

# Crater Lake Snowshoe Adventure The Book





## Getting Ready

Conditions: Overcast, firm snow

You're sitting next to the fireplace in the Steel Information Center as you pull the laces tight on your ranger boots. You notice that the brown leather is creased and cracked, dried out from what seems like millions of steps across Crater Lake National Park. You wonder again if you should retire the old, worn boots for something newer that would shine up nicely, but then you think to yourself, "they'll probably make it through the winter." You zip up your patrol jacket and grab your warm gloves and hat from the oversized wooden chair facing the fire. You stare into the flames while feeling their heat on the palms of your outstretched hands. You think to yourself,

*"I'm really excited to snowshoe out to Sun Notch. It's one of my favorite places at Crater Lake. I always see awesome wildlife when I explore there, and the view of Phantom Ship is unbeatable. I wonder if I should swing by the Search and Rescue Cache to collect extra gear in case of an emergency? I'm only going six miles round trip to Sun Notch and back. I'll only be out a few hours if I move fast, and I could definitely move more quickly without a heavy pack."*

**Go to Search and Rescue Cache to collect extra gear in case of an emergency. Go to page 2...**

**Decide to go out without extra gear so you can move as fast as possible. Go to page 3...**

## Collecting the 10 Essentials

Conditions: Overcast, firm snow

You swing open the huge door to the SAR Cache and the musty smell of tents, climbing ropes, and ski wax immediately fills your nostrils. You toss your empty backpack onto the workbench and start to collect the [10 essential tools for survival](#). You talk aloud as you work so that you don't forget anything.

**Navigation:** I'm going to pack a map and compass, as well as my GPS receiver so I don't get lost.

**Sun Protection:** I've got to pack sunscreen and sunglasses to protect myself from the sun that will reflect off the snow.

**Insulation:** I need extra warm clothes in case I'm stuck somewhere overnight.

**Illumination:** I always make sure to have extra batteries and my headlamp in case I'm out after dark.

**First-Aid Supplies:** It'll be good to have my first aid kit stocked in case I cut myself or get blisters.

**Repair Kit and Tools:** A multi-tool and some tape make a great repair kit in case something tears or breaks.

**Fire:** I'll pack my camp stove and a lighter in case I need to melt snow for more drinking water.

**Nutrition:** Beyond just my sandwich I need to pack extra food in case I'm out overnight.

**Hydration:** I'll need a couple of water bottles so I can stay hydrated!

**Emergency Shelter:** I have a bivy sack that I can use in case I need waterproof shelter overnight.

You grab the last, and maybe most important survival tool: an avalanche shovel. This lightweight, collapsible shovel is made of aluminum and easily shovel and shape snow. You carefully place each item in your pack and think to yourself, "Now I'm prepared for anything! I wonder if I should tell the rangers my plans to snowshoe to Sun Notch and back today. I'm really in a hurry at this point, maybe I should just head out?"

**Tell the rangers your adventure plans. Go to page 4...**

**Don't tell anyone your plans and head out for adventure. Go to page 5...**

## Feeling Brave

Conditions: Overcast, firm snow

You walk out of the employee entrance on the south side of the Steel building, and through the overcast air a familiar chartreuse hue catches your eye. You stop and take a closer look at the wolf lichen clinging to life on a mountain hemlock. With a cool confidence you think to yourself, “I’m like this wolf lichen. No need for extra protection or shelter. Just a tough exterior that needs sun, water, and fresh air.” You sense a feeling in your gut that something might not be right, but you’ve worked at Crater Lake for three years now, and you feel comfortable in the wilderness.

You think to yourself, “I don’t foresee any emergencies today. I’ve never really had much of an issue in the past, and my backpack ends up weighing a ton when I put all the gear in it.” You look at your watch. “I wonder if I should tell the rangers my plans to make it to Sun Notch and back today. I’m really making good time, maybe I should just head out?”

**Tell the rangers your adventure plans. Go to page 6...**

**Don’t tell anyone your plans and head out for adventure. Go to page 7...**



Wolf Lichen, *Letharia vulpine*

Photo: NPS

## Getting Started

Conditions: Overcast, firm snow

You walk on the plowed road to the Ranger Station to tell the rangers your plans. The door is locked, and a message written on a white board reads: *Out to record weather*. You take a blank backcountry camping permit and write a quick note that reads: *Hi Rangers, I went out on snowshoes to Sun Notch. I brought gear to stay overnight if needed. I should be back no later than tomorrow afternoon*. You sign your initials, use a piece of tape from your repair kit to stick the note to the white board, and turn towards the trailhead.

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You arrive at the start of the East Rim Ski Trail and begin strapping on your snowshoes. You make sure each strap is secure by tugging on them with your gloved hands. Once everything is tight, you look at your watch and think to yourself, "I'm getting a later start than I wanted, but now I'm confident that I can move safely through the mountains to Sun Notch." You begin to break trail through about a foot of fresh snow from the night before. It's harder than you were expecting, but you patiently wait for your muscles to warm up and relax.

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You stop for a drink of water and an energy bar. As you chew, hardened by the cold, the wind speed increases, and you hear it whistling on the top of your open water bottle. An even faster, colder blast of air hits your face and your eyes begin to water. You turn around and look to the west. The sky is dark grey and high up the clouds are blowing in your direction. You think to yourself, "The weather looks like it's taking a turn for the worse. I wonder if I should turn back and try to make it out to Sun Notch on a different day. I packed all the gear I need to stay out, but I have video games and hot chocolate back at home waiting for me."

**Turn back to the Ranger Station. Go to page 8...**

**Keep snowshoeing towards Sun Notch. Go to page 9...**

## Getting Started

Conditions: Overcast, windy, firm snow

You arrive at the start of the East Rim Ski Trail and begin strapping on your snowshoes. You make sure each strap is secure by tugging on them with your gloved hands. Once everything is tight, you look at your watch and think to yourself, "I'm getting a little bit of a later start than I wanted, but now I'm confident that I can move safely through the mountains to Sun Notch." You begin to break trail through about a foot of fresh powder from the night before. It's harder than you were expecting, but you patiently wait for your muscles to warm up and relax.

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**Keep snowshoeing towards Sun Notch. Go to page 10...**

## Getting Started

Conditions: Overcast, windy, firm snow

You walk on the plowed road to the Ranger Station to tell the rangers your plans. The door is locked, and a message written on a white board reads: *Out to record weather*. You take a blank backcountry camping permit and write a quick note that reads: *Hi Rangers, I went out on snowshoes to Sun Notch. I'm only planning to be out for a few hours*. You sign your initials, put the note under a rock in front of the door, and turn towards the trailhead.

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You arrive at the start of the East Rim Ski Trail and begin strapping on your snowshoes. You make sure each strap is secure by tugging on them with your gloved hands. Once everything is tight, you look at your watch and think to yourself, "I'm getting a fast start and I'm not weighed down by extra gear, so I'm confident that I can move quickly through the mountains to Sun Notch." You begin to break trail through about a foot of fresh powder from the night before. It's harder than you were expecting, but you patiently wait for your muscles to warm up and relax.

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**Turn back to the Ranger Station. Go to page 8...**

**Keep snowshoeing towards Sun Notch. Go to page 11...**



## Getting Started

Conditions: Overcast, windy, firm snow

You arrive at the start of the East Rim Ski Trail and begin strapping on your snowshoes. You make sure each strap is secure by tugging on them with your gloved hands. Once everything is tight, you look at your watch and think to yourself, "I'm getting a super-fast start and I'm not weighed down by extra gear, so I'm confident that I can move quickly through the mountains to Sun Notch." You begin to break trail through about a foot of fresh powder from the night before. It's harder than you were expecting, but you patiently wait for your muscles to warm up and relax.

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Friday, 11:50 am

You stop for a drink of water and an energy bar. As you chew the bar, hardened by the cold, the wind speed increases, and you hear it whistling on the top of your open water bottle. An even faster, colder blast of air hits your face and your eyes begin to water. You turn around and look to the west. The sky is dark grey and high up the clouds are blowing in your direction. You think to yourself, "The weather looks like it's taking a turn for the worse. I wonder if I should turn back and try to make it out to Sun Notch on a different day. I did pack all the gear I need to stay out if needed, but I have video games and hot chocolate back at home waiting for me."

**Turn back to the Ranger Station. Go to page 8...**

**Keep snowshoeing towards Sun Notch. Go to page 12...**

**Better Safe Than Sorry**

Conditions: Overcast, windy, firm snow

Now covered in snow, you walk up the steps to the Ranger Station and the door is unlocked. You open it and when you step inside the warm, old building, you're greeted by a ranger. You say "The weather took a turn for the worse, so I decided to turn back. There will always be tomorrow!" The ranger says, "Well, there will always be tomorrow if you make smart decisions like you just did. Better luck next time!"

**Start over**

## **Extreme Weather**

Conditions: Snowing heavily

You aren't going to let changing weather stop you. You continue to snowshoe towards Sun Notch and now that your muscles are warm you feel like you are keeping a good pace. The wind begins to howl, and it starts snowing. The snowflakes are tiny and seem to drop right out of the sky. It starts to snow so heavily that with each gust of wind, the snow whipping out of the tree limbs creates a temporary, but total whiteout. You go from being able to see only about 30 feet in front of you to being totally blind, not being able to tell up from down. This happens repeatedly, until you begin to feel helpless.

You kneel, take off your pack, and dig around for your GPS receiver. Maybe if you can get a signal, you can at least make sure you're still on the trail. The clouds are so close to the mountain and so full of ice that the time signals from the GPS satellites can't reliably reach you. You think to yourself, "I need to wait out the storm. It's so cold and windy, if I just sit down here, I'm afraid of hypothermia. I wonder if I should climb up into a tree or use my shovel to dig down into the snow. I better decide fast because this is becoming an emergency!"

**Climb a tree to get out of the snow. Go to page 13...**

**Dig into the snow to make a shelter. Go to page 14...**

**Extreme Weather**

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**Climb a tree to get out of the snow. Go to page 15...**

**Dig into the snow to make a shelter. Go to page 17...**

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You start to feel like you made a mistake by not bringing emergency gear. You don't think you can keep snowshoeing blind. You think to yourself, "I need to wait out the storm. It's so cold and windy, if I just sit down here, I'm afraid of hypothermia. I wish I would have brought a shovel; I would have been able to dig a snow cave. Maybe I should climb a tree to get out of the snow?"

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You are found three hours after sunset by the park's Search and Rescue Team. You are just off the trail in the limbs of a tree. They tell you that you're going to survive, but you will probably lose fingers and toes due to frostbite. They tell you that you're lucky to be alive and that you should have never traveled out into the mountains without emergency gear in a backpack.

**Start Over**

**Extreme Weather**

Conditions: Snowing heavily

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Your frozen body is found by the park's Search and Rescue team 3 days later. No one knew you were on a hike during the storm and didn't start looking for you until you didn't show up for duty on Monday morning.

**Start Over**

**Fingers and Toes**

Conditions: Snowing heavily

You've climbed into a tree and out of the snowpack, but you can't get out of the wind and cold. You think to yourself, "it's so cold, my fingers and toes hurt. I hope the rangers read my note and are coming to look for me!"

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You are found by the park's Search and Rescue Team. You're huddled in the limbs of a tree just off the trail. They tell you that you're going to survive, but you will probably lose fingers and toes due to frostbite. They tell you that you're lucky to be alive and that you should have dug a snow cave with your shovel to stay warm throughout the night.

**Start Over**

## Digging a Snow Cave

Conditions: Snowing heavily

You think of the bears sleeping under the snow during the winter. You know that's how they survive. Their own body heat can be trapped by the snow and the air temperature can be above freezing. You begin to search for a deep pile of snow to dig into. You can't see more than 10 feet in front of your face, so you don't have the luxury of being picky. There are two things you're looking for, 1) a place to dig an entrance out of the wind, and 2) you need to be out of the way of avalanche danger. You know that you haven't made it to the avalanche bypass yet, so you're probably still below gentle slopes. You turn around and see that you've just hiked past a small cliff with snow piled deep at its base. A tree is growing out of the snow near the base of the cliff and you think you can start digging an entrance out of the wind using the space melted out around the tree.

You take off your backpack and set it against the tree trunk. As you unzip the pack's front pocket to remove the shovel, it's snowing so hard that your black backpack is already turning white. You know you need to hurry and losing life-saving gear in the snow is going to be a threat. Leaving everything but the shovel in your pack, you get to work digging into the snow slope. You've only ever practiced digging snow caves in good weather with friends to help. This is different. The wind howls and you feel lonely as you dig through the snowpack. The 6 inches is fluffy and pure white, but then there's a one-inch layer of ice, followed by snow that reminds you of nearly frozen mashed potatoes. You keep digging a hole horizontally into the snow slope, staying low knowing the entrance will need to be at the bottom of the slope.

You remember from your winter survival training that if you can get into a snow cave and out of the wind, it's possible to keep the air inside above freezing. You know that black bears survive the winter by sleeping in snow caves, so why can't you?

As you dig you begin to feel a prickly feeling in your armpits as snow continues to accumulate around you. You didn't think you'd have to worry about sweating at a time like this! Now your clothes are getting wet inside from perspiration and outside from precipitation. You feel scared as you continue to work, knowing now that this has become a life-or-death situation. You're starting to get hungry, even a little *hangry*. "Why am I out here right now!? I could be at home warm and dry on the couch!" you yell to no one.

Just outside of the cave, you have your camp stove already melting water to make a hot meal. You have a dehydrated biscuits and gravy pack that has been in your pack for months and has never sounded so tasty. Inside, you have three candles lit. They provide nice light, but also raise the air temperature above freezing, allowing the domed snow-walls to melt and refreeze, become smooth and hard. Your bivy sack is laid out on top of your empty backpack on the sleeping bench you carved from snow. Your jacket's off, drying next to your pack. You're sipping on water as you prepare for the cold night. "This is awesome," you think yourself.

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You wake up shivering in the snow cave, but everything around you is safe and dry. You pack up your gear while eating a granola bar and some water and head out to a beautiful, sunny day. You think to yourself,

*“the weather is nice now since the storm has passed, and I’m only one mile from Sun Notch. I think I can make it to there and back to the Ranger Station before dark. I know I will have enough time if I skip the avalanche bypass route and travel directly there. I will be at risk of avalanche, but if I move fast, maybe I’ll get away with it.”*

**Take the longer and safer avalanche bypass route to Sun Notch. Go to page 19...**

**Take the shorter and faster direct route to Sun Notch. Go to page 20...**



Black bear, *Ursus americanus*

Photo: mrpolyonymous, Flickr

**Fingers and Toes**

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Conditions: Sunny

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**Take the longer and safer avalanche bypass route to Sun Notch. Go to page 21...**

**Take the shorter and faster direct route to Sun Notch. Go to page 22...**



Black bear, *Ursus americanus*

Photo: mrpolyonymous, Flickr

## It's Good to Be Prepared

Conditions: Sunny

You're snowshoeing through an old growth mountain hemlock forest on the avalanche bypass route. The terrain around you is gentle and the snow is deep. You check your watch as you continue breaking trail. You're far away from avalanche danger, but you've added a ton of work to your hike. You've already been snowshoeing for a while, so you decide to stop and take a break to eat food and drink water.

The instant you tear open your energy bar wrapper, gray jays swoop in to greet you. The fuzzy little birds are very friendly towards humans. You know this because in the past you've repeatedly asked park visitor to not feed them in the parking lots at Rim Village. You think to yourself,

*"I wonder if these gray jays followed me all the way from Park Headquarters. They are silly birds, always friendly and always hungry. I know they hide food in the bark of old trees, I remember reading about how they use their spit as a glue that freezes and holds the berries, bugs, and nuts they collect into the crevices. I wonder if that's what they're doing. Aren't they cold?"*

The birds begin to swoop at you. "OK, it's clear that they are just here to beg for my food. I better make sure they don't get a crumb!" You eat another handful of trail mix. "I just realized that I'm pretty similar to the grey jay! We both like to play in the snow and we plan ahead by storing food. That way we'll have it when we need it most!" Another grey jay swoops at your head. "Ok little dudes, I better get going." You strap on your pack and start snowshoeing.

**Go to page 23...**



Gray jay, *Perisoreus canadensis*

Photo: NPS

## Moving Fast

Conditions: Sunny

You're cruising along the trail and everything is going smoothly. You look above at the steep slopes of the avalanche zone and then look down at your watch, then cross your gloved fingers. You start to snowshoe a little faster.

A pine marten bounds across the steep avalanche slope above you. She only weighs a few pounds but appears weightless as she dashes across the soft surface of the fresh snowfall. "She didn't take the avalanche bypass!" You exclaim out loud.

These ferocious carnivores stay active all winter long at Crater Lake and need to eat meat every day to survive. "I wouldn't want to be a snowshoe hare right now!" you think to yourself.

Go to page 23...



Pine marten, *Martes martes*

Photo: NPS

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**Go to page 24...**



Gray jay, *Perisoreus canadensis*

Photo: NPS

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**Go to page 24...**



Pine marten, *Martes martes*

Photo: NPS



## You're Halfway There

Conditions: Sunny

As you approach the caldera rim at Sun Notch, blue sky blasts through whitebark pine trees standing on the edge of the cliff. Some of these trees have lived here for 1000 years. They were planted by Clark's nutcrackers, a medium-sized bird with a powerful beak. The birds collect seeds directly from whitebark pines and then cache them where the wind blows the hardest. They're smart: where the wind blows, the snow is less deep, and in the spring, the dirt in these places emerges first when the snow begins to melt. They make thousands of caches throughout the summer but forget where some of them are by springtime. The seeds in these forgotten caches sometimes grow up to be strong, old trees.

You make it to the trees and must abruptly stop yourself from snowshoeing any farther, or you will be dangling off the edge of the caldera, supported only by a snow cornice. The cornices are invisible from your point of view, but you know about this hazard from your ranger training. "Be like the trees that have survived 1000 years," you tell yourself as you stay within the whitebark pines. You look up and Crater Lake comes into full view.

For a short while you can't form full thoughts. You're in awe as you gaze upon the deep blue water hundreds of feet below you. Phantom Ship, a small island, juts out of the water. Everything is reflected perfectly on the mirror surface of the lake. After a while you think to yourself,

*"Wow, this is an incredible view. The journey to get here was difficult but was so worth it! I better start heading back to the Ranger Station. I want to make it back before dark, so the other rangers don't worry about me. I wonder if I should skip the avalanche bypass to make sure I make it back in time for dinner. Hmmm? I know it'll be safer to take the bypass, but I can't wait to get back and share my photos."*

**Use the avalanche bypass to safely make it back home. Go to page 25...**

**Skip the avalanche bypass and travel through dangerous avalanche terrain to make it back home sooner. Go to page 26...**



Phantom Ship as seen from Sun Notch.

Photo: NPS

## **You're Halfway There**

Conditions: Sunny

As you approach the caldera rim at Sun Notch, blue sky blasts through whitebark pine trees standing on the edge of the cliff. Some of these trees have lived here for 1000 years. They were planted by Clark's nutcrackers, a medium-sized bird with a powerful beak. The birds collect seeds directly from whitebark pines and then cache them where the wind blows the hardest. They're smart: where the wind blows, the snow is less deep, and in the spring, the dirt in these places emerges first when the snow begins to melt. They make thousands of caches throughout the summer but forget where some of them are by springtime. The seeds in these forgotten caches sometimes grow up to be strong, old trees.

You can't quite see the lake, but you're close. Behind the crunching noise your snowshoes make on the snow, you hear someone yelling. You think to yourself, "Did you hear that? It sounds like someone calling my name. Who else is out here?" You hear the voice again, this time it's shouting, "Hey! Are you ok? We've been out searching for you since sunrise!"

"I'm totally fine," you reply, "I'm just about to get to Sun Notch! I had a little unplanned overnight in a snowcave, but I was prepared and did just fine."

"But," says the backcountry ranger, "you didn't leave a note. And, when you didn't report to duty this morning, we went to your house and your snowshoes were gone. We had to initiate a search and rescue. We're just happy to find you alive!"

**Start over**

**Be Flexible**

Conditions: Sunny

You start down the avalanche bypass and you think to yourself,

*"I know I need to hustle, but I'm glad that I took the safe route, away from avalanche danger. I've learned a lot from the trees in this forest. One reason these mountain hemlocks survive extreme snowfall for hundreds of winters is because they are flexible. The weight of all the snow would be dangerous if they didn't bend out of the way. That's like what I'm doing now to avoid avalanche danger! I'm being flexible like a bending mountain hemlock!"*

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Mountain hemlocks, *Tsuga Mertensiana*

Photo: NPS

## Throwing Caution to the Wind

Conditions: Sunny

You're cruising along the East Rim Trail back towards Park Headquarters on your snowshoes and you look at your watch. You think to yourself, "I'm making awesome time and I'll be back to the Ranger Station before dark, no problem. It feels a little risky, but I'm happy that I'm moving fast!"

Just then, there's a rumbling sound and you look up to see the snow slope tumbling down at you. It sounds like a train coming to a halt, but it doesn't stop in time. You're buried and cannot self-rescue. Your body is found the next day by an avalanche search dog. You did not survive.

## Start Over



An avalanche on a steep mountain slope.

Photo: NPS

**Success**

Conditions: Indoors

You arrive back at the Ranger Station just before sunset and you're exhausted but happy. The large wooden door seems heavier than usual due to your exhaustion. You think to yourself, "Wow, what an adventure! I only thought I'd be out a couple of hours and I spent a night out in a snow cave! I'm so happy that I prepared myself with the right gear and let the rangers know my plans. I can't wait to tell them about the hike and show them my photos!"

As you walk up to the backcountry permits desk, a ranger greets you and says, "Don't forget to fill out a ranger trip report so you can log your experience for your supervisor!" You smile and think to yourself, "another day in the office."

