

What is a Black Bear?

Natural History of Black Bears (*Ursus americanus*)

Bear behavior and diet:

Maine's black bears are large: males average between 250 and 350 pounds, but can weigh over 500 pounds, while females are about half that size, weighing between 150 to 200 pounds, but can achieve 300 pounds (McLaughlin 1999). Black bears are not always black. Sometimes they are cinnamon colored or even blond on rare occasion.

Black bears have particularly acute senses. Their ability to smell is seven times greater than a dog. They have good eyesight and excellent hearing. They can sprint short distances reaching speeds between 25 to 30 miles per hour. They do not sweat and instead use streams to cool themselves in summer. They use their claws to climb trees—sometimes to escape predators—and for foraging grubs from logs. They require a patchwork of vegetation types for foraging, denning, escape cover, and movement corridors.

While they are considered carnivores, black bears are omnivorous and obtain nearly all of their nutrition from vegetation. They feed opportunistically on just about anything from colonial insects (bees and ants), larvae, rodents, and carrion in the summer and fall. Occasionally, bears will even prey upon ungulate (elk, deer, and moose). Maine's bear biologists investigated how much ungulate meat Maine's bears ate, but the results were confounded. Researchers could not distinguish whether the ungulates in bears' diets came from predation, scavenging, or from bait piles (Seeger et al. 2013).

In springtime when bears emerge from the den, they feed on emerging grasses, buds, new leaves, or even beechnuts or acorns if left from the previous year (McLaughlin 1999). During the late summer and fall, bears must gain three to five pounds per day by consuming 20,000 calories daily. This feeding frenzy, called "hyperphagia," occurs just for a few months, but is necessary for bears to survive hibernation. Bear will eat up 20 hours per day. Essentially, bears eat nearly all their nutrients for the year in just 3 or 4 months—in the period just before hibernation. Bears will journey 40 to 50 miles to access distant food supplies, including fruits or nuts or human crops, particularly during hyperphagia (McLaughlin 1999). Highly intelligent creatures, bears learn and remember where their food sources are—including bait piles. Hunting bears during hyperphagia is energetically costly to them as they shift their sleeping patterns and become more nocturnal to avoid being hunted (Ordiz et al. 2012).

Maine's bears enter their dens from mid-October to the end of November, but they will remain active if fall foods are plentiful; bears hibernate until late April (McLaughlin 1999). Bears are not true hibernators, however; instead they enter a state called "torpor." Unlike true hibernators, bears can wake and move, especially if their dens are disturbed (McLaughlin). During the winter months, their body temperature and breathing lowers slightly; they consume nothing and do not excrete (Toien et al. 2011). Bears reabsorb and use their own waste. Amazingly, bears' muscles do not atrophy, nor do their bones lose

density from inactivity (Toien et al. 2011).

In the past, during the Fall, the bears of northern Maine had relied almost entirely on beechnuts, and the crop's abundance fluctuates: one year beechnuts will be plentiful but the next they will be scarce or completely unavailable (McLaughlin 1999). McLaughlin (1999) found that food availability influenced bears' reproductive responses in alternate years. In years when there are little to no available beechnuts, cubs were not produced the following spring in northern Maine (McLaughlin 1999).

In newer research, however, biologists found that bears are now giving birth every year in northern Maine despite the lack of beechnut availability (Jakubas et al. 2005). These researchers found that bears are capable of exploiting other foods opportunistically, if it is available, although these researchers did not speculate what the of what the alternative food was comprised (Jakubas et al. 2005). Researchers failed to contemplate the obvious: there is on order of 7 million piles of bait placed in the woods each year (Nemitz 2014).

Reproduction of Black Bears

Females do not reach breeding age until they are 4 to 6 years old, and are slow to reproduce – usually only two cubs in a female's first litter, but she will give birth to an average of 3 cubs in successive litters, which occur no more frequently than every two years (McLaughlin 1999).

Bears mate in late summer, usually in July or August, but the embryos do not implant to the uterine wall until months after mating, typically in November or December. This delayed implantation is a mechanism to protect the female. If she is in good body condition—that is, if she found adequate nutrition in the fall—she will give birth to cubs while in the den, usually between December and February (McLaughlin 1999). If she did not gain sufficient weight, a mother will not give birth but instead reabsorb the embryos to avoid expending the energy that she herself requires to stay alive. A female may only produce six litters in her lifetime.

Cubs are weaned approximately seven months after their birth, usually between July and September (Ulev 2007 citing Gill and Beck 1990 and Jonkel and Cowan 1971). The mother will keep her cubs for 14 to 18 months old; she will den with her cubs in the following winter after their birth (McLaughlin 1999). Family break-up (that is, when the mother makes her cubs move out) typically occurs between May and July after the second winter when females begin to come back into estrus (Rogers 1987, Lee and Vaughan 2004, Elfstrom et al. 2014). The cubs must strike out on their own and find their own territory. Females' territories are often close to their mother's, but male subadult bears must travel further. Biologists believe they do this to avoid inbreeding.

Ecology of Black Bears

Black bears are important in forest ecology by dispersing seeds long distances (Enders and Vander Wall 2012). Rodents secondarily assist by removing the seeds from bear feces, where they would otherwise mildew, and cache them in soil where some will grow (Enders and Vander Wall 2012). Other researchers have show that bears cause small-

scale ecological disturbance to the canopy that allows sun to filter to the forest floor adding to biological diversity (Takahashi and Takahashi 2013). Bears also break logs while grubbing, which helps the decomposition process to return nutrients to the soil.

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