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Managing Human-Wildlife Interactions: Black Bear (*Ursus americanus*)

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Introduction

The black bear serves as an important indicator species of the health of the environment and the habitats it uses. Because of the black bear's recreational, aesthetic, and ecological values, this species has been — and continues to be — an important part of our natural heritage. Today black bears are one of several big game species in Virginia, and licensed hunters can hunt black bear during a regulated fall hunting season.

The growth of wildlife watching here in Virginia and across the nation is spurred on by the desire and opportunities to view a large, charismatic species. The black bear has become a favorite of watchers, especially among visitors to Shenandoah National Park where bears are common. However, bears do come into conflict with humans in certain situations and can inflict significant economic costs to agricultural producers in some parts of the state. Bears that have become habituated to humans and human-provided foods pose special concerns about personal safety.

This publication provides information to improve readers' knowledge and understanding of this fascinating species and discusses various options to minimize negative consequences from our interactions with black bears in Virginia.

Biology and Behavior

The black bear (fig. 1) is a large mammal with powerful limbs, a relatively small head with small rounded ears, a stubby tail, and black fur (though a rare cinnamon-color phase occasionally occurs in the western parts of its range). Its muzzle (snout) is light brown or tan in color, and some bears display a small, white chest blaze. All black bears have five toes, with well-developed nonretractable claws on both the front and hind feet. Their teeth are adapted for feeding on both plant and animal matter. Adult female bears typically weigh 100-200 pounds, whereas adult males are larger, weighing 150-500 pounds. That said, the largest black bear recorded in the U.S. was a habituated adult male in North Carolina that reached an uncharacteristic weight of 880 pounds, primarily from foraging near a hog farm.

Figure 1: Physical appearance of an adult black bear. (Photo courtesy of Harold Jerrell)

Within North America, black bears are present throughout much of Alaska and Canada, but elsewhere in the U.S., distribution is more fractured. Populations of black bears are common in the north-central Great Lakes Region and along and within the Rocky Mountain, Appalachian Mountain, and Ozark Mountain ranges. Other populations are scattered throughout the largely rural, forested landscapes that radiate out from these mountain systems. In the East, especially from Maine to Florida, the range of the black bear in recent decades has expanded and now includes many areas within the Coastal Plain and at the rural/suburban interface.

Here in Virginia, two historic strongholds for black bear populations have been along and west of the Blue Ridge Mountains and in and near the Great Dismal Swamp in Southeast Virginia. At present, bears can found in every county of the state except portions of the Eastern Shore.

Although present, bears typically are sparse within Northern Virginia's urban centers and on the Northern Neck and parts of the Middle and Lower Peninsulas. As of 2020, the bear population in Virginia was estimated to be least 18,000 individuals.

Black bears use a variety of upland habitats, ranging from mature hardwood forests to recently timbered or burned lands now dominated by thick brush intermixed with open patches of grass, forbs, brambles, and weeds. Riparian and wetland areas also are important habitat types for bears as sources of food, cover, and travel corridors.

The digestive system of black bears is typical to that of most other native omnivores (i.e., those that feed on both plants and animals). Bears work hard to acquire sufficient food to survive, especially during fall when preparing for the physiological demands of winter denning. Their diet generally reflects foods that are available at the particular time of year. For example, bears often feed on skunk cabbage, squawroot, and tender grasses in spring; berries, fruits, and sedges in summer; and hard mast, such as acorns, beechnuts, and hickory nuts, in fall. Insects, small mammals, and other animal matter are consumed when available. However, bears also will seek out and use readily available alternative food sources, such as agricultural crops; the contents of beehives, bird feeders, commercial dumpsters, or household refuse containers; and occasionally livestock — particularly when natural foods are not abundant (figs. 2 and 3).

Figure 2: Aerial view of damage resulting from repeated black bear foraging in a cornfield. (Photo by New Hampshire Fish and Game, Concord)

Figure 3: Field-level view of foraging damage to corn caused by a black bear. (Photo by James Parkhurst)

With the exception of the summer breeding season and females caring for their young, black bears maintain a solitary existence. Although bears generally are most active around dawn and again at dusk (called "crepuscular behavior"), they can be observed anytime throughout daylight hours, especially during summer and fall. Bears are likely to become nocturnal where contact with humans is frequent. In many settings, they are rarely seen because they are secretive and — for such a large animal — very quiet.

Individuals of both sexes often establish overlapping home ranges. Females' ranges are smaller (10-15 square miles on average, but up to 50 square miles) than those of the more far-ranging males (commonly 20-50 square miles, but may be as large as 200+ square miles). Range size is influenced by the abundance and quality of food available in the area.

Females typically do not breed until they are 3-5 years old, and then they reproduce only every other year. Breeding occurs during summer (late June to August, primarily in July), yet embryonic development does not begin immediately, but is deferred until late fall — a process known as "delayed implantation." Two to four cubs are born in January while the female is denning. These cubs will remain with the female during the entire year and throughout the next winter denning period, and they will disperse during their second spring. At that time, young male offspring typically move away from their mother's home range. In contrast, young female offspring also disperse but usually remain close to and often overlap with their mother's range.

Mortality is highest among cubs; however, mortality also can be high for inexperienced male yearlings once they leave the natal area and travel considerable distances in search of suitable, unoccupied habitat. Aside from humans or other bears, adult bears have few natural predators and, until the recent outbreak

of sarcoptic mange in the mountains of northwestern Virginia, were considered relatively disease-free. Although bears more than 20 years old are occasionally harvested in Virginia, such advanced ages are not common. The average age of a female bear is about 8-10 years, whereas males average about 5-8 years.

The onset of denning depends primarily on weather, local food availability, and the animal's ability to amass a sufficient amount of stored fat. Denning often begins by mid-November and extends until late-February or mid-March across much of Virginia. Adult females typically enter the den earlier and remain dormant longer than males. Bears in Virginia use large, hollow trees, brush piles, logging slash, laurel thickets, rock outcrops, the upturned root mass of a blown-down tree, or simply the base of a large standing evergreen tree as denning locations. Although black bears do not enter a state of true hibernation while denning, their heart and respiration rates slow to about half of normal, and their body temperature declines by about 10 degrees.

Bears in Virginia's western mountains typically do not eat, urinate, or defecate throughout the entire winter denning period. Those in the Piedmont region may wake up periodically throughout the winter and leave the den to secure food or water or to eliminate bodily waste. Regardless of geographic location, a denning bear may arise at any time and move to a new site if the winter den it initially selected is not ideal or the animal is subjected to repeated disturbances.

Economic Status and Importance

During the 2020-21 bear hunting season (including all weapon options), 80,625 licenses (resident and nonresident) were purchased by individuals who could pursue Virginia's black bears, and 3,464 bears were harvested. Based on current purchase prices of Virginia's bear hunting licenses (resident bear license $21, sportsman's license $100, and nonresident bear license $151), plus the value-added expenditures (equipment, food, lodging, fuel, etc.) made by hunters while pursuing bears, the Virginia Department of Wildlife Resources (DWR) conservatively estimates that recreational bear hunting in Virginia contributes more than $7 million to the state's economy. Add to this the contribution of the large and growing number of wildlife watchers (3.1 million; approximately 36% of all Virginians) who, on average, spent $573 annually in value-added expenditures on wildlife viewing activities (U.S. Fish and Wildlife Service and U.S. Census Bureau 2018), and it's clear that black bears represent an important economic resource to the commonwealth.

The international trade market in selected body parts from bears (e.g., gall bladders selling for $250-$10,000 each, paws selling for $25-$250 each, and hides) has promoted an increasing and illegal harvest of all bear species, especially black bears. Currently it is unlawful to sell, either commercially or privately, any body part of a black bear (other than a finished, tagged pelt) in Virginia (§ 29.1-521, 29.1-553 Code of Virginia). Stopping and preventing the illegal trade in bear parts has been a high priority of DWR Law Enforcement.

Unlike other species of bears, black bears rarely attack humans, and very few deaths have been attributed to them. However, black bears can become aggressive, particularly bears that have become conditioned to humans as a result of intentional supplemental feeding or where bears have free access to potential food resources (e.g., campgrounds, trash collection sites, livestock feed bunks). Encounters with a habituated bear can result in serious injury or death; therefore, one should never approach, feed, or encourage bears to remain in close proximity to a home, farmstead, or campsite.

When natural foods become scarce, bears resort to using other available food resources; these could include crops, livestock, or other human-provisioned foods. As a result, conflicts can arise with agricultural producers, homeowners, outdoor recreationists, and other affected parties whenever bears damage personal property or crops as they search for food. However, by exercising due caution and accepting responsibility for limiting their vulnerability, Virginians can learn to coexist with these charismatic mammals.

Interaction Management Strategies

To reduce vulnerability to bear damage, precautions should be taken well before a bear shows interest in or gains access to potential food sources. In other words, people need to be proactive and take responsibility for deterring negative interactions. As is true for many other wildlife damage situations, reliance on a single deterrence technique will not prevent all negative interactions with bears. There are measures that can reduce the likelihood of significant damage if they are initiated in a timely fashion, maintained properly, and applied with an understanding of the habits or behaviors of bears.

Residents must recognize that personnel from DWR will not trap or relocate a bear that has been allowed

access to improperly stored or unsecured food resources; instead, technical assistance is available to affected individuals on how to correct conditions serving to attract bears. Trapping and relocation will not resolve situations where attractants are available to bears; in fact, trap and relocate tactics have proven to be detrimental to bears due to their exceptional homing instinct. Bears have been documented traveling hundreds of miles back to their original home range after relocation and, as they attempt to make this return journey, bears have been struck and killed by vehicles. Requests for assistance with suspected bear problems should be directed to the Virginia Wildlife Conflict Helpline at 855-571-9003 (toll-free). Over the past three-year period, more than 2,000 calls per year (approximately 16% of all calls) logged at the Helpline sought information on or assistance with bear interactions.

Although bears generally are shy creatures, people who reside within a bear's range should remember that bears are wild and potentially unpredictable animals; they will react as any animal would to opportunities presented to them and to situations they perceive to be threatening. They are intelligent and display a remarkable long-term memory about the location of food sources, which can make dealing with them a formidable challenge.

Preventive Measures

First and foremost, under existing regulation (4VAC15-40-282), it is illegal in Virginia to knowingly or inadvertently feed a bear at any time. To reduce the potential for damage by black bears around the farm or home, don't encourage their presence or attract them to your property. To accomplish this, consider the following.

For agricultural and farm settings:

- Exercise good husbandry practices on the farm by preventing access to or removing readily available sources of supplemental food, such as stored grains and livestock feed, and collecting and properly disposing of animal carcasses from fields or pastures.
- Install and maintain electric fencing around valuable crops, beehives, and livestock pastures. In addition to such fencing, maintain a well-mowed, cleared corridor (up to 50 feet wide where feasible) beyond the fence.
- Refrain from pasturing domestic farm animals in small, isolated pastures surrounded by heavy cover whenever possible.
- Alternate or strip plant row crops, particularly sweet corn, as a means to provide less protection or hiding cover for bears.

For residential settings:

- Employ good housekeeping around the home by removing readily available sources of supplemental food within a bear's reach, such as garbage or refuse, pet food, and bird feeders (especially taking down suet feeders before March).
- Refrain from placing refrigerators or other food storage devices on porches, in accessible sheds, or in other locations that bears can get to.
- Empty and clean the grease drippings tray and clean grates in barbeque grills regularly to cut down on the likelihood of attracting bears to persistent food odors.
- Store household waste inside a secure building or shed or use bear-resistant or bear-proof receptacles if available and economically feasible. Never place waste containers out to the curb overnight; always take waste out on the morning of pickup.
- Regularly turn in and mix fresh compost material with older compost when adding it to a composter; don't leave new material sitting exposed on top. Locate composting devices away from the residence and secure composters within an electric fence where allowed.

For outdoor recreation settings:

- Never feed bears or improperly store food in or near the picnic area or campsite as this will attract bears, enhance bad behavior through reward, and promote habituation where bears begin to associate humans with food.
- Prepare and cook all meals away from the sleeping area when camping.
- Use bear-resistant storage lockers for overnight stays or properly hang food well above ground and out of a bear's reach (between two trees). Remember: black bears are excellent tree climbers.

Non-lethal Measures

Non-lethal approaches to deter bears from damaging property or commodities or to avoid a direct personal encounter with a bear include the use of:

- Loud noises (e.g., air horns, clapping, shouting, pyrotechnic salutes), bright lights, or other aversive conditioning harassment techniques (e.g., paint balls directed to the flanks).
- Temporary or permanent electric or heavy woven-wire fencing (fig. 4); the effectiveness of electric fencing can often be enhanced by proper installation and maintenance (fig. 5) and by applying bait to electric fences (e.g., with peanut butter, bacon grease, or sardine oil).
- Bear hounds for aversive conditioning.
- Guard dogs to protect livestock.
- Habitat manipulation (e.g., removal of protective cover) to make a site unsuitable for or unattractive to bears.
- A registered repellent. At this time, capsaicin (concentrated hot pepper spray) is the only chemical registered by EPA for use against bears; however, this registration is for emergency personal protection only and not as an area repellent. Because the typical hand-held spray canister will propel its contents no more than 40 feet at most, the applicant must be in close proximity to a charging or approaching bear to effectively apply the repellent. Recent research suggests that bears may actually be attracted to the taste of weathered capsaicin residue, so care is needed in how and where this material is applied. There are no fumigants or toxicants registered by the EPA for use on black bears.

Figure 4: Electric fencing used to deter bears from beehives. (Photo by New Hampshire Fish and Game, Concord, NH)

Figure 5: Damage inflicted to beehives by a black bear as a result of an improperly maintained electric fence. Note the presence of tall vegetation contacting lower strands of fence, thereby shorting out the flow of electrical current, and the position of the charger unit outside the perimeter of the protected zone (making it accessible to a marauding bear). (Photo courtesy of D. Mitchem)

Lethal Measures

If all attempts to deter a bear with preventive or non-lethal measures fail, removal of a persistent offending animal may be necessary. Where damage to commercial fruit trees, crops, livestock, or other agricultural products continues to occur, the owner or lessee of the property may receive authorization to destroy an offending bear, but only after such damage has been reported (e.g., location of damage, time of event, type of damage) and verified by a DWR Conservation Police Officer (CPO) (accessed through the regional Enforcement Division as described at dwr.virginia.gov/about/offices/). If verified, the CPO can issue a written kill permit (as authorized under §29.1-529 Code of Virginia) that clearly states any limitations governing the take of the bear (e.g., length of time permit is valid, authorized methods of kill, disposition of carcass) and establishes how and when any successful take must be reported. Before requesting a permit, owners should consider using licensed hunters to remove problem bears during the regulated hunting season. Bear hunting seasons and regulations are outlined on DWR's website at dwr.virginia.gov/hunting/regulations/bear/.

Resources

Publications

Linzey, D. W. 1998. *The Mammals of Virginia. Blacksburg*, VA: MacDonald and Woodward Publishing.

Webster, W. D., J. F. Parnell, and W. C. Biggs Jr. 1985. *Mammals of the Carolinas, Virginia, and Maryland*. Chapel Hill: University of North Carolina Press.

Whitaker, J. O., and W. J. Hamilton Jr. 1998. *Mammals of the Eastern United States*. 3rd ed. Ithica, NY: Cornell University.

Online Resources

Bear Wise – bearwise.org

Be Bear Aware Campaign – bebearaware.org

Get Bear Smart Society – bearsmart.com

Living With Bears – livingwithbears.com

Virginia Department of Wildlife Resources – dwr.virginia.gov/wildlife/bear/

References

U.S. Fish and Wildlife Service and U.S. Census Bureau. 2018. 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Report No. FHW/16-NAT (RV). Revised October 2018. Washington, DC: Government Printing Office.

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