cave systems to survey, monitor, sample or evaluate cultural sites, or natural organisms and their habitats.

Caves in Hawaii occur primarily in volcanic substrates and consist of lava tubes or lava blisters that have formed in pahoehoe (smooth lava) flows. Lava tube widths can range from a few feet to thirty feet, heights from a foot to over twenty feet, and tubes systems can extend up to several miles although not all sections may be accessible. Skylights or collapsed roof sections are common in lava tubes. All lava tubes and blisters that PCSU personnel work in are prehistoric and have long since attained a cooled, non-toxic, and stable condition. Lava tubes near active volcanic structures, as on Big Island, are never to be entered without special training and clearance from PCSU. If there are any safety concerns about a lava tube, do not enter it. Do not enter a cave or tube if you are claustrophobic. Always file a Cave Work Plan with your Supervisor or local law enforcement.

A variety of animal may use caves. Honey bees, paper wasps, spiders may nest under overhangs at entrances. Goats, sheep, and pigs resting in caves may bolt for the entrance when startled and may dispute the passageway, so approach a cave entrance slowly.

Protocol for cave visits Concepts:

1. Treat caves with respect. Many are sacred places. Do not enter them unless you have a job-related need to do so. You may need to consult Native Hawaiian to observe proper protocol, especially if burials may be involved.

2. Move slowly and softly. Careless movement may damage irreplaceable archeological, geological, or biological resources. Even carbon dioxide from your breath can damage or destroy a cave ecosystem.
3. Do not move or remove cave material, except recent garbage unless you have the applicable permit. Do not dig as this may destroy stratified deposits. Do not change air flow as this may alter the cave's climate.
4. Do not smoke in the cave.
5. Do not leave **anything** in the cave.
6. Take extreme care when transitioning to the deep (lightless) cave environment; do not touch mineral deposits, animals, organic ooze, cave slime or tree roots.

Procedures:

1. Approach cave entrances carefully and do not make a trail or trample vegetation that might identify a cave. Avoid stepping on stone structures or plants.
2. Allow 10 to 15 minutes for your eyes to adjust to the cave environment.
3. Each person shall carry or wear the following: durable trousers, light jacket, shirt, hardhat, leather gloves, and good quality walking shoes with reasonable ankle support and thick soles. Use knee and elbow pads, if rough or confining conditions are expected.
4. Each person should have a whistle and at least one flashlight (at least two D or four C cell flashlights) plus an extra set of batteries. Chemical light sticks (Cyalumes) may be a useful backup because they provide several hours of illumination. There should be at least one extra, strong flashlight for each three people. A headlamp is preferred over hand-held lamps. Carry at least one-quart of water and food snacks.
5. When planning to enter a lava tube, a group should carry 1. two-way radio, 2. compass, 3. flagging tape, 4. group First Aid kit, 4. insect sting kit, 6. navigation logbook, 7. watch, 8. entrance marker flag.
6. Never enter a cave alone. Minimum crew is two.
7. Leave a filled-out PCSU (or agency or landowner's) Cave Work Plan with a responsible individual. Your Cave Work Plan should include staff names, vehicle's license plate and parking location or your base camp location, and GPS coordinates or map location (if these are unknown until you arrive at the cave, call in the coordinates via radio or cell phone to your Supervisor). The plan should also include date, estimated planned times to enter and depart the cave, and the purpose of cave mission.
8. Mark cave entrance with the entrance marker flag before entering.
9. NEVER separate in the cave, stay within eyesight or illumination of one another.
10. Move slowly and stand up even slower. Watch for hazards overhead and underfoot.
11. After exiting, notify the responsible person that the mission has ended.

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 Hawaii. There is a known risk of leptospirosis, toxoplasmosis, plague (historically) and murine typhus. For larger mammals, there is some additional risk for brucellosis, trichinosis, and tuberculosis. We do not want to discover any new diseases by having one of us come down with them. If you are working with mammals or in areas contaminated by their droppings, you are required to take the following precautions.

Exposure to body fluids

If you are at risk for exposure to body fluids from mammals during trapping, tagging, or removal and necropsy, you must take a variety of precautions. First, all direct contact with mammals should be through barriers. Use protective bite-proof gloves with disposable gloves underneath if you must handle live mammals; avoid this situation except when absolutely required. Use non-allergic disposable gloves for handling carcasses. Dispose of gloves afterwards by enclosing in a baggie. Check your project's safety manual.

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 or lab glasses with side covering and a mask to prevent fluids from hitting your eyes, nose, and mouth. Immediately wash off any contact with fluids 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 pregnant women should avoid close contacts with cats, alive or dead, and cat feces, due to the risk of toxoplasmosis.

Exposure to airborne disease

If you are cleaning an enclosed area (such as an historical structure) with rodent, bat or cat droppings, DO NOT sweep it. There is risk of toxoplasmosis and of hantavirus (although the latter has not been reported in Hawaii). Use disposable gloves if touching contaminated areas and mop the area with a commercial chlorine bleach solution. The person doing the cleaning should wear gloves and respiratory protection. Similarly, handle bedding from mouse or cat traps only in the open, not inside an enclosed area. Since droppings may carry diseases, treat as potentially infectious, bury away from streams and watercourses, or double-bag and dispose of according to local regulations at sanitary landfills.

Exposure during fieldwork

Again, as in anywhere in Hawaii, the known significant risks are leptospirosis, amoebic dysentery, and murine typhus. Avoid entering freshwater if you have breaks in the skin. Please see the existing safety rules for working in water.

If you become ill

If you come down with flu-like symptoms after working in water, when you visit a doctor and explain your possible exposure to leptospirosis. If a bat bites you, please inform the doctor of this. If you come down with any severe fever or disease, ask your doctor to consider any unusual diagnoses because of what you do.

FINALLY

OTHER AGENCIES AND INDIVIDUAL PROJECTS MAY HAVE ADDITIONAL SAFETY PLANS AND RULES. IT IS YOUR RESPONSIBILITY TO BE FAMILIAR WITH THESE AND TO FOLLOW THEM.

Research Corporation of the University of Hawaii Rules and Procedures

A complete set of RCUH rules and regulations can be found at:

<http://www.rcuh.com/000168d/rcuh1.nsf/Table+of+Contents>

Please check them FIRST, before asking administrative personnel.

