

Deploying bear spray against a highly agitated, charging bear



Johnny Johnson photo

Learn the four scenarios in which an agitated bear might charge and how to stop its charge. This guide is based on the University of Montana's study and development of bear spray. The study showed the importance of a spray distance of **30 or more feet and spray duration of **7 or more seconds**.**

Bear spray was studied and developed at University of Montana, home of the griz

During the mid 1980s graduate student Carrie Hunt conducted a series of experiments to see what may stop a charging grizzly bear. When Carrie and other students and a volunteer named Bill Pounds looked at pepper spray for law enforcement and military use, they saw potential, but inconsistencies. The inconsistencies included unreliability and dispersal problems that were not conducive to use against an agitated charging bear. Some of the problems the researchers found were that the sprays sprayed in a narrow stream for short distances, causing the bear to be too close when sprayed.

Bill Pounds, a veteran and volunteer to the project, went to work on **a formulation that was well-automized into a powerful expanding cone-shaped cloud**. It would spray for more than seven seconds and more than 30 feet. When sprayed correctly, it would enable the bear to enter the cloud, where it would inhale the active ingredients which also penetrated its



Carrie Hunt

mouth, nose, eyes ears and throat, disabling the bear from completing its charge or contact. The result was a bear spray that would do the following:

- They now had a product that could spray in a **powerful, expanding cone-shaped cloud**, putting a barrier in front of the bear (This eliminated the need to

aim, and instead the spray could be directed in front of the bear, and the user could just spray.)

- The spray would **go more than 30 feet**. As the bear entered the cloud the powerful bear spray would shut down its ability to breathe in and out deeply, to see, and focus on what it is charging. It also distorted messages to the brain through the nasal passage, caused ringing in the ears.

- They successfully created a spray that now could go for **seven or more seconds**. This is important because strong wind, cold, rain, or more than one bear requires additional spray duration to compensate for these problems.

- They determined that **capsaicin and related capsaicinoids were the active ingredients that caused the inflammatory and irritating reaction** to the bear's mucus membranes around its mouth, throat, lungs and nasal passage that also affected the eyes and ears of the charging bear.

Original recommendations of University of Montana research:

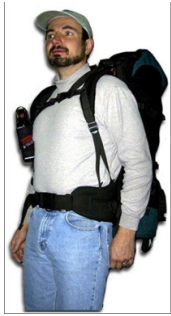
- * **It is recommended that bear spray sprays for 30 or more feet. Greater spray distance enables the spray to effect the bear's mouth, nose, eyes, and ears, disabling it from charging and attacking.**

- * **It is recommended that bear spray should spray for 7 or more seconds. Greater spray distance provides more time for the spray to effect the bear's mouth, nose, lungs, nasal passage, eyes, and ears, disabling it from charging and attacking. These inflamed organs cause major interference with inhaling and exhaling, which also reduces oxygen flow to the heart and muscles.**

- * **Disperse in a powerful expanding cone-shaped cloud that does not require aiming. Aiming takes 1 second. You may not have time. Spray downward toward the front of the bear. Continue spraying until the bear diverts its charge.**

How to Deploy Bear Spray: 3 steps

Step 1: Know how to carry your spray



Step 2: Know how to take the safety clip off



Place your thumb **in front** of the curled lip and pull back. Practice!

Step 3: Do not aim, spray spontaneously, downward to create a cloud that will billow up in front of the charging bear



It is crucial that if you are going to deploy your bear spray on a charging, highly agitated bear, which can be charging upward of 30 miles per hour, or even at short distances at lower speeds, that you are prepared to spontaneously spray downward, without any hesitation, for your bear spray to deliver the protection that it can. **Adjust if bear veers left or right.**

When the following is done incorrectly, it has led to people being mauled:

1. Know how to carry your bear spray in a readily acces-

sible fashion: on your hip, in a chest holster, in a waistband holster, or a winter outer coat pocket.

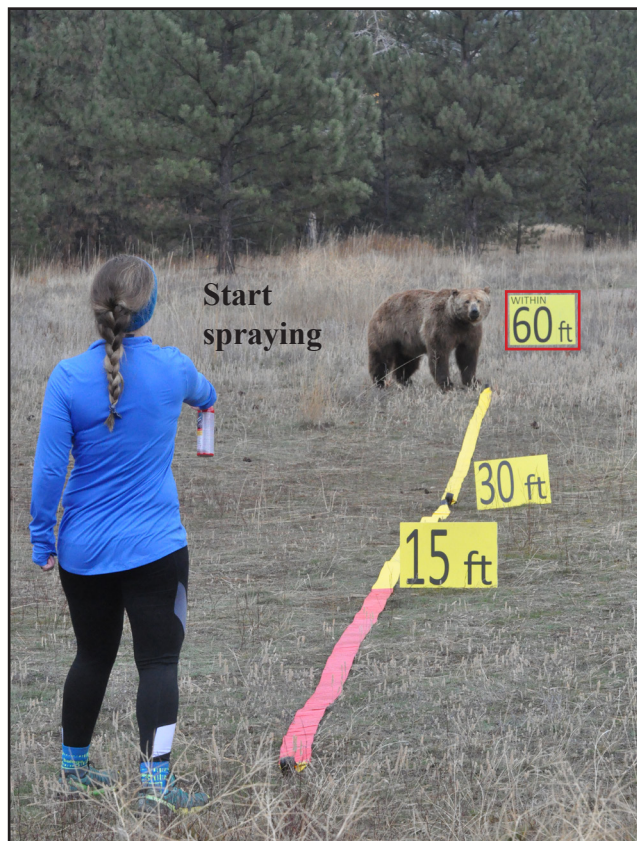
2. Hold the can firmly so it does not tip up and spray over the bear. Remove the safety clip by placing your thumb in front of the curled lip and pull back.

Unfortunately, many instructors and manufacturers just tell the public to pull back with their thumb. Several maulings have resulted because the public then thinks their thumb goes flat on top of the safety clip, so when they try to pull it back, it does

not come off.

3. Bear spray is dispersed in a powerful expanding cone-shaped cloud, so you do not attempt to aim your bear spray. You direct it downward in front of the charging bear. It expands into the cloud that the bear must pass through to reach you. Keep your spray directed toward the front of the charging bear, adjust if the bear veers to the right or left. Stop spraying when the bear diverts its charge and retreats. **Please do not do a short burst when an agitated charging bear is coming at you.**

Start spraying once an agitated charging bear **is within 60 feet. The charging bear and the bear spray cloud will meet **at 30 feet**.**



Scenario #1, a charging bear within 60 feet: Bear spray has a high success rate of stopping charging bears before contact when the bear spray is dispersed when the

charging bear is just within 60 feet. Spray downward to a point approximately 30 feet in front of you so the bear runs into the bear spray cloud and the bear has time

to divert its charge before making contact.

If a bear redirects its charge to the left or right, direct your bear spray toward the bear's new path.

How Bear Spray Impacts a Charging Bear

Charging bears are exhaling and inhaling deeply. When a charging bear meets the bear spray cloud, the capsaicin and related capsaicinoids causes an inflammatory response that irritates the following: The mouth, throat, lungs, eyes, and ears will immediately become inflamed, making it difficult for the bear to inhale and exhale deeply. The nasal passages swell and narrow, disabling sense of smell. The eyes become watery and blurred, reducing sight. The ears will ring, making the bear unable to hear what is going on. The effects of the bear spray are temporary and are meant to cause the bear to divert its charge.

If a bear charges from within **30 feet, start spraying immediately. Ideally the charging bear will meet the bear spray cloud at **15 feet**.**



Scenario #2: Most charges take place with the bear charging from approximately 30 feet. This often happens when a bear is at a berry patch or near a trail and *is surprised by hikers*.

Direct your bear spray downward directly toward the front of the bear, continue spraying until the bear either diverts its charge,

or appears that it is going to make contact before it fully feels the effects of the bear spray.

If you think the bear is going to make contact, pivot around and lie face down, protecting the back of your neck.

By clasping your fingers together, still holding the bear spray in one hand, keep spray-

ing upward, **putting yourself and the bear in a cloud of bear spray**. The bear will not want to stay in that cloud and will stop its attack and leave. This situation often results in the bear slapping or biting the person on the ground. If you are wearing a backpack, the pack often takes the brunt of the attack.

How to avoid very close encounters: To avoid sudden contact always pause when the trail enters thick brush, especially near a berry patch, stop, look around, smell the air to determine if there is a pungent smell of dead animal or bear that's been rolling in one? Call out in a nonthreatening middle tone voice to let the bear know you are there. Sometimes a bear will stand up or make itself seen or leave the area. Then proceed cautiously on a trail that goes through thick brush or approach the berry patch to pick your berries. In these situations, I often have my bear spray with the safety off out in case of a sudden, unexpected encounter.

Sudden impact: An agitated bear charges from less than 15 feet away



Scenario #3: Sometimes without warning bears in thick brush or in a day bed, concealed by the brush, charge and often make contact before you even have a chance to remove bear spray from the holster. In these cases, as soon as you can, get your bear spray out, start spraying the area you and the bear are in. If you

can, direct the bear spray toward the mouth, nose, eyes and ears of the bear. The bear may be shaking you, dragging you. If you can, try to get face down to protect your neck, face and other vital organs. Clasp your hands behind your head, holding the bear spray can, and spray, further putting the bear and you under a cloud of

bear spray.

Scenario #4: If while hiking, a bear takes down someone in a sudden impact situation do not hesitate. Disperse your bear spray toward the person under the bear, or being dragged or shaken by the bear. Continue spraying until the bear stops attacking the person and leaves.

Warning about spraying a bear

Warning: when spraying a bear that is on top of someone, in many of the cases the bear has charged toward the person spraying and you will have to continue spraying to divert the bear's charge toward you. This is one of the reasons we recommend seven or more seconds of spray duration and thirty or more feet of spray distance.

Bear Spray Myths and Bad Advice

Myth: Measure wind direction before spraying

Fact: In most situations, a bear can reach you in less than 2 seconds if charging full speed. There is no time to measure the wind. Spray spontaneously, directly at the front of the bear.

Bad advice: Spray a short burst in a zigzag pattern

Fact: A short burst may not stop an agitated, aggressive charging bear. You want a wall of spray between you and the bear. Spray directly at the bear until it diverts its charge.

Correct Spray (so it billows up):



Incorrect Spray (shoots above):



Myth: You should aim toward the bear

Fact: Aiming takes too much time and is not needed. Place the cloud in front of the charging bear and continue spraying. If the bear is charging within 60 feet, spray to a point 30 feet in front of you. If the bear is charging at a closer distance, spray downward, directly at the front of the charging bear and continue spraying till the bear diverts its charge.

Myth: Pepper spray and bear spray are the same

Fact: No, bear spray is NOT pepper spray.

In 1998 the Yellowstone Subcommittee of the Inter Agency Grizzly Bear Committee, asked and retained Chuck Bartlebaugh, Director of the Be Bear Aware Campaign, to gather information to help determine **what was** and **wasn't** bear spray. The Jackson Hole News and Guide's editorial board had asked for better information about **what was** and **wasn't** bear spray because in the Jackson Hole area, people were being mauled using what they thought was bear spray.

This project included Chuck meeting with the Environmental Protection Agency in Washington, D.C. to review individual cans of

material being sold as bear spray. The EPA had started a process of requiring registration from approximately **15 manufacturers** of bear spray. As the process continued, **only five manufacturers remained** and were actually registered as bear spray. One of the five manufacturers was removed from the market because they provided false information in the registration process. The EPA, Chuck learned, does not test bear spray for its effectiveness on charging bears, but tests it to see if it damages the ozone layer or the skin or eyes of people or bears. The EPA does not perform tests about the deployment of bear spray or the delivery system of bear spray. They do not endorse or certify that bear spray will work on a charging bear. The original information on how to use bear spray

on different types of charging bears came from bear biologists in the field and the standards used during the University of Montana's study and development period. Unfortunately bear biologists sought out game wardens and law enforcement personnel to learn how to deploy bear spray, thinking it would be the same as using pepper spray on humans, which is meant for close encounters with one individual, and **not in different types of charging bear scenarios**. This has corrupted much of the information that is found on the internet and in magazine articles and has resulted in numerous people being mauled and the false belief that bear spray does not work. Quality bear spray does work against a charging bear when deployed correctly, but pepper spray may not.



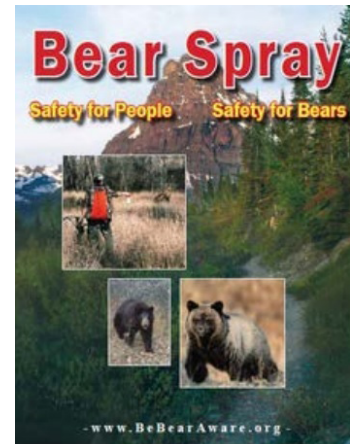
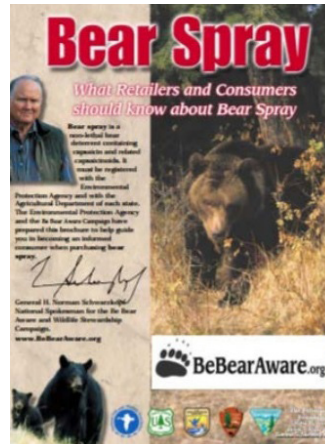
Be Bear Aware Campaign

P.O. Box 7487 • Missoula, Montana 59807 • 406-239-2315 • Email: bearinfo@cfwi.org

Products and Resources Available

Bear Spray Brochure

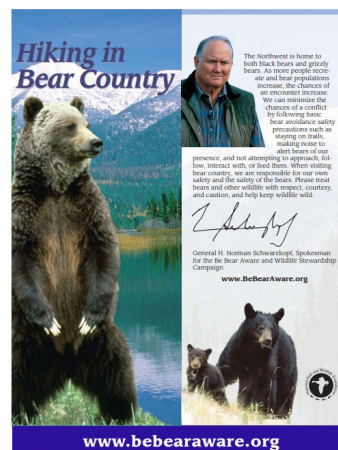
Instructor's Guide



Programs: The Be Bear Aware Campaign conducts bear avoidance and bear spray training presentations for youth groups, wildlife and land management agencies, outfitting and guiding, and hunting and fishing organizations. We also participate in community events, campground education programs, and work with school teachers and school systems on bear safety and wildlife stewardship.

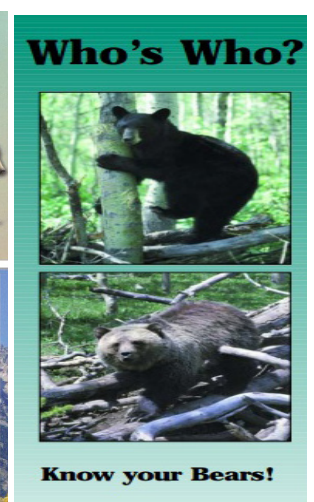
Hiking Brochure

Bear Spray Poster



Black Bear/ Grizzly Identification Cards

Bear I.D. brochure



Book us for a program or visit us online for more resources, including a bear spray Powerpoint !

BeBearAware.org



www.facebook.com/bebearaware



www.youtube.com/bebearaware