

VERMONT BLACK BEARS AND HOW TO SUCCESSFULLY MANAGE CONFLICT

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INTRODUCTION

Reports of human-bear conflicts (HBCs) in Vermont are increasing. Some members of the public suggest that an increasing black bear (“bear”) population is the cause. In Vermont Fish & Wildlife Department’s (“VFWD”) 2010-2020 big game management plan, the target bear population for the state was 4,500-6,000 bears. However, their 2020-2030 plan decreased the target population by 1,000 bears to between 3,500 and 5,500. The rationale given for the change was, “[i]ncidents of bear damage and bear-human interactions have increased, especially in areas where few bears existed earlier. The ‘early season’ bear hunting regulation changes are intended to help stabilize the bear population...” At the same time VFWD was initiating a reduction in the bear population, a VFWD public survey indicated that 64% of Vermonters wanted the bear population to remain the same [1]. Furthermore, research reveals that hunting bears does not reduce future human-bear conflicts [2]. Vermont’s current population is an estimated 4,500 bears [3]. From a July 2020 interview, biologists say the overall population has not grown, and there are fewer bears now than there were 10 years ago [4].

This paper will explore the possible reasons for an increase in HBCs and use scientific data to determine whether hunting can be used as a method to reduce HBCs. The paper will also provide guidance as to what the public can do to reduce HBCs.

Vermont’s Bear Hunting Season

Vermont has one of the longest bear hunting seasons in the country—approximately 80 days—from September 1st, which is also the start of bear hound hunting season, through the first nine days of the November deer rifle season (*November 22nd marked the end of the 2020 bear hunt.*) Although the annual harvest of black bears varies greatly due to food supply, weather, license sales, and other factors,

an average of 609 bears were killed by hunters annually over the last decade (2010-2019) [5].

The 2020 hunting season tallied a record high of 920 harvested bears, 20% of the estimated total bear population as documented by the VFWD. This occurred in a year that was particularly challenging for bears to find natural food and coincided with a doubling in the reported HBCs to bear management staff [6]. The 2020 deer season by comparison claimed approximately 12.8% of the total population [7, 8].

Of the total 920 bears taken, 823 were during the early bear hunting season that starts prior to the November deer rifle season and includes 155 bears taken using bear hounds. An early season permit costs \$5 for residents and \$15 for nonresidents. In the “late season,” hunters get a bear tag along with their deer tag on their general hunting license at no additional cost, which is valid during the first nine days of the November deer rifle season. There is a bag limit of one bear per hunter, with no restrictions on age or gender. Sows with cubs, and even cubs, may be legally killed. Half of the bears killed during the 2020 hunt were females. Bears may be legally killed in their dens, which was documented during the 2020 bear hunt, according to a social media post from a Vermont bear hunter.

Why Has There Been an Increase in Human-Bear Conflicts?

There are several theories for an increase in HBCs, including: more people raising backyard chickens with inadequate protection from wildlife; increased number of people recreating outdoors; increased number of people working from home, which allows for greater exposure to bears on the property; a surge of non-residents moving to Vermont and tourists fleeing urban areas due to COVID-19. Many of the latter demographic may be unfamiliar with bears and their behavior [9-11]. In addition, the rise of HBCs are a direct result of the new mandatory composting laws due to improper food waste disposal [12]. Other complaints result from camping in proximity to bear habitat and improper storage of food; poor garbage management; leaving birdfeeders out; and failure to properly protect crops and livestock.

Are Human-Bear Conflicts Dangerous?

Increases in HBCs have resulted in more bears being labeled as nuisances or worse, viewed as a threat when, in fact, the only documented bear-caused human fatality in Vermont was in 1943. This conflict occurred when a hunter shot and wounded a bear. The hunter subsequently tried to kill the bear with his knife and was killed during the confrontation. Aside from the 1943 event, David Taddei, Vermont state game warden with the VFWD, publicly stated, “We have never had a documented bear attack in Vermont.” [13]. Dr. Lynn Rogers, a national bear biologist, provides additional insight as to the limited threat when dealing with black bears. During more than 50 years of studying bears, the only time Dr. Rogers got “nipped or slapped,” was when he tried to put a radio collar on a bear without using tranquilizers [14]. If one whose job it is to be in close proximity with bears has been nipped at only once in his lifetime, it follows that educating the public on how to deal with bears, and how to better assess what is indeed a threat, should mitigate reports of HBCs.

A 2020 study by David L Garshellis compared HBC data to hunting intensity and evaluated the types of complaints that arise from black bears. It should be noted that the majority of the documented citizen complaints by phone appear to be preventable. Birdfeeders accounted for the largest portion (27%) of the complaints. Additionally, 26% of complaints were related to garbage and 15% from bears being on a citizen’s property. 22% of accounts were labeled as a “threat” [15]. Forrest Hammond claims that attacks are very rare and when bears do hurt people, he said, “It’s usually a case of someone getting between the bear and its escape route” [14, 16]. Since bear attacks are very rare, 22% of HBCs labeled as a “threat” may be perception rather than actual threats.

“BIRDFEEDERS” ACCOUNTED FOR THE LARGEST PORTION (27%) OF THE COMPLAINTS. ADDITIONALLY, 26% OF COMPLAINTS WERE RELATED TO GARBAGE AND 15% FROM BEARS BEING ON A CITIZEN’S PROPERTY. 22% OF ACCOUNTS WERE LABELED AS A “THREAT.” [17].

Based on Dr. Lynn Rogers’s encounters with bears, it is important for the public to understand that bears are not typically harmful. Therefore, it is unnecessary to file a bear incident report to VFWD every time the public sees a bear. This is not to suggest that bears cannot inflict significant harm. However, educating humans to better understand bears, will reduce unnecessary HBC reports, potential conflicts, and unnecessary death to bears.

What HBC Reports Mean for the Bears

When a bear is perceived as a “nuisance” or a threat in Vermont, the possible outcomes include: VFWD providing advice; game wardens hazing the problem bear to get the bear to vacate the property; or killing the bear. The success of preventing lethal measures has been noted by the VFWD to rely on the education of the complainant about the underlying “attractant” and the complainant’s execution of non-lethal measures or deterrents [12, 17-19].

Over the last six years, an average of 32 bears were killed after being categorized as a “nuisance” or threat, according to public records obtained from VFWD. In 2018, 10 bears were killed over a three-week time span due to cornfield damage in Huntington [9]. That same year, a late spring led to a paucity of natural food sources for bears. As of October 2020, an estimated 50 bears were reportedly killed outside of the regular hunting season in 2020 because they were categorized as a “nuisance” or threat—this is in addition to the 920 killed during the bear season. Most of these bears were killed for causing damage to cornfields. In July 2020, three bears in Waterbury were categorized as a “nuisance.” One was shot on site and two were captured and later killed [19].

Is Hunting an Effective Strategy for Mitigating Human-Bear Conflict?

Hunters and hunting lobbyists claim that bear population is the most critical factor for determining the rate of HBCs. However, the data contradicts that claim. Martyn E. Obbard’s 2014 study revealed that, “Human–bear conflict was not correlated with prior harvests, providing no evidence that larger harvests reduced subsequent HBC. Given the variation in natural foods, harvest is unlikely to prevent elevated levels of HBC in years of food shortage unless it maintains bears at low densities — an objective that might conflict with maintaining viable populations and providing opportunities for sport harvest.” [20] Garshellis’s 2020 study came to a similar conclusion [15]. The impact of such a drastic increase in harvest on the sustainability of the bear population was not evaluated.

Garshellis’s 2020 study evaluated whether it was possible to hunt our way out of HBCs. The paper analyzes the amount of nuisance killing of bears per year, annual hunting harvest (number of bears killed), and citizen complaint data. **This data found no relationship between harvests and bear complaints because increas-**

ing harvests during the 1980s through the early 1990s did not cause a complaint (HBC) decline [15]. The study further explains that harvest levels studied did not cause a severe enough drop in population to affect conflict levels. Garshellis states, “While the goal at the time was to reduce the statewide population due to the burgeoning complaints, the halving of the population was much more rapid and severe than anticipated or desired and became difficult to arrest.” This would mean that over half of all bears would need to be killed to have any effect on HBCs [15]. In fact, the only option investigated that helped prevent future risk of complaints at all, short of halving the bear population, was technical support, where the complainant calls the state fish and wildlife department and the caller is given information as to what they can do to mitigate the issue and prevent future conflicts [15].

Further corroboration that HBCs aren’t influenced by bear abundance is found by comparing Vermont’s data on bear population with the number of HBCs reported to VFWD. According to Forrest Hammond, the leader of the black bear project at VFWD, bear abundance in 2018 was 5,200; this is 1,000 less than the 6,600 in 2017, and 800 fewer than the 6,000 animals the population has hovered around for the past decade [21]. Despite this, 2018 saw a record number of 795 complaints. Additionally, Hammond writes, “The highest the population has been in that 10-year span was actually in 2011, when there were an estimated 7,000 bears in Vermont.” Despite this high population in 2011, bear complaints were only 218 [21]. This supports that HBCs may increase while bear populations are decreasing.



Efficacy of Different Types of Bear Conflict Management

Given that population reduction, short of halving the numbers, does not reduce HBCs, a look to alternate methods of bear conflict management is needed. The most comprehensive study to date comes from Khorozyan and Waltert. Their results indicated that better animal husbandry, i.e., electric fences, enclosures, guard animals, etc., was most effective in reducing damage. Aversion, with the objective being to trigger negative responses, e.g. chasing bears away through acoustic, chemical and physical deterrents, or their combinations, was found to be less effective than husbandry solutions [22]. Lethal control of bears proved to be the least effective management alternative [22]. In a November 2020 email from Khorozyan regarding the study, he explained (emphasis provided), “Lethal control makes sense only during a short period of time, **and only if it is targeted at known problem individuals.** Random killing of bears (or other predators) is ineffective as problem individuals are secretive and much less likely to encounter people. An emphasis must be on non-lethal interventions, especially husbandry.”

Get Bear Smart Society, a prominent organization working to help humans and bears coexist, promotes a community scale effort to reduce bear attractants to prevent a problem before it starts. “Bylaws or ordinances are a necessary part of any successful human-bear conflict management plan. Education and voluntary compliance are rarely enough to encourage everyone in a community to effectively manage potential bear attractants. And it just takes one bird feeder or poorly stored bag of dog food to sentence an unassuming bear to an early death.” [23]

A study by Voyles investigated another interesting question: can live trapping and technical assistance reduce HBC over time? The results show that when adjusted on a temporal and spatial scale, live trapping (translocation of bears) and technical assistance are ineffective at reducing future risk of HBCs over time. Additionally, killing a specified number of bears each year often can be ineffective, since the bear population naturally varies in response to other environmental variables and killing a set number differs depending upon population size. Ultimately, lethal control has the lowest impact on reducing future risk of HBC's compared to other types of conflict management [24].

Bear Family Dynamics and Reproduction

Before we choose lethal methods of bear management, we also need to consider the ethics and impact to bear families. Bears form tight family units with the cubs staying with their mother for about a year and a half. When we implement lethal control, this disrupts the bear's natural lifecycle, potentially leaving a cub to grow up without a mother [25]. When mother bears are killed before their cubs mature the cubs may not survive. When they do survive, they may never learn lessons such as how to find food, locate a good winter den, sleep away the winter, and stay safe and avoid trouble (which often includes steering clear of humans). When a mature male bear is killed it can: alter territorial and breeding behavior; result in stressful harassment of females by young males; result in the killing of cubs by other males and the early abandonment of cubs by females, again leading to naïve cubs behaving in a manner that may potentially increase HBCs.

Additionally, bears are relatively slow to reproduce. Bears don't become sexually mature until about three-and-a-half years old and only give birth every two years. Pregnancy will only be fruitful if the sow is in good physical condition. If food has been plentiful and she has gained sufficient weight and fat reserves to carry, give birth to, and nurse cubs throughout the hibernation period, the fertilized eggs will attach themselves to the uterine wall and begin developing into cubs. This is termed "delayed implantation".



ABOVE: MOTHER BEAR & CUB, VERMONT JUNE 2020

What Can We Do?

Based on what we have learned from our research, there are several options to reduce HBCs:

- Remove food sources that might attract hungry bears. These include pet food, barbecue grills, garbage, untreated compost, and campsites with accessible food and food wastes. Bird feeders are one of the most common bear attractants, so take down all bird feeders from March-December. Even spilled seed on the ground will attract bears.
- Store garbage containers in a secured garage, shed, or basement, and put your garbage out the morning of pickup rather than the night before.
- Maintain a compost bin that is as scent free as possible by adding three parts carbon-rich 'brown' materials like dry leaves, straw, or ripped up paper for every one-part food scraps or 'green' materials. In backyard composters, avoid composting meat, dairy, or other foods with a heavy scent.
- Keep a respectful distance from any bears you encounter. If a bear is up a tree near your home, bring your children and pets inside. Never approach bear cubs or attempt to 'rescue' them if you find them alone [18].
- Keep dogs leashed when in the woods.
- When hiking in the woods, let the bear know you're there by making noise.
- Work with your local community to adopt bear-friendly ordinances to offer the best chance for success. In order to reduce HBCs, it needs to be a community effort. All it takes is for one neighbor to refuse to act responsibly to cause a bear to habituate to your community and cause HBCs.

BearSmart.com contains extensive information on how to reduce bear conflict in a manner that keeps bears safe [23].



ABOVE: A BEAR VISITS UNSECURED DUMPSTERS AT VERMONT RESTAURANT, 2020

Conclusion

Bear populations in Vermont are not limited by the carrying capacity of the land, since Vermont's vast landscape can accommodate a greater abundance of bears than even a target population of 5,500.¹ The bear population is instead limited by the social carrying capacity or the population that the public is willing to tolerate. Per FWD's black bear report, "Bear habitat can often support more animals than the public is willing to tolerate." Bear biologist Forrest Hammond shared in a June 2018 interview with VPR, "It's a social carrying capacity we're looking at. How many bears will people tolerate?" That leaves Vermonters with the responsibility to do all we can to coexist and reduce human-bear conflicts.

Bears play a crucial role in our ecosystems for a variety of reasons including forest fertilization, acting as an indicator species for potential environmental issues, and contributing to the

¹ Carrying capacity means the abundance of a species that a specific area can support without environmental degradation.

dynamic balance of Vermont's ecosystems [23]. With our efforts to reduce human-bear conflicts, we must ensure a sustainable, vibrant bear population as well.

Numerous studies reveal that hunting seasons do not reduce future bear conflicts, whereas

managing attractants on a community scale does. We encourage VTFWD to focus on education as the primary method of promoting greater bear acceptance and a decreased perception of threat.

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