

A comprehensive study of bear attacks in Alaska confirms that bear pepper spray is a better defense than firearms.

By Christine Paige

A WALL OF PROTECTION



SPRAY PAIN A hiker demonstrates the use of bear spray. Though firearms can stop a charging bear, researchers found that bear spray is more effective, reduces injury to users, and spares the lives of bears, which usually attack only to protect themselves or their young from a perceived threat.

BERT GILBERT

It was a windy day in 1995. Frank Vitale and three friends were horsepacking along Tuchuck Ridge in the Whitefish Range of northwestern Montana.

Vitale, a longtime hunter, horsepacker, and outdoorsman, had spent his life exploring the region's backcountry—home to the densest population of grizzlies in the Lower 48.

The group of four riders, five horses, and a cattle dog moved slowly along a narrow, steep ridgeline. Vitale, riding lead, suddenly saw a large dark hump in the trail 40 to 50 feet away. It was a grizzly—sound asleep, bedded down in the ridge saddle. Vitale realized he and the others couldn't turn their horses and slip away without a lot of clatter and possible disaster. He quickly decided to dismount and snub the horses to some small Douglas firs on the uphill side of the trail.

"The wind, a crosswind, was in our favor," says Vitale. "I yelled at the bear and woke it from its nap. It sprang up, and two cubs of the year popped up bawling. Just then the dog ran past us straight at the bear, and the horses started freaking out. The bear charged, the dog disappeared above us into the trees and circled around behind us with the bear after it. Now I think, 'We're really in for it, if we're between the sow and her cubs.'"

The grizzly broke off chasing the dog and headed back to her cubs. "Then," Vitale continues, "she came down on all fours and charged right for us."

Fortunately one of the riders, who had run into a grizzly the week before, was carrying a canister of bear pepper spray, a product newly on the market. He passed it to Vitale, who aimed it at the fast-approaching sow. "At 15 or 20 yards I started spraying and just kept spraying," he says. "The bear ran into the big cloud and it stopped her cold—she turned around and took off with the cubs."

There was a little blowback of spray and the four men's eyes stung and watered, but they were alive and unharmed. "I'm a lifelong hunter, and now I always have bear spray right

there, real close," Vitale says. "I don't see a big deal to carrying it in a holster on your hip—it's readily available and you can even shoot it from your hip if you have to. As a hunter I feel you have a responsibility not only to protect yourself but also to protect the bears."

Since that incident nearly 20 years ago, bear spray has become increasingly popular among hikers, anglers, hunters, backpackers, outfitters, and others who venture into the backcountry. And as it did for Vitale and his friends, the powerful spray continues to save lives—of humans and bears. Recent research shows that bear spray is more effective than firearms at deterring attacks. Not that a well-aimed shot from a .44 handgun or large-caliber elk rifle can't deter a charging bear. It can. But studies show that the odds of preventing injury to yourself are far greater when you spray a near-impenetrable cloud of eye-scalding, nose-burning, throat-closing mist that stops a bear in its tracks.

Bear encounters increasing

Across the Northern Rockies, both bear and human populations are on the rise, making bear encounters more frequent. Montana's black bear population stands at roughly 13,000 animals. About 740 grizzly bears live in and around Yellowstone National Park, and another 1,000 or so reside in the Northern Continental Divide Ecosystem between the Canadian border and the Blackfoot River Valley.

According to Chris Servheen, grizzly bear recovery coordinator with the U.S. Fish and Wildlife Service, in 2011 alone there were 83 incidents in the Northern Rockies of grizzlies charging people—31 instances (37 percent) involved hunters and 29 (35 percent) involved hikers. Fourteen (17 percent) resulted in human injuries and two were fatal.

Hunters are especially at risk of an encounter. By stalking quietly, moving at dawn and dusk, traveling off-trail, hunting alone, bugling, cow-calling, using cover scents

Christine Paige is a wildlife biologist and a writer in Wyoming. A version of this article originally appeared in Bugle.



SHOOT OR SPRAY? In a study of Alaskan bear attacks, firearms stopped bears 77 percent of the time, compared to 90 percent of the time with bear spray. Bears inflicted injuries on humans 56 percent of the time when firearms were used as defense, compared to only 4 percent with spray.

including elk urine, and releasing the aromas of rumen and freshly killed meat onto the breeze, hunters do just about everything “wrong” in bear country. Hunters are also out during the peak of bear hyperphagia, a condition when the animals pile on the calories in preparation for hibernation. “Bears at that time are amped up and in competition with one another for resources,” says Kevin Frey, bear management specialist for Montana Fish, Wildlife & Parks in Bozeman. “If a bear comes upon an elk carcass or gut pile, it’s an enormous protein and calorie reward.”

Grizzly charges usually involve unexpected encounters or incidents where food is involved. “When you surprise a bear at close range,” says Tom Smith, a bear research biologist at Brigham Young University, “the grizzly’s response seems to be that the best defense is a good offense.”

Hunters have long relied on their firearms as protection against bears. But a recent study of bear encounters by two of the world’s top bear-conflict experts shows that bear spray is even more effective. At the Fourth International Human-Bear Conflicts Workshop, held in Missoula in 2012, Smith, bear biologist Stephen Herrero of the University of Calgary, and several co-authors presented their research on the effectiveness of bear spray and firearms in bear encounters.

The researchers first examined records of every bear encounter in Alaska where people had used bear spray to defend themselves—72 cases in all, from 1985 to 2006, including black bears, brown bears/grizzlies, and polar bears. What they found showed that bear spray packed an enormous punch. It stopped undesirable behavior more than 90 percent of the time, and in only three cases were humans injured—all relatively minor injuries—when bear spray was used.

In 13 incidents, bears resumed threatening behavior after the first spraying, but repeated spraying finally deterred the bear so that the person could escape. In three instances, the bears were in full charge when the spray was triggered, and the animal’s momentum carried it through the fog. But the spray did dissuade the bear, leaving the victims with only minor lacerations and in no need of hospitalization. “I am almost shocked and amazed at the track record of bear spray,” says Herrero, author of the popular *Bear Attacks: Their Causes and Avoidance*.

Easy to miss

Smith and Herrero next studied the effectiveness of firearms in bear encounters. Looking at records of 269 attacks by all three bear species in Alaska that occurred between the late 1800s and 2009, they

found that discharging a firearm stopped encounters in 84 percent of incidents for handgun users and 76 percent for long gun users. “That’s surprising because some believe that handguns have no place in bear safety,” Smith told the *Salt Lake Tribune*. “But they are much more maneuverable and can be carried more accessibly [than a rifle].”

Yet even though firearms can stop attacks, often it’s usually only after the bears have caused bodily harm. Smith and Herrero found that bears inflicted injuries on humans in 56 percent of the incidents involving firearms. In fact, there was no difference in the rate of bear-inflicted injuries between those who discharged their firearm and those who didn’t, whether that outcome was a fatality, an injury, or no injury at all.

Firearms failed as a defense for a variety of reasons: jamming, an engaged safety, no round in the chamber, the inability of the shooter to reload, the bear being too close, or people stumbling and falling. The most common reason found by the researchers was simply a lack of time to respond.

Smith points out that even an expert marksman can miss a killing shot when a grizzly charges from 10 yards. “It can be combat shooting,” says the biologist. “It’s easy to miss or, even worse, make a bad hit.”

In Alaska, there have been no human

fatalities in encounters where bear spray was used. However, Smith and Herrero recorded 17 human fatalities in cases when firearms were used as defense, whether the victim was killed by the bear or by human partners trying to defend against the attack. In 2011, such a tragedy played out when a hunter in Idaho shot a grizzly, mistaking it for a black bear. After the hunter and his partner tracked the wounded bear into the brush, the grizzly attacked one man and the other fired at the bear to halt the attack—but the bullet killed both his partner and the bear.

“The odds are stacked against you when using a firearm,” says Smith. “If you’re proficient, you have a good chance of defending yourself. But there are a lot of situations when you’re not in a good position to use a firearm, so why wouldn’t you carry bear spray? It’s another tool in the toolbox.”

Why is bear spray so effective? The active ingredient, capsaicin, sends an explosion of irritant that overwhelms a bear’s nasal membranes and hotwires its brain from fight to flight. The spray also creates an entire wall of defense—a near-impenetrable cloud the size of an SUV.

In addition to a far better record for human safety, another advantage of bear spray is that it leaves bears alive and healthy. Smith and Herrero found that bears died 61 percent of the time when people used firearms. Many of the encounters involved females with cubs, and a dead sow meant orphaned cubs. No one knows how many of those encounters were bluff charges where the bear would have pulled up short of an actual attack.



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Firing a warning shot may not scare off a bear, because many bears don’t associate a loud gunshot with danger to themselves. But a nose full of bear spray is a strong deterrent and teaches a bear that it’s a bad idea to mess with people. “Bears learn quickly,” says Mike Madel, FWP bear management specialist on the Rocky Mountain Front. “They remember those encounters and experiences.”

Explosion of irritant

Remarkably, most bear encounters leave humans unscathed. Usually the bear turns and leaves, trying to avoid the human. When surprised, both grizzlies and black bears often “bluff” charge—rushing forward aggressively but stopping at the last second before contact. “It’s how they deal with other species,” says Frey. “They’re trying to figure out the situation and get you to leave.”

Madel agrees: “In most cases grizzly bears

are bluff charging—they’re trying to push you off, not actually cause injury, which they could easily do.” Before the development of bear spray, says Madel, he relied on a shotgun for defense in management work, and he got good at climbing trees. “I started carrying bear spray 12 years ago. It’s way easier than using a shotgun.” Although the biologist has been charged several times, he has had to use bear spray in only three cases, and each time the spray turned away a charging grizzly.

No two bears are the same—each is an individual personality, each a product of its experiences. Some bears are more tolerant than others, some more timid, some more bold. “The most surprising part, perhaps, is how many encounters there *aren’t*,” says Frey. “They’re pretty tolerant of us, if they’ve been given a warning that we’re there. Bears get to be old bears by being cautious.”

Although no deterrent is 100 percent effective, bear spray has racked up an impressive track record for human safety and as a nonlethal deterrent. “Bear spray provides a way to smack ‘em without worrying about the aftermath,” says Smith. Consider that nature is full of creatures that successfully deploy chemical weapons as self-defense—skunks being the obvious example. With bear spray, you can defend yourself like a skunk does, and both you and the bear will likely walk away—you with a great campfire story, the bear with a great lesson learned. 🐻

FWP and other members of the Interagency Grizzly Bear Committee have created a free new brochure, What You Should Know About Bear Spray, that’s available at igbconline.org.



CLOCKWISE FROM TOP LEFT: TIM RIBBERG; SHUTTERSTOCK; STEVEN ANKE

TAKE A BIG WHIFF Bear spray expels a mass of irritant the size of an SUV. Though wind can make bear spray less effective, the sheer amount of atomized capsaicin (a red pepper derivative) in the air almost always ends up deterring a charging bear.