

# Watchable Wildlife: The Black Bear



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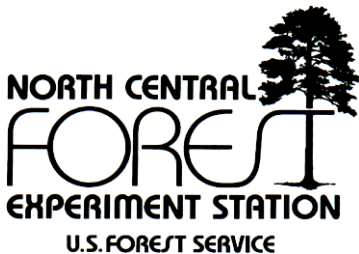
North Central Forest  
Experiment Station

**Watchable Wildlife:  
The Black Bear**

**by Lynn L. Rogers**

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Black bears are the bears people most often encounter. Black bears live in forests over much of North America, unlike grizzlies that live only in Alaska, northern and western Canada, and the northern Rocky Mountains. This brochure presents the latest information on black bear life and how this species responds to an ever-increasing number of campers, hikers, and forest residents.

## Reactions To People

Black bears usually retreat before people are aware of them. Their hearing is more sensitive than a human's, and their broad, soft foot pads allow them to move quietly downwind where they can best identify dangers. They may stand upright to see farther. If need be, they can run faster than 25 mph or climb trees as fast as squirrels.

They generally prefer to forage for wild foods away from people but are almost as quick as chipmunks to seek food in campsites and garbage cans when wild nut and berry crops fail. They rarely attack people. Campground bears and roadside panhandlers may nip or cuff people that crowd around them, try to pet them, or tease them with food. But the injuries, if any, are usually slight, only occasionally requiring stitches.

Full-blown attacks by black bears are rare. Black bear attacks are usually not at campgrounds and are usually not by black bears



*Some black bears are brown. There are no grizzly bears in eastern North America or south of the Yellowstone Ecosystem.*



*Black bears may enter camps, especially when wild foods are scarce, but they rarely attack people. This bear is about to be sprayed with capsaicin repellent and run away.*

that are familiar with people. The campground killings that have been so widely publicized have been almost exclusively by grizzly bears. Recorded killings by black bears this century total only 28 across North America. Most of these killings were unprovoked acts of predation. How likely is a black bear to be a killer? The 500,000 black bears of North America kill fewer than one person per 3 years, on the average, despite hundreds of thousands of encounters. To put this in perspective, for each death from a black bear across North America, there are approximately 17 deaths from spiders, 25 deaths from snakes, 67 deaths from dogs, 150 deaths from tornadoes, 180 deaths from bees and wasps, 374 deaths from lightning, and 90,000 homicides in the United States alone (data from the National Center for Health Statistics, 1980-1983). In the rare event of one of these attacks, the best defense is to fight with fists, feet, rocks, or anything at hand. Playing dead is usually not the best action with black bears.



*A bluff-charging black bear. This mother blew loudly as she veered away. Black bears also bluff-threaten by explosively and loudly blowing while lunging and slapping the ground or a tree. These blustery bluff-threats usually are followed by a quick retreat, especially if the person behaves aggressively.*

Unlike grizzly bear mothers, black bear mothers seldom attack people in defense of cubs. Black bear mothers typically bluff or retreat. Researchers who routinely capture cubs by chasing them up trees have not been attacked even when they have held screaming cubs. The ferocity of mother black bears is one of the biggest misconceptions about this species.

## **Communication**

Bears usually do not vocalize, unlike bears in movies with dubbed-in soundtracks. When the need arises, they communicate with grunts, by expelling air in different ways, or with a resonant “voice.” Black bears use the same vocalizations and body language

toward people that they do toward each other, and knowing those sounds can help people react to bears they encounter.

The most common bear sounds are grunts, which are used in amicable situations as when vocalizing to play partners, mates, cubs, and occasionally people. The sound most often heard



by people is a loud blowing, which means a black bear is nervous or afraid. Campers and hikers hear this when bears retreat or bluff.

Three types of bluffs are common, and all include sudden, explosive blowing. The most common is blowing with clacking teeth—the defensive display of a scared bear. Another display is blowing with a short lunge and slapping the ground or an object—an uneasy black bear’s way of saying “Move back.” A more emphatic version is blowing and bluff-charging. Any of these blustery displays can occur when a black bear feels crowded but is reluctant to leave food or cubs. However, displays usually end with bears turning and retreating, perhaps to repeat the performance. Research has shown that these displays are not preludes to attacks and that aggressive behavior by people (yelling, waving arms, making short rushes, throwing things to scare the bear) is almost certain to put a bluffing bear in retreat.

*Unlike grizzly bears, black bear mothers seldom defend their cubs against people.*

The black bear’s resonant “voice” is reserved for strong emotions and is seldom used except by cubs. Cubs readily scream in distress, whine when approaching their



*Black bears communicate with grunts in amicable situations, with blowing in nervous situations, and with a resonant voice in situations of great pleasure, pain, or threat.*

mother, or give a tremulous hum when nursing or comfortably warm. Adults (and cubs) use their “voices” when in pain (bawling), in fear (moaning), in combat (bellowing), or when seriously threatening (deep-throated pulsing sound). Unlike cats and dogs, black bears seldom, if ever, growl, although the fear-moans of treed or trapped bears

are often mistaken for growls. Predacious attacks are silent, as is normal feeding.

Bears also communicate by marking trees with their scent. This is usually done by standing on two legs and rubbing the back, shoulders, and especially the back of the head on a tree, telephone pole, or other object. They may bite and claw the trees, too. Scent reveals individual identity, reproductive status, and probably mood. Marking is most frequent by adult males before and during the mating season (in late May and June), but some marking is done by all bears in all seasons of activity. Any bear that passes a marked tree is almost certain to stop and smell it and perhaps add its own scent. It is a misconception that bears show how big they are by reaching as high as they can when marking. Favorite marking places are often human-made signposts, many of which are shorter than the bears.

## **Finding Food**

The black bear’s uncanny sense of smell serves not only as an early warning system but also as a tool for finding the fruit, nuts,

plants, and insect larvae that are their preferred foods. Their near vision is sharp, and they use sight as much as smell to quickly select foods. They have color vision, which might explain why bears do most of their foraging for fruit in daylight. For night vision, they have a reflector system in their eyes that brightens night images and gives them their eyeshine. Their night vision allows them to feed on garbage or campers' food at night to avoid people. Their distance vision has not been tested but seems comparable to that of European brown bears that can see people at 120 yards and recognize their trainers at 60 yards. Black bears are quick to learn new feeding methods and have excellent memory of feeding areas.



*Black bears have color vision and are mainly active by day. They sometimes become nocturnal to avoid people in camps or garbage dumps.*

Black bears are classified as members of the order Carnivora, and their teeth, claws, strength, and size make them look like predators. However, they seldom catch anything larger than insects. Their blocky bodies, designed for storing fat and conserving heat in winter, lack the agility required to catch healthy, adult prey. The few prey they catch are mainly nestling birds, newborn mammals, penned livestock, or spawning fish. Their long canine teeth are used mostly for biting into insect-ridden logs or for tearing apart carrion. Their claws are tightly curved for tree-climbing, unlike grizzly claws, so black bears have an advantage over grizzly bears, deer, and wild hogs when competing for acorns, nuts, and fruits. But black bear claws are not well suited for digging as are the long claws of grizzlies. Black bears almost never dig out ground squirrels like grizzlies do. Their digging is mostly limited to making dens and getting insects or tubers from just below the ground surface.

For the first few weeks of spring, the primary diet is leaves, buds, flowers, and young plants. Black bears digest mainly the tender, juicy plant parts. They cannot digest the tougher cellulose portions of plants because bears lack the necessary rumen, cecum, and intestinal microorganisms. Insect larvae, fruit, nuts, and acorns are more digestible and are critical to black bear survival and reproductive success.

A problem for bears living in northern evergreen forests is that fruits and nuts are very scarce after August. Acorns, beech nuts, and hickory nuts, which are fall foods, are scarce or absent in many of those forests, leaving the bears little nourishing food in fall. As a result, bears in those areas take years longer to reach maturity than do bears that can grow and fatten in fall. Most females in northern evergreen forests do not produce cubs until 5 to 8 years of age, while those in hardwood forests usually produce their first cubs at 3 or 4 years of age.



*Black bears eat fruit, nuts, acorns, insects, and certain leaves and plants. They catch occasional newborn animals but lack the agility to catch most adults. If important food crops fail, black bears may starve or fail to reproduce.*

## **Hibernation**

For the black bear, hibernation is more an adaptation for escaping winter food scarcity than an adaptation for escaping winter cold. Most dens are nearly as cold as the surrounding countryside. Dens may be burrows, caves, hollow trees, or simply nests on the ground. Bears gather leaves, grass, and twigs to make insulative beds on which to curl up, leaving only their well-furred backs and sides exposed to the cold. They sleep alone except for mothers with cubs. Most bears use a different den each year.

Hibernation lasts up to 7 months in the northern regions but is shorter in the South. Bears that find food year-round in the South may not hibernate at all, but black bears in



the North hibernate so deeply that they may be jostled and prodded for several minutes in mid-winter before they awaken. Undisturbed black bears remain nearly inactive during hibernation, unlike smaller hibernators that raise their body temperatures to summer levels every few days so they can eat stored food and pass wastes.



To survive long winters without eating, drinking, exercising, or passing wastes, hibernating bears cut their metabolic rates in half. Sleeping heart rate drops from a summer rate between 60 and 90 beats per minute to a hibernating rate between 8 and 40 beats per minute. Rectal temperature drops only slightly, though, from 99-102°F in summer to 88-98°F during hibernation. Bears can maintain this high body temperature despite their slower metabolism in winter because they develop highly insulative fur and reduce blood supplies to their limbs. Only the head and torso are maintained at the high temperatures. Maintaining the brain at a high temperature enables bears to maintain brain function for tending newborn cubs and responding to danger.

Less than 1 percent of black bears die in dens. Their main threats are flooding and predators (wolves, dogs, active bears, and humans). Bears do not usually die of starvation in dens. Most deaths from starvation are before or after hibernation and involve primarily cubs and yearlings. Disease is uncommon. Most parasites of bears are adapted to their host's hibernation cycle and

*This bear is raking leaves into its den for bedding. Where winters are long, black bears hibernate for up to 7 months without eating, drinking, or passing wastes. Knowledge of bear hibernation physiology is aiding human medicine.*



*Food is usually too scarce for bears to live in groups. Females defend territories 2 to 6 miles in diameter. Males use larger, overlapping areas.*

reduce their demands in winter.

Medical researchers are studying black bear hibernation to learn how bears cope with conditions that are problems for people. The findings are aiding studies of human kidney disease, gallstones, obesity, anorexia nervosa, and other problems. Researchers hope that knowledge of bear

hibernation may someday even aid space travel.

### **Movements and Social Organization**

Food is usually too scattered for adult black bears to feed together, so black bears usually travel alone except for mothers with cubs. Adult females defend territories for themselves and their offspring, including their independent offspring from the previous litter or two. Those offspring live in subterritories within the mother's territory. Mothers' territories are 2 to 6 miles in diameter. Adult males have larger ranges because they must find mates as well as food. Their ranges cover 7 to 15 female territories. Male ranges overlap those of other males because their ranges are too large to defend. A male will compete for mates and will mate with as many females as he can. Old males usually have many scars on their heads, shoulders, and forelegs from fights over females. Old females carry few scars because they have fewer occasions to fight. They occasionally fight to defend their territories, especially where cubs are involved, and have even killed trespassing bears. Young black bears behave as if their

greatest fear is a strange, large bear. Young bears have occasionally been killed and even eaten by adult males or females.

Bears may forsake their solitary behavior where food is unusually abundant. At garbage dumps, bears gather and form orderly hierarchies with some of the bears becoming partners that wrestle and travel together for days at a time. Other bears fight over the food, especially in years of food shortage.

Some bears forage entirely within their usual ranges. Others leave temporarily in late summer or fall and move up to 126 miles away. Cubs with traveling mothers remember feeding areas they visit with their mothers and sometimes return to the best of them as adults. Traveling bears return to their usual ranges in fall or soon after emerging from hibernation the next spring.

## **Raising Cubs**

Cubs are born in January after a gestation period of approximately 7 months. Although mating occurs in June, fetal development takes place mainly in the last 2 months of pregnancy after the fertilized egg implants in the uterus in November. Fetuses develop only if the mother has stored enough body fat and other nutrients to survive overwinter and provide milk for her cubs until she resumes feeding in spring. At birth, the cubs weigh less than a pound, have only a light covering of fur, and can barely crawl. The mother eats the birth membranes, licks the cubs, and warms them



*Cubs are born in winter dens and remain with their mothers for about 17 months.*



against her thinly furred belly. She moves in response to the cubs' cries and comfort sounds, making it easy for them to nurse and shifting her weight so as not to rest too heavily on them. Wakeful, nursing mothers often lose a third or more of their body weight overwinter, while non-nursing bears lose only 15 to 25 percent.

*Newborn cubs weigh less than a pound. The mother arouses enough to take care of them even though her metabolism is slowed during hibernation. She eats nothing in the den but produces enough milk for the cubs to weigh 4 to 10 pounds by the time they leave their den in April. She nurses them until fall.*

By the time the cubs toddle out of the den at 2 to 3 months of age, they weigh 4 to 10 pounds, depending upon how much milk their mother produced and how many littermates they shared it with. The better developed cubs can immediately climb trees but cannot outrun wolves or other bears. Their mother defends them, warms them, and nurses them, sometimes sitting and cradling them in her forelegs while licking their heads and nursing them. Foraging mothers come immediately when their cubs cry. If need be, a mother will carry a cub in her mouth to a new location or will gently grasp a crying cub in her mouth to help it down from a tree. Spanking cubs toward trees in time of danger is uncommon.

Cubs taste what their mothers eat in the month after emerging from dens, but they do not begin eating solid food until their chewing teeth erupt later in spring. They continue to suckle nearly until they hibernate in fall. Fathers do not help in raising the cubs and would probably be more competition than help if they tried.

In fall, mothers do most of the den construction, but the cubs help rake leaves and twigs for bedding. They sleep snuggled together

for warmth and protection with the mother nearest to the entrance. Orphaned cubs instinctively make dens and can survive overwinter alone if they weigh 27 pounds or more in fall.

The next spring, mothers continue to lead and protect their cubs until June, when the cubs are about 17 months old and the mother becomes ready to mate again. Then she suddenly becomes intolerant of her yearlings and threatens them away. She recognizes them for several years, possibly indefinitely, allowing them to remain in parts of her territory which she then avoids. She ejects trespassing bears that could compete with her offspring and herself. Female offspring use ever larger portions of their mother's territory until they reach maturity. Meanwhile, the mother shifts her territory to include new adjacent areas if such areas are available, or tolerates overlap with her daughters if other areas are not available. Young males voluntarily leave their mothers' territories before reaching maturity, traveling up to 137 miles or more before settling down and establishing mating ranges.



*Black bears require large expanses of forest to live without conflicts with people. As forests are lost to human development, black bears and other wide-ranging species disappear.*

## **The Black Bear in Settled America**

As white people settled across the New World, forests were converted to farms and black bears were eliminated from large portions of their original range. Bears reclaimed a little of their former range this past

century as people abandoned marginal farmland and let it revert to forest. At the same time, human attitudes toward black bears improved as more was learned about them. The last bounty on black bears was removed in 1965. Black bears are now protected as prized game animals in 28 states with huntable populations. Well-managed hunting does not threaten populations.

However, new threats to the black bear are arising. A lucrative oriental market for bear gall bladders and paws has given rise to commercial poaching across the continent. A greater threat is conversion of bear habitat to homes and other development as the human population grows and becomes older. Vacation homes and retirement homes are being built at an increasing rate along lakeshores and in the forest. Bears around these homes are often shot when they are attracted to garbage, gardens, bird feeders, dog food, and cooking odors, especially in years of berry crop failures.



*Bears are reclaiming some former range as it becomes reforested, but they are disappearing from other areas as people move into bear country. Black bears can live 30 years or more, but almost all are killed by people before reaching half that age.*

As travel corridors are cut off and forests become more fragmented, the future of black bears will depend more and more upon human tolerance of bears. If people and black bears are to coexist, we must develop a better understanding of bear behavior and needs, become more tolerant, and take steps to assure that adequate habitat is maintained.

### **Black Bear Characteristics**

**Color:** Body fur black, brown, blonde, or rarely white. Brown muzzle. White chest patch uncommon. Eyes brown (blue at birth). Skin light gray.

**Adult Weight:** Males: 125 to 500 pounds common, depending upon age, season,

and food. Record: 816 pounds; Minnesota; September 15, 1991. Females: 90 to 300 pounds common. Record: 454 pounds; Pennsylvania. Captive bears may exceed these records.

**Adult Length:** 50 to 80 inches, nose to tail, depending on sex.

**Litter Size:** Typically 2 in the West, 3 in the East. First litters often 1 or 2. Record: 6, Pennsylvania.

**Mating Season:** Late May to early July. Occasionally longer.

**Birth Month:** January.

**Birth Weight:** 1/2 to 1 pound.

**Weight at 1 Year:** 15 pounds to more than 100 pounds, depending upon food supply.

**Parental Care:** 17 months (rarely 29 months), ending in June when mothers become ready to mate again.

**Age at Production of First Cubs:** 2 to 8 years, depending upon food supply.

**Interval Between Litters:** 2 to 4 years, depending upon food supply. May reproduce in consecutive years if a litter dies before the mating season.

**Sex Ratio:** Nearly even at birth. Mature bears: 1 male per 2-5 females.

**Vision:** Color vision. Good near vision. Untested distance vision.

**Hearing:** Exceeds human frequency range and sensitivity.



*Researchers across America are studying black bears to learn their habitat requirements.*



*Mothers care for their cubs, teaching them and giving them warmth, milk, and protection. Adolescent, independent offspring are allowed to live within the protection of their mothers' territories.*

**Smelling:** One hundred times more nasal mucosa area than a human. Smelling ability is extremely good. The limits of this sense have not been tested.

**Intelligence:** One of the more intelligent mammals. Can generalize to the simple concept level. Long-term memory excellent. Heaviest brain, relative to body length, of any land carnivore.

**Sounds:** Grunts, loud blowing, and a resonant "voice." Does not threaten by growling.

**Swimming Distance:** At least 1.5 miles. May swim to island campsites.

**Running Speed:** Lean bears may exceed 30 mph. Can run uphill or downhill. Fat bears in winter pelage tire and overheat quickly.

**Daily Activity Period:** Typically 1/2 hour before sunrise to 1 to 2 hours after sunset. May become nocturnal to avoid people.

**Home Range Diameter:** Yearlings: 1-2 miles. Adult females: 2-6 miles. Adult males: 8-15 miles. Excursions to 126 miles recorded.

**Preferred Foods:** Fruit, nuts, acorns, insects, succulent greens, and meat. Less preferred foods may cause weight loss.

**Hibernation:** 0 to 7 months depending upon latitude and food supply.

**Potential Longevity:** 21-33 years or more.

**Causes of Death:** Bears 2 years old or older outside national parks: 95 percent gunshot; 5 percent natural causes, road kills, and



other human-related causes. Average age of death from human-related causes: 6 years (northeastern Minnesota). Cubs and yearlings: starvation, predation, falls from trees, road-kills, etc. Few bears die of disease.

**Range:** Extensive forests with low human populations from Florida and Mexico to Alaska and Labrador, extending onto open tundra where grizzly bears have been extirpated in northern Labrador.

**Optimum Habitat:** Extensive forests with a variety of fruit- and nut-producing species. Small openings promote fruiting of many shrub species. Lowlands and wetlands are important sources of succulent vegetation. Streams and pools are needed for drinking and cooling. Trees larger than 20 inches d.b.h. with strong, furrowed bark are easily climbed refuges for spring cubs

**Long-Term Problem:** Human population expansion is reducing bear habitat. Human tolerance of black bears is low due to unrealistically ferocious popular image of black bears..



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