



How to use this tool

- To enhance current Bear safety training within your organization
- To develop a Bear Aware training program
- To develop a safety bulletin or internal training memo for posting
- To provide an educational component to crew safety meetings/tailgate meetings

Recommended delivery

- The bear safety training can be presented on its own or as part of your wildlife and insect training.
- This tool contains photographs that should be presented to help workers develop their skills in identifying bear species and their associated traits while working in the field.

Suggested practices

- Orientation - During the orientation process workers should be introduced to information about bears including basic information on habitat, diet and annual cycles; identification of black and grizzly bears; bear signs (tracks, tree markings, carcasses, scat, etc) including the significance of each sign and clear, written instructions as to what actions workers are to take when evidence of bears or bear activity is detected.
- Safety Bulletins/Alerts - In addition to company methods for reporting and communicating to on-site workers, close calls or incidents with bears should be communicated across the company using your own process or forms and to industry using the Safety Alert templates. This package may provide additional background information to include in the Alert.
- Crew Talks/Safety Meetings - Refresh and expand worker knowledge - Changes in bear/wildlife behaviour cycles (mating/feeding/birthing seasons) are great opportunities to remind workers of their wildlife training during crew talks, company safety meetings or in printed company safety materials.
- On-site orientations/Visitor Orientations - Provide further information and training on proper bear 'housekeeping' at start-up safety meetings when establishing bush camps.
- Program Development – Management and/or the Joint Health & Safety Committee can use the information provided to further expand or develop in-house training programs.

Bear Safety Resource Package



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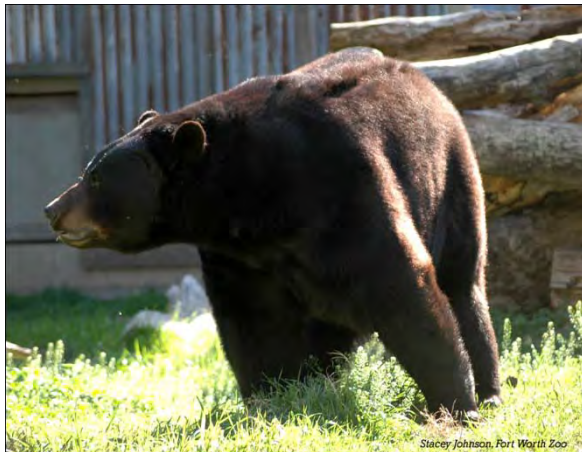
Bear Identification

Seeing a bear can be one of the most memorable experiences of working in the woods, but it is our responsibility to respect the bear in its home. This means we must not force bears to leave their habitat, teach them to eat human foods, or place bears in situations where people or bears could get hurt. Preparation and education are essential to ensure our encounters with bears in the wild are positive and free from conflict.

Bears are everywhere. We see them on the side of the highway, on logging roads, on the way to a bushcamp, near towns, or in the bush when working. Bears will usually hide from people, but remember: just because you don't see a bear, it doesn't mean they aren't around.

British Columbia has about one-quarter of all black bears in Canada, and half of all grizzly bears. Both species are found throughout the province, with very few exceptions. There are no grizzly bears on Vancouver Island or on the Queen Charlottes, for instance, and there are few or no grizzlies in the heavily-settled Lower Mainland or the dry, southern areas of the province.

The Black Bear, (*Ursus americanus*)



Black Bear Physical Characteristics:

Colour: Black, brown, cinnamon or blonde. May have a white patch on the chest. (Spirit Bear is a “white” black bear.)

Size: Usually smaller than the grizzly; adult male black bear can weigh as much as 270 kg or 600 lbs. and the female can reach up to 225 kg or 500 lbs

Stature: Black bears have a smaller and less robust build than the Grizzly bear.

Facial features: Black bears’ ears are proportionately large compared to their head. Black bears have a longer and straighter nose – “Roman nose”

Senses: Black bears rely on their excellent sense of smell to locate and find food and to identify danger. Their hearing and eyesight are well developed, but they rely on their sense of smell for finding food.

Body features: Black bears have shorter, curved claws and this enables them to readily climb trees.

Speed and Agility: Black bears can run 40 km/h over short distances. They are agile runners both up and down hills. Black bears are excellent swimmers.

The Grizzly Bear, (*Ursus arctos horribilis*)



Grizzly Bear Physical Characteristics:

Color: Black, brown, cinnamon or blonde. Their fur is often white-tipped or frosted on the body with darker legs, which gives them a “grizzled look”; hence the name Grizzly Bear.

Size: The adult male grizzly can reach up to 550 kg or 1400 lbs, females can reach up to 450 kg or 1100 lbs. The males are almost twice as large as the females. Most males weigh 250 – 300 kg and the females are about half that size.

Stature: Grizzly bears are the larger of the two species. Kodiak Bears are a sub-species of the Grizzly Bear and are larger than Grizzly Bears.

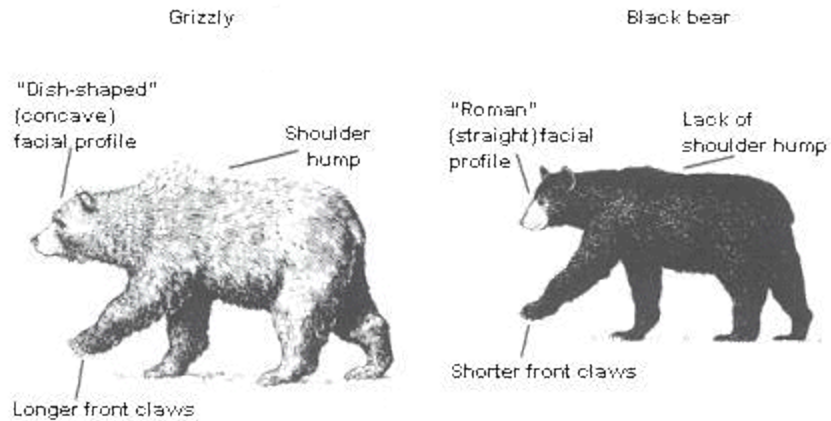
Facial Features: Grizzly bears have a dish-face with proportionally smaller ears. Grizzly bears have a blind spot and must turn their head to view you because their face is flatter.

The subspecies Kodiak bear (*Ursus arctos middendorffi*)



It is important to know which species of bear will be in the areas you are working in; either Black Bears or Grizzly Bears or both. Black bears and Grizzly Bears will react differently in the same situation: the Grizzly bear being the more aggressive of the two species. However, both species will usually avoid humans whenever possible.

How to distinguish between a Grizzly and a Black Bear

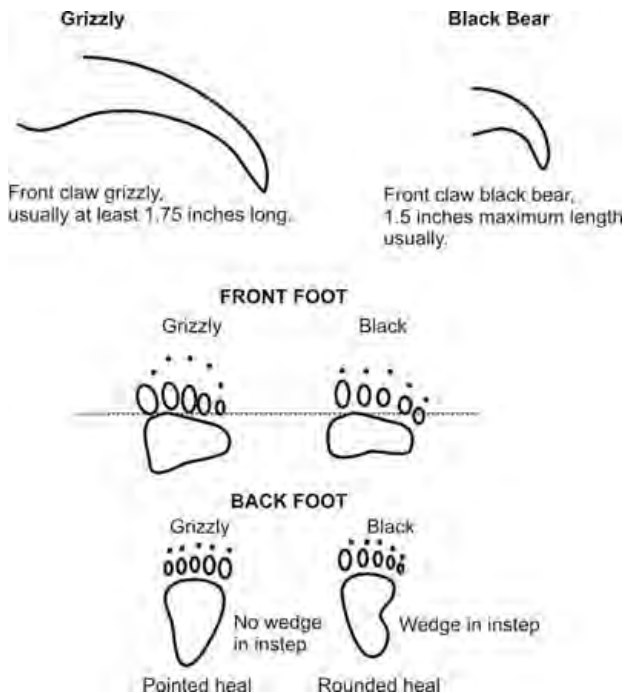


Foot print

Differentiating Grizzly and Black Bear Tracks

A bear's track can assist you in determining which species of bear has passed through the area. The toes of a black bear arc more whereas the grizzlies are more in a straight line and are set closer together. When claw marks are left, the claw length is a good indicator as to which species left the print. The grizzly bears claws are much longer than the black bear's claws.

Place a straight edge at the base of the big toe and line it up along the top of the pad; if the line passes below the middle of the small toe, this indicates a grizzly bear. If the line passes above the middle of the small toe then it is probably the track of a black bear.



These tracks were made by a large grizzly

Black Bear or Grizzly Bear?



Identification exercise Answers

Top Left – Two black bear cubs in a tree. The large ears in relation to the head size and the short front claws were your physical indicators.

Top Right – Grizzly bear. This one is a trick question. You should never try to identify a bear with a straight-on view. You need to see the bear from a side view to tell which species you are dealing with.

Bottom Left – Grizzly bear, the shoulder hump is obvious.

Bottom Right – Black bear, the shorter front claws and large ears and straight face profile were your physical indicators. However, the hair on his back is up and you could mistake him for a grizzly if you were looking for just the shoulder hump. Remember that color is not an indication of which species of bear you are looking at.

Bear Ecology and Biology

Habitat

Distribution of Black and Brown Bears:

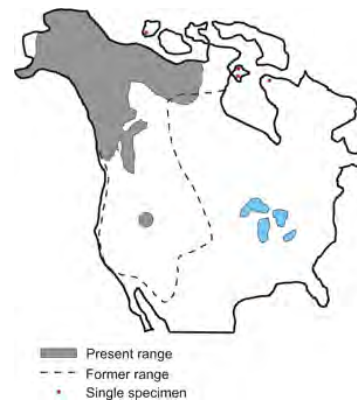
The Black Bear is found in all provinces in Canada except for Prince Edward Island; and can be found in 32 states of the United States. It is also found in parts of Northern Mexico. The Black Bear prefers forested areas where they can escape to the safety of the trees if they feel threatened. Black bears will have a readily available source of water nearby. Black bears have a wider distribution than grizzly bears.

There are approximately 500,000 Black Bears in North America; 40,000 located in Alberta. The highest density of Black Bears in Alberta can be found in the Cold Lake Region of the province. There are approximately 100,000 Black Bears in British Columbia.

The Spirit Bear, found in the Queen Charlotte Island Area along the BC coast is a white, black bear. (Note: Spirit Bear is not an albino black bear; it has a rare double-recessive gene that allows this color adaptation to occur. There are fewer than 100 of these bears left along the BC coastline.



Distribution of **Black Bears** in North America.



The **Grizzly Bear** has a more diminished distribution in North America

Grizzly bears are now an endangered species in the United States with approximately 1000 brown bears left in the lower 48 states. The Grizzly bear's range is diminishing in Canada at an alarming rate. In Alberta, according to The General Status of Alberta Wild Species 2000 (Alberta Sustainable Resource Development 2001), the grizzly bear is considered "May Be at Risk" in the province. There are presently 790 Grizzly bears in Alberta with 56 of the 790 considered transient bears (i.e. 56 have a range in Alberta and British Columbia). Although the grizzly bear evolved and adapted to life on the open plains or steppe animals and was once common on the Great Plains of North America, it has now been forced to select regions of rugged mountain terrains or remote forests that are undisturbed by humans. The grizzly bear may frequent lower elevations and lowlands depending on the available food sources, usually along a waterway. The grizzly bear will also be found at higher elevations in open alpine meadows with dense low bushes readily available for hiding in. Grizzly bears will move to areas where there is a readily available food source.

Diet

The Black Bear's Diet:

Black bears leave their dens in April or May depending upon the seasonal variations in temperature. Bears have lost up to 30% of their pre-denning weight over the winter months so from the time a bear leaves its den it has one objective for the entire season – to eat. Most bears continue to lose weight during the early summer period until mid-July when the berry season begins.

A black bear is an omnivore and will eat a variety of foods. The bear's food sources change over the months as different food sources become available. When it leaves the den in April or May, the black bear will forage for grasses and early plant growths in burned or disturbed areas. They may forage near streams during salmon runs if such waterways are available to them. They will eat any carrion they come across after the winter is over.

During the summer months when berries are plentiful, their diet will consist of the local available fruits such as: blueberries, buffalo berries, strawberries, elderberries, saskatoons, black cherries and apples. Up until this time, the bear has not been replacing the weight that it has lost during the winter months. It is during the summer when the bears can feast on berries that they truly begin to gain the weight that they will need to sustain them over the winter months. In the fall season, acorns and nuts are a main staple of the black bear. At any time during the summer, insects such as ants, grasshoppers, tent caterpillars, and beetles are on the menu. You may find overturned logs, stones, or torn up stumps where a bear has been foraging for insects. Trees containing honey is a special treat for black bears. They will eat both the honey and the bees!



Black bears will hunt for fish, small mammals and birds. Some black bears will prey on newborn moose calves, deer fawns or elk calves in the spring. Black bears were not considered predators, but new evidence suggests that they do actively hunt for food.

The Grizzly Bear's Diet:

Grizzly bears also leave their dens in April or May. The female with cubs will remain in her den longer, allowing the cubs to mature. As with the Black bear, the Grizzly bear has lost up to 30% of their pre-denning weight. When they leave their den, their one objective is to eat. Female grizzlies with cubs will move her young to remote areas; grizzly males will kill and eat the cubs.

Grizzly bears are omnivores. During the early spring, grizzlies will feed on roots, over wintered berries and new green vegetation. They may locate caches of nuts that squirrels have hidden. The grizzlies' long claws and powerful front limbs allow them to actively dig for food so they will seek roots and underground prey for food. They will hunt and actively prey on moose, elk, deer, caribou, mountain sheep and mountain goats and their calves. They have an excellent sense of smell and can locate carrion from miles away and will readily feed on it. If a grizzly bear comes across carrion, or has made a kill, they will remain close by until the entire carcass is eaten. Bears will stay on the carcass for several weeks until the entire carcass is eaten. (Parks Canada will not let people back into areas where bears are feeding on carcasses for at least 3 weeks. The area is first inspected to ensure that the carcass is devoured and the bear has moved off.)

The Grizzly Bear's Diet continued

Throughout the summer the grizzly bear will dig out and eat ground squirrels and if opportunity exists, they will concentrate along streams and rivers to fish. Although bears are territorial, they can be found in groups if there is an area with a rich supply of food, such as a salmon stream. At times like this, when food is abundant, numerous grizzlies will congregate and feed together. Coastal grizzlies can be found in group settings because of the rich supply of food.



Coastal Grizzly Bears digging for clams.

When there is enough food for all, grizzlies will congregate and feed together peacefully. Otherwise, they are very territorial and will not allow other bears to hunt in their territory.

During the berry season, late July, August and into September, grizzlies will feed on berries. They eat a variety of berries and will move upslope in mountainous areas as fall progresses and berries ripen at successively higher elevations. Again, it is during the berry season where the grizzly bear truly begins to replace their winter weight loss. Grizzlies will also enjoy a meal of many varieties of insects.

Kodiak bears rely on the much the same types of food as grizzlies. However, since they live in coastal areas that provide them with a richer supply of protein such as salmon, there is a 40% higher density of brown bears in these areas.

Cycles

The Black Bear's Reproduction Cycle:

The female Black Bear breeds for the first time between the ages of 3 and 7 years. Once bears breed the male leaves and the sow will raise the cubs on her own. Mating season is in June/July, implantation occurs in November. All bears have delayed implantation where egg does not enter into the uterus until a more suitable time for the female. If the food availability is scarce over the summer and fall months – the egg will not be implanted and the female will not produce a litter that year. If the female has had an abundant feeding season and has enough stored fat to be able to sustain both herself and the newborn cubs, the egg will be implanted into the uterus. Once the egg is implanted, true gestation begins. Embryonic growth in bears takes 2 months.

The young are born in the winter, during the months of January or early February. The cubs will weigh up to 1 pound at birth. By the time they are ready to hibernate in the fall, the cubs may weigh anywhere from 15 to 165 pounds, depending upon availability of food over the summer months. Black Bears produces litters ranging from 1 to 4 cubs at two to three year intervals. The young will usually den with their mother for their first winter and leave her in the following spring just before mating season. The female will often allow her young to remain in her territory but away from her so she is free to mate again in June/July.



*Black bear cubs. Newborn cubs do not hibernate - they must eat and grow.
These two weigh 4 pounds at nine weeks.*

Female Black bears with young will hibernate first, sometime around late October. Males tend to den-up later in the season; November or early December. Males often wait for the first snowfall before seeking a den-site.

Bears that have not gained sufficient weight over the summer months may wake up during the winter and head out to forage for food. Black bears will often dig a small hole near the base of a tree or near large rocks, or under a large pile of brush; they do not seek out caves.



*A Black Bear female and two cubs denning—in for the winter.
They have piled leaves to lie on.*

The Grizzly Bear's Reproduction Cycle:

The female grizzly bear will have her first litter of one to two cubs, between the ages of 5 to 10 years old, depending upon the local food supply. She will breed in 3 – 4 year cycles. Most grizzly females will give birth to 8 – 10 cubs during her lifetime.

Grizzly breed in the months of June/July and just as Black bears, they have delayed implantation – sometime in November. The fertilized egg will only be implanted into the uterus if the female has gained sufficient weight to be able to sustain both herself and the newborn cubs during hibernation. Grizzlies will bear one to two cubs per litter; the cubs are born in late January to early March. Cubs will weigh up to 1 pound at birth. The cubs will remain with their mother into the second and sometimes third spring after their birth. Even long past the weaning stage, grizzly cubs will not survive without their mother. They must learn all the survival skills necessary for them to fend for themselves.

Just as black bears, female grizzlies with cubs will den—in earlier than males, sometime around mid to late October. The males will den—in later, sometime in November. Grizzly dens are found in a variety of terrains, but are usually located where snow accumulates. Grizzly bears will sometimes dig a den in dry, stable soil, usually on sloping terrain. The entrance to the den leads to a sloping tunnel which leads to the actual sleeping chamber. The chamber is just large enough to accommodate the bear. The downwards sloping tunnel allows drainage of the den. Dens will usually face away from prevailing winds. Grizzly bears may also use rock caves and hollow trees as den—sites. Dens are usually only used once.

Bear Signs

When you are in the field you need to be aware of your surroundings at all times and be able to recognize bear signs. If there is evidence of a bear in the area, you may need to change your course of direction or leave the area all together.

Some bear signs are:

- **Fresh tracks:** It is often better to see the bear's tracks than to see the actual bear. If you can tell the direction that the bear is traveling in, it is prudent to change your course of direction. Bears will travel down the same pathways as people or other large animals use. (See picture under: Differentiating bear tracks). If you have a clear track you can determine which type of bear has passed through the area. If you see more than one track, you can tell that it is possibly a female with cubs. Avoid females with cubs!
- **Scat:** Bear scat will look different depending upon the bear's diet. Close examination of bear scat can sometimes give you an indication of what the bears have been eating at that time of year. If the scat contains remnants of human garbage, there is a human food conditioned bear in the area. These bears can/will associate people with food and can be the most dangerous type of bear to encounter.
- **Animal carcasses:** IF YOU COME ACROSS A CARCASS, LEAVE THE AREA IMMEDIATELY. Grizzly bears will often cover their kills for a few days and let it rot, then come back and eat it. THE BEAR WILL STAY CLOSE BY. Grizzly bears will defend their kill and this is a situation that will prompt a defensive attack by a bear.
- **Torn-Up Logs and Stumps:** Bears will forage for insects in dead logs and rotting trees. You will often see torn up logs and stumps, evidence of their foraging.
- **Evidence of Digging:** Holes dug into the ground are often made by grizzly bears digging for roots or ground squirrels. Grizzlies will dig for food in the early spring when they first leave their dens.
- **Claw Marks on Trees:** Claw marks can be left on trees by black bears when they have climbed up a tree. Grizzly bears will also leave claw marks on trees and on the ground. Bears will often chew a small tree or a sign-post, so watch for signs of chew marks along the trail.
- **Hair on Trees:** Bears will rub against trees, usually trees with rough bark, to scratch themselves. You can find evidence of bears by the hair left in the tree's bark. The higher the hair left on the tree, the bigger the bear. Remember that the bear will often stand on its back legs to scratch its back on the tree.
- **Daybeds:** Bears will be most active in the early morning and in the evening. It would be prudent for researchers to restrict their field activities during the bear's most active foraging times. During the heat of the day, bears will rest in daybeds. These can be shallow depressions of piled up leaves in the forest, trampled vegetation, a shallow scrape or a hole. Daybeds are usually located in cool places. Bears will make daybeds along streams and rivers. Daybeds are often associated with feeding places and therefore should be avoided.

Information on Bear Avoidance

Are bears dangerous to people?

While it is true that bears have the potential to be dangerous to humans and that a number of people in Canada are injured by bears every year, in reality, the incidence of attacks on humans is relatively rare. Recent research into bear attacks on humans has addressed questions such as: determining rates of human injuries inflicted by bears in different geographical or jurisdictional areas and attempting to explain any differences in these rates; identifying immediate and long-term circumstances which contribute to the risk of attack; identifying and relating different behaviours of grizzly and black bears with respect to bear attacks; and the potential application of such information in “managing” people and bears to reduce the risk of encounters and/or attack.

Conflicts with people? Grizzly bear mortality research

An analysis of known grizzly bear mortalities in the Central Rockies Ecosystem between 1971-1996 illustrates some of the ways, and the extent to which, humans influence grizzly bear deaths in this area.

- 627 of 639 known deaths were human-caused
- 85% of 462 human-caused deaths with known locations occurred within 500m of a road or development, or within 200m of a trail
- In the National Park study area (Banff, Kootenay and Yoho National Parks), there were 118 recorded human-caused deaths. Problem wildlife control accounted for 72% of these, followed by highway and railway at 19%
- In the East Kootenay study area between 1976-1996, 81% of 319 recorded human-caused mortalities were the result of legal harvest (Benn 1998)

A similar analysis that pooled radio-collared grizzly bear mortality data from studies in British Columbia, Alberta, Montana, Washington and Idaho, suggested that numbers of grizzly bear deaths are likely much higher than what is reported to management agencies. Their data show that without the advantage of radio-telemetry, management agencies would only have been aware of about half of the bear deaths. (McLellan et al 1999)

Black bear mortality research

Information on black bear mortality in the Canadian Rockies suggests cause for concern regarding the human influence of roads and railways:

- *Between 1989-1999 vehicle-bear collisions were the highest cause of black bear mortality for bears in the Bow Valley area of Banff National Park. (Serrouya unpublished)*
- *The estimated maximum sustainable mortality rate for black bears in Banff is 15%; annual mortality rates for the years 1996-1999 were: 15%, 8%, 28% and 33% respectively. (Serrouya unpublished)*
- *A minimum of 30 black bears have been killed on the railway between Field and Revelstoke, British Columbia between 1993-1997; a minimum of 102 black bears have died on the Trans-Canada Highway in the same area between 1964-1997. (Munro 1999)*

Conflicts with people continued

Distinguishing between causes and symptoms

In a review of literature pertaining to bear-human conflict, Heuer emphasizes the distinction between the causes and symptoms of conflict. Development in and recreational use of bear habitat are the causes, and un-natural bear behaviours – namely human habituation and human food-conditioning and habituation – are the symptoms. (Heuer 1993) Misunderstanding of bear behaviour and biology, and the lack of tolerance often exhibited by humans towards bears, may also be considered causes of conflict. (British Columbia Conservation Foundation 2000)

Treating the causes of bear-human conflict

Given that development and recreational use in bear habitat have been identified as the causes of bear-human conflict, preventing and/or reducing conflict necessarily means managing human activity and behaviour. (Heuer 1993)

For example, the rate of serious/fatal injuries inflicted by bears on humans in the Canadian National Parks in Alberta declined with the implementation of careful food and garbage management in the mid-1980s. Most incidents between the 1950s and early 1980's involved habituated and food-conditioned bears. (Herrero and Higgins in Press B)

Other means of managing human activity and behaviour include: seasonally restricting access into bear habitat, educating people who live, work and recreate in bear habitat as to correct behaviours and practices, and locating trails and facilities away from important bear areas.

Managing the symptoms of bear-human conflict

Traditionally, dealing with habituated or human food-conditioned bears, usually referred to as “problem” bears, meant either: (1) killing the bear or (2) capturing it, moving it to a different area within its home range (relocation) or outside of its home range (translocation), and hoping that it would not return and get into more trouble. While both types of actions are still used, aversive conditioning is now also being employed in some jurisdictions.

The Problem Bear:

Problem bears have lost their fear of human and are often human habituated or human food conditioned. Problem bears no longer avoid people, and will defy them in attempts to get food, or they will associate humans with food. Such bears will make repeated bluff charges or will attempt to enter tents or buildings and cause property damage as well as human injury or death in an attempt to obtain food. Problem bears develop when they learn that people have easily obtainable food or that people are not a threat. This learning process can be prevented by:

- Making sure that no food is made available to bears at any time when you are in the field. You can do this by maintaining a clean camp and paying strict attention to your food preparation and food storage, including garbage.
- Develop a bear prevention program and ensure that it is strictly enforced in camps.
- Educate all personnel about bears before heading out into bear country.



Encounters with Bears

Sightings

Your Safety in Bear Country involves two things:

1. Actively work to avoid and prevent bear encounters. Before heading out into the field, educate yourself about bears and bear safety.
2. When dealing with bears, there are no set rules. Every bear will react differently; their reaction depends upon their previous experience with humans.

Bear Behaviours:

Understanding a bear's behaviour is important for your safety working in the bush. When you understand a bear's general behaviour pattern, you can reduce bear/human incidences in the field.

- Bears are always actively seeking food from the time they den-out to the time they den-in.
- Bears are large and powerful animals and should be avoided when you are in the field.
- Bears are solitary animals except when they come together to mate or a female with cubs. Stay away from mating bears, the male will be very aggressive.
- Female bears, especially grizzlies, will attack to protect their cubs. Never get between a female bear and her cubs. If you see cubs, the mother will be nearby – leave the area quietly from the same direction you were traveling from.
- Whenever bears encounter humans they will react and exhibit similar behavioural patterns as they would if they had encountered another bear. (This will become more evident to you when you watch the video “Staying Safe in Bear Country: A behavioral-based Approach to Reducing Risk” by Magic Lantern Communications Ltd. There is more information about the video at the end of this write-up.)
- Bears are creatures of opportunity; if you provide them with a food source, they will take it.
- Bears are curious creatures, especially young bears. All bear/human encounters should be negative for the bear, never provide a bear with food. Negative encounters will teach a young bear to recognize the human scent and to avoid humans. (This is a good thing for the bear!)
- Some bears will be more aggressive than others.
- Bears can get stressed. A stressed bear will show signs of stress and you should recognize these signs and back away from the area slowly. Most bears will give you an opportunity to back away.
- Bears will usually avoid humans.

Bears have a dominance hierarchy and people DO NOT fit into the bear's scheme or order of hierarchy. A bear's age, gender, reproductive status and their individual temperament will influence a bear's position in the dominance hierarchy.

Dominance is maintained by ritualized threat encounters which may occur when; one bear comes too close to another, when two bears are competing for a choice fishing spot or when two strange bears meet for the first time. The bears do not attack one another, but use dominance signals such as: posture and orientation such as turning sideways to display their size to the other bear, movements, false charges, head-tilt positions and facial expressions.

Bear Behaviours continued

Many times, the new bear will back away and will not challenge the dominant bear. Bears are extremely tolerant of one another and will offer this same tolerance to humans. Humans must learn to recognize and read the signals that the bears are displaying.

The following is the dominance hierarchy of bears:

- Dominant male – usually an older, larger male
- Female with cubs
- Female without cubs
- Sub-adults.

Adolescent bears, (2 to 3 year old bears), are involved in most human/bear encounters. The young bears will have more encounters with humans because they are:

1. Curious
2. They are sometimes not able to forage for sufficient food, so they become very opportunistic and seek human food.

Make sure that these bears have a negative encounter when they interact with humans so they will learn to avoid humans. (Negative encounter = NO FOOD = no reason to continue to seek out humans.)

Bear Safety Essentials

General Tips:

- Respect all bears - they all can be dangerous.
- Never approach a bear.
- Never attempt to feed a bear.
- Be defensive - never surprise a bear.
- Learn about bears. Anticipate and avoid encounters.
- Know what to do if you encounter a bear.
- Each bear encounter is unique. No hard and fast rules can be applied when dealing with a potentially complex situation.

The most dangerous bears are:

- Bears habituated to human food.
- Females defending cubs.
- Bears defending a fresh kill.
- Cute, friendly, and apparently not interested in YOU.

About bears:

- Bears can run as fast as horses, uphill or downhill.
- Bears can climb trees, although black bears are better tree-climbers than grizzly bears.
- Bears have excellent senses of smell and hearing, and better sight than many people believe.
- Bears are strong. They can tear cars apart looking for food.
- Every bear defends a "personal space". The extent of this space will vary with each bear and each situation; it may be a few metres or a few hundred meters. Intrusion into this space is considered a threat and may provoke an attack.
- Bears aggressively defend their food.
- All female bears defend their cubs. If a female with cubs is surprised at close range or is separated from her cubs, she may attack. An aggressive response is the mother grizzly's natural defense against danger to her young.
- A female black bear's natural defense is to chase her cubs up a tree and defend them from the base. However, she is still dangerous and may become aggressive if provoked.

Bear Safety Essentials continued

Bear's Reaction to Human Encounters:

It is impossible to predict exactly how a bear will react to you in an encounter because each bear will react differently depending upon their previous encounters with humans. The bear will however, display the same signs as it would if it had encountered another bear. The possible behaviors are:

- The bear will flee.
- Charge or bluff charge. (Bluff charge – bear will veer off before connecting with you)
- Remain stationary and try to pick up your scent by sniffing the air. (Bears rely most on their sense of smell.) The bear is trying to identify what you are. The bear may swing its head from side to side to catch your scent or stand on its hind legs. (Bears stand on their hind legs when they are collecting information – a bear on its hind legs is not in a charging position.) The bear may then run away and/or exhibiting the following signs:
 - Growling, huffing, hissing or panting.
 - The bear will look directly at you; possibly with its head lowered with ears laid back on the head. **(This is a bear's attack position!)**
 - The bear may turn sideways to display its size.
 - May walk around with stiffened front legs.
 - The bear may bluff charge and may veer off before making contact or stop within 4 –5 ft
 - The bear may slap one or both feet on the ground or swat nearby vegetation in a show of dominance.
 - The bear may rapidly opening and close its mouth; this is referred to as jaw popping.
 - The purposes of the above displays are to establish the bear's dominance without fighting.

Defensive Interactions:

A defensive bear will exhibit the above signs of stress. They feel threatened by you and may be defending either a food source or young cubs, or are trying to establish dominance in their territory. Bears have a personal space around them and when you crowd their personal space they will defend themselves. It may be possible that you have surprised a bear and came too close to the bear without the bear knowing you were there. This could happen in areas where there are loud natural noises that would mask any noises you made while traveling. Wind direction may have taken your scent away from the bear. A defensive bear will show signs of stress such as huffing, growling, head swinging, lowered stance, ears flattened against the head and possibly charge you. The charge may or may not make contact with you; this will depend how aggressively the bear is trying to defend the food area, cubs, or personal space.

Non-Defensive Interactions:

Bear attacks on people have occurred, but such attacks are rare. There are a number of non-defensive motives that will appear similar.

- A young curious bear will sometimes approach people without fear. This could be a young bear or a bear that has never encountered a human before and does not know what you are.



Non-Defensive Interactions continued

- A human habituated bear; a bear that is use to humans and their movements and has lost their natural wariness of people.
- A food conditioned bear; a bear that associates human with food and is approaching your camp to obtain food.
- A bear that is testing its dominance in its territory. The bear is approaching you to show you that it is the dominant bear in the area.
- A predatory bear. This is a bear that is actively stalking. Such a bear does not bother with threat displays. The bear will show no signs of stress. The bear may make a direct approach such as a fast walk or run, or may follow you, or may circle carefully and make cautious approaches. The bear exhibits no sign of fear, but rather intense interest in you. Any bear that is following you is a dangerous bear.

It is important that you know the difference between a bear's predatory behaviors or defensive behaviors because your response to the situation will be different.

The Factors that will influence a Bear's Reaction:

Every bear will react differently to chance encounters with humans, depending upon the factors described below and each bear's past experience with humans. Their reaction is difficult to predict because of the variability of factors with each encounter.

- Female bears with cubs: Female bears will aggressively defend her cubs. Female bears with cubs are more likely to attack than to flee. Grizzlies will attack to defend their young, black bears will likely not attack if the cubs can climb a tree and reach safety. The female Black Bear will then position herself at the bottom of the tree to defend her young. A female black bear may/will become dangerous if she is separated from her young.
- Defending a Food Cache: The bear's main objective is to eat from the time it leaves its den to the time it returns to a winter den. Hunting bears will cache food after eating part of it by covering the food with dirt, branches or leaves. They will often establish a daybed nearby and return later for another meal. Bears will aggressively defend their food cache.
- Individual Space:
 - All bears have a minimum distance surrounding them within which any intrusion is considered a threat.
 - If you have come close to a bear any sudden movements may startle the bear to attack. Running will trigger an attack response – remember that prey runs away! In this situation you must either backing away slowly or stand your ground, the bear is more likely to leave.
 - Grizzlies will avoid humans if they can detect them in time. A cornered or surprised grizzly will be dangerous. If there is no cover to retreat to, a grizzly's usual response to danger is to attack or to stand its ground. Do not corner a grizzly bear; leave it room to retreat/escape. This is an important consideration when you are setting up camp.
 - Black bears will usually flee from humans if given the chance. Black bears use their forest habitat for protection, with trees for cover or climbing. However, black bears are curious and very adaptable and will quickly become accustomed to humans and human activity. Even though black bears are smaller and seem less of a threat treat all black bears with caution.



The Factors that will influence a Bear's Reaction continued

- Old bears or wounded bears or bears with teeth malformations can be dangerous because they are very hungry or starving.
- Younger bears, 2 – 3 years old, are also dangerous because they are often driven from the best feeding areas by the older, dominant bears and therefore must travel longer distances searching for food. They are easily attracted to human food sources and may become aggressive to obtain it.
- Bears that have been feeding in dumps or have regularly obtained food from human have become “human food habituated.” These bears are accustomed to humans and link people as sources for obtaining food. Such bears can be very dangerous as they will enter your camp in a search for food.



How to react to Bear Encounters

General Recommendations:

- Consider your surroundings and assess the situation before you act.
- Remain calm. Do not turn your back to a bear.
- DO NOT RUN – You will trigger the bear's natural response to chase you. Bears are extremely fast and you cannot outrun a bear. (They are as fast as an Olympic sprinter, so if you are not faster than an Olympic sprinter, don't run! They can run 40 km/hr and you can't!) You cannot outswim a bear either.

Bear Encounters in the Field:

- Your response will depend upon the type of encounter.
- There are several different encounters listed.

Bears are more predictable than once believed and you can determine your best course of action in a confrontation by understanding the bear's characteristics and motivation. There are two pieces of information you should be aware of in any bear encounter:

- What type of bear are you dealing with
- Reason for the encounter.

Chance Encounter away from Camp: If you come across a bear while you are in the field and: The bear is unaware of you and feeding: If you can do so quietly and undetected:

- Leave the area quietly in the same direction that you came from
- Move while the bear's head is down. Stop moving when the bear lifts its head to check its surroundings

Chance Encounter away from Camp continued

- Stay downwind so the bear will not pick up your scent
- When you have moved a safe distance away, you can either watch and wait until the bear leaves or make a wide detour around the bear.
- If the bear is unaware of you and approaching: Allow the bear the right of way.

If you cannot leave undetected:

- Let the bear know that you are present by smell first; therefore move upwind so they can pick up your scent.
- If it is possible, try to keep the bear in your sight. Watch to see if the bear leaves when it smells that a person is nearby.
- Attempt to move out of the way without being noticed by the bear. If you cannot do this, talk loudly to let the bear know where you are.



If the bear is aware of you but in the distance:

- Remain calm
- Continue walking slowly in the same general direction, but head away from the bear.
- DO NOT RUN. The bear can quickly out-run you if it is so inclined.
- If the bear begins to follow you, drop your pack or some article, (not food) to distract the bear. This may distract the bear long enough for you to escape. If you drop food for the bear – you will help the bear associate food with humans and teach it that aggressive behavior will be rewarded with food.
- If it is a grizzly following you, climb a tree if there is a large tree around. Although grizzlies can climb trees, they are often not motivated enough to try. Very large grizzlies are not able to climb trees well. If grizzlies climb they can go 3 to 4 meters. Grizzlies will try and push trees over so do not climb a small tree.

The bear is aware of you and close:

- A bear will feel threatened in a close confrontation. The bear's natural tendency will be to reduce or to remove the threat. Assist the bear by acting as non-threatening as possible.
- Do not make direct eye-contact with the bear.
- Do not make any sudden moves.
- Do not run!
- The bear needs to identify you as a person, so talk in low tones and slowly wave your arms your head.
- Attempt to give the bear an opportunity to leave. Be sure the bear has an open escape route. Do not corner a wild animal.
- Try to back away slowly and/or climb a tree if appropriate.
- Attempt to deter the bear if you are in a safe position.



Reacting to Bear Encounters continued

The bear is close and threatening:

- If you have a deterrent such as a bear banger or bear spray be prepared to use it depending on how close the bear is. Try to scare the bear off.
- If you do not have a deterrent, or if using the deterrent is not successful, act as non-threatening as possible.
- Talk to the bear in a calm authoritative tone of voice.
- Do not startle or provoke the bear by making sudden moves.
- Never imitate the bear's aggressive sounds, signals or posture. The bear is attempting to establish dominance and imitating its moves is a challenge to its dominance.
- Back slowly away from the bear and drop a pack or some other article in order to distract the bear momentarily.
- Remember that the bear may be defending cubs that you have not yet seen or they have a food cache nearby. Attempt to look as non-threatening as possible.

The bear is very close and approaching: A distance of less than 50 meters in an open area and closer in a forested area.

- If the bear continues to approach use your deterrent.
- If the bear does not respond to the deterrent you must now **STAND YOUR GROUND!**
- If the bear continues to approach and is acting aggressive, **YOU MAY HAVE TO SHOOT** if you are carrying a firearm.



Bear Attacks

Bear Charges

A bear will charge you at high speed down on all four legs and often crouched low to the ground. Bears do not charge when standing up on its hind legs. Many charges are bluffs and the bear will often stop or veer off just at the last minute. It is difficult to know if the bear is bluff charging or not until it gets very close. When faced with a charging bear you have two options:

- First, use your bear deterrent/shoot to kill if you have a gun
- Play dead if you are unarmed and have no other choice

Some people believe that when you stand your ground against a predatory black bear attack, the bear will feel threatened and leave. This has been effective in some cases. HOWEVER, it is not effective against a grizzly bear predatory attack and it is very difficult to know when it will be effective against black bears. IF you decide to shoot an approaching bear, the first shot is the most important. If you must kill a bear, try to kill the bear cleanly and aim for:

- Low neck if the bear is facing you broadside.
- Below the centre of the neck between the shoulders if the bear is facing you
- The front shoulder area. This will knock the bear down.
- Do not shoot for the head as headshots often do not kill a bear.
- Keep shooting until the bear goes down.

NEVER LEAVE A WOUNDED BEAR! You must finish the job and report the kill to the nearest Fish and Wildlife office. If you cannot track the bear, contact the local F&W office or Police detachment immediately. A wounded bear is dangerous for everyone in the area.

Playing Dead:

Note: Playing dead is a very controversial topic amongst seasoned field personnel. Some will tell you to never play dead in any situation, others will swear that it is the only thing you should do. Playing dead is a personal choice that you will have to make.

If you play dead it is possible that you can prevent serious injuries if a chance encounter with a bear results in an attack. Playing dead may reduce the threat that you represent to the bear.

If you decide to play dead, it is important to protect your vital areas. The older information that is still found on-line states that the person should roll into a ball to protect their vital organs. This has been replaced and you are now advised to lie in the prone position. Lie flat on your stomach and lace your fingers behind your neck (to protect it), Spread your legs apart to provide stability if the bear tries to turn you over. Stay in this position. If the bear manages to roll you over, immediately roll back onto your stomach to protect your face, neck and vital areas. Do not to resist or struggle as this will intensify or prolong the attack.



Playing Dead continued

Once the attack is over, DO NOT MOVE until the bear has left the area. Look around and be very sure that the bear is gone before moving. (If the bear is a female with cubs, she will leave and move her cubs to safety.) If the bear covers you with leaves and vegetation, it probably thinks you are dead. Grizzly's will often cover their prey with vegetation and leave the carcass to ripen for a few days.

It is important to note that if the bear attack is prolonged or if the bear begins to eat you, the attack has changed from what you may have first believed to be a defensive attack, to a predatory attack. Fight back in a predatory attack. Concentrate your efforts on the face, eyes and nose of the bear.

There are Two Types of Bear Attacks:

Provoked Attacks:

- You may have done something that has provoked the bear into showing signs of aggression towards you. It is often not clear to the person what they have done to provoke the bear until after the attack.
- It is important that you act passively, humble your posture and do not look directly at the bear. Always keep the bear in sight.
- Lie down on the ground in the prone position, i.e. play dead, or climb a tree, these are both signs of submission to the bear and shows the bear that you are no longer a threat to them.
- Never yell at the bear or throw things at the bear, these are obvious signs of aggression.

Predatory Attacks:

- The bear is hunting or stalking you! You are being treated as potential food. DO NOT PLAY DEAD IF THE BEAR CONSIDERS YOU FOOD!
- You must defend yourself with whatever means are available, act aggressively towards the bear. Stand up on something high and try and make yourself look bigger.
- Try to appear dominant to frighten the bear. Yell, scream, shout, wave your arms. Jump up and down and fight back. Hold your jacket or backpack over your head to make yourself look bigger.
- Use your deterrent; either a banger or pepper spray. If you have to – use your firearm to shoot the bear.

A bear attack research update

Herrero and Higgins analyzed incidences of human injuries inflicted by bears in Alberta and British Columbia between 1960–1998 and 1960-1997 respectively. The following are selected findings from their studies:

- According to Dr. Steve Herrero bear attacks are rare but obviously traumatic events. In all of North America there are an estimated 800,000 black bears and 60,000 grizzly bears. Each year people have millions of interactions with bears. A very small fraction of these results in human injury. During the decade of the 1990s bears fatally injured on average 3 people/yr and seriously injured about 12.



Bear attack research update continued

- The percentage of serious/fatal injuries in Alberta that occurred inside National Parks (as opposed to on Alberta lands outside of National Parks) was disproportionate (high) to the relatively small numbers of bears in the parks.
- The probable explanation for the above findings is the very large number of visitors in bear habitat in Alberta National Parks, and the associated challenge of human food and garbage management.
- Injury rates for backcountry visitors to the National Parks were significantly higher than for front-country visitors.
- Black bears far outnumber grizzly bears in both provinces. Grizzlies, however, were responsible for a significantly greater percentage of serious/fatal injuries than were black bears.
- Data demonstrate behavioural differences between the two species. For example, competition with hunters, often over carcasses, and adult females acting in defense of their cubs were commonly associated with grizzly attacks in B.C. No cases of either type were recorded for black bears.

(Herrero and Higgins In Press A and Herrero and Higgins In Press B)



How to control bears

Bear Deterrents:

A bear deterrent is a method or device, (physical, chemical or other), designed to chase away bears. Preventing the attraction of bears through proper food storage, garbage disposal and camp maintenance is the most economical and effective way to reduce bear problems. However, bears are sometimes attracted to clean and well-maintained camps. Use of proven deterrents will increase human safety and reduce the need to kill problem bears.

Types of Bear Deterrents:

Please note that some deterrents are not recommended. Deterrents are not guaranteed to save you from a bear. Your safest method is to practice Bear Awareness and Avoidance. You may not be able to scare away a starving bear.

Noisemakers

Pro's

- Cracker shells (fired from a shot gun). These are shells that will travel 200 meters when fired from a shotgun and explode in an area in front of an approaching bear. To be used when the bear is at a distance and approaching your camp.
- Thunderflashes (similar to flares, are limited to the distance you can throw one). You throw a thunderflash by hand so it will land in front of an approaching bear, the device will explode with a loud bang and create a flash of light to scare the bear away.
- Pencil Flare Guns – (highly portable but many people have received injuries from this type of deterrent as the pen explodes while they are holding it. This deterrent is still sold and is not recommended. Canadian Conservation Officers no longer using pencil flares.)
- Pyrotechnics, including bangers, screamers, whistlers & flares. Requires a magazine launcher. These launchers look like a small handgun. There are different types available, some carry only a single shot, and some will carry multiple cartridges. The bangers, screamers and whistlers are charges that will explode and emit a variety of different noises, the name of the device indicates the noise it will make.

Con's

- Noisemakers that are fired from a shotguns fall under the Firearms legislation and you are required to have your PAL license to carry the shotgun in the field. You are also responsible for the safe storage of a firearm while in the field.
- Noisemakers that are fired from a pencil flare or bear flare launcher are governed under the same laws as personal and hunting weapons. Proper storage of the flare guns is required in the field. The launchers must be cleaned after use so that they do not misfire.
- Flares and noisemakers are not prudent to use in very dry conditions as you can start a fire.
- Pyrotechnics, cracker shells, and flares will not work if they get wet. These items also have an expiry date and should be replaced once they have reached their shelf life.
- You must be careful to aim the noisemaker in front of the approaching bear so the bear will run away from you and not land the noisemaker behind the bear, thus scaring the bear towards you.
- Noisemakers will lose their effectiveness after repeated use. Bears will simply get use to the loud noise and continue to approach.



Other noisemakers

- Air horn (portable, inexpensive but can sometimes provoke a bear into attacking).
- Bells (may help, but have sometimes attracted bears. Not recommended as they do not produce enough noise to let a bear know you are approaching.)
- Shake a can filled partially with rocks for noise.

Noises that cannot be reproduced in the wild, (e.g. a metallic noise), will let a bear know that you are approaching and give them advanced notice to move out of the area. However, noisemakers that startle a bear, such as an air horn, can provoke an attack. If you release an air horn too close to a bear hiding in the bush and it startles them, they may charge. Bells may work well in remote areas where bears have not had a lot of contact with humans, but in areas where they have become accustomed to humans, a human food habituated bear may approach a person wearing bells. Bells do not make enough noise to warn a bear of your approach unless you are wearing several bells. A can partially filled with rocks makes a loud clattering noise and is very effective in letting bears know of your presence before they pick up your scent.

Chemical Sprays:

There is no bear deterrent that will be 100% effective. In order to be safe in bear country, practice avoidance, but when confronted by a bear be sure to have more than one deterrent available in your camp. Bear Sprays are highly effective but they must be used correctly to be effective. As with all deterrents they have their good points and their bad points. In order to decide if this is a deterrent that you want to use, you must understand both the good and the bad points of the deterrent.

Positive/Negative Aspects of Bear Sprays:

- The main ingredient in bear spray is “Capsicum” an extract from hot peppers. Capsicum needs to strike the eyes, nose or mouth of the bear, (open membranes) to be effective. These sprays can only be used at very close range, 10 – 25 ft therefore, depending upon the brand, always read the label; the bear needs to be very close for the spray to strike the eyes, nose or mouth. You cannot discharge the bear spray too early – or it will be completely ineffective. Bears will often “bluff charge” and when you/your group are standing your/their ground and not backing away – that alone may deter the bear before it even gets close enough for you to use the spray. If the bear comes within the range of the bear spray – aim directly into their face and spray.
- You must be aware of the wind direction. If you the wind is blowing towards you, the spray will be carried by the wind into your face. (This may seem humorous while you are reading this write-up – BUT – in the field this would be a very serious situation.)
- People with asthma or bronchitis may have respiratory problems when using chemical bear sprays if they get any whiff of the spray in their direction.
- Bear spray may not be effective in sub-zero weather. (Spray cans do not fire well in very cold temperatures.) In colder weather you need to keep the can of bear spray warm in order for it to fire effectively.
- Bear spray will not be effective in the rain. When you fire a can of bear spray, the spray will create a billowing cloud of capsicum and propellant. Rain can/will wash the spray right out of the air before it strikes the bear in the face.

Chemical Sprays continued

- Bear spray is only to be used as an airborne deterrent. There has been misconceptions that bear spray applied to the outside of one's tent, clothing, or research equipment will “repel” a bear. Bear Spray is NOT a Bear Repellent! There is good evidence to show that once capsicum has been sprayed, bears are attracted to the area where it has been released. (Scroll down to the next web-link for information on pepper spray, written by Dr. Tom Smith with the U.S. Geological Survey at the Alaska Science Center.) If you have used your can of bear spray to deter a bear, wash the nozzle off with soap and water to remove the scent. Replace your can of spray as soon as possible. You do not want to have another bear encounter with a half a can of spray left!
- Bear Sprays have a shelf life. You must note the shelf life when you buy the can of spray and pay strict attention to the shelf life. The Capsicum does not deteriorate over time; it is the canister seals that deteriorate over time. Write the date that you purchased the spray on the bottom of the can and always replace your bear spray when you are nearing the end of the shelf life.
- Do not test your can of spray before going out into the field. Suppliers sell inert cans of spray, (i.e. contain no pepper ingredients), if you wish to train personnel on how to use the bear spray effectively. You need to take a full can of spray into the field, not a partially used one. In areas where there is known to be frequent bear encounters, it may be prudent to carry two cans of bear spray per person.
- Bear deterrents are only to be used for the purpose they are intended for. Misuse of bear deterrents such as chemical sprays, bangers, and pyrotechnics is considered a criminal offence.

Always have a BEAR PLAN in place when you are in the field.

Guns

Firearms in the Field:

Taking a shotgun or rifle into the field will require you to have a PAL License. (PAL = Possession and Acquisition License.) It takes up to 6 months to receive your PAL License so you must start early to plan for next year's field season. However, carrying a firearm is not enough; you must be proficient in the use of firearms to effectively use guns in the field. The following must be considered if you plan to use/take firearms into the field:

- The gun must be operated in accordance with the Canadian Firearms Act. Under this act, certain activities with firearms are offences under the Criminal Code of Canada.
- Before you shoot a problem bear – consider your other options. IF you contact the local Fish & Wildlife Office, they may decide to set up a culvert or snare to capture the problem bear instead of destroying the bear.
- The use of firearms as a bear deterrent should be your last resort when all other deterrents have failed or when someone's life is in immediate danger.
- You must report that you have shot and killed a bear to the local Fish & Wildlife or the local Police department.
- You cannot carry firearms into any National Parks or Provincial Parks. These areas have their own Wildlife Officers that should be contacted if there are any bear encounters or problems.

You must consider what type of rifle or shotgun is most effective in the field:

If you intend to carry a firearm in the field when you are working in bear country, it is important for you to be knowledgeable about shot-guns and rifles. You should acquire your gun knowledge prior to heading out into the field and plan several months in advance to practice firing the weapon.

A 12-gauge pump action shotgun is one of the most versatile weapons for bear protection. The recommended ammunition for a possible bear attack for a 12 gauge shotgun is a 12 gauge slug and 00-buck shot. Too light of ammunition will not be effective against a bear so you must be sure to purchase the correct ammunition. A 308 rifle or a 30.06 rifle or something of comparable power are suitable weapons for protection against bears. The recommended ammunition would be a full grain bullet of at least 180 grains with a full-metal. Rifles are best used by those that are proficient in the use of a firearm.

You need to be proficient in the use of firearms to be able to hit a moving target and chances are that a charging bear will be very close before you can shoot. You must practice regularly and know the rules of firearm safety.

You must keep your gun clean and oiled and ready for use at all times. Keep the gun or rifle clean and guard against condensation, which may cause rust, freeze the firing mechanism or ice plugs can form in the barrel. In colder temperatures, do not store the firearm in heated locations – keep it in a canvas case within easy reach outside a building or tent. Ensure that everyone knows where the gun is kept and when and how to use it. When you are in the field in snowy or muddy areas it is advised that you tape the end of the barrel off in order to keep the muzzle free of debris, i.e. dirt or snow. In wet areas, cover the magazine with plastic to keep the weapon dry and reduce moisture entering the firing mechanisms. Clean the gun regularly while in the field.

When you take aim at a charging bear:

Using a firearm against a bear

- Your first shot is the most important shot! You must be able to take the bear out with the first shot.
- Aim just below the head at the top of the chest on a grizzly – you're aiming for the heart. Do not try to shoot for the head because head shots do not always stop a bear. If you hit the front shoulder, you may or may not knock the bear down; the bear may still be able to attack you in a charge. A bear that has been shot through the heart and has a shattered humerus can still travel 50 yards before it goes down for good. Keep shooting until the bear drops.
- Once you have killed a bear, there is a blood scent in the air. The scent can attract more bears in the area. If you have killed a bear in your camp, your camp has just become an attractant to other bears in the area. You must report any bear that you have killed to the Local Wildlife Officer or Police Detachment. They will do an investigation as to why you felt you needed to kill the bear. It is possible that you will be charged for shooting a bear out of season if they find that you have over-reacted and killed a bear unnecessarily. Fish & Wildlife Officers may ask that you skin the bear depending on the season.
- If you have only wounded a bear you must follow the bear and finish it off. A wounded bear is dangerous to all personnel in the area. It is very dangerous to track a wounded bear; you are required to report the event to a local police detachment or to the local Fish and Wildlife Office immediately.

Bear Deterrents fired from Shot-guns:

There are several bear deterrents available that can be fired using a 12 gauge shot-gun.

- 12 gauge shell crackers will explode with a loud bang and are shot approximately 200 ft. This type of deterrent can be used when a bear is approaching from a distance and you intend to deter it from getting any closer.
- Rubber slugs, rubber buckshot and bean bags can be fired from the 12 gauge shot-gun. These are non-lethal methods used to scare the bear away without harm to the bear. The shooter should aim for a large muscle mass on the bear; the combination of surprise and immediate pain will usually drive the bear out of the area. The rubber slug and bean bags will not penetrate the skin.

Some bear experts advise that one should use a flare launcher instead of loading the 12 gauge shell crackers into a camp's only shotgun. The shotgun is the camp's last line of defense against a problem bear and they feel that the shotgun should only be used with real ammunition in case of a bear attack. Bears will attack suddenly and quickly and there is no time to reload the shotgun with ammunition if you have filled the magazine with cracker shells and rubber bullets. Each camp must make their own decision on how they will handle bear encounters within the camp and outside the camp.

Bear Deterrents – Legalities and Transportation

There are several types of bear deterrents available, each of them have their benefits and drawbacks. Some deterrents work better than others, some are only to be used as a last resort. Bear deterrents must only be used for the purpose they are intended for. Using a bear deterrent for any other purpose is a chargeable offence under the Criminal Code of Canada:

Definition

84(3) for the purposes of Section 91 to 95, 99 to 101, 103 to 107 and 117.03 of this Act and the provisions of the Firearms Act, the following weapons are deemed not to be firearms:

- (a) any antique firearm
- (b) any device that is:

1. Designed exclusively for signaling, for notifying of distress, for firing blank cartridges or for firing stud cartridges, explosive driven rivets or other industrial projectiles, and
2. Intended by the person in possession of it to be used exclusively for the purposes for which it was designed

Some types of bear deterrents will be difficult to transport via small planes or helicopters. You must declare bear pepper spray and pyrotechnic flares before boarding a plane or a helicopter, these items fall under TDG Regulations. (Transportation of Dangerous Goods Regulations.) You may not be able to transport these bear deterrents on the smaller, northern airlines – YOU NEED TO CONTACT THE AIRLINE AND ASK IF THERE WILL BE A PROBLEM WITH TRANSPORTING YOUR BEAR DETERRENTS PRIOR TO GOING OUT INTO THE FIELD.

It is a good idea to contact the supplier of the bear deterrents and ask them if there are transportation issues with their products.

Use of Conservation Officers

When do Conservation Officers respond?

Conservation Officers respond to conflicts with dangerous wildlife where there is a risk to public safety. Examples of these situations include responding to attacks, bears breaking into buildings or vehicles, repeated dangerous wildlife encounters at or near public locations, and situations where dangerous wildlife has become habituated (no longer afraid of humans) or food conditioned (dependent upon human provided foods) and now presents a risk to public safety.

Conservation Officers do not respond to routine sightings, normal wildlife behaviour, such as wildlife transiting through greenbelts or forested areas, nuisance conflicts or conflicts that do not pose a risk to public safety, or to situations where the complainant can take simple measures to address the problem, such as securing garbage.



Camp and Garbage

Avoiding Bear Problems in the Field

Your best defense against bears is to actively practice bear avoidance techniques when working in the field. You can prevent chance encounters by taking the following precautions:

- Know the areas and habitats bears use at different times of the year, and attempt to avoid such areas or be extremely cautious if you have to traveling through them.
- Contact the local Fish & Wildlife Office to get current information on the bears in the area. Ask what other camps are in the area and if they following good bear avoidance practices. (i.e. do they keep a clean camp?) IF there are nearby human food sources available, e.g. an open dumpsite, the local bears may not be afraid to approach your camp.
- Always be aware of your surroundings. Stay alert. Watch for signs of bears along your route.
- Use binoculars to look around for bears when you are in open terrain.
- Never approach a bear if you see one feeding in the distance.
- Note the behavior of other wildlife in the area. Flocks of ravens can alert you to a possible animal carcass, and perhaps a bear. The area should be avoided. Birds or squirrels alarm calls might be telling you that a bear is near.
- Always travel in daylight and try to avoid areas with restricted visibility. (dense brush)
- If you are working in areas of dense vegetation make lots of noise. Sing, shout, or talk loudly. You can carry portable air horns, cans of rocks. (Please note that bear bells are not effective – they do not make enough noise to warn a bear that you are approaching. You need to be loud so the bear can hear you coming!) Remember that the noise you make can be masked by loud natural sounds such as the wind or water. Therefore it is possible that the noise you make can go unnoticed by a bear whose attention is focused on feeding. You must make every attempt not to surprise a bear. In areas of loud natural noise, be louder!
- When bear activity is noted stay together and travel in groups. Bears will not attack large groups of people.
- Be cautious when bringing your dog to the bush if there is known bear sightings. Know how your dog will respond to a bear and decide accordingly if they are a help or a hazard at work. Your dog may harass bears and once scared, run back to you with an angry bear in pursuit.
- Do not wear perfumes or cosmetic products when you are in the field. Do not mask your human scent.
- Women should use internal sanitary protection, (i.e. tampons) when menstruating. Keep all used sanitary supplies in sealed bags until you have a chance to dispose.
- Carry bear deterrents and know their limitations. Be familiar with how to use the deterrents, how to transport the deterrent safely and under what conditions it is most effective. (More information on types of deterrents at the end of this document.) Carry the deterrent in a belt, out in front and ready to grab at a moments notice, never in your backpack.



Field Workers: Precautions in Bear Country

Field workers should take extra precautions when working in bear country. If possible, fly over the area you will be working to check for bears from the aircraft.

- Make every effort to go out into the field with another person; you should not be working alone in the field. One person can act as a lookout for the other. Keep watch for bear signs.
- Never approach a bear.
- Report where you are going and when you will return every time you leave camp. Have a plan of action if someone does not report back to camp at a specified time.
- Bears do get use to a camp's schedule and you will have fewer surprise encounters if everyone in the camp comes and goes at the same time every day. Ensure any camp staff who may be in camp alone during the day are trained in bear awareness and how to use communication devices
- Take a two-way radio with you when you go out into the field.
- Always carry bear deterrents with you in the field and understand each deterrent's limitations. Carry your deterrents on a belt, out in front and ready to use instantly. Do not carry your deterrents in your backpack.
- Keep any food that you take with you sealed in odor proof/bear proof containers. Make every attempt to take odorless food with you, not something with a heavy scent.
- Pack out any garbage in odor proof containers and burn once you return to camp.
- The noise of an ATV or skidoo can scare off a bear. Starting the machine and revving it up can scare off a curious bear. DO NOT CHASE A BEAR WITH AN ATV OR SKIDOO. You may need to drive the ATV around in circles to scare off the bear, but do not chase the bear.
- Take extra precautions when traveling along lakes or stream beds; bears use streams and river beds as travel routes. Be sure to carry noise makers.
- Try to plan your workday so you are not out in the early morning or evening when bears are most likely to be foraging.
- All Field Workers should be proficient in First Aid.
- All Field Camps should have a First Aid Kit.
- All Field Camps should have means of communication with local ambulance or Air-ambulance personnel.
- It would be prudent to set up a camp registration site number with the STARS Emergency Link Centre. Call 1-888-888-4567 or #4567 on Cellular to register. If you have an emergency situation, pre-registering a site number will aid in a faster response time. (See the STARS Emergency Link Centre write-up under field safety for more information.)



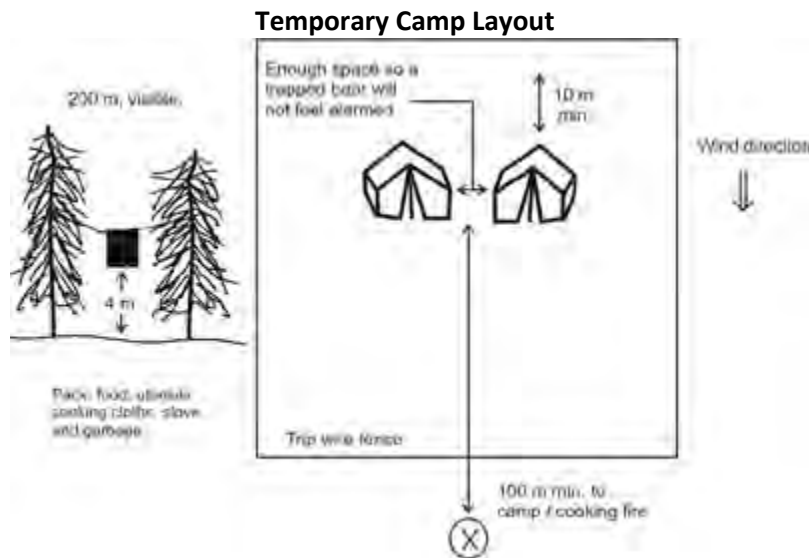
Location & Camp Design

The location of your field camp or campsite is very important. Do not locate your camp near:

- Bear feeding areas such as: streams, berry patches, horsetail, and sedges.
- Areas of poor visibility such as dense brush where the bear cannot readily see you
- Bear travel lanes and trails; along shorelines, points of land, trails along streams and ridges or areas that concentrate bear movements such as narrow valleys or ridge lines
- Den sites
- Locations with previous bear problems. (Ask tenure holders or local authorities to know where such areas exist.) Do not set up camp along a trail where the previous camper has left garbage around.
- Locations with obvious bear signs; tracks, scat. Pay particular attention if the bear scat contains garbage waste such as undigested wrappers.
- Locations with loud natural noise levels such as rivers or waterfalls. The noise will drown out the sound of an approaching bear and the bear will not be able to hear you until it's too late.
- Windy areas may carry your scent away from a bear and he will not know you are in the area until it is too late

Camp Designs:

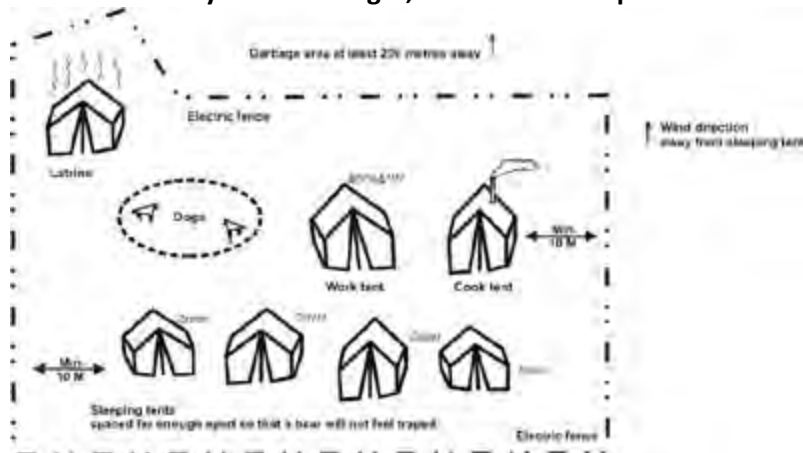
The camp layout can help reduce serious bear problems.



Keep the cooking area upwind from the sleeping tents.
Keep the food stored away from camp in a visible location.
Keep the tents at least 10 meters inside the trip wire fence.

Location & Camp Design continued

Layout for a Larger, Permanent Camp



A larger and more permanent field camp may prefer to have an electric fence surrounding the camp to keep unwanted guests out.

- A temporary camp can use a trip wire to signal when any animal is entering the camp area. A trip wire is not an electric fence – it is a fence that sounds an audible alarm that will announce the arrival of any unwanted guests. (Small animals like foxes or raccoons can set off your trip wires.)
- Electric fences are a good method to keep out unwanted visitors. An electric fence must be maintained to be an effective deterrent. Just because your camp has an electric fence, does not mean that you should not keep a clean camp.
- Sleeping tents should be located upwind from cooking areas, food storage areas and latrines. Keep your backpacks, sleeping bags, tents and clothes free of food smells.
- A few larger tents are better than many small ones. It is prudent to sacrifice privacy for safety. A bear that is surrounded by structures may feel trapped and confused and this can result in a bear charging a worker.
- Tents or buildings should be well spaced in a straight line or a semi-circle. Do not place in a circle. The straight line spacing will give a bear a chance to escape and also allows camp occupants to use bear deterrents effectively.
- The food tent and food storage area should be located at least 50 meters downwind from the sleeping tents.
- The latrine should be located downwind from the sleeping tents and may or may not be located within the trip wire area. Keep the latrine in an open, visible area.
- All garbage should be burned away from camp, at a distance of at least 200 meters. Burn garbage in an open, visible area. If the garbage cannot be burned, store in airtight containers and keep it out of reach of bears. (Garbage = food to a bear.)
- You should not sleep out in the open in bear country. You are more vulnerable when you sleep out in the open. A bear that is trying to rip into a tent will alert you and give you a chance for escape.

Location & Camp Design continued

- Bears may enter a clean camp just out of natural curiosity. Do not reward a curious bear with food – make every bear/human encounter a negative encounter for the bear. Teach young bears that they should avoid humans.
- Keep your bear deterrents with you at all times. Keep your deterrents in your tent at night.
- Bears are attracted to synthetic materials and will chew on or eat such items as: inflatable boats, gasoline cans, sleeping bags and tents, cans of motor oil and ATV or Skidoo seats. Placing a trip wire around these items can alert you to a bear's presence.

Food Preparation & Storage

Keep a clean camp. The best way to deal with bear problems is to prevent them.

You must take extra precautions in food preparation and food storage when you are in bear country. Never underestimate the bear's ability to locate carelessly stored food.

The following general rules apply to all situations in bear country.

- Do not keep any food in sleeping or working areas
- Do not keep any personal hygiene products in your sleeping tents. (toothpaste, soaps, deodorants, shampoos, tooth brushes)
- Maintain a separate area for cooking and food storage. Store personal hygiene products in the food storage area.
- Attempt to produce few leftovers or food wastes
- Attempt to reduce food odors, try and take low odor foods with you in the field. Freeze-dried foods have very little odor.
- Use leftovers as soon as possible. Store all leftovers for a short time and use sealed airtight containers.
- Grease is very attractive to bears. Attempt to cook non-greasy foods as much as possible. Wash off the stove, tables, and barbecues after every meal to reduce odors.
- Burn greases in a hot fire or reuse it right away. Store grease in an airtight container
- Incinerate garbage on a daily basis or remove it from camp daily. Burn garbage away from camp, at least 200 meters downwind from camp in a visible area.
- Burying the garbage will not eliminate the odors. Bears have dug up buried garbage. Do not bury garbage – burn it.
- Greasy dishwater can be dumped in a pit dug away from camp. Treat the pit with lime or bleach to mask odors.
- Keep the camp and surrounding area clear of litter.
- Keep your packs, sleeping tents, sleeping bags and clothes free of food odors.
- Avoid cooking foods with strong odors, (e.g. fish or bacon.)
- Cover your hair while cooking so your hair will not pick up food odors. Wear a hat or kerchief.
- Change your clothes after cooking. Do not sleep in the same clothes as you wore to cook in. These clothes should be stored away from the sleeping tent.
- Wash the cooking utensils immediately after use.
- Store all food and leftovers in bear resistant containers if possible, or up on a food cache.
- If you do not have bear resistant containers, store food in sealable plastic bags.

Food Preparation & Storage continued

- Place food in a large bag and suspend from trees or in sealed, locking storage units.
- If you cannot burn your garbage, bag it up in sealed containers and suspend from a tree. Garbage should be dealt with daily – do not let garbage accumulate in your camp.
- Latrines should be treated frequently with lime to reduce odors. Human waste is considered food by a bear. Tampons and sanitary napkins should be incinerated.

Food items includes things such as: food, trash, recyclables, toiletries, first aid kits, pet food, window cleaner, baby wipes, scented tissue, air freshener, soda cans, bottled beverages, canned food, coolers (full and empty), mosquito repellent, lipstick, tobacco products, and ANY RELATED ITEMS WITH A SCENT.

Waste Management in Camp

Definition of an Approved Bear Resistant Food/Garbage container:

- The Bear Resistant Food/Garbage container is a securable container constructed of a solid non-pliable material capable of withstanding a minimum of 300 foot-pounds of energy.
- When secured and under stress, the container will not have any cracks, openings, or hinges that would allow a bear to gain entry by biting or pulling with its claws.
- Wood containers are not considered bear resistant unless they are reinforced with metal.
- Although some plastic containers are very sturdy or effective at reducing odors, they are generally not designed to withstand the stress and compacting forces of an adult grizzly.
- Ice Chests and/or coolers are NOT considered to be approved Bear Resistant Food/Garbage containers

Bear Resistant containers are commercially available. Large steel drums with lockable lids are suitable for larger and more permanent summer camps.



There are many bear-proof containers online; this one is called a backpacker's cache – a bear resistant container.

Waste Disposal:

Waste disposal is just as important for safety in bear country as operating a clean camp is. You must not leave your garbage behind when you pack up your camp – you will be causing potential bear problems for those that follow you. Leaving garbage behind will teach a bear to associate humans with food.

Waste Disposal continued

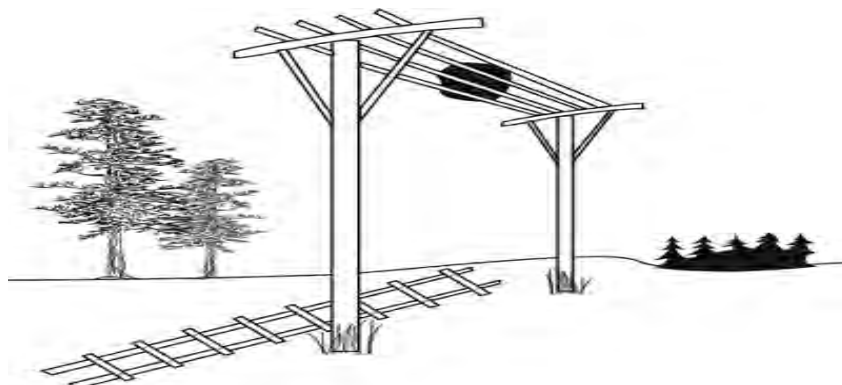
Never teach a bear to associate humans with food – a fed bear becomes a food conditioned bear = problem bear = bear that will need to be destroyed.

- You must completely burn all flammable garbage
- Store garbage that you cannot burn in an airtight container and store away from camp. Wash all cans, bottles and other containers before placing them in the airtight containers.
- Whenever possible, use the bear proof garbage disposal at any given camp or trail locations
- **PACK UP YOUR GARBAGE WHEN YOU MOVE TO A NEW AREA, LEAVE NOTHING BEHIND.**



Suspending your food in a tree is one way to keep food away from bears. Keep in mind that if the bear can smell the food in this backpack while it is suspended in the tree, they will also be able to smell the food while you are wearing the backpack. Food needs to be kept in airtight containers inside the pack. Bears are very intelligent animals and some have learned that all they need to do is break the branch that the pack is suspended from.

Camps should provide a place for you to store your food. Proper storage of food and garbage is important for both your safety and the safety of others.



Responding to a bear in camp

All camps need to have a bear plan in place. Everyone should know what to do if a bear enters the camp. Have a designated meeting place near camp. It is important to stay together and not let the bear separate the group. If the bear has been sighted at a distance and is approaching the camp:

- Walk to the nearest safe shelter.
- Make sure that everyone in the camp knows that there is a bear in the area
- Try to drive the bear away using appropriate deterrent methods, until the bear is out of sight.
- If one deterrent method is not working and time permits, try a different type of deterrent.
- Stay together – do not let the bear separate the group

Sometimes giving a curious bear a chance to satisfy its curiosity is all that is needed. Do not encourage the bear to return. Do not use food to lure the bear away from camp. If a bear returns to your camp, contact the nearest Fish & Wildlife branch and report the problem. They will set up a bear trap to catch and move the animal.



*Bears are curious about new things in their environment.
Sometimes allowing the bear to satisfy their curiosity is all that is needed.*

When a bear is in camp and no one is in immediate danger, try to scare the bear away. However, you must act quickly if the bear is attempting to enter an occupied tent or building. If people are in immediate danger, leaving the camp may be your best course of action.

Bear Myths

Grizzlies can't climb trees.

WRONG!



Can you tell which bear is a Grizzly and which is a Black Bear? Both can climb trees!

Answer to above: The first picture on the left is a young grizzly bear that has very successfully climbed up a small tree. The picture to the right is a yearling black bear cub, reddish-brown in color. Both species can climb trees, young grizzlies are very good climbers. An adult grizzly bear will also climb trees if they have enough motivation. A large Grizzly bear is more likely to try and push a tree over to catch its prey.