

# Deploying bear spray against a highly agitated, charging bear



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



**Carrie Hunt**

the active ingredients which also penetrated its mouth, throat, nose, eyes and throat, disabling the bear from completing its charge or contact. They now had a bear spray that would do the following to the charging or attacking bear:

- They now had a product that would 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 charging. It also distorted messages to the brain through the nasal passage, caused ringing in the ears.

- They successfully created a spray that would 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.

- **Capsaicin and related capsaicinoids are 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

## **Original recommendations of University of Montana research:**

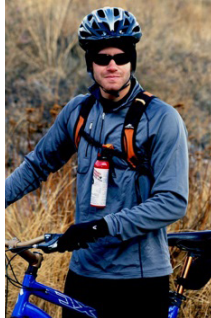
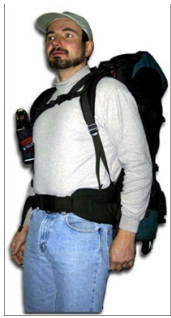
**\* It is recommended that bear spray sprays for 30 or more feet. Greater spray distance enables the spray to effect the bear's mouth, throat, nasal passages, eyes, and ears, disabling it from charging and attacking. The bear is disabled from inhaling and exhaling deeply.**

**\* It is recommended that bear spray should spray for 7 or more seconds. A greater spray duration provides additional spray in the event that adverse wind conditions, cold weather, rain or multiple bears create the need for more spray.**

**\* Disperse in a powerful cone-shaped expanding 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.

## 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**, without any hesitation, for your bear spray to deliver the protection that it can.

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

**1. Know how to carry your bear spray in a readily accessible 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. A short burst may not be sufficient to stop an agitated, charging bear from coming at you.**



# An agitated charging bear within 60 feet



# Meets bear spray cloud at 30 feet



**Scenario #1:** 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 **at 30 feet** 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 inhaling and exhaling deeply. When a bear meets the bear spray cloud, the mucus membranes of the mouth, throat, eyes, and ears will immediately become inflamed by **capsaicin and related capsaicinoids**, which is a inflammatory and a strong irritant. It causes ringing of the ears, and watering of the eyes, and swelling of the throat and nose. The effects of bear spray are temporary and a bear will fully recover after being sprayed. The spray is meant to be unpleasant enough to make the bear focus on the effects of the spray and divert its charge.



## An agitated charging bear within 30 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-

## Meets bear spray cloud at 15 feet



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, 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 non-threatening 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 instead being startled. 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 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 or 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 front of the charging 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 powerful bear spray 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 charging bear diverts its charge.

## **Myth: Bear spray and pepper 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 other media, and has resulted in numerous people being mauled and the false belief that bear spray does not work. Bear spray does work against a charging bear when deployed correctly, but pepper spray may not.





Be Bear Aware Campaign

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## Products and Resources Available

**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. Please email us if you would like to host an event.



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

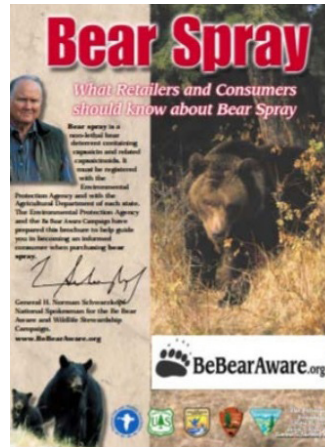
**BeBearAware.org**

 [www.facebook.com/bebearaware](http://www.facebook.com/bebearaware)

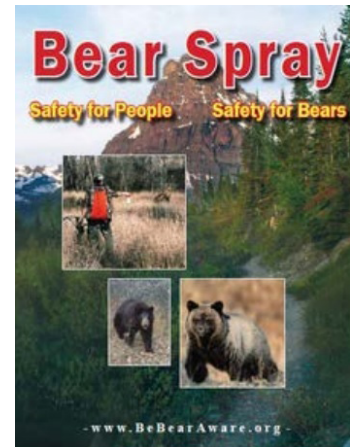
 [www.youtube.com/bebearaware](http://www.youtube.com/bebearaware)

*The information is based upon interviewing people who were mauled, incident reports, media coverage, bear biologists, the Environmental Protection Agency, the aerosol spray industry, and bear spray manufacturers. All of our publications, videos, are based on these resources and represent approximate distances, times for deployment.*

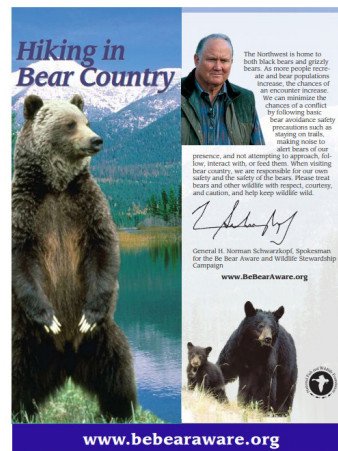
### Bear Spray Brochure



### Instructor's Guide



### Hiking Brochure



### Bear Spray Poster



### Black Bear/ Grizzly Identification Cards



### Bear I.D. brochure

