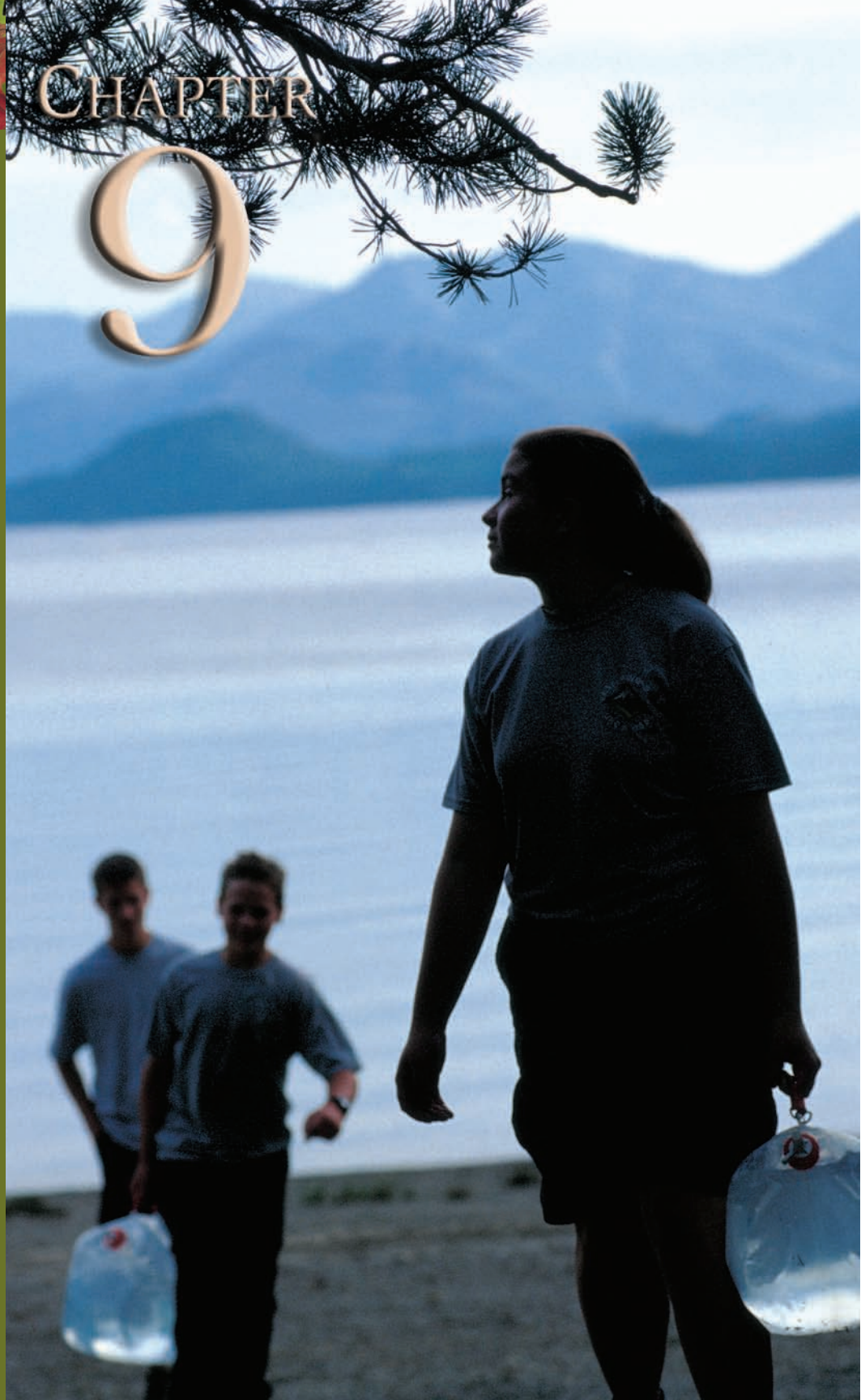


CHAPTER

9



Hygiene and Waste Disposal

“Nowhere is the line between good and bad or right and wrong drawn more distinctly than in the question of the sanitary facilities of a camp.”

—From *Camp Sanitation*, Boy Scouts of America, 1928



In the outdoors there seldom is much in the way of plumbing. There is no on-demand hot water for washing dishes or for bathing, and no flush toilet for getting rid of human waste. There are no garbage disposals for leftover food. Doing without those conveniences can be one of the more interesting delights of outdoor adventures. So, too, can practicing good hygiene and waste disposal as a means of protecting both the health of the outdoors and the health of you.

Maintaining good hygiene in the outdoors ensures that you are doing all you can to protect yourself, your companions, and your surroundings for the duration of every adventure. Your ability to do that increases dramatically if you have prepared yourself before a journey by getting in shape, eating well, and getting plenty of rest. Have a yearly physical checkup and keep your immunizations up-to-date.

For more on personal health and fitness, see the chapters titled “Becoming Fit” and “Outdoor Menus.”

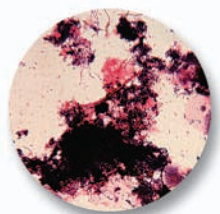
When expedition leaders and members of their groups do all they can to practice good hygiene, others in their groups are likely to follow their example.

What Can Make You Sick in the Out-of-Doors

The causes of illness during outdoor adventures include microscopic organisms and chemical residue.



Protozoa



Bacteria



Virus

Protozoa

Protozoa are single-celled organisms found in nearly every kind of habitat, but most are found in aquatic habitats. *Giardia*, a parasitic protozoan, is commonly spread from hand to mouth. Thoroughly washing your hands after using a cathole is one of the most effective ways to avoid it. *Giardia* sets up residence in your intestines, where it can cause diarrhea, nausea, and vomiting.

Bacteria

Bacteria are single-celled microorganisms, some of which can be passed from one person to another. They also can be contracted from streams and lakes, and can be present in the soil. Avoid bacterial infections by keeping your tetanus immunizations current, by washing your hands frequently, and by thoroughly disinfecting any cuts or scratches you might suffer.

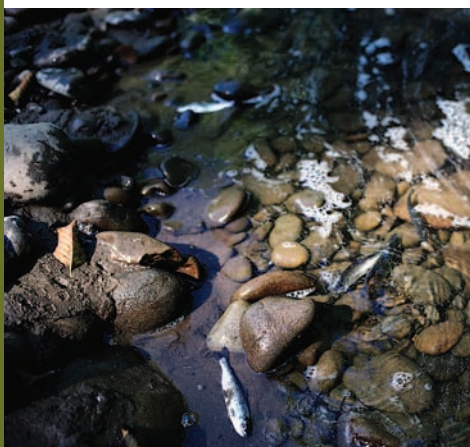
Viruses

Viruses are submicroscopic infective agents, many of which can spread easily from one person to another. Fortunately, most viruses do not survive long when exposed to the environment.

Chemicals

Residue of agricultural pesticides and fertilizers can endure a long time in the outdoors. Heavy metals can leach into streams from mines and construction sites. Avoid still water, especially if it has a sheen of unnatural color.

Most outdoor travelers do not have the means to treat water contaminated with chemicals or heavy metals.



Personal Cleanliness

According to the U.S. Centers for Disease Control, the human hand is the most likely source of infectious microbes. Washing your hands is especially important after bowel movements and just before handling food.

Handwashing Stations

Encourage everyone in your Scout unit to wash regularly by setting out a pot of water and a small plastic bottle of biodegradable soap. Dispose of washwater by broadcasting it at least 200 feet away from any campsites, trails, and sources of water.

Waterless Hand Cleansers

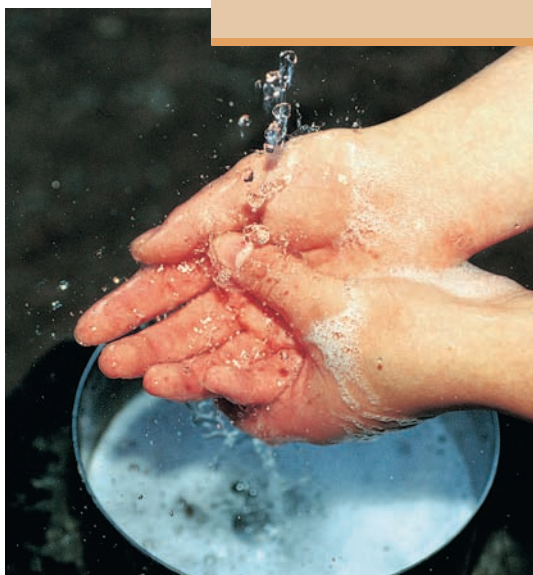
Waterless hand cleanser, often in the form of alcohol-based gel, is available at many grocery stores and drugstores. It can be an ideal aid for maintaining hygiene in camp and on the trail. A small dab rubbed on the hands will kill most harmful germs and then evaporate, leaving hands dry without the need of a towel. A small plastic pump bottle set out in camp can be used by those about to handle food or returning from having relieved themselves. Waterless cleanser is also convenient to use on the trail, during watercraft trips, and in other situations where washing with soap and water is not a convenient option.

Bathing

Bathing while camping usually is more important psychologically than it is from the standpoint of health. If you do want to bathe, you'll need a couple of pots of water. Carry them at least 200 feet from springs, lakes, or streams. Use biodegradable soap and the water from one pot to give yourself a thorough scrubbing. Use water from the second pot for rinsing by dipping it out with a cup. In the summer, you can let the pots of water warm in the sun before you use them, while chilly weather might call for heating the water over a stove. After your bath, broadcast the used water over a large area.

THREE IMPORTANT THINGS YOU CAN DO TO KEEP YOURSELF AND OTHERS HEALTHY

- 1 Wash your hands.
- 2 Wash your hands.
- 3 Wash your hands.





Water used to wash dishes does not need to be treated, though it is wise to allow everything to air dry before using it again. Most harmful microorganisms that exist in water cannot survive in a dry environment.

Safe Drinking Water

The safest water to use on a Scout outing is that which you have carried from home. Always start out with one or more full water bottles and replenish your supply from tested public systems whenever you can. On adventures of longer duration, streams, lakes, springs, and snowfields are potential sources of water, but be sure to treat all water you get in the wild, no matter how clean it appears to be.

Three effective ways to treat water are *boiling*, *chemical treatment*, and *filtering*.

Boiling

The surest means of making your water safe is to heat it to a rolling boil—when bubbles $\frac{1}{2}$ inch in diameter are rising from the bottom of the pot. (According to research conducted by the Wilderness Medical Society, simply reaching the boiling point is sufficient to kill any organisms that water might contain.) If water used for food preparation comes to a boil at least once, it requires no further treatment. Cooking pasta noodles, for example, will kill any germs that might have been in the water when you first filled the pot.

Advantages of Boiling

- 100 percent effective
- Simple to do

Disadvantages of Boiling

- Requires a stove and fuel or a campfire, as well as a pot
- Takes time

Chemical Treatment

Chemical treatment tablets employ iodine or chlorine to kill waterborne bacteria and viruses.

Advantages of Chemical Treatment

- Effective against viruses and bacteria
- Simple to use
- Inexpensive, lightweight, and convenient to pack
- A good backup to carry in case you can't boil or filter water

Disadvantages of Chemical Treatment

- Not always effective against all protozoa
- Requires a waiting period before water can be considered safe to drink
- Can leave a chemical taste in the water
- Can lose potency over time



MUDDY WATERS

Allow muddy water to stand in a pot until the silt settles to the bottom. Dip the clear water off the top and remove any remaining organic debris by straining the water through a bandana into a clean container. Ensure its safety by using a filter or chemical treatment tablets, or by bringing it to a boil.

Filtering

Most portable filters are simple handheld pumps used to force water through a screen with pores so small that bacteria and protozoa cannot get through. The finer the screen, the more effective the filter. Information provided with new filters describes their use and maintenance, and the degree of filtration they can provide.

Advantages of Filtering

- Effective against protozoa and bacteria. Filters equipped to add chemical treatment might also kill some viruses.
- Filters come in a range of capacities and designs to fit the needs of groups according to their size and the duration of their journeys.

Disadvantages of Filtering

- Filters can be expensive.
- Filtering elements must be cleaned or replaced frequently.
- Pump mechanisms of filters might malfunction.



To help prevent the spread of germs, all members of a crew or patrol should have and use their own water bottles and eating utensils.

Food Handling and Storage

Caring for provisions is important both for your palate and for your health. The ways in which you store food can affect the well-being of wildlife, too.

- Plan meals around ingredients that need no refrigeration.
- Estimate portion sizes to minimize leftovers.
- Keep all food items out of the reach of animals.

For more on food handling and storage, see the chapters titled “Outdoor Menus,” and “Traveling and Camping in Special Environments.”

Washing Dishes in Camp

Start a trip with clean utensils, pocketknives, and kitchen gear. Larger groups at base camps or on extended journeys can set up a three-step dishwashing system:

- *Wash pot*—contains hot water with a few drops of biodegradable soap
- *Cold-rinse pot*—cold water with a sanitizing tablet or a few drops of bleach to kill bacteria
- *Hot-rinse pot*—clear, hot water

If each person washes one pot, pan, or cooking utensil in addition to his or her own personal eating gear, the work will be finished in no time. Use hot-pot tongs to dip plates and spoons in the hot rinse. Some travelers also dip their plates, cups, and utensils in boiling water before a meal to ensure they are sanitary. Lay clean utensils on a plastic ground cloth to dry, or hang them in a mesh bag or lightweight net hammock.

Smaller groups in more extreme settings can devise variations on the basic dishwashing theme, starting with menu planning. Meals that require no cooking or that can be prepared by boiling just a few cups of water can minimize cleanup chores. Scour pots and pans with a small scrub pad, sand, or snow. Managed with care, a couple of pots of hot water are all you need to clean up after most meals.

Hygienic First Aid

Modern first-aid training teaches important methods for protecting care providers from pathogens potentially carried in blood and other bodily fluids.

Boy Scouts of America Recommendation

Treat all blood as if it were contaminated with blood-borne viruses. Do not use bare hands to stop bleeding; always use a protective barrier, preferably latex gloves. Always wash exposed skin areas with hot water and soap immediately after treating the victim. The following equipment is to be included in all first-aid kits and used when rendering first aid to those in need:

- Latex gloves, to be used when stopping bleeding or dressing wounds
- A mouth-barrier device for rendering rescue breathing or CPR
- Plastic goggles or other eye protection to prevent a victim's blood or other bodily fluids from getting into the rescuer's eyes in the event of serious arterial bleeding
- Antiseptic for sterilizing or cleaning exposed skin areas, especially if there is no soap or water available



Thoroughly wash your hands before and after treating a sick or injured person.

Soiled bandages, dressings, and other used first-aid items should be burned completely in a hot campfire or stored in double plastic bags and discarded in the frontcountry.



"It is very important that perfect cleanliness be observed in camp, as it adds much to health and comfort."

—M. Parloa, *Camp Cookery*, 1878

In a nutshell, here is what you need to know about getting rid of trash. Plan a trip carefully and you will create very little that needs to be disposed. As for the rest, if you pack it in, then pack it out. That includes the nutshell.



All trash that is packed in should be packed out.

Proper Waste Disposal

No matter how heavy your pack feels at the beginning of a trip, it will be lighter on your way home. You will have eaten most of your food, and that should leave plenty of space for your trash and that left by others—a few flattened cans, some food wrappers, a small plastic bag containing orange peels and leftover macaroni, perhaps a broken tent pole. Anything you leave behind is trash to the next person who sees it, so don't leave anything behind.

Disposing of Human Waste

Does a bear poop in the woods? Yes, it does, and so do we. The difference is that bear scat is compatible with the outdoors, while human waste has the potential of introducing lots of nasty bacteria and protozoa. There also are strong aesthetic differences. Finding wildlife droppings can add to our appreciation of the identities, diets, and activities of animals. Finding piles of human waste, especially flagged with shreds of soiled toilet paper, will add nothing to your outdoor experience except disgust for those who care so little for the out-of-doors and its visitors.

Here, then, are the basics of how to dispose of human waste in ways that minimize contamination of the environment and limit the risk to wildlife and people.

Urine

If toilet facilities are available, use them. Otherwise, urinate away from trails, camps, and places where people gather. Choose rocks or bare ground; animals may defoliate vegetation in their efforts to absorb the salts left by concentrations of urine.

Solid Waste

Nobody wants to come across a pile of human waste on a trail or near a campsite. It's unsightly, it's an immediate health hazard, and it can be a major contributor of pathogens seeping into springs, lakes, and streams.

Dispose of human waste in one of three ways:

- Use existing toilet facilities.
- Use a cathole.
- Pack it out.

Toilet Facilities

When you are traveling or camping near rest rooms, outhouses, or other toilet facilities, use them. (Most rustic facilities are designed only for human waste. Anything else will take up valuable space and may attract wild animals. Pack out all your trash and leftover food.)

Cathole

Where no toilet facilities exist, dispose of human waste in a cathole. Choose a private spot at least 200 feet from camps, trails, water, and dry gullies.



Collect and bag toilet paper to carry it out.

With a trowel or the heel of your boot, dig a hole 6 to 8 inches deep, but no deeper than the topsoil (humus). Take care of business, then cover the hole with soil and camouflage the site with leaves or other ground cover. Organic material in the topsoil will break down the waste over time and render it harmless.

Packing It Out

In certain pristine environments—deserts, canyons, caves, alpine tundra, snowfields and glaciers—waste might not easily decompose. The leavings of large numbers of people would negatively impact the health of the environment and the quality of everyone's experience. The best way to deal with human waste in those settings is to carry it out. That requires a few simple preparations and a supply of *pack-it-out kits*.

Land managers of areas requiring you to carry out human waste will give you guidance on how to dispose of it at the end of a trip, usually by placing it in special receptacles near trailheads. Do not toss pack-it-out kits into outhouses, trash cans, or any other trash receptacles; that can create a health hazard and in many places is prohibited by law.

MAKING A PACK-IT-OUT KIT

- 1 1-gallon self-sealing plastic bag
- 1 paper bag
- 1/4 cup of cat litter
- 1 8 1/2-by-11-inch sheet of typing paper to use as a target

Assemble each kit by putting the cat litter in the paper bag, folding it closed, and placing the paper bag inside the plastic bag. Slip the sheet of target paper into the plastic bag, too, and seal the bag shut. Your Scout unit will need one kit per person per day, plus a few extras just in case. You should also have several sturdy plastic trash bags.



Using a Pack-It-Out Kit

- 1 In an out-of-the-way place, put the target paper on the ground and secure the corners with small rocks or snow. Take careful aim and accomplish the task at hand.
- 2 Put the target paper, its contents, and any toilet paper you might have used into the paper bag. The cat litter will control odors.
- 3 Roll the paper bag closed and seal it inside the plastic bag.
- 4 Place all used pack-it-out kits in one or more trash bags that can be packed to the frontcountry for proper disposal.



Wash your hands with soap and water or disinfect them with waterless hand cleanser.

Environmentally friendly human waste kits are commercially available to make carrying out your waste even easier. These kits are lightweight and can be disposed of in a trash receptacle.

Disposing of Dishwater and Washwater

The dishes are done, faces are washed, laundry is drying on a line. How best can you dispose of soapy water so that it doesn't harm the environment?

The most important step was the one you took before you began—selecting a wash site at least 200 feet from any streams, lakes, or other sources of water. Next is straining any food particles out of dishwater, using a strainer, a sieve, or a piece of fiberglass screen. Put the particles in a plastic bag along with other bits of left-over food to be packed out to the trailhead. (Water used for personal washing or for laundry does not need to be strained.) Finally, broadcast the water over a wide area.

Disposing of Leftover Food

By planning well, you should have few leftovers to manage. When you do, though, stow them in double plastic bags, along with any food particles strained from dishwater, to pack out to a trailhead.



From planning menus to carrying home leftovers, use a Leave No Trace approach to food management.