

Performing Environmentally-Sensitive and Safe Field Research in Denali National Park And Preserve

A Guide for Research Scientists
10/28/08

Denali as a Place for Research

Denali is a special place—of mountains and tundra, of willows and dwarf fireweed on the gravel bars of braided glacial rivers, of permafrost and glaciers and the snowy peaks of the Alaska Range. In these wilderness landscapes live wolves and wolverines, Snow Buntings and snowshoe hares, as well as many other creatures large and microscopic. These landscapes hold cabins and culture, and a timeline that includes Native settlements and ways of life, exploration, mining, natural history, visitors, and research. This place, now called Denali National Park and Preserve, has attracted the interest of naturalists and research scientists since the early 1900's.

Each year, dozens of researchers study Denali ecosystems (physical and biological resources), visitor perceptions and park use, and cultural and subsistence resources. Approximately 50 to 75 research projects are underway (or on-going) each year. Studies range widely, including such examples as: the effects of high altitude climbs on human physiology; what makes visitors happy with their bus ride in the park; the effects of snow and winter severity on the predator-prey dynamics of populations of wolves and caribou; inventory of Denali's spiders; food habits of northern hawk-owls; and monitoring the timing of "green up" each spring.

Research permits are required to conduct research or collect specimens in National Park Service areas. Scientists must submit an application and a study proposal providing adequate detail about the plans for Denali and requests for any park assistance for permit consideration. To learn more about park research, or to obtain a research permit, please contact Denali's Research Administrator at 907 683-6352 or email [Lucy Tyrrell@nps.gov](mailto:Lucy.Tyrrell@nps.gov). You may also visit the National Park Service website and review the permit application information given there: <http://science.nature.nps.gov/research>

A scientific research permit may allow scientists to do things that the average visitor is prohibited from doing in a national park. With special permissions, come special responsibilities.

Except for the corridor around the Denali Park Road and some other Park Development areas (Entrance Area, Wonder Lake, and rest areas along the park road), Denali is either designated Wilderness or lands suitable for wilderness. Activities within wilderness, or suitable for wilderness, must be reviewed for compatibility with wilderness values. The wilderness coordinator at Denali will need enough information about the project to assess the Wilderness standards of Minimum Requirement (does this activity have to occur in wilderness?) and Minimum Tool (is this the least intrusive way to accomplish the objective?) process. The project will also be evaluated for other administrative concerns (Are there conflicts with visitor enjoyment? Are there conflicts with on-going research projects? Is the proposed research safe?) The goal is to encourage research that

minimizes negative impacts on resources or visitor experience, yet gathers important or critical information. Research findings may be especially valued by park managers who need to make science-based decisions.

For guidance in crafting a research proposal (study plan) to submit to the Research Permit and Reporting System website along with the application, please refer to the handout “Are You Thinking of Applying to Conduct Research at Denali?”

Minimizing Impacts while Conducting Research

Take a bus.

Use the park shuttle buses as transportation whenever possible to reduce fuels use, and traffic effects on wildlife. A camper bus ticket allows you to go back and forth along the road west of the Savage River. If you request a road permit for a private or government vehicle, you will need to provide justification for this request to be considered. Bicycles may be useful in some cases, and can be transported on certain park shuttle buses.

Avoid flights and landings over/on park lands.

The general rule of thumb is that if you can hike to the site within a day or two, then helicopter access will not be approved during park review of your project, unless you have some other strong justification. Juggle flights to combine travel with existing flights by park staff or minimize the number of trips. Aircraft noises affect wildlife and the solitude expected in a wilderness experience.

Be prepared.

If you do obtain a road permit, make sure you have all necessary field gear before leaving your vehicle on the park road. Excessive trips between the park road and your study site create unwanted social trails.

Walk softly.

As you walk, spread your research party out (unless you are on a designated trail), so the impacts of walking on tundra or other fragile habitats will be minimized. Choose durable surfaces for walking whenever possible (river bars, gravel, rock). Avoid approaching major rock formations or using them as your base site, as it will be easy to trample the area or make social trails to the rocks.

Minimize impacts.

If you will need to return to your study site multiple times over the course of the season, or from season to season, vary your travels to the same site or within the same site, to avoid adding social trails. Take care not to trample plants or soils at your work site. Avoid backtracking along the edge of a plot, or transect. If you will be kneeling or working in one area for some time, consider placing a mat or other protective surface to minimize impacts. Consider flagging or other temporary markers in colors to blend into the surrounding landscape.

Leave what you find.

Do not collect any items unless your research permit authorizes you to do so. If you find something that you think the park should know about, take photographs, record the

location, and leave the item in situ, where it has more value. You can report finds through the Research Administrator.

Collect discretely.

If your permit includes approved collections, respect others by collecting samples in a manner not obvious to visitors or at a time when visitors are not present. If you do encounter visitors, take the time to explain what you are doing. Spread out your collections of soils, leaves, branches to minimize the visual or biological impacts to your sampling.

Avoid or minimize mechanized/motorized equipment in wilderness.

Use of mechanized/motorized equipment is not usually suitable for wilderness. Use of this type of equipment and setting up of any equipment for extended periods must be described in the application and be approved in the research permit before you use it or store it in the field.

Reduce effects of digging holes.

If you are approved to dig soil pits or to make other ground disturbances of any depth, use a tarp to collect the diggings and replace the soil as best you can in the layers in which they existed. Make it look as if you hadn't dug a hole!

"Leave No Trace."

Use "Leave No Trace" practices when camping in the backcountry. This means moving your camp every 3-5 days to minimize having a "campsite" develop. No campfires are allowed in the backcountry. Follow food storage requirements for the backcountry. Backcountry camping in Denali's wilderness requires a backcountry camping permit and a backcountry orientation. To obtain an administrative backcountry *permit* for research purposes, contact the research administrator. Check on a map, which backcountry unit(s) you will be wanting to work in, so you can request an administrative permit in those units (what days, how many people, how long). In most cases, you will be outside the camper quota for the backcountry unit. On arrival at the park, you will need to allow time to take the backcountry camping orientation (about 40 minutes). Arrive no later than 5 pm (Backcountry Information Center closes daily at 6 pm). General questions about backcountry travel or camping can be directed to the backcountry information desk operating in the summer months: (907) 683-9510. Pack out what you pack in. When leaving your field site, be sure to check the area for garbage or trash of any kind, including small wrappers, twist ties, tags, pens, etc. To learn more about following the standard "Leave No Trace" principles, see www.LNT.org or call 1-800-332-4100.

Adhere to special park-specific or project-specific conditions.

Note the specific conditions of your Research and Collecting Permit for any other special considerations.

Keep wildlife wild.

Do not approach or harass wildlife. If you cause an animal to change its behavior you are too close. In general, keep more than 25 yards from all wildlife, except for bears (keep more than 300 yards away). See park's *Alpenglow* newspaper for details about distances to keep from wildlife.

Staying Safe while Conducting Research at Denali

PERSONAL SAFETY AND PARK RESOURCES ALWAYS TAKE PRIORITY OVER YOUR RESEARCH.

Make personal safety and the safety of other visitors and wildlife your first priority. It is important to plan ahead and be prepared for emergencies. Be prepared to be flexible to make detours or move your camp to avoid wildlife or a raging river.

Have a safety plan.

Develop a safety plan and file it with a friend, colleague, or the research administrator. This plan may be as simple as agreeing to check-in with the research administrator when you are finished and are leaving the park (which you should do anyway). You may wish to arrange to call someone daily on a satellite phone, if you will be in a remote area or have special concerns. Be sure to stick to your schedule, and let your safety net know of any changes. If you are overdue, you will trigger help searches, so don't inconvenience patrols or administrators because you forgot to notify the person in your safety plan.

Never work alone.

Arrange for field assistants to help. If enough notice is given, staff at Denali or the Murie Science and Learning Center may be able to arrange some field assistance.

Use best field practices for wildlife.

Do not feed wildlife or allow wildlife to get your food. Don't leave food unattended for even short times. Sign out a bear-resistant food container for backcountry camping, and use food lockers in campgrounds. Do not disturb wildlife in an effort to research your study site, or as a personal interest in seeing wildlife while you are in Denali. At a minimum you need to stay 25 yards away from caribou, moose, Dall's sheep, wolves, active raptor nests, but any distance at which you change wildlife behavior is too close. For bears you need to maintain a distance of at least 300 yards, but a larger distance may be appropriate. Don't follow an animal at close distance with your vehicle on the park road. Motorists must stop to allow animals to cross the road safely. Report any bear or wolf encounters via the bear incident management system or wolf forms available from the research administrator, any campground host, or any visitor center. See more information about staying safe in bear country below.

Stay out of wildlife closures.

All closures are marked with signs. Some closures indicate where a bear has killed a sheep or moose. You want to avoid wildlife that is defending a prey item. Sable Wildlife Closure is a permanent closure to protect wildlife habitat from human intrusion along the park road (5 miles encompassing Sable Pass, approximately Miles 38-43).

Respect river crossings.

Glacially fed streams and rivers may swell during warm days with glacial melt waters surging downstream. Be sure to get a recent report from the backcountry desk about river conditions if you plan to try to make a river crossing. Check the weather, and be prepared **not to cross to be "on the safe side"**, rather than getting across and getting stranded when you can't cross back over. Drownings have occurred in park rivers. Be

safe. Watch the backcountry desk orientation video (ask to watch the stream crossing section) even if you are not camping in the backcountry.

Drive safely on the Park Road.

If you obtain a road permit, be sure to watch the road safety video to learn the rules of the road and when and how to yield to buses and heavy vehicles. The road video can be borrowed in advance from the Research Administrator, or watch it when you arrive at the park. It is 20 minutes in length. The park road can be especially slippery after rain. Snow can arrive in any month especially in the high passes. Steep drop offs are serious business, so pay attention while driving even if the scenery or your sampling is on your mind.

Park safely on the Park Road.

If you need to park along the park road, find a suitable pullout, get approval to park in a ranger station parking area, or otherwise make sure your vehicle is not an obstruction to traffic using the road. Be sure to obtain a dashboard display pass from the Research Administrator in addition to your road permit. This will alert visitors to your special permissions as a researcher, and will alert park staff in the event you are reported overdue.

Stay safe for summer work.

Snow or freezing rain can occur at high elevations in any month of the year. Be prepared for chilly temperatures, wet weather, and avoid hypothermia. Headnets, bugshirts, or other protection against mosquitoes, especially in the Wonder Lake area, will help you stay sane while conducting your research.

Stay safe for winter work.

Cold weather, avalanches, or thin ice may all be concerns for winter field work. Be prepared. Check with park staff for current conditions or for suggestions of extra safety measures to take.

Adhere to Quiet Nights.

Sunday nights (from 10 p.m. to Monday at 6 a.m.) are designed to be a respite from noise and dust on the Park Road. Do not drive anywhere west of the Savage River during these hours.

Prevent contamination.

If you are involved with a boat or aircraft, store and pour fuels safely so there are no contaminations of waters. Store fuels (camping or motor) in an approved container. Never release any chemicals into streams or rivers, or onto the ground. Save in a container approved for use, and discard appropriately outside the park.

Respect bears.

Denali has both black and brown (grizzly) bears. Black bears are more likely to be encountered near the park entrance and in the Wonder Lake/Kantishna area (forested), while grizzlies could be encountered anywhere except extremely high elevations.

No one has been killed by a bear mauling in Denali. Severe injuries have decreased dramatically since the 1980's when the Bear Resistant Food Container was introduced.

Please help both bears and people stay safe in Denali. **The most important thing you can do is to not approach bears regardless of how far away they are, avoid surprise encounters, and to make sure they don't get any human food that would have them associate food with humans.**

Be sure to make noise (talk, sing) as you walk especially through areas where it is difficult to see (alder or willow thickets) or hear (streams and rivers). If you find a carcass or smelly pile of soil or gravel (cached carcass), leave the area immediately as bears may defend their food.

If you see a bear and it has not yet seen you—backtrack or take another route to by-pass the bear and suspend your research if necessary. If the bear sees you, call out in a calm assertive voice “Hey Bear”, wave your arms above your head, and stand your ground. For an imminent black bear attack you would be ready to fight back; for a grizzly attack you would curl up protecting your neck with your hands and remain still (reduce the perceived threat to the bear).

In addition to appropriate bear safety techniques, bear pepper spray has been shown to be a good last line of defense and has been effective in most reported cases of its use. It must be quickly accessible, not in your pack, and should not be applied to people, tents, or other equipment as a repellent (it actually may be an attractant). Before using the bear spray, read the instructions that accompany the canister. Be sure to note wind direction before using pepper spray.

Regardless of distance, never approach a bear.

As mentioned above, the ways to respond to black and grizzly bears are different. The best way to be prepared and act appropriately in a bear encounter is to view “Working in Bear Country Video”, get an orientation from the wildlife technicians (arrange through Research Administrator), or go through the backcountry orientation which includes bear safety.