

Caves Fact Sheet

Caves are hazardous locations primarily due to their limited means of emergency egress.

Falls-Injuries that may be manageable outside of the cave environment can be dangerous if they impede your ability to get out of the cave (e.g., broken leg).

Falling Objects-As products of erosion, cave structures may be unstable and fall. Falling structures pose a crush hazard or may block your ability to exit.

Getting Stuck-Caves have places where you may need to crawl or push yourself through where it is possible to become stuck. Depending on the location, your being stuck may prevent others from going for help.

Getting Lost/Losing Light-Caves with numerous passageways can cause disorientation and result in you getting lost. Attempting to move without light could further disorient you and increase the chance of serious injury.

Flooding-Many caves have underground streams and are prone to flash flooding after heavy rainfall. The water table may have several days' lag in response to rainfall events.

Hypothermia -Body temperature can drop to dangerous levels during prolonged exposure to cold temperatures. Cooling of the body is exacerbated by wet clothing.

Inhalation Risks- The atmosphere may be dangerous to breathe due to low levels of oxygen, or leaching toxic and flammable gas from surrounding earth. This can be a concern in caves with large bat roosts and poor airflow. Disturbing bat guano can cause exposure to histoplasmosis.

PERSONAL PROTECTIVE EQUIPMENT

- Helmet / Bump Cap (with built-in head-lamp preferred)
- Knee/elbow pads
- Warm, abrasion resistant clothing
- Water resistant footwear
- Whistle
- Multiple light sources - Carry at least three light sources per person.
- Plastic bags

PREPARATION AND TRAINING

- Contact local cave operators or the society that manages the cave (in the US the National Speleological Society is a good place to start) to get safety information and a map of the cave.
- Leave the caving location information (map, directions, GPS points, and where the vehicle will be parked) and expected return time with a trusted person, such that if you do not return as expected, someone will know where to look for you. Keep a copy of this information in your vehicle in case you need to relay it to emergency personnel.
- Travel in a team of at least three (four is recommended), such that if one person is injured you have someone who can manage the scene and one who can go for help.

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- If possible, contact local authorities and local cavers to identify their ability to perform a cave rescue.
- It is recommended you take courses in:
 - Wilderness First Aid**
 - Orientation to Cave Rescue**
 - Scientific Diving** (required if you are using SCUBA gear in a cave)
 - [Respirator Protection](#)** (required if you will use a respirator in a cave). Contact [EH&S's Occupational Safety & Health](#) office.

GENERAL SAFETY

- Have an experienced lead caver familiar with the cave make decisions on path of travel and movements.
- Stay together and only move as fast as the slowest team member. The last member acts as “Sweep” and makes sure all team members are accounted for, and should keep in constant verbal contact with the “Team Lead”.
- Move through the cave carefully, keeping three points of contact over uneven surfaces. Avoid putting weight or climbing on boulders, structural-timbers, and support rocks. Do not run or jump.
- Take frequent breaks for water, food, and rest.
- Monitor the team members for fatigue and other medical problems.
- Only attempt to pass through narrow passages if the length of the passage is known to be passable. Keep in mind your ability to traverse the area if you or a team member are injured. The Team Lead should take a guide-rope through narrow passages, with team members following the rope. The Sweep should take the rope to the Team Lead once all team members have passed through the narrow area.
- Do not force anyone through a passage that they are uncomfortable with, this may cause them to panic and get stuck.

EMERGENCY RESPONSE

- If all of your lights fail, or you become lost, sit where you are and wait for help to come.
- If an immobilizing injury occurs, treat for shock, wrap victim in plastic bags for warmth, and contact the outside point person to send for help.
- Conserve light-sources and manage the victim for hypothermia.
- Have one person stay with the injured person and two others go for help.

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- Call for emergency services and relay location information. One person stays with the vehicle and waits for rescue personnel. Another person can deliver blankets and water to the victim, if it can be done safely.
- If you need to call 911, make sure you emphasize that the situation involves a cave and describe as much detail as you can, as specialized rescue equipment or personnel may be required.

REFERENCES AND ADDITIONAL RESOURCES

Case Study: [Cave Rescue in Maryland](#)-Note the communication problems.

Case Study 2: [Researcher Rescued 11 Days After Rock Fall](#)

[White Nose Syndrome Information](#) (affected caves, decontamination protocols, etc.)

[National Speleological Society](#)

[Federal Cave Regulations](#)

Illness, injury and close call events shall be reported by submitting an [SU-17](#).

If you have questions or need support, contact EH&S's Field Safety Program at ehs_field_safety_support@lists.stanford.edu.

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