On one of the last days of deer season in Wyoming’s high country, Skyler Atkins had just shot a mule deer while hunting with his friend, Don Hoard. Leaning down to dress it out, Atkins opened his blade and happened to glance up over Hoard’s shoulder. “Oh my God, there’s a bear!” A sow grizzly was in full charge, barreling toward them.

The two had set off into the backcountry near Togwotee Pass hoping to fill Atkins’s freezer. It’s high, wild country—open mountain meadows and conifer glades with sweeping views of the Teton, Absaroka and Gros Ventre ranges. Hoard, with years of hunting the area and many bear sightings under his belt, knew the country well and the two were on alert for bears.

They had seen fresh grizzly prints on the trail in—a large male, Hoard thought, and where the trail split they chose the path away from the tracks. Once up on the ridgetop, they saw a grizzly sow with two cubs feeding in a meadow. She began to move toward them, but Hoard

Want to live through a bear attack? Add a chemical weapon to your arsenal.

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and Atkins yelled and waved their arms, and she turned with her cubs and moved off.

“Let’s get a deer and get out of here,” Hoard told Atkins. It was midday, and the two began hunting back toward their truck. As they glassed an open meadow, they spotted a small group of mulies near a creek in the meadow bottom. A young buck moved up out of the creek, and Atkins killed it with one shot at 150 yards. Atkins grabbed his pack and the men worked their way down to the deer. “Let’s get this done quick,” Hoard urged.

“I pulled my bear spray out, took off the safety and placed it next to me, ready to go,” Hoard recalls. “My buddy had taken out his knife, I grabbed a leg, and then he looked over my shoulder. When he saw the bear, I had my back to it and at first thought he was joking. But then I saw his eyes.”

“You want me to shoot her?” yelled Atkins. “No, no, no!” hollered Hoard as he spun around with the bear spray. “She was at 22 steps—22 steps—at full charge with a cub. I squeezed the trigger on the bear spray. She hit that cloud and stopped in her tracks. Then she turned around and ran back up the hill with her cub. It was a short spray, and I yelled and screamed at her.”

The grizzly and cub sat and watched the hunters from the hill as they gutted the deer. As Atkins dragged the carcass away, Hoard trailed, facing the bears with his bear spray at the ready, walking back-wards out to the truck. Once the hunters started mov-

ing away, the bears went down to the gut pile.

“This was a different bear from the sow with two cubs we saw earlier,” Hoard relates. “As quick as it took us to get to that bear she was there. The bears in that area—I think they hear a gunshot and it’s like ringing a dinner bell.”

**Not-so-Chance Encounters**

Throughout bear country, people and bears are bumping into one another more often. Both bear and human populations are on the rise, and bear encounters are becoming more frequent. Black bear populations are stable or increasing nationwide, and the recovering grizzly population in the Rocky Mountains is three times what it was in 1975.

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 2 were fatal.

In a landscape with more bears, the very nature of hunting increases the chance of an encounter. By stalking quietly, moving at dawn and dusk, traveling off-trail, hunting alone, bugling, cow-calling, raking brush or rattling antlers, using cover scents 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 at the peak of bears’ season of “hyperphagia” when bears become big furry eating machines, focused on piling on the calories before hibernation. “They are amped up and in competition with one another for resources,” says Kevin Frey, bear management specialist for Montana Fish, Wildlife and Parks (FWP) in the Greater Yellowstone. “If a bear comes upon a carcass or gut pile, it’s an enormous protein and calorie reward.”

It’s essential that hunters be keenly aware of bear sign, understand bear behavior and, should an encounter happen, be prepared with a good defense, Frey says. Most hunters are well-trained to rely on their firearm, but the numbers in favor of bear spray are stacking up. Talk to anyone who has used bear spray in an encounter, and you’re talking to a convert. So is it time to add a chemical weapon to your arsenal?

**Bear Spray or Bullets?**

In two research papers, presented at the 4th International Human-Bear Conflicts Workshop in Missoula, Montana, in March, bear biologists Tom Smith of Brigham Young University, Stephen Herrero of the University of Calgary and several co-authors crunched the numbers on the effectiveness of bear spray and firearms in bear encounters.

The researchers collected every incident they could find of bear encounters 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. In short, bear spray packs a punch: it stopped undesirable behavior more than 90 percent of the time (66 of 72 cases), and in only three cases were humans injured when bear spray was used—all relatively minor injuries.

In 13 incidents, brown and black bears resumed threatening behavior after the first spraying, but repeated spraying finally deterred the bear so that the human could escape. In the three cases where people were injured, all involved charging brown bears, and none required hospitalization. In those three instances, the bears were in full charge when the spray was triggered, explains Smith, and the momentum of the charge carried the bear through the fog. But the spray did dissuade the bear, leaving the victims with only minor lacerations.

“I am almost shocked and amazed at the track record of bear spray,” says Herrero.

Smith and Herrero followed up with a study of firearms in bear encounters. They collected 269 cases in Alaska that occurred between 1883 and 2009, across all three bear species. The bottom line: discharging a firearm usually stopped encounters—84 percent of incidents (31 of 37) for handgun users and 76 percent (134 of 176) for long gun users.

But another finding was sobering: bears inflicted injuries on humans in 56 percent (151 of 269) of the incidents involving firearms, and people suffered the same rate of bear-inflicted injuries whether they discharged their firearm or not. In the study, there was no statistical difference in the outcomes between those who discharged their firearm and those who did not, whether that outcome was a fatality, an injury or no injury at all.

Further, once a bear charged, the odds of successfully deterring an attack dropped seven-fold. Try to aim at a bounding, lurching bruin hurtling toward you at 44 feet per second and hit it with a projectile a half-inch or less in diameter, shooting accurately at high speed as your body floods with adrenaline and your brain clangs in alarm. “If you’re at a target range, you’re pretty good,” says Smith, but in a sudden bear charge, “it can be combat shooting. It’s easy to miss or worse, make a bad hit.”

Firearms may fail as a defense for a variety of reasons, including jamming, having the safety engaged or no round in the chamber, inability to reload, a bear being too close, and people stumbling and falling. In the study, the most common (in 21 percent of cases) was simply a lack of time to respond. Some people also have very real concerns about using lethal force, either for fear of shooting another person being attacked or the legal or emotional ramifications of killing a bear, even in self defense. That hesitation can be critical.

As yet, there is no record of a human fatality in an encounter 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. Only last year, tragedy unfolded for two black bear hunters in Idaho when one mistakenly shot a grizzly. After tracking the wounded bear into brush, the grizzly attacked one man.
Always keep your bear spray immediately accessible and ready to deploy.

Practice with an old canister or inert training canister (available online from bear spray manufacturers).

Direct the spray slightly downward—the spray will billow upward.

Spray a warning blast at 40 to 50 feet. If the bear continues to charge, keep spraying.

Don't worry about wind direction—just spray the bear.

Leave the area promptly, but do not run.

If you get spray on you, flush for 30 minutes with cool, clear water.

Store canister in a cool place, in an ammo can or bear spray tote—never leave it in a hot car.

Note the expiration date. When you purchase bear spray, weigh the canister, note the weight on the can, and weigh it annually to check if it has lost propellant.

For a video on how to use bear spray and a wealth of bear safety information, visit www.BeBearAware.org.

and the other fired at the bear to halt the attack—but the bullet killed both his partner and the bear.

“If you’re an average person with average skills, the odds are stacked against you using a firearm,” asserts 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.”

In addition to a far better record for human safety, clearly another advantage of bear spray is that it leaves bears alive and healthy. In Smith and Herrero’s study, bears were killed in 61 percent (162 of 269) of incidents when firearms were used as defense. Very often encounters involve females with cubs, and a dead sow means 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. As for bullets that hit without killing, a wounded bear is a recipe for disaster—once injured, it’s natural for bears to go after the threat. As Frey points out, “A wounded bear is a danger to others, and it’s not fun for managers to go in to take care of a wounded bear.”

Firing off a warning shot may not get a bear to move—many bears simply don’t associate a loud gunshot with danger to themselves. A nose full of bear spray, on the other hand, is strong aversive conditioning and teaches a bear it’s a bad idea to mess around with people. “Bears learn quickly,” says Mike Madel, Montana Fish Wildlife and Parks (FWP) bear management specialist on the Rocky Mountain Front. “They remember those encounters and experiences.” Frey concurs: “Every bear that has a negative encounter with bear spray learns something. It’s a positive gain for others in bear country.”

“He had me by the back of my suspenders”

On a windy day in 1995, Frank Vitale and some friends were horse packing along Tuchuck Ridge in the Whitefish Range of northwestern Montana. Vitale, a farrier and long-time hunter, horse-packer and outdoorsman has spent decades exploring the backcountry of the Northern Continental Divide—home to the densest population of grizzlies in the lower 48.

It was a narrow, steep and rocky ridgeline trail, a stringer of subalpine fir trees on the uphill side. The group had four riders, five horses and a cattle dog. “One of the fellows riding with me had run into a huge boar grizzly the week before,” recalls Vitale. “So he decided to bring a can of bear spray along. It wasn’t common—it had only been available to the public for a few years.”

Vitale, riding lead, suddenly saw a large dark hump in the trail 40 to 50 feet away. A grizzly was sound asleep, bedded down in the ridge saddle. Vitale realized they couldn’t turn the horses and slip away without a lot of clatter and possible
disaster, and made a quick decision to dismount and snub the horses to the trees. “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.”

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

Fortunately, 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.” Vitale’s buddy passed him the bear spray. “He had me by the back of my suspenders, and at 15 or 20 yards I started spraying and just kept spraying. 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, their eyes were watering, but they were alive and well.

“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 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.”

**Bold Bears & Wary Bears**

Most bear attacks involve grizzlies—studies of bear encounters confirm that the grizzly is the most aggressive of North America’s bear species. Black bears are far more numerous than grizzlies and are involved in more human conflicts (these typically involve attractants such as food, garbage and bird feeders), but grizzlies are responsible for most human injuries and fatalities. Grizzly charges usually involve surprise encounters or incidents where food is involved. “When you surprise a bear at close range,” says Smith, “the grizzly’s response seems to be that the best defense is a good offense.”

Fatal attacks on humans by black bears on the other hand, while extremely rare, are overwhelmingly predatory attacks rather than surprise encounters. In another recent study, Smith, Herrero and their co-authors found 59 incidents of fatal black bear attacks in Canada and the U.S. between 1900 and 2009. Most involved predatory behavior (49 of 56 cases; 88 percent), and of the predatory attacks where the sex was known, 92 percent (33 of 36) involved male bears. Nearly 50 percent (28 of 59) of these fatalities occurred in the last two decades, but in no case were people carrying bear spray.

Remarkably, most bear encounters leave humans unscathed. Bears are generally cautious, giving humans a wide berth. Surprised, they may bluff charge. “It’s how they deal with other species,” explains 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. It’s heart-pounding.” Before the development of bear spray, Madel relied on a shotgun for defense in management work, and he got good at climbing trees. “I started carrying bear spray 10 years ago—it’s way easier than a shotgun.” Although Madel has been charged on more than a few occasions during management work, he has only had to use his bear spray three times—all three instances turned charging grizzlies.

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, even in a bad conflict year,” comments Frey. “They’re pretty tolerant of us, given a warning that we’re there. Bears get to be old bears by being cautious.”

**Wyoming’s Free-Trial Project**

Mike Boyce, bear management specialist with the Wyoming Game and Fish Department in Jackson, is concerned about the growing potential for hunter conflicts with the expanding grizzly population in the Jackson Hole area. With a grant from the Jackson Hole Wildlife Foundation, Boyce started an experimental program to offer bear spray free of charge to hunters, and distributed a total of 200 cans during the last two seasons.

“We focus on hunters because we feel that it’s a demographic that tends to have a lot of encounters with grizzly bears in the field, whether they surprise a bear while hunting, or as soon as they get game on the ground,” says Boyce. “We approach people one-on-one at trailheads and campgrounds and ask them if they’d like to participate in the project. Most people are very receptive.”

The biologists also provide bear safety tips, demonstrate how to carry and deploy bear spray, and ask hunters to fill out a questionnaire. Boyce hopes to continue the program this year and plans to follow up with a phone
survey to track hunters’ experiences.

“Our department feels that firearms are an effective way to deal with aggressive encounters with bears, but there are limitations to using a firearm, obviously. Bear spray is a lot more user-friendly; it’s easier to use in stressful situations. It’s another tool that people should have in their tool kit. I think this is a good effort to try to help people protect themselves and to decrease some of the bear mortalities we’ve had in the last few years.

“There are numerous encounters we don’t hear about,” Boyce continues. “Some of the outfitters have encountered almost on a daily basis—as they’re hunting, sneaking through the woods, or when they have a carcass on the ground. I carry bear spray every day. I’ve never had to use it on a bear, but I’ve used it effectively on moose! It’s a good deterrent for all large carnivores and all aggressive wildlife.”

Third Time’s the Charm

In the last rosy light of evening, bowhunter Michael Wallover was on his way back to his Jeep after hunting mule deer all day up Mount Leidy, north of Wyoming’s Gros Ventre Wilderness. “I was tired,” Wallover recalls, “and was about 30 feet from the car when I heard huffing. I walked another five feet and out came a grizzly.” Wallover sprinted to the car, turned and let fly with his bear spray. “It came around the car and I sprayed it again. It backed into the tree line and came back out a third time.”

He sprayed the grizzly three times before it took off, and ended up covered in the bear spray himself, his skin on fire but otherwise unharmed. “It was a big bear—its shoulder was as high as my ’07 Wrangler, and the whole encounter was over in maybe a minute. I was shouting and cursing, and if I had used my .45 I wouldn’t be talking to you right now,” says Wallover. He packs the bear spray in a holster on his left hip, his .45 pistol on his right hip. “I had no problems deploying it—it was faster than a pistol.

“I grew up hunting in black bear country, worked for an archery company in Pennsylvania, and I took my first bull elk with a bow,” says Wallover. “Now I’m sold on bear spray. I just recommend always keeping it in a very accessible place.”

Use the Right Spray & Use It Right

Bear spray shouldn’t be confused with mace or any other “pepper spray” sold for personal defense in human encounters. Bear spray contains nearly twice the irritant as personal-defense pepper spray, and has greater distance, duration and volume. The active ingredient, capsaicin, affects the mucus membranes, flooding the nose, mouth and eyes—painful, but with no lasting damage. A bear senses the world primarily through smell, and bear spray sends an explosion of irritant that overwhelms a bear’s nasal membranes and hotwires its brain from fight to flight. Although only tested on bears, anecdotes from the field show it’s been effective fending off a variety of aggressive animals—moose, wild boars, mountain lions and even elephants.

Bear spray creates a wall of defense—a cloud about the size of a sheet of plywood. If you have to deploy your spray, direct it slightly downward as the cloud will expand upward. Often, people shoot too high. By directing the spray downward, a charging bear will run into the fog of spray as it billows up. Typically, bear spray contains enough propellant for 6 to 7 seconds. In some situations, a person may need to spray two or three bursts to deter an aggressive attack.

Like any weapon, bear spray is useless buried inside a pack. It should be carried so it’s immediately accessible and can be deployed within seconds—in a hip holster, chest holster, a trouser cargo pocket, on a pack belt, or tucked into the front of your jacket. Madel suggests rifle hunters use a safari-sling for their guns, “You have to get used to it, but you can drop your rifle and immediately grab your bear spray.” Even with a two-handed rifle carry, it’s possible to cradle your rifle and deploy the spray from your hip.

Wayde Cooperider, outdoors skills and safety supervisor for FWP, asserts, “We fight like we train. Practice how you would deal with a bear conflict, so you don’t need to think in a confrontation. Under stress, you become half the person you are—you lose fine motor skill and mental acuity. You have to take in the situation, process it and execute a plan.”
With practice, you don’t have to go through all that. Always carry your spray on your body in the same place, and learn how to use it.”

That includes practicing with the bear spray, as you would with any weapon. Practice slipping off the safety and removing the canister from the holster. With any new canister, test it with a single, brief shot. Practice deploying spray with an old canister, or with an inert training canister (these can be purchased online from bear spray manufacturers.) It helps to feel the slight kickback of the canister, know how far the spray carries, and how it expands.

Bear spray should never be applied like an insect repellent on tents, gear, people or sprayed around camp-sites. Because it contains food-grade pepper extracts, the spray applied to surfaces can actually attract bears! It’s the difference between spicing your food vs. getting pepper blown up your nose. If you have to use your spray in an encounter, leave the area.

Perhaps the most vulnerable time for hunters is once they have game on the ground.

Whether or not some bears associate gunshots with carcasses, they do tune in to human hunting activity and the prevalence of gut piles on the landscape. With their keen sense of smell, bears readily find carcasses and will naturally want to claim and defend such a haul.

Boyce urges hunters to gut the animal quickly and move the gut pile well away from the meat or carcass—bears typically go for the entrails first. If you can’t carry the meat out in one load, be prepared to hang it as high off the ground as you can. If that’s not possible, leave it in an open area with wide visibility so when you return you can assess any scavenger activity from a distance. If a bear is not immediately on the carcass, it may be close by. Look for sign, make lots of noise and come in so your scent blows downwind to the carcass area. And if a bear appears, don’t argue over the meat.

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 bear biologist 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 “go skunk,” and both you and the bear will likely walk away—you with a great campfire story, the bear with a good lesson learned.

Christine Paige, a wildlife biologist and writer, lives in Wyoming among a whole lot of elk, bears and wild country.
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