

# **Field Safety Training**

## **Austin Peay State University**

**This document has been prepared by Biology faculty Dr. C. Haase (Field Safety Training) and Dr. C. Gienger (Working With Venomous Snakes; page 2) to provide Principle Investigators with field safety information.**

Fieldwork is often an integral component of many undergraduate and graduate research projects. Although rewarding, fieldwork is commonly conducted at remote sites with hazards, little or no communication ability, and it can be physically challenging. The best skill a field researcher or assistant can have is to be prepared for both the expected (fieldwork) and the unexpected (emergencies). Safety training and a safety plan establishes protocols for safe and effective fieldwork while also providing a framework in the case of an emergency. Though the following information is not exhaustive, it has been compiled to provide relevant information for field safety and how to create a field safety protocol.

This document begins with Dr. Gienger's Safety Plan and Emergency Protocol for Working With Venomous Snakes. Although few Field Protocols actually involve venomous snakes as subjects, anyone working on field research projects could encounter a venomous snake. Being aware of this possibility seems prudent for all field biologists.

### **Safety Plan and Emergency Protocol for Working with Venomous Snakes**

To ensure the safety of researchers and volunteers, the following protocols will be followed.

All research assistants and volunteers will be given a copy of this Safety Protocol.

1. Closed toed shoes and long pants will be worn to minimize skin exposure to potential snake bites.
2. When handling venomous snakes for marking or measurement, two people must always be present.
3. A cell phone must always be carried in the field, in case of an emergency.
4. Venomous snakes are never to be handled by hand. Venomous snakes will be captured, placed in snake restraining tubes with the use of snake hooks and tongs (mechanical handling methods) to minimize the risk of being bitten.
5. Only research assistants (and PIs) listed on this protocol will be allowed to capture venomous snakes. All research assistants and volunteers will receive training in proper handling of venomous snakes and in emergency procedures before being permitted to assist with the research.
6. In the unlikely event of an envenomation, the following protocols must be followed:
  - A. Get the victim away from the snake
  - B. Immediately dial 911
  - C. Vanderbilt Medical Center (615-322-5000) has extensive experience dealing with snake bites and has a supply of anti-venom, although all local hospitals should have antivenom. Calling ahead for confirmation is always recommended. The injured individual is NOT to drive themselves to the hospital.
  - D. Record time and bite location
  - E. Track and record the symptoms of the envenomated individual
  - F. Remove rings, bracelets and any restrictive clothing surrounding the bite location
  - G. Keep the victim as still and calm as possible
  - H. Positive identification of the snake needs to be recorded
  - I. Notify your supervisor immediately.

#### **THE FOLLOWING ARE NOT TO BE DONE:**

- J. Do not apply a tourniquet to a bitten extremity.
- K. Do not apply ice or attempt to cool the bite area.
- L. Do not make incisions at the bite marks and/or apply suction.
- M. Do not apply electric shock.
- N. Do not give any stimulants or alcohol to the victim.
- O. Do not wait to seek medical attention until symptoms develop. Seek medical attention immediately upon being bitten.

## Field Safety Training

### Preparedness is key

Many emergencies are the result of poor planning, lack of leadership, or breakdown of communication. There are many things that a field team can do to prevent common emergencies.

#### *Know where you are going*

Spend time looking at maps of your field site and map out a proper route the limits safety hazards. Plan your route on foot and make sure to have an extra map of the area with you in your pack. Determine the nearest medical center that has the specific medical equipment you may need (e.g. rabies shots, barometric chamber, etc.); record their telephone number. Account for more time than you estimate your work to take; it is always better to be done early than to be running late in the field.

#### *Prepare for your work activities and weather*

Understand the activities that comprise your field work and make sure you have proper personal protection equipment and attire for these activities. Know the weather of your field site and prepare your field clothing accordingly. Personal protective equipment appropriate for specific work may include:

- |   |   |
|---|---|
| <input type="checkbox"/> Sunscreen                    | <input type="checkbox"/> Cold weather gear              |
| <input type="checkbox"/> Insect repellent, permethrin | <input type="checkbox"/> Appropriate footgear           |
| <input type="checkbox"/> Rain gear                    | <input type="checkbox"/> Nitrile gloves, safety glasses |

#### *Identify potential hazards*

Identify potential hazards. Once hazards are identified, you can plan to mitigate them and be prepared in case of an accident in the field. Hazards may include, but are not limited to:

- |  |  |
|--|--|
| <input type="checkbox"/> Dehydration             | <input type="checkbox"/> High altitudes    |
| <input type="checkbox"/> Water impurities        | <input type="checkbox"/> Poisonous plants  |
| <input type="checkbox"/> Sunburn                 | <input type="checkbox"/> Biting insects    |
| <input type="checkbox"/> Heat stress             | <input type="checkbox"/> Dangerous animals |
| <input type="checkbox"/> Frost bite, hypothermia | <input type="checkbox"/> Human crime       |
| <input type="checkbox"/> Vehicle exhaust         | <input type="checkbox"/> Hunting season    |
| <input type="checkbox"/> Weather extremes        | <input type="checkbox"/> Drowning          |

Check the culture of the community surrounding field site: determine the potential for harassment for black, indigenous, and people of color and those of the LGBTQIA+ community.

#### *Check your emergency gear*

Check that you have all the equipment listed in the first aid and emergency gear check lists, plus specialized safety gear for your activities/area and hazards identified. For instance, if you work in extreme conditions, you may add a sleeping bag to your emergency kit. Make sure your first aid kit is refreshed and contains items that are not expired. Check that the spare tire is full and the car jack fits the field vehicle. Check the weather and bring appropriate clothing. Bring more water than needed!

## **Conversations to have before starting field work**

While in the field, situation may arise that may make field work uncomfortable or even dangerous for some members of the team. Before you leave for the field, it is important to have conversations about specific topics to make it easier to have working relationships with all team members.

*Reminder: The use of alcohol and drugs in the field is dangerous and prohibited by APSU policies 7:005 and 3:006.*

### *How to do your “business” in the field*

The best way to take care of business while in the field is to follow the Leave No Trace protocol: Find a spot 200 feet from water sources and trails, dig a small hole six inches deep, and poop in it. Clean yourself up with rocks, pinecones, sticks, leaves, or toilet paper. If you use natural elements, bury them in your hole. If you use toilet paper, carry it out with you, and bury everything else using the dirt you originally dug out of the hole. Carry a trowel to make digging a hole easier.

### *For field team members who menstruate: how to deal*

Above all, while you're out on the field take care of yourself and stay clean. Store your menstrual products properly and wash your hands frequently. If you prefer, use sanitary wipes to help keep yourself clean-just be sure to carry those out with your used supplies. Once you reach civilization, dispose of your used sanitary items properly. By keeping an eye on cleanliness you'll help avoid vaginal and urinary tract infections. You can store menstrual products before and after use in an opaque plastic bag for privacy. Make sure to have one bag for clean items and another well-marked waste bag for used ones. Store used ones inside and add dry tea bags or crumbled aspirin to control the scent. If you're in bear country or in another area with wildlife issues, you'll need to place this bag in the container holding your food and other scented items overnight so that you don't have odors drawing wildlife toward your tent.

### *How to work in the field with others*

A field researcher must also be an effective risk manager who understands and anticipates risks and acts appropriately to reduce the likelihood of negative consequences. An effective field leader must incorporate many attributes of leadership including preparation, competency, effective communication, appropriate judgment, self and group awareness, and tolerance for adversity and uncertainty. Develop open communication within a field team while in the field to prevent issues from arising between members and to allow members to be honest with their working capacity. Maintain safety culture: point out hazards to the rest of your team members, such as a hole in the ground or holding a tree branch for the person walking behind you. Check in with your team members regularly.

### *A note on gender, sexuality, race, and field safety*

Beyond field safety, emotional safety can also be an important component to field work. Remote field work can put people into situations where they are alone with a single other person or placed into

communities outside their comfort zone. It is important for each field team member to be aware of their situations as well as everyone else's situation when it comes to harassment from other field team members or from members in the local community. Harassment can include "sexual harassment" or unwelcome sexual advances, requests for sexual favors and other verbal or physical harassment of a sexual nature. Harassment does not have to be of a sexual nature, however, and can include offensive remarks about a person's sex. Be clear about expected and unacceptable behaviors. Avoid jokes, sarcasm or insulting remarks about individuals or groups of people, whether or not they are represented on the team. Use inclusive language. Ask for pronouns. If someone feel uncomfortable, be clear that the field team is a community and welcomes everyone, including members of the LGBTQIA+ community and black, indigenous, and other people of color. Please review Policy 6:001: <https://www.apsu.edu/policy/numerical-policy.php>.

## Recommended training

It is recommended that AT LEAST one field team member have first aid and wilderness first aid training, though it benefits the entire team if everyone has some sort of training. A list of recommended trainings is below, but may include other necessary training depending on the research. Check here for training available on campus: <https://www.apsu.edu/health-safety/cpraedfirst-aid-class.php>

- |   |   |
|---|---|
| <input type="checkbox"/> First AID            | <input type="checkbox"/> Wilderness First Responder |
| <input type="checkbox"/> CPR/AED              | <input type="checkbox"/> Boats and watercraft       |
| <input type="checkbox"/> Wilderness First Aid | <input type="checkbox"/> Over the water             |

## While in the Field

While performing fieldwork, there are a few 'rules' to follow for the safety of all team members.

- Never work alone: use the buddy system! You should never be alone in the field. If you get separated, retrace your steps, back to the start point if necessary, until you find your group.
- Don't be a hero: know your limits and know when to take breaks. It is never worth it to push yourself for data. Also make sure to maintain a comfortable environment so that other team members do not feel embarrassed if they need to take care of themselves.
- Wear proper PPE. Wear sunscreen (and REAPPLY). Wear insect repellent.
- Be wary of your surroundings and animals in the area. Understand the signs of a dangerous situation and how best to avoid them. Avoid risky behaviors (no parkour, please).
- Drink more water than you think you need. And then drink some more.
- Keep all garbage in closed containers and away from where you're working/camping to avoid issues with bears.
- In areas where biting insects are problematic, wear long pants and long sleeves. Tuck your pants into your boots or socks. Wear an insect repellent, like DEET, on your clothing (do not apply directly to skin). Know how to remove a tick and how to use an epi-pen.

## What to Do If an Emergency Arises

Here we outline established protocols for first aid reference, but in no way is this a replacement for maintaining current first aid certification.

### *Life-Threatening Injuries or Illness*

Call 911 or seek medical care immediately. Always know your physical location; everyone in your group should be able to provide Emergency Medical Services (EMS) accurate directions to the field site.

### *Basic First Aid*

By administering immediate care during an emergency, you can help an ill or injured person before EMS arrive with these first aid steps adapted from the American Red Cross.:

1. **Scene size up:** Before administering care to an ill or injured person, check the scene and the person. Answer the following questions:
  - a. Is the scene safe to enter?
  - b. What happened?
  - c. How many people are involved?
  - d. What is my initial impression about the nature of the person's illness or injury?
  - e. Does the person have any life-threatening conditions or severe, life-threatening bleeding?
  - f. Is anyone else available to help?
2. **If the injured person is awake and responsive:**
  - a. Obtain consent: Tell the person your name, type and level of training, what you think is wrong and what you plan to do, and ask permission to provide care.
  - b. Use appropriate PPE.
  - c. Interview the person: Gather more information about signs and symptoms, allergies, medications, medical history, last food or drink and events leading up to the incident.
  - d. Conduct a head-to-toe check: Check head and neck, shoulders, chest and abdomen, hips, legs and feet, arms and hands for signs of injury.
  - e. Provide care consistent with knowledge and training according to the conditions you find.
3. **If the injured person appears unresponsive:** Shout to get the person's attention, using the person's name if it is known. If there is no response, tap the person's shoulder or the bottom of the person's foot and shout again, while checking for normal breathing. Check for responsiveness and breathing for no more than 5-10 seconds.
4. **If the injured person is breathing:**
  - a. Send someone to call 911 and obtain an AED and first aid kit.
  - b. Proceed with gathering information from bystanders.
  - c. Conduct a head-to-toe check.
  - d. Roll the person onto their side into a recovery position if there are no signs of injury.
5. **If the injured person is NOT breathing:**
  - a. Send someone to call 911 or the designated emergency number and obtain an AED and first aid kit.
  - b. Ensure that the person is face-up on a firm, flat surface such as the floor or ground.
  - c. Begin CPR (starting with compressions) or use an AED if one is immediately available.
  - d. Continue administering CPR until the person exhibits signs of life, such as breathing, an AED becomes available, or EMS or trained medical responders arrive on scene. Note: End CPR if the scene becomes unsafe or you cannot continue due to exhaustion.

## Before Going Into the Field Check-list

### Emergency paperwork

Carry emergency paperwork with you at all times.

- Copies of personal insurance cards
- List of allergies and medications of all personnel
- Emergency contacts of all personnel
- List of closest hospital and number of emergency services
- Script for emergency calls
- Identify potential hazards and how to deal with hazards if encountered
- Completed Emergency Contact Form.
- Make sure your colleagues know where to find all of the above.

### Communications protocol

Before you leave for the field, have a clear communication plan in place. Schedule research updates with your faculty supervisor by e-mail or phone. Depending on your research, this may be daily, weekly, or monthly. Fill out an Emergency Contact Form (attached) that has all the information to find your field team in case of an emergency. This form should include, at minimum:

- Who** is going into the field? Include personnel information, including list of medications, known allergies, and emergency contact information.
- What** are your activities? Be as detailed as possible.
- Where** are you going? Include an itinerary, maps, and GPS locations if possible.
- When** should you be back? Let your supervisor know when your team will be back and what time they should contact emergency services if you do not check-in.
- Who** to call if you are not back? Include the nearest emergency services, ranger stations, police stations that oversee the field site area.

### Gear check-list

Make sure you have everything you need for your work and emergencies!

- Adequate field gear
- PPE appropriate for fieldwork activities
- First aid kit (see below)
- Emergency kit (see below)
- Road kit (see below)
- A full tank of gas
- Maps of area with planned route
- Field plan
- Food, extra food
- Water, extra water

## Emergency Gear Checklist

The emergency gear you bring into the field will vary based on the field site location and remoteness. The items listed below are commonly-used elements of first aid and emergency gear. Equally important to the items included in your kits is knowing how to use these safety items. Each member of the field team should be trained on how to use their gear in case of an emergency.

### First aid kit:

- Bandage adhesive strips
- Large gauze compress
- Rolls of adhesive tape
- Sterile pads
- Triangular bandage
- Burn treatment applications
- Antiseptic applications
- Pair vinyl exam gloves
- Bite/sting supplies
- Menstruation products
- Pain reliever
- Antihistamine (oral and topical)

### Emergency gear (carry in pack):

- Satellite phone and/or SPOT
- Flashlights with extra batteries
- Flares
- Water purification tablets and/or filter
- GPS with extra batteries
- Compass
- Waterproof matches; lighter
- Duct tape
- Emergency poncho
- Pocket knife

### Road emergency repair kit (carry in field vehicle):

- Reflective sign
- Flares
- Fix a flat
- Tire iron and jack that fit car
- Spare tire that fits car and is full
- Insurance and registration information

## Personnel Information

Fill out for each member of your field team.

Name:	<input type="text"/>	Cell Phone:	<input type="text"/>
Known allergies:	<input type="text"/>		
Current medications:	<input type="text"/>		
Emergency contact:	<input type="text"/>	Phone:	<input type="text"/>
Insurance:	<input type="text"/>		

## Local Emergency Services

List the local emergency agencies and telephone numbers for each field location.

Location: _____		
Local Medical Services	Local Law Enforcement	Local Fire Control
Name:	Name:	Name:
Address:	Address:	Address:
Telephone #:	Telephone #:	Telephone #:

Location: _____		
Local Medical Services	Local Law Enforcement	Local Fire Control
Name:	Name:	Name:
Address:	Address:	Address:
Telephone #:	Telephone #:	Telephone #:

Location: _____		
Local Medical Services	Local Law Enforcement	Local Fire Control
Name:	Name:	Name:
Address:	Address:	Address:
Telephone #:	Telephone #:	Telephone #:

Location: _____		
Local Medical Services	Local Law Enforcement	Local Fire Control
Name:	Name:	Name:
Address:	Address:	Address:
Telephone #:	Telephone #:	Telephone #:

## Emergency Contact Form and Field Plan

*Who is going: List all personnel.*

Name	Contact Phone Number

*Where are you going? When are you going? List all field locations with specific details.*

Location (name, address, GPS location, etc.)	Date	Estimated Time

*When will you be back? List the estimated return time.*

--

*What time should emergency services be called?*

--

*Who should be called if you do not check-in by the specified time?*

Field Site Name/Location	Local Emergency Services	Contact Phone Number