9. Field Safety

9.1. Overview
Across CBS we have many different researchers coordinating many different projects. There is no standard list of precautions that is going to be applicable in all circumstances – but what is universally critical is to plan ahead. If the project requires collection of plant material from the forest canopy, then proper training and climbing equipment are going to be important; if it involves research on the diet of bears, than some form of protection from local predators, such as pepper spray or firearms, is a top priority.

When considering the training, equipment and safety precautions a field team will need, consider all the things which could go wrong – engineers call this type of approach ‘failure mode and effects analysis’; we don’t need to be so technical, but in concept we are trying to accomplish the same goal – to determine up front the problems that could arise.

Prior to starting a project involving field work:

- Principal Investigators must complete a Field Research (or Field Trip) Safety Plan Form (available on-line) and have it approved by the department Chair.
- Prior to the start date, all participants must have received all the training or certifications indicated in the Field Research Safety Plan.
- Anyone intending to use a University Vehicle, must submit a Driver Information Profile Form (available online) to the Insurance Manager.

9.2. Field Research Safety Plans
A Field Research Safety Plan must be completed by the Principal Investigator and approved by the department chair.

The University Policy on Field Work contains detailed information on various hazards and is available on the EHS website.

9.3. Remote Locations
Any time you are working away from developed areas, it becomes important that you are prepared to deal with any situation which may occur.

A reliable means of communication is critical. You need to be able to call for help if you find yourself in circumstances that you are not equipped to handle. Cell phones, satellite phones, access to a local phone, radios or locator beacons may be appropriate. It is important to check in regularly – if a schedule is established for calling in, make sure you keep to it.
Emergency assistance may not be readily available, so it’s important to have a plan. You must have a first aid kit and a trained first aider on the expedition to deal with minor injuries. You also must have a plan for getting help in the event of a serious injury requiring medical evacuation – know the location of the nearest hospital or medical centre and how to contact them.

Anyone who will be working in the field and taking a medication for pre-existing conditions is strongly encouraged to bring an adequate supply, and preferably extra in case circumstances change. If you would like to consult confidentially with a medical professional on this subject, please contact Occupational Health and Wellness of Student Health Services as appropriate.

For expeditions to very remote locations, contact the emergency search and rescue authority in advance of your trip to let them know the details of when and where your research will be conducted. For example, in Northern Ontario the Ministry of Natural Resources coordinates search and rescue; please contact them if you will be doing field work in highly remote areas.

9.4. Disease
Contact the local public health unit for information on travel advisories and vaccines or prophylactic treatments you may need. For insect-borne diseases, controls such as mosquito netting and repellents may also be advisable.

9.5. Sun Safety
Almost everyone enjoys working out in the sun on a nice day, but overexposure to ultraviolet rays can have serious long term consequences. As well, exposure to direct sunlight increases the risk of dehydration and heatstroke.

When on university business, use typical sun protection measures such as sun glasses, wide-brimmed hats and a broad spectrum sunscreen, reapplied every 2 hours. Take frequent breaks in the shade and drink plenty of water to stay hydrated. Pay attention to the Environment Canada UV Index and adjust your work schedule accordingly when possible. Where possible, try to minimize prolonged, direct exposure to sunlight during the hours when UV rays are most intense (10am to 4pm).

9.6. Wildlife
Being knowledgeable about the wildlife in the region is a crucial factor in keeping safe when conducting field research. Thoroughly research an area when establishing your field research safety plan and, where necessary, make use of local experts.

In high-hazard circumstances, you may need to obtain anti-venom or antidotes and carry them with you on your trip. In some instances, firearms may be necessary for protection. In order to lawfully carry a
firearm in Canada you must have successfully passed the Canadian Firearms Safety Course and hold a valid Possession & Acquisition Licence (PAL) from the Canadian Firearms Centre (see www.cfc-cafc.gc.ca)

9.7. Working at Height
If the nature of your research requires any work more than 3 metres off the ground, you must have appropriate training and equipment.

Equipment for working at height can come in several forms – make sure you are fully trained on the equipment you will be using, and that all equipment is inspected pre-use and kept in good condition. The type of safety gear required will depend on the type of work being done.

Do not work at height alone. It is imperative there be someone present to get help if you do fall and injure yourself.

9.8. Security
Traveling abroad for research can be a rewarding experience, but it is important to be familiar with the political and socioeconomic conditions of your destination. Make use of local contacts to gain an understanding of the potential issues that may arise. The University of Guelph’s Centre for International Programs provides a great deal of information to ensure safe international travel. See their website at: http://www.uoguelph.ca/cip/page.cfm?id=246 for more information. Travel advisories issued by Foreign Affairs and International Trade Canada can be viewed directly at: www.voyage.gc.ca.

9.9. Water Hazards
Boats
Any use of watercraft for University activity must be in accordance with the laws and regulations of the applicable region. For use of powered small water craft in Ontario, the operator must have (at least) a valid Pleasure Craft Operator Card (see http://www.tc.gc.ca/eng/marinesafety/debs-obs-menu-1362.htm )

Basic safety equipment on a boat includes life jackets for all occupants, a bailing bucket, a flashlight or flares, a whistle or air horn, and a fire extinguisher. You should also have oars in case you lose power, an anchor and anchor line, and buoyant rope in case you need to throw a line to another vessel or a person in the water. Depending on the size of your boat, you may also need a radio and navigation equipment. Vessels less than 6m without a motor (such as canoes and rowboats) do not require a Pleasure Craft Operator Card, but do require lifejackets for all occupants, a bailing bucket (or pump), a whistle or horn, as well as 15m of buoyant line and an oar or an anchor. If the craft will be used after dark, navigation lights are required.
The University has limited facilities for the storage of unused gas and fuel tanks. If you have gasoline left over at the end of the field season, you can transfer the gas into the fuel tank of another vehicle. If you are transferring between two metal containers, be sure to ground and bond the containers to reduce the probability of static discharge.

**Marine/Aquatic**

In Ontario there are regulations that specifically pertain to diving operations. If doing any work underwater in Ontario involving more than a snorkel, the dive will be subject to Ontario Regulation 629/94. Under the Diving Operations regulation, you must file a notice with the Ministry of Labour and conduct the dive in accordance with the applicable sections of the regulation. Diving outside Ontario must be conducted in accordance with the relevant standards and regulations in that jurisdiction. Contact EHS for more information.

If you are working in a marine environment, avoid snorkeling, swimming or diving around piers as you could be seriously injured if you were struck against a pier or pylon. Similarly, one of the major hazards of working in and around streams and rivers is the current. Never wade into water flowing quickly enough to sweep you downstream, and if you have doubts as to whether you can safely walk or stand in the water, don’t go in!

If you are using hip-waders, keep the belt cinched at your midsection. Loose waders can increase the risk of drowning if they get swamped with water. It is not recommended to wear hip waders in a boat – if you fall in, they can fill with water and increase the risk of drowning. Be very cautious when wading into any body of water and ensure you know the depth and have good footing.

**Electroshocking**

The use of electroshocking/electrofishing equipment requires precautions to prevent accidental electrocution of the user. There is a risk of severe electrical shocks and cardiac fibrillation when using this equipment, so never use electrofishing equipment when alone, and ensure at least one member of the team has a valid CPR certification.

Inspect the electroshocking unit, waders and gloves prior to sampling each day in the field. Waders or gloves that fail a leak test must be replaced or repaired before use. If a leak is detected at any point, stop sampling and replace/repair the equipment immediately. No member of the team should contact the water with unprotected skin at any time during sample collection.

Review the manufacturer’s instructions for the equipment and familiarize yourself with all necessary safety precautions before using this type of equipment.
**Ice**

Be wary of ice conditions, particularly during milder periods in fall and spring. The Canadian Red Cross recommends a thickness of 15 cm of clear, solid ice before walking alone on an ice sheet. Snowmobiles require a thickness of 25 cm, and cars and light trucks should not be moved onto ice until it is at least 30 cm thick.

In determining whether it is safe to venture onto the ice, consider more than just ice thickness and consult with local experts. White/opaque ice is only about half as strong as clear/blue ice, and the age of the ice, freeze/thaw cycles, and recent climatic conditions like temperature, sunlight and snow cover can all impact the strength of the ice. The common sense rule is that if you aren’t sure it’s safe, don’t go out on the ice!

**9.10. Vehicles**

Use of personal vehicles for university business is not recommended. Whenever possible, make use of university-owned vehicles for field work and field trips. Personal vehicles are not covered under the University's insurance, so if you do intend to use a personal vehicle it is your responsibility to ensure you have appropriate coverage.

Prior to using a University vehicle, submit a Driver Profile Form, authorized by the department chair, to the Insurance Manager.

If your research requires the transport of dangerous goods, refer to the SOP for further details.

If you must use an all-terrain vehicle, tractor, snowmobile or other form of transport, you must obtain training prior to use in the field.

**9.11. Transportation of Dangerous Goods (TDG)**

Anyone who ships, carries or receives dangerous goods must have a valid training certificate. Anyone requiring TDG training should contact EHS at x53282.

Review the CBS SOP at: [http://www.uoguelph.ca/cbs/safety/cbs_ehs_procedures.html](http://www.uoguelph.ca/cbs/safety/cbs_ehs_procedures.html) on Transportation of Dangerous Goods for detailed instructions on training requirement, packaging design, labeling, and documentation.