

AVALANCHE EDUCATION FOR SNOWMOBILERS: Efforts of the Gallatin National Forest Avalanche Center

Doug Chabot*

Gallatin National Forest Avalanche Center, Bozeman, Montana

Abstract: The Gallatin National Forest Avalanche Center, located in Bozeman, Montana, serves an area that receives tremendous snowmobile use. Backcountry snowmobiling in avalanche terrain is on the rise in the Western US and so is the number of riders being caught in slides. Montana had nine fatalities last winter, all of them snowmobilers. Nationally, 94 snowmobilers died in avalanches over the last 10 years, leading all other recreation groups. The best way to mitigate this upward trend is through avalanche education. Recognizing this, we've begun to offer avalanche courses aimed specifically at snowmobilers throughout Montana. This paper will help answer the question "How can we effectively teach snowmobilers about the dangers of avalanches?" Most educators come from a skiing background and consequently are handicapped in talking to snowmobilers about avalanches. In order to appreciate the challenges for educating this group we'll look at the unique problems riders face, list the stereotypes associated with them and their perceived myths. Finally, we'll offer practical solutions to the complexities of teaching this group.

Keywords: avalanche education, snowmobiles, avalanches

1. Introduction

Snowmobiling has boomed in the last 10 years and consequently so have the number of avalanche accidents and fatalities. Nationally, 94 snowmobilers died in avalanches over the last 10 years, leading all other recreation groups. There are many reasons for this, such as an increase in snowmobile sales, very powerful machines and more skilled riders. Obviously, with more riders venturing into avalanche terrain, terrain that was impossible to reach 15 years ago, we're seeing more of them getting caught and buried in avalanches. The media has also found this sport profitable with audiences watching extreme snowmobile movies and televised snowmobile races, hill climbs and freestyle events. The sports popularity helped push it into a mainstream activity. Unfortunately, avalanche education has not kept pace with this explosion and as a result we're finding many uneducated riders in the backcountry.

At the Gallatin National Forest Avalanche Center (GNFAC) we're trying to reach as many snowmobilers as possible through our varied education programs created specifically for this user group. We're offering courses ranging from 1 hour lectures to multi-day classes for riders of all abilities with great success.

2. History

Educating snowmobilers about avalanches is nothing

Corresponding author address: Doug Chabot, PO Box 6638, Bozeman, MT 59771; tel: 406-587-6984; email: dchabot@fs.fed.us

new or revolutionary. Our efforts are a continuation of what others have done before us. Doug Fesler and Jill Fredston have incorporated snowmobilers into their courses for years. Craig Gordon, Don Sharaf, Bill Glude, Jim Frankenfield, Bruce Jamieson and Darcy Svederus and many folks at the Canadian Avalanche Association have also taught and written extensively about riding and educating people in avalanche terrain. Additionally, Karl Birkeland wrote a piece as early as February 1992 in the [Avalanche Review](#) about "Avalanches and Extreme Snowmobilers".

Snowmobiler avalanche fatalities rose like a cresting wave through the 90's and avalanche professionals across North America took notice. Everyone increased their education efforts, however the results were mixed. We knew riders needed avalanche awareness skills, but we were all following our own hit or miss strategy. It was easy to identify the thousands of riders who would benefit from our efforts, but, feeling like a tourist in a foreign land, it took time to get oriented and acquire the skills needed to reach this group. Fortunately, riders have been requesting more avalanche education in response to mounting fatalities and we're attempting to meet the demand.

3. Goals/Objectives

Our goal of educating snowmobilers is simple: We want to teach snowmobilers how to make educated decisions about snowpack and terrain so they can ride safely. Our objectives to achieve this goal are equally simple: We want to offer varied and numerous education programs to riders of all abilities. In order to provide high quality education we've had to become

riders ourselves in order to understand the problems they face. It's important to remember that our goal is NOT to tell snowmobilers they shouldn't ride in avalanche terrain, but to equip them with skills so they can minimize their risk of getting caught and killed.

4. Identifying the audience

4.1 General

In the US there are over 1.6 million registered snowmobiles, most of them located in the Midwest. The western US, including Alaska, have about 16% of that total number. Although snowmobile growth has been flat the last 2 years, it's booming in the west, especially among backcountry riders. Unlike the rest of the country where only 20% travel off trail, in the west it's estimated that over 50% recreate in the backcountry. Additionally, every winter there's a migration of snowmobilers who head out west to taste the powder and expose themselves to avalanche terrain, often with fatal results. Just last winter the GNF had over 350,000 snowmobile user days which is almost tenfold more than any other winter backcountry sports.

4.2 Specific

Our audience varies wildly, although we're finding that off trail mountain riders fit into four specific profiles. The first group is young, athletic men who often come from motocross or another motorized sport background. Some of them are serious snowboarders too and occasionally dovetail the two sports into their day of play. They take the sport seriously and have invested thousands of dollars and hundreds of hours into their machines. Many of them are skilled riders who've taken the acrobatics of freestyle motocross and adapted it to snowmobiling. They are expert riders: very proficient, athletic and daring. We've found that reaching these riders is paramount because when the sponsored or professional riders get educated others follow. This is what happened with skiing. Once the star athletes in the movies started wearing shovel packs and carrying beacons others followed suit and the same holds true for snowmobilers. Even though this elite group is difficult to reach, we need their public relations help in attaining our educational goals.

The second group is riders that have been doing it for years, perhaps decades, and have evolved with the sport. Many of these are middle-aged, not as daring as the first group, but possess excellent riding skills. Contrary to many skiers perception that all snowmobilers are reckless with sub par IQs, we're finding that many are educated professionals in the community who enjoy pushing themselves and their machines. Most in this group have first or secondhand

experiences with avalanches and recognize that avalanches present deadly problems, but they're not sure what to do about it. They have a good handle on the risks of the sport and are hungry for education.

The third group of riders isn't necessarily novice, but is characterized by little or no knowledge about avalanches or avalanche terrain. These people are basically in the dark since they don't understand the risks they're taking and are in dire need of avalanche awareness skills, but don't realize it.

There also exists a fourth group of riders identified as experienced daredevils who choose to go into avalanche terrain during dangerous conditions. They possess the skills to assess the stability of a given slope and choose to ride it in hopes of triggering a slide. Given that these snowmobilers already have backcountry skills, but choose to find rather than avoid avalanches, there's not much we can do to prevent their demise. In some ways they're the only ones truly worthy of the title "extreme" since they're consciously playing a game of high risk with serious consequences. In some ways it's no different than technical high-altitude climbing, class V+ boating or base jumping to name a few other "extreme" sports. This group gets a lot of press since their escapades defy reasoning. However, as educators we can comfort ourselves in knowing that they understand the high risks they're taking.

5. Stereotypes

Let's face it, as educators we're holding onto a lot of baggage and stereotypes regarding snowmobilers. As skiers we focused on teaching our fellow skiers. Most of us either aren't riders or only started to learn recently, and some of us haven't even gotten that far since we just don't like snowmobiling. Many see it as a noisy, smelly sport with no place in the backcountry. I can only recommend that if you feel strongly against it then you should NOT be in a position to educate them. Who wants to learn from someone who hates their sport?

Snowmobilers are overwhelmingly NOT the overweight, ignorant red necks we've portrayed them as. In fact, our experience at the GNFAC has been quite the contrary. They're less opinionated and more open to learning than many of the skiers we've taught. We're not going to be respected if we continue to make sweeping generalizations, especially when they're erroneous. All you need to do is become a rider and see for yourself.

6. Myths

Many snowmobilers have only a mythical understanding about avalanches. Our job is to educate them so they can make informed decisions based on real data instead of fantasy or wishful thinking. We present these myths in our programs and try to squash them with facts. One example is the belief that they can always outrun avalanches on their machine. "What happens if you're facing uphill when the slope fractures?" we ask. A professional hill climber died 2 years ago in Montana when this happened. Another misconception is that snowmobilers are always found next to their sled if they're caught in an avalanche. Using accident reports we point out that this is not always the case. One more popular myth is, "This slope never slides". Really? We educate them that it certainly can slide if it's in avalanche terrain with an unstable snowpack.

We need to remember that what's obvious to us, may not be to them. Sitting on a huge snowmobile can provide a false sense of power and invulnerability. We need to take extra time to point out the reality of snowmobiling in avalanche terrain so they can accurately assess the risks associated with it.

7. Concerns

7.1 Snowmobiler

Snowmobilers gather meaningful snowpack information very differently than skiers. They're insulated from one another and their environment as they ride since wearing a helmet creates tunnel vision, especially traveling at high speeds. Riding also makes it difficult to survey surroundings at great depth since you're forced to focus on the terrain to avoid hitting a tree or another rider. Unlike skiers who can usually sense subtleties in the snow over short distances, a rider has a difficult time noting anything but the most obvious snowpack changes. For example, a rider can sense depth hoar once his back end digs to the ground, but may not notice a crust eight inches under the surface since he just plows through it.

The insular aspect of snowmobiling from the helmet, noise and distancing of riders all lead to a lack of communication. In essence, they lose the ability to share observations on the fly which works against them when decisions need to be made. Compounding the situation is the fact that they rarely get off the machine in areas that will give them valuable snowpack information. Additionally, snowmobilers cover tens of miles on many aspects and elevations making them more apt to find pockets of unstable snow.

All of these snowmobiler concerns need to be addressed since they affect their decision making process.

7.2 Avalanche Educator

As mentioned earlier, we've predominantly taught skiers and snowboarders who look at the snow differently than snowmobilers. As a consequence we need to tailor our education programs to them. Contrary to skiers, snowmobilers are not going to dig snowpits and they may only do a few stability tests (usually a low pass on an embankment or slope). Sure, you can show them layering in the snow and talk about avalanche mechanics, but you're dreaming if you expect them to dig pits to gather snowpack information. The more you ride, the more you'll see how impractical it is.

In order to think like a snowmobiler we have to *be* a snowmobiler (very Zen). They're out there doing tricks, catching big air and high marking at a level that boggles our mind. If we have any hope of getting their respect and educating them we can not cast judgment and be condescending about what they're doing. They're smart people who are passionate about a sport. If you truly believe that highmarking is stupid, then stick to teaching skiers. You can't fake it.

8. Being Better Teachers

An old saying from Outward Bound is "A failure to learn is a failure to teach". While I think there are exceptions to every rule, this saying definitely has some truth to it. We've tried many different approaches in order to increase our effectiveness as teachers and have come up with some ideas that work well for us. Many of these ideas are not new since we collaborated with other professionals about various teaching techniques. However, we've coalesced many of these ideas into a successful curriculum. Last winter we taught over 500 snowmobilers and can attest that the following general guidelines have worked well for us.

First and foremost we've taken the last few years to become proficient riders. We practice, wipe out, high mark, dig ourselves out of trenches and tree wells, and tip over in our quest to get better. When we're teaching a class we don't want to be the worst riders in the group. The goal is to not be seen as a bunch of goobers getting stuck at every turn. Knowing how to ride also helps us answer questions in the classroom since we have personal experience to back up our answers. Riding on mountain sleds also adds to our legitimacy. We found that riding two-up on a wide track trail sled while everyone else is on their 800cc

muscle sled gave us an inferiority complex and was wildly impractical for teaching backcountry riding.

Experience tells us that no matter how new a sled is, Murphy's Law will prevail and they'll break down at some point. In just about every field session we had to deal with repairs, so learn some basic mechanical skills and to carry a tow rope when you teach. I guarantee you'll use the repair kit ten times more than the first aid kit. With breakdowns in mind we try and hold our field classes in areas where avalanche terrain is within 10-15 miles of the trailhead. Anything more the potential for mechanical failure seems to rise exponentially.

For our field sessions, 6-8 riders per instructor is ideal. Unfortunately this is impractical for us since we only have two mountain sleds and have a difficult time finding instructors who are good enough riders to actually teach. Our small pool of instructors is a major handicap in our education efforts. Consequently, we've run field sessions as high as 12:1 with success; it just required extra diligence and militant rules to make it work. Make sure you outline your expectations and meeting places along the route in order to keep together.

In contrast to the field, the classroom settings are pretty easy to manage. We've had great success getting local snowmobile shops to host our classes since they get future customers and we get some legitimacy by associating ourselves with the pros. Shops are also where you'll reach hard core riders since they typically shy away from organized clubs.

During your lectures use snowmobile examples, and lace your program with pictures of riders. Over the last few years we changed all our pictures from skiers to snowmobilers. Even though the concepts we're teaching is similar, having shots of people in helmets looking at a fracture line or folks high marking a slope really drives home the lesson. Imagine teaching an avalanche class to a room full of skiers with pictures of only snowmobilers. It wouldn't work.

Another obstacle to prepare for is that undoubtedly someone in the class will try and rope us into a debate about snowmobiling in the National Parks, or wilderness, or ask for your thoughts on some other hot political issue. Stay clear! Our goal is to teach folks about avalanches, not give them our views on the state of the snowmobiling industry. However, we can be better teachers if we stay current on the issues and advances in the sport, so we read the snowmobiling magazines to learn about all the hot new sleds, 4 vs. 2 stroke technology, and most importantly to get the lingo down.

An unseen benefit of being good riders and providing snowmobile specific education programs are the contacts we've made. We've met owners of other shops, guides, professional riders and community leaders who talk about their positive experiences with

us to their friends. This translates into higher attendance at our classes and an improved relationship with the snowmobile community.

9. Curriculum Ideas

The actual nuts and bolts curriculum in an avalanche awareness class is similar no matter who the audience is. We've just tailored our lectures from skiers to snowmobilers with minimal effort. We still teach topics like snow metamorphism, weather, terrain and rescue; however the emphasis of our message is a little different. Throughout the class we repeatedly focus on their behavior since small changes on how they ride can easily lower their chances of getting caught in avalanches. We've had success targeting three core points:

1. In Montana, over half the people killed in avalanches last winter (9) would be alive today if they exposed only one rider at a time on a slope. By stopping this one behavior we'd see avalanche fatalities plummet not only in Montana, but across the nation. Think about it. If they walk out of your class and put into practice this one concept we've saved lives. And that's without even talking about stability or rescue gear.

2. Another way to rapidly bring down these numbers would be if all snowmobilers carried rescue gear and knew how to use it. There's nothing worse than going to an accident scene and finding someone dead from a shallow burial where a transceiver may have saved their life.

3. Avalanches are a matter of timing. There are certain times when the snowpack is stable and others when it's quite unstable with the most obvious signs of instability being recent avalanche activity. We strongly emphasize that when we see these signs we need to be extra careful traveling in avalanche terrain.

None of these ideas are revolutionary or mind bending. They're simple and have been used for years by many others. Our hope is that if we all make a concerted effort to repeatedly enforce these ideas throughout the class and field sessions we'll stem the tide of rising fatalities.

10. It Works/Conclusion

Education works. Just last winter southwest Montana had three live recoveries of buried snowmobilers by their partners using beacons. Two of these involved riders who had taken avalanche education classes through the Forest Service.

We're in the business of reducing and managing risk. As educators we can give riders the tools to make better decisions while not being judgmental about their

International Snow Science Workshop (2002: Penticton, B.C.)

sport. Part of this is helping them understand how their behavior can lead to accidents. Certain backcountry rituals like riding one at a time on a slope and carrying rescue gear can make the difference between living and dying. Hammer it in. And most importantly, get out there and ride!

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