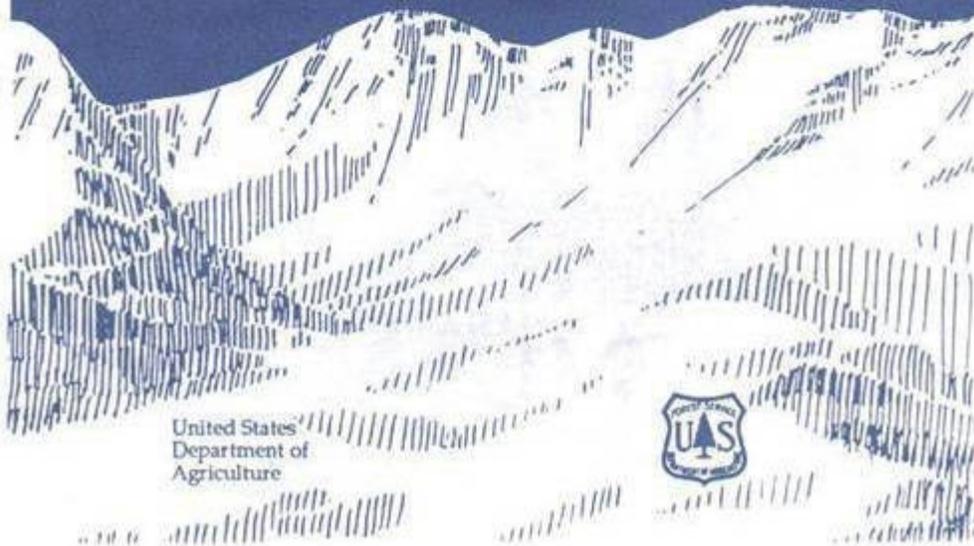


# Winter Safety Guide



## ***BASIC GUIDELINES FOR TRAVEL IN THE NATIONAL FORESTS***

*Most people are aware of winter's hazards. But it's easy to forget how wind, cold, snow, or whiteout can turn an outing into a tragedy. Knowledge of the area, weather, route, and the limitations of your body and equipment - plus a little common sense - can help ensure safe and enjoyable outings.*

### ***Before You Leave***

Notify a responsible person of your planned route of travel. Mark it on a map. Give your planned time of departure and return. Be sure to check with that person when you get back. Get back before dark.

### ***Where to Go***

Most of the National Forest is open for winter travel; However, some parts have restrictions. These restrictions include motorized vehicle closures, avalanche area closures, and hazardous roads. General recreation maps are available from the District Ranger, Forest Supervisor, or Regional Offices.

### ***Information***

Check local weather forecasts. Avalanches may occur at any time during the winter so call or listen to local avalanche advisories where available. Advice on avalanche conditions is also available at local Forest Service Offices. You can also contact the Forest Service snow ranger or the nearest winter sports area ski patrol.



## ON AND OFF THE TRAIL

All winter travelers should:

- \* Match trail difficulty and length of trip to your physical condition and ability. Be physically fit - Top physical condition may be required to walk out if equipment fails.
- \* Know storm warning signs - Mountain weather is unpredictable. Pay attention to changing conditions.
- \* Stay on safe routes and avoid avalanche terrain.
- \* A list of marked cross-country skiing and snowmobile trails is usually available at Forest Services offices.

### *Cross-Country Skiing*

Cross-country ski trails are not regularly packed or groomed. Stumps, rocks, and other obstructions are sometimes present. Ski under control.

Dogs can ruin ski tracks, especially those that have been groomed. For the benefit and enjoyment of others, consider leaving your pet at home. If you do take your dog, consider skiing in non-groomed or lightly-used areas.



### *Snowmobiling*

Travel in a group using at least two machines. Avoid sudden dips (washouts) at stream crossings and (blowouts) around the base of trees.

## SHARING ROUTES SAFELY

*In some areas of the National Forests, those traveling by skis, snowshoes, and snowmobiles must share the same routes and areas. The following suggestions will help provide safe routes for everyone:*

- \* Operate snowmobiles at minimum speed near skiers or snowshoers. Travel slowly until well beyond those on foot. Snowmobilers should be able to stop within half the visible distance ahead.
- \* Skiers and snowshoers should realize that snowmobile operators generally can't hear other approaching trail users. On steep slopes snowmobiles are generally limited to the developed trail surface, so give them the right of way. Use common courtesy and respect so that all trail users can enjoy their winter travel.
- \* Snowmobiles are not permitted on developed ski trails used for cross-country skiing. Restrictions are posted, but check with the local ranger for full information.

### **Maps**

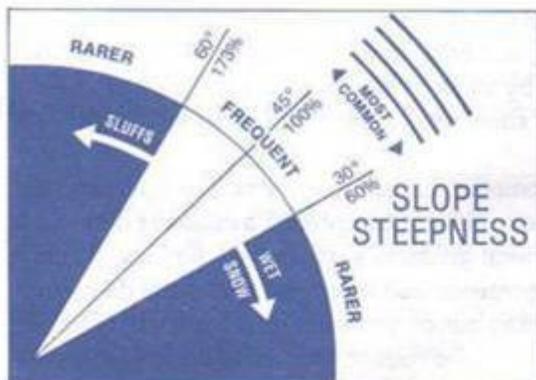
There are three basic types of maps useful for winter travel in National Forests. **National Forest Recreation Maps** are sold at the District Ranger, Forest Supervisor, or Regional Offices of the Forest Service. Forest Supervisors Offices are listed on the back of this publication. Maps can also be obtained by mail.

**Topographic maps** are available at many outdoor stores or from:

U.S. Geological Service  
Western Distribution Branch  
P.O. Box 25286  
Denver, Colorado 80225  
(303) 236-7477

Outdoor recreation and conservation organizations also make useful maps such as **winter trail maps**. These maps can be obtained directly from the organizations and are often available at retail stores specializing in outdoor recreation. Many are free.

## TERRAIN FACTORS



**Slope Steepness** - Avalanches are most common on slopes 30 to 45 degrees (60 to 100 percent), but may occur on slopes ranging from 25 to 45 degrees. The diagram shows the slopes where avalanches are most common.

**Slope Profile** - Dangerous slab avalanches are more likely to occur on convex slopes, but may also occur on concave slopes. Short slopes may be as dangerous as long slopes.

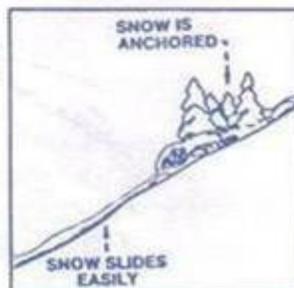
42 percent of all avalanche fatalities result from slides running less than 300 feet.



**Elevation** - Although the avalanche danger generally increases with elevation, unusual weather conditions (temperature inversion, for example) combined with local topography may reverse this relationship from time to time.

**Slope Aspects** - Snow on north-facing slopes may be slower to stabilize than other aspects. South-facing slopes are especially dangerous in the spring due to solar heating.

**Ground Cover** - Large rocks, trees, and heavy brush help anchor the snow. Smooth, open slopes are more dangerous, but avalanches can start even among trees.



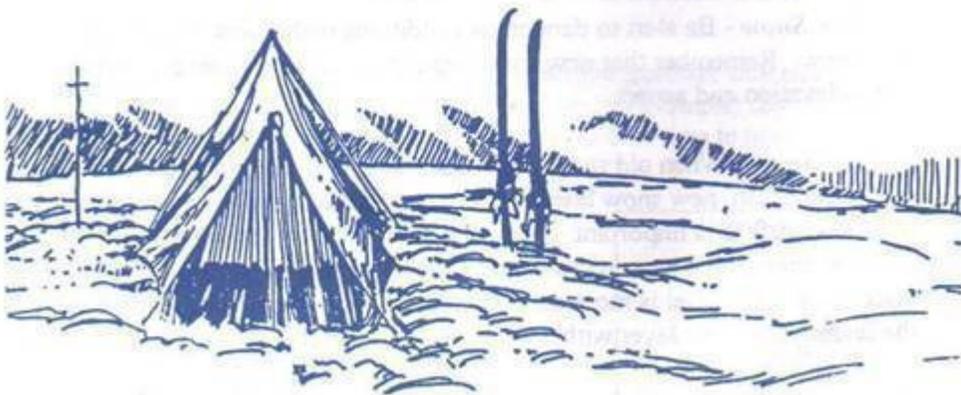
**Temperature** - Cold temperatures will maintain an unstable snowpack while warm temperatures (near or just above freezing) allow for snow settlement and increasing stability.

Storms starting with low temperatures and dry snow, followed by rising temperatures, are more likely to cause avalanches. The dry snow at the start forms a poor bond to the old snow surface and has insufficient strength to support the heavier snow deposited late in the storm.

Be alert to weather changes. Rapid changes in weather conditions (wind, temperature, snowfall) may affect snow stability and cause an avalanche.

**Temperature Inversion** - It may be warmer at higher elevation when warm air moves over cold air trapped near the ground. This weather situation can occur in avalanche terrain throughout the Northwest and may produce dangerous, unpredictable changes in local snow stability.

**Wet Snow** - Rainstorms or spring weather with warm winds and cloudy nights can warm the snow cover. Percolating water may cause wet snow avalanches. Wet snow avalanches are more likely on south slopes and slopes under exposed rocks.



## ***CROSSING DANGEROUS SLOPES***

The safest routes are on ridgetops and slightly on the windward side away from cornices. Windward slopes are usually safer than leeward slopes. If you cannot travel on ridges, the next safest route is out in the valley, far from the bottom of slopes. Obey signs closing slopes due to avalanche danger.



**Route Selection** - If you must cross dangerous slopes, stay high and near the top. If you see avalanche fracture lines in the snow, avoid them and similar snow areas. If you must ascend or descend a dangerous slope, go straight up or down; do not make traverses back and forth across the slope. Avoid disturbing cornices from below or above. Gain ridgetops by detouring around cornice areas.

Take advantage of areas of dense timber, ridges, or rocky outcrops as islands of safety. Use them for lunch and rest stops. Spend as little time as possible on open slopes.

Snowmobiles should not cross the lower part of slopes. Do not drive a snowmobile across especially long open slopes or known avalanche paths.

Only one person at a time should cross a dangerous or questionable slope. All others should watch him. Remove ski pole straps, ski safety straps, loosen all equipment, put on mitts, cap, and fasten clothing before you travel in any areas where there is avalanche danger.

Carry and use an avalanche transceiver. Carry a sectional probe and collapsible shovel.

## ***HYPOTHERMIA***

*Be aware of the danger of hypothermia - subnormal temperature of the body. Lowering of internal temperature of the body leads to mental and physical collapse.*

*Hypothermia is caused by exposure to cold, and it is aggravated by wet, wind, and exhaustion. It is the number one killer of recreationists.*

### ***Cold Kills in Two Distinct Steps***

The first step is exposure and exhaustion. The moment you begin to lose heat faster than your body produces it, you are undergoing exposure. Two things happen: You voluntarily exercise to stay warm, and your body makes involuntary adjustments to preserve normal temperature in the vital organs. Both responses drain your energy reserves. The only way to stop the drain is to reduce the degree of exposure.

The second step is hypothermia. If exposure continues until your energy reserves are exhausted, cold reaches the brain, depriving you of judgment and reasoning power. You will not be aware that this is happening. This is hypothermia. Your internal temperature is sliding downward. Without treatment, this slide leads to stupor, collapse, and death.

**The time to prevent hypothermia is during the period of exposure and gradual exhaustion.**

Most hypothermia cases develop in air temperatures between 30 and 50 degrees. Most outdoorsmen simply can't believe such temperatures can be dangerous. They underestimate the danger of being wet at such temperatures - with fatal results.

Fifty degree [F.] water is unbearably cold. The cold that kills is cold water running down neck and legs, cold water held against the body by sopping wet clothes, and cold water flushing body heat from the surface of the clothes. Don't ask "How cold is the air?" Ask instead, "How cold is the water against my body?"



**Prevent Exhaustion** - Make camp while you still have a reserve of energy. Allow for the fact that exposure greatly reduces your normal endurance.

Be aware that exercise drains energy reserves. If exhaustion forces you to stop, however briefly, your body heat production instantly drops 50 percent or more. Violent, incapacitating shivering may begin immediately and you may slip into hypothermia in a matter of minutes.

**Appoint a Foul-Weather Leader** - Make the best-protected member of your party responsible for calling a halt before the least-protected member becomes exhausted or goes into violent shivering.

**Symptoms** - If your party is exposed to wind, cold, and wet, think hypothermia. Watch yourself and others for symptoms.

- \* Uncontrollable fits of shivering.
- \* Vague, slow, slurred speech.
- \* Memory lapses, incoherence.
- \* Immobile, fumbling hands.
- \* Frequent stumbling. Lurching gait.
- \* Drowsiness - to sleep is to die.
- \* Apparent exhaustion. Inability to get up after a rest.

### **Treatment for Hypothermia**

The victim may deny he is in trouble. Believe the symptoms, not the victim. Even mild symptoms demand immediate, drastic treatment.

Get the victim out of the wind and rain. Strip off all wet clothes. If the victim is only mildly impaired, give him warm drinks. Get him into warm clothes and a warm sleeping bag. Well-wrapped, warm (not hot) rocks or canteens will hasten recovery.

If the victim is semi-conscious or worse, try to keep him awake. Give him warm drinks. Leave him stripped. Put the victim in a sleeping bag with another person - also stripped.

If you have a double bag, put the victim between two warm donors. Skin-to-skin contact is the most effective treatment.

Build a fire to warm the camp.



### ***Dehydration***

An adult, at rest, requires 2 quarts of water daily. Up to 4 quarts are required for strenuous activity. There is a 25 percent loss of stamina when an adult loses 1-1/2 quarts of water. Avoid dehydration - simply drink as often as you feel thirsty.

### ***Altitude Sickness***

At 10,000 feet, air contains only two-thirds of the volume of oxygen that it does at sea level. In addition, the higher air pressure at sea level easily forces the available oxygen through the thin lining of the lungs into the bloodstream. At higher elevations there is less air pressure and the available oxygen is not so easily forced through the lung walls.

***Symptoms*** - Listlessness, loss of appetite, weakness, apathy, nausea, dizziness, and drowsiness.

***Treatment*** - Stop and rest, breathe deeply a few times, obtain nourishment from simple sugar like candy or fruit juices. Travel to lower elevations.

***Prevention*** - Keep in good physical condition and eat a well-balanced diet. Avoid sudden trips to high altitudes which involve immediate physical exercise.

### ***Hyperventilation***

***Symptoms*** - This reaction to altitude is caused by too rapid breathing and decrease of the carbon dioxide level in the blood, causing light-headedness and cold feeling. Victims are apprehensive and excited.

***Treatment*** - Calm the victim, have him relax and breathe into a glove, bag, or hat until normal breathing is restored.

***Prevention*** - Same as altitude sickness.



## *National Forests in the Northern Region*

**Beaverhead National Forest**  
420 Barrett Street  
Dillon, MT 59725  
(406) 683-3900

**Bitterroot National Forest**  
1801 North First Street  
Hamilton, MT 59840  
(406) 363-7161

**Clearwater National Forest**  
12730 Highway 12  
Orofino, ID 83544  
(208) 476-4541

**Custer National Forest**  
2602 First Avenue North  
P.O. Box 2556  
Billings, MT 59103  
(406) 657-6361

**Deerlodge National Forest**  
400 North Main, Federal Building  
P.O. Box 400  
Butte, MT 59703  
(406) 496-3400

**Flathead National Forest**  
1935 Third Avenue East  
Kalispell, MT 59901  
(406) 755-5401

**Gallatin National Forest**  
10 East Babcock Avenue  
P.O. Box 130, Federal Building  
Bozeman, MT 59771  
(406) 587-6701

**Helena National Forest**  
2880 Skyway Drive  
Helena, MT 59601  
(406) 449-5201

**Idaho Panhandle National Forest**  
(Headquarters for Coeur d'Alene,  
Kaniksu, and St. Joe National Forests)  
1201 Ironwood Drive  
Coeur d'Alene, ID 83814  
(208) 765-7223

**Kootenai National Forest**  
506 U.S. Highway 2 West  
Libby, MT 59923  
(406) 293-6211

**Lewis & Clark National Forest**  
1101 15th Street North  
P.O. Box 869  
Great Falls, MT 59403  
(406) 791-7700

**Lolo National Forest**  
Building 24, Fort Missoula  
Missoula, MT 59801  
(406) 329-3750

**Nez Perce National Forest**  
901 East Main  
Route 2, Box 475  
Grangeville, ID 83530  
(208) 983-1950

**Northern Region Headquarters**  
200 East Broadway, Federal Building  
P.O. Box 7669  
Missoula, MT 59801  
(406) 329-3511

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