

Bear Awareness and Safety

Link: [Bear Awareness and Safety – Things To Look At & Triple Point Training](#)



Preparing for a three-week trip to the [western Brooks Range](#) motivated me to learn about bear deterrence. Specifically, I wanted to make an informed decision whether to bring my 5 pound pistol. I carry half a toothbrush to cut weight, 5 pounds is a big penalty.

I crowdsourced information via a [FaceBook](#) thread and checked in with Mark Haldane, a longtime REI employee and one of my recreation mentors since high school. The major windfall came with Annie Feidt invited me to join Professor of Wildlife Sciences [Tom Smith](#) (BYU) on the [Talk of Alaska](#) radio program. I learned a ton from Tom; these notes are mostly his contribution to the radio program. Tom's advice is outlined in [this article](#) and [Alaska Department of Fish and Game](#) provides useful resources as well.

I typically see 10 to 20 bears a summer and have only had one scary interaction, which was not that scary compared to what several friends have experienced. Someone once told me that bears are like people, some of them are just jerks. I made the mistake of looking for patterns of behavior, which is the wrong approach with bears. My one scary interaction was in the [Gates of](#)

[the Arctic](#) with Sarah. The ten previous bears we had seen all took off as soon as they heard us, so we calmly watched a grizzly for awhile before deciding to shoo him off. When we made noise the bear circled in closer to us, very curious and not at all intimidated. Finally, when it got downwind from us, it took off. Lesson learned, don't predict behavior.

I'm more uncomfortable around black bears than grizzly, because black bears seem less intimidated by people. Predatory black bears are the most terrifying, and were responsible for [two fatalities](#) in Alaska in 2017.

Awareness



[Grizzlies along the Gulf Coast of Alaska, near Yakutat](#)

Tom used many ways to say the same thing: don't surprise bears. The common factor in nearly all bear maulings is that people were not prepared for the bear encounter. According to Tom, preparation means:

1. Carry bear deterrent. For Tom, this is a decision between firearm, bear spray, or both.
2. Travel in a group. Groups make more noise and are more effective at standing ground. I grew up hearing that groups of four or more were ideal, but Tom said, statistically, even groups of two have a safe record.

3. Don't surprise bears. Make noise with voices, whistles, bells, etc.

Tom also noted the importance of getting away from kill sites (carcasses) and bear cubs. Tom's opinion, in opposition to some bear safety literature, is that you should not hold your ground, but should move away from any bear encounters.

Bear Spray vs. Firearms

Tom's research involved compiling a national accident database. **By the numbers, bear spray is significantly more effective than firearms as a deterrent.** This counter-intuitive finding can be explained by these factors:

- People carrying firearms are more likely to be quietly stalking other animals (hunting) and inadvertently surprise bears. People carrying bear spray are generally making noise and actively trying to avoid interactions.
- Bear spray ejects as a cone, requiring less aim than a bullet.

Bear spray





Bear spray was **98% effective** in 72 incidents reported between 1985 and 2006. In that period, 175 people were involved, with 0 fatalities and only 3 serious injuries. Reference: [Efficacy of Bear Deterrent Spray in Alaska](#)

Bear spray is an aerosol propellant mixed with a pepper compound ([capsaicin](#)). The pepper irritates eyes and other membranes. The bear spray canister has a safety clip, but accidental emissions are fairly common. If you tend to have bad luck in life, it might be worth carrying a [decontaminate wipe](#). Fortunately, bears haven't discovered these yet. The wipe would also be really nice to have if you needed to spray toward a group member under attack (which would be much riskier with a firearm). I don't think this is very common.

Accidental exposure to bear spray is not lethal, and if a group member was being charged by a bear, it would still be worth spraying the bear even if it would expose the human.

Bear spray is the best solution for the general public. Unlike firearms, bear spray does not require any expertise or technical training. That said, you should practice getting the canister in hand and removing the safety clip.

I've emptied several canisters at the end of trips (when it is prohibited to fly back with the spray) and I have always been discouraged by the limited range of the spray. The manufacturers

say 20 feet; I feel like I need a tailwind to get 10. I'm leery of Tom's confidence at the 20 foot range.

Handling: It is critical to carry bear spray in a place that it can be accessed quickly. This should include having it in-hand for bear-dense areas (like along thickly vegetated stream banks at dawn and dusk). Each person in the group should carry bear spray. Begin spraying at the bear when it is 20 feet away, and continue to spray until the bear turns away.

Expiration: The pepper compound in bear spray does not deteriorate or leak out of the canister. The propellant does leak out, at a rate of ~2%/year. This means that a 10 year old canister will be down by 20%, or, equivalently, shoot 4 seconds instead of 5.

Wind: A common criticism of bear spray is that spraying against the wind reduces range and can blind the human parties. Tom disregarded this concern. He says that much of the spray comes out in a narrow bead that can punch through wind. Based on my trials, I'm skeptical.

Frozen canisters: Freezing temperatures do not permanently affect the pepper or propellant. If fired while frozen, the spray exits as a stream instead of a cone, with reduced pressure. However, this has been effective against polar bears.

Firearms

Firearms were effective **76%** (long guns) and **84%** (pistols) in incidents between 1883 and 2009. In those incidents, 444 people were involved, with 17 fatalities, 25 serious injuries, and many minor injuries. Note that the numbers in Tom's interview are slightly different from these (published) values. I assume the discrepancy is due to more recent incidents added to Tom's records. Reference: [Efficacy of Firearms for Bear Deterrence in Alaska](#).

The critical factor with any firearm is being trained for proper use with that firearm. Even so, firearms introduce more risk to the traveling party than bear spray. A friend from the Wilderness Classic died from a hunting accident. People don't die from bear spray exposure. This is especially relevant for people (like me) that don't regularly train with firearms.

Pistols vs. barreled guns: I was shocked to learn that pistols have a better record for deterrence (84%) than shotguns and rifles (76%). Barreled guns generally take more time to get in hand and aimed, they are generally shot from greater distances (harder to aim), and can take more time to get multiple shots off. Pistols are generally carried in hip or chest holsters, quick to draw, and at close range, aim isn't as important. Tom said something like, "It is hard to miss a bear with a pistol if it is right on top of you."

Caliber: .357 and .44 Magnum revolvers are the go-to pistols. Many people in the [FaceBook thread](#) preferred lighter 10 mm pistols. 10 mm bullets are midway in diameter between .357 and .44, the difference is that revolvers have a heavy steel frame, whereas a 9 or 10 mm pistol

has a lighter polymer frame. I haven't used the lighter pistols, but it sounds like... lighter is easier to aim. I appreciate the extra mass of my revolver, it dampens the kickback, which makes it easier to get several shots on target. Tom says larger calibers are better for people with worse aim, but other enthusiasts say a smaller bullet on target is better than a larger bullet off target. So. Back to the importance of practice.

Other Deterrents

Tom's opinion is that we know bear spray works ("98% effective"), why bother with anything else? Here are the "anything else" options.

Flares







There are three kinds of flares relevant to this discussion: handheld marine and aerial, pistol and pen. Many experienced backcountry users, guides, and officials swear by flares. However, people like Tom and Parks Canada still [encourage bear spray over flares](#).

Aerial flare: [Pistol flares](#) are common with many backcountry enthusiasts; we were required to carry them (and rifles) for polar bears when I was studying in Svalbard. A group of friends were camping when a polar bear sliced into a tent. The occupants woke and yelled, scaring the bear away from the tent, but it stopped 20 yards away. Øla shot a flare that landed right in front of the bear and scared the bear away for good. (One of) the terrifying aspects of using the aerial flare, especially in winter, is that the flare can overshoot or bounce on snow and ice past the bear, scaring the bear toward you.

Another aerial option is a [pen flare](#) or “banger” (noisemaker). These flares are lightweight, can be carried in a pocket, but have a proportionally reduced payload. Like the flare cartridges, there is a serious risk of overshooting a bear, and it is recommended to shoot these flares or bangers straight up.

Handheld marine: [Handheld flares](#) burn for 60 seconds at 15,000 candlepower and 2,000 °F. For quick deployment you want the style that can be ignited with a pull cord, not a strike plate. I love the idea of the 60 second burn time compared to bear spray's 5 seconds, but Tom would say, "Then what?" You can watch the marine flare in action [here](#).

All flares have the potential to start wildfires.

Fences

In Svalbard we used a perimeter fence line threaded through pen flares at the corner stakes so that a tripped wire would fire a flare or banger. I haven't found a similar kit in the US, but it sure felt like a slick solution.

Electric fences are available in the US, but are generally too heavy for me as a backpacker. The lightest option is Australian-made Sureguard. The Sureguard [energizer](#) runs on 2 AA batteries can run for as long as 54 hours with lithium batteries. The energizer weighs 11 oz, and you need to carry an appropriate length of [electric poly tape](#) or [conducting string/wire](#), and maybe some [support brackets](#) to surround your camp. For a backpacking kit, it sounds like this can be done at ~2.5 lbs with a cost of ~\$300. Eagle Safety Solutions is the best source in Alaska, but their [website](#) isn't very helpful. They do sell the [energizer](#).

Air Horns





Everyone agrees that noisemakers help alert bears to your presence. Bear bells don't have a great reputation because they are fairly quiet. Friends have said that a whistle scared a bear when other noisemakers did not. Compressed air marine horns are loud, but heavy and finite. Hand-pump air horns are loud and light— I have used one ([like this](#)) near several bears, but the bears never seemed disturbed.

These various noisemakers can provide peace of mind, but are certainly not as effective as bear spray. I've usually got a whistle because I'm used to carrying one for water sports, and nearly all of my summer trips involve some floating. I am unlikely to carry any other noisemakers.

Conclusion

While traveling through bear country, the safest practice is to move as a group and make noise. Bear spray has a very impressive record, and is probably sufficient for most trips. But bear professionals like Tom are going to be carrying a gun as well. You only get one chance with bear spray, and then what? The scariest scenario is a predatory black bear. Bear spray was effective on all aggressive black bears in Tom's research, but still, if you are out of spray and that bear comes back, you are in trouble. My decision will be most influenced by group size. With 3 or more people, we will just carry bear spray unless we are going to an area with a very beary reputation. For bear-dense regions, I'll likely carry my heavy pistol.

I've felt lucky to see the bears that I've seen, and I expect to continue feeling that way.