

## ENVIRONMENTAL EXPOSURES

(Reviewed 9/16/2008)

A. Employees at KFS are faced with a number of hazards common to the Hawaiian environment. All employees should be made aware of these hazards and should be both familiar with and observe the means to prevent injury.

### B. Weather Related Hazards

#### 1. Heavy rains:

Flash flooding of streams and low-lying areas can occur even though it may not be raining in your vicinity. Heavy rains at higher elevations can raise the level of streams within a matter of minutes making stream crossings very dangerous if not impossible. For personnel working in the wet forest, proper equipment should be carried with them to provide temporary dry shelter in the event or not being able to return to the office or field camp.

#### 2. Thunder storms:

Thunderstorms are rare in the Hawaiian environment but they do occur. When in the field and a thunderstorm is approaching, take the following precautions:

- a. Avoid moving across open areas and do not go in or near water. Remain as low as possible during an electrical storm. If you are caught out in a lava flow or pasture and you feel your hair stand on end, lightning is about to strike you. Drop to your knees and bend forward putting your hands on your knees. Do not lie flat on the ground.
- b. Avoid high objects projecting from the ground. Avoid standing under trees, near poles or along buildings that might attract or reflect lightning. Objects such as long poles and telemetry antennas should be discarded.
- c. In an automobile, the windows should be kept closed.

#### 3. Extreme heat:

- a. Low elevation area temperature may range above 90°, often with high humidity, bringing risk of heat exhaustion, heat stroke, or severe dehydration. Field crews working in this environment must be made aware of the symptoms and treatment for each of these.
- b. Field personnel should carry adequate drinking water and schedule rest periods to prevent heat-related health hazards during hot weather.

4. Vog (Volcanic Gas)

Vog is a product of volcanic activity and may present a serious health problem when conditions are favorable. Field personnel who are working in and around the Hawai'i Volcanoes National Park are most likely to be exposed to serious vog conditions. If vog conditions should get to the level where employees are coughing and/or having breathing difficulties, then any outside work should be halted and the crew can either remain in the work area until the air quality improves or return to the office or field camp.

C. Biological Hazards

1. All personnel involved in fieldwork shall maintain their current tetanus immunization status. Except when given as treatment for an on-job injury, tetanus immunization is the responsibility of the individual.
2. All employees must be familiarized with the potential for contracting hantavirus in mouse-infested areas. No one other than trained personnel equipped with proper respirators will conduct cleanup of mouse-infested structures or vehicles. Leaders of projects involving capture or handling of rodents must consult with the Safety Officer during project planning to obtain updated information on safety precautions and must provide and require the use of protective equipment by field crews processing captured rodents.
3. Leptospirosis poses a serious problem for employees working with or around rats or working in soil or water that has been contaminated with rat urine. All employees should be familiar with the potential for contracting leptospirosis and its signs and symptoms.
4. Employees working in aquatic habitats should be warned of potential exposure to schistosomiasis, and be issued and required to wear waders or hip boots as appropriate.
5. Allergic reactions to biological agents such as pollen and bee stings may vary from slightly annoying to life threatening. Supervisors should determine whether any members of field crews are at serious risk from allergies, and if so, take allergies into consideration when assigning duties. Available antidotes, e.g. a bee sting kit, should be carried at all times by employees at risk of severe reaction to an allergen.