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Eye on the Environment

How Not To Use Bear Pepper Spray

By Mark Ruby, Swan Valley Bear Ranger

"I have only used it on myself." This is my typical explanation when people ask if I have used bear pepper spray. While scrambling down from a peak in Glacier National Park, I was near the bottom of an alpine basin when I slipped and dashed the can on my belt against a rock, opening up a large gash just above the neoprene holster. Several choice words erupted from my throat as the aerosolized contents escaped from the can in large red cloud around me.

Grabbing the canister from the holster, I blindly flung the hissing can down the cliff side to prevent myself from further exposure. Unable to open my eyes, I sank to my knees and began working my way down the slope feet first as my throat and nose felt like they were on fire.

I finally arrived at the bottom of the basin and submerged my head into the alpine creek running down the middle. I spent the next 30 minutes with my head in and out of the water, flushing my eyes and face until the effects of pepper subsided. Lastly, I removed my plastic lunch sack from my pack and worked my way back up slope to find my discarded bear pepper spray canister and encase it in the plastic sack.



Chuck Bartlebaugh demonstrating the proper use of bear spray at Swan Valley Bear Resources' 2010 Bear Fair. Photo by Erika Edgley.

My personal experience illustrates that bad examples of bear pepper spray use can be a very effective teaching aid. Working as a bear ranger in the Swan Valley, I have talked with many people about using and carrying bear pepper spray as a non-lethal bear deterrent while hiking and recreating around the area. In my work, I have encountered some persistent misconceptions and questions about the use of bear pepper spray regarding its specifications, use and effectiveness.

Bear pepper spray uses a mixture of resin and oil from the chili pepper family called capsaicin mixed with an aerosol propellant to create a shotgun burst spray that travels 30-40 feet depending on the size and manufacturer of the canister.

Capsaicin is responsible for the burning sensation in the mouth when peppers are eaten. The spicy heat from this substance is commonly measured in Scoville Heat Units (SHUs). Bear pepper spray is rated at roughly 3.6 million SHUs. A habenero chili is rated between 100,000 and 350,000 SHU's.

The Interagency Grizzly Bear Committee and the Environmental Protection Agency (EPA) recommend a bear pepper spray should contain 1-2% "capsaicin and related capsinoids" listed under "active ingredients" on the canister label. Visit the EPA's website to see the list of approved bear pepper

spray manufacturers based on active ingredients, net weight, spray time and spray distance (<http://www.epa.gov/region8/toxics/pests/beardeter.html>).

Is bear pepper spray effective? In an article in the Journal of Wildlife Management, Dr. Tom Smith examined 83 aggressive encounters between humans and bears in Alaska, where bear spray was used as a defense from 1986 to 2006 involving 61 grizzly bears, 20 black bears, and two polar bears. Ninety-eight percent of the close range encounters resulted in no injuries to the people involved and 2 percent resulted in only minor wounds.

Wind was only reported to interfere with the accuracy of the bear pepper spray in 7 percent of the incidents, though the spray reached the bear in all cases. Other advantages of using bear pepper spray are that the product is lightweight and easily aimed. The canister's trigger and shotgun-like projection allow for quick accuracy and easy use from the holster.

When using bear pepper spray in an aggressive bear encounter, there are several recommendations. Your bear pepper spray should be easily accessible. The majority of aggressive bear encounters result in surprising a bear and the animal reacting defensively.

Having bear pepper spray readily accessible on a belt or chest holster will assure you can use the canister quickly. When firing bear pepper spray, aim just below a bear's face with a slight back and forth motion. This strategy will reduce the odds of directing the bulk of the blast over the bears head if the bear is moving toward you.

One criticism of bear pepper spray is that the canister cannot be reloaded after use to repel another bear encounter. This is true, however bear spray canisters have varying spray times based on

the manufacturer and canister weight. Canisters manufactured by Counter Assault have 7.2 seconds of spray time for the 8.1 ounce canister and 9.2 seconds of spray time for the 10.2 ounce canister. This allows a user several 2 second bursts of bear pepper spray in an aggressive bear encounter.

Depending on the manufacturer, a canister of bear pepper spray has about four years of life before it reaches its expiration date. The expiration date is often listed on the bottom of the canister or vertically on the label.

Important to know is that your bear pepper spray can still be effective after the expiration date is passed. The active ingredients within the canister do not lose their potency. Rather, as in most aerosol cans, the propellant slowly leaks over time resulting in a slow loss of distance that your canister can propel the active ingredients.

To check the range of your canister, simply take your canister to a safe place and give the trigger a quick squeeze to judge the distance of the spray. Recommendations to replace your bear spray include discarding the spray when the canister weighs less than 90% of the net weight listed on the label or the canister is past the expiration date.

Despite my mishap with bear pepper spray in Glacier National Park, I still advocate its use and believe the product to be a very effective defense against bears. The product is light, easy to use, and proven to be effective as an aggressive bear deterrent over the last 20 years. While bear pepper spray is not a substitute for common sense while hiking in bear country, it can be an invaluable tool to deterring a bear in an aggressive encounter.

For more information about living with bears, Swan Valley Bear Resources will be hosting the 4th annual Bear Fair at the Hungry Bear Steak House from 11am-3pm, Saturday, August 6. A free event that is

open to the public, the Bear Fair hosts bear biologists and resource professionals from around the region.

Family oriented booths will provide information on bear pepper spray, bear-resistant garbage containers, tracking grizzly bears, electric fencing, plaster track casting, kids' activities, and much more. Presentations on grizzly bear management and research will come from Montana Fish, Wildlife & Parks grizzly management specialist Tim Manley and USGS Grizzly DNA Project coordinator Amy McLeod.

A bratwurst lunch will be provided to attendees. If you are interested in attending the event, call Swan Ecosystem Center at (406) 754-3137 to reserve your free brat. Register to win the door prize—bear pepper spray with a holster! Hope to see you there.