

PRINCIPLES OF
Leave no Trace
WORKBOOK



BOY SCOUT TROOP 555
NORTH STAR DISTRICT
LAS VEGAS AREA COUNCIL



BOY SCOUTS OF AMERICA®

SCOUT NAME _____ RANK _____ DATE _____



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THIS WORKBOOK WAS COMPILED FROM A VARIETY OF
RESOURCES, INCLUDING OFFICIAL BSA PUBLICATIONS
AND CENTER FOR OUTDOOR ETHICS PUBLICATIONS

INTRODUCTION

Leave No Trace is an independent program developed by the *Leave No Trace* Center for Outdoor Ethics, a non-profit organization that was originally conceived primarily by the United States Forest Service. Boy Scouts of America believes in *Leave No Trace* program and it is included in each of the four BSA programs (Cub Scouts, Boy Scouts, Varsity, and Venturing).

Leave No Trace is a framework comprised of seven basic principles:

1. Plan Ahead and Prepare
2. Travel and Camp on Durable Surfaces
3. Dispose of Waste Properly
4. Leave What You Find
5. Minimize Campfire Impacts
6. Respect Wildlife
7. Be Considerate of Others

Your training will examine each of these principles in detail. Once you are trained your responsibilities are twofold:

1. Use the knowledge you gained by putting in to practice the seven principles;
2. Share the knowledge you gained by teaching others in your troop.

You can earn the *Leave No Trace* Awareness Award, a BSA award, by doing the following:

1. Recite and explain in your own words the principles of *Leave No Trace*, and discuss how an ethical guideline differs from a rule.
2. On three separate camping trips with your troop or team, demonstrate and practice the *Leave No Trace* skills appropriate to the trip.
3. Earn the Camping and Environmental Science merit badges.
4. Participate in a *Leave No Trace*-related service project that reduces or rehabilitates recreational impacts. Discuss with your troop or team which recreational impacts were involved with the project.
5. Give a 10-minute presentation on a *Leave No Trace* topic approved by your unit leader to a Scouting unit or other interested group.
6. Teach a *Leave No Trace*-related skill to a Scouting unit or other interested group.



1 - PLAN AHEAD AND PREPARE

- Know the regulations and special concerns for the area you'll visit.
- Prepare for extreme weather, hazards, and emergencies.
- Schedule your trip to avoid times of high use.
- Visit in small groups when possible. Consider splitting larger groups into smaller groups.
- Repackage food to minimize waste.
- Use a map and compass to eliminate the use of marking paint, rock cairns or flagging.

"In wildness is the preservation of the world."
—HENRY DAVID THOREAU

Adequate trip planning and preparation helps backcountry travelers accomplish trip goals safely and enjoyably, while simultaneously minimizing damage to the land.

Pre-Trip Planning

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.

Why is Trip Planning Important?

- It helps ensure the safety of groups and individuals.
- It prepares you to *Leave No Trace* and minimizes resource damage.
- It contributes to accomplishing trip goals safely and enjoyably.
- It increases self-confidence and opportunities for learning more about nature.

Benefits of Good Meal Planning:

- Reduced trash.
- Reduced pack weight, resulting in faster hiking times and less fatigue.
- Reduced dependence upon campfires for cooking.
- One-Pot Meals and Food Repackaging

2 - TRAVEL AND CAMP ON DURABLE SURFACES

The goal of backcountry travel is to move through the backcountry while avoiding damage to the land. Understanding how travel causes impacts is necessary to accomplish this goal.

- Travel damage occurs when surface vegetation or communities of organisms are trampled beyond recovery. The resulting barren area leads to soil erosion and the development of undesirable trails. Backcountry travel may involve travel over both trails and off-trail areas.
- Durable surfaces include established trails and campsites, rock, gravel, dry grasses or snow.
- Protect riparian (located near natural water source) areas by camping at least 200 feet from lakes and streams.
- Good campsites are found, not made. Altering a site is not necessary.

In popular areas:

- Concentrate use on existing trails and campsites.
- Walk single file in the middle of the trail, even when wet or muddy.
- Keep campsites small. Focus activity in areas where vegetation is absent.

In pristine areas:

- Disperse use to prevent the creation of campsites and trails.
- Avoid places where impacts are just beginning.

Travel on Trails

Trail use is recommended whenever possible. Encourage travelers to stay within the width of the trail and not short cut trail switchbacks

Travel Off-trail

All travel that does not utilize a designed trail such as travel to remote areas, searches for bathroom privacy, and explorations near and around campsites is defined as off-trail.

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.



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 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. Dry grasses tend to be resistant to trampling. Wet meadows and other fragile vegetation quickly show the effects of trampling.

Cryptobiotic crust ("Crypto"): 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, preventing erosion. One footstep can destroy "crypto" and it is therefore important to use developed trails in these areas.

Desert puddles and mud holes: Water is a preciously scarce resource for all living things in the desert. Don't walk through desert puddles, 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 back try use. It requires the greatest use of judgment and information and often involves making trade-offs between minimizing ecological and social impacts.

Choosing a Campsite in High-Use Areas

Avoid camping close to water and trails and select a site which 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 wild life.

Camping in Undisturbed Remote Areas

Pristine areas are usually remote, see few visitors, and have no obvious impacts. Visit these special places only if you are committed to, and highly skilled in, *Leave No Trace* techniques.

Never scrape away or clean sites of organic litter like leaves, and always minimize the removal of rocks and gravel. The organic litter will help to cushion trampling forces, limit the compactability of soils, release plant nutrients, and reduce 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.

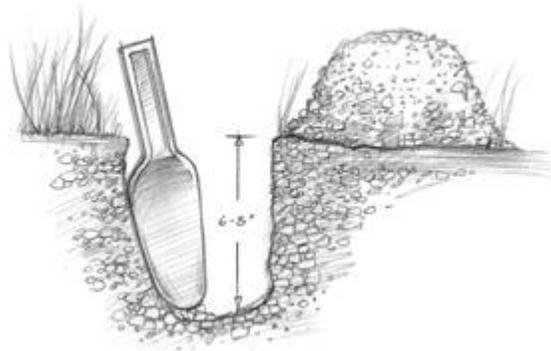
3 - DISPOSE OF WASTE PROPERLY

- Pack it in, pack it out. Inspect your campsite and rest areas for trash or spilled foods. Pack out all trash, leftover food, and litter.
- Deposit solid human waste in catholes.
- Pack out toilet paper and hygiene products.
- To wash yourself or your dishes, carry water 200' away from streams or lakes and use small amounts of biodegradable soap. Scatter strained dishwater.

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.

In most 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.



Catholes are the most widely accepted method of waste disposal. Locate catholes at least 200' (about 70 adult steps) from water, trails and camp. Select an inconspicuous site where other people will be unlikely to walk or camp. Dig a hole 6-8 inches deep and 4-6 inches in diameter. The cathole should be covered and disguised with natural materials when finished. Cathole sites should be widely dispersed.

Toilet Paper should be used sparingly and use only plain, white, non-perfumed brands. Toilet paper must be disposed of properly! It should either be thoroughly buried in a cathole or placed in plastic bags and packed out. Natural toilet paper has been used by many campers for years.

Urine has little direct effect on vegetation or soil. In some instances urine may draw wildlife which are attracted to the salts. They can defoliate plants and dig up soil. Urinating on rocks, pine needles, and gravel is less likely to attract wildlife. Diluting urine with water from a water bottle can help minimize negative effects.

Special Considerations for River Canyons: River canyons often present unique *Leave No Trace* problems. The most common practice is to urinate directly in the river and pack out feces in sealed boxes for later disposal. Check with your land manager for details about specific areas.

4 - LEAVE WHAT YOU FIND

Allow others a sense of discovery by leaving rocks, plants, archaeological artifacts and other objects of interest as you find them..

- Preserve the past: examine, but do not touch, cultural or historic structures and artifacts.
- Leave rocks, plants and other natural objects as you find them.
- Avoid introducing or transporting non-native species.
- Do not build structures, furniture, or dig trenches.



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 items 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.

Avoid Damaging Live Trees and Plants

Avoid hammering nails into trees for hanging things, hacking at them with hatchets and saws, or tying tent guy lines to trunks, thus girdling the tree. Carving initials into trees is unacceptable.

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. But, if every visitor thought "I'll just take a few", a much more significant impact might result. Take a picture or sketch the flower instead of picking it.

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 areas it is illegal to remove natural objects.

The same ethic is applicable to cultural artifacts found on public land. Cultural artifacts are protected by the Archaeological Resources Protection Act. It is illegal to remove or disturb archeological sites, historic sites, or artifacts such as pot shards, arrowheads, structures, and even antique bottles found on public lands.

5 - MINIMIZE CAMPFIRE IMPACTS

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 light weight efficient camp stoves has encouraged a shift away from the traditional fire. Stoves have become essential equipment for minimum-impact camping. They are fast, flexible, and eliminate firewood availability as a concern in campsite selection. Stoves operate in almost any weather condition, and they *Leave No Trace*.

- Campfires can cause lasting impacts to the backcountry. Use a lightweight stove for cooking and enjoy a candle lantern for light.
- Where fires are permitted, use established fire rings, fire pans, or mound fires.
- Keep fires small. Only use sticks from the ground that can be broken by hand.
- Burn all wood and coals to ash, put out campfires completely, and then scatter cool ashes.

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.

- Gather wood over a wide area away from camp. Use dry drift wood on rivers and sea shores.
- Burn all wood to white ash, grind small coals to ash between your gloved hands, thoroughly soak with water, and scatter the remains over a large area away from camp. Ashes may have to be packed out in river corridors.
- Scatter unused wood to keep the area as natural looking as possible.
- Pack out any campfire litter. Plastic items and foil-lined wrappers should never be burned in a camp fire.



Fire Pans

Use of a fire pan 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 three-inch-high sides. It should be elevated on rocks or lined with mineral soil so the heat does not scorch the ground.

6 - RESPECT WILDLIFE

Learn about wildlife through quiet observation. Do not disturb wildlife or plants just for a "better look". Observe wildlife from a distance so they are not scared or forced to flee. Large groups often cause more damage to the environment and can disturb wildlife so keep your group small. If you have a larger group, divide into smaller groups if possible to minimize your impacts.

- Observe wildlife from a distance. Do not follow or approach them.
- Never feed animals. Feeding wildlife damages their health, alters natural behaviors, and exposes them to predators and other dangers.
- Protect wildlife and your food by storing rations and trash securely.
- Control pets at all times, or leave them at home.
- Avoid wildlife during sensitive times: mating, nesting, raising young, or winter.

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. Sick or wounded animals can bite, peck or scratch and send you to the hospital. Young animals removed or touched by well-meaning people may cause the animals parents to abandon them. If you find sick animals or animal 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. Remember that you are a visitor to their home.

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

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

7 - BE CONSIDERATE OF OTHER VISITORS

One of the most important components of outdoor ethics is to maintain courtesy toward other visitors. It helps everyone 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.
- Groups leading or riding livestock have the right-of-way on trails. Hikers and bicyclists should move off the trail to the downhill side. Talk quietly to the riders as they pass, since horses are spooked easily.
- Take rest breaks on durable surfaces well off the designated trail. Keep in mind that visitors to seldom-used places require an extra commitment to travel quietly and lightly on the land.
- When selecting a campsite, choose a site where rocks or trees will screen it from others view.
- Keep noise down in camp so not to disturb other campers or those passing by on the trail. "Goofing off" or "pranks" are undesirable social behavior and may lead to serious or fatal injuries. Also "events" need to fit the setting - save game playing for the city park.
- Bright clothing and equipment, such as tents 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; choose earth-toned colors (ie. browns and greens) to lessen visual impacts.
- Stay in control when mountain biking. Before passing others, politely announce your presence and proceed with caution.
- Keep pets under control at all times. Dogs running free can be unwelcome, frightening people or leaving behind unwanted "presents". Pick up dog feces from camps and trails. Some areas prohibit dogs or require them to be on a leash at all times.



