

Chapter 3: Black Bear

Introduction

Historical accounts suggest Vermont had an abundant bear population when the first European settlers arrived. However, bears require large tracts of forestland, and, with their axes, the settlers cut their farms out of the forests and whittled away bear habitat – confining bears to the most mountainous areas that were too steep or rocky to farm.

Habitat loss was only one reason for the bear population decline. Vermont's rapidly growing human population hunted bears without restrictions and labeled them as vermin due to crop losses and livestock depredation. In 1831, the Vermont Legislature codified the bear's lowly status by imposing a bounty on them. Over the next 110 years, 1,295 bounty claims were paid out (Willey 1978).

It was habitat, however, more than changes in the bounty laws, that saved Vermont's bears from extinction. After the Civil War, large number of farmers headed West, leading to large-scale reforestation that vastly improved bear habitat. Sentiment towards black bears also began to change. Perhaps echoing the conservation views championed by Teddy Roosevelt, Vermonters began to view bears and other wildlife as important natural resources. In 1941, the bear bounty was repealed, and a bear season was established that only allowed hunting from June 1 to December 31.

Laws and regulations affecting bear management during the twentieth century became more frequent as Vermont's human population continued to grow. Beginning in 1955, the reporting of harvested bears was required. In 1961, the season was shortened to 91 days (September 1 - November 30). Other changes included the prohibition of trapping bears (1967), limiting the harvest to one bear per season (1968), a prohibition on baiting, and requiring bear houndsmen to hold a special permit (1972), reducing the season length twice (1974 and again in 1990), and then lengthening the season and requiring an early bear season tag (2013).

Compared to 100 years ago, bears are secure, not only via strict hunting regulations but also due to strong habitat protection laws. The population has responded, growing from an estimated 2,000 bears in 1975 to approximately 5,500 in 2018. With the exception of the Champlain islands, they are now common in Vermont from the Massachusetts border to Canada.

2010 - 2020 Plan Accomplishments

ISSUE 1. Bear Population Size and Distribution

- 1.2 Achieved population objective between 4,500 and 6,000 bears.
- 1.2 Increased bear tooth submission rates from successful hunters to improve population estimation.

ISSUE 2. Maintain no-net-loss of function and value of existing bear habitat

- 2.1 Protected thousands of acres of important bear habitat through the regulatory review process.
- 2.1 Established a voluntary habitat stamp to help fund the purchase of vital wildlife habitat.
- 2.2 Revised and updated Landowner Habitat Guidelines to include habitat recommendations for black bears.

ISSUE 3. Bear-Human Conflicts

- 3.1 Wrote a Bear Response Plan as a statewide policy for handling specific bear-human conflicts, outlining issues requiring further action, and recommending options for improving response and reducing bear-human conflicts.
- 3.1 Enacted new regulations clarifying when a bear doing damage can and can't be killed.
- 3.1 Enacted new regulations making it illegal to feed bears.
- 3.3 Worked with FPR and USDA Wildlife Services to reduce conflicts with bears at Vermont State Park campgrounds.
- 3.3 Created a conflict database and increased department efforts at responding to requests for assistance with human-bear conflicts.

ISSUE 4. Bear Management Strategies and Season Structure

- 4.1 Established a special, early-season bear tag that allows hunters to hunt bears prior to the rifle deer season.
- 4.1 Began survey of bear hunters for hunter effort and sighting rates by WMU.
- 4.1 Increased the bear hunting season length by four days to stabilize population growth.
- 4.1 Significantly increased hunter satisfaction with the bear management program.
- 4.2 Worked with the Vermont Bearhound Association to improve the regulations on bear management including the hunting of bears with hounds.

ISSUE 1. Bear–Human Conflicts

GOAL: Minimize the total number of negative interactions occurring between bears and humans to achieve acceptable levels of human safety.

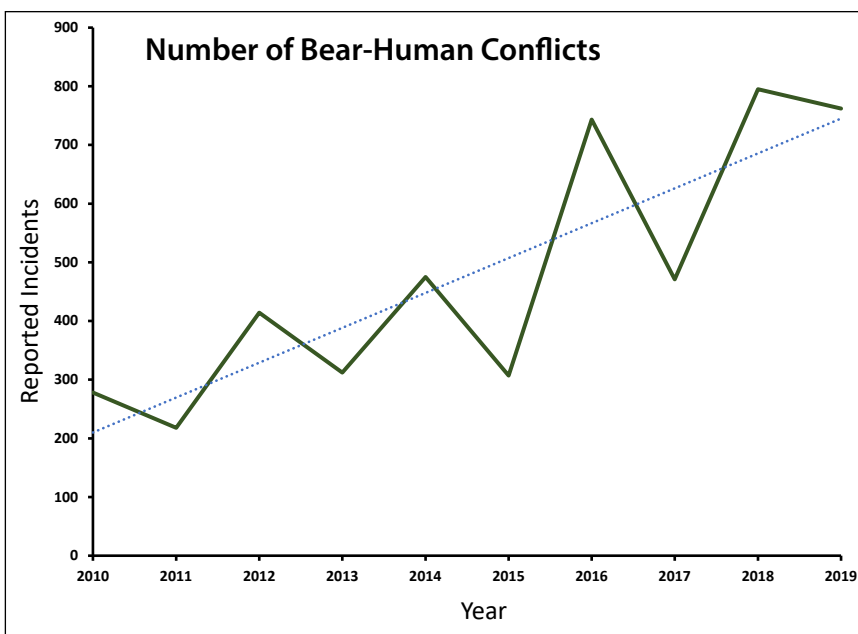
In Vermont, black bears are more limited by social, rather than biological carrying capacity. This social, or cultural carrying capacity is the maximum number of bears that humans will tolerate. Bears are large animals capable of causing extensive property damage and even human injury, and, unlike deer or turkeys, the public is often poorly prepared to interact with them.

Although the department’s bear population model suggests bear population growth slowed in recent years, the number of reported human/bear conflicts has continued to climb. Indeed, the increase in conflicts appears spectacularly out of proportion to bear numbers. While bear numbers appear to have roughly doubled since 1990, the number reports of bears causing damage and being killed by means other than hunting has increased 20 to 30-fold. In 1990, for instance, the department received just 24 bear complaints and 8 bears were counted as incidental mortalities. In 2016, staff addressed 866 bear complaints with 203 incidental mortalities, 158 of which were killed in automobile collisions.

The reasons for the dramatic increase in conflicts is more complex than just a result of rising bear numbers and seasonal or yearly natural food shortage. Although these contribute, bears have also increased their distribution throughout Vermont. They now occupy nearly twice as many towns as a few decades ago, mostly expanding into areas of the state with higher densities of people. Bear habitat has also changed with a lower proportion of young forest habitat, which provides important food sources to bear. Finally, human demographics have also shifted in Vermont with increased urbanization and visitation to some areas. As a result of all these changes, interactions between bears and people are now more commonplace.

The record number of bear-human interactions is taxing the department beyond its capacity to provide direct and effective assistance. This has led to greater coordination with other organizations, such as USDA Animal and Plant Health Inspection Service (APHIS) Wildlife Services, for assistance and, more importantly, increased public outreach to prevent bear-human conflicts.

This outreach effort has included presentations focused on advice about living with bears, increased website content, press releases, as well as television and radio spots. Results of the Big Game Survey suggest this is working. The majority of residents knew it was illegal to feed bears and could identify the behaviors, such as bird feeding when bears are active and not securing garbage, that led to bear problems. The majority also supported actions that could prevent or reduce problems, ranging from increased monetary fines for people caught feeding bears, to local ordinances on garbage storage and bird feeding, to increased hunting opportunities.



Increased knowledge, however, has yet to result in a measurable decrease in complaints. In fact, the department believes bear-human conflicts will likely remain high into the foreseeable future. Bears will continue their range expansion into towns and neighborhoods that, until recently, had no bears or history of living with them since early settlement. Additionally, a mandated composting law (Act 148) which took effect in 2020 could, at least temporarily, increase problems statewide without proactive measures aimed at bear-human conflict reduction.

As part of a first-in-the-nation universal recycling law, Vermont’s residential food scraps will be banned from landfills starting 2020. For a fee, haulers will collect the food scraps for those who can’t or don’t want to compost, and those who do but don’t want to compost all their scraps (i.e. meat, bones). However, the law has no requirement for bear-proof food

scrap containers. In addition, while the majority of Vermonters already compost, many more will likely start to avoid fees. The Department of Environmental Conservation (DEC) Waste Management Program is already promoting backyard composting and there has already been an increase in reports of bears damaging compost structures. In the past three years, there have been over one hundred such reports and this number will likely only rise as more Vermonters attempt backyard composting. The challenge for the department and DEC is educating the public on techniques that do not attract bears and other wildlife. Doing this might entail providing answers to specific composting questions related to wildlife, looking into funding opportunities to help subsidize composting resources in communities experiencing a lot of bear conflicts and monitoring composting bear conflict issues and communicating those to DEC and waste management companies.

Management Objectives and Strategies

- 1.1 Continue to work with partners to increase public awareness of the factors that lead to bear-human conflicts and the legal and appropriate actions to take to avoid negative interactions.
- 1.2 Continue outreach and education efforts that include improving the bear section of the department web page and posting additional “how to” videos to help reach a larger segment of the public.
- 1.3 Better define and clarify existing bear feeding regulations; provide clear guidelines on the appropriate actions to take when encountering a bear; reinforce the department’s position on relocating bears; and specify when it is appropriate to euthanize a bear that has caused extensive property damage or is a threat to human safety.
- 1.4 “Raise the bar” on getting the public to take more responsibility for addressing local bear-human conflicts rather than depending on department staff to address all problems.
- 1.5 Assist communities experiencing the greatest number of conflicts with creative ways to address bear-human conflicts.
- 1.6 Continue to work with DEC to improve outreach on universal recycling of food scraps to reduce conflicts with bear.

ISSUE 2. Bear Population Size and Distribution

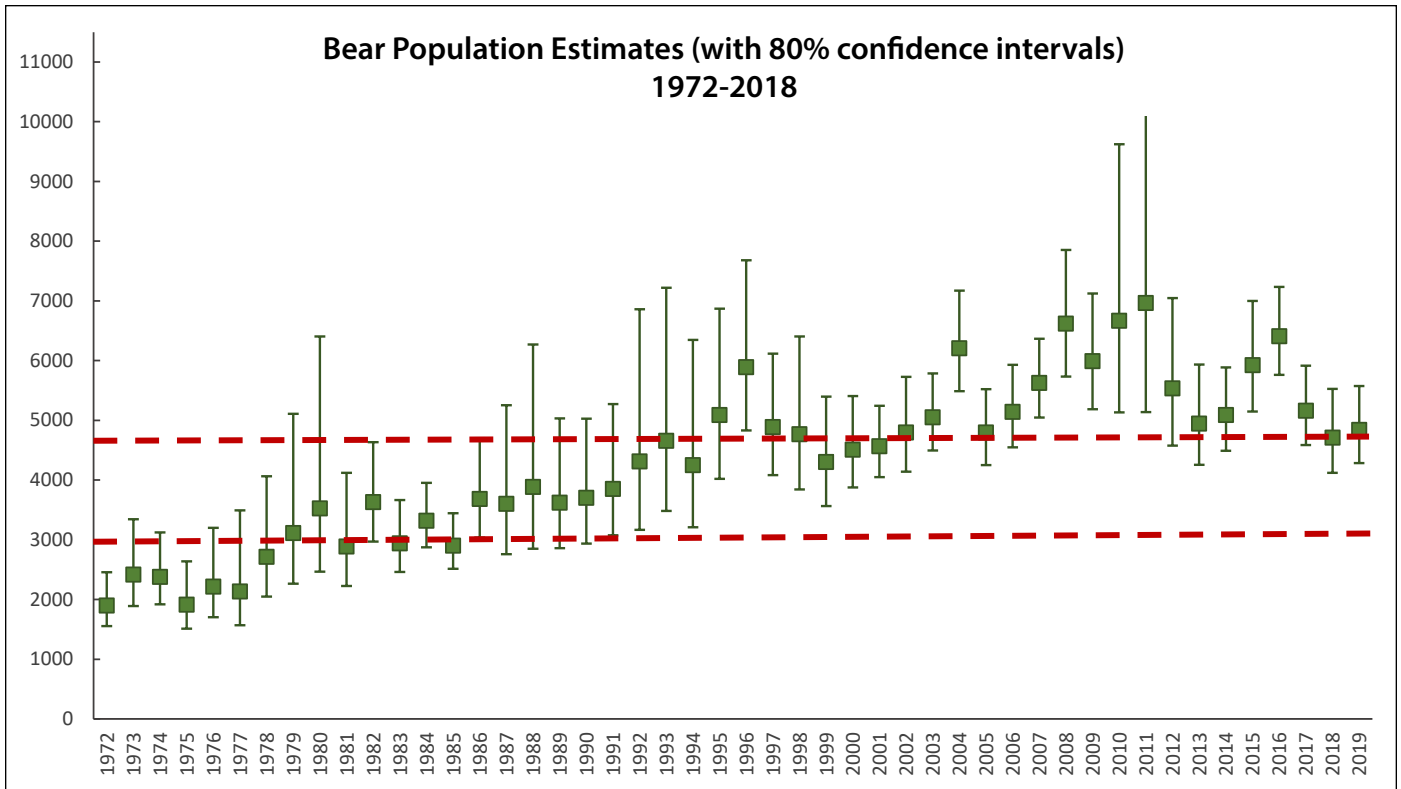
GOAL: Maintain the bear population ecologically sustainable levels, while minimizing human conflicts.

In the previous 2010-2020 Big Game Plan period, the department took steps to stabilize the population within a range 4,500 to 6,000 bears. Population modeling was indicating a growing bear population, and this range aimed to ensure the viability of a free-ranging bear population while also meeting public expectations including hunting opportunity and public tolerance for conflicts. Following several years of high bear harvests, population estimates indicated that the bear population may have even climbed above 6,000 at the beginning of the planning period but is now thought to be well within the population objective.

Despite a recent spike in bear-human conflicts, the big game survey found the majority (64%) of residents want the bear population to remain the same in their county. Not surprisingly, there was a slight increase overall in the percentage of people wanting bear numbers to decrease and some regional differences that reflected where bear-human conflicts were highest, but these differences were not enough to warrant significant changes in the population objective.

However, more accurate and complete data have improved the department’s bear population model since the last plan, leading to slightly different population trajectories, with higher fluctuations in annual population estimates and confidence levels in those estimates. These fluctuations are reflective of variable natural mortality and birth rates that are driven mostly by food availability.

Increasing global temperatures and climate disruptions will likely exacerbate these fluctuations. Regional analyses indicate that average summer temperatures in the northeast will increase 2-5°C by 2100. The forecasted combination of increasing summer temperatures and wide variations in summer precipitation levels will cause more frequent droughts, likely having a negative effect on the summer soft mast crops like berries and other wild fruits as well as acorn and beechnut production. These natural foods are important summer and fall forage for black bears. Periodic disruptions in food availability will result in higher mortality and changes in distribution as bears expand their travel ranges in search of alternative foods. This expansion of hungry bears will likely increase human-bear conflicts including collisions with automobiles.



Range expansion of bears is evident from department data. Although they continue to be widespread throughout Vermont, with the greatest densities occurring along the spine of the Green Mountains and in the Northeast Kingdom, bear sightings and harvest numbers are increasing in lower elevation towns in the Connecticut River Valley, Taconic Range and towns along the Massachusetts and New York borders. As a result, more people who have never encountered bears in their town and are not accustomed to living in “bear country” are now regularly seeing bears around town and in their own backyards.

Management Objectives and Strategies

- 2.1 Maintain a bear population of between 3,500 and 5,500, allowing for wider fluctuations in the annual population and confidence intervals resulting from improvements to the population model.
- 2.2 Continue to use hunting season length, especially during the overlap with the November deer season, as the primary method of adjusting the bear population.
- 2.3 Consider managing bears regionally rather than statewide to address conflicts and more specifically manage bears in areas where they are expanding their range beyond forested habitat.

ISSUE 3. Bear Habitat Conservation

GOAL: Maintain no-net-loss of function and value of existing bear habitat.

Vermont is a national leader in black bear habitat conservation. The department uses a long-term strategy focused on conserving large blocks of interconnected forestland and critical bear habitat in line with Vermont Conservation Design’s focus on increasing resiliency to human-driven climate and habitat-change. Department personnel expend considerable effort protecting black bear habitat through Act 250, Section 248, wood-to-energy harvest review, land acquisition and working with town and regional planning commissions. Through these and other conservation methods, tens of thousands of acres of significant black bear habitat have been conserved -- conservation efforts that will continue to be a priority for Vermont’s black bear program.

Recently, the department reviewed plans for several large industrial wind projects that could potentially impact large areas of significant bear habitat. The lack of information on the effects of wind generation projects on black bears spurred the department to implement a 10-year study from 2011-2021 on this issue in southern Vermont within the Deerfield Wind Project area. To date, dozens of bears have been fitted with GPS collars to monitor their movements and habitat use before

and after wind turbine installation. Results from this study will contribute valuable scientific information on wind generation effects on bears and their habitat use, identify the most important habitats for protection in the study area, and direct some mitigation funds to conserving additional mast production habitat.

Management Objectives and Strategies

- 3.1 Continue to work with Vermont’s regulatory process to conserve important bear habitat threatened by commercial and residential development.
- 3.2 Update the Black Bear Habitat Mitigation Guidelines reflecting advances in habitat mitigation strategies as a result of recent research.
- 3.3 Work with Vermont Conservation Design to prioritize the protection of bear travel corridors and linkage habitat while also working to increase the amount of young forest habitat throughout the state.

ISSUE 4. Bear Management Strategies and Season Structure

GOAL: Optimize hunting opportunity for the utilization of bears for food and other uses, ensure hunter satisfaction within biologically sustainable regulations, and continue to use hunting to meet black bear population objectives.

Season Length and Structure

Vermont is fortunate to have a strong bear hunting culture that serves as an important tool in bear management, keeping the population within a socially acceptable range and annually providing nearly 200,000 meals of meat. A quarter of Vermont hunters indicate they hunt bears, at least incidentally, and, in 2018, almost 11,000 hunters purchased an early season bear tag. Vermont’s bear hunting season, one of the longest in the nation, runs from September 1st through the first nine days of the November deer rifle season. The number of days that the bear season is open during the November deer rifle season often has the greatest effect on the total harvest, especially during years of high natural food abundance when bears continue to feed instead of denning.

Vermont’s bear season was shortened by four days in November in 1990 in response to a desire to increase the population. Two decades later, the season was lengthened by the same four days to curtail population growth. These changes were followed by intended population growths and declines, illustrating that season length adjustments are an effective method for maintaining the bear population within socially accepted ranges in Vermont, and will thus continue to be used as a primary management method in the future over other hunting strategies employed elsewhere such as the use of bait, spring hunting and allowing multiple bears on a single license.

No changes to existing bear season regulations are anticipated until the impacts of the recent changes to Vermont’s deer season structure have been assessed. More opportunities and longer seasons for deer, such as the early antlerless muzzleloader season, could result in higher bear harvests.

Regional Management

Black bear management continues to be conducted on a statewide basis because of a lack of data to allow fine-scale management and because it is a less complex hunting regulation structure than regional management. Additional data on hunter numbers, hunter effort and success rates have been collected since 2013 through the issuance of a separate bear

Black Bears and Wind Energy

Since 2011, the department has been looking at the impacts of a large wind energy project on black bears in southern Vermont. This is the first industrial sized wind project on United States Forest Service (USFS) lands and the only research project investigating the potential impacts of a wind energy project on black bears.

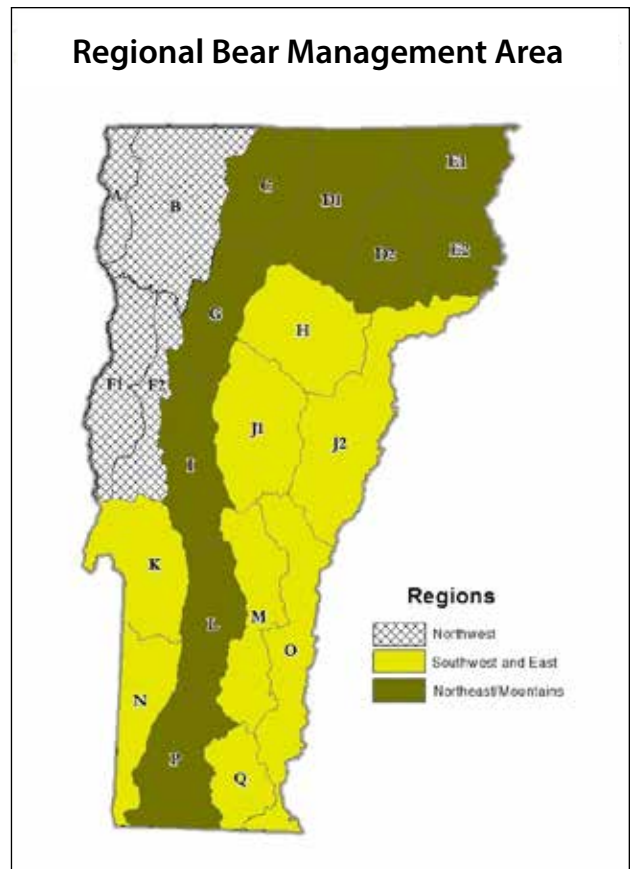
The primary objective of this study is to determine how bears respond to disturbances associated with the construction and operation of the turbines and to document any changes in their responses over time. The research area includes extensive beech stands that are used seasonally by large numbers of bears for food. To date, forty-six bears have been captured and fitted with satellite GPS collars to track their movements and habitat use in relation to the wind project. This will allow the department to document the extent of indirect effects and to quantify any displacement or avoidance of the area. Additional data, including research on uncollared bears, are being collected with a number of wildlife trail cameras that are located throughout the study area.

Field work should be completed in 2020 and a final report available in 2022.

license to address this data gap. In addition, the Deer Hunting Survey was amended starting in 2016 to collect data on bear sighting rates by hunters in each WMU. The department has also increased bear tooth collection (now a mandatory requirement for hunters) which will improve population model estimates and, when combined with hunter effort data, will allow for regional estimates of bear numbers in the future. Tailoring hunting season regulations to regions with different bear densities, hunting pressure, number of nuisance complaints, and development pressures would be particularly beneficial in regions such as the northwest where recent changes in the bear population and its distribution are increasing the potential for rising conflicts (primarily for agriculture) in the near future.

Hunting Bears with Hounds

Bear hunting with hounds can be controversial. The department recognizes this and acknowledges the issues that sometimes result from their use, including hounds on private property, a heavy reliance on GPS collars (which can provide hunters with an advantage of tracking bears easier and faster) and the length of the training season. Nevertheless, the department continues to support bear hunting with hounds as a legitimate and biologically sound technique that keeps bears wild and reduces conflicts. Vermont game wardens routinely recommend the use of permitted bearhounds to property owners who are dealing with



Bear Hounds in Vermont

The department recognizes that bear hunting with hounds is controversial and understands that there are issues with public perception such as hounds on private property, the use of telemetry and the length of the training season that contribute to this controversy. However, hunting bears with dogs is also a highly regulated, legal hunting method that contributes towards meeting department population goals for bears in Vermont, particularly keeping bears wild and minimizing conflicts with humans.

Without the use of bear hounds for hunting and with the current length of bear hunting season, Vermont would struggle to maintain black bear harvests and the population at appropriate levels.

Vermont game wardens routinely recommend bear hounds to property owners who are dealing with nuisance bears, including farmers experiencing significant financial losses due to bears in corn, apple orchards and beehives. In many instances, chasing these bears away actually prevents their death at the hands of property owners. In cases where a problem bear poses a threat to human safety, bear hounds are sometimes used to locate the offending bear.

Decades of experience also confirm the department's belief that the pursuing of bears with hounds is humane. Wildlife biologists in Vermont and throughout North America use hounds to capture black bears humanely for vital research projects. They have documented no adverse effects to the study animals while using this capture method.

All bear hound hunters are required to have a permit to train and hunt with their dogs. Recent law changes enacted by the Vermont Fish & Wildlife Board on bear management have improved enforcement efforts by State Game Wardens and have placed greater restrictions on the ownership and residency of both the hunters and the dogs. The number of nonresident bear hound hunters is limited to 10% of the resident permit numbers and total permit numbers are low, with fewer than 100 permits issued each year. The number of bears taken with hounds is also low, representing only about 10-15% of the total bear kill. However, the public benefits of hunting bears with dogs is significant. The department will continue to support the use of bear hounds and address any issues that arise from the use of hounds or other methods for hunting bears in Vermont.

nuisance bears and farmers with problem bears in their corn, apple orchards and beehives. In many cases, the intervention works, chasing the bear away and preventing it from being euthanized.

Hunters are required to have a permit to train and hunt bear with dogs, and the number of nonresident Bear-Dog permits is limited to 10% of the resident numbers. Recent law changes also have placed greater restrictions on the ownership and residency of the dogs permitted to run on the resident Bear-Dog permits.

The number of bears taken with hounds is only about 10-15% of the total bear harvest, so bear hunting with dogs is not critical for maintaining population objectives. Albeit, the benefits of hunting bears with dogs to solve nuisance issues remains an important tool for aversive conditioning. The department will continue to work closely with the Vermont Bear Hound Association (VBHA) to discuss and understand how they can best contribute to reducing bear-human conflicts as they arise in concert with other aversive conditioning methods as dictated by specific circumstances related to the type of conflict.

Hunter Numbers

The decline in hunter numbers poses many challenges for wildlife managers who rely heavily on data derived from hunters and hunter harvest to manage wildlife populations and conserve their habitat. Vermont's resident hunter population is expected to drop to 36,000 within the next decade, and the department expects many resulting hunting season and regulation changes. Proactive communication and outreach to promote discussions about bear hunting in a context of bear-human conflicts and bear habitat conservation will be essential. Actions such as bear hunting seminars for new hunters, working in close coordination with existing hunting groups such as the VBHA and the Vermont Bowhunters Association, as well as diversifying department communication strategies to increase accessibility of hunting to a wider audience will help maintain hunting as an important management tool into the future.

Management Objectives and Strategies

- 4.1 Use hunter effort surveys and harvest data collected at a regional scale to inform regional bear population management.
- 4.2 Continue to promote the hunting of bears for food and increase outreach efforts to improve accessibility of bear hunting to a wider audience.
- 4.3 Continue to work with the VBHA to implement effective deterrent methods that reduce bear-human conflicts.
- 4.4 Begin outreach that describes how declining hunter participation will likely necessitate changes in bear season structure and overall bear management.
- 4.5 Evaluate and monitor impacts the new deer season structure may have on the bear harvest and population size.

Bears as Predators of White-tailed Deer and Moose

Deer hunters are increasingly voicing concern at public hearings that bears may be taking large numbers of deer fawns and moose calves and perhaps even limiting local deer numbers. Fawns and calves are prey for black bears. Predator-prey studies conducted throughout North America show that bears can account for substantial levels of fawn and calf mortality, often higher than that from coyotes or wolves. Some managers have responded to this research by attempting to reduce predation by removing black bears lethally or translocating them and even through diversionary feeding programs. However, most of these actions have proven to be cost prohibitive with only short-term benefits to cervid populations.

The department recognizes that bears take fawns and moose calves and consequentially accounts for this in population modelling and management decisions. Predation may, however, eventually reduce the tolerance that hunters and other residents have for high numbers of bears and thus could influence population objectives in future Big Game Plans.

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