

Safety Plan

Trails River Projects Facility Management Division Grand Canyon National Park

The primary focus of Grand Canyon National Park's trails program is to maintain trails and associated use areas (i.e. backcountry toilets and campsites) throughout the park. This is accomplished through: trail delineation; maintenance and construction of waterbars, steps and checkdams, raking rocks from trail, clearing rockslides, clean-up of fire pits, site clean-up, delineation of tent pads, erosion mitigation, social trail obliteration, and campsite rehabilitation. Since the work occurs in the inner canyon, there are inherent risks involved with the implementation of these resource management projects. This plan will cover some of the potential risks and will detail specific standard operating procedures that will help to minimize those risks. Environmental based risks include cold-related illnesses, lightning strikes, flash floods and animal bites. Technical based risks include general tool injury. JHAs are also completed for all associated tasks for a trails river trip.

Cold-Related Illnesses

Hypothermia sets in when the body's temperature drops below normal. It starts when the body loses heat faster than heat can be made. Heat is produced by muscle action and shivering. Very low body temperatures can threaten life. Early symptoms include shivering, cold and pale skin, apathy, and impaired judgment. Later symptoms include drowsiness or weakness, confusion, slow pulse and breathing, and passing out.

Cold temperatures, dampness, and wind increase the risk of hypothermia for workers. Sweat cools the body quickly during cold weather work activities. Wind evaporates sweat even faster

Safe Job Procedures:

- Dress in multiple layers of clothing. The outer layer should protect from wind, rain, or snow.
- Wear fabrics that insulate and wick moisture away. Fabrics made of wool and polypropylene are good. Avoid wearing cotton because it retains moisture.
- Protect special body parts like your head, face, hands, and feet. Cover the head with a wool cap. Shield the face with a scarf or high collar. Wear socks that retain heat and wick moisture away.
- Drink plenty of fluids. Alcohol makes the body lose heat faster.
- Warm-up at camp prior to working or hiking – stretching is good.
- Take carbohydrate snack foods and eat often.
- Cancel the work project and sit by a fire in camp if the weather conditions are too severe.

Lightning Strikes

Severe thunderstorms can be a daily occurrence during the late summer monsoon season, and can also occur throughout the rest of the year. Lightning is a powerful electrical charge that can be fatal. Remember that if you are within 6 miles (30 seconds flash to bang) you are in a high danger zone. Refer to the attached Lightning Awareness fact sheet for additional information.

Safe Job Procedure:

- Seek an area where an individual can become uniform with their surroundings, such as in a clump of bushes
- If lightning strikes are nearby:
 - Avoid proximity spreading out at least 5 meters from other individuals
 - Crouch down placing feet together and hands over ears to minimize hearing damage
 - Do not lie flat on the ground.
 - Separate tools and other metallic objects from all individuals

Flash Floods

Heavy rain associated with the late summer monsoon season can be a daily occurrence. As the project locations are always in drainages and tributaries, floods will pose a significant threat.

Safe Job Procedure:

- Do not attempt to cross a stream on foot if water is above your knees.
- Seek higher ground when there is any precipitation in the watershed.
- In large watersheds, either all or the majority of precipitation may be occurring far away. Watch for signs of distant heavy rain such as thunder and lightning.
- If precipitation is persistent, halt all work for the day and return to camp.
- Ensure that all camp locations are far enough away from the mouth of any side canyon so that if the side canyon were to flood, all trip participants would not be in the path of the flood.

Animal Bites

Other than the initial impact from the bite, there is a concern about rabies. If a bite does occur, the location or direction of travel of the animal should be monitored and dispatch should be notified.

Safe Job Procedure:

- Be aware of your surroundings looking out for potential threats
- If an individual is bitten or stung:
 - Stabilize wound
 - Contact Indian Garden Ranger via radio

Additional Standards:

- Project supervisors will always have an NPS radio OR satellite phone on site, and all workers will receive instruction on how to use these objects in case of an emergency.
- All workers should remain consistently aware of the surrounding landscape. In some of the project areas there is a high potential for rockfall, and workers should always remain aware of this as a potential hazard.
- Grand Canyon National Park has emergency medical requirements for backcountry operations (Refer to attached SOP 8221-003). The SOP requires that at least one trained First Responder be on site (within 4 minute response time) for any work activity involving physical labor in the backcountry. A first aid kit must be on hand, and the kit must contain the minimum list of supplies listed in the SOP. These procedures will be adhered to.