SIDECOUNTRY RESCUE—WHO IS RESPONSIBLE?

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ABSTRACT: With more and more ski areas opening their boundaries and commercial and personal videos glamorizing steep descents in untracked powder, an increasing number of skiers and snowboarders are accessing “sidecountry terrain”, i.e., off-area, lift-accessible terrain adjacent to ski areas. Consequently, we can expect the number of incidents requiring rescue to increase as well.

But who should respond to sidecountry rescues? Help must arrive swiftly in the case of life-threatening, time-critical accidents such as an avalanche burial, tree strike, or other major trauma. Off-area rescue is usually the responsibility of the county sheriff, but his staff is typically unpracticed in over-the-snow travel. Local search-and-rescue (SAR) units have the necessary skills and training, but may require an hour or so to organize and get to the trailhead. Ski patrollers can often get to an incident site most quickly, but patrollers are resort employees dedicated to on-area safety.

This paper describes a first-hand experience with an open-boundary accident and debates what organization should proactively prepare for sidecountry rescue with a plan, SAR equipment, and special training.

KEYWORDS: Sidecountry, off-piste, open boundaries, rescue

1. INTRODUCTION

The Heavenly Ski Resort, which straddles the California/Nevada border in the Sierra Nevada at the south end of Lake Tahoe, opened its boundary gates in 2005. Since then, we ski patrollers are seeing more tracks leaving the area and are hearing more stories of powder runs and off-piste adventures. This means we can expect more frequent calls for assistance in out-of-bounds areas. Although off-area rescue is not our obligation, can we really say no if someone is in dire need?

A recent incident in the “sidecountry” adjacent to the resort got us thinking about preparing for off-area rescue. This article looks at trends in visits to and accidents in the sidecountry, debates which organizations are responsible for rescue, and lists the steps required to be ready.
that the methods were inadequate. He suggested that the access gates in many American resorts, if provided with clickers or surveillance cameras, provide a better opportunity to quantify sidecountry use. But despite the lack of data, the feeling of ski patrollers and other resort employees is that sidecountry skiing is growing.

There are at least two reasons for the sidecountry rush. The first is: it's cool. Those who ski the sidecountry come home and tell their friends about it. Palm-sized cameras and cell phones are owned by nearly everyone and can be used to make movies of sidecountry adventures. Professional action films glamorize extreme skiing/riding in the steep and deep. And all of us know the exhilaration of whisking down deep, untracked powder in the absence of the hoards of skiers and riders typical on area.

A second reason is open gates. Ski areas on U.S. Forest Service land MUST allow skiers/riders access to adjacent terrain. This means it is legal to ski out of bounds. Furthermore, skiers and snowboarders can now use lifts to get to powder stashes and hence forego the often requisite strenuous hike. The signs usually posted at the gates (see Fig. 1) warn of danger, the unavailability of rescue service, and the high cost of rescue, but do not discourage many. On the contrary, such signs may encourage those looking for a challenge.

Unfortunately, increased use of the sidecountry will bring a concomitant increase in incidents requiring rescue. As with on-area activities and activities in other sports, the number of mishaps is proportional to the number of participants. Injury statistics are not available, but some insurance companies are contemplating compiling such data (Lawrence, 2008).

Moreover, the severity of sidecountry incidents is likely greater than for on-area incidents because of what we believe is a greater willingness on the part of sidecountry skiers to take risks, coupled with the more hazardous conditions. Serious incidents such as avalanche burials (see Fig. 2), tree strikes, big air falls, and the like may be expected. Such incidents often require immediate assistance. For example, an avalanche victim without access to air typically suffocates in 15-35 minutes. Head injuries and severe hemorrhaging likewise require fast treatment.

Until recently, an avalanche or trauma victim had only his companions available to aid him. But now cell phones are prolific and range is increasing. Thus, a victim or his companion can call for assistance immediately. The question is: Who can and will respond to the phone call? There are several candidates, each with pros and cons.

This article debates which organization should respond to sidecountry emergencies. The lessons learned from a recent rescue at the Heavenly Ski Resort have led us to a conclusion and clarified the preparations necessary for rescue success.

3. A SIDE COUNTRY RESCUE

It was a sunny and cold Saturday afternoon in January. Several thousand skiers and snowboarders were cruising and carving the slopes of the Heavenly Ski Resort. The ski patrol was busy responding to frequent calls for assistance when the ski area received a call from the county sheriff requesting response to an off-site emergency. One of two brothers skiing the Heavenly sidecountry had suffered a...
debilitating injury, and his brother had called 911 on his cell phone. Soon afterwards, the patrol director came on the radio requesting three specific patrollers to help with an off-area rescue ASAP.

Well, it wasn’t going to be real soon. The three of us were at different locations on the huge Heavenly ski area (one of us was on the California side), and the incident was out of bounds, somewhere near the gondola line on the Nevada side and about two-thirds of the way down the mountain (see Figure 3). But we set out immediately.

We grabbed a rescue sled with backboard and oxygen from the nearest patrol station, skied to the top station of the gondola, and were towed by a snowmobile up a groomed but closed access road to the gondola mid-station. We then began the treacherous snag-riddled descent toward the base of the gondola.

Our route was discontinuous, abruptly changing direction at impass of thickets of trees and brush, boulder fields, and branch-studded logs lying transverse to the fall line. We repeatedly encountered geologic or vegetation cul de sacs that forced us to traverse side-hill before making further downhill progress. We knew we had 2000 vertical feet to ski before we reached the incident site, and we didn’t have to be precise in our route getting there.

We found the injured skier and radioed in the location and the assessment: 23-year-old male; alert and oriented; no loss of consciousness; no neurodeficits; possible dislocated right shoulder and multiple broken ribs; thoracic pain in vertebrae 8 through 12; difficulty breathing. We applied a non-rebreather mask, administered the necessary first aid, placed the victim on the backboard, and loaded him in the rescue sled for transport.

Now, how to get him to medical help? Dense trees, fallen logs and branches, rocks, and manzanita blocked passage to the nearest road, about half a mile away.

The transport would be bumpy and uncomfortable for the patient, who had pain at every breath, and moreover would take considerable time. The slope would soon level off and even go uphill in places. We would be severely taxed to drag the patient to help on the sled. Air rescue would be the best option.
But closely spaced trees and steep terrain made a helicopter landing impossible. Moreover, 150-ft coniferous trees precluded a hover-and-hoist extraction. However, we had helped install the gondola towers in the summer of 2000, and recalled a small clearing to the skier’s left of the gondola line (shown on the photo in Figure 3). We decided to drag the sled across the line and try to find the clearing, in hopes that the helicopter could hover, lower a hoisting cable, and lift the patient out. We radioed ski patrol dispatch with our plan and began to pull the sled. Dispatch alerted the California Highway Patrol and a helicopter was readied.

An hour later an AStar-B3 helicopter arrived and hovered above us, its rotating blades generating a blizzard of high-velocity snow that stung our faces and hands. The pilot lowered an evac bag, and we secured the patient, backboard, and oxygen in the bag. At that time a group of seven snowshoers and telemarkers from the SAR unit appeared. They had also been summoned by the sheriff and had made their way up a winding summertime trail from the nearest road. Although arriving too late to help, they would have been absolutely essential had a helicopter rescue been impossible.

Hovering above the treetops and about 200 feet above the ground, the helicopter lowered a winch line with a large locking hook on the end, which we attached to the steel ring on the evacuation bag. From a sitting belay about 50 feet uphill of the patient, we used a tag line to keep the evac package from rotating as it was winched upward under the intense air draft from the main rotor. In moments the patient reached the helicopter and was strapped to its side. Then the tag line was released and the previously motionless helicopter slowly banked on its side and began moving northwest to the Washoe Medical Center in Reno, about 30 air miles away.

It was now 4:30 p.m. and the January sky was darkening. We packed up the remaining first-aid supplies in the sled, cleaned the area, and began the laborious journey through the trees, brush, and rocks to the roadhead twelve towers away. We were thankful to have the SAR guys taking turns on the sled and providing tow power and steering help. A half hour later we arrived at the trailhead, sweating and tired, where a Heavenly Resort truck was waiting. We loaded the rescue sled in the truck bed, climbed gratefully on board, and were transported through town and back to the California first-aid room and our lockers.

We learned the next day that the patient had a dislocated shoulder, five broken ribs, and a pneumothorax. He was kept in the hospital for several days with a chest tube between his ribs and the space surrounding the lungs to clear the air and allow the lung to re-expand. Bottom line: He would survive.

4. LESSONS LEARNED

This incident got us thinking. We reviewed the scenario and our actions. What went well? What could have been done better?

On the plus side, our knowledge of the sidecountry terrain and our telemarking skills enabled us to get to the skier and find an evacuation site. Traditional alpine skis or snowboards would have been less effective.

On the negative side, it had taken us about 20 minutes to get the sled and rescue equipment to the boundary gate, another 30 minutes to find the injured skier, and an additional hour before he was evacuated by the helicopter. Moreover, none of us had previously worked a hover-and-hoist rescue (we read and followed instructions on the plastic card attached to the evac bag lowered to us). And finally, we had left the on-area rescue staff short-handed.

Although this was a rare incident, we concluded that future calls for sidecountry assistance should be expected. But who should respond and what preparations are required? Off-area rescue at Heavenly is by law the responsibility of the county sheriff, but his staff is typically unpracticed in over-the-snow travel. Local search-and-rescue units, on the other hand, have the necessary skills and training, but may require an hour or so to organize and get to the trailhead. Thus, the time required to reach the incident site may preclude a successful rescue. Ski patrollers can often get to an incident site most quickly, but they are resort employees dedicated to on-area safety and consequently can’t leave their duties. The ski patrol, however, has the travel and first-aid skills, the rescue and transport equipment, and often the knowledge of the area, and most importantly can usually get on scene most quickly. Thus, ski patrollers provide the best chance for success in time-critical rescue situations.

But several issues come up. The first is a ski patroller’s obligation. Patrollers are paid by the ski area to provide first-aid and rescue
transportation to resort customers on area. If patrollers leave the area, on-area coverage is compromised and a ski area could be liable to lawsuits. The patient had legally entered (at his own risk) the out-of-bounds area through one of Heavenly’s open boundary gates.

A second issue is a ski patroller’s training. Patrollers at Heavenly are trained and practiced in protocol for approaching helicopters, loading patients, and controlling crowds in the 13 designated landing zones, but we have no training or experience with hover-and-hoist rescues. Yet incidents like the one described here point out the need for specific and continuous training by certified helicopter rescue personnel.

Third, to be effective off-area, a patroller needs to know the off-area terrain. The incident site was in an area of more than 1000 acres and 3000 vertical feet entirely covered by trees. Establishing landmarks is difficult. False drainages lead away from safe routes into thick brush, cliffs, dense riparian trees and shrubs, and private property. The potential for becoming lost, disoriented, or injured is high, especially in fog or snowfall conditions. An off-area rescuer should be prepared and equipped to bivouac.

Fourth, a patroller needs to physically fit, be comfortable in the backcountry, and be a competent skier, preferably a telemarker. Missions can be arduous and hazardous.

Finally, a plan is necessary—a plan that coordinates ski patrol, sheriffs and SAR units for both Douglas and El Dorado counties, as well as the California and Nevada highway patrols. Rescue protocols should be continuously upgraded by analyzing rescue case histories in order to develop better response strategies, improve coordination among the responsible rescue operations, and ultimately reduce rescue time and enhance patient survivability.

5. CONCLUSIONS

- Lift-accessed, off-piste, backcountry skiing is growing in popularity throughout the country.
- An increasing number of “sidecountry” incidents requiring rescue services must be anticipated.
- Local ski patrols are better suited than sheriff’s departments or SAR units for time-critical sidecountry rescue.
- An off-area rescue plan should be in place for ski areas with lift-accessible sidecountry.
- A cadre of rescuers should be trained for sidecountry rescue.

6. POSTSCRIPT—THE AUTHORS’ OPINION

Who should respond to sidecountry incidents? It can be debated, but in our humble opinion when the incident is time-critical and life-threatening, it must be the ski patrol.

We have come to this conclusion despite the fact that official responsibility is with the county sheriff, despite sidecountry rescue being the main purpose of the local SAR unit, and despite the fact that the ski patrol is obligated and paid to stay on area. We have come to this conclusion because ski patrollers can get there fastest and have the requisite skills and equipment.

With the expectation that life-threatening sidecountry incidents will become more frequent, we patrollers have a moral obligation to prepare ourselves for rescue. Preparation means education, equipment, terrain knowledge, fitness, and a plan. The usually substantial rescue costs should be borne by the rescued, and the ski area should be reimbursed for their patrollers’ participation.

7. REFERENCES


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