

# Portrait of a Black Bear

I remember my first encounter with a black bear. It was about midnight and I was just dozing off under a blanket at a campground. The "no-see-ums" were biting so I had pulled the blanket up over my head. I thought I heard one of my buddies coming out of the woods, but the footsteps came to me, and I heard myself being sniffed from head to toe. I wasn't certain it was a bear until it walked around me and knocked the cover off the garbage can.

Black bears are the bears most likely to come in contact with humans because there are so many of them, they are widely distributed, and they like our food. Attacks by black bears are surprisingly rare, considering the amount of contact we have with them. The few attacks that occur usually are made by males rather than by mothers with cubs.

The idea that black bear mothers are likely to attack is probably based on the well publicized fact that grizzly mothers often attack in defense of their cubs. Black bear mothers bluff ferociously but seldom attack. In fact, researchers in northern Minnesota commonly chase black bear family groups in order to tree the cubs and ear tag them. As of yet, mothers have done no more than bluff, even when cubs scream "maaa" with almost human voices.

In many cases, black bears simply retreat quietly into cover before people even are aware that one is near. Their hearing is more sensitive than that of humans and their broad, soft foot pads allow them to move quietly downwind to identify the source of any unusual sounds. If the need arises, they can run faster than 25 m.p.h.

The uncanny sense of smell black bears possess serves not only as an early warning system but also as a means for locating patches of food. It also helps them determine which logs hold ants and other insects that are their most reliable sources of fat and protein.

The search for food is further aided by acute vision at close range. Black bears can even see in color. Their distance vision has not been adequately tested, but studies of captive European brown bears have shown that they can see people at least as far as 120 yards and they can recognize their trainers at 60 yards.

The speed, strength, sharp claws, and large canine teeth of black bears give them the appearance of able predators. In reality, they obtain very little of their food by killing other mammals. Instead, they use their teeth and claws mainly for ripping apart insect-ridden logs, tearing



apart carrion, and fighting with other bears.

The claws of black bears are sharp and tightly curved for easy tree-climbing. Consequently, black bears have an advantage over grizzlies, deer, and wild hogs when competing for delicacies such as acorns, nuts, catkins, and fruits. The claws of the grizzly are longer, blunter, and not as curved as those of the black bear and are better suited for unearthing ground squirrels than for climbing. The black bear holds its digging to a minimum, usually limiting such work to digging dens and digging out anthills and hornet nests. In fall, though, a black bear

will occasionally turn over as much as a half acre of dirt to get nutrients stored in the tuberous roots of certain plants.

In Minnesota, grass, buds, ants, catkins, and young leaves are staples for black bears in spring until berries ripen. Then fruits become mainstays until they are destroyed by autumn frosts. Many of the fruits that bears eat grow most abundantly in and around forest openings, and that's where bears can be found on cool, overcast, and rainy days. But on hot, clear days black bears spend much of their time in the shade and may even enter the water to cool off.

In fall, in the hardwoods portion of the bear range of North America, acorns, beechnuts, hickory nuts, hazelnuts, apples, and other fruits are important foods. However, in the coniferous northern portion of the range, fruit and mast-producing trees are scarce, with the exception of the white bark pine of the Rocky Mountains, so black bears there turn to green vegetation and insects after the berries are gone.

Bears are as poorly adapted as we are for digesting cellulose, and they often lose weight on a diet of greens. Bears that must subsist on vegetation usually retire to dens weeks earlier than bears that have good sources of food on which to fatten all fall.

In the North, black bears are in dens from five to seven months each year, depending in part on local food supplies. In the south where food is available much of the year, bears den for shorter periods or not at all.

Black bears usually construct their dens with entrances just large enough for them to squeeze through. They then rake leaves, grass, and twigs into the dens for insulative beds and lie curled up with their thickly furred backs protecting them from the subfreezing (often subzero) temperatures that penetrate the dens. Each bear sleeps alone except for mothers with cubs.

An often-asked question is if bears truly hibernate. The answer depends upon the definition of hibernation. Before very much was known about it, hibernation was defined mainly in terms of reduction in body temperature, and bears did not qualify because their temperatures dropped only a few degrees—to between 88° and 98°F, from a summer temperature of 100° to 101°F.

But when the many other physiological changes became known that allowed bears to go as long as seven months or more without eating or drinking, the definition of hibernation was broadened, and today bears are generally considered hibernators. Their metabolic rate is cut nearly in half and their heart rate slows to as low as eight beats per minute. Bears usually remain inactive throughout their hibernation period, unlike the smaller hibernators that awaken every few days, bring their body temperatures up to normal, pass wastes, and eat food stored in their burrows.

Sensitivity to danger generally is reduced during denning, but the ease with which a given bear can be aroused varies considerably. On one occasion, a bear may flee from a den at the approach of a person, but on another, the same bear may not be awakened for several minutes by someone crawling into the den and jostling the bear.

There are several misconceptions regarding the denning habits of bears. One is that bears eat a lot of roughage in fall to purge the digestive tract and form a fecal plug that puts an end to feeding for the year. It is true that bears do ingest, perhaps accidentally, small amounts of material that they rake into their dens for beds, and it is true that bears have feces in their bowels during the winter. However, those feces form whether a bear eats roughage or nothing at all because they are created primarily from products of the bear's own body. That is not a mysterious process. Bears apparently form feces during denning in the same way that people do during starvation. Such feces result from cells that are sloughed off from the inside of the digestive tract and from intestinal bacteria. Bears that den for several months usually defecate at least once during the denning period and defecate large quantities upon leaving their dens in spring.

A misconception that was prevalent among primitive people and that is believed by some people even today is that bears get sustenance during hibernation by sucking their paws. This idea probably arose from observations of bears licking the bottoms of their feet during the last half of the denning period, after the old, calloused foot pads drop off. The soft, new pads apparently are tender and receive quite a bit of attention.



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Hibernation of black bears is now being studied in detail by medical researchers because black bears display conditions during hibernation that are seen in some human illnesses. Medical researchers are learning how bears tolerate those conditions without ill effects and are obtaining information that is proving useful in the treatment of human illnesses.

The denning period is the time when bears give birth. Cubs usually are born in late January after a gestation period of seven months. They are conceived in June or July, but development of the embryos is limited almost entirely to the last three months of gestation. Before that time, the fertilized egg is not implanted in the uterus and is barely visible without a microscope. Consequently, it is difficult to determine if females killed in the fall hunting season are pregnant.

Litters usually are one to four cubs. Three is most common in much of the East, and two is most common in much of the West. At birth, cubs usually weigh less than a pound and are almost naked, but by the time they toddle out of their dens with their mothers at about three months of age, they weigh between four and seven pounds. They cannot yet run well enough to escape fleet-footed predators at this age, but they can easily climb trees with their already well-developed claws.

Even while cubs are in their dens they receive the best of care. Their mothers clean up (*i.e.*, eat) the feces of their cubs and assume positions that make nursing easy, moving in a way that reminds one of a

person doing something in his or her sleep. In Minnesota, mothers nurse their newborn cubs in dens for up to three months without venturing out for food or water. As a result, lactating mothers can lose a third or more of their body weight during hibernation whereas other bears usually lose only 15 to 25 percent.

Black bear cubs suckle through the June/July mating season and prevent the mothers from coming into heat. Consequently litters usually do not overlap and mothers devote their energy to only one litter at a time. Nursing mothers seem almost human at times; one picture that sticks vividly in my mind is of a mother sitting with her back against a tree, cradling her cubs with her arm, and licking their heads as they nursed at her chest.

Cubs den with their mother their first winter and even help rake bedding material into the den. However, mothers may remove the bedding and rearrange it to their own liking. If cubs are orphaned, they instinctively build dens by themselves and are able to survive to adulthood.

Cubs normally separate from their mothers in June of their second year. Young females usually then settle near their birthplaces and at three to eight years of age begin producing cubs. They continue to reproduce at two- to four-year intervals past 20 years of age. There is no known menopause in the black bear. The age at which females begin to reproduce and the amount of time between litters depends on the food supply.

Males leave their birthplaces before mating and often travel more than 100 miles before settling, but once they have settled they usually use the same general five- to ten-mile-diameter area for mating each year.

Males are aggressive toward each other during the June/July mating period with encounters leading to threats, chasing, or savage battles. The scarred hides of old males are evidence of the violent contests fought near receptive females. (Both males and females are promiscuous.) Rival males broadcast their whereabouts to one another through the use of "bear trees" on which they scratch, bite, and rub their scent. (Female black bears seldom use "bear trees.") Messages probably reveal which males are in the area and how safe it might be to remain there. Messages tend to be ignored, however, by males on the trail of females in heat.

After the mating season, male hormone levels drop, and aggression declines. In Minnesota, mature males travel up to 125 miles outside their breeding ranges in late summer and fall and congregate at garbage dumps or other food sources. Some females also travel far outside their territories at that time, but are less apt to go to garbage dumps.

Both sexes usually return to their mating areas to den.

Deaths during the denning period are surprisingly infrequent. Starvation usually occurs only after bears leave their dens, and predators seldom attempt to kill bears in the confines of a den. However, several deaths from predation are on record. A large bear killed a mother and yearling cubs in a den in Michigan, and a pack of timber wolves killed a mother and newborn cubs at a den in Minnesota. Starvation deaths are uncommon among adults, but 5 of 13 yearlings starved in Minnesota after drought and frost reduced natural foods several years in succession.

**F**ew wild bears live the 30 or more years that bears sometimes do in captivity. Wild bears that reach adulthood have a good chance of living a decade or two if they settle in areas where there is little chance of being shot or struck by a vehicle. More than 90 percent of

the mortality among adult black bears in northern Minnesota is from human-related causes, but most mortality among cubs and yearlings is from natural causes.

Except for the occasional oversized individual, adult male black bears weigh between 150 and 550 pounds and adult females weigh between 90 and 300 pounds. The term "big old sow" arises because large males sometimes are mistaken for females in late fall when their testicles are retracted into their abdomens and their scrotums are shrunken and obscured by abdominal fur. Testicles become scrotal again in early spring.

Black bears grow new coats each summer and the new coats can be different colors from the old, i.e., some dark brown individuals can become black and vice versa. Pelts of black bears generally become prime by mid-September in the northern United States and remain prime through early May.

Black bears presently are abundant and

would seem to have a bright future for some time to come. In the best habitats, they are producing a surplus. But those habitats are steadily shrinking due to encroachment by an expanding human population. To maintain black bears and most other kinds of wildlife at anywhere near present levels, there is a need for a better understanding of wildlife habitat requirements and incorporation of that information into land management policies.

*Lynn Rogers is a wildlife research biologist for the USDA Forest Service, North Central Forest Experiment Station. He is a consultant for an exhibit on bears, being developed by SMM.*

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