



Teaching Leave No Trace

A nationally recognized outdoor skills
and ethical awareness program



BOY SCOUTS



OF AMERICA

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and ethical awareness program**

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Information for this handbook was extracted from *Teaching Leave No Trace*, a booklet published by the Bureau of Land Management and the U.S. Forest Service that contains activities to teach responsible backcountry skills.

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Preface

The purpose of this manual is to further Leave No Trace skills and awareness of outdoor ethics. The Boy Scouts of America has adopted the principles of Leave No Trace, which are easy to learn and apply. As each principle is learned, it should be applied. Every outing and activity should be conducted with Leave No Trace in mind. As young people mature, we will enjoy an increasingly beautiful environment because of the impact of their training in Leave No Trace.

As members of the Boy Scouts of America, we should be good stewards of our environment through knowledgeable use of resources. This manual can serve as a major tool in our efforts to teach others the importance of our relationship with the environment. We all must take responsibility for our decisions when we use the outdoors, and we should treat the environment with respect so future generations can enjoy the outdoors as we do today.

Contact federal and state land management agencies for additional information. (Check the blue pages of your local telephone directory.) Additional resources are available on the Internet at <http://www.blm.gov/education/LNT> or from the Leave No Trace Web site, <http://www.LNT.org>; by telephoning 800-332-4100; through local land managers; and through the BSA Supply catalog.

This manual contains a variety of activities designed to teach the skills necessary to earn the Leave No Trace Awareness Award. As you review the manual you will realize how easy these lessons are to prepare. You can focus many months of weekly activities on teaching and learning Leave No Trace skills and ethics.

Use a single concept from the section called Background on the Principles of Leave No Trace one week, and the next week work on the corresponding concept from the Quick Concepts section. The Background on the Principles of Leave No Trace provides essential information required to understand Leave No Trace principles. The Quick Concepts section presents activities that require little preparation. Each activity takes only about 15 to 30 minutes. Weekly meetings can also be used to work on the merit badges needed to qualify for the award.

The Activity Plans section provides in-depth Leave No Trace activities for your monthly campout. These activities will require more preparation and will take 45 to 75 minutes to complete. Campouts may be used as Leave No Trace-related service projects.

It is also recommended that adults and youths take the opportunity to participate in other activities such as Conservation Good Turn and the William T. Hornaday Awards, and earn other awards related to conservation and our environment. Any part of this manual may be reproduced and used in any manner that will help further knowledge of Leave No Trace principles, skills, and ethics.



Why Leave No Trace?

Today, use of designated wilderness areas has increased from 4 million people in 1964, to 7 million people in 1974, to 15 million in 1984, 21 million in 1994, and nearly 30 million expected users in 2000. That's a 750 percent increase in 30 years! As cities grow and populations encroach upon wildlands and recreation areas, we must do more than just pick up the litter and extinguish campfires. We must learn how to maintain the integrity and character of the outdoors for all living things. Leave No Trace is not simply a program for visiting the backcountry, it is an attitude and a way of life. Learning about Leave No Trace begins with your unit.

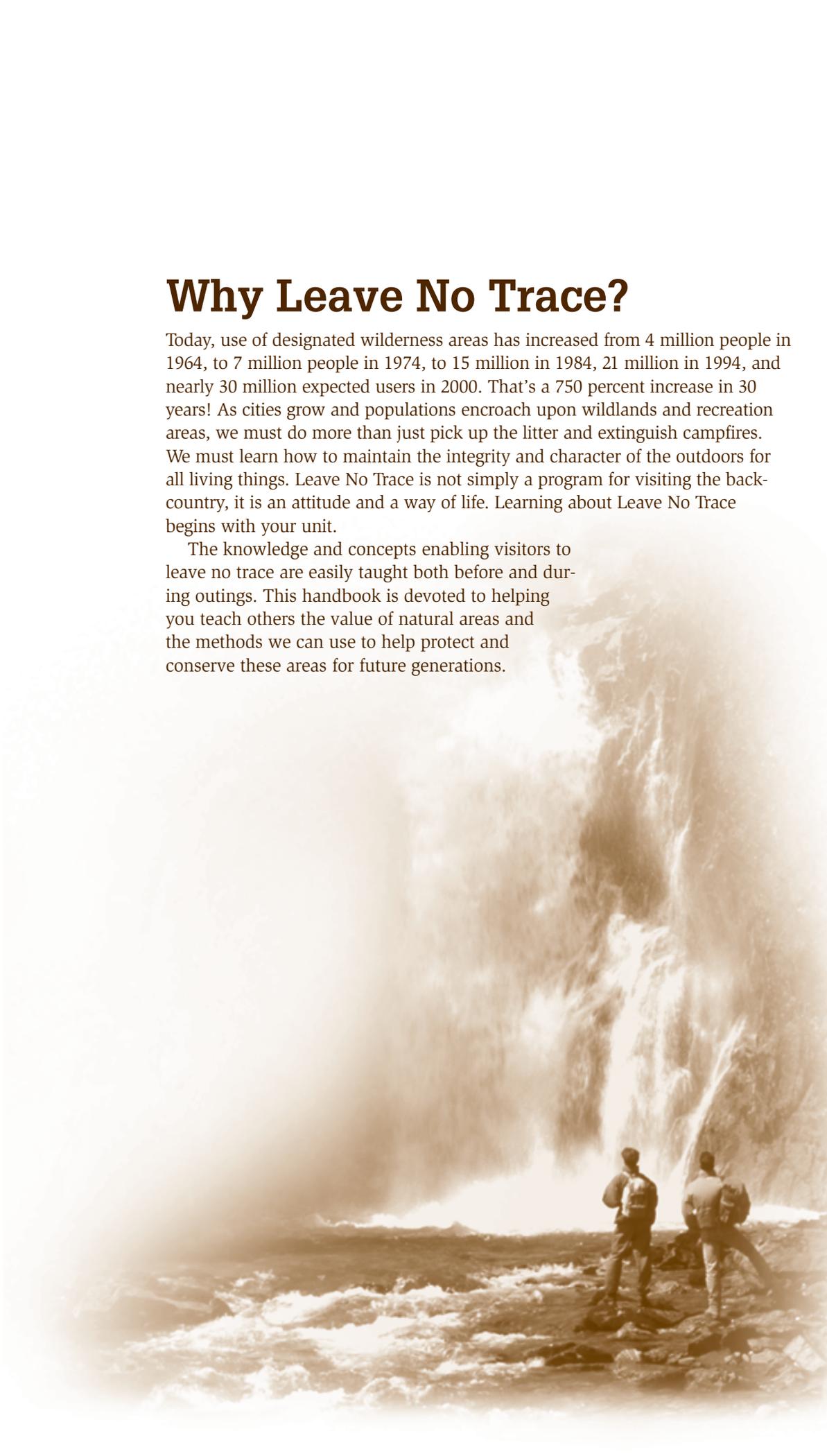
The knowledge and concepts enabling visitors to leave no trace are easily taught both before and during outings. This handbook is devoted to helping you teach others the value of natural areas and the methods we can use to help protect and conserve these areas for future generations.

As long as I'll live,
I'll hear waterfalls
and birds and
winds sing.

I'll interpret the
rocks, learn the
language of flood,
storm, and the
avalanche.

I'll acquaint
myself with the
glaciers and wild
gardens, and get
as near the heart
of the world as
I can.

—John Muir



Steps for Earning the Leave No Trace Awareness Award

1 Individual Scouts, Scouters, or units apply training available in this workbook and complete requirements for the Leave No Trace Awareness Award.

2 Complete the application and submit it to the local council service center or resident camp trading post.

3 The Leave No Trace Awareness Award patch, No. 8630, is available at council service centers and resident camp trading posts.



Where to Start

Some groups with extensive backcountry experience may already practice the Leave No Trace principles as a part of their culture. Others might only “car camp.” Some may do a lot of backpacking but have no knowledge of Leave No Trace and consequently may have to overcome a few bad habits. To complicate the task, even experienced groups will probably have new members who have not been exposed to Leave No Trace principles and skills.

The first step in putting together a training program for your group is to honestly understand where you are. Start by asking yourself and your youth participants the following questions:

- ▶ Do we plan ahead for all circumstances and go prepared?
- ▶ Do we always travel and camp on durable surfaces? Do we know what that means? Do we know what surfaces are not durable?
- ▶ Do we know how to properly dispose of our human waste and wastewater?
- ▶ Do we minimize site alterations and leave natural items and artifacts for others to discover?
- ▶ Do we minimize our campfire impact?
- ▶ Do we only observe wildlife, or do we disturb them with our actions?
- ▶ Are we always considerate of other campers?
- ▶ Do we understand and follow the Leave No Trace principles?

Honest answers to questions like these will help determine where your group stands in the process of learning Leave No Trace principles. Having established where you are will help you determine where to start your Leave No Trace training. Learn those skills and ethics that are needed from this handbook to help you complete the requirements for earning the Leave No Trace Awareness Award.

This handbook has been designed for flexibility in meeting your needs. Teach as little or as much as your group can handle in a session. You may have already taught participants some of these skills. With this design you can determine your group needs and go to that part of the handbook. Work these activities into your weekly meetings and monthly campouts to prepare for successful completion of requirements for the Leave No Trace Awareness Award.

Tips for Teaching

MAKE IT AN ADVENTURE!

It's easy to help your group learn Leave No Trace skills in a fun and interesting atmosphere. The following tips provide insight into the teaching and learning process.

Be Prepared

Advance preparation of meetings helps ensure a quality experience for you and your audience. Some activities require you to assemble materials, to have participants come prepared, or to select special meeting locations. Keep the following in mind:

- ▶ Find a relaxing spot and review the entire activity ahead of time. Reviewing will give you time to familiarize yourself with the necessary information, assemble materials, choose a meeting location, or make assignments prior to teaching the activity. Carefully reading this information will keep you one step ahead of your audience members and allow you to support them in understanding each new Leave No Trace principle.
- ▶ Assemble materials ahead of time. The materials needed for each activity are readily available and require minimum time to gather.
- ▶ Make arrangements for the meeting location in advance. Be sure there is adequate space, lighting, and other important elements to help make the participants comfortable.
- ▶ Assign tasks before the meeting, and give individuals plenty of time and direction to complete their assignments in advance.



Teaching and Learning Styles—Diversity Is the Spice of Life

Each of us teaches and learns with our own unique style. Anyone who has worked with people knows that different people are inspired by different teaching and learning techniques. Most young people generally prefer active, hands-on, minds-on learning. These Leave No Trace activities have been written with the following styles in mind.

- ▶ **Visual learner.** The visual learner likes to learn through seeing—video, chart, picture, model.
- ▶ **Auditory learner.** The auditory learner likes to learn through listening—lecture, discussion, debate.
- ▶ **Kinesthetic learner.** The kinesthetic learner likes to learn by using his or her body—dance, drama, movement, hiking.
- ▶ **Tactile learner.** The tactile learner likes to learn through touching and feeling—hands-on activities and projects.
- ▶ **Experiential learner.** The experiential learner likes to learn by experiencing the activity first-hand.

A Guide on the Side, Not a Sage on the Stage

People learn better when being guided to discover and think for themselves. Learning through lectures from the “expert” is seldom interesting and easily forgotten. When teaching Leave No Trace, remember to

- ▶ **Encourage involvement.** Allow individuals to discover and think for themselves, rather than providing them with all the answers.
- ▶ **Learn together.** You will have some foundational knowledge because you have reviewed the necessary information. Allow yourself to learn along with your group as you experience each activity. You do not have to be a Leave No Trace expert.

The activities in this handbook are designed to allow participants to discover for themselves the importance of Leave No Trace and how to apply the principles.

The Seven Principles of Leave No Trace

- 1 Plan Ahead and Prepare
- 2 Travel and Camp on Durable Surfaces
- 3 Dispose of Waste Properly (Pack It In, Pack It Out)
- 4 Leave What You Find
- 5 Minimize Campfire Impacts
- 6 Respect Wildlife
- 7 Be Considerate of Other Visitors

Background on the Principles of Leave No Trace

AN IN-DEPTH LOOK AT THE NEED FOR LEAVE NO TRACE

Get acquainted with the seven principles of Leave No Trace. It's essential to feel comfortable and knowledgeable before getting started. Begin by thoroughly reading this section before proceeding with the activities. Then, review the appropriate information before conducting a specific activity.

Our Natural World

Often, before people can decide to leave no trace in the backcountry, they must feel a personal connection to the land; they need a reason to care. Caring can take many forms: a love of beauty, an enjoyment of wild plants and animals, an interest in learning about the natural world, a feeling of oneness with nature, a desire for fun and leisure, the excitement of discovery, or even a need to be challenged. All these examples help illustrate how we are a part of the web of life that surrounds us.

An understanding of how the natural world functions—and our ability to change this world—raises many considerations about Leave No Trace. Before teaching Leave No Trace, leaders are encouraged to help people make a personal connection with the natural world. Simultaneously, as the individual nurtures this connection, a commitment to protecting the natural world also takes shape. This section helps set the stage for promoting Leave No Trace and reminds us that humans are part of the natural world.

Wilderness is a necessity . . . a fountain of life . . . thousands of tired, nerve-shaken, over-civilized people who are beginning to find out that going to the mountain is going home; that wilderness is a necessity; that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life.

—John Muir

1 Plan Ahead and Prepare



Proper trip planning and preparation helps backcountry travelers accomplish trip goals safely while minimizing damage to the land and having fun.

Poor planning often results in miserable campers and damage to natural and cultural resources. Rangers often tell stories of campers they have encountered who, because of poor planning and unexpected conditions, degrade backcountry resources and put themselves at risk.

THE IMPORTANCE OF TRIP PLANNING

Here are a few incentives for trip planning. You may want to add to this list.

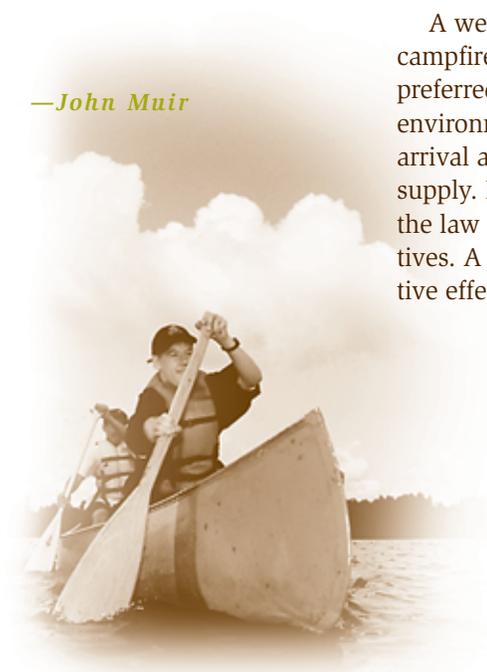
Trip planning

- ▶ Helps ensure the safety of groups and individuals
- ▶ Reduces the likelihood of needed search or rescue assistance
- ▶ Prepares users of the out-of-doors to leave no trace and minimizes resource damage
- ▶ Contributes to a fun and enjoyable outdoor experience
- ▶ Increases self-confidence and opportunities for learning more about nature

When a group neglects the responsibility of proper trip planning, it leaves the door wide open for events to go awry. A group that is experienced and familiar with the geographical characteristics of an area will avoid risk by

- ▶ Steering clear of areas susceptible to flash floods or along ridgetops vulnerable to lightning activity
- ▶ Carrying an adequate supply of drinking water or arranging for a way to purify water from natural sources when traveling along arid lands
- ▶ Checking with local land managers and studying maps and weather conditions to contribute to a low-risk experience

A well-prepared group might plan to cook meals on stoves or, if using a campfire, will find out in advance when and where that is allowed. Stoves are preferred over campfires because they leave no impact, can be used in different environments, and are convenient. Such a group would not discover upon arrival at its destination that a fire ban is in effect or that firewood is in scarce supply. In contrast, poorly prepared groups often build a fire anyway—breaking the law or spoiling the land—simply because they have not planned for alternatives. A scarce wood supply is a sign that an area is experiencing the cumulative effects of heavy recreation use.



A group that has developed good travel plans will be able to travel as fast as it expected. This group will not be caught off guard because of steep terrain or trails that are too rugged. However, the unprepared group will often resort to setting up camp late at night, sometimes in an unsafe location. Poor campsite selection usually leads to unnecessary resource damage. In addition, the group may never even reach its planned destination.

8 ELEMENTS TO CONSIDER WHEN PLANNING A TRIP

1 Identify and record the goals (expectations) of your trip.

2 Identify the skills and abilities of the participants.

3 Select destinations that match the goals, skills, and abilities of participants.

4 Seek information about the area your group plans to visit from land managers, maps, and literature.

5 Check the normal weather patterns and temperature ranges for the area during the time of year your trek is planned. Get a projected weather forecast the night before departure. Adjust your plans if necessary, considering the knowledge, experience, and preparedness of the group.

6 Choose equipment and clothing for comfort, safety, and to follow Leave No Trace principles. Include these outdoor essentials:

- Extra clothing
- Extra trail food
- Rain gear (shelter)
- Pocketknife
- Matches and fire starters
- Stove
- Water bottles
- Maps and compass
- First-aid kit
- Watch
- Sun and insect protection (broad-brimmed hat, sunglasses, sunscreen of SPF 15 or higher, insect repellent)
- Camera with zoom lens for photographing wildlife at a distance
- Small trowel for digging a cathole
- Small strainer or 1-foot-square piece of fiberglass screen for removing food particles from dishwasher
- Gators for muddy trails or trails with loose stones

7 Axes and saws are not needed for collecting and preparing wood for a Leave No Trace fire. Downed, dead wood is gathered from the ground and broken by hand.

8 Plan trip activities to match the goals, skills, and abilities of the group.

9 Evaluate your trip upon return; note changes to make next time.



OTHER CONSIDERATIONS WHEN TRIP PLANNING

Take the following elements into consideration during trip planning. You may want to add to this list.

- ▶ Weather
- ▶ Terrain
- ▶ Regulations, restrictions, permits
- ▶ Private land boundaries
- ▶ Hiking speed of the group's least capable member
- ▶ Anticipated food consumption (Leftovers create waste, which leaves a trace!)
- ▶ Group size (Does it meet land management regulations, trip purpose, and Leave No Trace criteria?)
- ▶ All Leave No Trace principles

MEAL PLANNING

Meals are another element to trip planning that can profoundly affect a group's impact on a backcountry area.

Benefits of Good Meal Planning

Meal planning helps

- ▶ Reduce trash.
- ▶ Reduce pack weight, resulting in faster hiking times and less fatigue.
- ▶ Reduce dependence upon campfires for cooking.

One-Pot Meals and Food Repackaging

Planning for one-pot meals and lightweight snacks requires a minimum of packaging and preparation time, lightens loads, and decreases garbage. One-pot meals require minimal cooking utensils and make it easy to prepare meals on a lightweight stove. Two backpack stoves can be used to cook all meals for groups of 12 people if you have a couple of large pots. (One large pot can be balanced on two stoves when quick heating is desired.) When using smaller pots, four backpack stoves may be needed.

Most food should be removed from its commercial packaging and placed in resealable plastic bags or sealable plastic containers before packing your backpacks. Resealable plastic bags secure premeasured food and reduce bulk and garbage. Empty bags can be placed inside each other and packed out for reuse at home or used to carry out garbage left by others (good turn). This method minimizes the amount of garbage your group must pack out at the end of the trip and eliminates the undesirable behavior of stashing or burying unwanted trash.



2 Travel and Camp on Durable Surfaces



The goal of backcountry travel is to move through the backcountry while minimizing damage to the land. Understanding the impact of travel on the land is necessary to accomplish this goal. Damage occurs when hikers trample surface vegetation or communities of organisms beyond recovery. The resulting barren area leads to the development of undesirable trails and erosion.

CONCENTRATE ACTIVITIES IN HEAVILY USED AREAS

Backcountry travel frequently involves travel over trails and off-trail areas. Land management agencies construct trails in backcountry areas to provide identifiable routes that concentrate foot and stock traffic. Constructed trails are themselves an impact on the land; however, they are a necessary response to the fact that people travel in the backcountry. Concentrating travel on trails reduces the likelihood that multiple routes will develop and scar the landscape. It is better to have one well-designed route than many poorly chosen paths.

Trail use is recommended whenever possible. Encourage travelers to stay within the width of the trail and not take shortcuts along trail switchbacks (trail zigzags that climb hillsides). Travelers should provide space for other hikers if taking breaks along the trail. When taking a break, select a durable surface well off the trail on which to rest. Practice the principles of off-trail travel if the decision is made to move off-trail for breaks.

SPREAD USE AND IMPACT IN PRISTINE AREAS

Spreading use and impact applies when visiting any pristine area, except some desert settings. “Off-trail” refers to all travel that does not utilize a designated trail, such as travel to remote areas, searches for “bathroom” privacy, and explorations near and around campsites. With the exception of some desert areas, backcountry travelers should spread use and impact in pristine areas. Two primary factors influence how off-trail travel affects the land: *durability* of surfaces and vegetation, and *frequency* of travel (or group size).

- ▶ *Durability* refers to the ability of surfaces or vegetation to withstand wear or remain in a stable condition.
- ▶ *Frequency* of use (and large group size) increases the likelihood that a large area will be trampled or that a small area will be trampled multiple times.



SURFACE DURABILITY

The concept of durability is an important one for all backcountry travelers to understand. The following natural surfaces respond differently to backcountry travel.

Rock, Sand, and Gravel. These surfaces are highly durable and can tolerate repeated trampling and scuffing. However, lichens that grow on rocks are vulnerable to repeated scuffing.

Ice and Snow. The effect of travel across these surfaces is temporary, making them good choices for travel—assuming good safety precautions are followed and the snow layer is of sufficient depth and firmness to prevent vegetation damage.

Vegetation. The resistance of vegetation to trampling varies. Careful decisions must be made when traveling across vegetation. Select areas of durable vegetation or sparse vegetation that is easily avoided. Grasses are resistant to trampling, but most forest herbs and ferns are fragile and quickly show the effects of trampling. Wet meadows and other fragile vegetation quickly show the effects of trampling.

Trampling encourages new and inexperienced travelers to take the same route and leads to undesirable trail development. As a general rule, travelers who must venture off-trail should spread out to avoid creating paths that encourage others to follow. Avoid vegetation whenever possible, especially on steep slopes where the effects of off-trail travel are magnified.

Cryptobiotic Crust. Cryptobiotic crust, found in desert environments, is extremely vulnerable to foot traffic. Cryptobiotic crust consists of tiny communities of organisms that appear as a blackish and irregular raised crust upon the sand. This crust retains moisture in desert climates and provides a protective layer that helps prevent erosion. One footstep can destroy cryptobiotic crust for decades. It is important to use developed trails in these areas.

If you must travel off-trail, walk on rocks or other durable surfaces. In broad areas of cryptobiotic crust, where damage is unavoidable, it is best to follow in one another's footsteps, thereby affecting the smallest area of crust possible—exactly the opposite rule for traveling through vegetation. Cryptobiotic crust is also extremely vulnerable to mountain bicycle and horse travel.

Desert Puddles and Mud Holes. Water is a precious scarce resource for all living things in the desert. Don't walk through desert puddles or mud holes, or disturb surface water in any way. Potholes are also home to tiny desert animals.

CAMP ON DURABLE SURFACES

Selecting an appropriate campsite is perhaps the most important aspect of low-impact backcountry use. It requires the greatest use of judgment and information and often involves making trade-offs between minimizing ecological and social impacts. A decision about where to camp should be based on information about the level of use in the area, the fragility of vegetation and soil, the likelihood of wildlife disturbance, an assessment of previous impacts, and your party's potential to cause or avoid impact.

Choosing a Campsite in High-Use Areas

Avoid camping close to water and trails, and select a site that is not visible to others. Even in popular areas the sense of solitude can be enhanced by screening campsites and choosing an out-of-the-way site. Camping away from the water's edge also allows access routes for wildlife.

Plan ahead by discovering and obeying regulations related to campsite selection. Some areas require campers to use designated sites and/or to camp a specified distance from water sources. Allow enough time and energy at the end of the day to select an appropriate site. Fatigue, bad weather, and late departure times are not acceptable excuses for choosing poor or fragile campsites.

Generally, it is best to camp on sites that are so highly impacted that further careful use will cause no noticeable impact. In popular areas, these sites are obvious because they have already lost their vegetation cover. Also, it is often possible to find a site that naturally lacks vegetation, such as exposed bedrock, sandy areas, or bare soil.

On high-impact sites, concentrate tents, traffic routes, and kitchen areas in the center of already impacted areas. Locate the camp kitchen on the most durable site because most impact occurs when cooking and eating. The objective is to confine impact to places that already show use and avoid enlarging the area of disturbance. When leaving camp, make sure that it is clean, attractive, and appealing to other campers who follow.

Camping in Undisturbed, Remote Areas

Pristine areas usually are remote, see few visitors, and have no obvious impacts. Visit these special places only if you are committed to and knowledgeable of the techniques required to Leave No Trace.

On pristine sites it is best to spread out tents, avoid repetitive traffic routes, and move camp every night. The objective is to minimize the number of times any part of the site is trampled. In setting up camp:

- ▶ Disperse tents and the kitchen on durable sites.
- ▶ Plan ahead to wear soft shoes around camp to minimize the impact on vegetation and compaction of the soil, which may stifle roots.
- ▶ Minimize activity around the kitchen and places where packs are stashed.



The durable surfaces of large rock slabs make good kitchen sites. Watch where you walk to avoid crushing vegetation, and take alternate paths to water. Minimize the number of trips to water by carrying water containers. Check the regulation, but camping at least 200 feet (80 adult steps) from water is a good rule of thumb.

When breaking camp, take time to naturalize the site, help the site recover, and make it less obvious as a campsite.

- ▶ Cover scuffed areas with native materials (such as pine needles).
- ▶ Brush out footprints.
- ▶ Rake matted grassy areas with a stick.

This extra effort will help hide any signs that the spot has been a campsite and make it less likely that other backcountry travelers will camp in the same spot. The less often a pristine campsite is used, the better its chance of remaining pristine.

Camping in Arid Lands

The most appropriate campsites in arid lands are on durable surfaces, such as rock and gravel, or on sites that have been so highly impacted that further use will cause no additional disturbance. Previously impacted sites are obvious because they have already lost their vegetation cover or the rocky soils have been visibly disturbed. If choosing this type of site, make sure your spot is large enough to accommodate your entire group.

A pristine campsite, with no evidence of previous use, is appropriate in arid lands provided it is on a nonvegetated, highly resistant surface. Expanses of rock, gravel, or sand all make excellent choices. It should never be necessary to camp on cryptobiotic soil, islands of vegetation, or within the precious green ribbons of desert creeks or streams. Beware of camping on sandy river bottoms and areas susceptible to flash floods.

Position cooking areas, tents, and backpacks on rock, sand, or gravel. Consciously choose durable routes of travel among areas of your camp so that connecting trails do not develop. Vary your routes since the objective is to minimize trampling and compaction on any specific part of the campsite. Also, limit your stay to no more than two nights.

Never scrape away or clean sites of organic litter like leaves, and always minimize the removal of rocks and gravel. Organic litter helps to cushion trampling forces, limits the compatibility of soils, releases plant nutrients, and reduces the erosive forces of rainfall. Disturbing the lichen-coated and varnished rocks known as desert pavement can leave a visible impact for hundreds of years. Once overturned, these rocks are difficult to replace, and the lichens and varnish will not grow back within our lifetime.

Camping in River Corridors

River corridors are narrow strips of land and water where there is little room to disperse human activities. For this reason, campsites are often designated. It is generally best to camp on established sites located on beaches, sandbars, or nonvegetated sites below the high-water line.

3 Dispose of Waste Properly (Pack It In, Pack It Out)

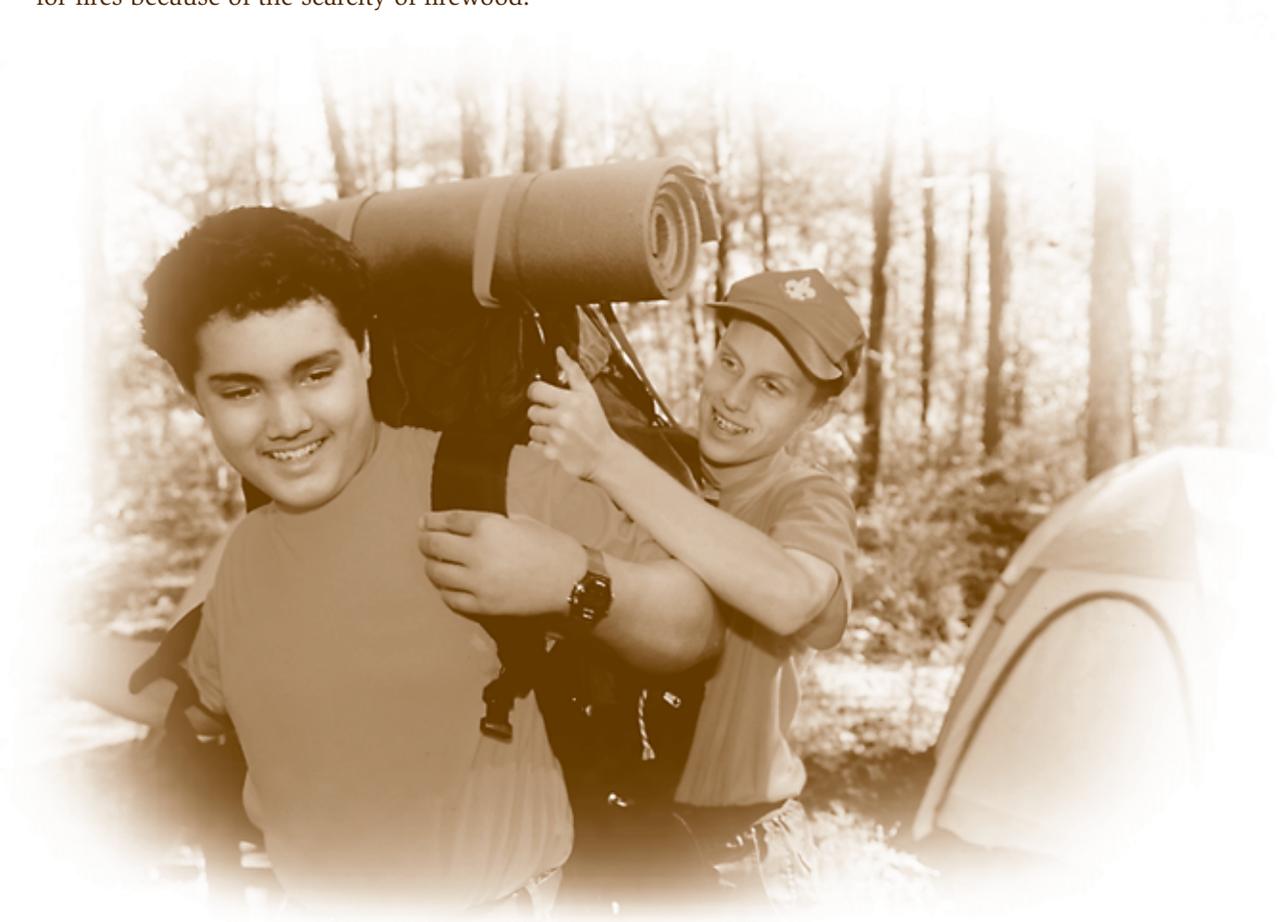


This common saying is a simple yet effective way to get backcountry visitors to take their trash home with them. There is no reason why people cannot carry out of the backcountry the extra food and packaging materials that they carried in with them in the first place. Trash and litter in the backcountry ranks high as a problem in the minds of many backcountry visitors. Trash and litter are human impacts that can greatly detract from the naturalness of an area.

Reduce litter at the source. Much backcountry trash and litter originates from food items. Perhaps the easiest way to practice the principle of *pack it in, pack it out*, is to follow principle number one—*plan ahead and prepare*. It is possible to leave most potential trash at home if you take the time to properly repack food supplies. Reduce the volume of trash you have to pack out. Save weight by repackaging solid foods into plastic bags and liquids into reusable containers.

Another good idea is to keep your menu simple. For short trips, consider not taking a stove and taking only food that requires no cooking. This significantly reduces backpack weight and excess food packaging taken into the backcountry.

Your first preference for dealing with trash should be to pack it out. Most trash will not be entirely consumed by fire and conditions frequently make fires unacceptable. Areas are often closed to fires because of high fire hazards or excessive campsite damage. Some areas, such as desert settings, are impractical for fires because of the scarcity of firewood.



How Long Does It Last?

Packing out trash is increasingly important as greater numbers of people visit the backcountry.

Here are some estimated life expectancies for different kinds of litter:

Under no circumstances should food scraps be buried! Discarded or buried food scraps attract animal life. It is common to see chipmunks, ground squirrels, and various species of birds gathering around camp kitchens. These “camp robbers” have become attracted to campers as a food source. Human food is not natural to wild animals, and their natural feeding cycles and habits become disrupted when they are fed by humans.

A conscientious no-trace camper always keeps and leaves a clean camp.

SANITATION

Dishwater

Strain dishwater through a small strainer or bandana. Put the food particles in a sealable plastic bag and pack them out. Broadcast the strained dishwater over a wide area at least 200 feet from the nearest water source, campsite, or trail. Scattering dishwater in a sunny area will cause the water to evaporate quickly, causing minimal impact.

Human Waste

Proper disposal of human waste is important to avoid pollution of water sources, avoid the negative implications of someone else finding it, minimize the possibility of spreading disease, and maximize the rate of decomposition.

If an outhouse or bathroom is available, use it. In most backcountry locations, burying human feces in the correct manner is the most effective method to meet these criteria. Solid human waste must be packed out from some places, such as narrow river canyons. Land management agencies can advise you of specific rules for the area you plan to visit.

Contrary to popular opinion, research indicates that burial of feces in mineral soil actually slows decomposition. Pathogens have been discovered to survive for a year or more when buried. However, in light of the other problems associated with feces, it is still generally best to bury it in humus (decomposing plant or animal matter that forms organic soil). The slow decomposition rate emphasizes the need to choose the correct location, far from water, campsites, and other frequently used places.

Catholes

Catholes are the most widely accepted method of waste disposal. Locate catholes at least 200 feet (about 80 adult steps) from water, trails, and camp. Select an inconspicuous site where other people will be unlikely to walk or camp. With a small garden trowel, dig a hole in humus that is 6 to 8 inches deep and 4 to 6 inches in diameter. Cover and disguise the cathole with natural materials when finished. If camping in the area for more than one night, or if camping with a large group, widely disperse cathole sites.



PAPER:
two to
four weeks

BANANA PEEL:
three to five
weeks

WOOL CAP:
one year

**CIGARETTE
BUTT:**
two to five
years

**DISPOSABLE
DIAPER:**
10 to 20 years

**HARD PLASTIC
CONTAINER:**
20 to 30 years

Catholes in Arid Lands

A cathole is also the most widely accepted means of waste disposal in arid lands. Locate catholes at least 200 feet (about 80 adult steps) from water, trails, and camp. Avoid areas where water visibly flows, such as sandy washes, even if they are dry at the moment. Aid decomposition by selecting a site that will maximize exposure to the sun. Because the sun's heat will penetrate desert soils several inches, it can eventually kill pathogens if the feces are buried properly. South-facing slopes and ridgetops will have more exposure to sun and heat than will other areas.

Trench Latrines

Though catholes are recommended for most situations, there are times when a trench latrine may be more applicable, such as when camping with young children or if staying in one camp for longer than a few nights. Use similar criteria for selecting a latrine location as those used to locate a cathole. Since this higher concentration of feces will decompose very slowly, location is especially important. Deposit feces in one end of the trench and lengthen the other end as needed. A good way to speed decomposition and diminish odors is to toss in a handful of humus after each use. Ask your land manager about latrine-building techniques. Carry a urine bottle when caving to avoid impacting an extremely fragile environment.

Toilet Paper

Use toilet paper sparingly and use only plain, white, nonperfumed brands.

Toilet paper must be disposed of properly! It should be either thoroughly buried in a cathole or placed in plastic bags and packed out, which is the best way to practice Leave No Trace. Never burn toilet paper because of the danger of starting a wildfire.

Urine

Urine has little direct effect on vegetation or soil. In some instances urine may draw wildlife that are attracted to the salts; wildlife may defoliate plants and dig up soil. Because urine has an objectionable odor, be sure to urinate at least 200 feet from a campsite or trail. Urinating on rocks, pine needles, and gravel is less likely to attract wildlife. Diluting urine with water from a water bottle also can help minimize negative effects.

Special Considerations for River Canyons

Western river canyons often present unique Leave No Trace problems. In large western rivers the most common practice is to urinate directly in the river (because urine is sterile) and to pack out feces in sealed boxes for later disposal. Check with your land manager for details about specific areas.



RUBBER BOOT
SOLE:
50 to 80 years



TIN CAN:
80 to
100 years



ALUMINUM CAN:
200 to 400 years



PLASTIC SIX-PACK
HOLDER: 450 years



GLASS BOTTLES:
Thousands or
millions of years

4 Leave What You Find



Allow others a sense of discovery by leaving rocks, plants, archaeological artifacts, and any other objects as you found them. *Leave what you find* involves many aspects of outdoor use. The following information addresses a variety of ways to respect natural settings.

MINIMIZE SITE ALTERATIONS

Leave areas as you found them. Do not dig trenches for tents or construct lean-tos, tables, chairs, or other rudimentary improvements. If you clear an area of surface rocks, twigs, or pine cones, replace these materials before leaving. On high-impact sites, it is appropriate to clean up the site and dismantle inappropriate user-built facilities, such as multiple fire rings and constructed seats or tables. Consider the idea that *good campsites are found and not made*.

In many locations, properly located and legally constructed facilities, such as a single fire ring, should be left. Dismantling them will cause additional impact because they will be rebuilt with new rocks and thus distress a new area. Learn to evaluate all situations you encounter.

AVOID DAMAGING LIVE TREES AND PLANTS

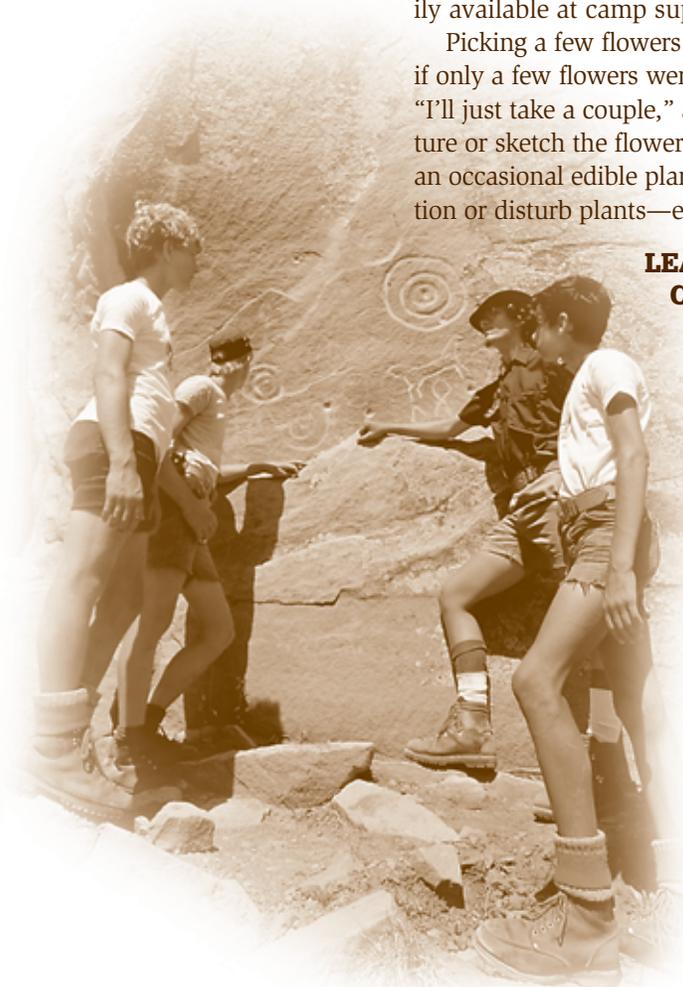
Never hammer nails into trees for hanging things, hack at them with hatchets or saws, or cut or trample tree saplings or seedlings. Carving initials into trees is unacceptable. The cutting of boughs for use as a sleeping pad creates minimal benefit and maximum impact. Inexpensive, lightweight sleeping pads are readily available at camp supply stores.

Picking a few flowers does not seem like it would have any great impact and, if only a few flowers were picked, it wouldn't. However, if every visitor thought, "I'll just take a couple," a much more significant impact might result. Take a picture or sketch the flower instead of picking it. Knowledgeable campers may enjoy an occasional edible plant but are careful not to deplete the surrounding vegetation or disturb plants—especially those that are rare or are slow to reproduce.

LEAVE NATURAL OBJECTS AND CULTURAL ARTIFACTS

Natural objects of beauty or interest—such as antlers, petrified wood, or colored rocks—add to the mood of the backcountry and should be left so others can experience a sense of discovery. In national parks and some other protected areas it is illegal to remove natural objects.

The same ethic applies to cultural artifacts found on public lands. Cultural artifacts are protected by the Archaeological Resources Protection Act. It is illegal to remove or disturb archaeological sites, historic sites, or artifacts—such as pot shards, arrowheads, structures, and even antique bottles—found on public lands. If you discover a significant archaeological resource that may not be known to others, pinpoint its location on a topographic map and report your finding to a land manager.



5 Minimize Campfire Impacts

FIRES VERSUS STOVES



The use of campfires, once a necessity for cooking and warmth, is steeped in history and tradition. Some people would not think of camping without a campfire. Campfire building is also an important skill for every camper. Yet, the natural appearance of many areas has been degraded by the overuse of fires and an increasing demand for firewood. The development of efficient, lightweight camp stoves has encouraged a shift away from the traditional fire. Stoves have become essential equipment for minimum-impact camping. They are fast, flexible, efficient, reliable, and clean burning, and they eliminate the need for firewood. Stoves operate in almost any weather condition, and they leave no trace.

SHOULD YOU BUILD A FIRE?

The most important consideration to be made when deciding to use a fire is the potential damage to the backcountry.

- ▶ What is the fire danger for the time of year and the location you have selected?
- ▶ Are there restrictions from the land managing agency?
- ▶ Is there sufficient wood so its removal will not be noticeable?
- ▶ Does the harshness of alpine and desert growing conditions for trees and shrubs mean that the regeneration of wood sources cannot keep pace with the demand for firewood?
- ▶ Do group members possess the skill to build a campfire that will leave no trace?

LESSENING IMPACTS WHEN CAMPFIRES ARE USED

If building a fire cannot be avoided, camp in areas where wood is abundant. Choose not to have a fire in areas where there is little wood—at higher elevations, in heavily used areas, or in desert settings. A true Leave No Trace fire shows no evidence of its use.

Existing Fire Rings

The best place to build a fire is within an existing fire ring in a well-placed campsite. Keep the fire small and burning only for the time you are using it. Allow wood to burn completely to ash. Put out fires with water, not dirt. Avoid building fires next to rock outcrops where the black scars will remain for many years.



Mound Fire

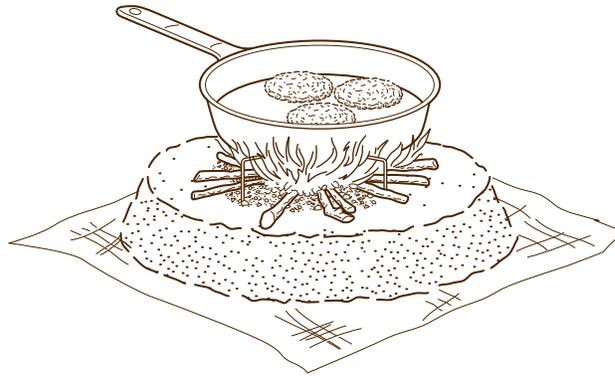
Construction of a mound fire can be accomplished by using simple tools: a garden trowel, large stuff sack, and a ground cloth or plastic garbage bag. To build this type of fire:

- 1 Collect some mineral soil, sand, or gravel from an already disturbed source. The root hole of a toppled tree or sand from a dry riverbed are possible sources.
- 2 Lay a ground cloth on the fire site and then spread the soil into a circular, flat-topped mound at least 6 inches thick.

The thickness of the mound is critical to insulate the ground from the heat of the fire. The ground cloth or garbage bag is important only in that it makes cleaning up the fire much easier. The circumference of the mound should be larger than the size of the fire to allow for the inevitable spreading of coals. The advantage of the mound fire is that it can be built on flat, exposed rock or on an organic surface such as litter, duff, or grass.

Fire Pans

Use of fire pans is a good alternative for fire building. Metal oil drain pans and some backyard barbecue grills make effective and inexpensive fire pans. The pan should have at least 3-inch-high sides. Elevate the pan on rocks or line it with mineral soil so the heat will not scorch the ground.



Firewood and Cleanup

Standing trees, dead or alive, are home to birds and insects, so leave them intact. Fallen trees also provide bird and animal shelter, increase water-holding capacity of the soil, and recycle nutrients back into the environment through decomposition. Stripping branches from standing or fallen trees also detracts from an area's natural appearance.

- ▶ Avoid using hatchets and saws or breaking branches off standing or downed trees. Use dead and downed wood, which burns easily and is easy to collect.
- ▶ Use small pieces of wood—no larger than the diameter of an adult wrist—that can be broken with your hands. This practice avoids having to use a saw or hatchet, and the wood readily burns to ash.
- ▶ Gather wood over a wide area away from camp to avoid depleting the wood supply and to let nutrients return to the soil. Along rivers and seashores, use dry driftwood.
- ▶ Stop adding new fuel to a fire near the end of its use and toss in burned ends of wood. Allow the coals to burn to white ash, thoroughly soak with water, and scatter the remains over a large area away from camp. In river corridors, ashes may have to be packed out.
- ▶ When cleaning up a mound or pan fire, replace soil where you found it.
- ▶ Scatter unused wood to keep the area looking as natural as possible.
- ▶ Pack out any campfire litter. Trash should not be burned, especially plastic items and foil-lined wrappers, the remains of which stay in the firelay.

SAFETY

Certain safety precautions should be followed when handling fire:

- ▶ When using stoves or fires, follow BSA procedures for supervision of young people.
- ▶ Follow all manufacturer's product and safety labels for stoves.
- ▶ Use only approved containers for fuel.
- ▶ Build campfires well away from tents or tarps.
- ▶ Never leave a fire unattended.
- ▶ Keep wood and other fuel sources away from fire.
- ▶ Thoroughly extinguish all fires.

6 Respect Wildlife



Most wildlife can adapt to consistent patterns of human activity, but it's best to learn about wildlife through quiet observation.

- ▶ Do not approach or follow wildlife for a “better look.”
- ▶ Carry binoculars, a spotting scope, or a telephoto lens to view and photograph wildlife from observation areas and trails.
- ▶ Observe wildlife from a distance so they are not scared or forced to flee.

You are too close if your presence or actions cause wildlife to alter their normal habits.

Large groups often cause more damage to the environment and can disturb wildlife, so keep your group small. If you have a larger group, minimize your impact by dividing into smaller groups if possible. Plan your trip to avoid critical or sensitive wildlife habitats or times when wildlife are nesting and rearing their young.

Quick movements and loud noises are stressful to animals. Travel quietly and do not pursue, feed, or force animals to flee. (One exception is in bear country, where it is good to make a little noise so as not to startle the bears.) In hot or cold weather, disturbance can affect an animal's ability to withstand the rigorous environment. Do not touch, get close to, feed, or pick up wild animals. It is stressful to the animal, and it is possible that the animal may harbor rabies or other diseases. Sick or wounded animals may bite, peck, or scratch and send you to the hospital. If you find sick animals or animals in trouble, notify a game warden.

Considerate campers observe wildlife from afar, give animals a wide berth, store food securely, and keep garbage and food scraps away from animals. Leave young animals alone and remain at a distance from nesting birds, denning animals, and newborn animals. Young animals removed or touched by well-meaning people may cause the animals' parents to abandon their young. Remember that you are a visitor to their home.

Never feed wildlife or allow them to obtain human food, even scraps.

Wildlife that obtain human food become nuisance animals that are often killed by cars, dogs, or predators



because they left the safety and cover of their normal habitat. Such animals often get into human trash, eating things such as plastic food wrappers, which can become trapped and clog their digestive systems. Human food also is not nutritious for wildlife and can cause tooth decay, gum infection, and ulcers. The chance of survival is slim when wardens must be called in to trap and relocate a bear or deer.

Allow animals free access to water sources by giving them the buffer space they need to feel secure. Ideally, camps should be located at least 200 feet or more from existing water sources. This will minimize disturbance to wildlife and help ensure that animals have access to their precious drinking water.

With limited water in arid lands, desert travelers must strive to reduce their impact on the animals struggling for survival. Desert dwellers are usually most active after dark; you will be less likely to frighten them by avoiding water holes at night.

Washing and human waste disposal must be done carefully so the environment is not polluted and so animals and aquatic life are not injured. While swimming in lakes or streams is fine in most instances, in desert areas, leave scarce water holes undisturbed and unpolluted so animals may drink from them.



SPECIAL CONSIDERATIONS FOR BEAR COUNTRY

Messy kitchens and food odors attract bears. A conscientious low-impact camper always keeps a clean camp. Kitchens should be placed at least 200 feet (or 80 adult steps) from tent sites. Food must be stored at least 200 feet from tent and kitchen sites, hung at least 12 feet off the ground between trees, 6 feet away from the trunks of the trees, and 6 feet below a limb. Your food storage, cooking area, and tent sites should form a triangle with a minimum of 200 feet between them.

All food items and trash must be hung to keep them away from bears and other wildlife. Food brought to your tent invites danger to your sleeping area, and food left in your pack may result in a destroyed pack as the bear searches for the source of food odors. Consider using bear-proof canisters, which are lightweight and easy to carry.



7 Be Considerate of Other Visitors



One of the most important components of outdoor ethics is to be courteous toward other visitors. It helps all visitors enjoy their outdoor experience. Many people come to the outdoors to listen to nature. Excessive noise, unleashed pets, and damaged surroundings take away from everyone's experience. So, keep the noise level down while traveling and, if you must bring a radio, tapes, CDs, or cell phone, use headphones so you will not disturb others.

Also keep in mind that the feeling of solitude, especially in open areas, is enhanced when group size is small, contacts are infrequent, and behavior is unobtrusive. Visitor surveys show that several small groups are preferable to one large group. Whenever possible, separate larger groups into several smaller groups that travel and camp separately. To maximize your feelings of privacy, avoid trips during holidays and busy weekends, or take a trip during the off-season.

Be courteous to other groups you meet. Groups leading or riding livestock have the right-of-way on trails, and bikers should yield to both equestrians and hikers. Hikers and bicyclists should move off the trail to the downhill side and stop. Horses are spooked easily, so stay motionless and talk quietly to the riders as they pass. Stay in control when mountain biking. Before passing others, politely announce your presence and proceed with caution. Take rest breaks on durable surfaces well off the designated trail so that the experience of other visitors will not be disturbed.

Keep in mind that visits to seldom-used places require an extra commitment to travel quietly and lightly on the land.

When selecting a campsite, choose a site away from the trail and away from other groups, where rocks or trees will screen it from view. Keep noise down in camp so as not to disturb other campers or those passing by on the trail. Goofing off and pulling pranks are undesirable social behaviors and could lead to serious or fatal injuries. In addition, activities should fit the setting—save game playing for the city park.

Bright clothing and equipment, such as tents that can be seen for long distances, are discouraged. Especially in open natural areas, colors such as day-glow yellow are disturbing and contribute to a crowded feeling. To lessen visual impacts, choose colors that blend with the environment.

Keep pets under control at all times. Dogs do not fit in the wildlife category, and allowing pets to run free can be unwelcome, because they can frighten people and leave behind unwanted “presents.” Please scoop up dog feces from camps and trails and carry it to a trash container. Some areas prohibit dogs or require them to be on a leash at all times. Know and follow the rules of the land managing agency.

Leave gates as you found them, and leave the land undisturbed for others to enjoy. Remember, our open spaces and wildlands are protected for all generations. It is up to us to keep them healthy, beautiful, and open to the public for recreation, reflection, and revitalization! Enjoy and learn from historical and archaeological sites, but respect these sites and treasures. Some of these sites are sacred to Native Americans or are important cultural reminders of our heritage.

Quick Concepts

QUICK ACTIVITIES TO TEACH LEAVE NO TRACE

The following activities are designed to provide a quick introduction to participants' connectedness to the natural world and the seven Leave No Trace principles. Each activity can be completed in about 15 to 30 minutes and may be adapted to either home or backcountry situations.

Each Quick Concept activity is divided into three parts: "Grabbing Your Group's Attention," "The Activity," and "The Discussion." It is very important to carefully read the Background on the Principles of Leave No Trace before introducing these activities.

Grabbing Your Group's Attention

Use this time to set the stage for the activity and generate curiosity throughout the group.

The Activity

Encourage participation and thought during the activity. Remember, building critical thinking skills is more valuable than simply memorizing correct answers.

The Discussion

Use your knowledge and experience to help your audience answer questions raised by the activity. Guide, rather than dominate, the discussion. The quick concepts cover

- ▶ Our Natural World
- ▶ The Seven Leave No Trace Principles
 - ① Plan Ahead and Prepare
 - ② Travel and Camp on Durable Surfaces
 - ③ Dispose of Waste Properly (Pack It In, Pack It Out)
 - ④ Leave What You Find
 - ⑤ Minimize Campfire Impacts
 - ⑥ Respect Wildlife
 - ⑦ Be Considerate of Other Visitors



Quick Concept for Our Natural World

GRABBING YOUR GROUP'S ATTENTION (20 MINUTES)

Your group will be going on a nature scavenger hunt. Rather than collecting objects, they will be listing ideas on paper. The hunt will help participants discover how much they have in common with the natural world and how the natural world influences their survival. This activity sets the stage for learning and embracing Leave No Trace.

Begin the activity by conducting one of the following:

- ▶ An excursion to an outdoor setting such as a park, canyon, river, or desert
- ▶ An excursion to a natural setting via a slide show, color photographs, or posters
- ▶ A mind excursion where participants imagine their favorite natural setting
- ▶ A mind excursion where participants close their eyes while you describe a natural setting

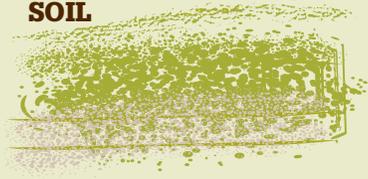
THE ACTIVITY

Give each participant a piece of paper and a pencil. Have participants make three columns with the headings “Things in Nature,” “Things We Have in Common,” and “How It Helps Me.”

Have participants observe their environment physically if they are outdoors, or mentally if they are indoors. They must find objects in nature and tell what they have in common with each object. Make sure they consider less-noticeable things such as air, soil, and sun. Here’s an example:

THE DISCUSSION

Have participants share one or more of their connections. Help them to discover that this personal connection is where a commitment to land stewardship begins. Land stewardship is the goal of Leave No Trace. Outline for them what they will be learning about Leave No Trace in the future.

THINGS IN NATURE	THINGS WE HAVE IN COMMON	HOW IT HELPS ME
TREE 	We both have an outer layer to protect us (bark/skin).	A tree gives me oxygen.
SOIL 	We both contain minerals.	Soil helps grow my food.
ANT 	We both need shelter.	Ants loosen the soil.

Quick Concept for Plan Ahead and Prepare

GRABBING YOUR GROUP'S ATTENTION (15 MINUTES)

Have a one-pot meal, or a variety of one-pot meals, cooking outdoors on a backpack stove when your group arrives. Give each participant a copy of each recipe and describe how you prepared each meal. Provide every participant with a taste of each dish.

Alternate Plan for Grabbing Your Group's Attention (15 minutes)

As an alternate activity, before your meeting, find pictures or posters depicting a local or regional environment (high alpine, desert, river). You will use these pictures to serve as your imaginary destination.

Break participants into small groups of three to five when they arrive. Tell your group you are taking them on an imaginary hiking trip and ask each person to pack a small backpack for your adventure. Don't tell the participants their imaginary destination or what to bring. Build suspense by asking them to guess the destination of their imaginary trip.

THE ACTIVITY

Break your group into pairs and have them

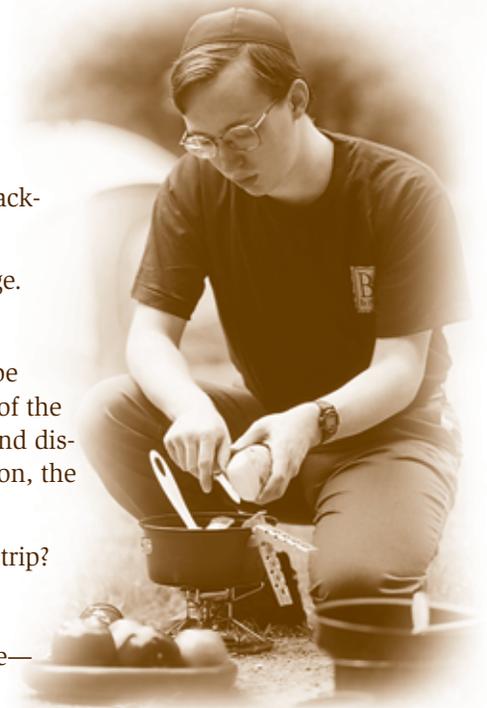
- ▶ Create a recipe for a simple one-pot meal.
- ▶ Make a list of all the ingredients they would need to bring into the backcountry for this meal.
- ▶ Describe how they should pack these ingredients to minimize garbage.

Alternate Activity

Show the destination pictures from the alternate plan above and describe (weather, terrain, etc.) the location you have selected. Explain the goal of the trip: wildlife viewing or fishing. Ask the groups to unpack their packs and discuss their answers to the following questions. To help facilitate discussion, the leader must read the Background on the Principles of Leave No Trace.

- ▶ How well do the contents of your pack properly prepare you for this trip?
- ▶ How well do the contents of your pack ensure your safety?
- ▶ How well do the contents of your pack ensure you will leave no trace—that you will not damage natural or cultural resources?
- ▶ Do the contents of your pack ensure your trip will meet your goal—for example, wildlife viewing or fishing—safely and enjoyably?

Because participants packed their packs without proper information, they will probably be inadequately prepared for their destination. This activity demonstrates the importance of planning before packing.



THE DISCUSSION

Discuss why planning and preparing for one-pot meals on a backcountry trip is wiser than planning a meal of canned chili, canned fruit, and hot dogs. Refer to the Background on the Principles of Leave No Trace for details to assist you in this discussion. You may want to invite a guest from an outdoor store or hiking club to conduct the cooking demonstration if you lack experience.

Discussion for the Alternate Activity

Following the alternate activity, facilitate a discussion with all participants about the results of the activity. Ask each group to briefly share its answers to the above questions and add:

- ▶ How would the contents of your pack differ with different destinations?
- ▶ What other information do you need to pack properly for a trip?
- ▶ What is the value of knowing more about your destination and the activities you have planned before packing?

Quick Concept for Travel and Camp on Durable Surfaces

GRABBING YOUR GROUP'S ATTENTION (10 MINUTES)

Gather participants outside a home or in a park. Ask them why we construct sidewalks. Focus the resulting discussion on the need to provide durable surfaces for travel by many people. Explain that concentrating activity on one durable surface can help protect the surrounding land. Define the concept of *durability* for the group (see the Background on the Principles of Leave No Trace).

THE ACTIVITY

Break the group into pairs and give each pair the following assignment: Imagine you are looking for durable surfaces to travel over or set up camp. Find five different surfaces in the immediate area and rate them from one to five for durability, one being the most durable surface and five being the least durable surface. Give the group approximately 5 to 10 minutes to explore the area.



THE DISCUSSION

Ask the group to name all the durable surfaces they can identify. Be sure they include rock, gravel, sand, bare soil, firm snow, most grasses, and existing trails and campsites. Then ask them to identify non-durable surfaces. Make sure they include tundra, riparian areas, aquatic environments, fragile plants, muddy areas, spring melt, and cryptobiotic crust (the blackish crust with living microorganisms that is frequently found in desert areas).

Quick Concept for Dispose of Waste Properly (Pack It In, Pack It Out)

Arrangements for this activity must be made a week or two in advance. Find a location that is littered with garbage—for example, a roadside, a park, or a high school parking lot right after school. This activity can also be conducted during organized cleanup projects sponsored by groups that have adopted road segments or recreation sites. If you cannot find or visit a littered area, simulate a littered area at or near your meeting site. Be sure to pick up the litter at the end of this activity.

GRABBING YOUR GROUP'S ATTENTION (20 MINUTES)

Travel to the site. Have the participants observe the littered site and record in writing what they think of this situation and how it makes them feel. Present participants with garbage bags and challenge them to make the area look more pleasant.

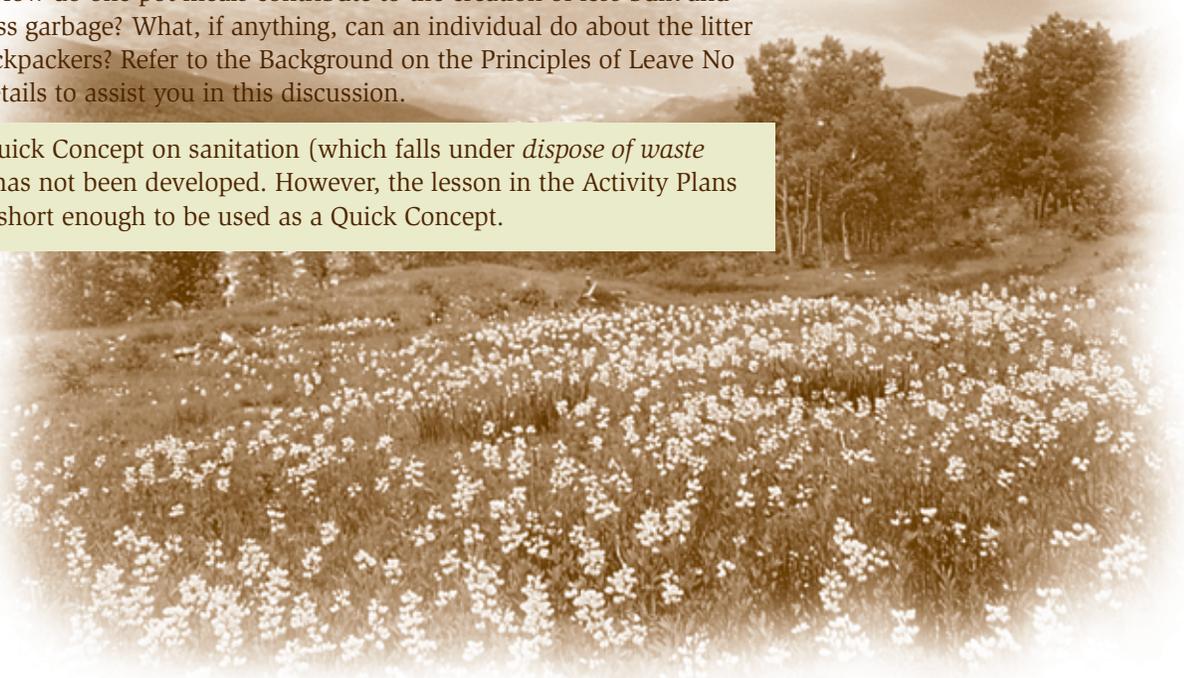
THE ACTIVITY

Break the group into pairs and issue plastic garbage bags to each pair. Have a contest to see who can collect the most garbage in 5 to 10 minutes. Instruct the group to use care when picking up sharp, rusty, or unsanitary waste. You may want to have participants bring light gloves for this activity.

THE DISCUSSION

Discuss what litter is and the effects of litter in general. Discuss the effects of litter in the backcountry. Divide participants into pairs and have each pair devise a plan for packing out garbage on the next backcountry trip. Discuss each plan. How do one-pot meals contribute to the creation of less bulk and therefore less garbage? What, if anything, can an individual do about the litter of other backpackers? Refer to the Background on the Principles of Leave No Trace for details to assist you in this discussion.

Note: A Quick Concept on sanitation (which falls under *dispose of waste properly*) has not been developed. However, the lesson in the Activity Plans section is short enough to be used as a Quick Concept.



Quick Concept for Leave What You Find

GRABBING YOUR GROUP'S ATTENTION (15 MINUTES)

Ask participants how scientists know what dinosaurs looked like. (They find fossils and reconstruct the skeletons.) It is important for scientists to find the pieces in their original positions (relative to one another) so that they can see how the pieces fit together. The same is true for cultural—human-made—artifacts.

THE ACTIVITY

Use three simple picture puzzles. Break the puzzles apart. In a yard, sandlot, or playground, scatter all the pieces of one puzzle in a small area. In another location scatter just two or three pieces, and in another location leave just one piece. Split the group into three teams and have one group at each location recover the pieces. Ask the groups to try reconstructing their puzzle or describe the picture based on the pieces they have found.

THE DISCUSSION

Ask each group how easy it was to reconstruct the puzzle. Discuss the following:

- ▶ The importance to scientists of finding fossils or artifacts where they were originally deposited
- ▶ The effects of intentional vandalism or theft of fossils or artifacts
- ▶ The effects of unintentional impacts (driving off-road, hobby collecting, campsite construction). Ask participants if they can think of other ways fossils and artifacts can be lost or damaged. Discuss how these resources can be viewed and enjoyed onsite without damage. Remind the group that on public lands it is against the law to remove or destroy these resources. Refer to the Background on the Principles of Leave No Trace for more details to help stimulate this discussion.

Although this Quick Concept deals with fossils and artifacts, the principle *leave what you find* applies to all things that should remain undisturbed in the backcountry. Wildflowers, petrified rock, and nests are examples of other discoveries to leave for others to enjoy.

Quick Concept for Minimize Campfire Impacts

GRABBING YOUR GROUP'S ATTENTION (10 MINUTES)

Share this scenario with the group. Imagine you are camping in the mountains. The air is a bit chilly as the group prepares the evening meal. You plan to build a fire to cook hot dogs and heat cans of chili. The fire will also take the chill out of the night air. As you begin to pile sticks inside the fire ring, a ranger approaches your group and informs you that there is a ban on fires because of dry weather. You will not be able to build a fire.

THE ACTIVITY

How will your group solve this problem? What will you do about dinner? How will you deal with the chilly air? How will not having a fire affect your nighttime activities? How could you have better planned this outing?

THE DISCUSSION

It is recommended that all visitors to natural areas minimize their use of fires, even when there is no fire ban. Create a plan for your next outing that does not include fires. You may want to discuss different types of food, food repackaging, and the value of using lightweight foods instead of canned goods. Discuss the value of contacting land managers in advance to learn about local restrictions. Refer to the Background on the Principles of Leave No Trace for details to assist your discussion.



Quick Concept for Respect Wildlife

GRABBING YOUR GROUP'S ATTENTION (30 MINUTES)

Travel to a city park containing wildlife or a wildlife viewing area, or show pictures or slides of wildlife. Ask the group why loud noises and quick movements are stressful to wildlife. Ask if there are particularly sensitive times of the year for wildlife. Once wildlife get food or garbage one time they will return for more. Eventually, wildlife become a nuisance and sometimes endanger people. Live-trapping wildlife and relocating these creatures to remote areas has not been proven effective—only about 15 percent of relocated bears survive after being relocated.

THE ACTIVITY

Demonstrate how to properly hang a bear bag and then let participants practice hanging one.

THE DISCUSSION

Have each participant share observations on what can be done to minimize disturbing wildlife and or wildlife habitat. Discuss the negative effects if these precautions with wildlife are not observed. Discuss ways to view wildlife without harming creatures. Encourage the group to observe wildlife from a distance (using binoculars) so the wildlife are not scared or forced to flee. Remind them how to prevent wildlife from obtaining any human food and the importance of such a guideline.

Quick Concept for Be Considerate of Other Visitors

GRABBING YOUR GROUP'S ATTENTION (20 MINUTES)

Tell the group that while traveling along a trail, they will likely pass other hikers and/or campers near the trail. Ask what things they can do to respect these other campers. Also ask what else they might do to show respect for others if they were to pass individuals on horseback or mountain bikes.

THE ACTIVITY

Divide the participants into four small groups. Have group one sit down on the trail and group two move off the trail where an adjoining campsite is located. Have both groups be somewhat loud and rowdy. Have group three sit quietly just off the trail on a hardened area (rock outcrop or area devoid of vegetation) and be very quiet. (This group may also want to try to “blend in,” avoiding detection.) Have group four pass along the trail where groups one and two are located. Once group four has walked by those on or near the trail and observed the actions of those at the campsite, have the entire group meet at the campsite.

THE DISCUSSION

Have the participants who passed by those sitting in the middle of the trail and at the camp express how they felt when they encountered these groups. Discuss how this event affected their outdoors experience. Ask what they feel would improve their experience on the trail and at the campsite. Ask if the loud and rowdy behavior would have had any additional impact on mountain bikers or those on horseback.





Activity Plans

DETAILED ACTIVITIES FOR MEETINGS OR OUTINGS

The following activity plans are designed to provide detailed teaching blueprints for leaders. The activities focus on our natural world and the seven Leave No Trace principles. Each activity requires 45 to 75 minutes to complete. Activity plans are composed of five parts:

- ▶ What Your Group Will Learn
- ▶ Materials and Preparation
- ▶ Grabbing Your Group's Attention
- ▶ Steps for Teaching the Activity
- ▶ Wrapping Up the Activity

What Your Group Will Learn

Each activity plan will include the objectives for the activity, along with a brief explanation of the activity.

Materials and Preparation

A list of all required materials and preparation will accompany each activity plan.

Grabbing Your Group's Attention

Use this time to set the stage for the activity and generate curiosity throughout the group.

Steps for Teaching the Activity

Each activity plan includes step-by-step instructions for conducting the activity and stimulating discussion.

Wrapping Up the Activity

Close each activity with follow-up questions and thoughts to help summarize and reflect on the activity.

Activity Plan for Our Natural World

Understanding Outdoor Ethics

This activity will take approximately 45 minutes.

WHAT YOUR GROUP WILL LEARN

This activity plan will help foster understanding of outdoor ethics. After participating in this activity plan, which will set the stage for learning outdoor ethics, group members will be able to

- ▶ Describe simple connections between the plants and animals of an ecosystem.
- ▶ Predict changes to an ecosystem that have been caused by human behavior.
- ▶ Tell how to choose behaviors that help protect natural resources.

Group members will play a game that will help them make connections to the natural world and understand how their behaviors can affect nature. Using a ball of string and cards that represent plants and animals, group members will construct a “web” of connections between all living things.



MATERIALS AND PREPARATION

Materials

- ▶ Cards approximately 3" × 5"
(number of cards to be determined by group size)
- ▶ Hole punch
- ▶ Approximately 4 feet of yarn per person
- ▶ 100 feet of thick string
- ▶ Paper and pencil for each person
- ▶ Symbols, pictures, or words to represent sun, clean water, clean soil, and air
- ▶ A copy of instructions and scenario cards

Preparation

- ▶ Read this entire activity plan and thoroughly review the Background on the Principles of Leave No Trace.
- ▶ Roll the 100 feet of string into a ball.
- ▶ Prepare the alpine ecosystem cards as instructed.
- ▶ Photocopy the “Scenario Card” sheet at the end of this activity plan, laminate (optional), and cut along dotted lines. Have scenario cards available for use by leader or by individuals.

GRABBING YOUR GROUP'S ATTENTION (5 MINUTES)

Before people can choose to Leave No Trace in the backcountry, they often need to adopt reasons for caring for our natural world. This activity plan will help participants identify some of those reasons. Ask participants to name some of the plants and animals they might find in backcountry or wilderness areas.

STEPS FOR TEACHING THE ACTIVITY (20 MINUTES)

Equate! Relate!—A Game of Connections

This game demonstrates the connection or links between plants and animals in an alpine setting and will help participants predict the effects human impacts have on those plants and animals of this ecosystem.

Read and explain the “Equate! Relate!” game instructions below to the group, then play the game. The purpose of this game is to

- ▶ Identify connections among plants and animals of an ecosystem.
- ▶ Describe how human behavior can affect ecosystems.

Participants should assume the role of the plant or animal listed on their alpine ecosystem card.

Alpine Ecosystem Card Categories

PLANTS

Conifer tree
Oak tree
Wildflower
Downed log
Grass

MAMMALS

Mouse
Rabbit
Deer
Coyote

INSECTS

Grasshopper
Mosquito
Ant
Fly

AMPHIBIANS/ REPTILES

Snake
Frog

BIRDS

Jay
Woodpecker
Hawk
Oriole

Prepare the Alpine Ecosystem Cards

Write the names of the 19 plants and animals listed in the column to the left on the 3" × 5" cards, one name to a card. Punch several holes in each card and attach yarn long enough to loop the card over the participant's shoulders. Give the ball of string to one group member and explain to group members that they are going to play a game called "Equate! Relate!"

Distribute all of the cards. If your group has fewer than 19 participants, some group members will have two cards. If your group is larger than 19 you will need to add plants and animals to the ecosystem. Some ideas include: berry, bear, coyote, hummingbird, grub worm.

Have each group member, including the leader, loop a card over the shoulders. In the middle of the room place the symbols, pictures, or words that represent the sun, water, soil, and air. Gather the group in a circle around these objects.

Making Connections—A Ball of String

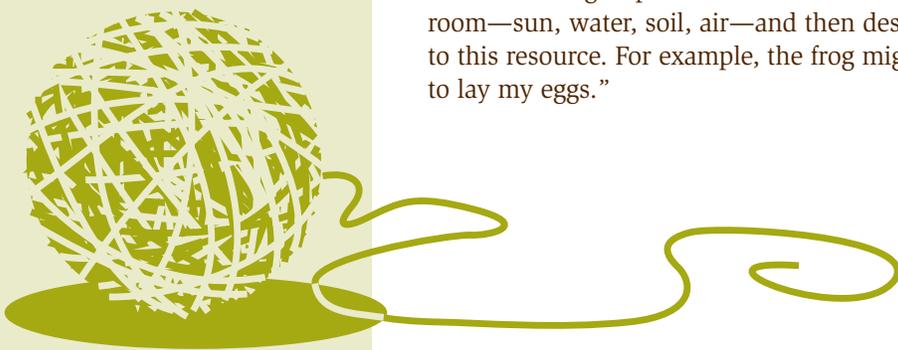
The person holding the ball of string assumes the role of the plant or animal on his or her card and looks around the circle to find one other plant or animal that the holder's plant or animal needs or that needs it to survive. This person describes the connection out loud, holds a section of the string with one hand, and throws the ball with the other hand to that plant or animal. For example, the woodpecker has the ball of string, holds the end of the string, and throws it to the oak saying, "I need the oak to provide insects to eat." The oak catches the ball, hangs on to the string, and throws the ball of string to the ant saying, "The ant needs me to find food." The ant catches the ball of string, hangs on to the string, and throws the ball to the downed log saying, "I need the downed log for a home."

Play goes around the circle until everyone is holding a section of the string. At no point should anyone let go of the string. In some cases animals and plants will have received the ball of string more than once and therefore will hold more than one section of string.

Familiarity with the Background on the Principles of Leave No Trace will now help the leader guide a discussion. Have group members observe the web of connections they have made. Discuss what the web demonstrates about connections in an ecosystem, including the human connection.

Plants, insects, animals, and humans owe their existence to one another. Insects pollinate plants and provide food for small animals; plants provide food and shelter for both animals and humans. Plants also help filter water that is then stored in mountains, streams, lakes, and aquifers. When one member of the web of life has been altered or is eliminated, other living things are invariably affected. See the Background on the Principles of Leave No Trace for more about the web of life.

Have each group member think about one item from the middle of the room—sun, water, soil, air—and then describe one connection he or she has to this resource. For example, the frog might say, "I need the water in which to lay my eggs."



Scenario Cards—Human Impacts on Ecosystems

Have the leader, one other person, or four individuals read one “Equate! Relate!” scenario card at a time to the group. Have the group discuss the question at the end of each scenario. As you discuss each scenario, have participants drop their string to show how an impact to one part of the web affects another part. For example, if campers pick all the wildflowers in an area, what else will disappear? Mice? Coyotes? Those holding the mouse or coyote card would drop their sections of string.

Note: This game can be played using plants and animals from more specific ecosystems such as a desert, subtropical area, or river corridor. Cards and scenarios should be created accordingly.

WRAPPING UP THE ACTIVITY (15 MINUTES)

Tell your campers they are great problem solvers. They know how to have fun in the outdoors while respecting the importance of all living things. How well has each person learned to protect natural resources?

- ▶ While still in a circle, have participants summarize what they have learned from “Equate! Relate!”
- ▶ Have participants tell one new behavior they will practice the next time they camp or hike.
- ▶ Have participants explain how their new behavior will support the natural resources (plants, animals, soil, water).

Congratulations on conducting a well-prepared meeting for your group!



“Equate! Relate!” Scenario Card**SCENARIO: CAMPSITES**

A group of people camp on the edge of an untouched meadow because it is easy to watch wildlife. They stay for many days and leave a new rock fire ring, large log benches, and newly worn trails in and around the camp.

Questions

- How might the scene of this abandoned campsite attract more campers to this area?*
- If more campers come, how might their presence affect the meadow’s community of life?*

Answers

- People are often attracted to established campsites. The remains of the fire rings, benches, and trails will encourage more people to camp there.
- If camping use becomes too heavy, some animals will be driven from the meadow.

Note: A large-scale example of animal displacement can be seen in cities. How many wild animals like to live near people? The deer might want to drop the string.

“Equate! Relate!” Scenario Card**SCENARIO: FIREWOOD**

A leader has asked four young campers to collect wood. The campers use axes to hack at live trees. They also peel tree bark to help start their fire.

Questions

- How might these actions harm the trees?*
- What alternatives are there to cooking with fire?*
- What might be some nighttime activities that could replace an evening around the campfire?*

Answers

- When bark is hacked or peeled from a live tree, the tree is wounded. Wounds expose trees to disease and insects that could harm or kill the tree.

Note: The web will be affected if the tree dies. For example, the woodpecker would drop the string.

- Campers can more easily cook using lightweight stoves rather than campfires, or they can bring prepared foods.
- Learn about the stars; use dark shapes surrounding the campsite to stimulate storytelling; go for a moonlight hike if the moon is bright.

“Equate! Relate!” Scenario Card**SCENARIO: WILDFLOWERS**

Three campers go out for an afternoon hike. They each return to camp with a handful of wildflowers to give to their leader.

Questions

- Why should wildflowers be left in their natural setting?*
- How else might the campers share their love for wildflowers or the desire to present their leader with a gift?*

Answers

- Wildflowers should be kept in their natural setting as food for animals, so the flowers can reseed themselves for the next growing season and to allow other visitors the opportunity to view their beauty.

Note: If wildflowers disappear, animals in the web that depend upon them are in trouble. They should drop their string.

- The campers could take their leader to see the flowers, or they could make a drawing to give their leader.

“Equate! Relate!” Scenario Card**SCENARIO: WATER**

You have been hiking all day and stop in a campsite for the night. As you are setting up you notice two tents next to the stream.

Questions

- How will these campers affect the animals that use this location at night to get their water?*
- What, if anything, might you do or say to these campers?*

Answers

- The animals might be too afraid to approach the river for a drink. Also, camping so close to a stream could cause pollution from wash water and human waste entering the river.

Note: Those animals that depend upon the stream for drinking water should drop their string.

- This is a difficult question to answer. How will your group respond?

Trip Plan
 Plan of Troop 08 unit _____
 Expectations of group (goals, planned activities) Fishing, climb Banner Peak,
visit historic cabin

Time and date of departure 8:00 A.M. July 16
 Time and date of expected return 4:00 P.M. July 22
 Adults who will go Fred Clark Giermo Lovato
 Trailhead or starting point for trek Mary's Lake Trailhead

Travel Itinerary

Day	Date	Overnight Stop	Route to Take	Meal/Rest Stop
Mon	7/16	Pinon Flats	East Fork of Indian Trail	Halfway
Tues	7/17	Rushing River	Piedra River Trail	Fishing Point
Wed	7/18	Webster Parks	Monument Valley	Hangman's Gulch
Thur	7/19	Cole Cove	Pine River Trail	Angel Falls
Fri	7/20	Clear Creek	Flint Lakes Trail	Pyramid Peak
Sat	7/21	Boone's Gap	Horse Gulch	Hawk Overlook
Sun	7/22	Hike out to Mary's Lake	Mary's Lake Trail	

Activity Plan 1 for Plan Ahead and Prepare

Exploring Pretrip Planning

This activity will take approximately 65 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about backcountry travel, they will be able to

- ▶ Identify at least three reasons why trip planning is important.
- ▶ Describe the key elements included in successful planning and preparation.
- ▶ Create a planning and preparation checklist to use in making future travel decisions.
- ▶ Explain how planning can help leave no trace.

Group members will participate in three activities. “Are You Ready?” demonstrates the importance of trip planning. Next, “Will You Make It?” reveals the key elements to consider when trip planning. Finally, participants create a “Planning and Preparation Checklist” as a focal point to wrap up the activity plan.

MATERIALS AND PREPARATION

Materials

- ▶ Pictures depicting a local or regional environment (high alpine, desert, river) for the “Are You Ready?” game. A collage of pictures works well.
- ▶ One photocopy of the “Will You Make It?” handout for each participant.
- ▶ One photocopy set of “Will You Make It?” travel cards per group of three to five participants. (See the end of this activity plan.)

Preparation

- ▶ Read the entire lesson plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Ask participants to bring a backpack packed for a day hike to the meeting. (Don't reveal a destination or suggest contents—explain it is a practical drill.)
- ▶ Photocopy and laminate (optional) handouts and cards.
- ▶ Cut the “Will You Make It?” travel cards into individual sets.
- ▶ For best results, pick a meeting place that allows small groups to spread out to work.
- ▶ Consider practicing the activities beforehand with family or friends.

GRABBING YOUR GROUP'S ATTENTION (15 MINUTES)

Are You Ready?

Use “Are You Ready?” to get the group energized. Break participants into groups of three to five. Explain that you are going on an imaginary day hike. Build suspense by asking participants to guess the destination. Show the destination pictures and describe (weather, terrain, etc.) the location you have selected. Explain the goal of the trip—for example, wildlife viewing or fishing. Ask the group to unpack their packs and discuss answers to the following questions. (The leader must read the questions below to help facilitate discussion.)

- ▶ How well do the contents of your pack properly prepare you for this trip?
- ▶ How well do the contents ensure your safety? Check for proper clothing, maps, compass, small flashlight, water filter, first-aid kit, etc.
- ▶ How well do the contents ensure you will leave no trace—that you will not damage natural resources? Check for stove, repackaged food, cathole trowel, plastic jug for water, *no* hatchet, etc.
- ▶ How well do the contents ensure your trip will meet your goal—for example, wildlife viewing or fishing—safely and enjoyably? Check for binoculars, camera, bird book, etc.

Note: Because participants packed their packs without proper information, it is unlikely they will be adequately prepared. The “Are You Ready?” activity will demonstrate the importance of planning before packing.

Ask the small groups to briefly share the answers to the above questions. Key facilitator discussion points:

- ▶ *How would the contents of your pack differ with different destinations?* The equipment, clothing, and food chosen would change to suit the intended destination.
- ▶ *What other information do you need to pack properly for a trip?* There are at least seven elements described in the Background on the Principles of Leave No Trace and “Will You Make It?” handout.
- ▶ *What is the value of knowing this information before packing?* It helps ensure the safety of the traveler, helps accomplish trip goals safely and enjoyably, and minimizes impact to resources.

STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)

Will You Make It?

This activity will teach participants how to identify events that can interfere with a successful trip. These are real-life scenarios contributed by experienced field rangers who see poorly prepared groups suffer because they do not plan ahead. “Will You Make It?” emphasizes the need to plan solutions to potential problems *before* a trip.

Instructions

- 1 Match events and solutions.** Evenly distribute the travel event and solution cards. Some group members may need to share cards if the group is larger than 16. The goal is to have participants find the group member with the corresponding event or solution card and form a pair. The leader may want to use the key to ensure correct pairing.
- 2 Plan a presentation.** Once all solutions are matched to the corresponding events, have each pair plan some way to teach the plan-ahead concept. Allow group members to be imaginative. Some ideas include pantomime, acting out, lecture, and drawing.
- 3 Give a presentation.** Have each pair use their chosen presentation method to teach their concept to the rest of the group.

Facilitate learning by discussing the scenarios after they are presented. Make sure each event is discussed. Emphasize the key elements of trip planning presented in the “Will You Make It?” handout and the Background on the Principles of Leave No Trace. Tie these key elements to the importance of good preparation.

TRAVEL CARD KEY

Event Card	Solution Card
12	1
2	9
15	3
4	11
14	5
6	13
10	7
8	16

WILL YOU MAKE IT?



Why Is Trip Planning Important?

- ▶ It prepares you to Leave No Trace.
- ▶ It helps ensure the safety of groups and individuals.
- ▶ It contributes to accomplishing trip goals and having fun.
- ▶ It increases self-confidence and opportunities for learning.

Elements to Consider When Trip Planning

- 1 Identify the goals (expectations) of your trip.
- 2 Identify the skills and ability levels of trip participants.
- 3 Select destinations to match the group's goals, skills, and abilities.
- 4 In advance, gain knowledge of the area you plan to visit.
- 5 Choose the proper equipment and clothing.
- 6 Plan trip activities to match the group's goals, skills, and abilities.
- 7 Evaluate your trip upon return—note needed changes.

Planning and Preparation Checklist

Create a “Planning and Preparation Checklist” you can use to plan your next trip. Use the answers to these questions in creating the checklist.

- ▶ Can your group identify at least three reasons why trip planning is important?
- ▶ Can your group describe seven key elements included in successful planning and preparation (“Will You Make It?” handout, Background on the Principles of Leave No Trace)?
- ▶ Do solutions to planning elements change depending on the environment visited (i.e., desert versus high alpine areas)? Reflect on conversation that resulted from the imaginary day hike to the desert and alpine environments.

Congratulations on conducting a well-organized meeting for your group!

WRAPPING UP THE ACTIVITY (20 MINUTES)

Your group has participated in three activities—one identifies the importance of trip planning, another identifies key elements to consider when planning a trip, and the third can be used as a tool for planning a trip. How well has your group learned the importance of trip planning? If the group needs additional help, try these activities.

- ▶ Create new event and solution cards as you learn new Leave No Trace concepts.
- ▶ Discuss these topics. Ask participants
 - If they have seen resource damage that may have resulted from poor planning
 - To recall safety concerns they have experienced or witnessed as a result of poor planning
- ▶ Have participants share the planning process with their families and use it to plan a family vacation or birthday party.

Event Travel Card**12**

BLISTERS! You have a nasty blister and can no longer carry your pack. You are not even sure you can walk to your campsite.

Solution Travel Card**1**

An adhesive felt-like material acts like a second skin and can be applied to the feet or other areas of human skin to help prevent rubbing. Always carry this with you, and *always* break in new footwear *before* a trip.

Encourage your crew members to check “hot spots” while you take a break. Change socks frequently, and keep your feet clean and dry.

Event Travel Card**2**

LIGHTNING! A storm is quickly blowing into your area. From your vantage point high on the trail you can see lots of lightning. You estimate you have about five minutes before the storm reaches you.

Solution Travel Card**9**

Before you left on your trip, you researched safety. You remember that lightning is attracted to the highest point and that water and metal conduct the electrical charge. You descend from your high vantage point, away from the storm. If lightning occurs nearby, take off your metal frame pack, stay away from water, and choose a low spot in which to crouch away from the tallest trees. Insulate yourself from the ground by sitting on your pack or sleeping bag and resting your feet on one or the other.

Event Travel Card**15**

PACKWEIGHT! Your pack did not feel heavy when you left, but now you can hardly move. You’re so tired you would just as soon sit right down and not walk another step!

Solution Travel Card**3**

Too bad. Your heavy pack made it impossible for you to hike comfortably, and you didn’t have any fun. You find a campsite for the night, but you never made it to your destination. The weight of your pack should generally be no more than a fourth of your body weight. Pack your backpack *before* you leave and weigh it on a scale. Leave items behind if necessary. Some things, like cook kits, can be shared by several people and the contents divided among several packs.

Event Travel Card**4**

STEEP TRAIL! Your hike is 3 miles long and gains 1,000 feet of elevation for every mile. This is steep. You must reach camp before dark. Everyone is walking *very* slowly because it is so steep.

Solution Travel Card**11**

You believe in planning ahead. You looked at a map and talked to the agency that manages this trail, so you were aware it was steep. Realizing that people hike an average of 2 miles an hour on flat terrain, you figured backpacking at a rate of 1 mile per hour and added one hour for the thousand-foot elevation gain for a total of four hours. You have plenty of time to reach camp before dark.

<p>Event Travel Card 14</p> <p>PRIVATE PROPERTY! Your group is walking along a trail when suddenly in front of you there is a fence with a “No Trespassing” sign.</p>	<p>Solution Travel Card 5</p> <p>Your group leader pulls out a statement signed by the property owner, who has granted the group permission to cross the private land. A review of maps revealed this private property, and a couple of phone calls resulted in the signed statement.</p>
<p>Event Travel Card 6</p> <p>WATER! Your group brought 2 quarts of water per person, but your hike has been very hot and now everyone is low on water. You can’t boil water to drink because there is a fire ban in effect, and you don’t have a stove because you were only going on a hike.</p>	<p>Solution Travel Card 13</p> <p>After another hour of an uncomfortably dry hike, you run across a prepared hiker who pulls out a water filter designed to remove bacteria from open water sources. After taking a break on the rocky shore of a small pond and filtering water, you have enough water to finish the hike. You make a note to remind someone to buy a water filter or water purification tablets before your next outing.</p>
<p>Event Travel Card 10</p> <p>CAMPFIRE BAN! You have no stove, and the area you came to visit has been heavily used and does not permit campfires. It’s dinnertime and everyone in the group is very hungry.</p>	<p>Solution Travel Card 7</p> <p>Because this was only an overnight camping trip, someone suggested bringing prepared food for dinner. As the sun begins to set, everyone gathers together on a rock outcrop near the camp and pulls out a sandwich, a piece of fruit, and a snack for dessert. As darkness falls, the group watches the stars appear and tells stories about the shadows in the night.</p>
<p>Event Travel Card 8</p> <p>CAMPSITE! When you arrive at your destination, you find that both of the campsites recommended to you by friends are being used. It will be dark soon, and there is little time to search for another site. You are tempted to set up camp right where you are on the trail, even though you know that does not follow good Leave No Trace ethics.</p>	<p>Solution Travel Card 16</p> <p>Your group leader hiked to this area two weeks ago in anticipation of your trip and found three perfect campsite options. After following your leader for another 10 minutes you move off-trail to a campsite with big, flat rocks to sit on and a great view of the valley.</p>



Activity Plan 2 for Plan Ahead and Prepare

Exploring Meal Planning

This activity should take approximately 70 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to familiarize participants with meal planning, participants will be able to

- ▶ Describe reasons for planning meals and snacks prior to a trip.
- ▶ Create a recipe for a one-pot meal.
- ▶ Choose lightweight snacks.

Group members will compare two backpacks: one packed with one-pot meals and lightweight snacks and the other packed with more complex meals and bulky snacks. Group members will use the weight of the packs and the amount of garbage created from the meals and snacks to determine the best preparation for meal and snack planning.

MATERIALS AND PREPARATION

Materials

- ▶ A backpack packed with one-pot meals (see menus in this section) and snacks such as trail mix, fruit sticks, hard candies, and dried fruit. All meals items in this pack should be repackaged into resealable plastic bags to reduce bulk, secure food, and reduce garbage. For example, transfer items such as instant rice, cereal, and noodles from commercial packaging into sealable bags. The bags can be packed out, washed, and reused at home or used for garbage created or picked up during the trek.
- ▶ A backpack packed with more bulky meals such as hot dogs, canned chili, canned soup, canned stew, bottled ketchup, and snacks such as cans of pop, canned fruit, and a jar of peanuts.

Preparation

- ▶ Read this entire activity plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Prepare two backpacks prior to your group's arrival. The one packed with one-pot meals and lightweight snacks should be considerably lighter and create less garbage than the one packed with more complex meals and bulky snacks.

GRABBING YOUR GROUP'S ATTENTION (10 MINUTES)

Preparing a menu and snacks ahead of time will help group members pack lightly with a minimal amount of garbage and will make the use of a stove more convenient, eliminating the need for a campfire.

Show students the two closed backpacks. Let each participant try on both packs. Take a vote to determine which pack is lighter and likely more comfortable. Without looking at the contents of the backpacks, have your group list items that might be contributing to the weight of the heavier pack.

STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)

On the Lighter Side

Divide the participants into two groups. Give a pack to each group and have group members unpack the packs and categorize the food items.

Ask each group how long it thinks it will take to prepare the meals from its pack. Focusing on the meal preparation items only, have the participants compare the items from each pack. Ask the group what characteristics of the meal and snack items from the heavier pack contribute to its weight.

Answers may vary depending on what each pack contains. Try to create a situation that allows the group to see how planning for one-pot meals, repackaging foods, and taking light snacks reduces the amount of garbage that must be packed out.

Discuss the differences in litter that would result from cooking meals and snacking from the items in each pack. Your choice of items in the packs will affect responses. Again, try to create a situation that allows the group to see how planning for one-pot meals, repackaging foods, and taking light snacks reduces the amount of garbage that must be packed out.

Ask participants which pack would require the fewest utensils for cooking and the smallest fire. One-pot meals can be made with one pot and can be cooked on a small backpacking stove. Cooking hot dogs and heating beans either requires the use of two pots or the use of a campfire.

WRAPPING UP THE ACTIVITY (30 MINUTES)

Your campers are great backcountry planners! Your group knows how to have fun while preserving the naturalness of the outdoors for wildlife and visitors. How well has each person learned to plan meals and lightweight snacks?

- ▶ Have participants create a menu for their favorite one-pot meal and suggest lightweight snacks for one full day in camp.
- ▶ Describe how their meals and snacks will lighten their backpacks, reduce garbage, and eliminate the need for a fire.
- ▶ Hold a backyard cookout with camp stoves or a backcountry cook-off for advanced groups. Taste each dish and then vote. Reward the winners with Leave No Trace-type prizes. Have people create a lightweight, economical, one-pot meal that produces a minimum of trash, or have a tasting party with dried fruits and other noncook backpack foods.

Congratulations on conducting a well-prepared meeting for your group!

1 ONE-POT MEALS

Couscous You Say

- 1 cup water
- 1 cup packaged couscous mix
- 1 package dry vegetable soup mix

Bring water to a boil. Add couscous (a quick grain dish available in supermarkets) and soup mix. Cook until water is absorbed and couscous is tender. Variations: Add one beef bouillon cube; add Vienna sausages or pepperoni.



Bean Burritos

- 1 package freeze-dried refried beans
- Tortillas
- Cheese

Cook beans according to instructions on the package. Heat tortillas over a flame. Add refried beans and cheese.

Check local outdoors stores and your public library for magazines and camping books that have one-pot recipes.

Activity Plan 1 for Travel and Camp On Durable Surfaces

Exploring Travel Concepts

This activity will take about 75 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about backcountry travel, participants will be able to

- ▶ Describe the value of trails in backcountry travel.
- ▶ Apply Leave No Trace ideas to travel decisions in the backcountry and near home.
- ▶ Create and travel through imaginary backcountry landscape. The participants will take two trips. First they will imagine their backcountry landscape is a popular, well-used area with a developed trail. On the second trip, they will imagine the area is rarely used. How will group members choose to travel to their destination in each situation? The backcountry landscape will provide a focal point for questions and discussion.

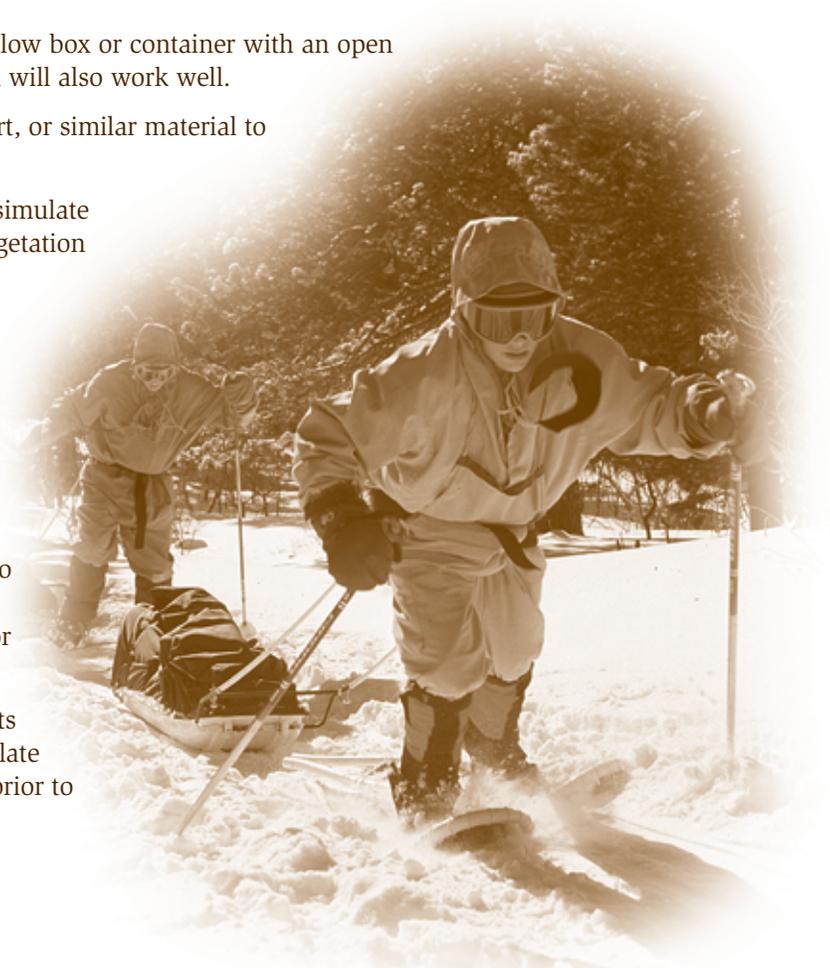
MATERIALS AND PREPARATION

Materials

- ▶ A large (approximately 18" × 24"), shallow box or container with an open top. An outdoor sandbox or similar area will also work well.
- ▶ If a box is used, collect enough sand, dirt, or similar material to fill the box to a depth of about 1 inch.
- ▶ Small paper cutouts or other objects to simulate natural features such as animals and vegetation (trees, shrubs, grasses, etc.).
- ▶ Small stones and flat rocks to simulate boulders and rocky surfaces.

Preparation

- ▶ Read this entire activity plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Prepare a backcountry landscape prior to your group's arrival by creating a flat, featureless layer of slightly damp sand or soil in the bottom of your box.
- ▶ Have group members make small cutouts or bring toy objects from home to simulate natural features. Preparing these items prior to your meeting will contribute to success.



Alternative setting: A sandlot playground can serve as a “life-sized” backcountry if preferred. Prepare the sand with a rake or other tool to create your featureless landscape. The trick is to make the area smooth enough so that participants can see the effects of their travel. Swing sets and other playground equipment can serve as “rocks” and other natural features.

GRABBING YOUR GROUP'S ATTENTION (15 MINUTES)

Your group is going to build an imaginary backcountry setting. The backcountry landscape created will stimulate participants' curiosity and interest; they will actually see their “footsteps” on the landscape. Presenting this activity in a fun and interesting way is crucial to its success.

Have everyone gather around the prepared box of sand or soil. Using the cutouts, pebbles, rocks, and other objects, have the participants create a backcountry world into which they will enter on an imaginary hiking trip. Your backcountry world should include a “stream” or “river,” “trees,” a “meadow,” and at least one “flat, rocky area.” Designate a point at one end of the box as the “starting point” and a point at the other end of the box as the “final destination.”

STEPS FOR TEACHING THE ACTIVITY (45 MINUTES)

Scenario 1: On-Trail

① Have participants decide as a group where to locate a narrow “hiking trail” leading from the starting point to the final destination. Tell them they must include a short section of zigzags (switchbacks). Have one person use two fingers to draw the trail in the sand.

② Present the following scenario: Imagine the group is planning a trip through its backcountry landscape. The trail and destination are visited yearly by many hikers and campers. The goal of the group is to leave as little trace as possible while traveling from the starting point to the final destination. Each participant should indicate the route he or she would take by letting the “fingers do the walking” in the moist sand. Instruct the group to identify one spot for a break along the way. Let each person indicate a path before discussion.

A close review of the Background on the Principles of Leave No Trace is needed to effectively lead discussion. Ask participants the following questions.

Why did you choose the route you did? Most people will choose to stay on the trail. The discussion should focus on choosing a route that will protect the land and help prevent new trails from beginning.

Why do land managers build hiking trails for backcountry visitors? Constructed trails concentrate hiker activity and help prevent informal trails—which increase the impact on vegetation and may cause soil erosion—from forming.

Where should the group stop for breaks? Taking breaks off-trail can help preserve solitude for others; however, always take breaks on durable surfaces. Move to gravel or flat rocks if such surfaces can be found without disturbing soil or vegetation and preferably out of sight off the trail to allow others to pass without impacting their experience.

How noisy were participants during their hike? A little chatter is a part of hiking and can reduce the risk of bear encounters in bear country. However, screaming, radios, singing, and other loud noises upset the outdoor experience of all visitors and may disturb wildlife.

Summarize these key points:

- ▶ Use existing trails.
- ▶ Avoid taking shortcuts.
- ▶ Walk single file. Avoid widening trails.

Scenario 2: Off-Trail

① Use a wide paintbrush or your hand to erase the trail from your back-country landscape.

② Present your group with a new scenario: Imagine the group is planning a trip through a new area rarely visited by hikers and campers—it has no trail leading to the destination. The group’s goal is to reach the destination while leaving as little evidence of its passing as possible. How should group members travel to their destination? Again, each participant should indicate a route by letting his or her “fingers do the walking” in the moist sand. Let each participant indicate a path before discussion.

A close review of the Background on the Principles of Leave No Trace is needed to effectively lead discussion.

Why did you choose the route that you did? Traveling off-trail will present group members with difficult decisions. It is important to help people develop critical thinking skills by weighing the effects of alternative off-trail choices. Should they spread out or walk in the same path?

Would your choice differ if this were a desert environment? Forested environment? Generally, spreading out will be the best choice, but this may be inappropriate in some desert environments. Avoid sensitive riparian areas. Refer to the Background on the Principles of Leave No Trace for details.

Where should the group stop for breaks? Find durable surfaces such as large rocks, sand, or gravel when stopping for breaks.

Summarize key points with participants.

- ▶ Avoid hiking off-trail in highly sensitive areas, *especially with large groups*. Consider changing your travel plans.
- ▶ If hiking off-trail, spread out and travel on durable surfaces to avoid making new paths that destroy vegetation and lead to erosion. Take special precautions in desert areas where cryptobiotic crust is easily damaged. See the Background on the Principles of Leave No Trace.
- ▶ If hiking off-trail, don’t mark your path with trail markers that may encourage others to follow. The likelihood of permanent damage increases as more people trample the same area.

WRAPPING UP THE ACTIVITY (15 MINUTES)

Your campers have explored travel methods that help preserve the naturalness of the outdoors for wildlife and visitors. How well have they learned to walk softly on the land? Ask them:

- ▶ What role does pretrip planning play in choosing the best route for an outdoor excursion?
- ▶ How might planning a route before starting a trip help protect the land?

Imagine that each person travels at random, some walking along the banks of the stream (fragile area), some traveling through the trees, and some taking shortcuts up steep banks (erosion). How might this random method of route selection affect each scenario?

Small groups reduce the likelihood that an unsightly web of new footprints will be created. Ask participants the following:

- ▶ How large a group might be appropriate for a trailed backcountry? For a trailless backcountry?
- ▶ If your camping group is larger than the group size you have suggested here, how might you solve this problem?
- ▶ Can they recall examples of travel damage they have seen in the backcountry?
- ▶ Have group members seen damage from poor travel habits near their homes or in parks?
- ▶ What are the city's equivalents to trails?

Ask each person to describe one backcountry travel idea he or she will promise to use when traveling the outdoors—or even in the city.

Congratulations on conducting a well-prepared meeting for your group!

Activity Plan 2 for Travel and Camp on Durable Surfaces

Exploring Campsite Selection

This activity should take about 45 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about campsite selection, participants will be able to

- ▶ Determine the best location for a campsite.
- ▶ Apply Leave No Trace ideas to campsite selection decisions.

Your group will use a sketch of a heavily used alpine area and one of a pristine desert area to help them decide the best location for setting up a campsite. The sketches will provide a focal point for questions and discussions.

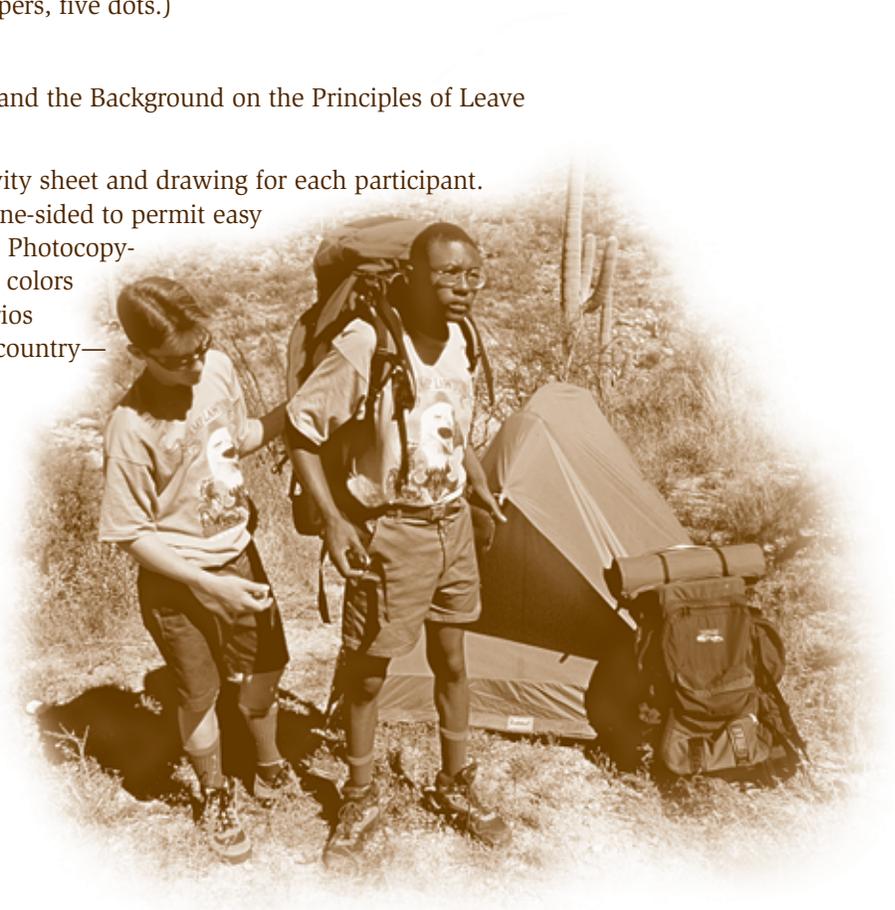
MATERIALS AND PREPARATION

Materials

- ▶ A copy of the two scenario activity sheets for each person (See the end of this activity plan.)
- ▶ Small adhesive-backed colored dots to simulate tents (Each person should have the same number of dots as the group would have tents, assuming one tent per two people—10 campers, five dots.)

Preparation

- ▶ Read the entire activity plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Photocopy one scenario activity sheet and drawing for each participant. The photocopies should be one-sided to permit easy reference by the participants. Photocopying drawings in two different colors makes referring to the scenarios even easier (i.e., alpine backcountry—green; desert—buff).
- ▶ Purchase dots.



GRABBING YOUR GROUP'S ATTENTION (5 MINUTES)

Distribute Scenario 1—Alpine Setting—Alpine Backcountry, and Scenario 2—Desert Setting—Desert Backcountry. Have participants compare the two drawings and share what they observe about the two scenes. In what ways are they similar? In what ways are they different? Explain that they will use these two drawings to make decisions about how to choose the best campsite in an area that has experienced heavy visitation and in an area that has experienced little or no visitation.

STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)

Scenario 1: Alpine Setting

- 1 Distribute Scenario 1—Alpine Setting Activity Sheet.
- 2 Divide the group into teams of three or four. Tell them that each group is part of a larger group on a trip to a primitive area. Before starting the activity, each group should determine the size of the larger group, keeping in mind that this wilderness area allows no more than 10 campers per group.
- 3 Distribute the tents (dots) to each group. Assume two people will share one tent: 10 backpackers = five tents (dots).
- 4 Review the directions for scenario 1 and have participants complete the activity.

A close review of the Background on the Principles of Leave No Trace is needed to effectively lead the following discussion.

Where would you advise your group to camp? Most people will choose an established campsite. Discussion should focus on choosing a site that will protect the land and help prevent new impact to the area.

Why is camping close to a lake or stream not an acceptable option? Discussion should focus on protection of riparian zones, the fragile, green area along the bank of the stream, on water contamination, and on scaring wildlife from approaching the stream for a drink. Also, sound carries across open bodies of water.

Rearrange the tents (dots) if the discussion causes participants to change their minds. Have participants explain the reasons for their changes. Summarize key points for heavily used areas.

- ▶ Camp 200 feet or more from lakes, streams, meadows, and trails.
- ▶ Select campsites that are already well-established and properly located.
- ▶ Confine most activities to the areas of the site that are already established.
- ▶ Choose sites that comfortably fit your entire group without creating a new site.

Scenario 2: Desert Setting

Distribute Scenario 2—Desert Setting Activity Sheet. Repeat steps 2 through 4 listed under scenario 1.

A close review of the Background on the Principles of Leave No Trace is needed to effectively lead the following discussion.

What areas will your group select for a campsite? Most people will choose the most durable surfaces, such as flat rocks or sandy areas free of cryptobiotic soils. Discussion should focus on use of durable surfaces, on dispersal of activities, and on alternative routes to and from locations.

Rearrange the tents (dots) if the discussion causes participants to change their minds. Have participants explain the reasons for their changes. Summarize key points for pristine areas.

- ▶ Choose a nonvegetated, highly resistant surface for tents and kitchens.
- ▶ Choose durable routes of travel between parts of camp.
- ▶ Avoid cryptobiotic soils.
- ▶ Limit your stay to no more than two nights.

WRAPPING UP THE ACTIVITY (10 MINUTES)

Your campers have practiced how to select campsites that will preserve the naturalness of the outdoors for wildlife and visitors. How well have they learned their lesson?

Have participants imagine they are on a backcountry trip and their leader has selected a campsite 50 feet from a stream. Your group has learned about the criteria for proper campsite selection.

Given what they know:

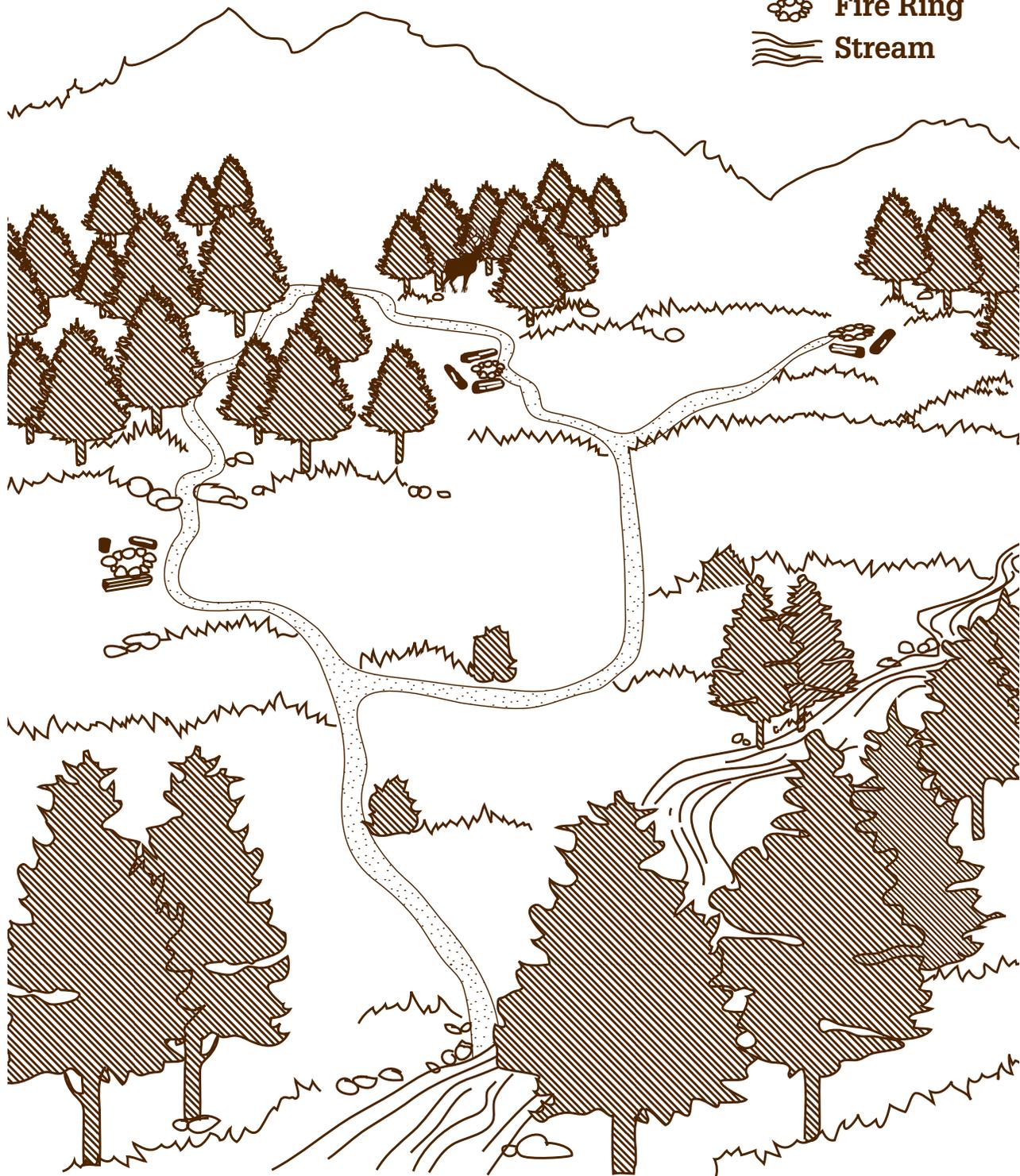
- ▶ How will the group communicate with their leader concerning this problem?
- ▶ How will group members prepare their tent sites? Will they remove rocks, twigs, or leaves?
- ▶ What steps can be taken to minimize the impact of selecting and using a tent site?

Refer to the Background on the Principles of Leave No Trace for answers.

Congratulations on conducting a well-prepared meeting for your group!

Scenario 1: Alpine Setting—Alpine Backcountry

-  Trail
-  Fire Ring
-  Stream



Scenario 1—Alpine Setting Activity Sheet

INSTRUCTIONS

- ▶ Read the scenario below and complete the activity.
- ▶ Answer the questions from the discussion for the alpine scenario in this activity plan.

Imagine your group is on a hike in an alpine area. You have arrived at the location illustrated in scenario 1, the alpine setting. Your group has decided to camp here for the night. You can tell from the number of fire rings, log benches, and numerous trails that others have camped here often. The group leader has suggested that everyone camp in the well-used areas near the fire rings and avoid the surrounding areas, which show little or no impact. Four people in your group have suggested the group camp in the small meadows next to the stream. What should you do?

ACTIVITY

Using your simulated tents (dots), have each group member place a tent in the location he or she thinks is best for camping.

Discussion: Heavily Used Alpine Setting

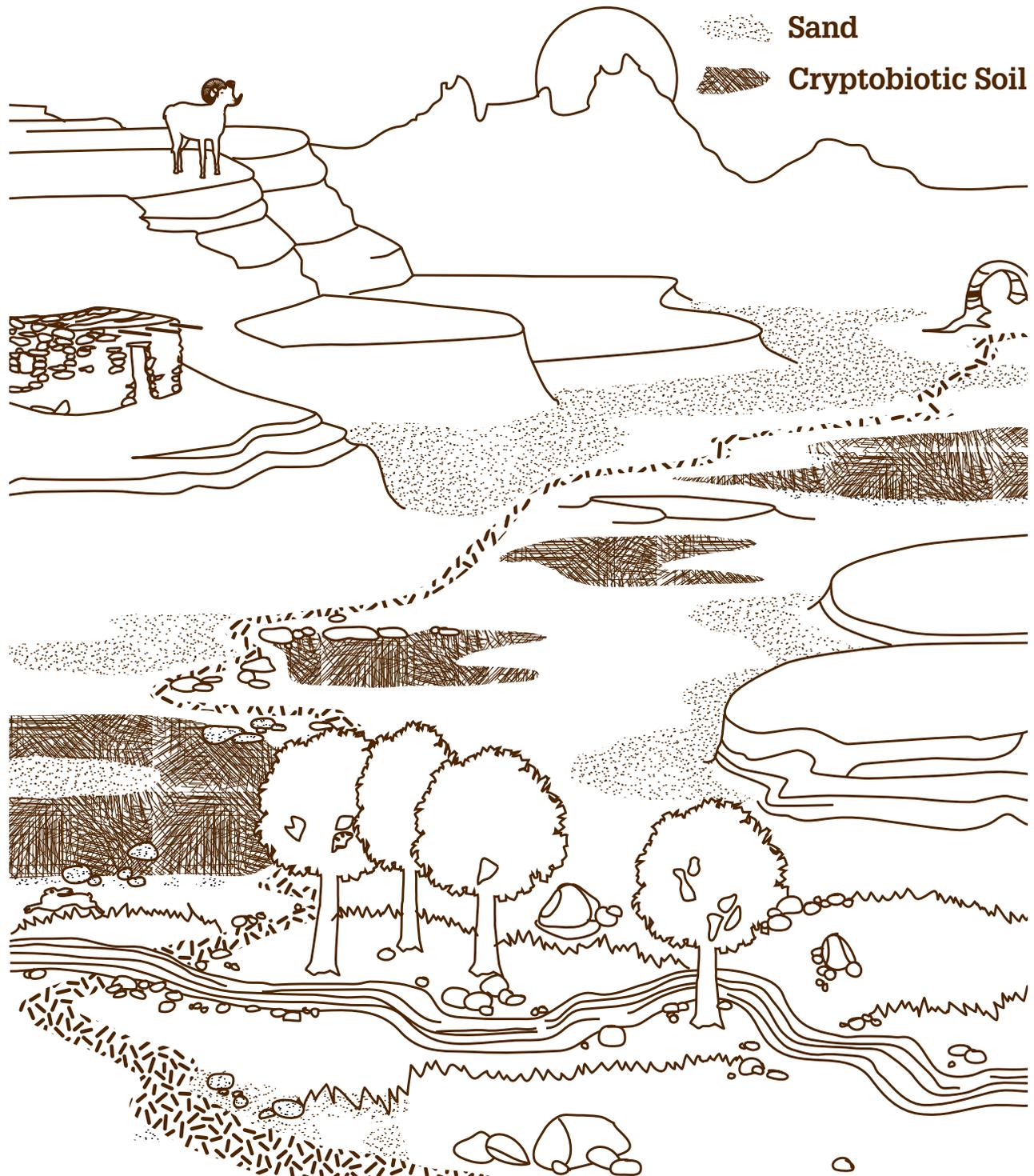
- 1 List the reasons for your choice and be prepared to defend them with the entire group.

- 2 Is camping near the stream acceptable? Explain your answer.

- 3 What location did the leader choose for the kitchen site? Evaluate that decision.

Scenario 2: Desert Setting—Desert Backcountry

-  Trail
-  Stream
-  Sand
-  Cryptobiotic Soil



Scenario 2—Desert Setting Activity Sheet

Instructions

- ▶ Read the scenario below and complete the activity.
- ▶ Answer the questions from the discussion for desert scenario in this activity plan.

Imagine your group is on a hike in a desert area. You have arrived at the location illustrated in scenario 2, the desert backcountry. Your group has decided to camp here for the night. The area you have chosen has experienced very few visitors and thus has few noticeable impacts. Your leader reminds you that you are in a fragile ecosystem and must choose your tent area wisely. Your leader will do the same when choosing a kitchen site.

Activity

Using your simulated tents (dots), have each group member place a tent in the location he or she thinks is best for camping.

Discussion: Pristine Desert Setting

- 1 List the reasons for your choice and share them with the entire group.

- 2 Is camping near the stream acceptable? Explain your answer.

- 3 What location did the leader choose for the kitchen site? Evaluate that decision.

Activity Plan 1 for Dispose of Waste Properly

Exploring Trash Disposal

This activity should take approximately 30 to 45 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about trash disposal in the outdoors, participants will be able to

- ▶ Describe Leave No Trace methods of trash disposal.
- ▶ Describe the social impacts of litter and methods of reducing trash in city landfills.

Participants will imagine they are cleaning up a previously used campsite. After scouring the campsite for trash, they will evaluate the effects of trash on animals and the effectiveness of burning trash.

MATERIALS AND PREPARATION

Materials

- ▶ Bag of trash: empty soda can, plastic foam cup, aluminum foil, gum wrappers, plastic six-pack holder, graham cracker box, twist tops, etc.
- ▶ Smelly foods: barbecue sauces, oranges, onions, etc.
- ▶ Odorless foods: carrots, celery, etc.
- ▶ Samples of partially burned trash: melted bottle, soda can, plastic six-pack holder, foil, etc. (You will have to plan ahead and search old fire sites to find burned items.)

Preparation

Read the entire activity plan and the Background on the Principles of Leave No Trace thoroughly.

- ▶ Go through and select garbage from your home and prepare it for use as examples. Wash out soiled items.
- ▶ Before the group arrives, hide trash in obscure places. Trash should be visible but not blatantly so.



GRABBING YOUR GROUP'S ATTENTION (10 MINUTES)

Set the stage for the activity when all of the participants arrive. Ask them to visualize that they have hiked 10 miles into the backcountry and have just arrived at their first night's campsite. Your group will be at this campsite for two nights. Previous campers have left the site full of trash. Send the group on a trash hunt to clean up the site. Give the participants five to 10 minutes to locate as much trash as they can.

Ask the group: *What should we do with all this trash?* Possible answers may be: Burn it, bury it, and pack it out. Have the participants vote on which option they think would be the best. They should be able to give reasons for their choices.

STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)

How Smart Is Your Smeller?

Ask group members how they found the trash. What senses did they list? (Participants most likely depended on their eyesight.) Ask the group how animals find food. Explain that animals have a much keener sense of smell, and often better eyesight, than humans. This keen sense of smell attracts them to food and garbage left behind in the backcountry. Even food packaging has scent. To simulate this experience, tell the participants they are going to take the "smell test."

Have participants close their eyes. Hold the various food objects, one at a time, under each participant's nose. Have participants identify each food item. Repeat until everyone has had a chance to test each food item.

A close review of the Background on the Principles of Leave No Trace is needed to effectively lead a discussion.

Have a discussion with participants about an animal's use of smell to find food. Use the analogy of a dog burying a bone and using odor to find it later. The same occurs when animals find food that was buried near campsites. The odor of food is also what attracts bears to campsites.

Discuss the dangers of attracting wildlife to campsites. Also discuss dangers to wildlife dependent upon human food, including problems with digesting human food and packaging. Remember these animals are *wild* and a potential danger to human life. Animals that become dependent on human food often raid campsites or populated areas in search of food and often must be destroyed. These are just a few of the reasons it is important to leave a clean campsite.

Campfire Trash

Have participants divide their trash into burnable and nonburnable items. Ask participants: *What happens to these items when you put them into the fire? Does everything turn to ash?*

Show examples of items that do not burn to ash (i.e., foil lining, cans, glass). Bring out the partially burned items you collected for your activity and explain that not everything burns. Some items require a very hot fire and take a long time to burn. These remain as litter in the campsite. Burning trash also puts odors into the air and the fire site that can attract animals and flies to the site. Many places have fire restrictions that do not allow open fires. Campers should not burn trash as a disposal option. Plan to pack it out.

Is That Trash Temporary?

Have the participants divide the trash into biodegradable and nonbiodegradable piles. Define “biodegradable” if necessary—capable of being broken down into harmless products by the action of microorganisms. Have the participants explain why they divided the trash the way they did. Have them readjust their stack of trash if necessary.

Ask participants: *How long does trash last in the outdoors?* Have them guess how long different kinds of trash last in the outdoors. For example, it takes about 200 to 400 years for an aluminum can to biodegrade. A cigarette butt takes two to five years, and a banana peel may take three to five weeks. Refer to the sidebar “How Long Does It Last?” earlier in this handbook.

WRAPPING UP THE ACTIVITY (10 MINUTES)

Proper trash disposal is an important responsibility for everyone and in every place that we live or visit. How well has the group learned to properly dispose of trash?

- ▶ Discuss what choices could have been made at home when packing to eliminate bringing some of the nonbiodegradable items or to bring food that can be consumed entirely, such as apples and carrots.
- ▶ What choices can you make in your everyday life to eliminate the amount of trash in your city’s landfill? Explain that nonbiodegradable items are a good choice when they can be reused many times.
- ▶ Have the group make a list of things they are already doing, and pledge to start doing, to make a difference for the environment.

Congratulations on conducting a well-prepared meeting for your group!

Activity Plan 2 for Dispose of Waste Properly

Exploring Disposal of Human Waste

This activity should take approximately 30 to 45 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about backcountry waste disposal, participants will be able to

- ▶ Describe why catholes are a good way to dispose of human feces.
- ▶ Select an appropriate cathole site.
- ▶ Dig a cathole of the proper dimension.

Participants will explore the effects of improper disposal of human waste and ways to properly dispose of human waste.

MATERIALS AND PREPARATION

Materials

- ▶ Jar of soil
- ▶ Jar of decaying grass, leaves, etc.
- ▶ Toilet paper
- ▶ Small rocks for paperweights
- ▶ Information sheet “Catholes: Proper Disposal of Human Waste”
- ▶ Small garden trowel (preferably one for every two participants)
- ▶ Optional: box of sand at least 8 to 10 inches deep

Preparation

- ▶ Read the entire activity plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Copy the information sheet “Catholes: Proper Disposal of Human Waste,” one for each participant.
- ▶ At least two weeks prior to your meeting, place small amounts of soil, decaying leaves, or grass clippings in a jar. **WARNING: Do not tightly seal the jar. Gases created during decomposition could cause a sealed jar to explode.**



GRABBING YOUR GROUP'S ATTENTION (5 MINUTES)

Bring in your two jars, one containing just mineral soil and the other containing humus-organic soil and decaying leaves, or grass clippings. Allow the participants to look at the jars. Discuss what the jars demonstrate about the natural process of decomposition. Explain that although this process can take days, weeks, months, or even years, organic materials such as food, leaves, grass clippings, and feces eventually decompose into the soil. Explain that the concept of decomposition will be explored again later in the activity.

Note: It is possible to conduct this activity without using the jar of decaying material. If necessary, the activity can begin with the next step.

Next, ask the group members if they would use their yard as a bathroom. Why or why not? The following activity will help answer those questions.

STEPS FOR TEACHING THE ACTIVITY (20 MINUTES)

The Paper Chase

Distribute toilet paper and have participants tear it into individual squares. If you conduct this activity outdoors, also distribute small rocks for paperweights. Have the participants scatter their pieces of paper around the area in which they are gathered, making sure the paper is visible. Have them stand back and view the area. Tell the participants that each piece of paper represents used toilet paper or the deposit of human waste along a trail on the perimeter of a campsite.

A thorough reading of the Background on the Principles of Leave No Trace will help facilitate the following discussion.

Ask participants the following: *What is your reaction to this scene and why? What can people do to dispose of their toilet paper and human waste in a less visible and more sanitary manner?* Participants should understand that they should pack out toilet paper and human waste or bury it in a cathole.

Catholes

Explain to the group that digging a cathole is one way of properly disposing of human waste. Distribute and discuss the information sheet “Catholes: Proper Disposal of Human Waste” at the end of this activity plan. Practice digging a cathole.

Note: Before conducting this activity, find a spot for digging that will not be harmed such as a sandbox, sand play lot, or a box of sand 12 inches deep.

- ▶ Have one group member demonstrate digging a cathole using a garden trowel while others watch.
- ▶ Have participants break into pairs to practice digging a cathole.

Ask participants: *What if a garden trowel isn't available? What other tools could you use to dig a cathole?* Brainstorm other ways to dig a hole. Use a rock, a stick, or a boot heel. Practice using these tools to dig a hole. Are they effective? Why or why not? Always carry a trowel.

Other Important Options

There are other ways to get rid of toilet paper without burying it or leaving it in the backcountry. Have group members create a plan for how their group will dispose of toilet paper in the backcountry. Burning it with a lighter right after use is not an option; this could cause a fire, and the paper rarely burns completely. One option is to deposit the toilet paper in a small sealable plastic bag and pack it out with the other camp garbage. A small disposal sponge soaked with ammonia helps reduce the smell. Some areas may require that all feces and toilet paper be packed out. Always check with the land management agency if there is a question. Refer to the Background on the Principles of Leave No Trace for details.

WRAPPING UP THE ACTIVITY (10 MINUTES)

What is human waste and how do we usually dispose of it? In the backcountry, it's not so easy. We need to be prepared to dispose of it each day using the techniques we've talked about. Disposal of human waste is a challenge for outdoor visitors—and it can be a personal and sensitive matter—but it is important.

How well has your group learned to properly dispose of human waste?

Have group members brainstorm why proper disposal of human waste in the backcountry is important. The leader should add ideas from the Background on the Principles of Leave No Trace not mentioned by the group. Discussion should center around decomposition, pollution of water sources, spread of disease, disruption of wildlife, and negative implications of someone finding human waste.

Congratulations on conducting a well-prepared meeting for your group!

Catholes: Proper Disposal of Human Waste

Perhaps the most widely accepted method of backcountry human waste disposal is the cathole. The advantages are:

- 1 They are easy to dig in most areas.
- 2 They are easy to disguise after use.
- 3 They are private.
- 4 They disperse the waste rather than concentrate it to enhance decomposition.
- 5 It is usually easy to select a remote location where you can be certain no one is going to casually encounter the cathole.

Selecting a Cathole Site

- 1 Select a cathole site far from water sources; 200 feet (approximately 80 adult paces) is the recommended minimum range.
- 2 Select an inconspicuous site untraveled by people. Examples of cathole sites include thick undergrowth, near downed timber, or on gentle hillsides.
- 3 If camping with a group or if camping in the same place for more than one night, disperse the catholes over a wide area; don't go to the same place twice.
- 4 Try to find a site with deep organic soil. This organic material contains organisms that will help decompose the feces. Organic soil is usually dark and rich in color. Refer to the jars used to demonstrate decomposition. The desert does not have as much organic soil as a forested area.

Digging a Cathole

- 1 A small garden trowel is the perfect tool for digging a cathole.
- 2 Dig the hole 6 to 8 inches deep (about the length of the trowel blade) and 4 to 6 inches in diameter. In a hot desert, human waste does not biodegrade easily because there is little organic soil to help break it down. In the desert, the cathole should be only 4 to 6 inches deep. This will allow the heat and sun to hasten the decay process.
- 3 When finished, fill the cathole with the original dirt and disguise it with native materials.

A Note About Urine

Urine does not hurt plants and soil directly. Sometimes, the salt in urine may attract wildlife. Animals can defoliate plants and dig up soil to get at the salts. It is best to urinate on rocks and in places that will not attract wildlife.

Activity Plan for Leave What You Find

Exploring Natural Settings and Archaeological Areas

This activity should take about 60 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about the value of leaving natural features and cultural artifacts undisturbed, participants will be able to

- ▶ Describe the characteristics of an archaeological or historical (cultural) resource.
- ▶ Discuss what happens when cultural resources are removed from a site.
- ▶ List at least three ways of enjoying cultural resources without taking them home.

Your participants will imagine themselves as part of a futuristic science mission returning to Earth to uncover the secrets of our planet's ancient inhabitants. Participants will try to construct a picture of a vanished people based upon the objects they find.

MATERIALS AND PREPARATION

Materials

Gather old camping items such as a tent peg, old frying pan, piece of rope, burnt wood, blackened rocks, a child's toy, an ax, and a bullet shell, or cut pictures of these items from magazines or newspapers. Use your imagination to add other items. Have one object for each person. If conducting this activity inside, you may want to place the items on a bedsheet to protect floors.

Preparation

- ▶ Read the entire lesson plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Scatter artifacts (camping items) in an area away from the view of the group (preferably outside), and dump the trash in one place.

GRABBING YOUR GROUP'S ATTENTION (10 MINUTES)

Explain to participants that they are traveling in the year 2172 on spaceships returning to Earth. They are on a science mission to find out how earthlings lived hundreds of years ago. You may want to use a prop, such as a model spaceship, to embellish the story. Two different science teams will visit Earth. What will they find?



STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)

Beam Me Down

Break the group into two science teams. Explain that two teams will take turns visiting the planet. One team will “beam down” to observe the site while the other waits inside.

Have the first team view the objects and site without picking up the artifacts. Tell team members to remember their initial impression of the site and be able to describe what the people who lived here were doing.

After viewing the site, have each member of the first team pick up one or more of the objects and hide it so it is not visible. This leaves only half the objects to tell the archaeological story when the second team arrives.

Beam down the second science team, and have its members look at the site and the remaining artifacts. Have each person from this team pick up an artifact. Tell them to remember their initial impression of the site and be able to describe what the people that lived here were doing.

Do the following:

- ▶ Have both teams sit down together. Ask members of the second team to describe their impression of the site and past civilization. Ask participants: *What did you learn about this past culture based upon the artifacts you found?*
- ▶ Have the first team show the artifacts they removed from the site. Ask members of the first team to describe their impressions of the site and civilization. Ask participants: *What did you learn about this past culture based upon your evaluation of the site when all the artifacts were present?*

Return to the site and discuss what later explorers might think about this site. Ask participants the following:

- ▶ *What impression would you have now that all of the artifacts are gone?*
- ▶ *How has the value of the site changed since all artifacts have been removed?*
- ▶ *How has this activity helped you understand the efforts of today’s archaeologists?*

WRAPPING UP THE ACTIVITY (30 MINUTES)

Your participants are great scientists! Your group knows the importance of leaving items that they find in their natural setting. A group discussion will help determine how well each person has learned the value of this lesson.

- ▶ Discuss the idea that the items discovered by the group represent artifacts and evidence about our culture. Similarly, the artifacts we sometimes find in the outdoors provide valuable information about people who lived here long ago.
- ▶ Have participants relate the objects they found on their science mission to something that might be found on public lands (from Native Americans or pioneers). Have the group summarize why it is important for people to leave what they find. Clarify the difference between objects of historical value and common trash or debris. If necessary, remind participants that it is against the law to remove or destroy cultural resources.
- ▶ Talk about what people do with artifacts when they take them home. Generally the artifact sits on a shelf or in a drawer. How much pleasure does it bring when it is removed from the site? Have the group brainstorm ways to enjoy and learn from an archaeological site without taking the artifacts home.
- ▶ **Important:** Discuss how leaving what you find applies to plants, animals, and the outdoor setting in general. Picking flowers, removing antlers or petrified wood, cutting tree branches, building lean-tos and chairs, moving rocks and stumps, carving on trees and stone, and digging tent trenches are all examples of ways people detract from the natural outdoors. Use the Background on the Principles of Leave No Trace to lead discussion.

Congratulations on conducting a well-prepared meeting for your group!

Additional Activities

- ▶ Visit an archaeological site. Discuss what might have been found there 1,000 years ago, 100 years ago, and 10 years ago.
- ▶ Tip over a garbage can. What do the contents tell you about the people? Which contents are likely to remain unchanged for hundreds of years? What will people in the future think about our culture when they examine our garbage?

Activity Plan for Minimize Campfire Impacts

Exploring Fires and Stoves

This activity should take approximately 65 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about various options for fires, participants will be able to

- ▶ Determine if a campfire is a necessary component of camping.
- ▶ Assess what areas can ecologically or aesthetically withstand another campfire with minimal impact.
- ▶ Build minimum-impact fires in both high-use and remote areas.

Participants will compare how fast they can heat water on a camp stove, campfire, and a mound fire. They will then assess the value of each cooking method.

MATERIALS AND PREPARATION

Materials

- ▶ A backpack stove, fueled and ready
- ▶ Three small pans for heating water
- ▶ Water jug
- ▶ Firewood—small to large sizes
- ▶ Mineral soil for a mound fire
- ▶ Ground cloth or plastic garbage bag to gather soil
- ▶ Enough unscarred rocks to build
 - A traditional campfire ring
 - A base for the fire pan
- ▶ Fire pan (metal garbage can lid, oil pan, or other fire pan substitute)
- ▶ Hot chocolate mix and cups for drinking



Preparation

- ▶ Locate an area that will permit the group to safely and responsibly build fires.
- ▶ Read the entire lesson plan and the Background on the Principles of Leave No Trace thoroughly. It is necessary for group members to know how to use a fire pan and how to build a mound fire before beginning this activity.
- ▶ Practice building a mound fire prior to the meeting so you are familiar with the process.
- ▶ Scatter the unscarred rocks and firewood over the surrounding ground.
- ▶ Place the soil for the mound fire nearby.

GRABBING YOUR GROUP'S ATTENTION (20 MINUTES)

Explain to the group that there are three types of prepared food for camp meals: precooked cold meals, meals cooked over fires, and meals cooked on a camp stove. Group members will compare the value of stoves and fires when making hot chocolate. But first, they will help the leader demonstrate how to build a true Leave No Trace fire.

Demonstrate how to build a mound fire. Follow the directions for building a mound fire found in the Background on the Principles of Leave No Trace. Use group members to help gather soil, firewood, and clean up afterward. Help participants understand how a properly built mound fire leaves almost no trace of the fire. The entire process of building the mound fire, extinguishing the fire, and cleaning up should take about 30 minutes.

STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)

The Heat Is On

Participants will compare how fast they can heat water on a camp stove, a fire built using a fire pan, and a traditional campfire. After heating the water and making the hot chocolate, group members will attempt to remove all evidence of the fire (e.g., traces of ash, dirt, firewood, etc.). This process will help participants think about the advantages of stoves, mound fires, or fire pans over traditional campfires.

Explain to group members that they will conduct an experiment to demonstrate the pros and cons of fire use. Divide the participants into three groups. Each will:

- 1 Prepare a fire source.
- 2 Boil water and make hot chocolate.
- 3 Clean up the site so no one can tell they have been there.

Ask one group to use a stove, one a fire pan, and one a new rock-ring fire. Have each group keep track of how long it takes to prepare the hot chocolate and clean up the site.

Note: It will be necessary to supervise the groups as they light the stove and construct the campfires from the materials provided. Read the Background on the Principles of Leave No Trace and instruct the fire-pan group on the proper way to build a pan fire.

Leave No Trace does not simply mean putting out the fire and cleaning up the trash. There should be no evidence that the fire ever existed. Here are points to remember when supervising and discussing the activity:

- ▶ Make it a special challenge to Leave No Trace.
- ▶ Is the ground scarred or scorched?
- ▶ Is there evidence of charred wood? All campfires require crushing coals to ash, soaking with water to eliminate fire danger, and disposing of the ash. (Even fires built in existing and properly located fire rings should be cleaned.)
- ▶ Are there scarred rocks?
- ▶ Is soil noticeably disturbed in and around the cooking site?

Ask participants: *Which method of boiling water was fastest?* The stove will most likely be the fastest method of boiling water. Fires require more preparation time, especially if proper care is taken to Leave No Trace.

Ask participants the following: *Which method would group members prefer if they were very hungry, if it were raining, or if they were camped on rocky terrain where a fire was impractical or they had no wood source?*

Ask them: *What problems arose during cleanup? How successful were the fire builders at leaving no sign whatsoever of their fire?* A true Leave No Trace fire should leave virtually no sign of its existence. Did the fire builders meet this standard? Ease of cleanup generally will follow this order:

- ▶ **EASIEST: stove.** Stoves require virtually no cleanup when used properly.
- ▶ **MORE DIFFICULT: fire pan.** The fire pan, set on rocks or some other suitable surface, will not damage the land but still will require disposal of ash.
- ▶ **MOST DIFFICULT: traditional rock-ring fire.** Traditional fires will scar the surface upon which they were built, requiring rehabilitation of the fire site. These fires are usually built with rocks that become permanently scarred. Did the group take the time to wash soot off the rocks?

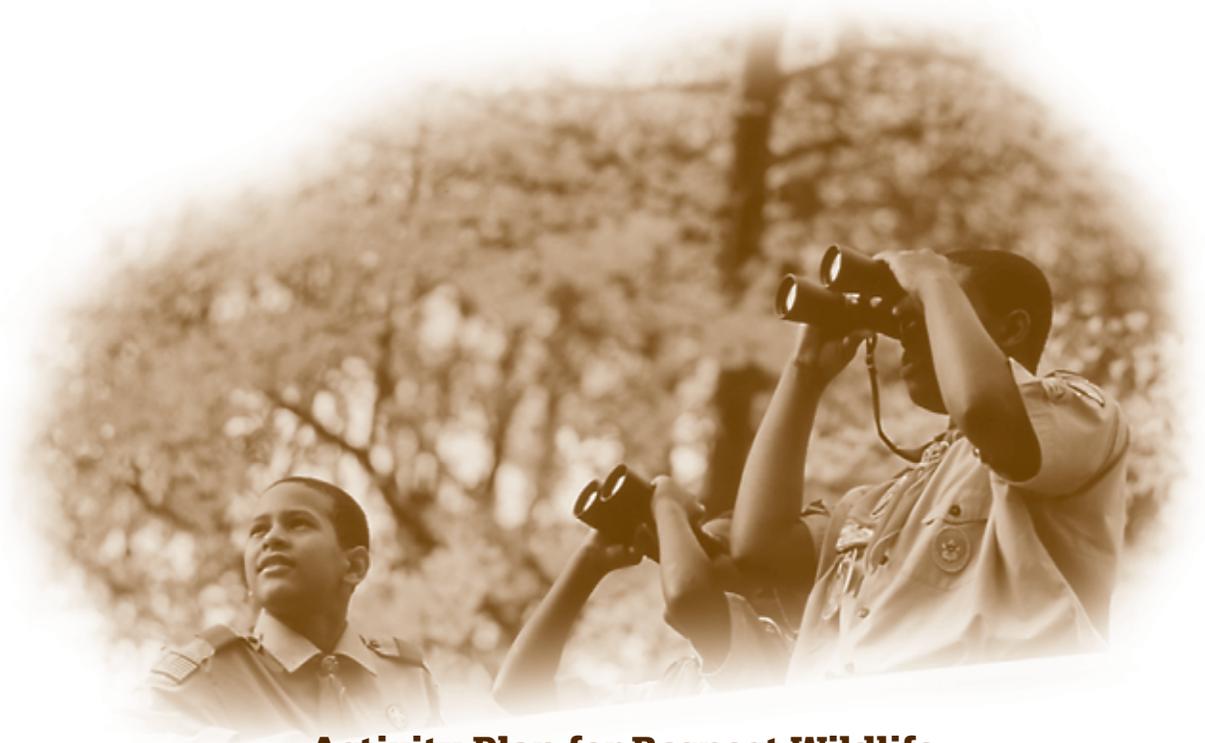
WRAPPING UP THE ACTIVITY (15 MINUTES)

Your group has had the opportunity to experience and discuss the benefits and procedures for building different types of fires. How well have group members learned to minimize their impact with fires?

Summarize the advantages and disadvantages of campfires and backpacking stoves.

- ▶ Can the group describe the preferred techniques for building a fire in high-use areas? (Use a stove or an existing fire site.)
- ▶ What are some of the no-trace fire building practices in pristine areas? (Build a mound or pan fire.)
- ▶ What are some reasons why a night without a campfire might be more enjoyable? (Stars are more noticeable; small animal sounds are easier to hear; the darkness enhances storytelling.)
- ▶ Discuss the impacts of gathering wood—social trails, loss of nutrients for plant life, etc.

Congratulations on conducting a well-prepared meeting for your group!



Activity Plan for Respect Wildlife

Exploring Respect for Wildlife

This activity should take approximately 70 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which calls for participants to observe impacts on wildlife, participants will be able to

- ▶ Describe what activities cause impacts to wildlife.
- ▶ Identify the actions that can be taken to minimize impacts to wildlife.

Your participants are going on an imaginary hike to a marshland area where they will encounter a flock of ducks, a doe, and a fawn. This activity will help them think about their potential impacts to wildlife and how these impacts can be avoided.

MATERIALS AND PREPARATION

Materials

- ▶ A garden hose or some other means of marking the marshland area
- ▶ Duck decoys, silhouettes, or pictures of ducks
- ▶ Pictures or silhouettes of a doe and fawn deer

Preparation

- ▶ Read the entire lesson plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Lay out the garden hose or some other means of marking the marshland.
- ▶ Place the duck, doe, and fawn pictures or silhouettes in the marshland.

GRABBING YOUR GROUP'S ATTENTION (20 MINUTES)

Explain to participants that they will be hiking along a trail and will come to a marsh area with ducks, a doe, and a fawn. Ask them to explain the actions they will take so they do not disturb the ducks and deer.

STEPS FOR TEACHING THE ACTIVITY (30 MINUTES)**How Wild Is Wildlife?**

The participants will demonstrate the techniques they feel will help minimize impact to wildlife in the marshland area. After demonstrating these techniques, group members will move past the marshland. The activity will help them become more aware of their potential effects on wildlife and how they can avoid negative impacts.

As they approach the marked marshland, ask group members to demonstrate how they will avoid disturbing the wildlife and how they will be able to tell if they were successful.

After participants have passed the marshland, ask them why they used the techniques they did to minimize their impacts to the ducks and deer in the marsh. Ask them if there are any other techniques they could use. Emphasize that the best means of determining their success is the degree to which the wildlife may have altered their normal behavior. In contrast, if the ducks fly or the deer run away quickly, you know you have gotten too close.

Quick movement and loud noises are stressful to animals. Considerate campers should

- ▶ Observe wildlife from afar to avoid disturbing them.
- ▶ Give animals a wide berth, especially during breeding, nesting, and birthing seasons.
- ▶ Store food securely so wildlife will not be attracted to it.
- ▶ Keep garbage and food scraps away from animals so they will not acquire bad habits.

Remember, you are too close to an animal if it alters its normal activities.

WRAPPING UP THE ACTIVITY (15 MINUTES)

Your group is considerate of wildlife needs and knows how to respect wildlife. Group members also know the techniques for minimizing their impact on wildlife and means of determining if they have been successful. Do the following:

- ▶ Discuss some of the local areas participants might visit that have wildlife. What additional techniques or specific precautions should they use to avoid disturbing the wildlife species in these areas?
- ▶ Talk about the behavior of some group members or the behavior observed of others on previous outdoor activities that may have disturbed wildlife. What could have been done differently to avoid disturbing the wildlife? How can the group help encourage others to keep wildlife wild?

Congratulations on conducting a well-prepared meeting for your group!

Additional Activities

Visit a local wildlife refuge and have the wildlife managers explain how they recommend viewing wildlife species at the refuge without disturbing them in the wild. Take a walk with the wildlife manager around the refuge to practice the techniques.



Activity Plan for Be Considerate of Other Visitors

Exploring How to Be Considerate of Other Visitors

This activity should take approximately 40 minutes.

WHAT YOUR GROUP WILL LEARN

After participating in this activity plan, which is designed to help participants learn about the importance of being considerate of other visitors, participants will be able to

- ▶ Describe the ways they can be considerate of other visitors.
- ▶ Help others to improve their behavior, thus improving everyone's experience.

This activity will help the participants think about how their actions affect other people's experiences in the backcountry. It will also help them think about how to ensure all users have a good experience.

MATERIALS AND PREPARATION

Materials

- ▶ Backpacks full of gear for a hike
- ▶ Two stick horses and two mountain bikes or two mountain bikers and two horse riders

Preparation

- ▶ Read the entire lesson plan and the Background on the Principles of Leave No Trace thoroughly.
- ▶ Have the group bring full backpacks as though they were going on an overnight campout.
- ▶ Assign two individuals to bring their mountain bikes and borrow or build two stick horses.
- ▶ As an option, arrange for two local mountain bike club members and two horse riders to assist with the activity.
- ▶ Contact the Backcountry Horsemen of America and International Mountain Bicycling Association for literature, videos, etc., on their activity.

Backcountry Horsemen of America
P.O. Box 1367
Graham, WA 98338-1367
888-893-5161

International Mountain Bicycling Association
P.O. Box 7578
Boulder, CO 80306
888-442-4622
Web site: <http://www.imba.com>

GRABBING YOUR GROUP'S ATTENTION (10 MINUTES)

Your group has been excited for weeks about hiking into White Pine Lake. As you arrive at the trailhead to the lake, group members grab their packs and head up the trail, running, shouting, and kicking up their heels in fun. As you round the first bend, a group of youths, quite unfamiliar with horses, comes riding toward you down the steep trail on horseback.

Ask group members what changes they need to make in their behavior to allow the horse riders to pass safely by on the trail. What kind of behavior would help create a good relationship with these horse riders or other horse riders in the future? (Stop and make no sound, move off the trail and let the horses pass by, continue down the trail and hope the horse riders get by OK with their own skills.)

STEPS FOR TEACHING THE ACTIVITY (20 MINUTES)

Doing Unto Others

Ask group members how they would have felt encountering the group on horseback. What was their first reaction? What were their first thoughts? Would they have felt better if they had known beforehand what to do? Few hikers know they should pull off on the downhill side of the trail when encountering horse riders, and that a little conversation as you pass by one another may reduce the chance of the horses being spooked.

Ask the group what they should do if they are on the trail and are overtaking those on horseback. Horse riders need to be aware and remember the hiker is packing a load and has a right to be on the trail, too. Ideally the horse riders will find a good spot and let you pass. Here again, a little light conversation as you pass will reduce the chances of spooking the horses. Hikers may also want to consider taking off their packs so horses won't wonder what those strange things on their backs are.

Select one or two from your group to ride mountain bikes down a trail and a couple others to ride stick horses down the trail, or consider recruiting a couple of local mountain bike club members and horse riders to ride down the trail. Have the remainder of the group hike up the trail and demonstrate how to show respect for other users while passing the horse riders and those on the mountain bikes. The mountain bikers should slow down and/or stop their mountain bikes to let the hikers pass.

After the hikers have passed the horse riders and mountain bikers, pull the group back together at an appropriate location on a hardened surface off the trail for discussion. How did the horse riders feel about the hikers, and how did the hikers feel about the mountain bikers? If everyone shows respect for other users, all can share the trail and the outdoors without affecting the outdoor experience of others.

Other points for discussion to minimize the group's impact on other users may include the following. Thoughtful campers

- ▶ Travel and camp in small groups (no more than the group size prescribed by land managers).
- ▶ Keep noise down and leave radios, tape players, and pets at home.
- ▶ Select campsites away from other groups to help preserve their solitude.
- ▶ Always travel and camp quietly to avoid disturbing other visitors.
- ▶ Make sure the colors of their clothing and gear blend with the environment.
- ▶ Respect private property and leave gates (open or closed) as found.
- ▶ Be considerate of other campers and respect their privacy.
- ▶ Be friendly and smile as they encounter other visitors and avoid long conversations unless the other group exhibits an interest in talking.

Any of these efforts work to create better understanding and appreciation between different backcountry user groups, which benefits us all.

WRAPPING UP THE ACTIVITY (10 MINUTES)

Your campers are very considerate of all users of the backcountry! They know how to show respect for a variety of different users.

- ▶ How well have they learned what to do to make the experiences of all users experiences more enjoyable?
- ▶ Have participants brainstorm how, as a group to, *set the example* for being considerate of other visitors they meet.
- ▶ Challenge them to be the premier example of how one should act and respect others who will, in turn, have a desire to do likewise.

Congratulations on conducting a well-prepared meeting for your group!

**In the end we will
conserve only what
we love.**

**We will love only
what we understand.**

**We will understand
what we are taught.**

—Author unknown

Additional Activities

Discuss with the group the following.

- ▶ How would you like it if someone
 - Knocked down your tent?
 - Put water in your sleeping bag?
 - Shouted while you were watching a deer?

(Add your own ideas to the list based on your group.)

- ▶ Visit an equestrian group or horseback riding stable to learn more about the characteristics of horses. Invite members of the Backcountry Horsemen of America or other horse riding groups to visit with your group.
- ▶ Meet with your local mountain bike club or write for information on mountain biking from the International Mountain Bicycling Association, which has adopted Leave No Trace as part of its rules for the trail. You can write to the IMBA at International Mountain Bicycling Association, P.O. Box 7578, Boulder, CO 80306.

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*Make these handouts something participants will want to keep. Use your imagination—copy the handouts on parchment paper, burn the edges, frame them, etc.

Leave No Trace Resources

Leave No Trace Inc.
 P.O. Box 997
 Boulder, CO 80306
 303-442-8222
 Toll-free 800-332-4100
 E-mail: dana@lnt.org (Dana Watts, executive director)
 Web site: <http://www.LNT.org>

Leave No Trace Inc. is a private, not-for-profit organization established to administer the national Leave No Trace program while partnering with the following federal agencies: U.S. Forest Service, U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, and National Park Service.

Staff members of Leave No Trace Inc. serve as the primary source of program information and coordination. In addition, more than 1,100 individuals throughout the country are Masters of Leave No Trace. These individuals can assist in the Leave No Trace program.

National Outdoor Leadership School (NOLS)
 288 Main Street
 Lender, WY 82520
 307-332-8800
 E-mail: lnt@nols.edu
 Web site: <http://www.nols.edu>

The National Outdoor Leadership School has developed many Leave No Trace educational materials and created the Masters of Leave No Trace training program.

LEAVE NO TRACE MATERIALS

The following booklets from the Leave No Trace Outdoor Skills and Ethics series provide techniques for specific regions. These booklets are available through Leave No Trace Inc. or from the National Outdoor Leadership School.

Alaskan Tundra
Desert and Canyon Country
Lakes Region
North American
Northeast Mountains
Pacific Northwest
Rocky Mountain
Sierra Nevada Mountains
Southeastern States
Temperate Coastal Zones
Tropical Rainforests (also available in Spanish)
Western River Corridors

Other Written Materials

Backcountry Horse Use
Caving
Mountain Bicycling
Rock Climbing
Soft Paths, Second Edition
Teaching Leave No Trace: An Activity Guide

To Leave No Trace

One must travel and
camp with care,
deliberately planning
and guiding one's
actions so as not to
harm the environment
or disturb others.



A Side Note on Rules and Regulations

The increasing use of our nation's parks and forests has led to an increase in rules regulating recreationists' activities. Many of these regulations have been imposed as a result of increased human impacts in these areas. A widespread awareness of Leave No Trace will go a long way toward limiting the rules needed to protect these wild places and protect the freedom of visitors.

Visitors who practice Leave No Trace can avoid the chain of events described below. The negative impact of, and resulting increased number of, rules and regulations is a cycle that can be broken, but only if outdoor visitors practice the Leave No Trace skills outlined in this handbook.



Ideas to Remember

Leave No Trace means traveling and camping with care, deliberately planning, and guiding one's actions so as not to harm the environment or disturb others.

The Principles of Leave No Trace

- 1 Plan Ahead and Prepare.
- 2 Travel and Camp on Durable Surfaces.
- 3 Dispose of Waste Properly (Pack It In, Pack It Out).
- 4 Leave What You Find.
- 5 Minimize Campfire Impacts.
- 6 Respect Wildlife.
- 7 Be Considerate of Other Visitors.





The Principles of Leave No Trace

The principles of Leave No Trace might seem unimportant until you consider the combined effects of millions of outdoor visitors. One poorly located campsite or campfire may have little significance, but thousands of such instances seriously degrade the outdoor experience for all. Leaving no trace is everyone's responsibility.

1 PLAN AHEAD AND PREPARE

Proper trip planning and preparation helps hikers and campers accomplish trip goals safely and enjoyably while minimizing damage to natural and cultural resources. Campers who plan ahead can avoid unexpected situations, and minimize their impact by complying with area regulations such as observing limitations on group size. Schedule your trek to avoid times of high use. Obtain permits or permission to use the area for your trek.

Proper planning ensures

- ▶ Low-risk adventures because campers obtained information concerning geography and weather and prepared accordingly
- ▶ Properly located campsites because campers allotted enough time to reach their destination
- ▶ Appropriate campfires and minimal trash because of careful meal planning and food repackaging and proper equipment
- ▶ Comfortable and fun camping and hiking experiences because the outing matches the skill level of the participants

2 TRAVEL AND CAMP ON DURABLE SURFACES

Damage to land occurs when visitors trample vegetation or communities of organisms beyond recovery. The resulting barren areas develop into undesirable trails, campsites, and soil erosion.

Concentrate Activity, or Spread Out?

- ▶ In high-use areas, campers should concentrate their activities where vegetation is already absent. Minimize resource damage by using existing trails and selecting designated or existing campsites. Keep campsites small by arranging tents in close proximity.
- ▶ In more remote, less-traveled areas, campers should generally spread out. When hiking, take different paths to avoid creating new trails that cause erosion. When camping, disperse tents and cooking activities—and move camp daily to avoid creating permanent-looking campsites. Avoid places where impacts are just beginning to show. Always choose the most durable surfaces available: rock, gravel, sand, compacted soil, dry grasses, or snow.

These guidelines apply to most alpine settings and may be different for other areas, such as deserts. Learn the Leave No Trace techniques for your crew's specific activity or destination. Check with land managers to be sure of the proper technique.



3 DISPOSE OF WASTE PROPERLY (PACK IT IN, PACK IT OUT)

This simple yet effective saying motivates backcountry visitors to take their trash home with them. It makes sense to carry out of the backcountry the extra materials taken there by your group or others. Inspect your campsite for trash or spilled foods. Accept the challenge of packing out all trash, leftover food, and litter.

Sanitation

Backcountry users create body waste and wastewater that require proper disposal.

Wastewater. Help prevent contamination of natural water sources: After straining food particles, properly dispose of dishwater by dispersing at least 200 feet (about 80 to 100 strides for a youth) from springs, streams, and lakes. Use biodegradable soap 200 feet or more from any water source.

Human Waste. Proper human waste disposal helps prevent the spread of disease and exposure to others. Catholes 6 to 8 inches deep in humus and 200 feet from water, trails, and campsites are often the easiest and most practical way to dispose of feces.

4 LEAVE WHAT YOU FIND

Allow others a sense of discovery, and preserve the past. Leave rocks, plants, animals, archaeological artifacts, and other objects as you find them. Examine but do not touch cultural or historical structures and artifacts. It may be illegal to remove artifacts.

Minimize Site Alterations

Do not dig tent trenches or build lean-tos, tables, or chairs. Never hammer nails into trees, hack at trees with hatchets or saws, or damage bark and roots by tying horses to trees for extended periods. Replace surface rocks or twigs that you cleared from the campsite. On high-impact sites, clean the area and dismantle inappropriate user-built facilities such as multiple fire rings and log seats or tables.

Good campsites are found, not made. Avoid altering a site, digging trenches, or building structures.

5 MINIMIZE CAMPFIRE IMPACTS

Some people would not think of camping without a campfire. Yet the naturalness of many areas has been degraded by overuse of fires and increasing demand for firewood.

Lightweight camp stoves make low-impact camping possible by encouraging a shift away from fires. Stoves are fast, eliminate the need for firewood, and make cleanup after meals easier. After dinner, enjoy a candle lantern instead of a fire.

If you build a fire, the most important consideration is the potential for resource damage. Whenever possible, use an existing campfire ring in a well-placed campsite. Choose not to have a fire in areas where wood is scarce—at higher elevations, in heavily used areas with a limited wood supply, or in desert settings.

True Leave No Trace fires are small. Use dead and downed wood that can be broken easily by hand. When possible, burn all wood to ash and remove all unburned trash and food from the fire ring. If a site has two or more fire rings, you may dismantle all but one and scatter the materials in the surrounding area. Be certain all wood and campfire debris is cold out.

6 RESPECT WILDLIFE

Quick movements and loud noises are stressful to animals. Considerate campers practice these safety methods:

- ▶ Observe wildlife from afar to avoid disturbing them.
- ▶ Give animals a wide berth, especially during breeding, nesting, and birthing seasons.
- ▶ Store food securely and keep garbage and food scraps away from animals so they will not acquire bad habits. Never feed wildlife. Help keep wild-life wild.

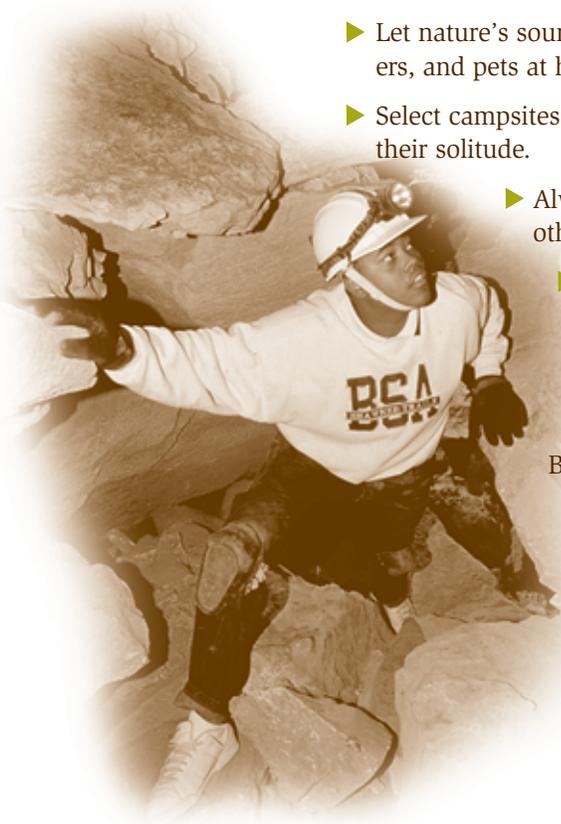
You are too close if an animal alters its normal activities.

7 BE CONSIDERATE OF OTHER VISITORS

Thoughtful campers respect other visitors and protect the quality of their experience.

- ▶ Travel and camp in small groups (no more than the group size prescribed by land managers).
- ▶ Let nature's sounds prevail. Keep the noise down and leave radios, tape players, and pets at home.
- ▶ Select campsites away from other groups to help preserve their solitude.
- ▶ Always travel and camp quietly to avoid disturbing other visitors.
- ▶ Make sure the colors of clothing and gear blend with the environment.
- ▶ Respect private property and leave gates (open or closed) as found.

Be considerate of other campers and respect their privacy.



Notes and Ideas



Notes and Ideas



Notes and Ideas



Notes and Ideas



OUTDOOR CODE

As an American, I will do my best to—

Be clean in my outdoor manners,

Be careful with fire,

Be considerate in the outdoors,

and

Be conservation-minded.



BOY SCOUTS OF AMERICA
1325 West Walnut Hill Lane
P.O. Box 152079
Irving, Texas 75015-2079
<http://www.bsa.scouting.org>

