



Leave No Trace Using Llamas in the Backcountry

Leave No Trace (LNT) principles had their beginning in the 1970's with the U.S. Forest Service, as the lasting impact of increasing numbers of backcountry visitors of all types was recognized. The National Outdoor Leadership School (NOLS) pioneered the teaching and development of practical conservation techniques designed to minimize recreational impact.

The Leave No Trace Center for Outdoor Ethics, Inc., now works in conjunction with NOLS and the four land management agencies: the Bureau of Land Management, Forest Service, National Park Service, and Fish & Wildlife Service. Its purpose is to establish a nationwide code of outdoor ethics to protect the backcountry by minimizing impact. It also seeks to provide an opportunity for outdoor retail sellers to take some responsibility for stewardship of public lands by helping to finance and otherwise support LNT educational efforts. LNT works by changing behavior through education on outdoor ethics, one user at a time.

Key to minimizing impact on the backcountry is raising awareness that these lands will not absorb and absolve us of our actions. We must make a conscious effort to leave no trace. These are the seven Leave No Trace 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 other visitors

Pack stock have played a large role over the years in the development, maintenance, and enjoyment of our backcountry recreational areas. Preserving that traditional privilege

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depends in part on how we manage our animals. It is important to know and follow rules about pack stock use developed by the agencies that manage public lands we visit. In addition, there are matters of trail behavior and courtesy, as well as in-camp practices that will help maintain the image of visitors who use pack stock as good citizens in the backcountry. It is the responsibility of those visitors to minimize the impact of their animals on the environment—to strive to ensure that they leave no trace.

Even though llamas have a long history of being used as pack animals in South America, they are relative newcomers to the backcountry in the United States. In most cases, the same rules set forth for pack stock use on public lands apply to llamas. Llamas have been found to have a similar impact on trails as hikers. Although that's good news, commitment to LNT principles isn't just about trail erosion. It's about leaving no trace every time you visit the backcountry, from the time you unload at the trailhead until you load up and leave. Handled improperly, llamas have the potential not only to leave signs of their passing, but to do lasting damage.

Raising awareness of all of these issues among those who pack with llamas is the primary reason this pamphlet has been prepared. Leave No Trace literature developed for horse users can be helpful to llama users, but there are some important differences of which we need to be mindful.

Please note that this pamphlet includes only information specifically relating to minimizing the backcountry impact of pack llamas. Leave No Trace principles and practices that apply to human backcountry visitors are very effectively described in other materials. Contact Leave No Trace, Inc., (see back page) for information covering these more general aspects of LNT backcountry travel and camping.

Minimizing Llama Impact in the Backcountry

Plan Ahead and Prepare Before You Go

- The more llamas you take, the more impact they will leave. Select equipment and food so as to minimize the number of llamas needed to support your trip.
- Contact local land management agencies for the areas you wish to visit to learn about current trail conditions and visitor use regulations. In particular, find out about any restrictions on stock use, grazing, or campfires; party size limitations; and trail closures.
- When selecting animals for your pack string, remember that calm animals have the lowest impact. Consider leaving llamas at home who tend to become agitated or disruptive around other llamas—either in camp or on the trail.
- Take the time before the trip to accustom the animals to equipment or gear. This includes chest plates, breechings, and cruppers, normal load noises, velcro, and flapping rainflies. Make sure animals have been introduced to common actions of their handlers, such as removing a jacket, putting on rain gear, rummaging in panniers, opening velcro, and so on.
- Give your llamas a chance to get used to encountering a horse and rider, dogs, hikers with large backpacks, and mountain bikes and riders. Desensitization to these common sights on the trail is not only a matter of impact, but can be of great import as a safety matter.
- Give llamas ample time in advance to get used to whatever restraints you will use at campsites. They will be staked or picketed for many hours and will leave more impact if their inexperience leads to struggling with entangled lines or nervous circling.
- Prepare for several contingencies in terms of grazing conditions. Unless you know there is adequate forage to feed your animals without overgrazing, take supplemental feed into the backcountry. Take only pelletized feed or processed grain. Offer your choice of supplemental feed to llamas before the trip to ensure that they will eat it. If you take hay for the trailhead, use only certified weed-free hay.
- Llama wool can present weed seeds with a ready host. Grooming your pack llamas at home just before loading them and making sure your truck or trailer is free of uncertified hay and seeds will help guard against carrying weeds into the

backcountry. Advance grooming will also reduce the amount needed at the trailhead prior to saddling.

- Train your llamas to jump over and duck and crawl under obstacles such as deadfall and blowdowns. This will minimize the need to leave the trail and trample new ground. If possible, carry a saw, clippers, or both to clear appropriate blowdown to keep users on the trail. Remember that, even if your llamas can jump over or duck under such obstacles without the need to blaze a new trail, horse and mule travelers who follow (or cattle, in areas of public land where there is an allotment) may not be able to do so. You will be assisting land managers with trail maintenance, as well.
- If insects are likely to be troublesome, check with a veterinarian for safe repellents and take an adequate supply. Llamas may stamp, roll excessively, paw, circle, and otherwise exert damaging impact when annoyed by insects. Test any new repellents at least a week in advance of a trip, in case an ingredient causes skin irritation.
- Take precautions to avoid emergencies. Check with appropriate land management agencies about trail and area conditions that may present the possibility of injury. Familiarize yourself with poisonous plants in the area you plan to travel. Take steps to reduce the risk of heat stress. Specifically, unless traveling in cool weather, most pack llamas need to be sheared, taking into account overall wool length and density. Avoid taking out unconditioned and overweight llamas, as they are more susceptible than lean, conditioned llamas.
- Be prepared to cope with emergencies if they occur. Take essential first aid supplies and know how to treat injuries, plant poisoning, and heat stress. Contact the land manager for the area where you will travel to learn their policy on the disposition of any animals who die in the backcountry; be prepared to comply.

In Camp Grazing and Restraints

- Camping where there is plenty of natural forage is a joy and should cause no negative impact if llamas are moved frequently. A good maximum utilization guideline to ensure that plants can recover from grazing pressure is 50 percent, but a better practice is to move animals whenever there is noticeable impact.
- Be careful to stake or tie animals far enough from each other that they cannot become entangled. There have been cases of llamas strangling each other when this was not done. If you find the need to clear logs or other debris from the stake-out area to avoid entangling, replace the items before you leave the area.
- Avoid staking llamas on wet or boggy ground where vegetation is fragile.

- Try to stake llamas within reach of existing bare ground areas to prevent the creation of new dust wallows. If a new wallow is created, consider ways to minimize the effect.
- If you use individual stake lines to tether llamas, do so with caution. If the line is attached directly to a tree, a llama—being a browser—will generally strip bark. If attached to a bush, a llama may eat or trample it. Many packers use screw stakes, but if the ground is soft, a stake may pull out. If the llama then becomes frightened and runs, the clanking sound of the attached screw stake is likely to add to the panic, thereby increasing the chances of injury and potentially making recovery of the loose llama more arduous.
- If you use trees to set up a highline, lowline, or picket line, select those that are at least 8" in diameter. Protect the trunk from girdling by using saddle cinches or wide nylon strapping to encircle them, or wrap several loops of rope around the tree to spread out the constricting force. As above, use caution with screw stakes to set up a picket line. If ground is soft, attach one end of the line to a tree or other permanent object. Do not make your own stakes out of cut wood—they leave large, obtrusive holes.
- Scatter dung piles thoroughly upon leaving your campsite. Intact dung piles are residual signs of your presence and they smother vegetation.

Watering Llamas

- While on the trail, water your llamas at an established ford or low, rocky or gravelly spot in the bank to avoid doing damage to either fragile vegetation or stream bank integrity.
- Prevent llamas from defecating in water. If crossing a stream or river, stop and allow llamas the opportunity to drink before entering the water and then once you begin across, proceed directly and prevent them from stopping. Another strategy is to lead llamas into water briefly and then return them immediately to the near bank. Frequently llamas will then relieve themselves, after which the crossing can be made without incident.
- At a lunch break or campsite, water should be brought to llamas. Llamas' water needs are limited enough that it should not be necessary to tether them at a watering site at any time. Collapsible plastic buckets are lightweight and easy to stow in a handy place. If you leave small containers near individual llamas for an extended period, be sure to fasten them to something (e.g., a tent stake) so that they do not blow away and become litter.

Supplemental Feed

- In areas where forage is limited or restricted by regulation, provide supplemental feed to reduce the amount of live feed utilized. Processed grain and pelletized feed are a good source of nutrition. (Pellets should be fed in a way that will prevent llamas from eating large amounts at once to avoid choking, e.g., scattered on the ground.) Both grain and pelletized feed are more concentrated than hay and the weight of feed necessary for llamas' eating requirements is not prohibitive. Depending on the weight and work level of the llama, from 1-3 pounds of supplemental feed per day may be needed.
- Do not take unprocessed grain or hay that is not certified weed-free into the backcountry.

On the Trail

- Walk single file on narrow trails to avoid trampling vegetation and widening trails. Llamas should follow their handler, also staying on the trail. Do not allow llamas to shortcut trails on switchbacks. Stay on steps on steep trails where they are provided.
- Cross muddy areas and snowfields of reasonable depth, rather than skirting them.
- Try to avoid blazing a new trail when you encounter blowdown, deadfall, or other obstacles in the trail. As noted above, llamas can be trained to jump over, and duck and crawl under, many obstacles. Remember that removing panniers can allow llamas to negotiate going over or under deadfall that would be difficult or unsafe while loaded.
- Llamas in a pack string are more likely to leave the trail than those led individually. Training, experience, and comfort level with order in the string can help, but where stringing is necessary, the handler needs to be attentive to minimize impact by out-of-line llamas. Inexperienced llamas should be placed in the lead in a string or led individually to enable the handler to directly control their movement and activities. The exception is extremely difficult terrain where llamas should be allowed to pick their way at a slower pace so that they can find good footing. It may be preferable to lead strung animals individually through such areas.
- Pay attention to llamas when they are working hard, especially in warm temperatures or high humidity or both. Watch for the early signs of heat stress—open-mouthed breathing and perhaps drooling. Take a break. Do not assume that a llama that crashes on the trail is stubborn and force it on. Serious heat stress can take many hours for recovery and can even cause death.

- Kick dung off the trail—whether from your animals or other stock that passed before you.

Trail Courtesy and Practices

- Where practical, consider posting notice of “llamas on the trail” at the trailhead to alert other trail users.
- It is a generally agreed upon rule of llama packing etiquette and an important safety precaution to leave the trail by at least 50 feet (on the downhill side, if possible) whenever approaching parties with larger stock such as horses or mules. Smaller parties of pack llamas should yield to longer strings due to maneuverability. You should also give a verbal announcement to groups with pack stock as soon as you are within earshot. It may be reassuring to passing animals if you strike up a conversation with their handlers. Frightened animals can harm their riders/handlers, bystanders, and themselves, as well as the environment.
- During rest breaks, pull off the trail on a durable surface (e.g., dry grass or sand) the same distance and direction as described just above and give a verbal announcement to approaching groups with pack stock.
- Hand hold llamas on short breaks. If you must tie up, use the trunk of a tree at least 8" in diameter, but remember that llamas may strip bark from trees if they are tied to them. Use a lowline, highline, or picket line as described above for longer breaks or if llamas will be left unattended.
- Intact male llamas who cannot refrain from becoming disruptive when encountering other llamas on the trail should be led individually or left at home as a courtesy to other llama users and to minimize impact.

In Remote Areas, Some of the Rules Change

- When traveling where there is no trail, spread out and take different paths to disperse your impact. Do not travel single file.
- Stay on durable, dry ground (e.g., rocky, gravelly, grassy, or sandy). Skirt wet, boggy ground.
- When going up or downhill, travel separately in a switchback fashion.
- Do not mark your route in any way. This includes building rock cairns or making blazes on trees. If emergency, temporary flagging is necessary, remove it when it is no longer needed.

“Pack out more than you pack in.”

This motto expresses a luxury offered by pack llamas that will reduce the impact of others, as well as bring good will. Cleaning up trash left thoughtlessly or accidentally in campsites or along the trail is a critical part of LNT practices.

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Rosebud Llamas Utah is a corporate partner of Leave No Trace Center for Outdoor Ethics, Inc. We developed this pamphlet to assist those of us who pack with llamas to recognize, anticipate, and minimize the impact of our animals on the backcountry. We wish to thank the following individuals and organizations for their review of and comments on this document and for the commitment to Leave No Trace llama packing that their assistance signifies: Tom Carlson, USFS; Karen Conyngham, TX; Stanlynn Daugherty, Hurricane Creek Llama Treks, Inc., OR; Allyson Davis, Indian Summer Llamas, UT; Richard Galloway, Llama Mountaineers, OR; Carol Hammer, Soaring Heart Llamas, WA; Greg Hansen, USFS, National LNT Coordinator; David Hodges, Jackson Hole Llamas, WY; Gwen Ingram, Lost Creek Llamas; Jeff Marion, LNT Education Review Committee; Jim Miller, USFS; Rita Miller, Rita's Rockin-R Llamas, UT; Judy Mitchell, USFS; Kit Niemann, Kit's Llamas, WA; Gayle Paige, Plum Crazy Ranch, OR; Jay Rais, Highlooker Llamas, Inc., ID; Bob Russell, Spindrift Llamas, ID; Janet Schimpf, Middle Earth Llama Ranch, WA; Lorelei Seifert, WA; Stacey Smith, USFS; Sharon SnowKitashima, Sno-Kit Llamas, WA; Glenda Steinke, Mt. Silcox Llamas, WA; Ralph Swain, USFS; Scott Woodruff, Lander Llamas, WY; Jim Yeakel, Y Llamas Ranch, WA; Margaret A. Walsh, University of Wisconsin Press, WI.