

THE COLORADO SURVIVAL GUIDE

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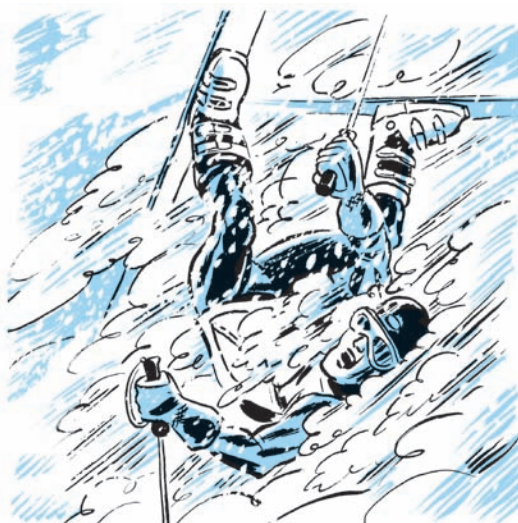
As these harrowing first-person accounts show, our beautiful but unforgiving geography, unpredictable weather, and menacing wildlife can quickly transform routine excursions into near-death incidents. Here, our experts recommend survival strategies that might just help you turn a potential tragedy into a great campfire story.

SURVIVED AN AVALANCHE

ROB KLIMEK, TELLURIDE, 38

We shouldn't have been out there. It was early November 1998 at the Telluride Ski Area before it opened up [for the season]. It was 3:05 p.m., and the sun was setting at 5:30 or so. My buddy had forgotten his boots, so we had to go back and get them, and then we had a problem with his skis' climbing skins, so we got a late start.

There had been a big blizzard, 36 inches of snow. Unbeknownst to us, the patrollers had rolled the ski area with a Sno-Cat, so we had about three feet of snow on top of a very slick surface. When my buddy cut across the top, the slope ripped, and there was nothing I could do. I said a prayer and thought, "Here comes the white room." To my luck, I got snagged up on some smaller trees on the way down, which kept me on top of the snow. Then I went over two cliffs, a 30-footer and a 70-footer. When everything stopped, I wiggled around and was able to break through the surface of the snow. I ended up only six inches deep, and horizontal. I was able to get my backpack off—I had a beacon, shovel, and probe—and was able to self-excavate, so I just waited for my buddy to come down and help me out. I had broken ribs and was coughing up blood, and my right leg was pretty much toast at the knee. Everything that could go wrong did go wrong. But I'm still here.



LESSONS LEARNED

Simon Trautman, Colorado Avalanche Information Center

WHAT HE DID RIGHT

- Had a partner and was carrying a beacon, probe, and shovel.

WHAT HE DID WRONG

- Avalanches generally are caused by a bed surface, a weak layer, and a cohesive slab of snow on a steep slope. In this case, all three were probably easily identifiable.
- Skiers love premier slopes, but most of them happen to be steep enough to avalanche under the right conditions—many people don't realize how fragile they are or how much work goes into keeping them safe.
- When skiing in avalanche terrain, people must ski one at a time, from "safe spot" to "safe spot." It sounds like Rob's friend skied on top of him, triggering the avalanche.

LOST IN THE WILDERNESS

TERRY AND MARION JONES, FORT COLLINS, 58 AND 51

TERRY: It was September 2007. We planned to hike from Chapin Pass in Rocky Mountain National Park to Highway 14, and camp one night along the way. We had a map, but it didn't include our trail, and on day two we lost our way. We couldn't find the intersection we were expecting about seven miles in. We followed the river down because it flowed right past our car. It was walkable at first but eventually became rugged, and we had to climb above some cliffs. We went until →



Do's And Don'ts

The Boy Scouts had it right: Anyone heading into Colorado's rugged wilderness must always Be Prepared. Here's how to anticipate potential dangers, buy some time—and maybe even save your life.

BEFORE YOU GO

Tell someone exactly where you're going and when you expect to be back. Otherwise, no one will know you're missing.

ANTICIPATE BAD WEATHER

Check the weather reports before you head out. The National Weather Service (www.crh.noaa.gov/den/) and the Colorado Avalanche Information Center (avalanche.state.co.us) are reliable. If storms look likely, better to cancel and lose the \$50 deposit on a backcountry hut than risk getting caught in the elements.

FIND OR BUILD SHELTER

If you get stranded in the wilderness, first look for shelter. If there's a cabin or a hut, break in—the owners will forgive you. No lodging in sight? Lay out a bed of pine needles, which provide insulation, and burrow in. A basic lean-to—thick branches or bark propped against a downed tree—will protect you from rain or snow. Tie any bright materials you have to the structure to alert rescuers.

LIGHT A FIRE

Most Colorado parks have fire bans, but if you're in a survival situation, you may have no choice. Use a Bic lighter, strike-anywhere matches, or old-school flint and steel.



- Lighter or matches at hand, dig a shallow hole and surround it with rocks to prevent the fire from spreading.
- Gather tinder (dead grass, pine needles, paper), kindling (small dead twigs, dry bark), and fuel (larger dead branches or logs).
- Place the tinder in the hole; don't compact it too tightly since oxygen needs to be able to circulate.
- Light the tinder. Slowly set up the small twigs like a teepee around it, and gradually increase the size of the branches.
- Once you have a decent-size fire, go collect more wood.

FIND DRINKING WATER

Though people can survive for three days without water, our climate can quickly dehydrate you. Since some local lakes are infected with giardia (a diarrhea-causing bacteria), treat water with iodine tablets, a filtering pump, or a

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UV pen. Boiling water for 10 minutes will also kill any bacteria. If you don't have any way to purify water, drink only the clearest, fastest-running water around, since it's the cleanest. Don't eat snow—it lowers your body temperature and dehydrates you more. Instead, pack snow into your water bottle and put it inside your jacket; your body heat will melt it down.

FINALLY—FIND FOOD

If you're lost, shelter, fire, and water are far more important than food. Humans can survive for up to three weeks without food, so focus instead on getting rescued. Gather more lean-to materials or firewood. If you packed a candy bar, dig in.

GET OUT OF A TREE WELL

After a heavy snowfall, air pockets can form under the low-hanging branches of coniferous trees.

These tree wells can become deadly if you fall in headfirst while skiing or snowboarding; you're stuck upside-down and can suffocate. Because most skiers won't avoid skiing in the powder between trees—it is, after all, totally epic—remember this:



- Always keep a partner in eyesight. If you fall into a tree well, remain calm—thrashing about will only cause more snow to fall in.
- Try to unbuckle your boots from your skis or board and turn yourself right side up.
- Grab the branches and try to pull yourself out. If any partners fall in, don't go for help; dig them out immediately before they suffocate.

SURVIVE ANIMAL ATTACKS

The two most dangerous animals in Colorado are mountain lions and black bears. Think preventively: Hike with at least one other person, and keep talking so you won't surprise an animal. Keep children and dogs close. Should you encounter a mountain lion:

- Move slowly, talk to it, and attempt to appear larger by raising your arms and opening your jacket. Pick up small children, but don't run.
- If the lion approaches, throw rocks and sticks, wave your arms, and yell. If attacked, remain standing and face the lion, and fight back with your hands, sticks, or rocks—adult mountain lions weigh up to 180 pounds, but they can be fended off.

To avoid black bears:

- Stow food, drinks, and toiletries in a bear sack or canister and hang it 20 feet off the ground, at least 200 yards from your camp—

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dark, set up the tent, ate our last food, and went to sleep.

The next day we talked about turning back or crossing the river, but we found passable terrain. We soon encountered cliffs again and had to climb higher, where it got totally discouraging. We couldn't see Highway 14, only miles of canyon. We were on an impassable mountain shelf, 800 feet above the river, but with no food or water. We had told our children where we were going, so we decided to hole up and wait for help.

We started a big fire and found mushrooms, which was lucky because Marion had learned how to identify edible ones as a child. By the next morning we felt OK, so we kept eating them. We also found grape holly berries, rose hips, and juniper berries.

MARION: We were nervous to separate because of mountain lions. Terry climbed higher, hoping to get cell phone reception, but nothing. On day three we decided to head back. Down at the river we saw a news helicopter, but the canyon was so narrow it couldn't see us, so we decided to climb back up to the shelf.

Another helicopter came the next day. We were yelling and signaling by waving white T-shirts, and we had green wood on the fire to make it smoke. But they were flying below our cliff and didn't see us. That was a low point.

TERRY: On day five a plane finally found us. We were elated, hugging each other and crying. It turned out that we had gotten stranded just two miles from our car.

LESSONS LEARNED

Ford Church, founder of the Cottonwood Institute survival school

WHAT THEY DID RIGHT

- Told people where they were going, so search and rescue knew where to get started.
- Made a fire, which is great for warmth, but more importantly for signaling their rescue crew. Fire, signal mirrors, whistles, headlamps, and creating signs on the ground for planes and helicopters are great strategies.
- Were familiar with local edible plants. Novices should not just start eating any mushroom or berry in sight or it could kill them.

WHAT THEY DID WRONG

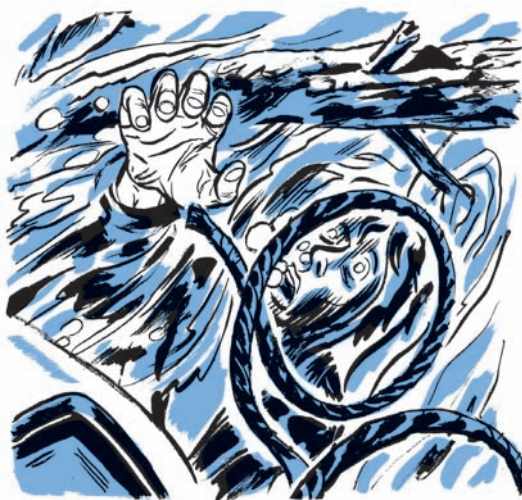
- Didn't bring a proper map of the area.
- Left the main trail and didn't turn back when the terrain became too rough. Search and rescue will start looking on roads and trails in the area before they head into the wilderness.
- Didn't stay put in the beginning when they realized they were lost, and thought they could figure their way out, which got them more lost.

NEARLY DROWNED

KEVIN DOMBEY, STEAMBOAT SPRINGS, 22

It was late spring, 2008. Five of us were paddling kayaks on the Spencer Heights stretch of the Poudre River. Near the bottom, my friend Nick and I decided to read and run the river, which is pretty common for us in that kind of water. I was following right behind him, so my view was obstructed. He charged up over a log, but I couldn't see it, and my bow went under the log, pinning me.

I knew immediately I was in trouble. I tried to slide out of the boat, but the current was pinning my legs. I was holding



onto the log to keep my head above the water. The guys threw me some ropes, but I still couldn't get out. My energy was quickly being sapped because the water was so cold. I was losing my strength and starting to lose hope.

I could see the fear in Nick's eyes. He got the guys to pick up the log enough that I could get under it. I freed myself from the boat, but I missed the ropes they threw out. I was floating next to the log, just exhausted. I finally caught a rope with one hand. It took all my strength to hold onto it, and they swung me →

THE MINIMALIST'S SURVIVAL KIT

Ford Church, founder of the Cottonwood Institute survival school, packs a small essential kit every time he hits the trail. Here are his must-haves:

KNIFE

"Most of the knives you find at outdoor retail stores are horrible—if you're hiking, you don't need a serrated knife. I like the Frosts Mora knife, which is only \$20."

PARACHUTE CORD (50 FEET)

To help with the shelter, first aid, or for lashing.

ENAMEL CUP

"If you come across a stream and your water bottle just sailed off a cliff, it's really hard to find a good container in the natural world."

COTTON BALLS SWABBED WITH PETROLEUM JELLY

"For tinder. The jelly serves as a wick to slow down the burn time of the cotton ball. We timed them over the summer, and we had them going for eight or nine minutes, so you could even dry out wet wood."

STRIKE-ANYWHERE MATCHES

"The matches you find at your grocery store are better than the survival matches, which if you lose the box are totally useless. I just keep them in a vitamin pill bottle so they're waterproof."

IODINE TABLETS

To purify water.

WHISTLE

"You can only yell bloody murder for so long until you go hoarse."

SIGNALING MIRROR

"You need direct sunlight, but it's a great way to signal."

LIGHTER

"I carry a Bic lighter. The problem with lighters—even survival lighters—is that they can fail at high altitude or in extreme cold temperatures, or if the flint gets wet, or the gas runs out."

MAGNESIUM STRIKER

"A basic flint. It kicks off a really hot spark."

EMERGENCY BLANKET

"This is just an extra comfort if I need to get out of the rain and my shelter's not totally built."

(NOT PICTURED)

CANDY OR ENERGY BAR

"Survival skills take tremendous energy and time, and calories are precious. I carry a Snickers bar or an energy bar to get those high calories."

BRIGHTLY COLORED FLAGGING TAPE

"If you build a natural shelter, you've just camouflaged yourself from your rescue team. Use it to mark your shelter."

site. Keep children and dogs close.

- If you encounter a bear, stay still and calm—don't run or climb a tree.
- If you see cubs, leave the area, as the mother probably is nearby. Getting caught between mom and baby bears is extremely dangerous.
- If a bear approaches, throw rocks and sticks and yell, or bang together cooking pots and utensils. If you're attacked, fight back with sticks, rocks, and your hands. Do not play dead.

SURVIVE A FLASH FLOOD

Snowmelt and summer rainstorms make the Front Range vulnerable to sudden flooding. The National Center for Atmospheric Research (NCAR) in Boulder runs the Front Range Flash Flood Prediction System, which assesses which rivers or creeks may flood; unfortunately, the system can only provide 30-minute warnings. If you think a flood is coming, simply get to higher ground. In more than two feet of water, abandon your car and climb—more than half of all flooding fatalities are vehicle related.

IF YOU'VE FALLEN THROUGH ICE

Although Colorado isn't known for its abundance of water, people frequently have fallen through ice, often while rescuing a pet or another person. If this happens:



- Hold your breath until you surface.
- Remain calm, and turn toward where you fell in—where the strongest ice will be.
- Reach your arms as far out as possible onto the ice and pull yourself onto your elbows. Then kick—or swim—your way out of the water.
- Once you're on ice, crawl on your belly until you get to stronger ice.
- Get to a warm place and out of your wet clothes as quickly as possible.
- If you see someone else fall through the ice, call 911. Don't venture too close to the victim on the weak ice. Instead, find something long—a tree branch, rope, or shovel—to reach to him and help drag him out. Quickly get him to a warm place.

BATTLE THE ELEMENTS

In cases of frostbite, warm the injured area slowly, preferably with skin-to-skin contact. For severe frostbite, get to a hospital ASAP. Hypothermia sufferers should change into warm, dry clothes, get into blankets or a sleeping bag, consume warm fluids and carbs, and seek medical attention.

onto shore and I just collapsed.

Then we realized we were on the wrong side of the river from the road, so I had to get back in a boat and paddle across the river. One guy went to flag down a car. The driver and my friends stripped me, cranked up the heat in the car, and fed me. My legs were pretty bruised up, but otherwise I was fine. It's a testament to being with a well-trained group. If I had been with an inexperienced crew, I wouldn't have survived.

LESSONS LEARNED

Nick Wigston, *Downstream Edge, paddling and river safety school*

WHAT THEY DID RIGHT

- This was a skilled and experienced group—they got to him quickly, communicated with him, and were prepared to pull him out of the river once he was free of the log.
- After assessing the situation, they immediately redistributed the crew so they had people on both sides of the river.
- The rescuers kept it simple. They didn't try to use complicated rope systems to pull him upstream from the log, which would have wasted time and most likely never would have worked.

WHAT THEY DID WRONG

- The lesson is not how they could have done a better rescue, but rather how they could have avoided this situation and not needed the rescue. It's common for some members of a group to run the drop without scouting because they "know the line." Usually there is no incident, but rapids can change overnight. A log can get jammed in a channel that was clear the day before.
- Even if you are coming to a familiar rapid, at least one person should get a good look at it to be sure there are no new hazards. If the lead boater cannot see the rapid from an eddy above, it's best to hop out and take a quick look from shore.
- Good communication and simple scouting tactics can prevent a huge percentage of river accidents. It's when we get complacent that things go wrong.

ATTACKED BY MOUNTAIN LIONS

JEFF THOMPSON, LEADVILLE, 27

I was on the first night of a trip in the Buffalo Peaks Wilderness in 2005. I was alone and had hiked in about five miles to a rock outcropping about 200 yards above the trail. Around dusk I was falling asleep in my one-man tent. I woke up to some rustling, unzipped the tent, and saw a mountain lion four feet away, just standing there looking at me.

I stood up, and as I came out of my tent he scrambled away. I saw two more mountain lions uphill from me, and I heard a fourth one behind my tent, making a lot of noise. I grabbed my sleeping bag and stood it next to me so I looked bigger. I also had a full-size shovel for trail maintenance, and I started banging it on a rock and shaking my sleeping bag. One of the lions launched himself toward me and grabbed the sleeping bag. He got tangled in it, so I started hitting him with my shovel until he scurried away. The trio hung out about 70 feet away while the fourth one behind me kept making menacing cat noises. It probably was the mother, and the other three were her cubs.

I grabbed my tent, threw it around my neck, left the rest of my gear, and headed for the trail. Three of them followed me, staying about 20 feet away. I was planning to relocate my camp, but they weren't leaving me alone. So I started walking backward down the trail, banging my shovel. They followed me for about a half hour. I crossed a stream, then hightailed it for the trailhead and my car, running under the light from my headlamp. I went back to the site with someone a couple weeks later to get my gear. The lions probably were just curious, but if they had wanted me, there was nothing I could have done to stop them. →



LESSONS LEARNED

Ford Church, *Cottonwood Institute*

WHAT HE DID RIGHT

- Used his sleeping bag to make himself look bigger and made noise.
- Had the right survival attitude; mountain lions like an easy meal and don't like their prey fighting back.
- Removed himself from the situation when the mountain lions wouldn't back down, but he shouldn't have run.

WHAT HE DID WRONG

- Not much. We generally don't recommend novice campers going out alone, but he was clearly experienced.

STRANDED WITH A BROKEN LEG

CHARLES HORTON, STEAMBOAT SPRINGS, 59

I was cross-country skiing in April 2005 on a road that's closed during the winter. While heading back, my ski got caught during a turn, twisting my right leg under me. I pulled up my pants leg to see my shinbones cocked at a crooked angle. I was three miles from my van, no one was close enough to hear the whistle I'd brought, and although I wasn't lost, people didn't know where to look for me.

I put on all my layers of clothing and made a splint out of my backpack. I couldn't survive in the meadow overnight, so I inchwormed down the road backward for about two hours until I found a tree well about a tenth of a mile away, lit a fire, and tried to sleep.

The well became home for three days because it was too steep to climb out of. Any sudden movement of my leg would make me dizzy and I'd almost pass out from the pain. My kindling was too wet to start a fire; that first one turned out to be my last. Finally, on day five, the snow warmed up enough for me to dig a ramp out of the well, and I crawled on my back for about 12 hours toward a reservoir, where I thought someone might be fishing. But I couldn't make it, and that night I tried to find a dry spot to die in.

Over the next several days, I slept a lot and waited. Once I crawled up to the road and found water flowing through a tire track. Even full of pine needles and dirt, it was the best-tasting water I've ever had. When it got windy and snowed again on day seven, soaking me through, I started making peace with dying, thinking about my family and friends and saying good-bye.

On day nine I was awakened by the sound of a snow machine engine. I dug the whistle out of my pocket and blew three times, bringing the search and rescue team to me within seconds. They told me later that I'd been surprisingly alert even though my core temperature was 86 degrees. I spent 10 days in the hospital with a tibia that was partially crushed and had a spiral fracture, along with two fractured ribs from either the fall or the crawling. It was an amazing ordeal.



LESSONS LEARNED

Ford Church, *Cottonwood Institute*

WHAT HE DID RIGHT

- Put on all of his clothes to focus on his first priority: shelter and warmth. Also splinted his leg.
- Found the tree well, insulated himself, and lit a fire.
- Had a great survival attitude. Injuries make survival situations 100 percent more difficult. I have the utmost respect for this guy.
- Carried a whistle to signal his rescue crew.

WHAT HE DID WRONG

- Didn't tell anyone exactly where he was going. This is a common theme.
- Didn't have the resources to keep starting a fire.
- Didn't have a way to melt snow to stay hydrated. A metal cup and having three ways to make fire would have helped him tremendously. ▲

SURVIVE A TORNADO

Tornadoes are common on the eastern plains of Colorado, and they're just as vicious as Midwestern twisters. If you're stuck outside and see signs of a tornado—rotating clouds, whirling debris, heavy rain or hail, and then a dead calm, or an actual funnel—get away from trees and cars (or get out of your car if you're driving), and lie flat on the ground with your hands covering your head. After the tornado passes, get away from damaged buildings, avoid power lines, help others, and wait for emergency crews.

SUGGESTED READING

The SAS Survival Handbook, by John Wiseman, a former member of the elite British Special Air Service (SAS), offers an encyclopedic guide to survival situations—everything from building animal traps, to cooking methods, to backcountry first aid.

101 Survival Tips, by the Department of the U.S. Army, is a perfect coffee-table survival book, with simple, clear advice on how to build a below-ground water still, use the stars to navigate, and escape quicksand.

Outdoor Survival Skills, by Larry Dean Olsen, the preferred handbook of the prestigious Boulder Outdoor Survival School, specializes in primitive survival methods like building friction fires and finding edible wild plants.

LEARN MORE

The Denver-based **Cottonwood Institute** survival school offers adult courses in winter survival skills (March 14), building shelters (May 9), and survival fire skills (May 23), all for \$100. The organization also offers free classes at REI (March 31, Denver; April 2, Boulder). Visit www.cottonwoodinstitute.org to register.

Boulder Outdoor Survival School classes focus on primitive survival skills in the Utah desert. The arduous field courses run up to 28 days long, or check out the weeklong skills classes. Courses start at \$1,350; www.boss-inc.com.

The Colorado Avalanche Information Center has an extensive list of certified avalanche courses in the state, where you'll learn to prevent, avoid, and survive avalanches. Level 1 courses start at \$295; <http://avalanche.state.co.us>.

Boulder's **Downstream Edge** kayaking school offers safety courses for paddlers, ranging from the beginner level to instructors seeking certification. www.downstreamedge.com.