

STUDYING HABITUATED BLACK BEARS

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Black bears were once thought too dangerous to study up close, and there was concern also that close observation might cause bears to behave unnaturally. However, researchers in northeastern Minnesota have now found that wild black bears will accept and ignore human observers after a hundred or so hours of habituation.

The researchers initially fed the bears to attract them. At first the bears were wary and defensive, and even appeared aggressive, but the researchers learned to interpret aggressive behavior in terms of the bears' fear. No one was seriously hurt, and in time mutual trust developed. Some of the bears were captured and had radio-collars placed around their necks, so they could be found and observed at any time.

After a while the researchers stopped feeding the bears and began simply watching them as they went about their normal activities: foraging, napping, sleeping through the night, mating, nursing, playing, marking territories, chasing intruding bears, preying on deer fawns, and preparing dens. Remarkably, the bears learned to ignore the sounds and movements of nearby observers while remaining alert to the tiniest rustlings farther away.

Observations of the closely observed bears corresponded with the data collected on 103 radio-collared bears that had been tracked from trucks and airplanes in the same area in previous years. No differences were found in territory size, fecal contents, daily activity patterns, seasonal travel patterns, social relationships, winter sleep, and incidence of nuisance behavior. Both groups went about making a living from the forest, with the closely observed bears providing

details that had been impossible to obtain from a distance.

For example, to learn what bears eat, researchers had previously relied on examining droppings, and had been concerned that they provided incomplete information. Close observation of bears confirmed this. Insect larvae, meat, and succulent plants turned out to be favorite foods, but are so digestible that they seldom show up in droppings. It was found that the bears were particularly partial to tent caterpillars, which are distasteful to most birds. Some habituated bears each ate up to 25,000 of them a day during caterpillar outbreaks.

Observations such as this are providing information, for the first time, on how much wild bears eat. One bear, aided by squirrels that had gathered nuts into piles for winter, ate over 3,000 hazelnuts in a day. Grass had previously been found in spring droppings but the species and habitat source could not be identified. Habituated bears revealed both, and showed the importance of grassy lowlands and wetlands to bears in spring. Fawn parts had been found in droppings, but it was not known whether the fawns had been killed or scavenged. Two habituated bears studied were observed to have killed 13 fawns between them in a year.

Such a killing occurred one morning when observers were accompanying a six-year-old mother and her two cubs. The bears were going from log to log in search of ant pupae when the mother began casting about on a new scent. Finding a scent trail, she loped up a wooded hill, sniffing the ground and air. The observers and the cubs ran with her. The mother found she had run too far, whirled, nudged past an observer,

and leaped on a fawn that was bedded under the lower branches of a fir sapling. She killed the fawn, chased away the doe that appeared, and returned to the kill. She and the cubs initially shared the milk that was curdled in the fawn's stomach. Within hours, they had cracked the last of the fawn's bones to feed on the marrow. At day's end, the mother led the cubs and a new set of observers a short distance across a bog to a hill where she bedded next to a gnarled old pine tree that the cubs could climb in case of danger. She nursed the cubs, snuggled down with them for the night, and fell asleep with the observers resting a few meters away. All her actions, the number of bites she took of each food, and the habitats she used were recorded in notes or on a field computer.

Another bear is revealing the extent to which heart rate and temperature change with the seasons. For example, just before entering a den for the winter, she fell asleep with an observer's hand on her femoral artery, and her pulse dropped to only 22 beats per minute— less than one-third her summer sleeping heart rate.

Studies of habituated black bears are now being conducted in several locations across North America. They are showing how black bears react to predators, prey, biting insects, jets, unidentified sounds, wind, snow, and strong sunlight. They are revealing the uncanny memories bears have of feeding locations, waterholes, refuge trees, and sources of danger. They are showing how bears' activities change with the seasons. They are documenting vocalizations, body language, scent-marking methods, social and territorial behavior, and even the killing of intruding bears. They are also documenting that mothers recognize and tolerate their offspring after the young become independent. Most importantly, the bears are providing information on habitat use and behavior that can help forest managers provide habitat for bears in the face of a growing human population.