

The Shy Bear

Living in the north woods,
black bears **face**
many dangers. How did one
bear outlive all others?

YOUNG
NATURALISTS

By Dave Garshelis



In Minnesota, mother black bears give birth to cubs in their winter dens. While their mother hibernates, the cubs cuddle and drink her milk to grow big enough to go outside in spring.

On a frigid morning in January 1974, a hibernating female bear in northern Minnesota twisted and strained in her den. Before long, she gave birth to three tiny, nearly hairless cubs and licked them clean. Each cub weighed less than a can of pop.

The temperature outside the den was minus 40. Snowdrifts over the den entrance provided some insulation from the harsh winter, but inside it was still below zero. The cubs remained warm under the mother's belly in a nest of dry grass and leaves, which she had raked in during the fall when she dug this den into a hillside. With closed eyes and some nudging from the mother, they each found a nipple to nurse, and their crying and squealing quieted for a while.

It's a remarkable feat that a mother bear can care

DNR PHOTOS

for such tiny, helpless cubs born at the coldest time of year. She has had nothing to eat or drink for about four months before their birth, and she won't eat until she and her cubs leave the den in three months. She must provide enough milk for each cub to gain up to 10 pounds before then. To do this, she must convert her own body fat into this nutritious liquid. As her body produces

milk, she'll lose half her weight. One of the cubs that crawled out of the dark den into the bright sunlight that spring was destined to be a legend. This female cub became a legend not because she became tame and known to people, but rather just the opposite: She was shy and stayed away from people, and that helped her to live to be the oldest known wild bear in the world.



In 1981, after being caught in a barrel trap, bear 56 received a shot that made her sleep. Then biologists removed her from the trap and examined her. They put a tag with the number 56 on her ear and a radio collar around her neck.

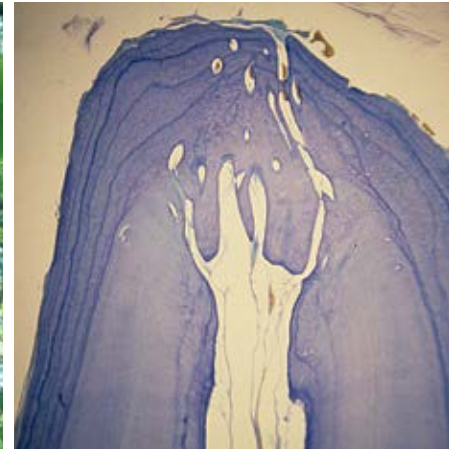
Bear 56, the Early Years

We know nothing of the first seven years of this bear's life. And we would have known nothing about her at all if she hadn't crawled into a barrel trap set by wildlife biologists with the Department of Natural Resources in the summer of 1981. This was the first year in a long-term study of bears in Chippewa National Forest. These

woods are near the center of Minnesota's range for the black bear (*Ursus americanus*), the only bear species in the state. We trapped 32 bears that summer. She was one of four adult females caught and the only one with cubs. Her three cubs stayed high in a tree near the trap, waiting for her to come out. We used a syringe

mounted on a jab stick to inject a mixture of drugs to anesthetize her, so she would be asleep and not feel any pain while we removed her from the trap. We took measurements and blood samples, attached a radio collar so we could track her, and gave her two yellow ear tags, numbered 56 and 57. After that, we simply called her bear 56. She weighed only 143 pounds. To find out how old she was, we extracted a small tooth, not used for chewing. Later, the

tooth was cut in thin sections and examined under a microscope. We could count seven yearly growth lines, like rings on a tree. From the spacing of those lines, we could tell that she had given birth to her first litter of cubs two years earlier. She had one broken canine tooth, and it appeared from her crooked nose that she had once broken that as well. We saw nothing remarkable about 56 that would predict a long life.



DNR PHOTOS

The cubs watched from a tree. Biologists pulled a small tooth from bear 56. Later, they studied a slice of the tooth under a microscope. By counting seven growth rings, they knew bear 56 was 7 years old.

First Dangers

As a cub, 56 had a good chance of surviving her first year: 87 percent of female bears born in Chippewa National Forest survive their cub year. Male cubs are twice as likely to die because they tend to wander farther from their mother and take more risks. Some fall out of trees, some get hit by cars, and some get killed by adult male bears.

The biggest risks come after the cubs are 16 or 17 months old and leave their mother. They must find a new place to live, learn new places to feed, stay away from aggressive bears, and avoid people. Bear 56 did not live in a national park or wildlife sanctuary where bears are protected. She lived in an area that is popular among bear hunters.

Hunting for Food

In northern Minnesota, bears must contend with long, cold winters. With no food for six or seven months, hibernating bears must live off their stored body fat. They also need body fat to stay warm, so they must pack on the pounds during late summer and fall. Supplies of berries and nuts vary from year to year, forcing bears to spend much energy looking for places to feed.

Like most bears in that forest, 56 often migrated south during late summer or fall to find richer supplies of acorns, hazelnuts,

and other high-calorie foods. She traversed unfamiliar places, encroaching on territories of unfamiliar bears and not knowing where to find the best food sources.

In some years, natural foods are so scarce that even the most wary bears become desperate and cannot resist eating a hunter's bait—maybe some sweet pastries, popcorn, marshmallows, or fatty meat. Despite several years when acorns and hazelnuts were in very short supply, bear 56 must have stayed away from baits.



DNR PHOTOS

Carnivore Kin

Although their diet is mainly plants, black bears belong to the *Carnivore* group of mammals, which are much better at digesting meat than plants. Bears are most closely related to dogs and wolves.

Unlike grizzly and polar bears, which hunt and kill other mammals, Minnesota black bears seldom do. For “meat,” black bears eat ants, ant eggs, and worm-

like young ants called *larvae* and *pupae*.

A black bear can smell ant nests underground or in rotten logs. It uses its claws to dig them up or its large canine teeth to tear open a log. A bear can also break into bees' nests. Though a black bear is not quick enough to chase and catch an adult deer, a bear can capture a deer fawn that is too small to run with its mother.



Young cubs (left) attempt to find an ant colony in a rotten log. Clockwise from top: A black bear enjoys an abundance of blueberries in an opening in a pine forest. Bears eat a variety of foods, including blackberries, hazelnuts, wild sarsaparilla, and chokecherries.



DNR PHOTOS

Bear 56 used many different types of dens. Her cubs hibernated with her when they were 1 year old. When the family emerged in spring they searched for sprouts of grass and other plants.

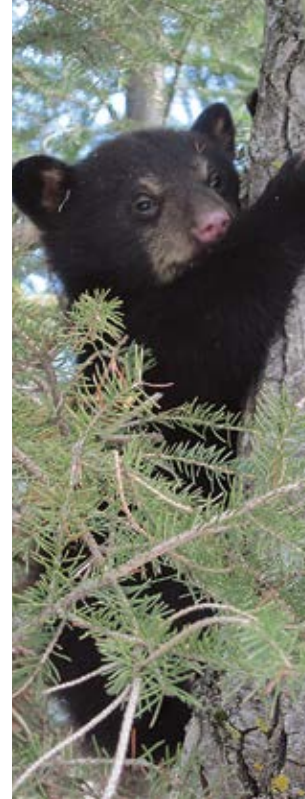
Family Times

In the first winter after capturing 56, we used the signal from her radio collar to find her den. She was hibernating with her three cubs, now a year old and called *yearlings*. The yearlings had stopped nursing in the fall and were also hibernating, scrunched together in the back of the den. All were females, and we tagged and collared all of them.

In spring, warm weather, melting snow, and longer days prompted the family to emerge from the den. Although they had

barely used their muscles all winter, the bears simply walked away as if they had just taken a short nap. A person who was inactive for so long would not even be able to stand up.

Food is scarce for bears in early spring in Minnesota. Bear 56 would show her yearlings wet spots in the forest where they could find sprouts of green grass and juicy roots. A few weeks later, the whole family would climb aspen trees to eat leaf buds and dangling flowers called catkins.



Cubs routinely climb trees where they are safer from predators. Male bears sometimes kill cubs. The mother will chase her cubs away when they are about 17 months old, so she can mate and raise another litter.

A Change of Plans

Just when 56's family would have been enjoying the flourishing spring foods, things abruptly changed. A breeding male bear sensed, from the chemicals in 56's urine, that she would soon be ready to mate. As the male approached, the three yearlings were shocked to see their mother chasing them away, rather than scaring off the intruding male.

Since all three yearlings were females, 56 allowed them to continue to use part of her home range (living area) of about 6 to 8 square miles. By using familiar areas, they were better able to find food. Also, the overlapping ranges of related females can protect the area from encroachment by other bears. Male yearlings can stay within their mother's range for only a year or two before they must find another place to live.



Daughters of bear 56 were collared. Then researchers monitored them to see how many cubs they had every other winter.

A New crew

That winter, 56 had a new litter of cubs. We visited her in her den each year to check her weight. Every few years, we changed her radio collar when it needed new batteries. One year she would have cubs. The next year, they would be yearlings and large enough to collar.

In this way, we watched the family grow, as 56's female offspring had their own cubs, and then these bears grew up to have cubs. One of her daughters lived 19 years and produced 22 cubs. One of her granddaughters lived to age 23 and had 28 cubs. But 56 outlived them all.



DNR PHOTOS

Biologists examined the teeth of bear 56 when she was a young adult (left) and again when she was very old (right). Her old teeth had become yellow, worn down, and cracked. Several teeth were missing.

End of a Long Line

When bear 56 was 23 years old, we went to her den and found three newborn cubs. But when we returned a year later, we were surprised to find only one had survived.

At 25 years old, she had another new litter, as expected. But for the first time in her life, she had just a single cub. Her ability to reproduce was declining, but her weight was the maximum we had measured: 255 pounds.

At 27 years old, she was lactating (full with milk) in the den, but there were no cubs. They may have died at birth, in which case she would have eaten them. From then on, she had no cubs. She was the first and only bear in our study to reach *senescence*—the age where she could no longer have cubs. She had produced 11 litters, and she would live the rest of her life alone.

Slowly, 56's health began to deteriorate. One eye became cloudy. Her hearing started to go bad. She seemed to use roads more often, maybe because it was easier for her to walk. People reported seeing her walking unsteadily on a road and not moving away when a car approached. We wondered if she'd get hit by a car or shot by a hunter.

Her teeth were in terrible condition: Most were worn to the gums, and several were missing or cracked. It must have been painful for her to chew an acorn. A hunter's bait of soft jelly doughnuts would have been easier to eat. Several hunters saw her, but they noticed her large, colorful ear tags and did not shoot her because we had told people that a unique, very old bear lived in the area.

Last Move

We began noticing that bear 56 had shifted her home range southward, maybe because an unrelated female displaced her. In July 2013 she started heading farther south. Was this the start of another migration, or was yet another bear pushing her out of its territory? We wondered if another bear might kill her. None of her descendants

was alive to help defend her territory.

But bear 56 was not killed by a person or another bear. Later that summer of 2013, we found the remains of her body. It looked like she had simply curled up to rest in a bed of long grass in the forest, where she died. She was 39½ years old, a new record for a wild bear of any species in the world.



Researchers gave larger ear tags to bear 56 so hunters could easily identify her and not shoot her. In the winter of 2013, in her last den, bear 56 was alert but showed signs of her old age—gray hairs and a cloudy right eye.

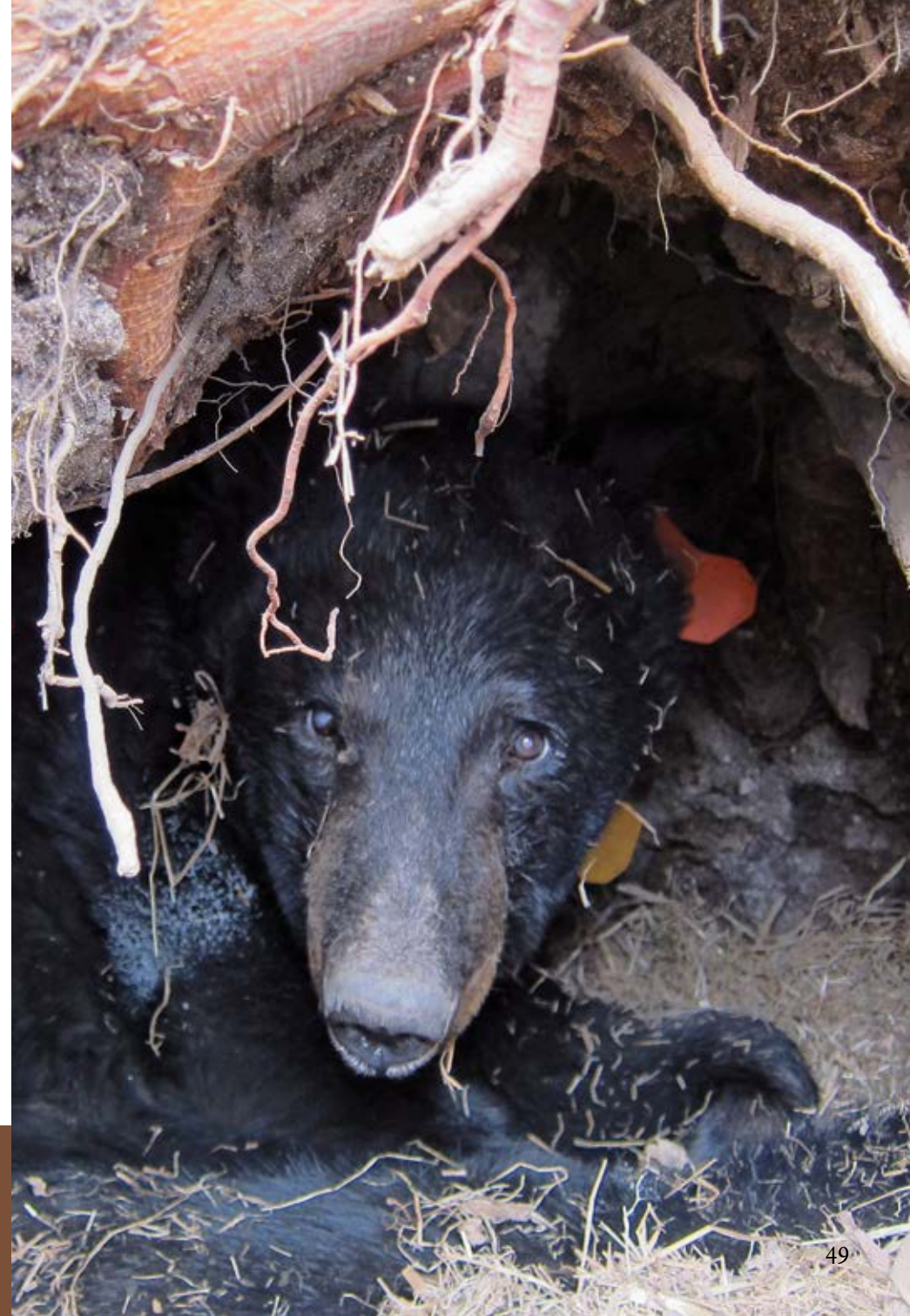
Some Luck

Since the birth of bear 56 in 1974, the DNR has collected more than 60,000 bear teeth from hunters. By counting growth rings on teeth, we've found only three bears over 30 years old. Among more than 360 bears that we've radio-collared and tracked until they died, 56 was one of just 15 bears that died a natural death. Most died from legal hunting. She was the only one to die of old age.

If she had not been radio-collared, we would have never known how long she

lived. She probably would not have lived so long if we had not put large ear tags on her and asked local people to watch out for her. We asked everyone to look for her on the roads and not to shoot her if she came to a hunter's bait or passed through someone's yard.

Bear 56 lived so long because for most of her life she was skilled at staying away from people. But she also needed some luck and some compassionate people to allow her to live the full life that she did. ♡



TEACHERS RESOURCES:

Teachers Guide: www.mndnr.gov/young_naturalists

About Those Bears: ow.ly/SAAJJ

Minnesota DNR bear facts: mndnr.gov/mammals/blackbear.html