



SAFETY
GUIDELINES
FOR FIELD
RESEARCHERS

The University of North Texas (UNT) Safety Guidelines for Field Researchers are to be a resource for information, guidelines, policies, and procedures that will enable and encourage those working in the field to work safely and eliminate, or reduce, the potential for exposure to hazardous materials or conditions in the field..

Safety Guidelines for Field Researchers

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1 PREFACE

The University of North Texas (UNT) Safety Guidelines for Field Researchers are to be a resource for information, guidelines, policies, and procedures that will enable and encourage those working in the field to work safely and eliminate, or reduce, the potential for exposure to hazardous materials or conditions in the field. This guidance is useful for fieldwork that is performed within local, regional, or foreign geographical areas. It is intended that the Principal Investigator (PI) and supervisory personnel will supplement this information with instruction and guidance regarding specific practices and procedures unique to the work being done in the field.

This manual will be reviewed, and revised as necessary, at least annually.

2 GENERAL FIELD SAFETY GUIDELINES

Fieldwork is an important part of teaching and research at UNT. By its very nature, fieldwork has the potential to expose employees to hazards that are uncommon to their day to day lives. Since fieldwork activities take you off campus, whether locally, regionally, or internationally, this booklet is intended to help plan and prepare for health and safety problems which be might encountered in the field. For more specific information on fieldwork hazards and precautions, talk to your supervisor, or contact Risk Management Services (RMS) at 940-565-2109. It is only with proper preparation that remote fieldwork risks can be recognized, evaluated, and effectively managed.

All UNT operational units participating in remote fieldwork should develop and implement a remote fieldwork safety plan prior to commencement of the operations described therein.

2I BEFORE YOU LEAVE

One of the most important phases of your fieldwork experience is planning and preparation *before* you leave.

At a minimum, your plan should include:

- **Your itinerary:** All locations, arrival and departure date, names, addresses and phone numbers of all fieldwork participants.
- **Contact person:** Name and phone number of a person to contact in case of emergency a spouse, parent or friend, as well as a campus contact.
- **Activities:** General nature of activities being conducted.
- **Local contacts:** Names of people at or near your fieldwork site who can reach you if necessary, as well as your check-in/check-out arrangements. Fieldworkers should check in with their group office regularly and should advise the group office of any changes in schedule or points of contact. If possible, fieldworkers should also inform someone in their work locale (for example, local search and rescue personnel, police, sheriff, or motel employee) each day about the daily fieldwork location and the approximate time of return. After each day's work, the fieldworkers should notify the contact when they return. The local contact should be provided with the telephone numbers of people to call (group office, University contact, etc.) if the workers do not return or report in within a predetermined interval of the scheduled return time.
- **Risk Assessment of sufficient scope:** Learn about potentially hazardous plants, animals, terrain, and weather conditions in the areas where you plan to work and complete a "**Field Research Risk Assessment Record**" (refer to the end of this manual).
- **Include action plan of how risks will be managed**
- **Check-in/check-out procedure to ensure fieldworkers are accounted for while at remote sites**
- **Emergency response plan of sufficient scope**
- **Identification of risk-appropriate training**

Other important information preparation include, but are not limited to:

- In addition to this manual and RMS, your supervisor/sponsor, other fieldworkers, local residents, and authorities, such as state and national park service personnel, may be able to provide you with helpful information.
- Field research involving animals (including wild animals), requires registration with and approval from the [Institutional Animal Care and Use Committee](#) and [Institutional Biosafety Committee](#). Research involving microorganisms requires registration and approval from the [Institutional Biosafety Committee](#). Please see the resources section for more information.

- If your trip involves travelling outside of the country, you should learn about the required and recommended vaccinations for your location. Some countries require proof of vaccinations prior to entry.
- Take a CPR/First Aid class. Contact the Red Cross to enroll.
- Assemble safety provisions and check everything *before* you leave. Safety provisions may include:
- First aid kit and first aid manual. These should be taken on *any* trip.
- Medications you regularly take
- Allergy treatments (if you have allergies)
- Sunscreen and hat
- Water purification tablets or filter devices
- Vehicle emergency kit
- Flashlight
- Flares
- Two-way radio (if you will be working alone in an isolated or dangerous area)
- Personal protective equipment for fieldwork activities (safety glasses/goggles, gloves, hard hat, sturdy work boots, etc.). RMS can recommend protective equipment depending on your activities.
- Any regulated or hazardous materials to go into the field (domestic or international), may have specific [transport requirements](#) and require additional time to reach their destination and to be returned to UNT.
- Whenever possible, fieldwork activities should be done in teams of at least two people. The “buddy” system is the safest way to work. Always make sure your supervisor knows where you will be and when you will return.
- Contact [RMS](#) to obtain information about travel insurance and waivers.
- Ask your health insurance provider about how your coverage applies to medical treatment in the fieldwork locale, should that become necessary.



22 MEDICAL CARE AND FIRST AID

2.2.1 Emergency Medical Care

The following guidelines apply to all off-campus operations including field stations, academic field trips, field research, excursions, etc. that involve employees and students:

1. A first aid kit should be maintained at all times during the operation or exercise (see information below).
2. At least one employee who is trained in first aid should be present during operations.
3. At permanent University field stations, written arrangements should be made in advance with local facilities for emergency medical treatment. If you are working from a field station you should find out what the arrangements are for emergency care.

If a University employee suffers a job-related injury or illness, he/she must notify his/her supervisor within 24 hours. The supervisor must complete an "[Incident Report](#)" at the RMS [website](#) and notify RMS at 940-565-2109. If the injury is “serious” (amputation, permanent disfigurement, overnight hospital stay, fatality) notify your supervisor immediately.

2.2.2 First Aid Kits

First aid kits are highly recommended for all off-campus operations. Departments must purchase and maintain first aid kits including any special equipment or medication that is needed. Kits and refills may be ordered from safety supply companies. RMS can assist with identifying vendors.

3 PHYSICAL AND ENVIRONMENTAL HAZARDS

There are many general physical and environmental hazards that exist in nearly every location worldwide. All field researchers, regardless of the work location, should read through this section to learn more about some general physical and environmental hazards. If your research is in anywhere in North America, please also read Section 3.1: North America. If your research will take you outside North America, please also read Section 3.2: International.

3I GENERAL HAZARDS

3.1.1 *Vehicle Accident*

Location: Worldwide

Cause: Fatigue, Impaired driving, Driver error, Roadway factors, Vehicle factors

Symptoms: Various trauma injuries

First Aid: Call 911, Secure the scene, Do not move victim, Check airways, breathing and circulation, Treat specific injury

Prevention: Obey traffic laws, Wear your seatbelt, Don't drive impaired, Don't speed or drive recklessly, Don't use a 12 or 15 passenger van

3.1.2 *Slips, trips falls*

Location: Worldwide

Cause: Loose, irregular or slippery surface, Wrong footwear, Poor lighting, Obstruction, Improper (or lack of) use of ladders, Inattention or distraction

Symptoms: Strains, fractures, bruises and contusions (head, wrist, elbow, shoulder, back, hip, knee, ankle)

First Aid:

Prevention: Proper "housekeeping", Wear proper footwear, Adequate lighting, Don't carry oversized objects, Use ladders properly

3.1.3 *Dehydration*

Location: Worldwide

Cause: Not enough water intake

Symptoms: Increased thirst, Dry mouth, Flushed face, Dizziness, Headache, Weakness, Muscle cramps, Dark urine

First Aid: Drink plenty of fluids, Take frequent rest breaks, Minimize caffeinated beverage intake

Prevention: Drink plenty of water (at least 2 quarts per day), more if working strenuously or in a warm climate

3.1.4 *Impure Water*

Location: Worldwide

Cause: Harmful organisms and pathogens living in water sources

Symptoms: Gastrointestinal illness, Flu-like symptoms

First Aid: Drink clear liquids (uncontaminated), Slowly introduce mild foods, e.g., rice, toast, crackers, bananas, or applesauce, See a doctor if there is no improvement

Prevention: Carry your own water, Treat water before use with tablets, purifiers, or by boiling for > 3 minutes

3.1.5 Sunburn

Location: Worldwide

Cause: Excessive exposure to the sun

Symptoms: Irritated skin, pink or red in color

First Aid: Apply cool water, aloe or other cooling lotion to affected area

Prevention: Wear long sleeved clothing and a hat, Apply SPF ≥ 30 sunblock

3.1.6 Heat Exhaustion

Location: Worldwide – hot climates

Cause: Prolonged physical exertion in a hot environment

Symptoms: Fatigue, Excessive thirst, Heavy sweating

-Cool, clammy skin

First Aid: Cool the victim, treat for shock, and slowly give water or electrolyte replacer

Prevention: Acclimate to heat gradually, Drink plenty of liquids, Take frequent rest breaks

3.1.7 Heat Stroke

Location: Worldwide – hot climates

Cause: Prolonged physical exertion in a hot environment

Symptoms: Exhaustion, Light-headedness, Bright red warm skin

First Aid: Cool the victim at once, replenish fluids, and seek medical attention immediately

Prevention: Acclimate to heat gradually, Drink plenty of liquids, Take frequent rest breaks

3.1.8 Frostbite

Location: Worldwide – cold climates

Cause: Exposure to cold temperatures

Symptoms: Waxy, whitish numb skin, Swelling, itching, burning, and deep pain as the skin warms

First Aid: Slowly warm the affected areas (do NOT rub area) and seek medical attention immediately

Prevention: Dress in layers, Cover your extremities with warm clothing, e.g., hats, facemask, gloves, socks, and shoes

3.1.9 Hypothermia

Location: Worldwide – cold climates

Cause: Prolonged exposure to cold temperatures

Symptoms: Shivering, Numbness, Slurred speech, Excessive fatigue

First Aid: Remove cold wet clothes, put on dry clothes or use a blanket or skin-to-skin contact, drink warm liquids, seek medical attention immediately

Prevention: Dress in layers, Wear appropriate clothing, Avoid getting damp from perspiration

3.1.10 Carbon Monoxide

Location: Worldwide

Cause: Running a vehicle or burning a fuel stove in an enclosed space

Symptoms: Severe headaches, Disorientation, Agitation, Lethargy, Stupor, Coma

First Aid: Remove the victim to fresh air immediately and perform CPR if needed

Prevention: Keep areas adequately ventilated when burning fuel, Ensure that vehicle tailpipe is not covered by snow

3.1.11 Extreme Weather

Location: Worldwide

Cause: Snow squalls, blizzards, heavy rains, lightning, tornadoes, hurricanes

Symptoms: Severe weather can result in physical injury and/or death

First Aid: Seek shelter immediately

Prevention: Be aware of special weather concerns, Bring appropriate equipment to deal with severe weather

3.1.12 High Altitude Illness

Location: Worldwide –high altitudes

Cause: Decreased oxygen intake and increased breathing rate

Symptoms: Headache, Nausea, Weakness

First Aid: Use supplemental oxygen and decrease altitude

Prevention: Allow your body to acclimatize by gaining elevation slowly

32 NORTH AMERICAN HAZARDS

3.2.1 Hunting Season

Location: United States

Cause: Local hunting seasons and regulations vary

Symptoms: A hunting accident may result in serious injury or death

First Aid: Seek medical attention for serious injuries or wounds

Prevention: Wear appropriately colored safety clothing, Avoid animal like behavior (e.g. hiding in thickets)

3.2.2 Poison Plants

Location: North America

Cause: Exposure to poison ivy, poison oak, or poison sumac plants

Symptoms: Itchy rash, Red, swollen skin

First Aid: Apply a wet compress with baking soda or vinegar, or use a topical ointment. Avoid scratching the rash.

Prevention: Avoid contact with poison plants, Use pre-exposure lotion, Wash clothes and skin with soap and water after exposure

33 INTERNATIONAL HAZARDS

3.3.1 Violence caused by political unrest or military conflict

Location: International

What to do if encountered: Leave the area as soon as it is safe to do so

Prevention: Be aware of current travel advisories (see Section VI)

3.3.2 Theft

Location: International

What to do if encountered: Report theft immediately to local authorities

Prevention: Keep wallet in front pocket, Carry shoulder bag diagonally and keep bag in front under your arm

4 ANIMALS AND PESTS

There are many general safety hazards pertaining to animals and pests that exist in nearly every location worldwide. All field researchers, regardless of the work location, should read through this section to learn more about some general guidelines to prevent unwanted animals and pests. If your research is in North America, please also read Section 4.3. If your research will take you out of North America, please also read Section 4.4: International.

If your research involves intentional handling of animals, appropriate PPE must be worn, even in the field!

A number of animals and pests may be encountered in the field. Follow these guidelines to prevent close encounters of the painful kind:

- Wear insect repellent - **mosquito-borne illnesses are responsible for more than a million deaths each year.**
- Use netting to keep pests away from food and people.
- Keep garbage in rodent-proof containers and stored away from your campsite or work area. Food crumbs and debris may attract insects and animals.
- Thoroughly shake all clothing and bedding before use.
- Do not camp or sleep near obvious animal nests or burrows.
- Carefully look for pests before placing your hands, feet or body in areas where pests live or hide (wood piles, crevices, etc.).
- Avoid contact with sick or dead animals.
- Wear clothes made of tightly woven materials, and tuck pants into boots.
- Minimize the amount of time you use lights after dark as they may attract pests and animals.
- Carry a first aid kit with you on any excursion so you can treat bites or stings. If the pest is poisonous or if the bite does not appear to heal properly, seek medical attention immediately.
- Be aware of the appearance and habitat of pests likely to be found, such as those described in the following pages.



4.1 PROPER RODENT HANDLING

Steps can be taken to reduce the risk of rodent-borne diseases. Most importantly, make the area unattractive to rodents. Cover or repair holes into a building to prevent unwanted rodents. If camping, keep the area clean of trash and store food carefully to prevent attracting rodents. Don't camp near rodent burrows. If rodent feces or dead rodents are discovered, some precautions will help reduce the risk of exposure to rodent-borne diseases when cleaning the area:

- **Indoors: Do not stir up dust.** Ventilate the area by opening the doors and windows for at least 30 minutes to diffuse potentially infectious aerosolized material. Use cross-ventilation and leave the area during the airing-out period.
- **Dead Rodent:** Using gloves, soak the rodent, droppings and nest with a solution of 1-part bleach to 9 parts water, let soak for at least 5 minutes before picking it up with a plastic bag. Place bag in a second plastic bag.
- **Rodent Feces:** Don't sweep or vacuum rodent droppings. Spray the droppings with 1-part bleach to 9 parts water, let soak for at least 5 minutes, then wipe up the droppings. If possible, wet mop the area with the bleach solution.

4.2 GENERAL ANIMAL HAZARDS

4.2.1 Mosquitoes

- **Location:** Worldwide – especially wet areas conducive to breeding
- **Most Dangerous Species:** Refer to Section V: Diseases
- **What to do if encountered:**

- **First Aid:** Use topical ointment to relieve itching
- **Prevention:** Use insect repellent, don't leave standing pools of water, use bed nets

4.2.2 Rodents

- **Location:** Worldwide
- **Most Dangerous Species:**
- **What to do if encountered:** Don't touch a rodent, dead or alive
- **First Aid:** Clean wounds thoroughly if bitten or scratched
- **Prevention:** Keep areas clean to avoid attracting rodents, store food in sealed containers

4.2.3 Conenose "Kissing" Bugs

- **Location:** North and South America
- **Most Dangerous Species:** May cause allergies in some people. They sometimes carry a protozoan, *Trypanosoma cruzi*, which causes Chagas' disease; refer to Section V: Diseases
- **What to do if encountered:**
- **First Aid:** Use topical ointments to soothe itching. Seek medical attention immediately in case of anaphylactic shock.
- **Prevention:** Use caution when working near nests and wood rat dens, use extra caution when working near rock shelters



<https://citybugs.tamu.edu/factsheets/biting-stinging/others/ent-3008/>

4.2.4 Sharks

- **Location:** Worldwide – Oceans – U.S., Africa, Central and South America, Australia, Pacific Islands
- **Most Dangerous Species:** Great White, Bull, Tiger, Oceanic Whitetip
- **What to do if encountered:** Call for help, swim towards safety, punch or kick the shark if necessary
- **First Aid:** Seek medical attention for serious injuries or wounds
- **Prevention:** Never swim alone, don't wear sparkling jewelry, don't enter the water when bleeding

4.2.5 Crocodiles and Alligators

- **Location:** Worldwide – tropics and subtropics – North America, Australia, Africa, Eastern China
- **Most Dangerous Species:** American Alligator (North America), Estuarine Crocodile (Australia), Nile Crocodile (Africa)
- **What to do if encountered:** Do not provoke an alligator or crocodile
- **First Aid:** Seek medical attention for serious injuries or wounds
- **Prevention:** Avoid waters known to be home to crocodiles or alligators, keep at least 30 feet away from any crocodile or alligator

43 NORTH AMERICAN ANIMAL HAZARDS

4.3.1 Bears

- **Location:** North America
- **Most Dangerous Species:** Black Bear (North America), Grizzly Bear (Alaska, Western Canada, Pacific Northwest), Polar Bear (Arctic)
- **What to do if encountered:** Do not run, move slowly and speak in a low soft voice, if attacked, lay in the fetal position and protect head, play dead

- **First Aid:** Seek medical attention immediately for serious injuries or wounds
- **Prevention:** Keep food out of sleeping areas, never approach a bear (or bear cub), wear a bell or other noisemaker, stay away from the bear's food supply

4.3.2 Mountain Lions

- **Location:** North, Central, and South America
- **Most Dangerous Species:** All
- **What to do if encountered:** Do not run, back away slowly, do not corner it, do not play dead, look it in the eyes, make yourself look larger (arms overhead), do not bend down, use a loud voice, throw sticks or rocks, fight back, poke it in the eye with your thumb, protect your neck and head
- **First Aid:** Seek medical attention immediately for serious injuries or wounds
- **Prevention:** Do not leave children or pets unattended, do not feed deer, avoid hiking, biking, jogging alone or other outdoor activities when mountain lions are most active, dawn, dusk, and at night, avoid walking near dense growth, rock outcroppings, ledges, always look up and behind you, carry pepper spray

4.3.3 Snakes

- **Location:** North America, Mexico
- **Most Dangerous Species:** Rattlesnakes, Cottonmouths, Coral Snakes, Moccasins, and Copperheads
- **What to do if encountered:** Do not pick up, disturb, or corner it, move away from the snake, avoid locations where snakes may be
- **First Aid:** Let the wound bleed freely for 30 seconds, apply a cold pack, keep area immobilized at heart level, seek medical attention immediately (alert ahead if possible)
- **Prevention:** Walk in open areas, wear heavy boots, use a stick to disturb the brush in front of you

4.3.4 Spiders

- **Location:** North America
- **Most Dangerous Species:** Black Widow and Brown Recluse
- **What to do if encountered:** Do not pick up or disturb a spider, avoid locations where spiders may be such as dark places
- **First Aid:** Clean wound, apply a cold pack, keep area immobilized at heart level, seek medical attention immediately (alert ahead if possible)
- **Prevention:** Use care around rock piles, logs, bark, gardens, outdoor privies, old buildings, wear gloves when working outside, shake out clothing and bedding before use

4.3.5 Scorpions

- **Location:** North America – especially Arizona, Southeast, California, Utah and Mexico
- **Most Dangerous Species:** All
- **What to do if encountered:** Do not pick up or disturb a scorpion, avoid locations where scorpions may be
- **First Aid:** Clean wound, apply a cold pack-Keep area immobilized at heart level, if needed use painkiller or antihistamine, seek medical attention if no signs of improvement
- **Prevention:** Shake out clothing and bedding before use, avoid lumber piles and old tree stumps- Wear gloves when working outside

4.3.6 *Bees, Wasps, etc.*

- **Location:** North America
- **Most Dangerous Species:** Bees, wasps, hornets, and yellowjackets, Africanized Killer Bees (Southeast United States)
- **What to do if encountered:** Avoid wearing bright colors, flower prints and perfume, move slowly or stand still (don't swat at insects)
- **First Aid:** Remove the stinger, apply a cold pack, keep area immobilized at heart level, if needed use painkiller or antihistamine
- **Prevention:** Bring medication if you have an allergy (the sting may be fatal), keep scented foods, drinks and meats covered, wear shoes outside

4.3.7 *Fleas and Ticks*

- **Location:** North America
- **Most Dangerous Species:** Refer to Section 5: Diseases
- **What to do if encountered:** Avoid shrubbery, stay on widest part of path
- **First Aid:** Remove the flea or tick with tissue or tweezers, clean wound with antiseptic, pay attention for signs of illness (see Section V: Diseases) and seek medical attention if needed
- **Prevention:** Wear long clothing with tightly woven material, wear insect repellent, tuck pants into boots, drag cloth across campsite to check for fleas/ticks, protect pets

44 INTERNATIONAL ANIMAL HAZARDS

4.4.1 *Bears*

- **Location:** Worldwide (Arctic, South America, Asia)
- **Most Dangerous Species:** Polar Bears (Greenland and North Russia), Spectacled Bears (North and West South America), Asiatic Black Bears (South and East Asia)
- **What to do if encountered:** Do not run, move slowly and speak in a low soft voice, if attacked, lay in the fetal position and protect head, play dead
- **First Aid:** Seek medical attention immediately for serious injuries or wounds
- **Prevention:** Keep your camp area free of garbage and food waste, never feed or approach a bear (especially a cub), stay away from the bear's food

4.4.2 *Lions*

- **Location:** Africa and Asia
- **Most Dangerous Species:** All
- **What to do if encountered:** Do not startle, do not run, do not look it in the eye, make yourself look larger
- **First Aid:** Seek medical attention immediately for serious injuries or wounds
- **Prevention:** Stay inside the vehicle if travelling near lions, do not camp in areas frequented by lions, do not sleep outside, do not provoke

4.4.3 *Other Large Land Dwellers*

- **Location:** Africa, Asia
- **Most Dangerous Species:** Hippos, African Elephant, Rhinos, and Buffalo (Africa); Asian Elephants and Bengal Tigers (Southeast Asia); Siberian Tigers (North and East Asia)

- **What to do if encountered:** Do not startle
- **First Aid:** Seek medical attention immediately for serious injuries or wounds
- **Prevention:** Stay inside the vehicle if travelling near large animals, do not camp near areas frequented by large animals, keep a look out in open spaces, do not provoke

4.4.4 *Water Dwellers*

- **Location:** Worldwide (especially Australia)
- **Most Dangerous Species:** Blue Ringed Octopus, Box Jellyfish, and Irukandji Jellyfish (Australia); Stonefish (worldwide)
- **What to do if encountered:** Never touch an unidentified octopus or jellyfish
- **First Aid:** Jellyfish/ Octopus sting use vinegar on wound, stonefish sting rinse with warm water, seek medical attention
- **Prevention:** Avoid going in waters known to be inhabited by jellyfish and octopus, wear sandals in the water to avoid stepping on a stonefish

4.4.5 *Snakes*

- **Location:** Worldwide
- **Most Dangerous Species:** Russel's Viper, Indian Cobra (India); Tiger, Black, Brown, Sea Snakes (Australia); Egyptian Cobra, Puff Adder, Saw Scaled Viper (Africa); Fer-de-lance (Central and South America)
- **What to do if encountered:** Do not pick up, disturb, or corner a snake, move away from the snake
- **First Aid:** Let the wound bleed freely for 30 seconds, apply a cold pack, keep area immobilized at heart level, bring victim to hospital (alert ahead if possible)
- **Prevention:** Walk in open areas, wear heavy boots, use a stick to disturb the brush in front of you

4.4.6 *Spiders*

- **Location:** Worldwide
- **Most Dangerous Species:** Funnel Web and Redback Spiders (Australia); Brazilian Wandering Spider, Brown Recluse, and Tarantula (South America)
- **What to do if encountered:** Do not pick up or disturb a spider, avoid locations where spiders might be such as dark places
- **First Aid:** Clean wound, apply a cold pack, keep area immobilized at heart level, bring victim to hospital (alert ahead if possible), kill spider for positive ID
- **Prevention:** Use care around rock piles, logs, bark, outdoor privies, and old buildings, shake out clothing and bedding before use, wear shoes outside, wear gloves when working outside

4.4.7 Scorpions

- **Location:** Worldwide (especially North Africa, The Middle East, South America, and India)
- **Most Dangerous Species:** All
- **What to do if encountered:** Do not pick up or disturb a scorpion, avoid locations where scorpions may be
- **First Aid:** Clean wound, apply a cold pack, keep area immobilized at heart level, use painkiller or antihistamine if desired, seek medical attention if no improvement
- **Prevention:** Shake out clothing and bedding before use, avoid lumber piles and old tree stumps, wear gloves when working outside

5 DISEASES

There are diseases caused by viruses, bacteria, fungi, and parasites in nearly every location [worldwide](#). This guide is not intended to cover every health risk in every location, but it provides information about some more common diseases. *Always check with your health care provider or Campus Health Service before travelling out of the country to learn about specific health risks for the region in which you will conduct your research.* All field researchers, regardless of the work location, should read through this section to learn more about some general diseases that exist worldwide. If your research is in North America, please also read Section B: North America. If your research will take you out of North America, please also read Section C: International.

5I GENERAL

5.1.1 [Campylobacteriosis](#)

- **Location:** Worldwide
- **Exposure Route:** Foodborne – poultry products, unpasteurized milk or water contaminated with *Campylobacter*
- **Symptoms:** Diarrhea, Gastrointestinal symptoms, fever
- **First Aid:** -Drink plenty of fluids, Seek medical attention if symptoms persist
- **Prevention:** Always cook food thoroughly, never drink water from an impure source, do not drink unpasteurized milk, wash hands with soap and water frequently

5.1.2 [Cholera](#)

- **Location:** Africa, Asia, Latin America
- **Exposure Route:** Foodborne – food and water contaminated with *Vibrio cholerae*
- **Symptom:** Diarrhea, gastrointestinal symptoms
- **First Aid:** Drink plenty of fluids, seek medical attention if symptoms persist
- **Prevention:** Always cook food thoroughly, never drink water from an impure source, wash hands with soap and water frequently

5.1.3 [E. coli O157:H7 and Shiga toxin-producing E. coli Gastroenteritis](#)

- **Location:** Worldwide
- **Exposure Route:** Foodborne – beef, unpasteurized milk, unwashed raw vegetables, water contaminated with *Escherichia coli*
- **Symptom:** Diarrhea, gastrointestinal symptoms
- **First Aid:** Drink plenty of fluids, seek medical attention if symptoms persist
- **Prevention:** Always cook food thoroughly, wash vegetables before consuming, never drink water from an impure source, wash hands with soap and water frequently

5.1.4 Hepatitis A (Vaccine Available)

- **Location:** Worldwide (under- developed countries)
- **Exposure Route:** Foodborne –water, shellfish, unwashed raw vegetables contaminated with Hepatitis A virus
- **Symptom:** Diarrhea, gastrointestinal symptoms
- **First Aid:** Drink plenty of fluids (bottled or purified water—not local water), seek medical attention if symptoms persist
- **Prevention:** Obtain a vaccine, always cook food thoroughly, wash vegetables before consuming, never drink water from an impure source, wash hands with soap and water frequently

5.1.5 Histoplasmosis

- **Location:** Worldwide (especially Miss. and Ohio River Valleys)
- **Exposure Route:** Inhalation of fungus *Histoplasma capsulatum* from soil contaminated with bat or bird droppings
- **Symptom:** Mild flu-like, rarely can be acute pulmonary histoplasmosis
- **First Aid:** See a doctor if you suspect histoplasmosis, typically clears up in 3 weeks
- **Prevention:** Use caution when disturbing dry soils or working near bat or bird droppings, personal protective equipment may be needed

5.1.6 Human Immuno- deficiency virus/ Acquired Immune Deficiency Syndrome (HIV/AIDS)

- **Location:** Worldwide
- **Exposure Route:** Being exposed to blood or body fluids infected with HIV, having sex or sharing needles with someone infected with HIV
- **Symptom:** May have flu-like symptoms 14-60 days post infection, attacks the immune system, may eventually result in opportunistic infections or cancers
- **First Aid:** None, blood test for diagnosis, treatment with antiretroviral drugs for long term maintenance
- **Prevention:** Follow Bloodborne Pathogen training when handling any unfixated human blood or tissue, do not engaging in risky activities

5.1.7 Influenza (seasonal)

- **Location:** Worldwide; Note: As of 2008 Pandemic Strains of Influenza (not seasonal) have been reported in Africa, Asia, Europe, Near East and occur primarily in birds
- **Exposure Route:** Inhalation of influenza virus, contact with birds infected with influenza
- **Symptom:** Fever (usually high), headache, extreme tiredness, dry cough, sore throat, runny or stuffy nose, muscle aches, stomach symptoms (nausea, vomiting, diarrhea) more commonly in children
- **First Aid:** Flu antiviral drugs can treat the flu or prevent infection, your health care professional will decide whether you should take antiviral drugs, antiviral drugs should be started within 48 hours of getting sick, antiviral drugs are 70% to 90% effective in preventing infection
- **Prevention:** Annual flu vaccination, cover your nose and mouth with a tissue or your elbow when you cough or sneeze, wash hands with soap and water frequently, if you are not near water, use an alcohol based hand cleaner, try not to touch your eyes, nose, or mouth. Stay away from people who are sick, if you get the flu, stay home from work or school.

5.1.8 Leptospirosis

- **Location:** Worldwide
- **Exposure Route:** Ingestion, swimming, or other activities in water contaminated with *Leptospira*
- **Symptom:** Flu-like, occasionally more serious symptoms
- **First Aid:** See a doctor if you suspect leptospirosis

- **Prevention:** Use care when working in the water, especially after a flooding event, avoid entering the water with open wounds

5.1.9 Norovirus “Norwalk-like viruses” (NLV) Gastroenteritis

- **Location:** Worldwide
- **Exposure Route:** Foodborne - food, water, surfaces or objects contaminated with Norovirus, direct contact with another person who is infected
- **Symptom:** Nausea, vomiting, diarrhea, stomach cramping, some people also have a low-grade fever, chills, headache, muscle aches, malaise
- **First Aid:** Stay hydrated
- **Prevention:** Wash hands with soap and water frequently, wash fruits/vegetables, and steam oysters, clean and disinfect contaminated surfaces immediately after illness using a bleach-based cleaner, remove and wash contaminated clothing or linens

5.1.10 Plague

- **Location:** Worldwide
- **Exposure Route:** Flea-borne-from rodents infected with *Yersinia pestis* to humans, direct contact with infected tissues or fluids from sick or dead animals
- **Symptom:** Flu-like, non-specific, swollen and painful lymph nodes (bubonic)
- **First Aid:** See a doctor if you suspect plague
- **Prevention:** Use care when working in areas where plague is found, use caution when working with wild rodents

5.1.11 Rabies (Vaccine Available)

- **Location:** Worldwide
- **Exposure Route:** Infection from bite of an animal (e.g., raccoons, skunks, bats, foxes, coyotes, dogs, cats) infected with *Lyssavirus*, bat bites are difficult to see and may not be felt. Exposure is also possible when a bat is found in living or sleeping quarters.
- **Symptom:** Fatal (within days of the onset of symptoms) without immediate treatment, early symptoms: fever, headache, malaise. Later symptoms: insomnia, anxiety, confusion, paralysis, hallucinations, hypersalivation, difficulty swallowing, fear of water
- **First Aid:** Disinfect and wash the wound. See a doctor IMMEDIATELY if potentially exposed to a rabies-carrying species (e.g., bat, carnivore)
- **Prevention:** Obtain a vaccine if you will be working with bats or carnivores. Use extreme caution handling these animals, vaccinate pets

5.1.12 Salmonellosis

- **Location:** Worldwide
- **Exposure Route:** Foodborne – beef, poultry, milk, eggs, unwashed raw vegetables contaminated with salmonella bacteria
- **Symptom:** Diarrhea, gastrointestinal symptoms
- **First Aid:** Drink plenty of fluids, seek medical attention if symptoms persist
- **Prevention:** Always cook food thoroughly, wash vegetables before consuming, wash hands with soap and water frequently

5.1.13 Typhoid Fever (Vaccine Available)

- **Location:** Worldwide
- **Exposure Route:** Foodborne – food and water contaminated with *Salmonella typhi*
- **Symptom:** Diarrhea, gastrointestinal symptoms

- **First Aid:** Drink plenty of fluids, seek medical attention if symptoms persist
- **Prevention:** Obtain a vaccine, always cook food thoroughly, never drink water from an impure source, wash hands with soap and water frequently

5.1.14 *Tetanus (Vaccine Available)*

- **Location:** Worldwide
- **Exposure Route:** A wound that is infected with *Clostridium tetani*; tetanus toxin is produced by the bacteria and attacks nerves
- **Symptom:** Early symptoms: lockjaw, stiffness in the neck and abdomen, difficulty swallowing, later symptoms: muscle spasms, seizures, nervous system disorders
- **First Aid:** See a doctor for any wound contaminated with dirt, feces, soil, or saliva; for puncture wounds; and for wounds resulting from crushing, burns, and frostbite
- **Prevention:** Obtain a vaccine for tetanus every 10 years or immediately following a suspect wound or injury, once the disease starts it must run its course

5.1.15 *Typhus Fever*

- **Location:** Worldwide
- **Exposure Route:** Infection from bite of lice, fleas, ticks, or mites infected with *Rickettsiae* species
- **Symptom:** Headache, fever, rash
- **First Aid:** See a doctor if you suspect Typhus Fever, treatable with antibiotics
- **Prevention:** Use insect repellent, wear long sleeve shirts, tuck pants into boots

52 NORTH AMERICAN DISEASE INFORMATION

5.2.1 *Coccidioido- mycosis* “Valley Fever”

- **Location:** North and South America semiarid regions
- **Exposure Route:** *Coccidioides* species fungus is inhaled when soil is disturbed
- **Symptom:** None in most people (~60%), flu-like (fever, cough, rash, headache, muscle aches), occasionally, chronic pulmonary infection or widespread disseminated infection (skin lesions, central nervous system infection, and bone and joint infection)
- **First Aid:** See a doctor if you suspect Valley Fever
- **Prevention:** Wet soil before digging, if you are immunocompromised, wear a mask when digging, stay inside during dust storms in areas where *Coccidioides* fungus is present, keep doors and windows tightly closed

5.2.2 *St. Louis Encephalitis*

- **Location:** North and South America
- **Exposure Route:** Mosquito-borne - infection from bite of a mosquito infected with St. Louis Encephalitis virus
- **Symptom:** Mild - fever and headache, severe - headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and rarely death
- **First Aid:** Seek medical attention immediately if you suspect encephalitis
- **Prevention:** Use insect repellent, many mosquitoes are most active at dusk and dawn, consider staying indoors during these hours, wear long sleeves and pants, avoid areas of standing water where mosquitoes breed

5.2.3 Lyme Disease

- **Location:** United States, Europe and Asia
- **Exposure Route:** Infection through the bite of a tick infected with *Borrelia burgdorferi* (U.S.), *Borrelia afzelii*, or *Borrelia garinii* (Europe)
- **Symptom:** Spreading rash (“bullseye”), early symptoms: flu-like, later symptoms: arthritis and neurologic problems
- **First Aid:** See a doctor if you suspect Lyme Disease
- **Prevention:** Avoid tick infested areas, wear long sleeves and pants, use insect repellent, check clothing and hair for ticks and remove any ticks

5.2.4 Rocky Mountain Spotted Fever

- **Location:** United States, southern Canada, Mexico, and Central America
- **Exposure Route:** Infection through the bite of an infected tick, *Rickettsia rickettsii*
- **Symptom:** Sudden onset of fever, headache, muscle pain, spotty rash
- **First Aid:** See a doctor if you suspect Rocky Mountain Spotted Fever
- **Prevention:** Avoid tick infested areas, wear long pants, shirts, use a repellent, check clothing and hair for ticks and remove any ticks

5.2.5 Hantavirus Pulmonary Syndrome (HPS) – Sin Nombre Virus

- **Location:** North America
- **Exposure Route:** Inhalation of dusts or aerosols from the infected rodent’s feces, urine, or saliva, Vector: Deer mouse (*peromyscus maniculatus*)
- **Symptom:** (Early, 1-5 weeks) fatigue, fever, muscle aches, chills, headaches, dizziness, sometimes abdominal problems, (Late, 4-10 days after early) coughing, shortness of breath
- **First Aid:** Seek medical attention *IMMEDIATELY* if you suspect HPS. The likelihood of survival is greatly increased with early diagnosis and treatment
- **Prevention:** Avoid contact with rodents, especially their feces, see section on dealing with rodent infested areas

5.2.6 Arenavirus (White Water Arroyo)

- **Location:** North America
- **Exposure Route:** Inhalation of dusts or aerosols from the infected rodent’s feces, urine, or saliva, Vector: Woodrats (*Neotoma fuscipes*) and other *Neotoma* species
- **Symptom:** Fever, headache, muscle aches, severe respiratory distress (occasionally)
- **First Aid:** Seek medical attention *IMMEDIATELY* if you suspect WWA. The likelihood of survival is greatly increased with early diagnosis and treatment
- **Prevention:** Avoid contact with rodents, especially their feces, see section on dealing with rodent infested areas

5.2.7 West Nile Virus

- **Location:** North America
- **Exposure Route:** Mosquito-borne - Infection from the bite of a mosquito infected with West Nile Virus, Handling infected birds
- **Symptom:** None in most people (~80%), mild - fever, headache, body aches, nausea, vomiting, and sometimes swollen glands or a rash on the chest, stomach and back; severe - high fever, neck stiffness, stupor, muscle weakness, disorientation, coma, tremors, convulsions, vision loss, numbness, paralysis
- **First Aid:** See a doctor if you suspect that severe symptoms are due to West Nile Virus
- **Prevention:** Use insect repellent, many mosquitoes are most active at dusk and dawn, consider

staying indoors during these hours, wear long sleeves and pants, avoid areas of standing water where mosquitoes breed, don't handle dead birds with your bare hands

53 INTERNATIONAL DISEASE INFORMATION

5.3.1 Dengue Fever

- **Location:** Africa, Southeast Asia, China, India, Middle East, South and Central America, Australia and the Pacific Islands
- **Exposure Route:** Mosquito-borne - Infection from the bite of a mosquito infected with 1 of 4 dengue viruses
- **Symptom:** Flu-like, sudden, high fever, severe headache, pain behind eyes, nausea/vomiting, rash
- **First Aid:** See a doctor if you suspect Dengue Fever, takes up to 1 month to recover
- **Prevention:** Wear long sleeves and pants, use insect repellent, use a mosquito net

5.3.2 Malaria (Preventable with Drugs)

- **Location:** Central and South America, Hispaniola, Africa, India, South Asia, Southeast Asia, the Middle East, and Oceania
- **Exposure Route:** Mosquito-borne- Infection from the bite of an infective female Anopheles mosquito, blood transfusion, contaminated needles/syringes
- **Symptom:** May take 10 days to 1 year for symptoms to appear, flu-like, fever, sweats, chills, headache, malaise, muscle aches, nausea, vomiting, jaundice, untreated may cause severe complications including death
- **First Aid:** See a doctor *IMMEDIATELY* if you have traveled in a malaria-risk area and suspect malaria
- **Prevention:** Use a mosquito net -Use insect repellent, take Antimalarial drugs (visit your health care provider 4-6 weeks before travel), wear long sleeves and pants

5.3.3 Severe Acute Respiratory Syndrome (SARS)

- **Location:** Occurred in 2003 in North America, South America, Europe, and Asia
- **Exposure Route:** Close person-to- person contact, inhalation of respiratory droplets produced when an infected person coughs or sneezes, touching surface or object contaminated with infectious droplets and then touch mouth, nose, or eye(s)
- **Symptom:** Begins with a high fever ($>100.4^{\circ}\text{F}$ [38.0°C]), headache, malaise, some have mild respiratory symptoms at the outset, 10- 20% have diarrhea, after 2 to 7 days may develop a dry cough, most develop pneumonia
- **First Aid:**
- **Prevention:** Wash your hands with soap and water frequently or an alcohol-based hand rub, travelers to China should avoid live food markets and contact with civets and other wildlife (no evidence that direct contact with civets has led to cases of SARS, similar viruses have been found in these animals)

5.3.4 Yellow Fever (Vaccine Available)

- **Location:** South America and Africa
- **Exposure Route:** Mosquito-borne - Infection from the bite of a mosquito infected with Yellow fever virus
- **Symptom:** Flu-like, jaundice, can be fatal
- **First Aid:** See a doctor if you suspect Yellow Fever

- **Prevention:** Visit doctor at least 10 days before travel for vaccine, wear long sleeve shirts and pants, use insect repellent, use a mosquito net

5.3.5 *Hantavirus (Sin Nombre Virus) and Arenavirus (White Water Arroyo)*

- **Location:** Central and South America and Asia
- **Exposure Route:** Inhalation of dusts or aerosols from the infected rodent's feces, urine, or saliva, Vector: Rodents; especially *Neotoma* and *Peromyscus* species
- **Symptom:** Fever, headache, muscle aches, severe respiratory distress (occasionally)
- **First Aid:** Seek medical attention *IMMEDIATELY* if you suspect hanta or arenavirus. The likelihood of survival is greatly increased with early diagnosis and treatment
- **Prevention:** Avoid contact with rodents, especially their feces, see section on proper rodent handling for cleaning a rodent infested area

5.3.6 *Schistosomiasis, (or bilharzias)*

- **Location:** Brazil, Egypt, sub-Saharan Africa, southern China, the Philippines, and Southeast Asia
- **Exposure Route:** Transmitted by swimming in contaminated fresh water
- **Symptom:** Can be asymptomatic, (Acute: 2-3 weeks) Fever, weight loss, weakness, abdominal, joint and muscle pain, diarrhea, nausea, (Chronic) disease in lungs, liver, intestines, bladder cough, headaches
- **First Aid:** See a doctor if you suspect schistosomiasis
- **Prevention:** Avoid fresh-water wading or swimming in endemic regions, heat bath water over 50°C for at least 5 minutes before use

5.3.7 *Other Diseases (Vector-borne)*

There are many other vector-borne diseases that may pose a problem when travelling out of the country. Always check with a physician to learn the specific threats to your location of study. Some other vector-borne diseases include:

- [African Sleeping Sickness](#) - carried by the tsetse fly in Africa
- [Chagas Disease](#) - transmitted by the triatomine bugs (a.k.a., conenose or “kissing” bug) in Texas, Mexico, and Central and South America
- Encephalitis - carried by mosquitoes in Asia and Eastern Russia
- [Leishmaniasis](#) - transmitted by sand flies in the tropics and subtropics
- [Filariasis](#) - carried by mosquitoes in the tropics
- [Onchocerciasis](#) - causes ‘river blindness’ and is carried by black flies in Africa, Arabia, and Central and South America.

Other Diseases (General) – There are other diseases to be aware of when travelling outside of the United States. While risk of infection is generally low, it is important to be aware of and take appropriate precautions to guard against diseases such as Tuberculosis, Viral Hemorrhagic Fevers, etc. Always check with your health care provider to learn more about specific diseases that exist in the region you will be conducting your research.

6 RESOURCES

There are many resources available that may provide more in-depth information regarding your research environment. Please use the references in this section for further information on many of the topics discussed in this booklet.

6I GENERAL ON CAMPUS RESOURCES

- A. [UNT Student Health and Wellness](#): is available for student travel exams and other health related information. They can be reached at 940.565.2333
- B. [Risk Management Services/International Travel](#): RMS is available for various hazard information and other hazard evaluations. They can be reached at 940-565-2109.
- C. [Institutional Animal Care and Use Committee \(IACUC\)](#): Research with animals, including wild animals, must be reviewed and approved by the committee prior to beginning research. Information and forms are available from the Office of Research and Innovation at 940-369-7428.
- D. [Institutional Biosafety Committee \(IBC\)](#): Research with microorganisms (including isolating, concentrating, culturing or growing field samples) and recombinant or synthetic nucleic acids must be reviewed and approved by the committee prior to beginning research. Information and forms are available from RMS/Biosafety Officer at biosafety@UNT.edu.
- E. [Travel Services](#): Travel Services can be reached at 940.369.5757 or 940.369.5500 or [Ask Travel](#)
- F. [Study Abroad](#): For study abroad information the Study Abroad Office can be reached at studyabroad@unt.edu.
- G. [Workers Compensation](#): Risk Management is available for questions about workers' compensation coverage and injury reports. They can be reached at 940.565.2109.

6J OFF-CAMPUS RESOURCES

- A. [First Aid/CPR Training](#): First Aid and CPR training are available from a number of locations, including the Red Cross. There are many companies offering CPR and First Aid training; you can search online for "first aid/cpr training" for options.
- B. [General](#): The [Centers for Disease Control and Prevention](#) (CDC) offers a website that describes many topics related to travel, both domestic and international.
- C. [Medical](#): Information about a variety of diseases and illnesses, including dehydration, carbon monoxide poisoning, sunburn, excessive heat, hypothermia, and high altitude sicknesses, can be found online at: <http://my.webmd.com>
- D. [Diseases](#): The CDC offers more detailed information about many diseases related to travel on their [website](#).
- E. The Texas Department of State Health Services [Infectious Disease Control Unit](#) offers information about infectious diseases by calling 512-776-7676.
- F. [Weather](#): More information on extreme weather and how to protect yourself can be found from the [National Weather Service](#).
- G. [Impure Water](#): For more information about waterborne diseases, the CDC provides information online at <http://www.cdc.gov/healthywater/>.

6.2.1 North America

- A. [Hunting Season](#): To get more information concerning hunting seasons and regulations, contact the [U.S Forest Service](#) at 800.832.1355.
- B. [Poison Plants](#): More information about poison plants, including photos, can be found at <http://poisonivy.aesir.com/>.
- C. [Hantavirus](#): The CDC has detailed information about hantavirus available at

<http://www.cdc.gov/hantavirus/>.

- D. Lyme Disease: The [American Lyme Disease Foundation](#) provides information about the disease.

6.2.2 *International*

- A. Travel Health and Outbreaks: Updated information about disease outbreaks and international travel health can be found from the [World Health Organization](#) (WHO).
- B. Advisories: Travel advisories are announced through the [U.S. Department of State](#). Current travel warnings, public announcements, and consular information sheets is available on their website.

63 SELECTED WEBSITE REFERENCES

- A. Promed Health Map: <https://healthmap.org/promed/>
- B. CDC Traveler's Health: <https://wwwnc.cdc.gov/travel>
- C. U.S. Department of State Travel Advisories: <https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories.html/>
- D. CIA World Factbook: <https://www.cia.gov/library/publications/the-world-factbook/>

6.3.1 *Helpful University or College Field Research Safety References*

- A. University of California: <https://www.ucop.edu/safety-and-loss-prevention/environmental/program-resources/field-research-safety/index.html>
- B. University of Maryland: <https://essr.umd.edu/research-safety/field-research-safety>
- C. Princeton: <https://ehs.princeton.edu/laboratory-research/laboratory-safety/field-research-0>
- D. Scripps: <https://scripps.ucsd.edu/safety/field-research>

64 VIRGINIA TECH: [HTTPS://WWW.EHSS.VT.EDU/PROGRAMS/FRS_PROGRAM_ONLINE.PHP](https://www.ehss.vt.edu/PROGRAMS/FRS_PROGRAM_ONLINE.PHP)

APPENDIX A: TRIP SAFETY CHECKLIST

Trip Safety Checklist

- Complete the Field Research Safety Plan and file it with your department and your supervisor (next page)
- Prepare a first aid kit and manual
- Assemble and check safety provisions
- Check to make sure immunizations are current (typically 3 months in advance)
- Check emergency medical care and health insurance

APPENDIX B FIELD RESEARCH SAFETY PLAN

If foreign, nearest US Consulate Office	
Address/City	
Phone number	
<p>Check all that apply:</p> <input type="checkbox"/> Are you traveling outside the United States? <input type="checkbox"/> Will you be in an area where regular common (cell phones, landline phones) may not be available? <input type="checkbox"/> Are you traveling with others? <input type="checkbox"/> Are you transporting/handling hazardous biological, chemical, or radiological materials, animals, or fireworks? <input type="checkbox"/> Are you traveling in an area of increased health and safety risks? (Physical hazards, remote locations, endemic diseases, animal attacks, human attacks, etc.) <input type="checkbox"/> Will transportation be entirely limited to regularly scheduled commercial carriers? <input type="checkbox"/> Will you conduct activities with special hazards or in a hazardous area (for example, confined space, working from heights, etc.)?	
<p>Travel Immunizations: (List required immunizations/prophylaxis)</p> <input type="checkbox"/> Diphtheria <input type="checkbox"/> Hepatitis A <input type="checkbox"/> Hepatitis B <input type="checkbox"/> Polio <input type="checkbox"/> Rabies <input type="checkbox"/> Rubella <input type="checkbox"/> Japanese encephalitis <input type="checkbox"/> Malaria <input type="checkbox"/> Measles <input type="checkbox"/> Yellow Fever <input type="checkbox"/> Typhoid <input type="checkbox"/> Tetanus <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____	
<p>Emergency Procedures: (Please include detailed plans for field location including evacuation and emergency communication; <i>Include a separate sheet if necessary</i>).</p>	
<p>First Aid Training: (Please list any team members who are first aid trained and the type of training they have).</p>	
<p>Physical Demands: (Please list any physical demands required for this field research, for example, Diving, Climbing, Temperature Extremes, and High Altitude).</p>	

Risk Assessment (Check all items that you expect will be encountered during the project or event)

<p>ENVIRONMENT</p> <p><input type="checkbox"/> High altitude</p> <p><input type="checkbox"/> Extreme temperature Hot Cold</p> <p><input type="checkbox"/> Excessive/Extreme exposure to sun, wind, blowing sand, etc.</p> <p><input type="checkbox"/> Work over/Under water</p> <p><input type="checkbox"/> Dusts/Particulate hazards</p> <p><input type="checkbox"/> Noisy</p> <p><input type="checkbox"/> Potential for oxygen deficiency or other atmospheric hazard (i.e. gas, vapor, chemical)</p> <p><input type="checkbox"/> Work at night/poor lighting</p> <p><input type="checkbox"/> Driving</p> <p>ACCESSIBILITY</p> <p><input type="checkbox"/> Remote location</p> <p><input type="checkbox"/> Long distance to medical services (i.e. > 50 miles)</p> <p><input type="checkbox"/> Lack of communication capability (i.e. poor/no connection)</p> <p>TERRAIN</p> <p><input type="checkbox"/> Rough/Unusual terrain</p> <p><input type="checkbox"/> Flash flood potential</p> <p><input type="checkbox"/> Falling objects (i.e. avalanches, rock falls, etc.)</p> <p><input type="checkbox"/> Work along roadway shoulders (Attach traffic control plan and permit, if required)</p> <p><input type="checkbox"/> Heights (i.e. trees, cliffs, etc.)</p> <p><input type="checkbox"/> Disaster area</p> <p><input type="checkbox"/> Violence (i.e. political, military, protests, etc.)</p> <p>FLORA/FAUNA</p> <p><input type="checkbox"/> Wild animal Hazards</p> <p><input type="checkbox"/> Venomous/Poisonous Animals:</p> <p><input type="checkbox"/> Insects as known disease carriers:</p> <p><input type="checkbox"/> Trapping/handling animals:</p> <p><input type="checkbox"/> Toxic/Poisonous Plants:</p> <p><input type="checkbox"/> Biosafety/IACUC Application/Approval: _____</p> <p><input type="checkbox"/> Other: _____</p>	<p>WORK TASKS</p> <p><input type="checkbox"/> Confined space (natural or man-made)</p> <p><input type="checkbox"/> Trenching/Excavating</p> <p><input type="checkbox"/> Hazardous waste generation</p> <p><input type="checkbox"/> Hazardous material transportation</p> <p><input type="checkbox"/> Hazardous material handling</p> <p><input type="checkbox"/> Hazardous material storage on-site</p> <p><input type="checkbox"/> Biohazardous waste generation</p> <p><input type="checkbox"/> Biohazardous material transportation</p> <p><input type="checkbox"/> Biohazardous material handling</p> <p><input type="checkbox"/> Lack of potable water</p> <p><input type="checkbox"/> Lack of sanitary facilities</p> <p><input type="checkbox"/> Potential for flying debris or impact</p> <p><input type="checkbox"/> Electrical hazard</p> <p><input type="checkbox"/> Fire hazards (i.e. welding, cutting, grinding)</p> <p><input type="checkbox"/> Diving</p> <p><input type="checkbox"/> Climbing/Strenuous hiking required</p> <p>PLANNED EQUIPMENT USE</p> <p><input type="checkbox"/> Snowmobile/ATV</p> <p><input type="checkbox"/> Boat/Canoe/Kayak</p> <p><input type="checkbox"/> Forklift</p> <p><input type="checkbox"/> Weapon(s)</p> <p><input type="checkbox"/> Cages/Traps/Snares</p> <p><input type="checkbox"/> Other: _____</p> <p>MATERIAL(S) BROUGHT TO FIELD AREA</p> <p><input type="checkbox"/> Chemicals</p> <p><input type="checkbox"/> Biological material</p> <p><input type="checkbox"/> Radiological</p> <p><input type="checkbox"/> Other: _____</p> <p><input type="checkbox"/> No known hazards</p>
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Risk Assessment: Please list identified risks associated with the activity or the physical and the appropriate measures to be taken to reduce the risks; *Include a separate sheet if necessary.*

<i>Identified Risk</i>	<i>Control of Risk</i>
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

Safety and Emergency Equipment

Personal Protective Equipment

<input type="checkbox"/> Safety glasses/goggles	<input type="checkbox"/> Gloves	<input type="checkbox"/> Work boot/shoe
<input type="checkbox"/> Hard Hat (if applicable)	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____
<input type="checkbox"/> Face Shields	<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Rain Gear
<input type="checkbox"/> Portable Eye Wash	<input type="checkbox"/> Emergency Shower	<input type="checkbox"/> Emergency Shower
<input type="checkbox"/> Extraction Equipment (Confined Space)	<input type="checkbox"/> Respirator: Type: Cartridge/Filter Type:	

Emergency Kit

<input type="checkbox"/> Water	<input type="checkbox"/> First Aid Kit	<input type="checkbox"/> Flashlight
<input type="checkbox"/> Emergency Blanket	<input type="checkbox"/> Emergency Food	<input type="checkbox"/> Hand Sanitizer
<input type="checkbox"/> Allergy creams	<input type="checkbox"/> Sunscreen	<input type="checkbox"/> Insect Repellent
<input type="checkbox"/> Water purification tablets or filter	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____

Medications (if applicable)

<input type="checkbox"/> Prescription	<input type="checkbox"/> Non prescription	<input type="checkbox"/> Vitamins
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Field Team Membership (Please list the names of all members of the field research team and identify the Field Team Leader.)

APPENDIX C DEFINITIONS:

Employee

Any full or part-time OSU administrator, faculty, staff, post-doctoral fellow, student, or volunteer.

Fieldwork

Academic, research, and/or related support functions conducted at a location not typical of office, campus or other urban environments.

Remote

In terms of both distance and accessibility, any location more than approximately one hour's travel time from receiving definitive treatment.

Definitive Treatment

The most appropriate treatment for a patient, as determined by a medical professional, after all other options have been considered (e.g. surgery for internal bleeding, a cast for a broken bone, stitches for a deep laceration).

Operational Unit

A natural grouping of employees, as determined by the scope of the fieldwork performed, that generally reports to a single supervisor (e.g. primary investigator, shop or service manager).

Fieldwork Program

College- or Department-level oversight of its operational units' remote fieldwork operations.

Risk Assessment

A systematic process of identifying and evaluating the likelihood that an undesired event will occur due to the realization of a hazard.

Hazard

Anything with the potential to cause harm in terms of human injury or illness, damage to property, and/or damage to the environment such as materials and equipment in use, processes employed, and/or environmental working conditions including, but not limited to: ground or soil conditions; stream, lake or ocean conditions; weather or climate conditions; flora and fauna; and/or human activity.

Working Alone

Any instance whereby an employee conducting remote fieldwork is unable to maintain visual or voice contact with another person.

APPENDIX D SELECTED REFERENCES

Field Research Safety References for Biosafety Professionals

Prepared by Scott Patlovich, DrPH, CBSP

Last updated: 9/28/2018

Selected field research safety references:

Breeding, J.A., Finch, L., Freeman, R.W. (2010) International experiential learning and service project trips: new risks and challenges. University Risk Management and Insurance Association, Northeast Regional Conference Presentation. Presented on April 29, 2010.

Burgess, R.G. (1984) In the field: an introduction to field research. Hemel Hempstead, UK: George Allen & Unwin.

Chosewood, L.C. (2008). Health and safety during public health responses and international travel. Anthology of Biosafety XI: Worker Health and Safety Issues, American Biological Safety Association, pp. 113-122.

Dillon, H.K., Heinsohn, P.A., Miller, J.D. (2005) Field guide for the determination of biological contaminants in environmental samples. American Industrial Hygiene Association.

Emanuel, P., Roos, J.W., Niyogi, K. (2008) Sampling for biological agents in the environment. American Society for Microbiology Press, Washington DC.

Kelt, D.A., Hafner, M.S. (2010) Updated guidelines for the protection of mammalogists and wildlife researchers from hantavirus pulmonary syndrome (HPS). Journal of Mammalogy, 91(6): 1524-1527.

Knight, A., Stephenson, R., Clark, A., Winsor, S., Smith, M., Schroter, R., Greaves, L., Aniteye, E., Randell, A. (2011) Guidelines on health and safety in fieldwork: inclusive of offsite visits and travel in the UK and overseas. Universities Safety and Health Association, Universities and Colleges Employers Association (UK).

Laber, K., Kennedy, B.W., Young, L. (2007). Field studies and the IACUC: protocol review, oversight, and occupational health and safety considerations. Lab Animal, 36(1):27-33.

McLaughlin, J. et al. Beyond the classroom, experiential learning: managing risks, maximizing rewards. Gallagher Higher Education Practice Group. Available at: <https://www.ajg.com/media/850665/Beyond-the-Classroom-Experiential-Learning.pdf>

Oda, L.M., Navarro, M.A., Cardoso, T.A.O., Soares, B.E.C., Silva, F.H.A., da Rocha, S.S. (2004). Biosafety practices in field research: a reviewed experience. Anthology of Biosafety VI: Arthropod Borne Diseases. American Biological Safety Association, pp. 151-163.

United States National Park Service Office of Policy. (2008). Director's Orders and Related Documents. Reference manual 50B—Occupational Safety and Health Program. Section 4 Occupational Health. 4.15 Safe Work Practices for Employees Handling Wildlife. Available at: <http://www.nps.gov/policy/RM50Bsection4.pdf>

Selected list of publications on field acquired infection events:

Felinto de Brito, M.E., Andrade, M.S., de Almeida, E.L., Medeiros, A.C., Werkhäufer, R.P., de Araújo, A.I., Brandão-Filho, S.P., Paiva de Almeida, A.M., Gomes Rodrigues, E.H. (2012). Occupationally acquired American cutaneous Leishmaniasis. *Case Reports in Dermatological Medicine*, 2012:279517.

Foy, B.D., Kobylinski, K.C., Foy, J.L.C., Blitvich, B.J., Travassos da Rosa, A., Haddow, A.D., Lanciotti, R.S., Tesh, R.B. (2011). Probable non-vector-borne transmission of Zika virus, Colorado, USA. *Emerging Infectious Diseases*, 17(5):880-2.

Haselow, D.T., Brown, E., Tracy, J.K., Magnien, R., Grattan, R.M., Morris, J.G., Oldach, D.W. (2001). Gastrointestinal and respiratory tract symptoms following brief environmental exposure to aerosols during a *Pfiesteria*-related fish kill. *Journal of Toxicology and Environmental Health*, 63:553–564.

Le Guenno, B., Formenty, P., Boesch, C. (1999). Ebola outbreaks in the Ivory Coast and Liberia, 1994-1995. *Marburg and Ebola Viruses*. Springer-Verlag Berlin Heidelberg New York.

Sinclair, J.R., Carroll, D.S., Montgomery, J.M., Pavlin, B., McCombs, K., Mills, J.N., Comer, J.A., Ksiazek, T.G., Rollin, P.E., Nichol, S.T., Sanchez, A.J., Hutson, C.L., Bell, M., Rooney, J.A. (2007). Two cases of hantavirus pulmonary syndrome in Randolph County, West Virginia: a coincidence of time and place? *American Journal of Tropical Medical Hygiene*, 76(3):438-42.

Wong, D., Wild, M.A., Walburger, M.A., Higgins, C.L., Callahan, M., Czarnecki, L.A., Lawaczek, E.W., Levy, C.E., Patterson, G., Sunenshine, R., Adem, P., Paddock, C.D., Zaki, S.R., Peterson, J.M., Schriefer, M.W., Eisen, R.J., Gage, K.L., Griffith, K.S., Weber, I.B., Spraker, T.R., Mead, P.S. (2009). Primary pneumonic plague contracted from a mountain lion carcass. *Clinical Infectious Diseases*. 49(3):e33-e38.