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The Black Bear Handbook

Minnesota Department of Natural Resources Hunter Education Program

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The Black Bear Handbook

Minnesota Department of Natural Resources Hunter Education Program

Welcome

Welcome to the Advanced Hunter Education Program: Black Bear Clinic. This clinic is one of a series of hunter education programs offered by the Minnesota Department of Natural Resources (DNR), Division of Enforcement. We are pleased that you have a special interest in this session which covers a variety of topics such as bear identification, baiting techniques, field dressing, and compass reading. By the time you've completed the clinic, we hope you will have developed a better understanding of the black bear and a true sense of appreciation for this magnificent animal.

There are several question periods included in the program, so please wait until the appropriate time to ask your questions. You'll find space to record notes from the clinic at the end of this handbook.

Information about the DNR Division of Enforcement's Hunter Education Programs

The Division of Enforcement has three hunter education programs. For the beginner, there is the Firearms Safety Program (FAS). The FAS program emphasizes safe handling of firearms in the field and in the home. It is designed for the hunter and the non-hunter alike. It is required in Minnesota and other states for persons of certain age groups to purchase a hunting license. The program is open to those 11 years of age or older. As is the case with all of the division programs, it is instructed by highly trained volunteer instructors.

The division offers the Minnesota Bowhunter Education Program (MBEP) for all bowhunters 12 years of age and older¹. It is designed for beginning to experienced bowhunters. The seminar is based on the International Bowhunter Education Program materials. The seminar is required to participate in selected bowhunts in Minnesota as well as to purchase bowhunting licenses in some states.



The Advanced Hunter Education Program (AHE) is offered by the Division of Enforcement. It is open to those 14 years of age and older². It is designed for the outdoors person and hunter that have some firearms handling experience. The basic seminar is a six-session program that covers such topics as hunter behavior, laws and regulations, planning a hunt, survival, map and compass, small game, big game, waterfowl, and more. Participants that successfully complete this seminar, *besides expanding their knowledge*, receive a card which can be used when purchasing a hunting license in states that have a hunter education requirement.

The AHE certification can also be earned through a format of individual clinics. By completing this bear clinic, you are a step closer to earning your AHE certification. Part of the certification involves attending five approved single topic clinics, one of which must include a shooting activity. Also, a take home, open book examination must be completed. In addition to this clinic, you can choose from white-tailed deer, waterfowl, wild turkey, planning a hunt, survival in the outdoors, map and compass, gun safety in the home, and more. There are no age restrictions for attending a clinic.

You can get information on other clinics and all of the DNR Safety Training Programs by calling toll free 1-800-366-8917. You can also find information at the DNR web site: www.dnr.state.mn.us/enforcement/safety

If the reader finds errors, omissions, or has suggested changes to these materials, please contact our Camp Ripley office at 1-800-366-8917 or write: DNR Enforcement Division, Nelson Hall, Attention: Enforcement Education Program Coordinator, 15011 Highway 15, Little Falls, MN 56345-4173.

¹ Individuals 12 through 15 years of age must have an FAS card.

² Those 14 and 15 years old must have an FAS card.

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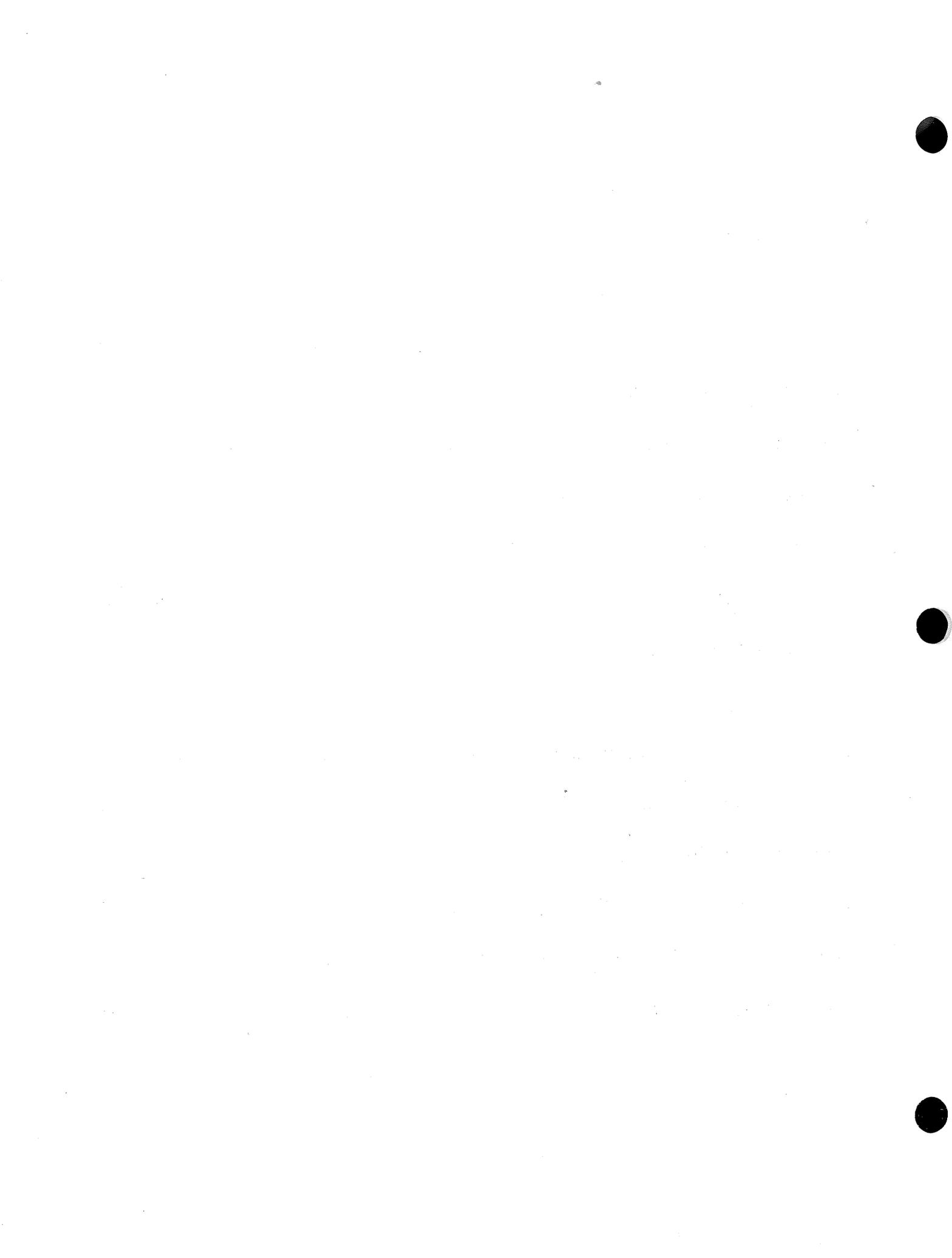
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American Black Bear

(*Ursus americanus*)

Source: U.S. Fish and Wildlife Service and Minnesota DNR Biologists

Perhaps no other animal has so excited the human imagination as the bear. References to bears are found in literature, folk songs, legends, mythology, fairy tales, and even cartoons.

The American black bear inhabits wooded and mountainous areas throughout most of North America—from Alaska to Florida, Canada to Mexico.

The black bear is approximately five feet long and varies in weight from 125 to 400 pounds. It has small eyes, rounded ears, a long snout, a large body, and a short tail. The shaggy hair varies in

color from white to chocolate brown, cinnamon brown, and blonde to black, but most black bears are indeed black or a dark shade of brown.

While black bears are capable of standing and walking on their hind legs, the usual posture is on all fours. The black bear's characteristic shuffle results from walking flat-footed: the hind legs are slightly longer than the front legs. Each paw has five strong, non-retractable claws used for tearing, digging, and climbing. One blow from a powerful front paw is enough to kill an adult deer. But in spite of their size and strength, black bears are surprisingly agile and careful in their movements.

Bear Notes

Source: Karen Noyce, DNR Wildlife Biologist

What do black bears eat?

When bears first emerge from dens in the spring, there is little for them to eat. They first forage on the fleshy parts of overwintered aquatic plants, nuts left from the previous fall, and the buds or emerging flowers of willow, maple, aspen, and other woody plants. As spring progresses, bears forage on new shoots of herbaceous plants such as large-leaf aster, wild lily of the valley, clover, and wild calla, and on the new leaves of aspen. As vegetation matures, most species lose their nutritional value for bears. But bears continue to consume species like clover and touch-me-not that stay succulent through the summer.

In late May to early June, bears feed heavily on ants and ant pupae. Bears prefer certain species of ants, primarily several varieties of small bright yellow ants in central and north central Minnesota, and carpenter ants in the northeast. Bears also prey on newborn fawns and occasionally moose calves during the first weeks after they are born.

As soon as berries begin to ripen in mid-July, bears shift to a diet consisting of wild fruits. If available, berries are consumed through the season as they ripen: wild strawberries, sarsaparilla, pincherry, raspberry, juneberry, blueberry, chokecherry, currant, buckthorn, arrowwood, highbush cranberry, and dogwood. Wherever hazelnuts and acorns are available, these constitute an important food in late summer and fall.

Bears love concentrated sources of high-energy foods. Because natural foods vary so much from place to place and year to year, a bear's survival depends on its ability to find and remember good sources of food. Bears learn quickly that bird feeders, corn, garbage dumps, bee yards, and apple orchards are good places to forage. If wild foods are abundant, most bears prefer to stay in the woods, but in years when natural foods fail (in recent time nearly complete food failures have occurred three times in 18 years), many more bears find their way to human sources of food.

Although much of its historical habitat was destroyed by axe, plow, and bulldozer, the highly intelligent black bear has adapted and survived. Black bears are opportunistic feeders, making use of just about any available food source. While they prefer berries, nuts, grass, and other plants, they also eat carrion, small animals, and fish.

As fall approaches, black bears must eat large amounts of food in order to gain enough weight to sustain them through their winter hibernation at which time they survive on their reserves of body fat. During periods of relatively warm weather, they may awaken and take short excursions outside.

Black bears reach breeding maturity at about three and one-half to six and one-half years of age, and breed every two to three years. They breed in the mid-summer, usually in June and July, but the embryos do not begin to develop until November or December. Females hibernate through the winter months. However, if food was scarce and the mother has not gained enough fat to sustain herself during hibernation or to produce cubs, the embryos do not implant.

Black bear cubs are generally born in January or February. The blind cubs weigh about one-half to three-quarters of a pound at birth, and twins are most common. By early April when the bears start leaving their dens, the cubs are "fur-balls" of energy, inquisitive, and playful. They are weaned between July and September of their first year, and stay with the mother through the first full winter. They are usually independent by the second winter.

Cub survival is totally dependent on the skill of the mother in teaching her cubs what to eat, where and how to forage, where to den, and when and where to seek shelter from heat or danger.

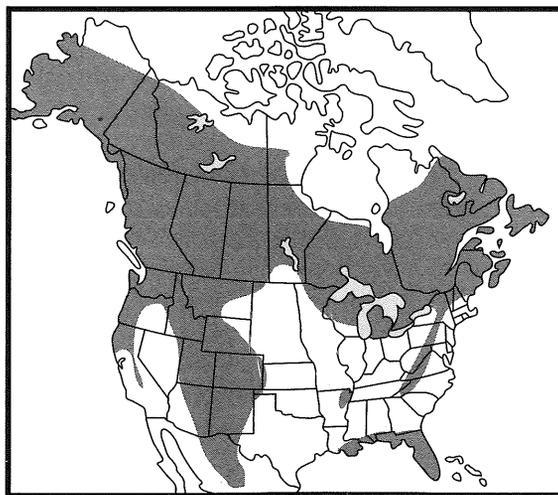
Except when breeding and raising young, black bears are generally solitary animals. They try to avoid humans and are considered non-aggressive in Minnesota. Daily movements are influenced greatly by temperature and the availability of food. Bears usually feed in the cool of the evening or early morning. During the heat of the day, they will seek shade in dense underbrush. Home ranges are determined by food types, abundance, and availability, and can be as small as one square mile or as great as 100 square miles.

Many of Minnesota's black bear den on top of the ground. Black bears also seek den sites under fallen trees, in hollow trees or caves, brush piles, or in previously occupied dens. They are excellent tree climbers, and will use trees to escape from danger. When possible, black bears will choose streams with dense bankside shrubbery as travel corridors to and from food sources.

The black bear's primary predator is man. They were hunted almost to extinction on the East Coast. Many states, including Minnesota, paid bounties for bears, and as late as 1977, there was still a bounty law on the books in Highland County, Virginia.

During the uncontrolled harvest encouraged by bounties, black bear numbers were also reduced by clearing land for crops and grazing, and other encroachments associated with an expanding civilization. By the 1900s, the once-numerous black bear could be found only in the remote areas of Minnesota.

As small farms failed and people moved back to the cities, bear habitat slowly recovered and populations started to increase. The early establishment of national parks and national forests in the eastern United States helped save the black bear in that region.



Black bear range of North America.

Although attitudes concerning bears and other game animals were changing and wildlife laws protecting black bears and other animals were being enacted, the understanding of black bear biology, behavior, and habitat requirements remained incomplete. It wasn't until the 1960s that methods and techniques for safely trapping, immobilizing, and handling such powerful animals were developed. More has been learned about the habits and needs of the black bear in the last 30 years than in all of recorded history.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), a treaty among more than 120 nations, provides measures to curb illegal trade in wildlife and wildlife products across international boundaries. This convention is helping to protect the black bear from poaching. The U.S. Fish and Wildlife Service is the agency responsible for the U.S. government's compliance with the CITES treaty.

Two subspecies found in the southeastern U.S., the Louisiana black bear and the Florida black bear, still face decline primarily due to habitat loss and degradation.

In 1992, the U.S. Fish and Wildlife Service listed the Louisiana black bear as a threatened species under the Endangered Species Act, meaning it could become in danger of extinction throughout all or a significant portion of its range in the foreseeable future. The American black bear is also protected by the Act in the affected states—Louisiana, Mississippi, and Texas—due to its close resemblance to this subspecies. The Florida black bear is a candidate for protection under the Endangered Species Act. The U.S. Fish and Wildlife Service monitors the animal's status and takes appropriate measures to ensure its conservation.

The Bear Family

(Ursidae)

How many species of bears are there in the world?

Scientists currently recognize eight species of bears in the world. The American black bear is found only on the North American continent. Historically it ranged from the northern tree line in Alaska and Canada to the desert mountains of Mexico. The Andean (or spectacled) bear is found only in South America, where it inhabits the cool wet cloud forests of the high Andes. Two other North American bears, the brown (or grizzly) bear and the polar bear, are found also in Europe and Asia. Polar bears occur across the polar regions of the world. Brown bears persist in scattered remnant populations in southern and central Europe and in larger numbers across Scandinavia, Romania, Russia, and northern parts of China and Japan. India and Nepal are home to the sloth bear, a shaggy bear similar in size to the American black bear that eats mostly ants and termites. The Asiatic black bear and the small tree-dwelling sun bear are found in Southeast Asia. The most endangered species of bear is the giant panda, which is restricted to small portions of China because of its dependence for food on the bamboo forests that grow there. Once thought to be more closely related to raccoons, giant pandas are now recognized as bears.

How many species of bears are there in Minnesota?

The American black bear (*Ursus americanus*) is the only species of bear found in Minnesota today. At one time, grizzly bears occurred, at least occasionally, in northwestern Minnesota. The brown bears that people sometimes see in Minnesota today are actually brown-colored black bears. About five percent of the black bears in Minnesota are brown in color. This percentage varies across North America. Brown coloration is less common east of Minnesota and in the Pacific coastal forests of the United States and Canada, where it is much more

common among black bears of the Rocky Mountains.

Anatomy and physiology

Size

The size of individual bears has long caused heated debate. A bear's size is normally expressed in terms of its weight. However, variations in height, fur thickness, and physical stature, as well as the observer's proximity to the bear make it difficult to judge the weight of the animal with accuracy. Even under calm circumstances a bear's weight is often misjudged by nearly everyone except a seasoned field scientist. "The grizzly's reputation for ferociousness toward people," notes Terry Domico in *Bears of the World*, "makes the animal seem much larger."

To the untrained eye, all bears seem "big," as human perception of weight is most often much greater than an animal's true size. During a survey in the Great Smoky Mountains National Park, responses to the weights of American black bears ranged from 400 to 4,000 pounds. The actual weights were 95 to 115 pounds. "The boar was small," according to Ben East in *Bears*, "hardly



The American black bear is the only species of bear found in the wild in Minnesota.

more than 150 pounds, but still big enough to be a formidable antagonist...the men guessed him at 400 pounds."

In nearly all species of bears, the male is relatively larger than the female, though differences vary.

The largest bears

The brown bears and polar bears are without doubt the largest bears. However, there are conflicting and contradicting beliefs and statements concerning the largest individuals or species of these bears.

Weight

Bear weights vary between species, with polar bears and Alaskan brown bears more than 10 times heavier than sun bears. Such differences between species, though due in part to genetics, are most

often a result of variations in habitat, primarily diet. For example, the Alaskan brown bears of the coastal regions of North America, with a major source of fish and more lush vegetation, are nearly twice the weight of the inland brown bears (grizzly bears).

Some of the reasons for individual weight differences between bears of the same species, and sometimes the same habitat, include individual health, age, sex, ability to locate food or digest specific foods, and the ability to withstand human impacts on the habitat.

Seasonal fluctuations in the weights of individual bears are common. Fall (pre-denning) weights are normally much greater than spring (emergence) weights. These weight fluctuations are affected by the availability of foods.

Bear Notes

How big is the average black bear?

An adult black bear stands about 2–3 feet tall at the shoulder. From nose to tail, it measures 4.5–6 feet. Skull length is about 12 inches in females and 14 inches in males.

It is more difficult to describe the average weight of a bear. Adult females range from 100–400 pounds and adult males from 250–600 pounds, depending on the time of year and local food conditions. More than any other large mammal in Minnesota, bears undergo huge seasonal weight fluctuations. One adult male that weighed 500 pounds in February was known to lose 160 pounds during spring and early summer one year. Between early August, when he weighed 340 pounds, and late September, given free access to feed corn, he grew to 620 pounds, averaging over five pounds per day weight gain. Likewise, a pregnant female may enter her den in the fall weighing greater than 300 pounds, but after giving birth and nursing newborns, she may lose 100 pounds or more in six months, and a year later, after months of nursing cubs and hibernating yet another winter, she may leave her den weighing only 150 pounds. That summer she will breed and by fall will again exceed 300 pounds, doubling her weight in a few short months.

In addition to season weight fluctuations, there are large geographic differences and even local variation in the weights of bears, due to differences in habitat quality. Bears in central Minnesota, where acorns and agricultural crops are abundant, may weigh 70 or 80 pounds by the time they are a year old, whereas those living near the Canadian border, where the growing season is short and there are few nuts available in the fall, more typically weigh 30–40 pounds. Adult females may weigh 300 pounds in central Minnesota, but only 100–200 pounds in the north.

Many hunters want to know how the dressed weight of a bear compares to its live weight. Typically, field dressed weight is about 16 percent lower than live weight. To convert from dressed weight to live weight, multiply the dressed weight by 1.19. For example, a bear that field dressed at 185 pounds likely weighed 220 pounds ($185 \times 1.19 = 220$). Because of its thick coat and round, heavy-bodied stature, it is easy to overestimate the size of a bear in the wild.

Height

The height of a bear is measured from the bottom of its paw flat on the ground to the highest point of the shoulder. Following are the ranges or average heights for adult males:

- American Black Bear: 2.5–3 feet
- Brown Bear: 3–5 feet
- Polar Bear: Up to 5.3 feet

In comparison, the height of an American bison is five feet; elephant, eight feet; hippopotamus, five feet; rhinoceros, six feet; and a Siberian tiger, three feet.

Length

A bear is measured from the tip of the nose to the tip of the tail. Adult male average lengths are listed below.

- American Black Bear: 6 feet
- Brown Bear: 7–10 feet
- Polar Bear: 8.4 feet

In comparison, the length of an American bison is 9 feet; elephant, 11 feet; killer whale, 30 feet; mountain lion, 8 feet; and a Siberian tiger, 13 feet.

Color

The coloration of bears is quite variable between species and within species. Color changes due to maturation or seasonal fading and shedding are not uncommon, and, at times, a bear's color may simply appear different with the angle and intensity of the natural light of the moment. Variations may include totally different color or different shades of a color. (The underfur color normally remains the same, while the guard hairs change.)

American black bear cubs of the same litter may be different colors. They may change from brown to black as they mature—or the opposite may occur. These color changes may occur before

they reach one year old, or at two and three years of age.

A bear's underfur may be brown while the outer, guard hairs are tipped in black. Some bears are entirely of a single color. Several species of bears have yellowish or whitish chest markings on many individuals. The markings vary in shape and size.

Albinism, though extremely rare, does occur in bear species. A "partial" albino American black bear, with a white breast and white front feet, was observed in Wyoming in 1948. There is also record of a whitish American black bear with four cubs—one brown, two black, and one true albino. In Oregon, an American black bear had a light chocolate brown head and feet with the rest of the body a dirty white color. This is not an example of a true albino.

Skulls

Generally, the skulls of bears are massive. They are typically long and wide across the forehead with prominent eyebrow ridges, a large jawbone hinge, heavy jaw muscles, and broad nostrils. Skull structure and dentition—the type, number, and arrangement of teeth—are indicative of a carnivorous animal with omnivore modifications.

The skull may be the most important feature of an animal. It houses and protects the brain, provides



The black bear sow must meet minimal physical condition (size) to reproduce.

structure for the mouth and teeth, and contains sensory-communication properties. "Bear skulls undergo a series of changes from early life to old age, and in most species do not attain their mature form until seven or more years of age," observed C. H. Merriam in *North American Fauna*, Biological Survey, 1918.

Diet and other eating habits have influenced the individual development of the heads and skulls of each species. "Head shape and size...are influenced by dentition and jaw muscles," write Paul Shepard and Barry Sanders in *The Sacred Paw*. "...[skulls] are shaped to anchor the appropriate muscles."

Brown bears normally do not bite to kill, but have grinding, crunching teeth with massive jaw muscles. Polar bears are more carnivorous than other bears, and bite to kill. Their skulls are specifically shaped for teeth and muscles designed to hold, chop, and slash their prey.

Each of the bear species has its own distinctive skull shape and size.

- **American Black Bear:** Broad, narrow muzzle; large jaw hinge; female head may be more slender and pointed.
- **Brown Bear:** Massive; heavily constructed; large in proportion to body; high, steeply rising forehead; concave (dished) face; domed head; long muzzle; flat nose tip; ears barely observed as bumps; tiny eyes.
- **Polar Bear:** Large; small in proportion to body; long; snout long (warms air); Roman nose; large.

Animal classification is primarily based on skulls. "...details of skull and leg bones are the usual criteria for the biologists," note Shepard and Sanders, and in part led to the "splitting" of the bear species. Skull size is also the criteria for determining the "record size" bears of North America.

Teeth

Bears have 42 teeth, except the sloth bear which has only 40. Permanent teeth are normally in place by the time a bear is approximately two and a half years old. For each species the characteristics of the four kinds of teeth—incisors, canines, premolars, and molars—vary depending on diet and habitat.

- **American Black Bear:** Premolars and molars for grinding.
- **Brown Bear:** Flat and broad crowns on molars; premolars and molars for grinding.
- **Polar Bear:** Canines larger and longer than for other bears; molars smaller than those of land bears; molars more for shearing; premolars more for biting than grinding

Vision

While the eyesight of bears has long been thought to be generally poor, more recent studies have shown it to be reasonably good. However, there is still much to be learned of the visual capabilities of each species. Generally, bears' eyes are various shades of brown, small in size (except those of polar bears), have round pupils (except giant pandas which have vertical slits), are widely spaced, and face forward. They are important and useful feeding tools. Moreover, they are reflective and mirror even the faintest glow of the moon.

Bears are nearsighted. To compensate, they tend to approach objects and stand upright to increase their sight distance. Polar bears may have the most specialized eyes, providing very adaptable and excellent vision that exceeds that of other species of bears. Their eyes are large—almost as large as human eyes—and have an extra eyelid to filter snow glare. Their depth perception is excellent. Additionally, nictitating membranes that protect the eyes and serve as lenses provide them with good underwater vision. Polar bears' eyes must

Bear Notes

How well do bears see?

The distance eyesight of black bears is thought to be relatively poor compared to that of humans. Bears do have color vision and detailed near-vision, however, which are likely helpful for foraging for small foods like berries and insects.

adapt to a wide range of light conditions. "The polar bear's visual world is marked by intense, glaring sunlight, contrasted by long, dark polar nights," relates Thomas Koch in *The Year of the Polar Bear*. "Days are often punctuated with blizzards, sleet, and the constant, driving wind. With these factors present, the bear's vision is rarely given optimum conditions to view his surroundings. When traveling on the ice during good conditions, polar bears are able to identify immobile objects lying on the ice as far as one mile away."

However, a whaler's journal describing a blind polar bear illustrates that good vision may not always be necessary for survival. "From the appearance of the bear's eyes, the men surmised that the bear had been blind for a considerable period of time," relates Koch. "Even though the bear was blind, he was still fat, indicating that he hunted successfully, using only his hearing and smelling senses."

The ability to distinguish color and activity during the day and at night are excellent indicators of good vision. Some biologists believe the vision of bears is at least average, and at least two have expressed the thought that though bears act as if they have poor eyesight, it just may be they do not trust their eyes as well as their trustworthy noses. "Much of the anecdotal information on bear vision," according to Paul Shepard and Barry Sanders in *The Sacred Paw*, "assumes that the animal approaches strange objects because it does not see them well at a distance, but crows and coyotes do the same thing and nobody doubts their visual acuity."

Hearing

The ears of bears vary between species, both in size and their location on the head. They range from large and floppy to small and hardly visible, and from those located well forward on the head to ears that are low and to the rear.

In general, a bear's hearing is fair to moderately good. "Hearing in bears is probably good," explains Stephen Herrero in *Bear Attacks*, "although most of the evidence is anecdotal." Bears, he also notes, "...probably hear in the ultrasonic range of 16–20 megahertz, perhaps higher." "The grizzly's sense of hearing is far more sensitive than man's," writes Thomas McNamee in *Grizzly Bear*, "and it is undoubtedly an important aid in the pursuit of such subterranean prey as gophers, ground squirrels, mice, and voles, which grizzlies locate blindly and pounce on with noteworthy accuracy."

"At 300 meters [328 yards]," write Shepard and Sanders, "the bear can detect human conversation, and it responds to the click of a camera shutter or a gun being cocked at 50 meters [54.7 yards]."

"The use of hearing by bears is not as obvious as that of sight and smell," notes Adolph Murie in *The Grizzlies of Mount McKinley*. "Even though it may not play a prominent role in their activities, I believe grizzlies do have an acute sense of hearing."

Smell

Whether low to the ground or held high in the wind, a bear's nose is its key to its surroundings. "Smell," writes Herrero, "is the fundamental and most important sense a bear has. A bear's nose is its window into the world just as our eyes are."

Bears have a keen sense of smell. In fact, some believe that no animal has better acuteness of smell than the bear. They use this "olfactory awareness" to locate mates, avoid humans and other bears, identify cubs, and locate food sources. "...the nose provides the leading sense in the search for nourishment," notes Paul Schullery in *The Bears of Yellowstone*. The nose of the bear is somewhat "pig-like," with a pad extending a short distance in front of the snout.

Bear Notes

How good is a black bear's sense of smell?

A bear's sense of smell is very highly developed. It not only helps a bear keep informed about the whereabouts of other bears and animals, but helps it detect food, some say as far away as several miles. Bears also use their sense of smell to locate food at close range; it tells a bear where to dig for underground nests of bees or a particularly favorite species of ant, or where to tear into a log to find insects.

A bear has been known to detect a human scent more than 14 hours after the person passed along a trail. "The olfactory sense of the bears ranks among the keenest in the animal world," according to George Laycock in *The Wild Bears*. "A black bear in northern California was once seen to travel upwind three miles in a straight line to reach the carcass of a dead deer."

The sense of smell of polar bears may be the finest—able to detect a seal several miles away—and, as Domico relates, "... male polar bears march in a straight line, over the tops of pressure ridges of uplifted ice...up to 40 miles to reach a prey animal they had detected."

An old and often told Indian saying may best describe the olfactory awareness of bears. "A pine needle fell in the forest. The eagle saw it. The deer heard it. The bear smelled it."

Strength

Bears possess enormous strength, regardless of size or species. The strength of a bear is difficult to measure, but observations of bears moving rocks, carrying animal carcasses, removing large logs from the side of a cabin, and digging cavernous holes are all indicative of enormous power. In fact, no animal of equal size is as powerful. A bear can kill a moose, elk, or deer by a single blow to the neck with a powerful foreleg, then lift the carcass in its mouth and carry it for great distances.

"The strength...is in keeping with his size," describes Ben East in *Bears*. "He is very powerfully built, a heavy skeleton overlaid with thick layers of muscle as strong as rawhide rope. He can hook his long, grizzly-like front claws under a slab of rock that three grown men could not lift, and flip it over almost effortlessly...." "... a brown [bear]...took a thousand-pound steer a half mile up an almost vertical mountain, much of the way through alder tangles with trunks three or four inches thick."

Strength and power are not only the attributes of large, mature bears. Young bears have also demonstrated great strength. The author observed a yearling American black bear, in search of insects, turn over a flat-shaped rock (between 310 and 325 pounds) "backhanded" with a single foreleg. The bear was captured the following day in a management action. It weighed only 120 pounds.

Odor

All animals, including humans, have a definite odor. However, the odor of a bear is quite pronounced, though not necessarily repugnant. Many hunters consider a bear's scent the easiest type for a dog to track. Eskimos often located polar bear dens by the scent emitting from the den vent hole.

The American black bear has a somewhat different odor from the scent of the grizzly bear which, according to one bear biologist, smells musky and musty. Scientists, naturalists, hunters, and others who have encountered the odor of a bear agree that for them it would never go unrecognized again.

Body temperature

The normal body temperature of bears is approximately 98–99 degrees Fahrenheit. Variations in temperature for bears as well as those of other mammals can be attributed to individual differences and levels of activity. Temperatures are normally taken while the bears are immobilized and under physical and psychological stress. This results in elevated temperature levels and the nearly impossible task of determining a "normal" temperature. However, two adult, male grizzly bears in captivity recently had their temperatures taken under "normal" circumstances. They each swallowed a tiny temperature-sensitive radio transmitter that had been placed in their food. Their recorded body temperatures ranged between 98.5 and 99 degrees Fahrenheit, with a mean temperature of 98.9. Interestingly, following a meal of frozen fish, their "stomach" temperatures dropped to the low eighties.

A bear's temperature may drop a few degrees when the animal is sleeping at night, or resting on a snowbank or in a cool day bed. A hibernating bear's temperature drops in relationship to the outside and den temperatures. Temperatures in the eighties have been recorded.

Thermoregulation

Bears, like all mammals, must regulate their body heat. A bear's fur provides an extremely effective insulation during the winter, maintaining body heat while absorbing heat from the sun. However, it does not allow adequate cooling during warm weather. Since they don't have sweat glands, bears must cool themselves through several unique methods, similar to those used by dogs:

- Balance energy expenditure and food intake.
- Rest in shady day beds and cool summer dens.
- Lie with bellies fully in touch with the cool ground.
- Dissipate heat through slobbering tongues, panting like a dog; dissipate heat through their paws (the primary means of heat loss since the pads are well supplied with blood vessels and remain flat on the cool ground); and dissipate heat through areas with minimal hair such as the face, ears, nose, and the insides of hind legs.
- Black bears have been observed napping in summer, lying on their backs, feet in the air presumably to dissipate heat.
- Muscles behind the shoulder contain a major supply of blood vessels and act as a radiator.
- Shake off water as they emerge from a lake or stream.
- Sprawl on snowfields or patches of snow.
- Spread legs (thighs) wide.
- Submerge in water.
- Take mud and dust baths.

Like other bears, polar bears are sometimes faced with the potential risk of overheating. However, polar bears also need to be able to withstand the sub-zero temperatures of the arctic winter. They have three to four inches of subcutaneous fat on their rumps and backs which provides additional insulation. In addition, when they bask in the sun their outer fur functions as a unique system of heat transmission. Polar bear hairs, according to Charles Feazel in *White Bear*, have "...an empty core in the

center of each strand. Each hair functions as a light trap, a conduit that takes the sun's rays...the last few inches to his dark skin. Polar bear skin is one of nature's most efficient UV [ultraviolet] absorbers. Ultraviolet light penetrates clouds, so Nanook's efficient solar collection system works even on overcast days." Moreover, a polar bear's long snout warms the cool arctic air as it inhales.

Heart rate

A normal heart rate for bears is 98 beats per minute while awake and while walking. It will increase with activity, as well as drop to 40 or 45 beats per minute during night sleep. The heart rates of some bears have slowed as low as eight to 10 beats per minute when resting in a snow bank.

Respiration

Bears have relatively large lungs—their breathing rate is six to 10 breaths per minute while resting, 40 to 80 when hot and panting, and sometimes over 100 breaths per minute during extreme exertion. The resting rate of oxygen intake is reduced by approximately one half during hibernation.

Pain

Bears have sensory end organs and experience pain stress from internal and external sources. Bear pain should not necessarily be compared with that of humans, which is possibly more complex. Generally, they do not appear to display obvious reactions, as humans do. Bears sustain numerous injuries due to the nature of their existence, and have been compared to professional football players who "live in a world of constant pain."

Persistent pain produces irritability and many "problem" bears. Often they display their discomfort by aggressive actions toward humans and other bears. Their wounds, or other problems, may be from natural or human sources:

- Abscessed teeth (bears appear to have more trouble with teeth than many other animals, probably due to a diet of sugary foods).
- External parasites (including painful bee stings).
- Fights with enemies or other bears.
- Gunshot wounds.

- Internal parasites (tapeworms cause considerable misery).
- Loss of teeth in old age resulting in the inability to eat.

“Although the bears may cry in pain when stung by angry bees, they will persist until all the honeycomb has been eaten,” describes Terry Domico in *Bears of the World*.

Digestive tract

Bears have a simple intestinal tract: the colon is the primary site of fermentation. They have a long gut for digesting grass, but do not digest starches well. Their small intestine is longer than that of the true carnivores while the digestive tract lacks the features of the true herbivores.

The barrel-shaped body of a bear is considered an indication of a long intestine. The brown bears’ intestinal length (total and small) is greater than that of the American black bear’s and the giant panda’s. Polar bears have the longest intestine.

For the first several weeks following birth, the alimentary system of a sun bear cub must be externally stimulated in order for urination and defecation to take place. The sow licks the cubs to provide this stimulation. At times, the American black bear must also perform this function.

Scat

Scat, or feces, is the excrement of animals. Scatology is the scientific study of scat. Scientists collect and thoroughly analyze bear feces to determine many things about bears: what they have been eating, how much of each type of food, and during what season of the year they were eating the specific food. This information provides more knowledge about the bears’ requirements and activities, and assists in the appropriate management of their habitat. Bear scat is also beneficial to the land. It scatters and fertilizes seeds of the plants the bear has consumed and provides humus that enriches the soil.

Observing bear scat triggers both excitement and anxiety for the traveler in bear country. It is exciting to find an indication that a bear may be nearby, but at the same time not knowing its exact location can create some anxious moments. However, a closer look can provide answers to several important questions—how long has it been since the bear was here? how big is the bear? and what has it been eating?

Black Bear in Minnesota

Bears have a lower reproductive potential than most other terrestrial mammals. In Minnesota, their life cycle from birth to reproductive maturity averages four to six years. Usually females produce two to three cubs every two years.

Bears breed in June and early July, but fertilized eggs do not implant in the uterine wall and begin to develop until late November. This is a phenomenon known as "delayed implantation." A female's weight and overall condition at that time probably influence whether or not the fertilized eggs implant and develop. Cubs are born in January.

Most incidences of mortality for adult bears in Minnesota are human related. Bears are harvested by hunters, killed as nuisance animals, poached, and a small number are killed by cars. The chief natural factor limiting bear populations is probably food supply.

Contrary to one popular belief, "garbage" bears—those that visit town dumps and campsites—are not a weaker breed. In fact, these enterprising bears often grow faster, mature earlier, and have larger cubs and/or larger litters than bears that depend solely on natural foods. Large cubs typically have higher growth and survival rates than small cubs. At maturity most female bears weigh 150–300 pounds and males, 250–500 pounds.

Cubs remain with their mothers until late May or early June of their second year. Yearlings usually remain in or near their mother's home range. By the time they reach sexual maturity, most females have carved out their own home ranges using portions of their mother's and adjacent home ranges. Males, on the other hand, at the age of two and one-half to three and one-half years, set out to find their own turf, and may settle up to 100 miles away. Seasonal use of home ranges depends upon when and where favorite foods are available. The spring diet of Minnesota

bears consists of grass, herbs, buds, catkins, young leaves, and insects, especially ants. When berries ripen in July, fruits become the mainstay of the diet until they are destroyed by autumn frost. Common summer bear foods include wild sarsaparilla, blueberries, raspberries, chokecherries, and wild plums.

Hunters should be aware of favorite fall foods such as acorns, hazelnuts, apples, highbush cranberries, and dogwood berries, as well as unharvested corn and oats. Knowing if and where these are available can increase the chances of finding a bear. If fruits and nuts are not available in the fall, bears turn to greens. However, bears cannot efficiently utilize greens and may lose weight under these circumstances. Bears without adequate fall food may retire to dens weeks earlier than those that have a good source of food. A killing frost in early September may reduce the availability of fall foods, although hazelnuts and acorns should still be available if they were present earlier. This early frost can trigger earlier denning.



Contrary to one popular belief, "garbage" bears are not a weaker breed.

Black bear pelts generally become prime in September and stay prime through the first half of May. Coat colors range from black to brown, and even blond. Black bears grow a new coat each July. Interestingly, the new coat can be a different color from the old. Often a bear that has a black coat will bleach out to dark brown during the summer, but the new coat will grow back black. On very rare occasions, a bear's color may change permanently.

Bear Notes

How far does a black bear travel?

During the spring and early summer, adult female black bears use an area of about four to 10 square miles, and males range over about 20 to 30 square miles. Females are territorial, in that home ranges do not overlap with those of other adult females. In contrast, the home ranges of adult males overlap extensively, and each one covers the territories of several adult females. During the breeding season, local males congregate in the territory of any female that is in heat, and fights among males are common.

After the breeding season, however, from mid-July through August, both males and females often leave their home ranges and travel elsewhere in search of new sources of food. Females often move only a few miles, but may travel up to 30 or more miles. Males are more likely to travel longer distances during this "fall shuffle;" most travel at least 10 miles and many go 20, 30, or even 50 or more miles before finding a place where they can forage intensively for four to eight weeks before heading home to den. In a study of radio collared bears in north central Minnesota, bears most often moved south and southwest during late summer. The longest recorded movements were a male that moved southeast from Marcell (Itasca County) to Hinckley (Pine County), and another that moved from Marcell southwest to Badoura (southern Hubbard County). During these late summer migrations, bears often end up at sites where there are concentrated sources of food, such as oak stands, agricultural fields, or garbage dumps.

Most bears return in late September to their spring/summer home ranges to den. However, a small number move to a new spot to spend the winter. It was not uncommon for radio-collared bears from Marcell to den near the Canadian border in the lowland forests and bogs of Koochiching County. In April or early May the following spring they returned to Marcell, in time for the breeding season.

Are Black Bears Dangerous?

Source: U.S. Fish and Wildlife Service

Black bears can injure or kill people, but rarely do. When pressed, they usually retreat, even with cubs. Attacking to defend cubs is more a grizzly bear trait. (Grizzlies live only in Alaska, northern and western Canada, and the Rocky Mountains south to Yellowstone.)

Black bear mothers often leave their cubs and flee from people, and those that remain are more likely to bluff-charge than attack. Still, it is prudent to use extra caution with family groups that allow close approaches because mothers are generally more nervous than other bears. Nevertheless, the chances of being attacked around campsites by any black bear are small.

During a 19-year study of bear-camper encounters in the Boundary Waters Canoe Area Wilderness in Minnesota, only two injuries were reported in 19 million visitor-days. The study included the year 1985 when bear nuisance activity was at a record high. The two injuries were caused by one bear on September 14 and 15, 1987. The bear was killed the next day.

Unprovoked, predatory attacks by black bears are rare, but highly publicized. Such attacks have accounted for all 35+ deaths by non-captive black bears across North America this century. Most occurred in remote areas where the bears had little or no previous contact with people. The worst attack occurred in Ontario in 1978, when a black bear killed and partially consumed three teenagers who were fishing. Predatory attacks by black bears are usually done without bluster or warning. People involved in such attacks can improve their chances by fighting rather than playing dead. Deaths from such attacks average a little more than one every four years across the United States and Canada.

By comparison, a person is about 180 times more likely to be killed by a bee than by a black bear and 160,000 times more likely to die in a traffic accident. Each year there are many thousands of encounters between black bears and people, often unknown to the people because the bears slip away so quietly. Menstrual odors have been shown to be attractive to bears, but there is no record of a black bear attacking a menstruating woman.

Dozens of minor injuries, some requiring stitches, have occurred across North America when people petted or crowded black bears they were feeding or photographing. Under those circumstances, black bears may react to people as they do to bears with bad manners, by nipping or cuffing with little or no warning. Also, people who tease bears with food have been accidentally injured when the bear quickly tried to take it away.

Black bears in search of food sometimes use threats or bluffs to get it, as has been reported by campers, picnickers, and backpackers. The most common behavior of this sort is "blowing," which may be accompanied by clacking teeth, lunging, laid back ears, slapping the ground or trees, and/or a short rush. The same behavior is used to scare other bears from feeding areas. The sounds and actions are all done explosively, with effective results. However, it is rare for a black bear to attack a person during or after such a demonstration. All blowing bears observed by the author retreated when pursued.

A less common sound is the resonant "voice" of a bear, used to express intense emotions such as fear, pain, and pleasure as well as strong threats. Black bears with ready escape routes seldom use this threat toward people. Grunts are used in non-threatening communication to cubs, familiar bears, and sometimes people.

Encounters with bears are remembered and retold for years to come. Most campers in black bear country never see a bear. Seeing one is proof that we still have forests extensive enough for this wide-ranging animal. Keeping a clean camp helps to protect bears from the effects of our increasing use of the wilderness for recreation and helps prevent bears from being needlessly relocated or killed as nuisance animals.

Fortunately, black bears usually use at least as much restraint with people as they do with each other. Unlike domestic dogs, which often are territorial and aggressive toward strangers, black bears typically behave as the subordinate toward people especially when escape is possible.

Learning to Live With Bears

Source: Minnesota Department of Natural Resources

A symbol of Minnesota's wilderness, black bears are common throughout the northern reaches of our state. Although bears live primarily in forested areas, they sometimes wander into cities and towns. Consequently, conflicts between people and bears have increased as people build homes and cabins and recreate in northern Minnesota. These conflicts arise when bears damage personal property, beehives, livestock, and agricultural crops. This section will help people learn how to get along better with bears.

A bear will take advantage of any food available and will attempt to eat anything that looks, smells, or tastes like food. When natural foods such as nuts, meat, berries, insects, and tender vegetation are scarce, bears actively search for anything to eat. This is when bears most often come in contact with people. When a bear finds a source of food, it will usually return regularly.

Bears and people

Bears and people meet under a variety of circumstances. Most bears are wary of people and will usually leave when encountered. Although seeing a bear can be a memorable experience, some people are frightened when they encounter these animals.

Bears can become a nuisance when they visit homes, resorts, campgrounds, and restaurants. Although some bears become used to people, they are still wild animals no matter how "tame" they may appear. People must always be cautious around bears since they may react unpredictably.

Solving bear problems

The Minnesota Department of Natural Resources is responsible for reducing conflicts between bears and people. This work is important to avoid the unnecessary loss of bears and to maintain public support for sound bear management.

The DNR uses various means to manage bears such as providing quality bear habitat through sound forestry practices, conducting research to increase knowledge of bear biology, educating the public on how to live with bears, assisting people with bear problems, and controlling the bear population with hunting seasons.

People share the responsibility of avoiding conflicts with bears. Learning effective measures to prevent bear problems will help both bears and people. The best way to avoid bear problems is to not attract them in the first place.

Preventing bear problems around homes and cabins

Bears are attracted to homes and cabins located near garbage containers and bird feeders. Pet food, charcoal grills, fruit trees, and gardens may also



Hang food packs above the bear's reach and away from the tree trunk.

attract bears. Once a bear finds food around your home it will likely return.

Never feed bears! They will associate you with food and may become a problem. Following are several suggestions that will help minimize bear problems on or near your property:

- Reduce garbage odors. Rinse food cans and wrappers before disposal.
- Compost vegetable scraps.
- Keep meat scraps in your freezer until garbage pickup day.
- Wash garbage cans regularly and use lime to cut odors.
- Keep garbage cans in a bear-proof container or in a garage until the morning of pickup.
- Remove bird feeders in the spring. If you continue feeding during summer, be sure to remove seed, suet, and hummingbird feeders at night.
- Keep pet food inside.
- Keep barbecue grills and picnic tables clean.
- Use an energized fence (an energized fence is powered by a low-impedance, high-voltage energizer which provides a short-duration, high-energy impulse).
- Use bright lights and noisemakers to discourage bears from coming into an area; sometimes a barking dog will also keep bears away.

If a bear comes into your yard:

- Don't feed it! Don't shoot it! Scare it away!
- If you don't feel confident to scare it away, back away slowly, go inside your house, and wait for the bear to go away.
- Learn to tolerate bears. Many bears are killed or injured even when they're not causing problems.
- Remember that most bears fear people and will leave when they see you. If a bear "woofs," snaps its jaws, slaps the ground or brush, or bluff charges, you are too close!

If a bear refuses to leave:

- Make loud noises or throw something to scare it away.
- Always allow the bear an escape route.

If a bear is treed:

- Leave it alone! The bear will usually go away when it feels safe.
- Have people leave the area.
- Remove your dog from the area.

Preventing bear problems while camping and other outdoor activities

You may encounter a bear when taking part in outdoor activities such as camping. If you are planning a camping trip to bear country, call the campground operator ahead of your departure to inquire about bear activities in the area. If you confront a bear while in the outdoors, remain calm. Don't panic!

To reduce the chances of bear problems:

- Move to another campsite if fresh bear sign is present.
- Never have food in your tent.
- Use canned and dried foods to minimize food odors.
- Store foods out of a bear's reach.
- Use airtight or bear-proof containers.
- Burn waste paper in your campfire.
- Don't burn or bury food scraps.
- Remove all biodegradable and fish remains from camp every evening.

Seeing bears can be very enjoyable. However, having a bear in camp can lead to problems. If a problem becomes serious, the bear may be killed unnecessarily.

If a bear comes into camp:

- Don't feed it! Scare it away.
- Make loud noises, bang pans, yell, or use air horns.
- Don't be gentle! Chase it away.
- Throw rocks or pieces of firewood or use a sling-shot.

Bears may make threatening sounds, stand upright, or possibly bluff charge. Bluff charges can be unnerving. However, it is rare when a bear cannot be chased away. Remember these are signs that you are too close!

Spray repellents containing capsaicin, a hot pepper liquid, are available to discourage bold bears. These repellents are effective and will not injure the bear's eyes or make the bear aggressive. Still, care should be taken when using these products. Be sure to follow label instructions.

Preventing bear problems at resorts, campgrounds, and restaurants

Bears can become attracted to establishments that serve food because of cooking odors and garbage.

Problems may arise when:

- People are in close contact with bears.
- Bears damage personal property.
- Bears become dependent on a food source.
- Bears scatter garbage.

To help reduce bear problems:

- Use bear-proof cans and dumpsters.
- Move cans or dumpsters away from areas used by people.
- Pick up garbage and fish remains promptly every evening.
- Wash cans and dumpsters frequently.
- Use lime to cut odors.

Teach people:

- Not to feed bears.
- Not to store food in tents.
- To store food out of sight, in a car trunk or cabin.
- To rinse containers before disposal and recycling.
- These precautions will help reduce bear problems. When you find a system that works, stay with it.

Preventing bear problems with agriculture

Landowners sometimes experience bear problems with livestock, crops, orchards, berry patches, and beehives. To control these kinds of problems, landowners should:

- Corral animals close to buildings at night.
- Promptly bury dead animals or take them to a rendering plant.
- Eliminate on-farm garbage dumps.
- Encourage hunting in problem areas.
- Monitor crops to detect problems early.

Because of potentially large financial losses, bears are especially troublesome in orchards and beehives. Energized fences are the best long-term control measure for these situations. These fencing systems will prevent wildlife damage when installed and maintained properly. If damage occurs, contact your local DNR area wildlife manager or conservation officer immediately for technical recommendations.

Relocating or destroying bears

Sometimes a bear causing problems must be relocated or destroyed. These methods should be used only after exhausting all other options. Your local DNR area wildlife manager or conservation officer may relocate a bear if he or she determines this is the best solution. Bears will not be relocated for causing minor property damage, such as tearing down bird feeders or tipping over garbage cans. Relocated bears seldom remain where they are released. They may return to where they were caught or become a problem somewhere else.

When a bear must be killed, the DNR can assign a licensed hunter or issue a special permit to shoot it. A person may kill a bear to protect his or her property. However, this option should be used only if a bear is causing immediate danger or significant property damage. Bears are the property of the State of Minnesota. The killing of a problem bear must be reported to a conservation officer within 48 hours.

What if a bear attacks?

Bear attacks are very rare, but the following information can help you prepare for the occasion should you find yourself in that rare situation.

Bear Facts

- Generally, bears go out of their way to avoid people.
- All bears are dangerous. This is especially true of “garbage” bears, bears which people have fed, bears feeding on carcasses, bears which are surprised or are showing aggressive behavior, and bears which are very close to humans.
- Adult bears are strong. They can shred tents and damage a recreational vehicle in pursuit of food.
- Bears are fast, as fast as a racehorse! Uphill, downhill, and on the level!
- Bears have good eyesight and good hearing.
- Bears are strong swimmers.
- Bears have an acute sense of smell.
- Young grizzlies and all black bears are agile tree climbers. Unless aroused, mature grizzlies with their longer claws are poor climbers—however, their reach is up to four meters.
- Bear deterrents are experimental and not proven to work.

To increase safety around bears:

- Reduce or eliminate the odors that attract bears.
- Keep pets leashed.
- Avoid walking at night.
- Always keep children nearby and in sight.
- Heed warning signs posted in the area.
- Hike or bike as a group.
- Reduce the chance of surprising a bear by using a noisemaker.
- Stay clear of dead animals.
- Camp in a designated area.
- In areas without campsites, choose your site away from cascading water, trails, or potential feeding areas.
- Always pack out what you pack in.

What to do if you see a bear:

- If the bear does not approach, make a wide detour or leave the area.
- If the bear does approach, it is usually trying to identify you. Talk softly to the bear. If it is snapping its jaws, lowering its head, flattening its ears, growling, or making "woofing" sounds, it is displaying aggression.
- Do not run unless you are very near a secure place. Move slowly away keeping the bear in view, but making no direct eye contact. Dropping a pack or other object may distract the bear long enough to give you time to get away. If you are sure it is a grizzly, consider climbing a tree.

If the bear attacks:

- The correct response depends on the species of bear and if the bear is being defensive or offensive in nature. Bears sometimes bluff their way out of a confrontation by charging, then turning away at the last moment. Generally do nothing to threaten or further arouse the bear. While fighting back usually increases the intensity of an attack, in some instances it may cause the bear to leave. Each incident is unique and the following are only guidelines.
- Grizzly attacks from surprise: Play dead. Assume the cannonball position.
- Black bear attacks from surprise: Playing dead is not appropriate. Try to retreat from the attack.
- Grizzly or black bear attacking offensively (including attacks while you are sleeping): Do not play dead. Try to escape to a secure place. Climb a tree if it is a grizzly. If you cannot retreat, try to find a weapon such as a stick or rock.
- Grizzly or black bear attacking you for your food: Abandon food. Leave the area.

Dental Detectives Determine State's Black Bear Populations

Wildlife research biologists literally “brought home the bacon” during the summer of 1997 when they undertook a major study to determine the number of bears living in central and northern Minnesota forests.

The study involved hanging several bags of bacon in every township in the state's bear range. Each bag contained nine capsules of tetracycline, an antibiotic commonly used to treat infection in both people and livestock. Tetracycline is used in wildlife studies to mark animals. After ingestion, it is incorporated into any newly forming tooth or bone material. This later shows up as a fluorescent mark when the bone or tooth is examined under ultraviolet light.

“We first used this technique in 1991 to obtain an estimate of bear numbers,” says Karen Noyce, DNR wildlife research specialist at Grand Rapids. “Based on that survey, we concluded that roughly 14,000 to 17,000 bears inhabited Minnesota at that time.” That population estimate compared well to estimates from a mathematical population model, which bear researchers had been using each year to predict changes in bear numbers.

However, that same population model suggested that in the years following the 1991 tetracycline survey, the bear population had grown to about 23,000. Thus, the DNR decided that it was time to once again check its predictions against an independent estimate obtained from another tetracycline survey.

Early in the summer of 1997, roughly 3,000 bags of bacon were hung in trees spaced about every three miles across the bear range. After several weeks, wildlife biologists and technicians checked each bait site to see how many baits were eaten by bears. Bacon bags were hung high on smooth-barked trees that showed claw marks clearly. Any claw marks present were measured to determine whether the scavenger was a bear, raccoon, fisher, or other bacon fancier.

Hunters who harvested bears in the fall of 1997 and 1998 were asked to provide the DNR with a tooth and a small piece of rib bone from any bears that were shot. From these samples, the wildlife researchers determined the percentage of bears that ate tetracycline-laced bait. They divided this number into the number of baits eaten to estimate the total statewide population.

As in 1991, the 1997 tetracycline estimate of 22,000 to 23,000 bears compared well with estimates from the population model, confirming that bear numbers had indeed increased substantially since 1991.

Determining the state's bear population is important because the number of bear hunting permits issued each year is based on the number of bears estimated to live in each management zone. The tetracycline estimate is labor intensive, so it cannot be used each year. However, used periodically, it provokes a means to ensure that the computer model is on track in projecting annual populations.

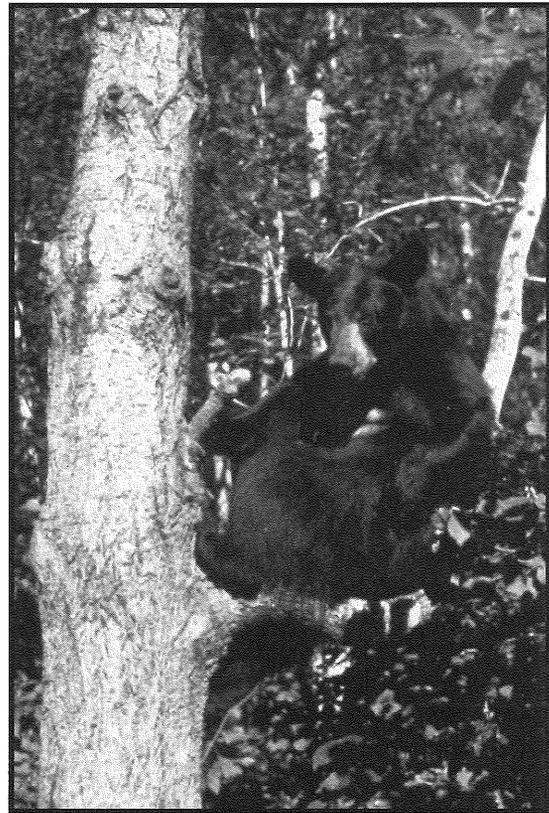


Wildlife research biologists undertook a major study to determine the number of bears living in central and northern Minnesota forests.

The Future of Minnesota's Black Bear

Minnesota's black bear are presently abundant and have a bright future. However, one problem they face, especially as more people move into the forested regions of the state, is the lack of human tolerance towards bear that damage property or crops, or kill livestock. As a result, many "nuisance" bear are destroyed each year, both legally and illegally. An important goal of Minnesota's bear management effort is to reduce the incidence of bear-human conflicts and increase the public's understanding of bear through education.

A few simple precautions could prevent most nuisance bear problems. Foremost, keep household garbage inaccessible, in secure containers or inside outbuildings. If garbage must be stored outdoors, steel drums with clamp-on lids should be used. Several kinds of electric fences have proven effective in the protection of small areas such as apiaries or barnyards. It is more difficult to control the less common problems of crop and livestock depredation. Early ripening corn may be more attractive to bear and a possible cause for growing damage complaints. It is best to harvest corn and oats as soon as possible; bear are most likely to utilize them late in the year when wild foods become less available. Livestock are less likely to suffer bear depredation if watched closely and kept near buildings during calving and lambing. Of course, any carcasses should be properly disposed of or buried to discourage bear from scavenging on domestic stock. Hopefully, such small changes in human behavior brought about by public education will diminish bear-human conflicts in Minnesota in the future.



Minnesota's black bear are presently abundant and have a bright future.

History of Black Bear Hunting in Minnesota

Source: DNR Division of Fish and Wildlife, summer 1997

Minnesota's black bear have been among the least understood and most maligned animals in the state. The mention of "bear" brings reactions ranging from a hearty damning of the animal as an irresponsible, blood thirsty, sheep-killing predator, to an unwary affection for the beast.

It is true that bear occasionally kill sheep and calves. However, this is usually the work of an individual bear that has turned to mutton or beef and is not characteristic of the species, whose diet is primarily vegetarian.

The black bear is the bear most likely to encounter humans because it is numerous, widely distributed, and it likes our food. It is the only wild bear species now found in Minnesota. Attacks by bear are surprisingly rare considering the frequency of contact with people. The attacks usually are made by solitary males. The idea that black bear mothers are likely to attack probably stems from the bluffing charges they sometimes make and from a few well-publicized attacks. Black bear normally retreat into cover before people realize they were there.

The history of the black bear's protection in Minnesota is an erratic one beginning in 1917 when bears were protected between March 1 and October 15. This restriction was lifted in 1919. In 1923 the law was amended to allow an open season only between October 15 and January 1. Once again, all hunting restrictions were lifted two years later. An act in 1929 gave protection to the bear except during an open season from April 15 to May 15 and during open firearms deer season. In 1939, a provision was added which allowed anyone to get a permit from a warden to eliminate a nuisance bear.

In 1943, bear were again placed on the unprotected list; however, they could be protected in specific areas by order of the Commissioner of the DNR. These areas were open to bear hunting only during the deer season. Legislation authorized a bounty on bears in 1945. These regulations remained in effect until the mid-1960s when the bounty was lifted, but black bear remained essentially unpro-

ected until 1971. That is, no license was required to kill a bear except in those instances when the taking was restricted to the deer season and then a deer license was necessary. There was no limit on the number of bear that could be killed. Non-residents needed only to purchase a small game license and they, too, could kill as many bear as they wished. Quite a few enthusiastic hunters from out-of-state discovered that Minnesota was virtually a "hunt-bear-for-free" paradise.

In 1971, the Minnesota State Archery Association, with the support of conservationists across the state, asked the Legislature for black bear protection which was granted and elevated it to "big game" status. A special fall bear season was established in September–October during which time anyone purchasing a bear license could hunt. Also, up until 1979, bears could be taken by deer hunters during the firearms deer season.

Originally, bear license sales were unlimited. However, the growing popularity of bear hunting resulted in ever-increasing harvests, reaching well over 1,000 bears in 1980 and 1981. As a result, since 1982, licenses have been awarded by lottery, with a pre-determined number of permits allotted to each of the management zones in the state. In areas outside the traditional bear range, bear licenses can be bought from county auditors and license agents. There is no limit to the number of these licenses that are sold. This area is referred to as the "no quota zone."

Thirty-nine states and 11 Canadian provinces and territories presently have black bear populations. Twenty-eight states have black bear hunting seasons. Unlike its imposing relative, the grizzly, the black bear is not considered threatened or endangered by the U.S. Fish and Wildlife Service. Responsibility for its management and conservation rests with individual states, where bear densities vary greatly.

Hunting Behavior

"Shall the Minnesota Constitution be amended to affirm that hunting, fishing, and taking of game and fish are a valued part of our heritage that shall be forever preserved for the people and shall be managed by law and regulation for the public good"? – Question on the Minnesota General Election Ballot, November 1998

On election day, November 1998, 1,567,844 Minnesotans, (77.2 percent of those who voted) said "yes," that hunting and fishing in Minnesota are important enough activities to protect them by including language in the Minnesota Constitution to do so. Hunters need not be concerned about their right to hunt, right? 461,179 people on the same day said "no." Even with protection from the amendment, hunters need to be aware that there are those who oppose the action of hunters and/or are against hunting. **Hunters need to know how to conduct themselves to continue to be accepted by the people of Minnesota.**

People are judged by their actions. How we behave and how we follow the rules affect other people. Rules are developed to be followed. As a hunter, you must be aware of how your personal behavior and activities, as well as the actions of your companions, will affect others.

When driving a car, we are expected to drive carefully, following the rules of the road. When we play any sport, we are expected to follow the rules of the game. Hunters, too, are expected to behave responsibly while hunting—to hunt according to the rules.

Many of our rules are in the form of game laws which are designed to fulfill one or more of three basic needs:

1. To protect people (hunters and non-hunters) and property.
2. To provide equal hunting opportunities for all hunters.
3. To protect game populations.

Other rules are unwritten. They are referred to as ethics and can be defined as a standard of behavior or conduct that the individual believes to be morally correct.

Usually, if a large number of a population (group of hunters, for example) believes in the same ethic, then they have it made law by the governing body

(the state legislature in the case of game laws). It is the lack of good ethics on the part of a few who call themselves hunters that creates the need for ethics becoming laws. As laws multiply, so do restrictions. Such restrictions can lead to excessive control that spoils hunting.

Because each game species has different, specific habitats, each species that a person hunts may require a special set of ethics. Therefore, each hunter must develop his or her own ethics for the type of game they are hunting.

Future opportunities to enjoy hunting in Minnesota will depend upon the hunters' public image. If hunters are viewed as "slobs" who shoot up the countryside, vandalize property, and disregard the rights of landowners and citizens, they will lose the privilege to hunt on private land and public land as well. However, if an increasing number of hunters follow the honorable traditions of their sport and practice a personal code of hunting ethics which meets public expectations, the future of hunting will be assured.

A real threat to hunting today is how it is being promoted and increasingly thought of as a competitive event. The escalating win/lose fever resulting from competition can only serve to discourage restraint and encourage risk taking. Until hunters make it very clear that hunting is not competitive, as are the shooting sports, there will continue to be accidents and unacceptable hunter behaviors.

To make hunting safe and place it in its proper perspective, hunting should most appropriately be thought of as a ritual, or rite. Webster's dictionary defines rite as "a ceremonial or formal solemn act, observance, or procedure in accordance with proscribed rule or custom...." To suggest that hunting should be a solemn act demonstrates respect. "In accordance with proscribed rule," affirms the importance of learning and following the rules. Through rules, hunters eliminate unnecessary risk.

Risk taking need not, nor should it ever be, a part of the hunting ritual.

Definition of ethics and laws

Ethics are standards of behavior or conduct which are considered to be morally right. Ethics begin with an individual's standard of behavior. Each individual must make a personal judgment about whether certain behavior is right or wrong. If we believe that a specific action is morally right, then it is ethical for us to act that way.

For example, if a hunter truly believes that it is right to shoot a duck with a shotgun while it is sitting on the water, then it is ethical for that particular hunter to do so. The hunter behavior is consistent with his or her personal code of ethics. If, however, a hunter believes it is wrong to shoot a sitting duck, then it would be wrong for that person to do so. Such action would not be ethical for that hunter.

Most hunters have a personal code of ethics which is very similar to the laws associated with hunting. Usually, hunters agree that the hunting laws are fair and just, and find these laws easy to obey.

Personal code of ethics

Personal ethics are "unwritten laws" which govern your behavior at all times—when you are with others, and when you are alone. They are our personal standard of conduct. Our personal code of ethics is based upon our respect for other people and their property, for all living things and their environment, and our own image of ourselves.

"The hunter ordinarily has no gallery to applaud or disapprove his conduct. Whatever his acts, they are dictated by his own conscience rather than by a mob of onlookers."
—Aldo Leopold

The basis of a personal code of ethics is a "sense of decency." You must ask yourself repeatedly, "What if someone else behaved the way I am—would I respect him or her?"

Many of us probably developed a personal code of ethics long before we became hunters. Because we want the respect of our parents and family, our friends and neighbors, we develop a standard of

Positive Role Model

Hunting enthusiasts and "role models" are needed in Minnesota today. Positive role models will do more for hunting than laws and regulations. This may require hunters to refuse to go along with certain members of their party or even change hunting groups.

Are you a positive role model?

What more can a hunter do to promote and protect the tradition of hunting? **BE INFORMED.** Learn everything you can about the positive aspects of hunting. Use what you learn to promote hunting. **BE A TEACHER.** Take the responsibility for educating young people in the ways of the outdoors. Not just your own children but others as well. Volunteer to be an Advanced Hunter Education, Minnesota Bowhunter Education, or Firearms Safety Instructor. **BE AN EMISSARY.** Do everything you can to spread the positive aspects of hunting. Non-hunters must hear the truth; otherwise they may believe the misconceptions and opinions generated by anti-hunting groups. Talk intelligently about hunting. **BE A JOINER.** Get into every organization that looks as if it might help the cause—whether it is a local sportsmen's club or a national conservation organization. **BE A DOER.** Serve on committees, help influence people, work. Don't expect others to do the job. Do it yourself. **BE POLITICALLY ACTIVE.** Anti-hunting groups are continually pushing some kind of negative legislation. Politicians need to hear of your support for positive legislation. Become involved in grassroots efforts at your local level. Irresponsible hunter behavior will lead to legislation that will curtail hunting. **BE A GIVER.** The anti-hunting groups are well financed. The pro-hunting forces are always operating on tight budgets.

acceptable behavior. Some of us went on hunting trips even before we were old enough to hunt and learned what was expected by the example of others.

However, in today's common, single-parent families, many beginning hunters do not have a role model to guide their development of hunting ethics. Also, because only about three percent of our population lives in a rural setting, many hunters do not have opportunities to begin hunting until they are in their late teens and early twenties. When they do, they may begin with others of their age and hunting experience. Without an experienced hunter to help shape their hunting ethics, they may not know what is best for them and hunting.

Hunters must be willing to reconsider their hunting ethics. This may require changes in attitude and behavior. Concerned, experienced hunters are needed to assist less experienced hunters in "doing what is right." Positive role models will ensure good hunting traditions for the future.

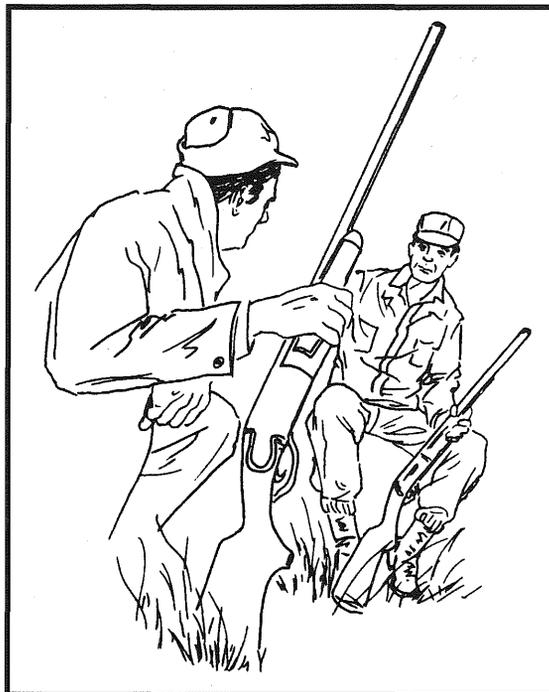
Stages of the hunter

Your personal code of ethics and your hunting behavior may change through the years. Research conducted by Dr. Bob Jackson has found that it is usual for a hunter to go through five expectation stages.

1. First is the "shooter stage" – a time when shooting the firearm or bow is of primary interest.
2. Next is the "limiting-out stage" – when hunters want, above all, to bag the legal limit of game they are entitled to.
3. The third stage is the "trophy stage" – the hunter is selective—primarily seeking out trophy animals of a particular species.
4. The fourth stage is the "technique stage" – the emphasis is on "how" rather than "what" they hunt.
5. The last stage is called the "mellowing-out-stage" – this is a time of enjoyment derived from the total hunting experience—the hunt, the companionship of other hunters, and an appreciation of the outdoors. When hunters mellow out, bagging game will be more symbolic than essential for their satisfaction.

Hunters' personal code of ethics will change as they pass through each of these five stages—often becoming more strict and imposing more constraints on their own behavior and actions when hunting.

These self-imposed restrictions, however, will add to the enjoyment of the hunting experience. Responsible hunters appreciate hunting more. Only they understand the new sense of freedom and independence that comes from hunting legally and responsibly.



Each hunting season, ethical hunters invite novice hunters to accompany them in the field. They take the time to share their hunting knowledge with their companions and introduce them to the enjoyment of hunting.

Ethics for consideration

Many people have proposed ethical standards which they feel should be adopted by all hunters. Some are presented for your consideration. Consider each ethic carefully. Decide whether it is right or wrong in your opinion. If it is right, incorporate it into your personal code of hunting ethics and practice it when afield. In the final analysis, your standards of conduct while hunting will be the true indicator of your personal code of ethics.

Hunter-landowner relations

Responsible hunters realize they are guests of the landowner while hunting on private land. They make sure they are welcome by asking for permission before they hunt. On the rare occasions when permission is denied, they accept the situation gracefully.

To avoid disturbing the landowner early in the morning, a responsible hunter obtains permission to hunt on private land ahead of time.

While hunting, the responsible hunter takes extra care to avoid disturbing livestock. If they are hunting with a dog, special precautions are taken to ensure it does not harass cattle, chickens, or other farm animals. They understand that disturbances can cause dairy cows to reduce their milk production, and poultry may crowd together in the chicken coop and suffocate. Beef cattle can suffer a weight loss costly to the rancher.

Responsible hunters leave all gates as they find them—and if closed, they ensure they are securely latched. They cross all fences by going underneath the wires and posts. They only enter on the portions of private land where the owner has granted permission to hunt. They never assume they are welcome on private property simply because other hunters have gotten permission to hunt there.

Responsible hunters avoid littering the land with sandwich wrappings, pop cans, cigarette packages, or other garbage, including empty casings, empty shell boxes, and shells.

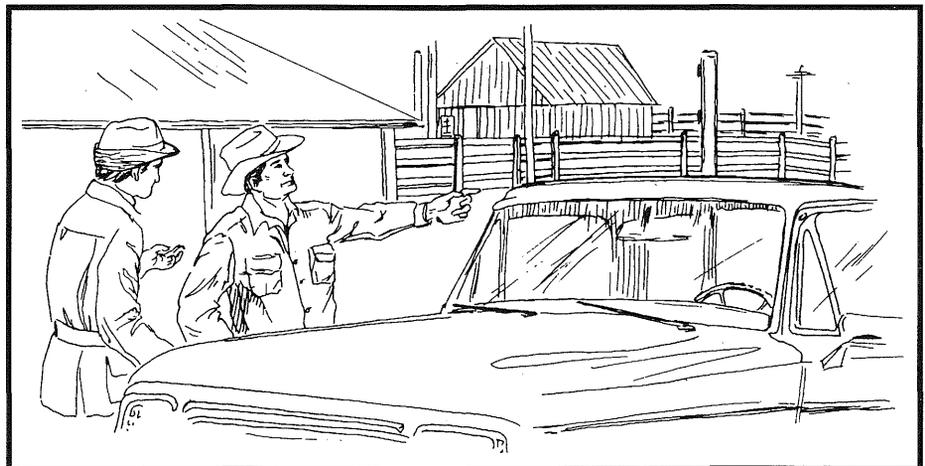
They never drive or walk through standing crops, nor do they send their dogs through them. When driving across pastures or plowed fields, they keep their vehicles on the trail or road at all times. They understand that the ruts left by vehicles on hillsides can cause serious soil erosion. They hunt as much private property on foot as possible. When parking their vehicles, they are careful not to block the landowner's access to buildings, equipment, and roadways.

If they see anything wrong on the property such as open gates, broken fences, or injured livestock, they report it to the landowner as soon as possible.

Responsible hunters limit the amount of game they and their friends take on a landowner's property. They realize the landowner may consider several bag limits as a sign of greed.

Unless they are close personal friends of the landowner, responsible hunters do not hunt on a specific farm or ranch more than two or three times each season. They do not want to wear out their welcome.

Before leaving, they thank the landowner or a member of their family for the privilege of hunting the property and they offer a share of their bag if



Responsible hunters respect the rights of landowners and get permission to hunt on private land. These hunters ask and find out what they can and cannot do while hunting as a guest of the landowner.

they have been successful. In appreciation for their hospitality, a thoughtful hunter offers to help with chores. If the offer is accepted, they cheerfully pitch bales, mend fences, fork manure, etc. They may even use their special skills such as plumbing, mechanical abilities, painting, or carpentry.

If they own property elsewhere such as a farm, ranch, or lake cottage, responsible hunters will invite their host to use them. They note their host's name and address and send a thank you card in appreciation for the landowner's hospitality.

Remember, a landowner has no respect for trespassers. It only takes a moment to request permission and you may be allowed to come back again.

Regard for other people's feelings

When hunting on public lands, responsible hunters show the same respect for other users of the land as they show for landowners on private land.

They hunt in areas where their activities will not conflict with other's enjoyment of the outdoors. They treat the land with respect, being careful not to litter or damage vegetation. They limit their use of vehicles to travel to and from their hunting area, always remaining on trails or developed roadways.

They know that alcoholic beverages can seriously impair their judgment while hunting. They restrict their drinking to the evening hours after the firearms have been put away. Even then, they drink in moderation to be sure that their actions do not offend others.

Responsible hunters recognize that many people are offended by the sight of a bloody carcass tied to a vehicle or a gut pile in full view of the road. People may also be put off if hunters parade vehicles through a campground or streets of a community with a gun rack full of firearms. Having respect for the feelings and beliefs of others, responsible hunters make a special effort to avoid offending non-hunters. They are consistently aware that many of these people are their friends, neighbors, relatives, and even members of their immediate family.

They appreciate the fact that many people do not hunt and understand some people are opposed to hunting. They respect these people as human beings whose likes and dislikes differ from their



Responsible hunters stop and thank the landowner for the privilege of hunting on their land. If the hunter is successful he or she may offer to share the game or, by some other means, show their appreciation for the opportunity to hunt private land.

own. They accept the fact that hunters, non-hunters, and anti-hunters are equally sincere in their beliefs about hunting.

Relationship with other hunters

Responsible hunters show consideration for their companions. When leaving for a hunt, they are ready to go at the appointed time and they do not invite others to join the group unexpectedly.

In the field, their consideration extends to other hunters as well. They realize that hunting satisfaction does not depend on competing with others for game.

Responsible hunters avoid doing anything that will interfere with another's hunt or enjoyment of it. They do not shoot along fence lines adjacent to fields where others are hunting, nor do they try to intercept the game others have flushed. If disputes arise with other hunters, they try to work out a compromise—perhaps a cooperative hunt—which everyone can enjoy.

Responsible hunters do not hog shots—they do the opposite. They give friends a good shot whenever possible. They show special consideration for the inexperienced or hunters with disabilities by allowing them to hunt from the most advantageous position.

Each hunting season, responsible hunters invite novice hunters to accompany them in the field. They take the time to share their hunting knowl-

edge with their companions and introduce them to the enjoyment of hunting.

They do not shoot over their limit to fill the bag of others. This includes shooting a deer and having a young hunter tag it. They realize that young hunters want to harvest their own game. Responsible hunters do not take their limit unless they plan to use all they have taken.

They observe the rules of safe gun handling at all times and firmly insist that their companions do the same. They politely tell others when they think their behavior is out of line.

Self-respect

Responsible hunters realize it is their responsibility to know how to take care of themselves in the outdoors. They respect their limitations.

They never place their lives or the lives of others in jeopardy by failing to notify someone where they intend to hunt and how long they expect to be gone. If their plans change, they leave notes on their vehicles designating their destination, time of departure, and expected time of return.

They respect the limitations of their health and physical fitness. They consult with their doctors regularly to be sure they are capable of strenuous hunting activity. If unfit, they condition themselves before going hunting. They have their vision checked and, if necessary, wear glasses or contact lenses to correct any visual impairments.

To cope with unexpected outdoor emergencies, responsible hunters learn and practice first aid and survival skills. They know how to recognize and cope with hypothermia.

Respect for wildlife

Hunters are naturalists. Their interest in wildlife extends beyond game animals to all living things. They're thrilled by the sight of a bald eagle as well as a white-tailed deer. They know and study nature's ways, and realize that wildlife can be enjoyed year round—not just during the hunting season.

Fair chase hunters always give their quarry a "fair" chance to escape.

When hunting, their pursuit of game is always governed by the "fair chase" principle. Simply stated, this principle demands that hunters always give their quarry a "fair" chance to escape.

When hunting big game, responsible hunters will always attempt to get close enough to their quarry to ensure a quick, clean kill. They realize that in doing so, their quarry may notice them and escape, but they always give their quarry this sporting chance.

Responsible hunters never shoot indiscriminately at a flock of game birds or a herd of big game in the hope of hitting one. They will always attempt to kill their quarry quickly. Flock shooting any species causes much wounding. A good example is swatting ducks on the water. This bad behavior gives responsible hunters a bad name.

Through considerable practice before a hunt, they will learn the distance at which they can be most confident of killing game cleanly. They will ensure their rifle is accurately sighted in and determine the most effective shot size for their shotguns. The goal of practice, range estimation, sighting in, and proper shot selection is to reduce wounding loss.

Once afield, they will expend an extraordinary effort to retrieve all game—even if it means interrupting their hunting to help another hunter locate a wounded animal. When possible, they will use a trained hunting dog to retrieve ducks in a slough or upland game in heavy cover.

If it appears they have missed their shot, responsible hunters will always carefully inspect the spot where their quarry stood to ensure the animal was not hit.

Responsible hunters show as much respect for their game after it is taken, as before. They never allow the meat or other usable parts of the animal to be wasted. They field dress or clean their game within minutes of being taken so it doesn't develop that "wild" taste.

Respect for the environment

Responsible hunters are caretakers of the environment. While hunting, they are aware of damage they may do to the plant life and to the soil; they try to minimize their impact. They avoid needless destruction of vegetation. They down living trees or trim branches only when it is legal to do so or with permission. They avoid actions that may cause erosion. They use only what is necessary, remove their garbage, and minimize any evidence of their presence.

Respect for laws and enforcement officers

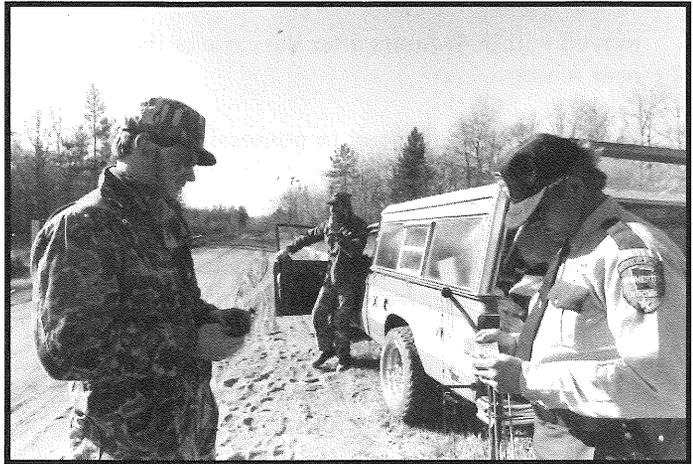
Responsible hunters obey all laws which govern their hunting activities, even those with which they disagree. Instead of ignoring a law, they work through their elected representatives to change laws which they feel are unjust.

Responsible hunters will not ignore illegal acts of others. They insist that all members of their hunting party obey the law and they report law violations to the appropriate law enforcement agencies. If asked to serve as witnesses, they accept this responsibility.

When they meet a state or federal wildlife officer, wildlife biologist or technician checking hunters, they are cooperative and provide the information requested. If they do not understand the need for certain information, they ask for an explanation. Hunters realize the officer's responsibility is to protect wildlife and their hunting rights.

In summary, ethical hunters should have **respect for** and be **responsible to**:

1. Landowners
2. Non-hunters
3. Other hunters
4. Themselves
5. Wildlife
6. The environment
7. The laws and the officers whose duty it is to enforce them



Responsible hunters fully cooperate with conservation officers and wildlife officials, knowing that they protect and enhance their hunting opportunities.

The black seven or
The seven most common violations related to black bear:

1. Unmarked bait stations.
2. No license or license not in possession.
3. Bait is non-biodegradable.
4. Taking a cub bear.
5. Failure to report nuisance bear kill.
6. Transporting un-cased/loaded firearm in motor vehicle.
7. Wanton waste.

What are the regulations a person needs to know and understand related to these violations?

Note: The discussion that follows was correct at the time of publication. It is your responsibility to know the current regulations.

1. **Unmarked bait stations.** Black bear hunting regulations state that "a person who establishes a bait station must display a sign at the site." The sign must be made of plastic, wood, or metal and be at least 6 x 10 inches in size. The sign must contain the full name and Minnesota driver's license number, or full name, address, and telephone number of the person placing the bait. The letters and numbers must be legibly printed and either painted or impressed on the sign material. Bait station signs must be prominently displayed between six and 10 feet above the natural ground level and within 20 feet of the bait. Signs must be re-

moved within 48 hours after the close of the bear season.

2. **No license or license not in possession.** The *Minnesota Hunting and Trapping Regulations* handbook states, "All persons required to have a license must have it in their personal possession while hunting or trapping and while traveling from an area where they hunted or trapped."
3. **Bait is non-biodegradable.** The following paragraph is reproduced from the *Black Bear Hunting Information* booklet. Definitions: "Bait is any material placed for the purpose of attracting or attempting to attract bears. A bear "bait station" is any location where bait is placed for the purpose of hunting. Materials that are at all times attended by the hunter are not considered a bait station.

The following materials may not be used as bait for bear:

- a. A carcass from a mammal containing more than 25 percent of the intact carcass.
- b. Meat from mammals that contains bones.
- c. Bones of mammals.
- d. Solid waste containing bottles, cans, plastic, paper, or metal.
- e. Materials that are not readily biodegradable.
- f. Any part of swine, except cured pork.

Note: Fifty-five gallon drums, pails, plastic garbage bags, or other containers may not be left unattended at bait stations.

1. **Take a cub bear.** The *Black Bear Hunting Information* booklet states that the bag limit is one bear of either sex per person in a calendar year. "Cub bears, which are defined as bears less than one year old, may not be taken."
2. **Fail to report nuisance bear kill.** Nuisance bears may be taken by licensed hunters before the season in the area where the license is valid if authorized by a DNR conservation officer. The *Black Bear Hunting Information* booklet states that "nuisance bears taken by authorized licensed hunters before the season must be registered with the authorizing conservation officer within 48 hours after taking."

A person may kill a bear to protect their property; however, this option should be used only if the bear is causing immediate danger or significant property damage. Bears are the property of the State of Minnesota. The killing of a problem bear must be reported to a conservation officer within 48 hours. Occasionally a person kills a bear, does not report it, and word gets to a conservation officer who then investigates and issues a citation.

3. **Transport un-cased/loaded firearm in motor vehicle.** The *Minnesota Hunting and Trapping Regulations* states, "A person may not transport a firearm, including a handgun, in a motor vehicle unless the firearm is: unloaded and cased, or unloaded and in the closed trunk of a motor vehicle."

An unloaded firearm is defined as a firearm without ammunition in the barrels and magazine, if the magazine is in the firearm. A muzzle-loading firearm with a flintlock ignition is unloaded if it does not have a priming powder in a pan. A muzzle-loading firearm with percussion ignition is unloaded if it does not have a percussion cap on a nipple.

A "cased" firearm is defined as a firearm in a gun case expressly made to contain a firearm, when the case fully encloses the firearm by being zipped, snapped, buckled, tied, or otherwise fastened, with no portion of the firearm exposed. A holster is not a legal case.

4. **Wanton waste.** The *Minnesota Hunting and Trapping Regulations* states, "A person may not wantonly waste or destroy a usable part of a protected wild animal unless authorized."

Turn In Poachers (TIP)

In many states, the illegal killing of fish and wildlife—poaching—has become a serious problem. No estimates are available for the number of bear poached in Minnesota. However, based on figures from the TIP organization, the illegal killing of white-tailed deer is estimated at 20 to 30 percent of the annual harvest by licensed hunters. Approximately 26 percent of the waterfowl hunters in the Mississippi flyway admitted to violations in a Mississippi study. ("Illegal Waterfowl Hunting in the Mississippi Flyway and Recommendations for Alleviation" by Brian Gray and Richard Kaminski, July 1994, Wildlife Monographs no. 127.) We can safely say that there is some poaching of bear. If, for instance, we assume a conservative illegal take of 10 percent, then during the period from 1987 to 1995, the economic loss to Minnesota would have ranged from \$60,000 to \$1,984,000 annually.

These monetary values were placed on wildlife by the Legislature as a deterrent to wildlife poachers.

TIP is a non-profit grassroots movement formed by a group of concerned conservationists who are dedicated to preserving our vast treasury of fish and wildlife.

How the program works

Basically, TIP encourages Minnesotans to make anonymous reports of fish and wildlife violations for a cash reward. Anyone wishing to report a game and fish law violation may call the statewide 24-hour toll-free number 1-800-652-9093. To protect the person's anonymity, the caller is assigned a code number to use when communicating with the DNR's Division of Enforcement.

Information provided by the caller is recorded on a numbered form which is sent to the conservation officer assigned to the area nearest the violation. If the tip leads to an arrest, the investigating officer returns the form to TIP via the Division of Enforcement headquarters in St. Paul.

Each tipster is told to watch local newspapers for an announcement of an arrest. Once they read of the arrest, they can call the same toll-free or metro area phone number, identify themselves by the code number, and make arrangements for the reward to be paid.

TIP rewards

Rewards paid to tipsters fall into three categories: \$100 minimum for small game, fish, and non-game species violations; \$250 minimum for big game and endangered species; and up to \$1,000 maximum for violations such as large numbers of animals taken illegally or a commercial poaching venture. TIP is aimed at controlling the persistent violator and poaching rings that exist in Minnesota. However, no leads are turned down. If a call is received about a hunter shooting too many ducks, the report will probably be pursued—a violation is a violation.

Sometimes poachers use heinous methods to kill wildlife, from leg snares to wire nooses that can slowly strangle a luckless deer. After all, poachers are mostly concerned about how they can avoid getting caught. If they cripple a deer while spotlighting at night, they will simply leave it to find another animal that they can kill quickly.

You can help

TIP works only if the public supports the program. Citizens must be willing to make anonymous tips to stop game and fish lawbreakers. Financial support is also important. TIP is not an enforcement arm of government. It is a private, non-profit foundation whose board of directors is composed of citizens throughout Minnesota. Like any foundation, it survives primarily on donations.

For more information on TIP, call 651-406-9111.

Hunting Safety

What can you do to hunt safely?

Discuss with your hunting group how you can plan to avoid hunting incidents. Listed below are some causes of hunting incidents. Discuss other situations that might occur. Talk about how to avoid them.

1. Victim out of sight of shooter.
2. Victim covered by shooter as shooter swings toward game.
3. Victim mistaken for game.
4. Victim moved into line of fire.
5. Loaded firearm removed from or placed in vehicle.
6. Loaded firearm discharged in vehicle.
7. Horseplay with loaded firearm.
8. Insecure rest; firearm fell.
9. Shooter stumbled and fell.
10. Trigger or exposed hammer caught on object.
11. Loading or unloading firearm.
12. Defective firearm or bow.
13. Careless handling of firearm.
14. Improper crossing of obstacle.

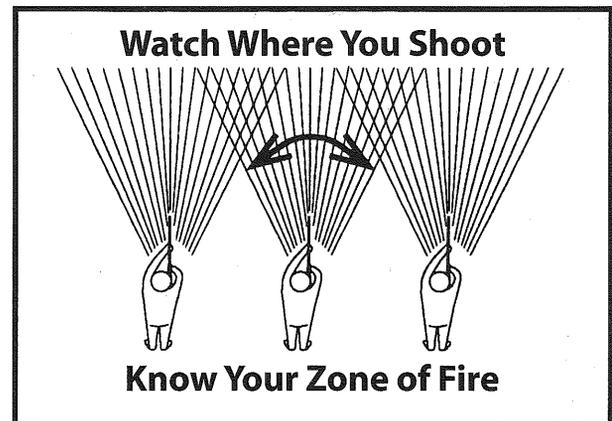
Adopting safe hunting practices

Basic rules of firearm safety

Most hunters know which safety measures they should use when hunting. However, there are some who do not. Each hunting accident that occurs sends this message: "hunting is a dangerous activity." Hunters are responsible for conducting themselves in a safe manner while hunting. After reviewing the causes listed above, consider adopting the following practices.

To prevent hunting accidents, the basic rules to follow when handling firearms are:

1. Treat every firearm as if it were loaded, even when you think it is not.
2. Always keep the muzzle pointed in a safe direction.
3. Be sure of your target and what is beyond.



Plan the hunt to eliminate risk

When a hunting accident occurs, there are only two possible explanations: either someone did not know or understand the rules, or someone failed to follow the rules.

Practice safe gun handling at all times

More firearm accidents happen in non-hunting situations than during actual hunting.

Familiarity with firearms

1. Before you hunt, learn how to operate your firearm properly and safely. This includes sighting in, patterning, and knowing its effective shooting distance.
2. Practice as often as possible. To become comfortable and familiar with a gun, it must be used more than once a year.
3. Care for and maintain your firearm. Have a competent gunsmith check your firearm if you have any doubts about its condition.
4. Practice safety at home by storing firearms with open actions in locked safes. Store ammunition in a locked safe in a separate area from the firearms.
5. Be prepared for the hunt by getting into and staying in good physical condition. Be physically prepared for the type of hunt you plan to take.
6. Choose your hunting partners carefully. Camaraderie among hunting partners makes for an enjoyable hunt. But an unsafe partner can be deadly.

Firearm safety when traveling

Whether your firearm is being carried in a car, boat, motorcycle, or in any other vehicle, you must follow these safe firearm-handling rules:

1. Be sure the firearm is unloaded.
2. Place the firearm in a protective and securely closed case.
3. Position the firearm securely so it will not move about during travel.
4. Be aware of laws and regulations regarding transportation of firearms for the area you are in or will be traveling through. Laws and regulations vary from state to state.

Hunters should set rules for themselves when loading and unloading their firearms:

1. Load when you are in position, actually in the woods, in the blind, or in the stand. Do not load in camp, near buildings or parking areas, or when in a group.
2. Unload whenever you are unable to give your full attention to controlling the firearm.
3. Unload before entering or exiting an elevated stand.
4. Unload before approaching landowners, hikers, or other hunters.
5. Unload before crossing slippery or rough terrain.

Minnesota black bear hunter dies in a hunting accident

During the 1990 black bear hunting season, a hunter died while climbing into his tree stand. Information released about the accident stated that the hunter was 34 years of age and a graduate of the Minnesota Firearms Safety Program. He was attempting to climb into his tree stand when either a branch broke off or a small branch got into the trigger guard and the large bore, slide action firearm discharged, shooting the victim in the back of his head. Additional information about the incident indicated that the hunter had a fear of bears and carried a loaded rifle for protection while in the bear woods.

What can we learn from this accident? Let's ask some questions. Which of the three basic rules of firearm safety were violated? How could a similar accident be prevented in the future? Must a hunter carry a loaded firearm in order to protect himself or herself from black bear attacks?

6. Unload and consider putting your firearm in a lightweight "stocking type" case before returning to camp, the parking area, or the highway.
7. Unload and case your firearm before transporting in a motor vehicle.

These basic rules of safety aren't covered by laws and regulations. This is all the more reason why hunters need to sit down and decide for themselves the rules for the hunt. Your actions determine safety and how others look at hunting.

Safety in the field

1. Once again, always establish your safe zone of fire, and insist that your hunting partners do the same. Be sure you are not in another hunter's zone of fire.
2. Correctly identify your game target. Be sure to see what is there, not what your mind wants to see. Your anticipation combined with noise, action, and/or color can fool your mind. If you

- are unsure of your target, don't shoot. Take time to fire a safe shot.
3. Running game shots are not recommended because the shot is generally hurried resulting in greater potential wounding and loss. Also, it is very difficult to see beyond your target and, finally, there is a much greater chance to ruin the meat.
 4. Care should be taken when crossing fences. It is safest to crawl underneath, but this is not always possible. Fences can and do break, and can do harm to a trusting hunter. This is a time to unload, protect the muzzle from dirt and debris, and either hand over or place the gun on the other side, away from where you will be crossing.
 5. Never use your scope as a substitute for binoculars.
 6. Do not permit horseplay or careless handling of firearms at any time.
 7. Alcohol, drugs, and shooting do not mix. Drugs and alcohol impair your judgment. It is illegal to hunt while intoxicated.
 8. Beware of fatigue. When you become tired, quit hunting. Fatigue can cause carelessness, clumsiness, and an inclination to see things that are not there. Any of these factors can contribute to hunting incidences.
- Safe firearms carrying practices**
There are several ways to carry a firearm safely and at the same time have it ready for a quick, safe

Common Carrying Positions



shot in the field. Whichever carrying method you use, these basic rules apply:

1. Keep the muzzle pointed in a safe direction away from yourself and others.
2. Keep the safety in the "on" position when carrying a firearm. Remember that the safety is a mechanical device and can fail.
3. Keep your finger outside the trigger guard until you have positively identified your target, determined that it is safe to shoot, raised your firearm to a shooting position, and determined that it is still safe to shoot.

Shivering is the first sign of hypothermia.

Cold weather a factor in hunting accidents

Cold weather is very much a factor in Minnesota's hunting accidents. If we look at the way we hunt, our attitudes toward the cold, and the effect the cold has on our ability to think and move, it's easy to see the connection.

Minnesotans learn to tolerate the cold. We shiver, stiffen up, and sometimes lose the sense of touch in our fingers and toes. When we hunt with firearms in Minnesota, we may tell ourselves that this is how we can expect to feel on opening day. Cold causes us to use up energy—blood sugar—faster (hypoglycemia) and our body temperature drops (hypothermia). What many hunters fail to consider, however, is that as this begins to happen we shiver, begin to lose our sense of balance, and start losing our ability to think clearly. The risk of dropping the firearm or falling increases. Our judgment begins to fail. We may even forget to keep the muzzle pointed in a safe direction.

The scary part is that we actually lose our ability to think and concentrate on what we're doing. Too long in the cold and a hunter can end up both clumsy and careless. Hypothermia is not limited to below freezing temperatures. Getting wet on a windy day in 50-degree weather can be as danger-

ous as freezing temperatures. Even on a nice, sunny fall day where a hunter is walking and begins to sweat, then stops and sits, chills may set in which is the beginning stage of hypothermia.

The ability to resist the cold can vary greatly among people in a group. A key symptom to watch for is severe shivering. If you or someone else starts to shiver, that's the signal to get warm and dry immediately. Severe shivering is the "final stage" in which a person still can think clearly enough to help themselves.

Lever action rifles are not for beginners!

Anyone using a lever action rifle with exposed hammer should know the ways the firearm can accidentally discharge because this style firearm is most frequently involved in accidents.

When chambering:

To chamber a round in a lever action, the lever is moved forward and then back. The movement of the lever also cocks the hammer. As the lever is moved, the trigger is fully exposed. If the trigger is hit as the lever is moved back, the firearm will fire!

When placing the hammer at half-cock:

A round has been chambered and the hammer is fully cocked. Unless the firearm is fired or unloaded immediately, the hammer should be placed in the half cock or safe position. To do this, the hammer is held in place with the thumb, the trigger is pulled, and then the hammer is slowly lowered.

If the hammer should slip from the thumb as the trigger is pulled, the firearm will fire! The risk of an accidental discharge is greater with cold fingers, small hands, and bulky gloves.

If the hammer is hit or struck:

The hammer on a lever action rifle is designed so that it can be easily cocked. Because of this design, it is also easy to bump or hit the hammer.

Be aware that a sharp blow to the hammer of a lever action rifle can cause the firearm to fire, even when the hammer is in the half-cock or "safe position."

When unloading:

The first example explained how an accidental discharge can occur when chambering a round. The same thing can happen when unloading the firearm. That is because the tube magazine can be emptied only by chambering and ejecting each round.

Again, each time the lever is moved forward and brought back, the hammer is cocked and the trigger is exposed. If the trigger is hit by the thumb, for instance, the firearm will fire!

Note: Newer models of lever action rifles have a safety that can substantially reduce the risk of an accidental discharge. Remember, however, that a safety is a mechanical device which can fail.

Tips for Safe Use of Elevated Hunting Stands

Follow these rules to ensure a successful and safe hunt:

- Make sure you can be found. Map your whereabouts and leave a note at camp, at home, or in your car. Consider carrying a cell phone.
- Before you climb (up or down), make sure that you are wearing a safety belt or harness. Know what you should do if you slip while using a safety device. Never use a rope to replace a safety belt. Remove all mud, ice, and snow from your boots before your climb. Keep at least one hand and one foot on a secure place when reaching for the next hold. Step down onto a portable stand. Clambering up onto it can dislodge it.
- Check permanent tree stands every year before hunting from them and replace any worn or weak lumber before it breaks. Don't use old "permanent" wood platforms, stands, or steps. Weather rots wood, and nails become weak and rusty over time. Nails left in season after season can work loose as a result of contraction and expansion caused by rising and falling temperatures. Before each season, check stress points on all connecting devices for failures, rust, or broken welds. (Permanent tree stands are not recommended.)
- Inspect portable stands for loose nuts and bolts each time the stand is used. Check straps, cords, belts, and ropes for rodent or weather damage.
- Never carry guns, bows, or equipment with you while climbing. Use a haul line to raise or lower your gear. Keep gun or bow cased when raising or lowering it. **Never** load your gun or nock an arrow until you are settled into your stand. **Always** know your target and what's beyond.
- Read the tree stand instructions thoroughly. Seemingly minor variations between models can mean substantial differences in how to safely erect the stand.
- Test any new tree stand climbing equipment a few inches above the ground, not high in a tree.
- Choose only healthy, living trees when using climbing devices. Rough-barked trees such as oak and maple are best. Smooth-barked trees such as aspen (popple) get treacherously slick in wet or icy conditions. The bark also detaches more easily from the wood of the tree.
- Select a tree large enough to support your weight before the season. Some mishaps occur as hunters are hurrying to set up their stands on opening morning.
- Select trees of moderate size to avoid dangerous adjustments of your stand as you climb.
- Be alert for hung-up branches and dead-standing trees close to your tree stand.
- Screw metal tree-climbing pegs flush to the tree for secure support and to prevent breakage. (Screw-in steps are not recommended, as they are dangerous to use.)
- Ladder stands, strap-on pegs, or metal pegs should be spaced at easy-to-reach intervals. Avoid the need to make dangerous over-reaches.
- Never put all your weight on a single branch.
- Use a connecting rope from the tree stand to the seat climber. An attached stand will not fall to the ground if your feet slide out of the harness.
- If you leave the stand in the tree, cover it with plastic or an old rug for easy snow and ice removal.

The Minnesota Department of Natural Resources does not endorse or encourage the use of a particular brand of tree stand, safety belt, harness, or climbing device. However, the DNR does endorse and encourage the use of portable stands, environmentally friendly climbing blocks (not screw-in

spikes), full body-leg harness, and placing stands less than 10 feet off the ground. Ultimately, our goal is to promote safe and responsible hunting.

Tree stand facts (dangers)

Either you or one of your two hunting companions will fall from your tree stand sometime in your hunting lifetime. In a survey of their readers, *Deer and Deer Hunting* magazine (March 1993) found that 37.2 percent of the respondents indicated that they had been involved in a tree stand fall. Keep in mind that the fatalities were not able to respond to the survey. A study done by the United States Centers for Disease Control and Prevention in Atlanta found that of those who fell from a tree stand, three percent suffered permanently crippling injuries and less than four percent of the falls resulted in death.

You know you have to be careful when using a tree stand and you have read the tree stand safety tips, so how is reading more on the topic going to help you? The question becomes relevant when one considers how quickly the fall happens, especially when the majority of the accidents (26 percent, according to the *Deer and Deer Hunter* survey) indicated that the primary cause of the fall was structural failure. All is well, then, in an instant your equipment fails and you are on your way to the ground. The question becomes more real when the survey found instances where very well trained and experienced hunters were involved in tree stand accidents. Something has to be done. Constant reminders and continuing safe tree stand use will help.

Some of the information that the *Deer and Deer Hunting* survey found will help to reduce tree stand accidents. Table 1 presents the type of stand(s) used by the respondents.

Type of Stand	% That Used
Permanent	56.5
Portable (homemade)	46.7
Portable (commercial)	80.0
Other	6.5

The survey indicated that 72.6 percent of the respondents owned and used two or more portable stands. Table 2 indicates that the tree stands were placed at an average of 16.55 feet.

Height of Stand	% of Responses
1-9 feet	2.0
10-12 feet	25.7
13-15 feet	31.8
16-18 feet	11.3
19-21 feet	18.3
22-25 feet	6.7
26+ feet	4.2

There are a number of reasons why hunters use elevated stands. They have better visibility because their line of sight is above the brush and their field of view is greater. The hunter is above the normal line of sight of the game. However, any experienced hunter will agree that animals do look up. The hunter's odor may be dispersed further away from the area. For the gun hunter, shooting at a downward angle allows for a better chance of the ground stopping the bullet. That is, the elevated position is a safety feature because it gives the shooter a better backstop. For the bowhunter, the angling down shot causes the exit wound to be lower on the animal's body which increases the chances of a better blood trail.

Climb no higher than you are willing to fall.

A person does not have to fall from great heights to become injured. A fall of less than one foot can cause injury. **It stands to reason that the further you fall, the greater the chance for more serious injury.** Also, the higher a person has to climb to get to their stand, the more chances they will have for a mishap. 1999 Minnesota regulations (always study laws each season to determine the current regulations) allow permanent stands to be placed at a maximum of 16 feet. There is no limit to the height a portable stand can be placed.

Users of elevated stands need to consider the height they need to hunt from. **In most cases, six to eight feet may be the best height.** At this elevation, hunters will be well above the underbrush and their eyes will be 11 to 14 feet above the ground. Even at these heights, the eyes may be at the same level as the branches and their ability to see may be restricted. Hunters need to consider what higher stand height does to their target, that is, the vital area of the animal. As the animal has greater depth to its body than width, the higher the hunter climbs, the greater angle of the shot and the narrower the vital area. This is even more true for the bowhunter because the arrow does not have the ability to cause death by shock as a bullet can. **Give yourself the greatest opportunity** you can to achieve a quick, clean kill. **The less the angle of trajectory for the arrow, the greater the exposed vital area.**

The *Deer and Deer Hunter* survey asked the question, "At the time you fell from your stand, where were you"? (see Table 3). Getting up to the stand and while on the stand were the most frequent answers. However, accidents occurred while leaving and descending the stand also.

"What was the primary cause of your fall"? was another question asked in the *Deer and Deer Hunting* survey (see Table 4). The survey also considered weather factors (see Table 5).

The Occupational Safety and Health Administration (OSHA) has regulations for workers when they are working in an elevated situation. One such regulation states, "each employee on a walking or working surface (horizontal and vertical surface) with an unprotected side or edge which is six feet (1.8 m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems." One can be assured that for OSHA to issue such a regulation, extensive testing has been done. When hunting from elevated stands, hunters can take advantage of OSHA knowledge. **They can either place their stands at less than six feet in height or use another system to protect themselves.**

The use of a safety belt is considered to help prevent elevated stand accidents from becoming more serious. The *Deer and Deer Hunting* survey asked the question related to the use of safety belts (see Table 6). In the survey, those that indicated they

Table 3

Deer and Deer Hunting survey responses to the question: "At the time you fell from your stand, where were you?"

Location	Percent
Ascending to, or with the stand	28.8
Entering the stand	10.1
In the stand	29.1
Departing the stand	9.7
Descending from, or with the stand	22.3

Table 4

Deer and Deer Hunting survey responses to the question: "What was the primary cause of your fall?"

Cause	Percent
Slipped	19.9
Fell asleep	4.3
Missed a step	4.3
Lost balance	6.1
Misused tree stand	6.4
Structural failure	23.0
Other*	36.0

*Included: branch broke, climber band/arm slipped, climbing belt broke, climbing spurs slipped, illness/blackout, etc.

Table 5

Deer and Deer Hunting survey responses to the question: "What, if any, weather factors contributed to your fall?"

Weather Factor	Percent
Not a factor	65.7
Cold temps	9.3
Rain	16.8
Snow	5.5
Wind	2.9
Other	16.1

Table 6

Deer and Deer Hunting survey responses to the question: "How often do you use a safety belt while ascending/descending a tree?"

Response	Percent
Always	7.1
Usually	4.8
Sometimes	8.0
Rarely	13.7
Never	66.4

had fallen from a tree or elevated stand, 16.8 percent indicated they were wearing a safety belt, leaving 62.8 percent falling without a safety belt on. Seventy-four and one-half percent of those wearing a safety belt when they fell indicated that the safety belt prevented serious injury.

Some of the hunters that responded to the survey indicated that a safety belt or harness prevented an accident from happening. That is, hunters lost their balance but were able to use the tether (strap) holding their safety belt to regain their balance. However, other hunters indicated that they usually used a safety belt or harness but had accidents when they forgot to wear the belt and leaned out, expecting the belt to hold them. A lesson here, **always** wear a safety belt or harness.

It is not a good practice to use the belt or harness as a support to lean against when shooting, etc. The previous scenario is an example. Also, hunters reported that parts of the belt or harness failed, causing the accident. Always inspect your equipment before each use.

Which is safer: a belt or a full body harness?

Is the safety belt actually safe when compared to a full body harness?

Responses in the *Deer and Deer Hunting* survey from individual users of safety belts indicated that belts were of value in many instances. However, a fatality that occurred in Minnesota indicated that the hunter, whose tree stand collapsed, died from the short fall because of the force of the safety belt on his mid-section and ribs. The question remains:

would he have survived the 20-foot fall to the ground?

A fall when a hunter is wearing a full body harness results in the pressure of the harness mainly being applied to the legs. A fall with a safety belt can result in pressure on the midsection where internal organ damage can occur. The malfunction or non-function of the organ(s) can cause death quickly.

OSHA regulations detail how far a worker can fall with their fall arrest system in place. This distance varies with the weight of the person. A rule of thumb is that a hunter should not fall more than 12 inches or the force from the fall even with a full harness, may be such that severe damage is done to the body or even death can occur. OSHA has guidelines for the use of a shock absorbing system (similar to a bungee cord) to reduce injury.

Full body harnesses designed for hunter use are on the market today. Hunters that need to hunt from an elevated stand at a height greater than six feet need to consider a well-made full body harness. Research the harnesses that are available and choose the one that you feel will work the best for you.

As indicated by the *Deer and Deer Hunting* survey, many accidents happened while the hunter was getting up into or climbing down from their stand. Hunters need to wear a full body harness designed for use while climbing up into and down from their stand as well as when they are in their stand.

An option that OSHA allows is a railing on work areas over six feet above the lower level. Hunters may consider a proper railing on their elevated stand as a method to prevent accidents.

There are many different types of stands available for hunter use. Listed below are a number of stand types and the advantages and disadvantages of each.

Permanent stands

Advantages: Can be large enough to accommodate two hunters, ideal for mentoring an inexperienced hunter. Comfortable and safe if built and maintained properly.

Disadvantages: Illegal in many areas, they damage trees, are highly visible, and may invite other hunters. They need constant maintenance, they are

dangerous as they age or rot. Even newly constructed stands can become quickly weakened by the movement of the tree they are attached to.

Self-climbing stands

Advantages: No steps or ladders needed—can climb to considerable heights.

Disadvantages: Bulky, fairly heavy, and hard to carry. Noisy to erect, require strength and coordination, cannot be used on trees with low branches. Generally have a small platform and seat causing them to become uncomfortable when used for long periods of time.

Strap on stands

Advantages: Generally inexpensive, easy to carry, fairly inconspicuous.

Disadvantages: Special steps or ladder needed to reach high stands, most have no support railing, very small platforms and seats. If hunter feels insecure, it may affect his or her confidence and concentration.

Ladder stands

Advantages: Easy to erect and climb, safe, and sturdy.

Disadvantages: Generally expensive, heavy and bulky for relocating, uncomfortable, many have no seat and only a small platform to stand on.

Tripod stands

Advantages: Good in short brush, can be erected anywhere, easy to climb, generally equipped with railings for safety, and may serve as a gun rest.

Disadvantages: Expensive, heavy and bulky, time consuming and noisy to erect, obvious to other hunters and game.

Tree-limb stands

Advantages: Convenient, any large horizontal limb may do, quiet, generally other hunters cannot pinpoint your location.

Disadvantages: Very unsafe! Requires large, sturdy limbs, very uncomfortable, most limbs are slippery when wet, limbs die and break.

Tower box stands

Advantages: Good for short brush and fields, protection from weather, freedom to move within the stand without being detected, excellent for introducing new hunters to the use of tree stands, side walls prevent unexpected falls.

Disadvantages: Need constant maintenance, if no roof, floors can become slippery and noisy, stairs and ladders need to be checked and double checked, stairs and ladders can be extremely slippery when wet, icy, or snow covered.

Any stand, whether manufactured or homemade, can result in an accident if it is not installed and used properly. Read and follow the directions that come with your manufactured stand. Do not make alterations on your manufactured stand. Alterations may affect the stand's strength and function. Inspect every stand before each use. Do not use a stand if you are unsure of its condition.

Getting into your stand can be as dangerous as being in the stand. There are a number of methods to get into a stand. Be sure you understand how a climbing stand works, and heed all warnings issued by its manufacturer. Ladders tend to be a safe and easy way to get into a stand. However, caution must be used when using ladders. The steps may be weak or slippery. In the woods, the ground is often uneven and/or softer in one spot than it is in another, causing the ladder to tip or slide.

Strap or chain-on type steps generally do not harm a tree, but they must be used according to manufacturer's directions. They can slip and they can fail. Screw-in tree steps, which the user screws into the tree, tend to be very dangerous. Steps that have not been screwed in correctly may break or fall out when stepped on. The tree may be rotten causing the step to pull out. Even steps that appear to be in good condition can be defective and have broken. Also, the general design of this type of step is such that hunters slip and fall, resulting in injury when the hunter is caught on lower steps.

Construction and use of tree "climbing blocks"

Caution

Using homemade tree "climbing blocks" presents risks to the user. Here are some tips on constructing and using blocks in a safe manner. But beware, following these tips does not mean you will stay safe. Climbing is inherently dangerous and no one can guarantee your safety. The bottom line is that caution and "common sense" must be used at all times. If you construct and use climbing blocks, even in the manner suggested, you must remember that you are assuming a risk of falling and suffering very serious injuries, and perhaps even death. If it seems too dangerous, don't do it!

Once the climbing block has been properly constructed, the block and the attaching rope must be checked before each use. Once the climbing block has been installed for use, it must be checked for proper installation. Before the person using the block places his or her full weight on the block, he or she must determine that the block will hold them. Climbing blocks must not be left attached to the tree overnight. They must be installed and removed after each day's use. They may become damaged by the elements and/or rodents, etc., if left in the woods. Dispose of any block that shows signs of weakening and damage.

Construction of climbing blocks

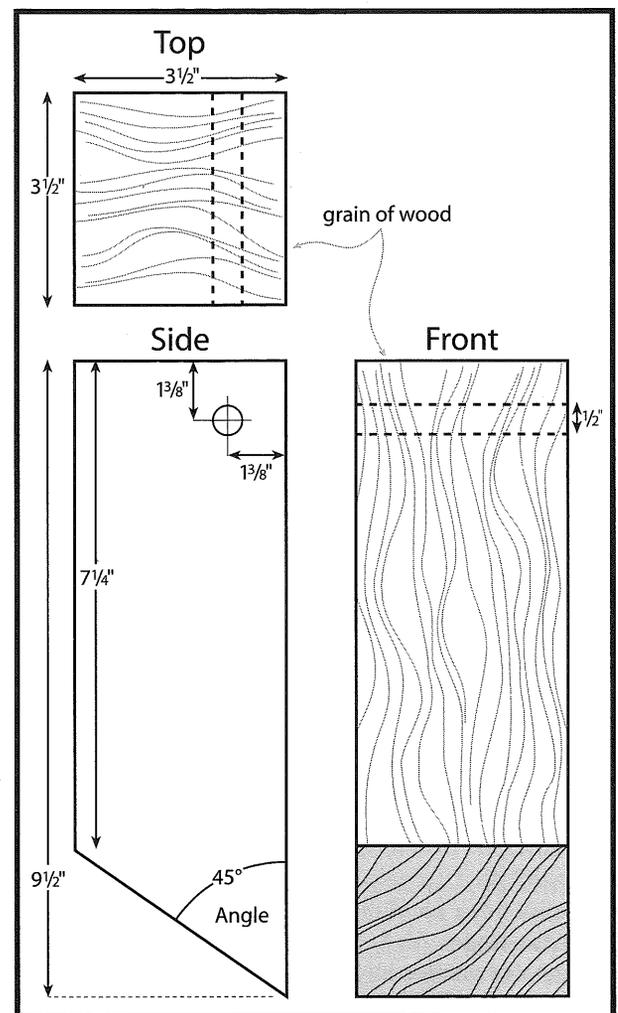
Refer to the accompanying diagram for assistance in constructing your climbing blocks. Begin by selecting treated 4 x 4 stock that is free of defects and knots. Defects will cause the block to "give way" during use. Look for and avoid material that may "split." Treated material should extend the useful life of the block.

Two climbing blocks can be constructed with one 45-degree cut from a piece of 4 x 4 stock, 16 3/4 inches long. The diagram displays only one block. The angled cut reduces the weight of the block and makes it easy for you to properly place the block on the tree. Refer to the photo on page 43 for proper placement.

Next, drill a 1/2-inch hole across the grain of the wood, 1 3/8 inches from the top, and 1 3/8 inches from the tree side of the block. The hole is located high

and off the center to prevent tipping out when pressure is applied to the block. Drilling across the grain will reduce the chances of the block splitting when under pressure.

Ten feet of one-half inch diameter nylon or poly rope is needed for each block (you will need a longer piece of rope if you are going to be using the blocks on large diameter trees). Form a loop and tie a knot that will not slip on one end of the rope, leaving enough space in the loop to allow the rope to slide easily into. Heat the other end of the rope to prevent the end from unraveling. Slip the end of the rope through the hole in the block. Construct enough blocks for you to safely climb into and out of your tree stand. Properly store and care for your climbing blocks.



Cuts used to make climbing blocks.

Use of climbing blocks

Each climbing block must be carefully inspected before each use. Discard any block that shows any sign of damage or weakness.

Climbing blocks are practical to use with portable tree stands that can be installed (fastened to the tree) from the ground. The number of blocks needed will vary depending on the height the hunter needs to climb. The blocks need to be spaced close enough to each other that the user will not need to stretch unsafely to reach the next step. Extra layers of clothes and cold temperatures need to be considered when spacing climbing blocks (place blocks closer together).

The angle of the block's placement from each other needs to be considered when placing the blocks on a tree. That is, the blocks need to be rotated around the tree so as a user steps up to the next block, it will be positioned so that the foot can safely step on the next block. The blocks can be too close or too far apart around the tree for the user's foot to safely reach the block. The last block (highest) the user will step on should be the same elevation or slightly higher than the tree stand itself. This is so the user can step down into the tree stand to test its safety before their full weight is placed on the stand. The reverse is true for the user going down from the tree stand. The block can be tested before the user's full weight is placed on the block.

The block is fastened to the tree by holding the block slightly above the location the user wants the block to be. The rope is placed around the tree with the end inserted and pulled tight through the loop. The end of the rope is then wound around itself (but not tied in a knot) six or more times (see photo). The pressure from the weight of the user will cause the rope to "bind" and support the block and the user.

Each time a series of climbing blocks is used, the user should test each block carefully before placing their full weight on each block.

In the event that the user will be climbing to a height greater than six feet, a climbing belt/harness must be used.

Climbing blocks can be constructed at an economical price. Extreme care must be used when constructing and assembling the blocks. Four to five blocks can be easily carried to a stand site and safely attached to a tree (assuming the tree stand is installed from the ground by the hunter). The careful hunter can have a safe and successful hunt using homemade climbing blocks.



Climbing blocks fastened to a tree.

Planning Your Minnesota Black Bear Hunt

You've decided you want to experience a Minnesota bear hunt. What are the considerations you must address to plan a successful hunt? You will need to determine if you'd like to hunt with someone, or hunt alone. Where in Minnesota will you hunt? How will you get a license? What do you need to hunt bear in Minnesota? How do you hunt bear?

Your hunting plans are greatly affected by the people who'll be in your party. It may be a group of people that you've hunted with before. You may choose to hunt with family members including young hunters. Or, you may want to find someone who already has bear hunting experience.

The people you hunt with and how you "plan as a party" will determine whether you have a rewarding hunt. The hunting party needs to assess the compatibility and expectations of the members. Do you hunt for similar reasons and does "success" mean the same thing to everyone in the party? These topics should be discussed by potential

party members before they decide to hunt as a group.

"Where should I hunt?" is a question often asked by new bear hunters. Friends and relatives that live in bear areas might be able to help you get started. Or, check with other members of your party who may have friends and relatives that can help your group find a good place to hunt. You may also want to schedule a short trip to northern Minnesota during the spring or summer and talk to local people about any recommendations they can give you.

Minnesota has a permit and a no-quota zone—specific areas in which bear may be hunted. The no-quota zone has an unlimited number of licenses available for purchase. The no-quota zone could be considered secondary bear range which means the bear population may not be as great as that found in the permit areas. In other words, your chances of seeing a bear in this zone may be less when compared to the permit areas.

Also, keep in mind that most of the no-quota zone is private land and you will need to obtain permission to hunt there. The person who chooses to hunt in the no-quota zone will need to begin scouting for bear habitat and contacting landowners in early spring in order to secure permission and have a place to hunt. Do this before you purchase a no-quota license.

The zone which has quotas is divided into areas where a person must apply for a permit. The application to hunt in this zone must be correctly completed by May 1. Up to four people can apply on one form, if you decide to hunt as a party. When one member of the party receives a license, all will receive a license.

The permit areas have a "preference drawing system." This means individuals applying for a license with the highest preference will have the best chance of receiving a license. A preference is obtained for each year a hunter correctly applies

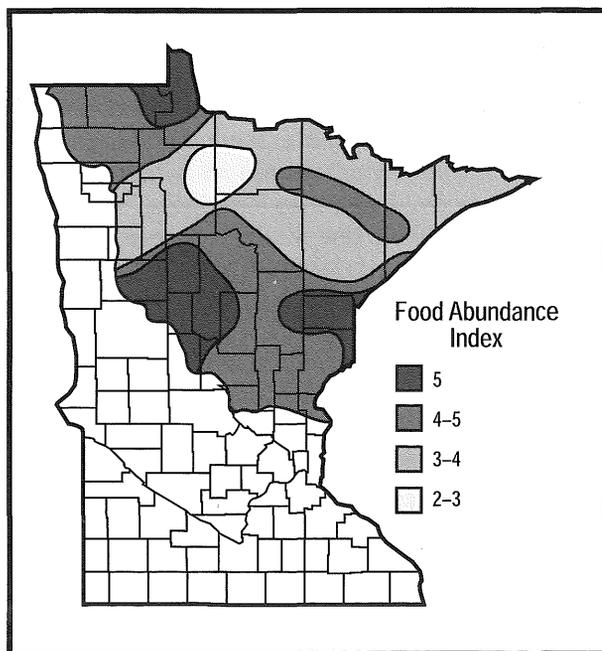


Figure 1 - Food Abundance Index.

for a permit area license, but is not drawn. Some of the areas require a preference of two or more years in order to draw a permit. The number of permits available and the number of hunters applying for a license will determine the drawing success rate.

Before you apply for an area, you should consider the potential bear population in the area and if you can find a place to hunt within it. There is land open to public hunting in most of the permit areas. However, public land may be interspersed with private land holdings. Generally, a larger number of licenses available in an area indicate a larger population of bears.

Also, bear populations are greater wherever the best food source exists. See Figure 1 for a sample of the bear food abundance index. The index is determined by the number of bear food plant species and the amount of food produced by these plants in a given area. The abundance index can change dramatically from year to year depending on the local growing conditions. A bear population will move to where the food is located.

Once you've obtained your license and determined where you will hunt, it's time to begin preparing your hunting needs. What type of bait to use is a prime consideration since baiting is the most effective method for hunting bear in Minnesota. Good bait consists of meat scraps, beef suet that does not contain uncured pork, and bakery products. These foods can be gathered during the summer and frozen until baiting begins.

You may decide to purchase meat trimmings from local locker plants. A word of caution: there may be a large number of other bear hunters in your area with the same idea, so make your contacts early. You might be able to buy outdated bakery products from a local bakery or grocery store.

Ideally, you should plan to have two "working baits" for each hunter, that is, baits that a bear is "hitting." Assuming you are going to bait for three days and hunt for three days and that a bait should have five pounds of fresh meat per day, you should try to have about 60 pounds of fresh frozen meat trimmings or beef suet per hunter. You will also want to have five quarts of bakery products, that is, sweet rolls and breads per day. For each hunter you should plan to freeze the equivalent of 60 quarts of bakery products.

You may choose to substitute inexpensive dry dog food and livestock-quality liquid molasses for some of the bakery products. Also, you may want to acquire a few pounds of honey to be used in a "burn." When making your purchases, keep in mind that it is more important to have quality rather than quantity. Rotten bait may attract a bear to your baiting site, but it will not keep it there.

You'll also need to arrange for food and lodging. You may find motels, resorts, and campgrounds in your hunting area. If you plan to hunt in a popular area, be sure to make your lodging reservations well in advance. Check with local chambers of commerce and area resort associations for information about available facilities.

Maps are the most important items for a hunter who is not familiar with the hunting area. County plat books and topographic maps are necessary to determine township, range, and section numbers for registering bait stations. The county courthouse can provide information about how to obtain plat books. Topographic maps can be ordered from the U.S. Geological Survey by calling 1-800-USA-MAPS (order maps early if you plan to purchase them from USGS). Some of the larger bookstores also carry topo maps.

You'll also need to acquire hunting and baiting equipment. The first item that generally comes to mind is the firearm, or method of taking the animal. Rifle, shotgun with single slug, handgun, muzzleloader, and archery are all legal arms for hunting bear in Minnesota. Many inexperienced bear hunters have the notion that they need "big" guns to kill a bear. Firearms that are used for deer will work well for bear also. Because shots at bear will be at close range, magnums are not necessary. Check the regulations for legal arms. Be sure the firearm or archery equipment you choose is in good working order and you are competent in its use. Become proficient at hitting your target from an elevated stand and practice from the same distance you will be shooting from while hunting.

Generally, bear hunters use an elevated stand which allows them to see over the underbrush and improves overall visibility. Your stand should be well constructed, portable, and comfortable. Unfortunately, many of the portable stands available today are too small to be either safe or comfortable. The hunter that cannot "sit still" will be the one who misses seeing a bear. Also remember that bear

detect movement well. Many experienced hunters use portable stands that will accommodate comfortable lawn-type chairs.

The best placement for portable stands is five to six feet above the ground. This gives the hunter the best visibility since it places the person above the underbrush, but not into the crown of the trees. Many inexperienced hunters have a fear of bears and want to be elevated away from what they perceive as danger. This is not necessary. Bears are to be respected, not feared. Bears are more likely to run from you than not. Also, the higher you place your stand, the greater the chance of a tree stand accident. Minnesota has had two fatalities and numerous tree stand accidents in recent years. Plan for and practice tree stand safety.

Clothing should keep the hunter comfortable and dry in a variety of conditions ranging from very hot temperatures to cold and wet weather. Generally, some type of camouflage outer covering is used to break up the hunter's outline. However, remaining motionless is probably more important than having the perfect camouflage pattern. Again, clothing that will keep you comfortable is important.

Plastic buckets work well for carrying bait to the site. You'll also find it necessary to trim brush and cut cover logs from windfalls: a hand clipper and a bow saw can be used for these tasks. Some hunters use a small chain saw.

A bait registration sign is required at each bait station. These can be prepared at home. (See regulations for the sign requirements.)

Carry and know how to use a compass. Consideration should be taken in the event that a wounded bear needs to be tracked through the woods. At a minimum, hunters should know a "safety bearing" in the event they "get turned around" in the woods. Flashlights and gas lanterns work well for tracking in the dark.

You will need a sharp knife and a drag strap or rope to field dress your bear and retrieve it from the woods. Many hunters are now using plastic or rubber gloves while doing the field dressing as protection from contracting any diseases. Also, "baby wipes" work well for cleaning your hands after the field dressing is completed.

Once a bear is in your possession, it's very important to know how to properly handle the meat and the hide. The bear must be registered and hide removed as soon as possible. The first part of the hunting season can be very warm and bears have a thick coat of hair and a layer of fat, which insulate the meat. The excess fat must be removed from the meat so the meat can be cooled quickly. You may decide to arrange for a locker plant or processing facility to do this for you. Be sure to check the hours of operation for these facilities. They may not be open evenings and weekends.

If you choose to do your own skinning and quartering of the meat, you will need to have coolers and ice available or a refrigerator or freezer reserved for the time you will need them. Friends or relatives that live near the hunting site may be able to help you.

Bear Meat

Some people "turn their noses up" at bear meat. There is some history behind this reaction. Prior to 1971, black bears were considered largely a nuisance animal and only sporadically protected. (See the history of black bear hunting in Minnesota, page 22). Originally bear licenses were unlimited anywhere in the state and it has not been until relatively recently that bear hunting has gained much popularity.

Ask some of the bear hunters who have been around for awhile and they will tell you that back in the '70s and '80s when hunting bear was not as popular, the most often asked question was "Do you eat it?" The answer would go something like "Yuk, no." "It's a varmint, you know." Writers often commented on the fact that bear meat was not so good. However, after 20 years of exposure and learning how to properly care for the meat from the field to the table, the answer to that question has changed. Now when hunters are asked that question, the response is "You bet." "I enjoy it and I'm looking forward to my next bear."

Minnesota Black Bear Hunting for the Beginner

This section presents information for the first-time bear hunter in Minnesota. It includes methods, procedures, and techniques used by experienced Minnesota bear hunters. There is no single "best way" to hunt bears in Minnesota. Changes in habitat, weather, and food sources, for example, often result in techniques that work well one year, but not the next.

Once the hunter has a license, or knows he or she will receive a license, the next step is to prepare for establishing a bear bait station (either in the permit area or no-quota zone). Using a bear bait station is the most effective method of hunting bear in Minnesota. Refer to the *Black Bear Hunting Information* booklet for the current regulations related to what can be legally used for bait. Meat scraps, suet, and bakery goods can be collected and frozen for use in baiting.

Establishing bait stations can begin the Friday closest to August 14. Many hunters find that beginning as early as the regulations allow is not neces-

sary. Research shows that bear movement in August may place them in a different location when the hunting season begins. Many hunters begin baiting anywhere from three to five days prior to the hunt. This seems to improve the chances that a bear which "hits" the bait will still be there when the season opens.

Once the area where the hunt will take place has been selected, maps need to be secured (see Figure 2). A county plat book is helpful in determining property ownership. Check with the county courthouse for information about where plat books can be found. Even in parts of the state where there is a large amount of public land, there still may be private property within the public area. The plat book will also indicate the township, range, and section numbers needed to properly register bait stations. Topographic maps will help the hunter study the terrain before they reach the hunting area. Geographic features such as hills, valleys, streams, swamps, wet areas, woody areas, open cover, and more will be depicted on a topographic map.

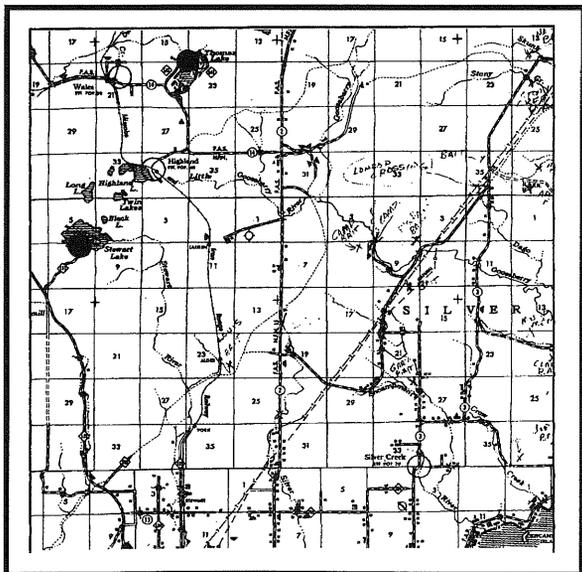


Figure 2 - Plat book maps are needed to find land ownership and the township, range, and section number of where you place your baits.

Maps are useful for establishing a test bait route. Setting test baits will help you find bear. In the area where you will hunt, find roads or trails that lead from major roads. Start a travel-baiting notebook to record where you place baits and where you see signs of bear activity. Select a starting point with some sort of landmark such as a crossroad, bridge, or sign—something you can locate easily. Record the starting odometer reading in your notebook. Search for special topographic features that may indicate travel lanes preferred by bear: abandoned logging roads, waterways, swamp edges, lakes, clear cuts, and so forth. Record the distance to each feature you find. (See the border of the plat book map for the range, township, and section number.) Test bait can be set along your travel route-bait line. Place the test bait 50 to 100 feet from a road, making sure it is still visible from the road. The test bait should be placed close to the feature you identified as a possible travel lane. This arrange-

ment gives you the opportunity to quickly check the test bait each time you “run your bait line.”

Test baits can be set using material such as suet or fatty meat—anything that will produce an odor to attract a bear. Approximately one pound of beef suet or cured bacon are good test baits. You cannot use uncured pork for bear bait. Before hanging the bait, rub it up and down the trunk of your test tree. This produces a greater surface area for the odor to originate from. The test bait material should be secured to a smooth bark tree such as a birch or aspen. Use a biodegradable cord and tie the bait on the southwest facing side of the tree about seven feet from the ground (see Figure 3).

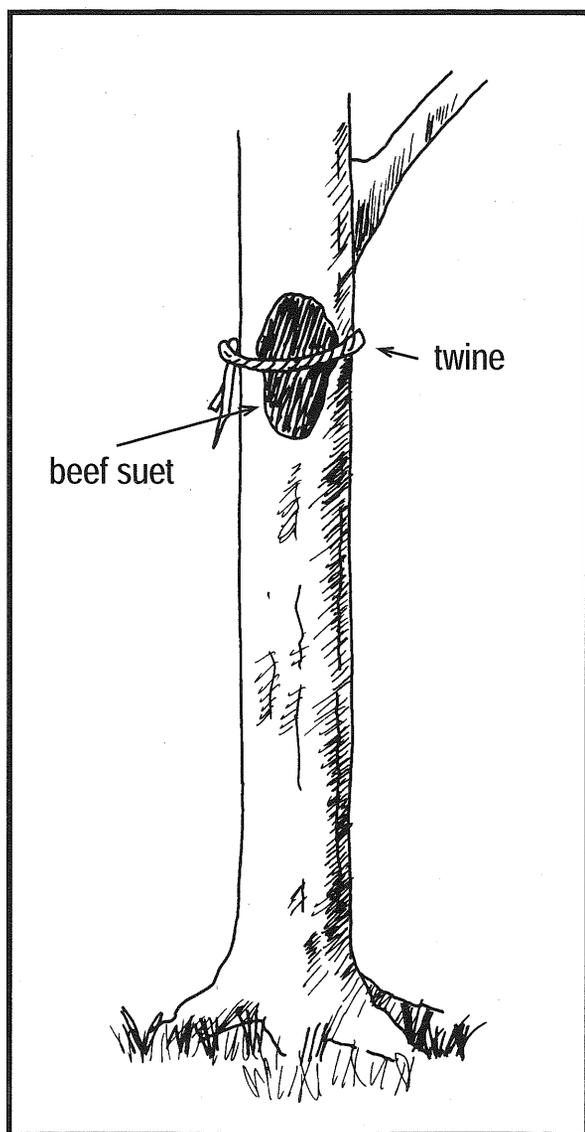


Figure 3

Placing the bait on the southwest side of the tree where sunlight will strike it, causes the bait to begin to decompose and produces an additional odor that will attract bear. By placing the bait seven feet from the ground, a hunter can estimate the size of the bear. A huntable size bear should be able to stand and take the bait while a smaller bear may have to climb the tree to retrieve the bait. When hunters find claw marks near the base of the tree, they can assume that a smaller bear had to climb the tree to get the bait. This is why a tree with smooth bark is preferred.

Each bait station must be registered. The person placing a bait is responsible for registering the bait in his or her name. Refer to the *Black Bear Hunting Information* booklet for current regulations. Information you'll need to register a bait includes township, range, and section number. Signs must also be posted at each bait site with your name and driver's license number or your name, address, and phone number. (The signs indicate the name of the person who placed and registered the bait, not who's hunting a particular bait—see Figure 4.)



Figure 4

There isn't a limit on the number of sections or baits you can register. If you have your plat book, topo maps, and know the area you will hunt, registration can be completed and sent in when planning your hunt.

Check your “test bait” line at least once a day. Test baits that have been “hit” or taken by a bear indicate this is an area where you can set a bait you can hunt over. Move off the main road or trail at least one-quarter of a mile to reduce any disturbance by other human activity, such as 4-wheelers, joggers, and grouse hunters.

When selecting a site for your hunting bait, look for an area close to heavy cover. Good cover is a timber stand with a crown that filters out most of the sunlight. A mixture of conifers with aspen or birch is excellent. Heavy underbrush such as a

mixture of hazel, tag-elder, willow, and tall grass or fern vegetation is helpful. The cover is better if there is a water source, small river, or slough in the immediate area. This type of cover offers a cool environment and the freedom for bear to move under cover of heavy shade. Shade provides the best camouflage for black animals.

When selecting the bait site, be sure to consider the direction of the prevailing wind. Wind should carry the smell of your bait into the cover where you expect to find bear. If the wind is coming from an unusual direction, a bait may not be "hit" even when you think it should have been. Then a change in wind direction brings a "hit."

Once you've determined the area where you'll place your bait, select a "stand tree." The tree should be one that will safely accommodate your

portable stand. A spruce or balsam provides a good background. White birch should be avoided because it creates too much of a contrast. Likewise, avoid any tree where you will "skyline" yourself. Also try to select a tree that allows you to enter the stand without having to walk past the bait.

Place the bait at an acceptable distance from your tree stand. For bowhunters, the bait should be 15 to 20 yards from the stand; firearm hunters should place the bait 20 to 30 yards away. Place the bait in front of a large obstacle which could be a large tree, stump, uprooted tree, thick clump of brush, or dirt pile. Clear any brush in your shooting lane. A bear will accept this clearing when accepting the bait. "Dump" your bait at the base of the obstacle so the bear has to come around the obstacle to get at the bait. This gives a hunter the desired broadside shot (see Figure 5). Use dead wood as "cover logs" to

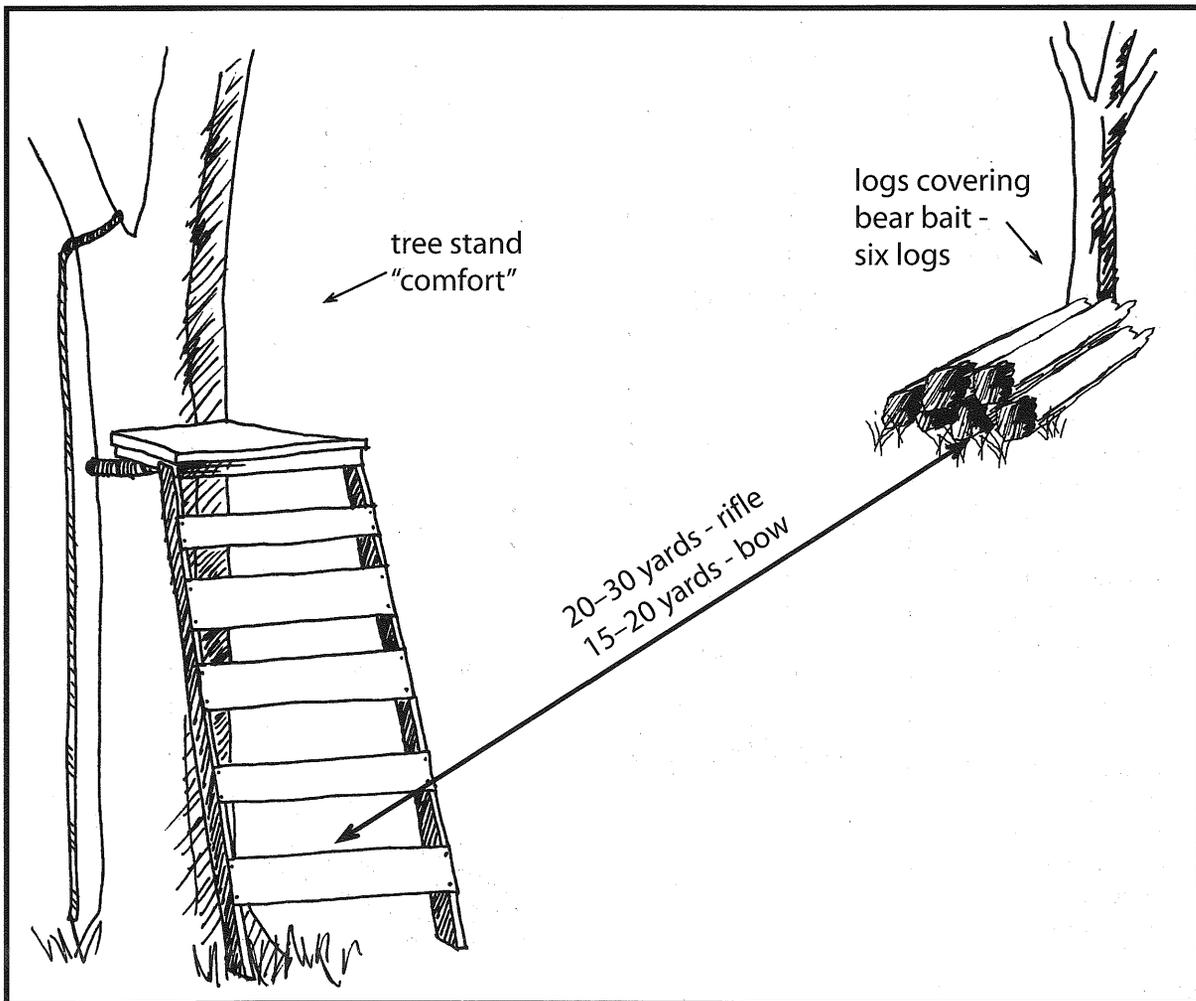


Figure 5

place over the bait you have dumped. Avoid cutting down live trees because there should be plenty of wind falls in the area to make cover logs. Cover logs should be about three to four inches in diameter and approximately four feet long. Place cover logs over the bait, with one end against the obstacle and the other pointed directly at your stand. Cover logs keep the bait from being raided by scavengers such as coyotes, wolves, raccoons, and other small critters. Also, cover logs help the hunter determine whether a bear or other critter has eaten the bait. Bear will move the cover logs while smaller critters will eat "between" the logs (see Figure 5).

You should try to create "attracting" odors in the surrounding area as soon as possible to get bears coming to your bait site. Some of the methods you can use to do this include tying beef suet in a tree; hanging a scent bag nearby as you did when test baiting (see Figure 6), and burning honey or bacon at the bait site. Some hunters use scented candles to produce odors that are attractive to bears. Non-biodegradable materials are used to create this smoky odor, so it's important to remain at the site and to remove the materials when the burn is completed. In general, the woods are dry during this time of year, so it's critical to think about fire safety when burning.

Unless the area is naturally sandy, you may want to dump three or four gallons of sand around the bait station. Smooth the sand out. A bear visiting the bait station will leave a track that will help you determine its size.

Do not try to hide human odors when baiting. A bear will accept these scents when accepting the bait. Human odors that may be present include urine, cigarette ash, and mosquito repellent as well as other smells. The objective is to have the bear become accustomed to these odors left by the hunter.

Noise can be very beneficial to the hunter. Sounds that are related to baiting become "bear calls." Make noise: pound a bucket on logs, talk, sing, or

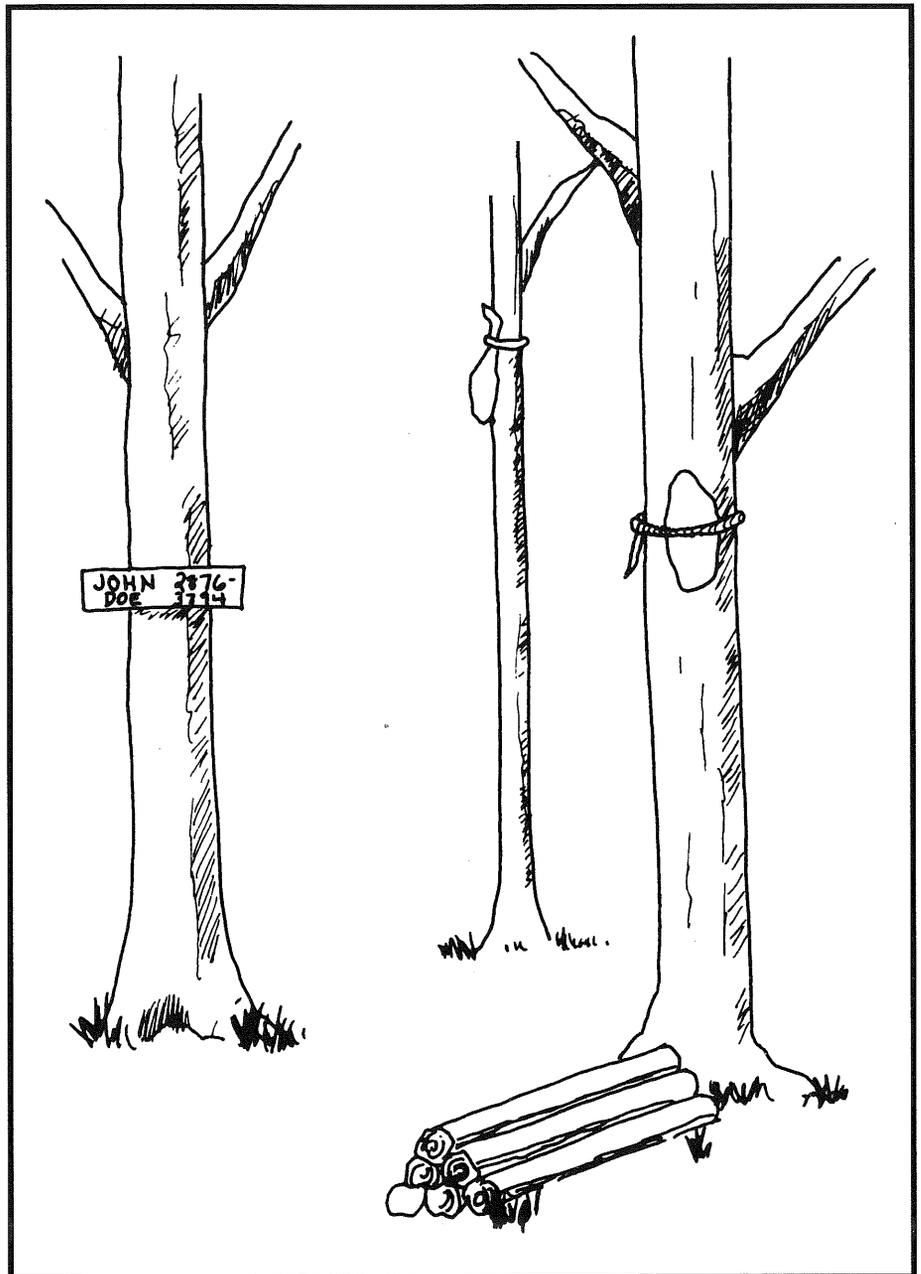


Figure 6

cough. Develop a routine and follow it every time you visit the bait site. Repetition is the name of the game.

The amount and quality of bait is very important when trying to influence the behavior of a cunning, but shy animal like a bear. Fresh bait in an amount that a bear can “clean up” in one day will keep a bear coming back for more “good stuff.” Leaving a large amount of bait that will rot before you come back may cause a bear to leave your area and look for better “groceries.”

Bears readily eat sweets. Sweet bakery products work well once the bear has found your bait site. About two gallons each day can be used to keep the bear coming back for more. You may want to use molasses to sweeten your bait. Mix one pound of sugar with two quarts of molasses, pour the mixture over the bait—either inexpensive dry dog food or stale bread—and place the bait under the cover logs. Do not pour molasses over sweets or meat scraps: the molasses will mask the odor and taste of these foods. Small grains or shelled corn can make a good base as well.

Fresh meat scraps always work well. About two gallons of good meat scraps is plenty. If meat spoils to the point where beetles and maggots are present, move your bait site a few feet to the side. Make the bear look forward to your handouts; don't make it sick. When it's time to hunt, make sure the bait is in your shooting lane.

“Old bait burnout” may be a new phrase to hunters, but you need to be aware that it happens. Many times a hunter will have a bait working well, then when hunting begins, the bear stops hitting the bait or is hitting it very irregularly. Why? It could be that the bait has been there too long. Timing is very important: the newer the bait, the more bear activity it will generate.

Your first trip to the woods can be a scouting trip where you place test baits to find out where the bear are. Then three or four days prior to the beginning of the hunting season, establish your bait sites. The newness of the site plays a big role in attracting bear.

Ravens may be the best “bear call” in Minnesota. When a raven finds your bait, it will sound off, “bragging to the rest of the world what it has found.” Every scavenger in the area, including

bear, will know that a possible food source has been located. (Wild animals rely on one another's communication signals to indicate the presence of danger and food.)

Be alert for protective surveillance. A bear that is protecting bait from other bears and scavengers may stay close to it. When you're ready to hunt, make an effort to move the bear away from the bait site. Do not scare it off. Use the same routine as you did when baiting the site: cough, talk, or sing along the way so that the bear will hear you coming and move off. After freshening the bait, walk around it at a distance that is far enough out to keep the bear out of sight. This will give you time to get settled on your stand without being seen.

Bears are not naturally nocturnal animals. Research has shown most bear movement during late August and early September is from 8 a.m. to 8 p.m. Bears become nocturnal when dealing with people.

When the weather is hot, experienced hunters may harvest over 50 percent of their bear in the morning. With normal weather conditions, they harvest 30 to 40 percent of their take in the morning. Do not be afraid of chasing a bear off of a bait when you approach your site in the morning. You do not have to go to the stand while it's pitch black, wait until it is light enough to allow you to find your stand without fear of falling or walking into a tree. Follow the same routine as when baiting and enjoy your time. Stay on your stand until 9:30 or 10:30 a.m., or longer if you're comfortable. Unnecessary movement can alert bear to your presence.

When hunting in the evening, be on your stand no later than 4 p.m. If you have a comfortable stand, you can get there even earlier. Comfort is a most important consideration when hunting. You need to be able to sit quietly without moving for long periods of time in order for a bear to come to your bait site. A good book may help pass the time.

Questions for the Conservation Officer

"Plan you hunt and hunt your plan." This advice is a "must do" for bear hunters that want a safe and successful hunt. Part of the plan includes knowing and following the bear hunting regulations. Often hunters accept what they think they have heard to be the correct regulation. Hunters must study and learn the regulations each season as regulations are updated yearly. Also, hunters must know the regulations for the area of the country or part of the state they will be hunting; regulations vary for different parts of the country.

Conservation officers are often asked questions related to hunting regulations. The questions and answers that follow are some that conservation officers are frequently asked. Use them to help you understand and follow the regulations they are addressing.

The regulations that are addressed in the following paragraphs were correct at the time of writing. It is the hunter's responsibility to determine the current regulations.

When can we start baiting?

No person can establish a bait station prior to the Friday that is nearest August 14.

What kinds of bait are legal?

Bear will eat rolls, pastry, candy, dog food, molasses, apples, and other fruits. You may not use an animal carcass if it is more than 25 percent intact, meat from mammals if it contains bones, bones of mammals or solid waste containing bottles, cans, plastic, paper, or metal. Also, you may not use any pork or pig product unless it is cured. There is a good chance that if you are hunting around oaks and their acorns start to drop, the bear will abandon the bait station and chow down on the acorns. Plastic buckets or other non-biodegradable containers used to carry bait may not be left at the bait site.

Where can I bait?

A bait can be placed on public land that is open to hunting or private land with landowner permission.

When do I need to register my bait stations?

The bait station registration needs to be sent in no later than the next postal service day following placing the bait. You need to send in the name, address, and telephone number of the person who established the bait station, as well as the county, township, section, and range. It is extremely helpful to have a plat book to find this information. This registration requirement also applies to "test baits" that are placed for purposes of finding out if there are bear in a particular area. If the "test baits" are placed prior to the baiting season, then they become a "food station" and no bait may be placed within 100 yards of that site after legal baiting begins.

How far from the bait can I put my sign?

It needs to be from six feet to 10 feet above the ground and not more than 20 feet from the bait. The sign needs to be made of plastic, wood, or metal and be at least six inches by 10 inches in size. The name and address or name and driver's license number of the person who placed the bait sign must be painted or impressed on the sign. This sign has to be removed within 48 hours of the close of the season.

If I am feeding bears prior to the start of the baiting season, can I hunt in that area or start a bait station there when the time comes?

You may not set up a bait station within 100 yards of a site where bait was placed prior to the Friday nearest August 14. You also cannot hunt within 100 yards of an unsigned or unregistered bait station. The distance restriction for garbage dumps is one-

half mile. In the BWCAW, you may not establish a bait site at all. You may have an attractant, such as burning honey, but it must always be attended. Also, you may not hunt within 150 yards of a campsite.

Can a friend of mine put out bait for me?

A person may place bait for another if there is no fee for doing so. If a fee is charged, the person needs a bear guide license.

Can I shoot a nuisance bear with my license?

If you are interested in shooting a nuisance bear, you need to contact the conservation officer as soon as you get the notice that you were successful in the drawing for the license. Don't call the conservation officer in the middle of the season looking for a nuisance bear when your baits are not being hit. The hunter must have a license for the correct permit area and may only hunt in the area where the complaint exists. Any nuisance bear that is shot must be registered within 48 hours with the conservation officer who issued the permit. You may not shoot another bear that year. If you are interested in shooting a nuisance bear, you must be serious about working with the conservation officer and the landowner to kill the bear causing the problem. In other words, you need to kill the targeted bear even if it isn't the color or size you may have wanted. During July and August when bear may become "nuisance bear," it is imperative that you recover the animal, get it cooled down and processed as quickly as possible. It would be considered "wanton waste" to fail to take proper care of the harvested animal and have the meat spoil. This also applies during the regular season. It can become very warm in September so care must be taken to get the animal to a cooler or locker plant. It's a good idea to make arrangements for storing the meat before your hunting trip. Get the home telephone number of the butcher so that you can get the bear into a cooler even if it is after normal business hours.

If I apply for a permit area and don't get drawn, may I buy a license for a no-quota area?

Yes, you may purchase a no-quota license from the license bureau or county auditor's subagents in the no-quota counties.

What is an easy way to tell if the bear is a cub or an adult?

Cub bears have ears that are spaced close together. Adult bear's ears are spaced further apart. Have some pre-cut sticks of known lengths driven in the ground near your bait to help determine the relative size of the bear. Perhaps you could use some six-foot logs to cover your bait. This could also help to determine the bear's size.

If I hunt by archery, is it OK to carry a firearm?

It has been legal to carry a firearm while archery hunting for bear since 1997. If you plan on using it to dispatch a wounded bear, it has to be a caliber that is legal for the taking of big game.

Someone wants to buy my bear hide if I shoot a bear. Is that OK?

You are allowed to sell teeth, bones, hides, or claws. You may not sell meat, organs, or the paws unless the paws are attached to the hide.

What firearms are legal for shooting bear?

Since bear are big game animals, the restrictions for big game apply. It is recommended that only the larger caliber rifles and shotguns be used.

It is legal to party hunt for bear?

No. You may not shoot another person's bear or tag a bear shot by another. If a group wants to hunt together, they may do so by applying on one application (up to four persons) in one envelope. Preference will be determined by the applicant with the lowest preference.

What are the legal shooting hours for bear?

Shooting hours are one-half hour before sunrise to one-half hour after sunset. Frequently, a bear is shot at or near the end of the day and needs to be tracked after dark. Although the letter of the law says that you may not take a wild animal during closed hours, most conservation officers would like you to make a sincere effort to retrieve a wounded bear. A call to the conservation officer will go a long way in these cases. Chances are that a mortally wounded bear may not go more than a couple hundred yards. The light from a Coleman type (white gas) lantern causes the blood to "fluoresce" which makes it easier to see. A roll of toilet paper to mark the blood trail works well. Many officers will allow one person in the search party to carry a gun and allow one hour to find the bear. If you haven't found the bear in an hour, chances are that it wasn't hit that well and it may be better to try again in the daylight.

Tracking and Care of Your Bear in the Woods

1. Practice positive thinking.
2. Be prepared to care for your bear. You'll need a compass, knife, rope, and toilet paper. In warm weather, you should include a canteen of water, pepper, and game bag.
3. You have taken a shot. Notice the bear's behavior after the shot. Watch for flinching, wobbling, or stumbling.
4. Mark the spot where you took the shot unless you were on a permanent stand. Proceed to the spot where the bear was last seen and mark that place also. Backtrack from the place where the bear was last seen to the place where it was fired upon. Watch for signs of blood and hair. The color of the blood may indicate where your shot struck the bear.
5. The weather conditions, time of day, and where the bear was hit will determine when to start trailing.
6. Orient yourself to the area that lies ahead. Have a good compass and know how to use it.
7. Do not go for help unless you can relocate the exact spot. Better yet, leave a marked trail: use the toilet paper you brought with you.
8. If help is present, do not let them rush ahead of you to look for the bear. They may destroy vital signs.
9. If an bear is badly hurt, it will head downhill or take the route of least resistance, head for heavy cover, try to double back to its home range, or head for water.
10. When you recover the bear, approach it carefully. See if it is breathing and look at its eyes—they will be glazed over and dull if it is dead.
11. If the bear is dead, don't cut its throat. Many trophies are ruined this way. It's not necessary to bleed the bear—this will happen during field dressing.
12. Check and double check all bear that were shot at. A bear may not react as if it were hit, and yet it may have been.

Handling your black bear trophy and meat

Before the hunt

1. If you hire a guide, you should ask about how much assistance you can expect from the guide and if handling the trophy and meat is included in the service.
2. Contact a reputable taxidermist and get detailed instructions for skinning the animal. You should also inquire about prices and various options available for your finished trophy. Even if you don't want to preserve the trophy for yourself, you have an ethical responsibility to see that it is not wasted. The law allows for the sale of bearskins in Minnesota if all legal requirements are met. You may wish to consider this option.
3. Custom meat processors that can cut, trim, wrap, grind, and blend bear meat are located in many communities in the bear range. You should contact these services in advance of your hunt and ask about their hours of operation. You probably won't get to a processing facility until late at night, so it's important to make sure of the hours when they will accept a carcass. Local gas stations, grocery stores, or sports shops may be good places to inquire about custom meat processing. This is also a good time to locate the nearest bear registration station. You might also be able to obtain processing information from staff at the registration station.

If you must travel a long distance or have not found a processor, plan to skin the animal immediately, leaving most, if not all, of the fat on the carcass. Try to avoid making holes in the skin, though a few minor cuts aren't a problem for the taxidermist.

Keeping meat palatable

Hunters develop their own techniques for handling meat and skins. No doubt, there will be differences of opinion among hunters about which method is best to employ. The following serve as guidelines only, and any alternatives you devise that achieve the same results are satisfactory, perhaps even better.

Handle bear the same way you would handle any other big game: allow the body heat to escape from the meat and cool the carcass as quickly as possible. Bearskin is an excellent insulator. It must be removed from the carcass as soon as possible. While it isn't pleasant to have to skin a bear by lantern or under car headlights, resist the temptation to leave the job of skinning until morning even if you're bone tired. Not skinning the animal immediately will result in a complete waste of good meat and possibly the loss of a fine trophy. If you're hunting in a party, you can work together to reduce the time it takes to properly dress a bear.

Removing the viscera, or entrails, is done in the same manner as any big game. However, you need to be especially careful not to get large quantities of blood on the hair side of the skin. This isn't critical, but it makes further handling, skinning, and the taxidermist's job much easier.

If some members of the party are more adept at skinning than others, use their skill and follow their advice. Normally when an animal is skinned in the field, the skull, paws, and a section of each lower leg bone should be left attached to the skin. This allows taxidermists to finish skinning out these areas to their own satisfaction.

After you've removed the entrails and skinned the animal, remove the fat layer from the carcass. In September, the fat layer on a bear will be one to three inches thick and, depending upon the size of the animal, will nearly fill a 20-gallon garbage can. Removing the fat is similar to a "second skinning." It can be removed in strips. The process is much easier in cold weather when the fat is solidified. It is also less urgent under such conditions since meat spoilage will occur more slowly. If temperatures are warm, and the fat is semi-liquid and translucent on the surface, then quick removal is essential to preserve the flavor of the meat. The fat should be saved because it can be used for cooking, leather preservation, or lubrication.

After the fat is removed, split the carcass lengthwise. A gambrel, one made for this purpose or one fashioned from a heavy stick, is needed to spread the hind legs and support the carcass when it's hung from a tree or another structure. A carpenter's crosscut handsaw or a coarse-toothed meat saw can be used to split the carcass by sawing down the midline, from the base of the tail to the neck. One person standing at the front, and one positioned at the back of the carcass, can assist in sawing and steadying the carcass and help guide the saw to make sure the midline is followed closely. If done properly, each vertebra will separate into right and left halves, and the saw will follow the center of the spinal cord.

After the carcass is split, it can be reduced to any number of portions for cooling. If necessary, portions can be cooled by arranging them in several ice chests. Putting the meat in water is discouraged by some, but this alternative is far better than letting it spoil. Portions shouldn't be placed in plastic bags before they're iced because the plastic will retain heat and insulate the meat.

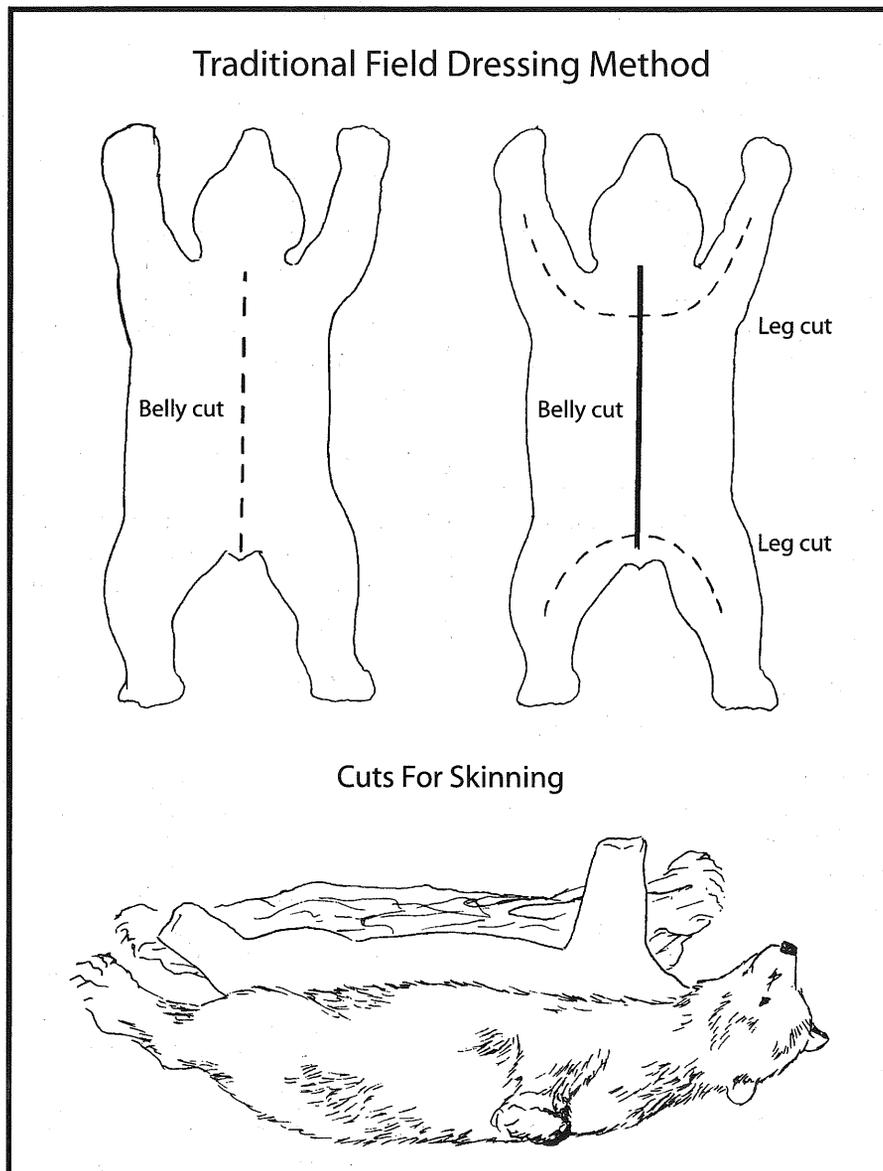
If you have friends or relatives in the area where you plan to hunt, you may be able to borrow space in their home freezer. The quarters or smaller portions should be placed in plastic or cloth bags which in turn are placed in the freezer (without the bags is better). Plastic bags help to retain heat, and the quartered meat will be firm, not frozen if left overnight. Smaller portions will become frozen much more quickly. If you allow the meat to freeze solid, the flavor may be affected if it must be thawed again before final cutting and wrapping. Partial freezing—cooling until firm—is a good idea if you can't get to a processor until morning. Any method of cooling your bear meat is better than none.

Bear liver contains an extremely high concentration of certain "B" vitamins. It may be toxic and should not be eaten. Bear meat will not retain its flavor for a long time, even if it is carefully handled, packaged, and frozen. Double wrapping will prolong the freezer life somewhat, but even with that precaution, it will begin to lose flavor after six to eight months in the freezer. If you don't plan on consuming the meat within this time period, you should consider giving some of it to others. Transfer of any wild animal meat as a gift is lawful, as long as the meat is legally marked and identified.

Bear hide preparation for taxidermy purposes

Source: American Taxidermy Incorporated

1. Be sure the field dressing cut is down the center.
2. Skin the bear as soon as possible; leave paws and head in, if necessary.
3. Place the hide in a cool place until the body heat is gone.
4. Fold the hide in half; hair inside, hide outside to allow for faster cooling.
5. Place the cooled hide in a plastic garbage bag.
6. If freezing is not possible, do not put the hide in plastic. Just keep it cool and transport it to a taxidermist as soon as possible.
7. If freezing or a taxidermist is not available for more than 24 hours, skin out the head and paws, flesh the entire hide, and salt it thoroughly using un-iodized salt.
8. Never wash a hide with water, or drag or hang a bear by the neck.



Using a Compass and a Map

Hunter's responsibility

It is the hunter's responsibility to know:

- How to get where you want to go
- Where you are (whose land you are on)
- How to get back to where you started from

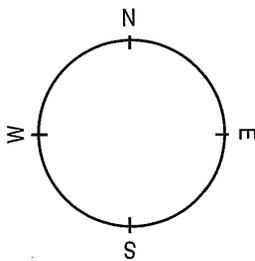
Safe and responsible hunters learn to use a compass and to read and use a variety of maps so they do not get lost. Getting lost generally occurs when a person lacks navigating skills or poorly planned the outing or both. Getting lost results in much undue stress for family, partners, and friends, not to mention the considerable cost incurred in attempting to find the lost hunter. It seems ironic that on many occasions when missing people are finally recovered, they are carrying a compass. When asked why they didn't use the compass to find their way back, their reply is either they didn't know how to use it, or they didn't believe what the compass was telling them.

The following section on map and compass is designed to introduce you to navigating with the use of map and compass—tools that can help you become a more responsible hunter.

How to use a compass

Using the compass alone

Learn the directions on the compass first: North, South, East, and West. Look at the figure and see how they are positioned. North is the most important.



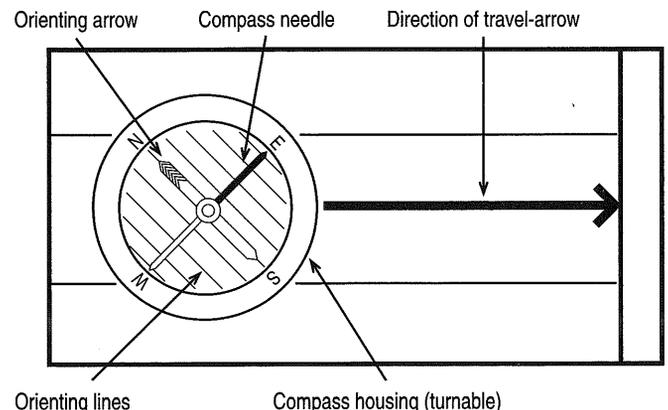
The orienteering compass

The red and black arrow is called the compass needle. On some compasses, the arrow might be red and white, but the red part of it is always pointing towards the earth's magnetic north pole. The needle is contained in the compass housing. On the edge of the compass housing, there is a scale from 0 to 360 indicating degrees, or bearing. Generally, the letters N, S, E, and W are used for North, South, East, and West. If you want to go in a direction between two of these positions, you would combine them. For example, if you want to go in a direction just between North and West, you simply say: "I would like to go northwest."

Let's use that example: You want to go northwest. You find out where northwest is on the compass housing. Then you turn the compass housing so that "northwest" on the housing comes exactly where the large direction of travel-arrow meets the housing.

Hold the compass flat in your hand so that the compass needle can turn. Then turn yourself, your hand, and the entire compass (just make sure the compass housing doesn't turn) until the compass needle is aligned with the lines inside the compass housing.

Now, it's time to be careful! It is extremely important that the red, or north part of the compass



needle, points at north in the compass housing. If south points at north, you would walk off in the exact opposite direction of where you want to go! So always take a second look to make sure you did it right.

Another problem you might encounter is local magnetic attractions. If you are carrying something made of iron, it could disturb the magnetic needle. Even a staple in your map might be a problem. Make sure there is nothing of the sort around. There is the possibility for magnetic attractions to exist in the soil as well. This is known as "magnetic deviation." While rare, magnetic deviation might occur if you're in a mining district.

When you're sure you've got it right, walk off in the direction the travel-arrow is pointing. To avoid getting off course, make sure to look at the compass quite frequently, say every hundred yards at least, but don't stare down on the compass. Once you have your direction, aim on some point in the distance, and go there.

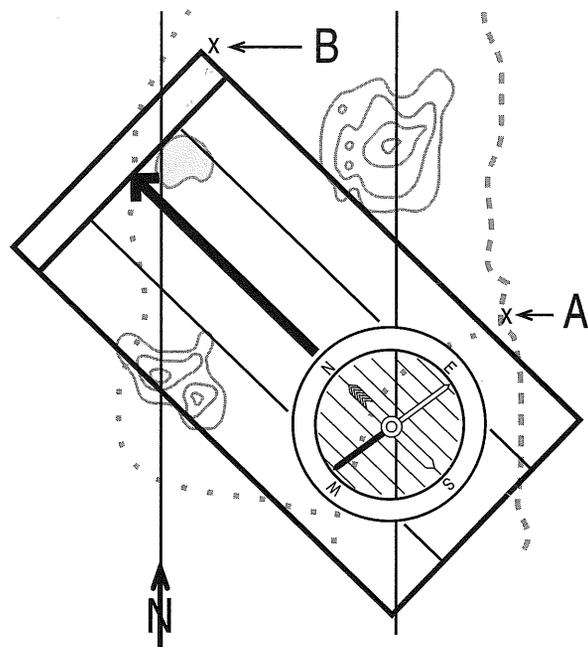
When do you need to use this technique?

You'll need to use this technique if you don't know where you are and you're without a map. However, you do know that there is a road, trail, stream, river, or something long and big you can't miss if you go in the right direction. And you know in what direction, or the approximate direction, you must go to get there. Then all you need to do is to simply turn the compass housing so that the direction you want to go is where the direction of travel-arrow meets the housing and follow the steps listed above.

Using the compass in conjunction with a map

It takes practice, but before long you'll be able to use a compass along with a map to help you navigate terrain you've never been in before safely and accurately. Say you want to go from the trail crossing at "A," to the rock at point "B." Of course, to use this method successfully, you'll have to know you really are at "A." Put your compass on the map so that the edge of the compass is at "A." The edge you must be using is the edge that is parallel to the direction of travel-arrow. Then put "B" somewhere along the same edge, like it is on the drawing. Of course, you could use the direction

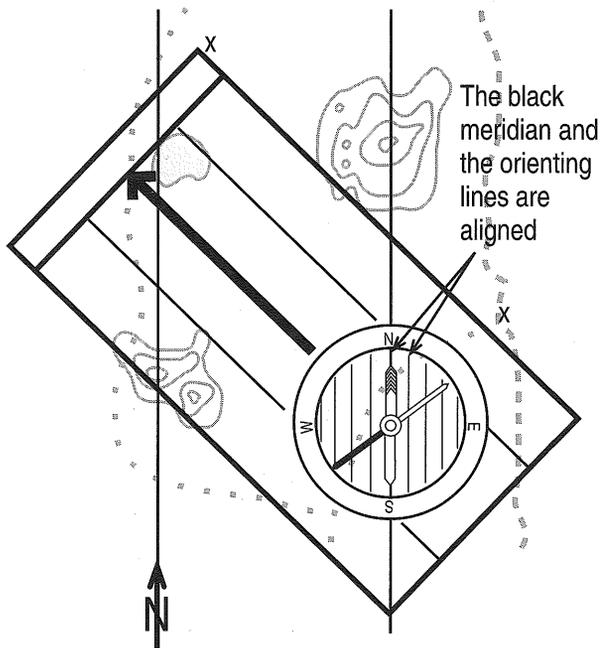
arrow itself, or one of the parallel lines, but it's usually more convenient to use the edge.



Take careful note: the edge of the compass, or rather the direction arrow, must point from "A" to "B." If you do this incorrectly, you'll walk off in the exact opposite direction of where you want to go! So, take a second look. Beginners often make this mistake.

Keep the compass steady on the map. Next, align the orienting lines and the orienting arrow with the meridian lines of the map—the lines on the map going north, that is. While you have the edge of the compass carefully aligned from "A" to "B," turn the compass housing so that the orienting lines in the compass housing are aligned with the meridian lines on the map. During this action, you don't need to be concerned with what happens to the compass needle.

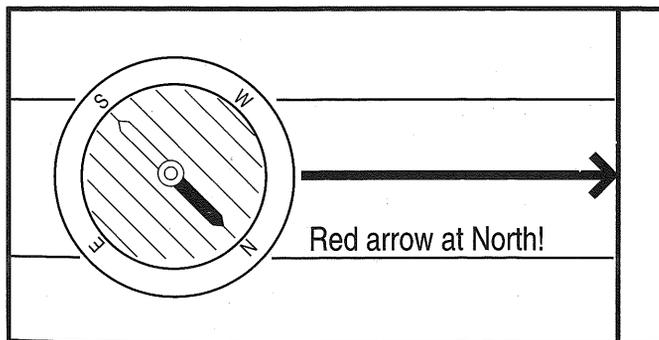
However, there are a number of serious mistakes that can be made here. First, let's discuss the problem of going in the opposite direction. Be absolutely certain that you know where north is on the map, and be sure that the orienting arrow is pointing towards north on the map. Normally, north will be "up" on the map. It is possible, though, to make the mistake of letting the orienting arrow point towards south on the map.



Keep an eye on the edge of the compass. If the edge isn't going along the line from "A" to "B" when you have finished turning the compass housing, you will have an error in your direction which will take you off your course.

When you're sure you have the compass housing right, you may take the compass away from the map. Now you can read the bearing off the housing from where the housing meets the direction of travel-arrow. Be sure that the housing doesn't turn before you reach your target "B."

Hold the compass flat in your hand so that the compass needle can turn. Then turn yourself, your hand, and the entire compass making sure the compass housing doesn't turn. Turn it until the compass needle is aligned with the lines inside the compass housing.



The mistake is again to let the compass needle point towards the south. The red part of the compass needle must point at north in the compass housing, or you'll go in the opposite direction.

It's time to walk off, but you'll need to do that in a special way as well in order to do so with complete accuracy. Hold the compass in your hand, the needle well aligned with the orienting arrow. Then aim, as carefully as you can, in the direction that the travel-arrow is pointing. Fix your eye on some special geographic feature—one that is located as far as you can see in that direction. Then go there. As you go, be sure that the compass housing doesn't turn. If you're in a dense forest, you might need to aim several times. Hopefully, you will reach your target "B" when you do this.

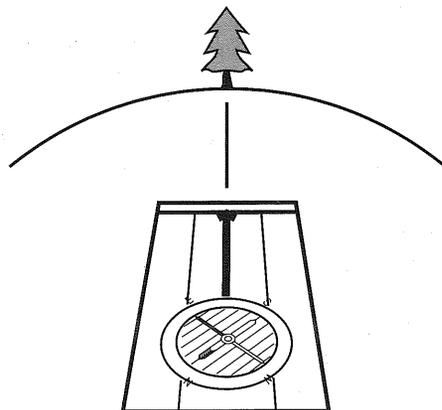
At this time, you may want to go out and practice reading your compass.

Magnetic declination

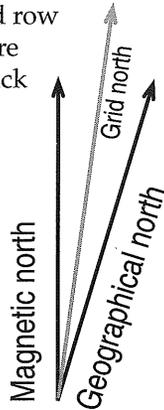
Unfortunately, there is something called "magnetic declination." Magnetic declination occurs when the compass needle points towards the magnetic north pole and the map is pointing towards the geographic north pole, but they are not the same place.

First, you'll have to know how large the declination is in degrees. This depends on where on earth you're standing. Topographic maps from the U.S. Geological Survey give the declination for the map. You have to remember, the declination changes significantly in some areas, so you'll need to know what it is this year.

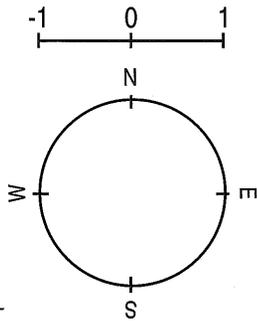
The declination is given as, for example, "15 degrees east." When you look at the figure, you can pretend that plus is to the right, or east, and minus



is to the left and west—like a curved row of numbers. When something is more than zero, you'll subtract to get it back to zero. And if it is less, you'll need to add. In this case, you'll subtract 15 degrees to the bearing by turning the compass housing, according to the numbers on the housing. Now, finally, the direction of the travel-arrow points in the direction you want to go. Again, be careful to aim at some distant object, and off you go.



There is a fast method to find the declination wherever you are. This method is advantageous because it corrects for any local conditions that may be present. This is what you do:



1. Determine by map inspection the grid bearing from your location to a known, visible, distant point. The further away, the more accurate it gets. This means you have to know where you are and be pretty sure about one other feature in the terrain.
2. Sight on that distant point with the compass and note the magnetic bearing. Do this by turning the compass housing so that it is aligned with the needle. You now read the number from the housing where it meets the base of the direction of travel-arrow.
3. Compare the two bearings. The difference is the declination.
4. Update as necessary. You shouldn't need to do this very often, unless you travel in a terrain with lots of mineral deposits.

Uncertainty

You can't always expect to hit exactly what you are looking for. In fact, you should expect to get a little off course. How much you get off course often depends on the things around you; for example, how dense the forest is, if there is fog, and above all, visibility. Ultimately, it depends on how accurate you are. You do make things better by being careful when you take a course, and it is important to aim as far ahead as you can see. As a rule of thumb, under normal forest conditions, the uncertainty is one-tenth of the distance traveled. If you go 200 yards on course, it is possible that you end up a little off course by perhaps 20 yards or so. If you're looking for something smaller than 20 yards across, there is a chance you'll miss your mark.

Practice! Practice! Practice! Get a compass and a topographic map of an area that you're familiar with and use them together.

Certification and Class Information

- For duplicate Advanced Hunter Education, Bowhunter Education, Firearms Safety, and Snowmobile Safety certificates, call 1-800-366-8917. There is a charge for the duplicate certificate.
- For a listing of Firearms Safety and Snowmobile Safety classes, call 651/296-4819.
- For a listing of Advanced Hunter Education and Bowhunter Education classes, call 651/296-5015.

For more information, contact:

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