



Alberta BearSmart Program Manual

*Enhancing the opportunities for humans
and bears to co-exist in Alberta*

**Government
of Alberta ■**

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Introduction



The Alberta BearSmart Program Manual is designed to provide staff members of Alberta Sustainable Resource Development, stakeholders, as well as employees of other agencies, information on how to reduce human-bear conflicts. This manual describes key components of the program involving the following:

- communities,
- outdoor recreation,
- agriculture, and
- industry.

The *Alberta BearSmart program* is led by the Alberta Government to achieve the following:

- keep people safe,
- help bear populations survive, and
- reduce property damage and costs.

A key element of Alberta BearSmart is to deliver consistent bear awareness and conflict prevention messaging to various stakeholders and clients. Staff are encouraged to make use of the resources in this manual to pro-actively interact and communicate with the public.

What's in This Manual?

This manual is separated into five sections:

Section 1: Program Framework

Section 2: Natural History Information

Section 3: Human-Bear Encounters and Conflicts

Section 4: Deterrents

Section 5: Key Messages for Audiences

Section 1 provides an overview of the goals and objectives of the Alberta BearSmart program and the information and educational products available to support it. This section will be of interest primarily to government staff.

The other sections may be of interest to external readers in regards to promoting safety in Alberta's bear country.

Section 2 provides factual information on the two species of bears found in Alberta, including how to identify them and typical behaviour patterns.

Alberta BearSmart program:
keep people safe

help bear populations survive

reduce property damage and cost

Section 3 describes how human-bear encounters can be prevented and what to do if an encounter occurs.

Section 4 describes methods to deter bears, with an emphasis on non-lethal methods, such as noise, bear spray, bear-resistant containers and the use of dogs in bear country.

Section 5 outlines recommended key messages for communities, outdoor recreation enthusiasts, agriculture and industry. It includes information on how communities can be designated as “BearSmart” and how industries in bear country can adopt “Management Practices for the Prevention of Bear Problems in Camps.”

Why Use This Manual?

Conflicts between Albertans and bears continue to rise as the number of people living and enjoying various recreation activities in bear habitat increases. Fish and Wildlife staff have accumulated, over years of dedicated work, a wealth of knowledge about the source of conflicts between people and bears. Management actions traditionally focused on removing bears after the public expressed concerns. However, the focus has changed to a pro-active approach to reduce human-bear interactions rather than reacting to problem bears.

Future management actions must consider the source of conflicts, with an emphasis on **changing public attitudes and behaviours**. Currently, people have many differing attitudes to bears, depending on their perception of risks associated with bear encounters. Attitudes towards bears include the following:

- frightening or nuisances,
- special or cuddly, or
- posing no threat to people in certain circumstances.

Some residents think there are too many bears, whereas others are concerned that populations are too small. In some situations, some people kill bears to eliminate the risk of future conflicts.

These varied attitudes and behaviours significantly increase the potential for serious consequences resulting from human-bear encounters. **Education and outreach**

strategies are required to increase awareness of situations that can potentially lead to harmful encounters between humans and bears.

Increased awareness of these situations will improve public safety and reduce bear mortalities resulting from conflicts. It will also reduce property damage caused by bears and costs associated with management responses. About 30 serious incidents involving black and grizzly bears, resulting in three fatalities, were recorded in Alberta from 1993 to 2007. Since 2000, the annual number of bear-related incidents has averaged 2,300.

The Alberta BearSmart program equips staff with key messages and information products to help Albertans and visitors to the province safely engage in activities in bear country. The program also encourages individuals from all targeted audiences to take personal responsibility for their actions to prevent bear encounters. These actions will enhance public safety, reduce bear mortalities and contribute to fostering a stewardship ethic that promotes bear conservation.

Opportunities for Partnerships

Alberta BearSmart is a multi-stakeholder initiative led by the Alberta government. Significant potential exists for partnerships with industry, communities, First Nations and Métis Settlements and special interest groups.

The Karelian Bear Dog Program

This program is a complementary component of Alberta BearSmart. The purpose is to use Karelian bear dogs to increase the effectiveness of field operations in a wide variety of human-wildlife conflicts.

Fish and Wildlife officers use specially-trained Karelian bear dogs to enhance the investigation of and response to human-bear conflicts. The dogs help locate bear signs and bear attractants and identify bear travel routes. The dogs also alert Fish and Wildlife officers to the approach or presence of bears at conflict sites. In some circumstances, they are used to track and locate bears when a capture is necessary. Fish and

Wildlife officers and their dogs also support and complement bear shepherding programs (an innovative and intensive negative-conditioning technique). The Fish and Wildlife Division's Karelian bear dogs have proven to be ideal ambassadors for delivering BearSmart messages.

Public education and outreach efforts by Fish and Wildlife officers involved with the Karelian Bear Dog Program are designed to complement and support messages developed under the Alberta BearSmart program.

Some Useful Terms

The following terms are frequently used in discussion of bear management and public safety:

Attractants: Any thing a bear may associate with food, a mate or a cub in distress is considered an attractant. They include human and pet or livestock food, garbage, wastewater, diapers, empty drink containers, cosmetics, feminine hygiene products, animal sounds, cover scents, table scraps, blood and animal carcasses.

Bear-resistant containers: A securable container constructed of a solid, non-pliable material capable of withstanding 270 joules (200 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.

Habituation: Development in bears of potentially harmful habits that increase the potential for adverse human-bear encounters.

Human habituation: Tolerance of people learned by bears after repeated contact without negative experiences.

Human-food conditioning: Associating people with the availability of food.

Wildland-urban interface: Anywhere that human residences are established within a wild landscape, as opposed to a cultivated or fully urbanized area. Typically, bear country is considered wildland.

increased awareness will improve public safety and reduce bear mortalities

BearSmart helps bear populations survive

Karelian Bear Dogs ideal ambassadors for BearSmart



Program Framework



Mission Statement

The Alberta BearSmart program seeks to reduce human-bear conflicts and increase public stewardship in Alberta by providing strategic information and education materials to the public, stakeholders and government agency staff dealing with bears.

Desired Results

- Reduce the number of undesirable human-bear interactions, which may result in injury or death to both humans or bears.
- Reduce the number of bear mortalities and relocations that occur as a result of negative interactions.
- Reduce annual costs associated with property damage and management actions to address conflict situations.

Key Stakeholders and Audiences

Stakeholders

- Alberta government
 - Alberta Sustainable Resource Development: Fish and Wildlife Division; Lands Division; Forestry Division
 - Alberta Tourism, Parks and Recreation
 - Alberta Agriculture and Rural Development
- Canadian National Parks (Parks Canada Agency)
- Canadian Association of Petroleum Producers
- Forest industry and petroleum industry workers
- Hunting, fishing and conservation stakeholders
- Communities in bear habitat

reduce human-bear conflicts

increase public stewardship

reduce annual costs associated with property damage

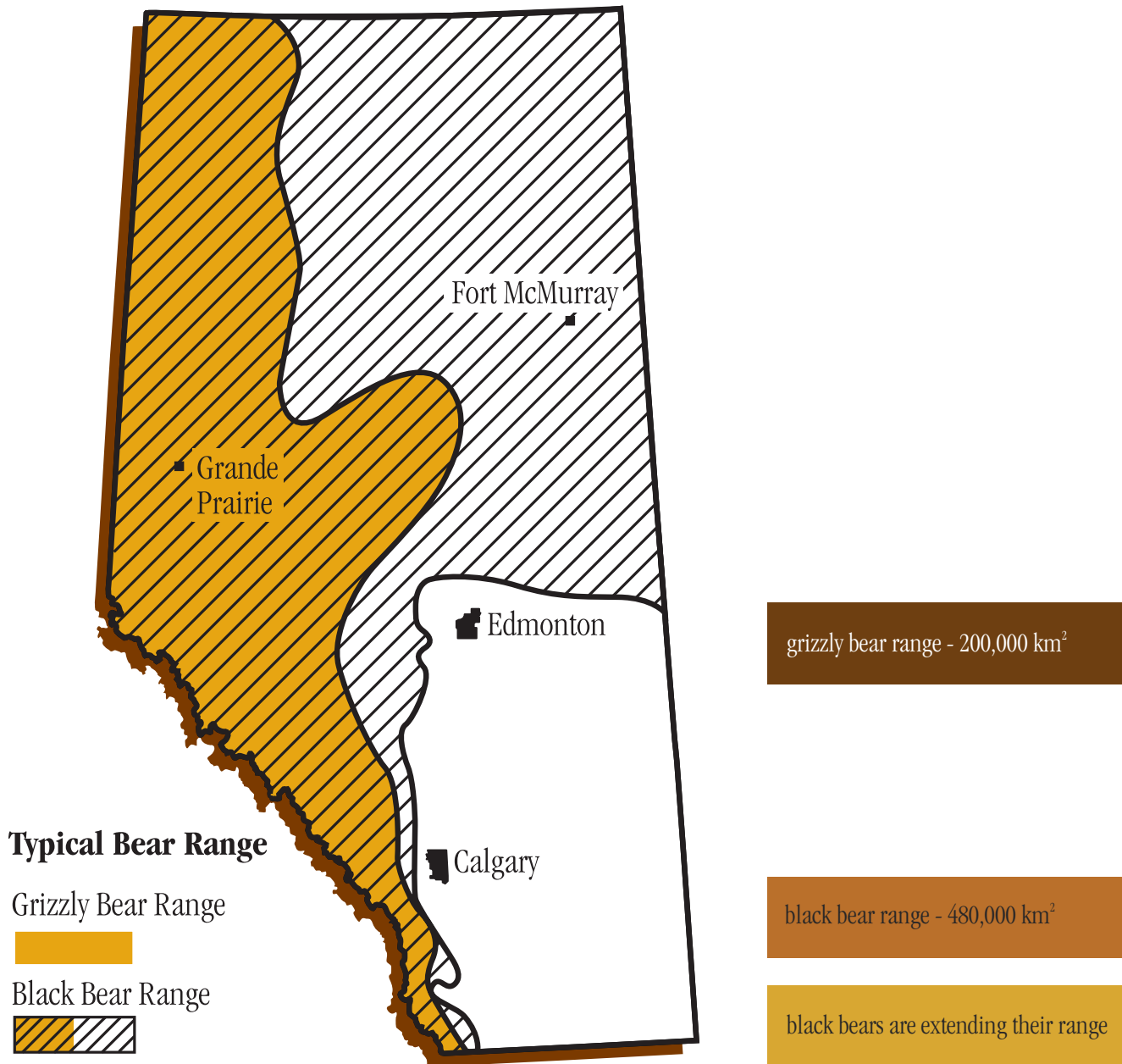


Natural History Information



The current black bear range in Alberta is about 480,000 square kilometres (roughly 74 per cent of the province). Black bear sightings near the city of Edmonton and other parts of central Alberta suggest that black bears are extending their range. This map shows the core distribution of black bears in Alberta. Black bears occur in most of the range occupied by grizzly bears in Alberta.

The current grizzly bear range is about 200,000 square kilometres, much smaller than a century ago, when grizzlies inhabited almost every part of Alberta. In recent years, there have been reports of grizzly bear sightings in areas that have been without grizzly populations for almost a century. Regional grizzly populations near Chinchaga River, Rocky Mountain House, and the area north of Waterton Lakes National Park appear to have increased since the 1960s.



Bear Identification

Grizzly Bears

- Grizzly bears have a pronounced shoulder hump.
- Grizzly bears may have silver or light-tipped guard hairs on their head, hump and back; black bears may appear more uniform in colour. Both species can range in colour from blonde to black.
- A grizzly bear's ears are rounded and appear smaller over all, while the black bear has more pointed and noticeable ears.



Black Bears

- Black bear claws are relatively short (approximately 2.5 centimetres in length), and are usually black. Grizzly bear claws are longer (approximately 7.5 to 10 centimetres in length); grizzly claws may have a light-coloured strip.
- Black and grizzly bear tracks differ significantly, although in mud or snow the tracks may be indistinguishable. The tips of the front claws usually leave imprints a few centimetres in front of the front pad imprint.



Bear Signs

Tracks

- Grizzly tracks are typically larger than those for black bears (see Bear Identification on preceding page).
- Bear trails – bears are creatures of habit and return to familiar areas; they sometimes step in their own tracks, leaving a trail.

Scats

- Bear scats are distinctive piles, especially following a diet of berries.

Diggings

- Rolled logs and rocks – bears search for insects to eat under these items
- Torn stumps
- Rubbed, chewed and claw-marked trees
- Anthills torn open
- Well-buried carcass of large mammal, such as elk, deer, moose and cattle
- Concentration of scavenging birds, such as ravens, magpies and crows at a carcass

Understanding Bears

There are a few key characteristics and behaviours that must be understood regarding bears:

- Bears have a **curious, investigative** nature, an important trait that helps them find new food sources;
- Bears have an acute sense of smell, and they rely heavily on it to find food and other animals;
- Bears are intelligent. They figure out how to gain entrance to containers, vehicles and buildings that smell attractive to them, and they remember these skills;
- All bears are naturally wary of people and are reluctant to come close to people and human environments;
- All bears have personal space around them and feel scared or threatened when this space is invaded;
- Bears that have repeated contact with people with no negative experience may learn to tolerate people;
- A bear that has learned to associate food with people will actively search for food or garbage in areas frequented by people; and
- Most importantly, a bear's life revolves around food.



all bears are naturally wary of people

a bear's life revolves around food

Like humans, bears are omnivores, eating both plant and animal food. Unlike us, bears are opportunistic feeders that will eat almost anything, from toothpaste to ground squirrels. One way they gather food is by scavenging. They search for meals by rummaging and investigating possible food sources and are quick to learn that when they see or smell humans, there's a good chance food is nearby. Once a bear becomes accustomed or habituated to food sources that result from human carelessness, it is difficult to stop this behaviour, but there are non-lethal methods to do so. They are described in the "Deterrents" section (p. 29).

Black Bears

Black bears are usually timid, non-aggressive animals. Depending on their level of habituation, they tend to avoid people. Often the danger from black bears is exaggerated, which may result in the removal or even the death of the bear. To safely coexist with these animals, people need better knowledge of their behaviour and an improved understanding of the real risk they impose on public safety.



Here are some key facts about black bears that should be understood by anyone in bear country:

- **It is rare for a black bear to attack a human.** There are thousands of human encounters with black bears each year. The vast majority do not result in an attack.
- The few serious incidents that occur with black bears can usually be attributed to **human error** and happen in a truly wild environment where the bears have had little or no human contact.
- All bears, regardless of species, need to be respected.

The Importance of Personal Space

The size of personal space required by a bear varies from animal to animal, depending on how accustomed it is to humans and on its sex and species. When this personal space is invaded, the bear feels scared or threatened and two things can occur - a fight or a flight.

Black bears evolved in a treed environment. When they felt threatened, they usually climbed a tree for safety or fled into the forested cover. Therefore, a black bear's instinctive reaction when feeling scared or threatened is to climb a tree or flee.

Grizzly bears evolved in a treeless environment. When they felt threatened, there was no forest cover for safety so they had to stand their ground and defend themselves, their food or offspring. It is a grizzly bear's instinctive reaction to stand its ground, a grizzly is more likely than a black bear to stand its ground when feeling threatened. However, many do not. Not every encounter with a grizzly bear acting defensively will lead to an attack, but generally, a grizzly bear will behave more aggressively than a black bear.



Understanding Bear Management

Responding to human-bear conflict complaints is a priority for Alberta Sustainable Resource Development's Fish and Wildlife Division. The methods of control may range from advice on prevention or deterrents, issuing clean-up orders under the *Wildlife Act* or, as a last resort, trapping and relocating a bear. In some situations, euthanization may be the only practical management alternative.

An important message to convey to outdoor enthusiasts is that Fish and Wildlife and Conservation officers sometimes have to remove a nuisance bear from an area by live-trapping it. Outdoor enthusiasts are reminded to stay away from bear traps. Greater awareness needs to be developed among all target audiences of the importance of leaving an area immediately if a "problem bear" notice is posted. It is illegal to enter an area that has been closed to the public because of a problem bear. People who cross into such an area may be prosecuted.

all bears need to be respected

responding to human-bear conflict complaints is a priority

trapping and removing problem bears is not the solution

Simply trapping and removing problem bears is not the solution. Removing or relocating bears has been the traditional approach, but it can have undesirable results:

- The bear may die from stress or lack of food.
- Another bear may kill the relocated bear.
- The bear may be injured during the capture, transfer and release procedures.
- The bear may return even after being moved a long distance.
- The bear may continue the same behaviour and create conflicts at a new site.
- The ecological balance that is an important part of Alberta's natural environment is reduced.
- The bear may pose risks for the public, pets and staff.



Human-Bear Encounters
and Conflicts



Preventing human-bear conflicts is a priority of the Alberta BearSmart program. An important responsibility of staff in Alberta Sustainable Resource Development's Fish and Wildlife Division is to provide advice on prevention of human-bear encounters. (Other methods of control are identified in "Understanding Bear Management," page 17.)

Education is the key to minimizing the potential for human-bear conflicts and the impact of human activities on ecosystems. There are strategies that help people safely enjoy outdoor recreation, or live or work in bear habitat. Careless human activities can easily result in the death of a bear.

Anyone engaged in activities in bear country must understand that their response to a bear should be appropriate for each particular situation. Bears react to people in different ways in different situations. These may include the following:

- the season,
- if the bear is hungry,
- if bear cubs are present, and
- if an escape route is available.

Although most bears are shy and will avoid people, attacks occasionally occur and a serious mauling may result. Confrontations can occur when bears, especially females with cubs, are surprised at close range. As well, bears that have become used to eating human food may appear tame but still attack if stressed or provoked.

Those who enjoy outdoor recreation or live or work in bear country have a responsibility to learn about bears and behaviour and how to prevent and react to attacks. Books, videos and courses are available on this subject. Remember, all bears are individuals. All bear encounters are unique, so prevention is key. People are encouraged to always report a bear incident to the nearest Alberta Sustainable Resource Development Fish and Wildlife office or to park offices.

Habituation of Bears

Bears can learn to tolerate people even though their natural behaviour pattern is to be wary of them. They learn this tolerance after they have repeated contact with people without having negative experiences. This tolerance of people is often referred to as human habituation. Human-bear conflicts can arise when the animal learns to associate people with food. This level of habituation is called human-food conditioning. A food-conditioned animal actively searches for food (usually garbage or other attractants) in areas frequented by people. If the bear has no negative experiences associated with that behaviour, it may continue to search for food near humans as long as the animal receives the positive reward of food.

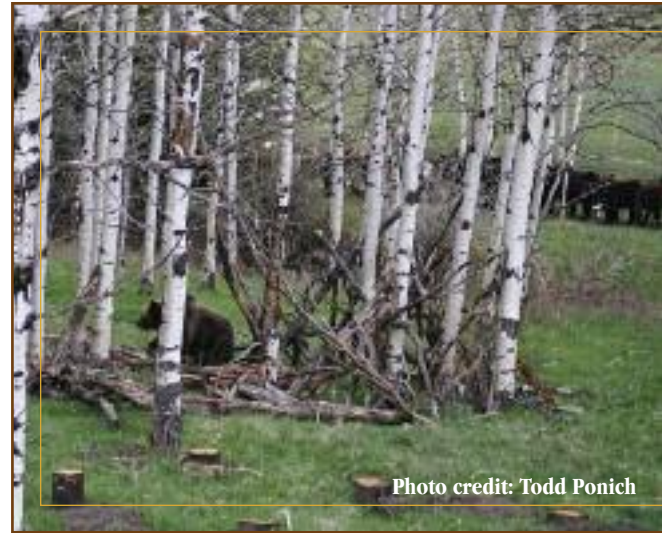


Photo credit: Todd Ponich

education is key to minimizing human-bear conflicts

careless human activities can result in the death of bears

always report a bear incident

The majority of human-bear conflicts that arise involve an animal that exhibits both types of behaviour. The bear is not only human-habituated, it is human-food conditioned.

Preventing Human Habituation

To prevent bears from becoming human-habituated, it is important not to let them feel comfortable in or around human-use areas. For instance, a black bear with no previous contact with people will be wary of a camp that was recently constructed within its home range and will keep its distance. But as time goes on, the bear may become accustomed to the strange noises and activities of the camp. It may gradually approach closer as it carries out its daily routine of searching for food. This is the beginning of the bear becoming human-habituated.

If the bear has no negative experiences to associate with the camp it starts to learn that the camp poses no threat to it. Eventually, the bear may become habituated to the point where it no longer flees when a vehicle drives by or it comes in contact with humans.

When the bear feels comfortable in or around a human-use area, its continual search for food may bring it inside the camp, where it can find garbage or other human food sources. The bear is now human-food conditioned as it associates the human-use area with food. If the bear has no negative experiences to associate with its behaviour, it will repeat the behaviour. A bear or any carnivore that acts on this learned behaviour can be a significant threat to human safety and property.

To avoid causing habituation, people should:

- Set boundaries for bears, e.g., 400 metres from camp.
- Not let a bear encroach within the set boundary.
- Use negative experiences or devices to chase the bear away, such as bear bangers or a foghorn.
- Ensure the bear cannot access human food sources; obtaining food is a positive experience.
- Not feed any wildlife.
- Do not let the bear feel comfortable around a human-use area or people, even if there is no immediate perceived threat.

- Not remain in proximity to a bear to watch or photograph it; doing so increases the opportunity for the bear to become habituated to humans.

Avoiding Encounters with Bears

Most bears will avoid contact with humans and will flee or not make their presence known if a human is in the area.

The following are the two main ways people can prevent an encounter:

- avoid surprising a bear; and
- take precautions so bears are not attracted to a camp or work area.

People need to be “bear-aware.” When travelling or working in bear country, they should look for signs of bear activity, such as droppings, tracks and feeding areas. The type of tracks that are observed can provide valuable clues to what species of bears are in the area and how old they are. Feeding areas can be identified by the presence of overturned rocks, torn-up stumps or logs, berry patches or fish-bearing streams.

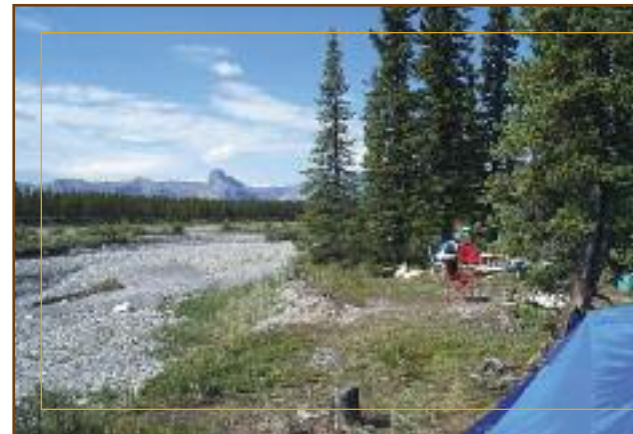
Avoid Surprising a Bear

- Make noise when travelling, especially in areas of limited visibility. Talk, sing, shout, use air horns, rattle rocks in a can or use other methods.
- Slow down when biking in bear country—moving quickly and quietly increases the chances of surprising a bear. In noisy areas, such as along rivers and streams, an air horn is effective in alerting bears.
- Avoid dangerous situations. This includes avoiding travelling upwind or in noisy conditions, such as high winds, rain, and along rivers and low light conditions, such as late evening, night and dawn; or in heavily treed cover.
- Be aware of wind direction as bears rely on their sense of smell more than their sense of sight or hearing.

- Bear bells are ineffective because the sound they generate does not carry any distance. In addition, they may attract a bear as it may investigate the source of the strange noise.
- Keep dogs under control; they can be a deterrent or early warning system in bear country. The dog must be obedient and well trained. Uncontrollable dogs or those that do not have a good disposition to deal with bear encounters are a liability in bear country. Having more than one dog means more effective bear deterrence. They should be kept on leashes and not allowed to chase wildlife.
- Avoid travelling alone; larger numbers of people (six or more) help to intimidate bears.

Avoid Attracting Bears to Camp

- **If camping outside of an established camp, do not** camp in an area or near trails that are frequented by bears. Bears will often use established trails, shorelines, ridges or any path of least resistance when travelling.
- Reduce and contain bear attractants. Attractants are any thing or sound that bears may find interesting as food, a mate or a cub in distress. They include human and pet or livestock food, garbage, wastewater, diapers, empty drink containers, cosmetics, feminine hygiene products, animal sounds, cover scents, table scraps, blood and animal carcasses.
- Keep cooking areas as far downwind as possible from tents to avoid attracting bears into the camp.
- Avoid wearing the clothes you cook in. Treat these clothes the same as you would any attractant.
- Be meticulous and keep a clean camp, including storing food and unwashed cooking utensils in clean, airtight containers to minimize odours.
- Avoid cooking or eating in tents.
- If possible, use a cache to hang food out of a bear's reach, and never store any food in tents. Others may use the campsite, so they should make sure it is at least as clean as when they got there.
- Store garbage, food and beverage cans in airtight containers and pack them out. Paper and other combustibles other than food wrappers can be burned, but any unburned material should be cleaned up immediately. Bears can easily find buried food or garbage.
- After use, store feminine hygiene products in airtight containers and pack these out for disposal.
- Bear-resistant containers of various sizes are not hard to find. People can conduct an Internet search or visit an outdoor supply company.



a human-food conditioned bear can be a significant threat to human safety

avoid surprising a bear

reduce and contain bear attractants

- People should avoid buried carcasses or the smell of dead or rotting animals. Bears, especially grizzly bears, will aggressively defend a carcass.
 - Scavengers such as crows, ravens or coyotes can often indicate the presence of a dead animal.
 - Bears will bury a carcass with dirt, leaves or branches.
 - If a buried carcass is discovered, people should use extreme caution and leave immediately.

Responses to Bear Encounters

Whenever they are in bear habitat, people should always be mentally prepared for the possibility of encountering a bear. Read and do some research on bear behaviour and become familiar with various possible responses to encounters.

Despite all precautions in bear country, there is always the chance of an encounter with a bear at close range. The following are strategies regarding encountering a bear:

- If the bear is not aware of your presence, do not attract its attention and leave the way you came.
- Retreat slowly while keeping your eye on the bear.
- If you must proceed to a destination, give the area where the bear was spotted a wide berth.
- Even if you think you are a safe distance away, do not purposefully alert the bear to your presence.
- Take a route where there is good visibility and scan ahead for any further sightings of the bear.
- **If the bear is aware of your presence, stay calm and assess the situation.** In most instances under these circumstances the bear will leave the area.



- If the bear has spotted you, initially it may stand on its hind legs in order to pick up your scent or to get a look at you.
- A startled bear may suddenly run away or stand up quickly showing some signs of stress; this bear has been frightened but is not necessarily dangerous.
- Behave in the same manner as previously described; stay calm, appear non-threatening and allow the bear a chance to retreat.
- Size up the situation:
 - Watch the bear's behaviour; try to determine if the bear is a grizzly or a black bear;
 - Beware if cubs or a food source, such as a carcass, is present;
 - Try to warn companions (without shouting) and take any children by hand;
 - If the bear is close, avert your eyes since a direct stare may further stimulate an aggressive bear;
 - Try to back away and leave the site by the way you came; and
 - Assess your surroundings to determine an escape route or a tree to climb should the situation escalate. Remember, black bears climb trees very well.
- Speak softly to the bear to identify yourself as human and avoid rapid movements.
- Bears can easily outrun people, and the running movement may provoke a chase.
- Move away from the bear, particularly if it is a cub. The sow will be nearby. Move upwind if possible to give the bear your scent.
 - Ensure the bear has an escape route and does not feel trapped or cornered.
 - Prepare to defend yourself with bear spray.
 - Climbing a tree is an option but does not guarantee safety. Black bears are excellent climbers, and grizzlies have also been known to climb trees. If you do decide to climb a tree, climb as fast and as high as you can.

Preventing and Responding to Bear Attacks

Types of Bear Behaviours

There are two types of behaviour associated with bear attacks:

- defensive
- predatory

Recognizing the difference between the two behaviours is important because they require vastly different responses. Knowing the right response may prevent serious injury or death. A bear that is simply curious about or indifferent to a person's presence can easily adopt a defensive or predatory manner. What people do in response to a bear's presence or approach may influence an encounter.

Defensive behaviour is exhibited when a bear is threatened and is usually defending something such as offspring, a food source or themselves.

Predatory behaviour can encompass several different scenarios.

If a person is in close proximity to a bear less than 100 metres or about the length of a football field and it continues to approach, it is important that the person try to determine what is motivating the bear's actions. If the bear is exhibiting a **defensive** behaviour, it may try to chase them away. If it is exhibiting a **predatory** behaviour, it may try to kill them.

Predatory attacks by bears are rare. Both black and grizzly bears have been linked to predatory attacks.

Defensive Behaviour

Understanding What Motivates Black Bears and Grizzly Bears

There are three situations in which bears may exhibit defensive behaviour:

- to protect cubs,
- to protect a food source, and
- to protect their personal space.

Cubs

Female bears will, on occasion, attack a person to defend her cubs. Female grizzlies do seem to be more likely to exhibit attack behaviour to defend cubs than black bears. In most cases, a female black bear and her cubs will climb a tree or flee.

Food Source

Bears will defend a variety of food sources, most usually carcasses. While the intensity of the defensive behaviours may vary, grizzlies may be more likely to actually complete an attack made in defence of a food item.

if a buried carcass is discovered,
leave immediately

prepare to defend with pepper spray

predatory attacks by bears are
extremely rare

Themselves

Bears may act defensively as a result of a sudden encounter where the bear is surprised or where it has been approached within its personal space. It is rare for black bears to defend themselves unless they feel cornered. In most cases, a black bear will climb a tree or flee. A grizzly bear may exhibit a higher level of aggression and initially stand its ground but may also immediately flee in the same way most black bears do.

Recognizing Defensive Encounters

A bear that demonstrates defensive behaviour is a bear that is feeling stressed or threatened. A stressed bear commonly displays a change in:

- body posture;
- vocalization, such as teeth popping, blowing and huffing; and
- body movements, including subtle ones such as ears going back, swatting at the ground or swaying the head, or even a charge.

In most cases, other clues will also be present, for instance, the presence of cubs or a carcass.

It is not uncommon for a bear to bluff charge in an attempt to remove a threat. A bear may bluff charge to within a few metres or run past the person with no intention of attacking. Any close encounter with a bear can be frightening, but it is important that people not panic and do not react in a manner that might escalate the situation.

Reaction to a Defensive Encounter

When encountering defensive behaviour, follow these guidelines:

- Do not panic or act in a threatening manner - remain calm;
- Talk softly to the bear (this will reassure you and the bear);
- Do not run; avoid sudden movements;
- Group together;



Photo credit: Ken Schmidt

- It is important to glance frequently at the bear to determine the appropriate response, but avoid direct eye contact with the bear;
- Prepare your deterrent, such as bear spray.
- Retreat slowly while keeping your eye on the bear.
- If the bear charges, do not run. Stand your ground and use their deterrent.

Reaction to a Defensive Attack—Play Dead

A bear that is attacking defensively is attempting to stop a threat, not kill the threat. People should try to show the bear they are not a threat to its cubs, food source or itself by playing dead; this will increase their chance of survival.

Most bear attacks do not result in the person being killed. If the bear's intention is to kill, it has the strength and ability to quickly do so. Most defensive attacks are of a short duration and the attack ceases when the bear perceives the threat no longer exists.

If a bear charges and it is clear that it is a defensive encounter, the person should lie face down on the ground, but only at the moment just before contact is made. They should **not play dead before the bear contacts them**, especially when a bear is approaching at a distance. To do so may actually encourage the bear to attack. Lying on their stomach will aid in protecting their face and vital organs.

Follow these directions:

- Leave a pack on if you are wearing one as it will help protect you;
- Clasp your hands around the back of your neck to protect it;
- Don't shout; remain as quiet and still as possible;
- Roll back onto your stomach if the bear rolls you over;
- Don't move until you are sure the bear has left the area. Moving or shouting out may result in the bear resuming the attack; and
- If the attack is prolonged or if the bear starts to bite, fight back.

Being attacked by a bear is a terrifying experience, but it is important to remember that **most people survive bear attacks**. The ferociousness of bear attacks varies in each circumstance. Some attacks only result in minor injuries but, on occasion, the attack is so severe the person dies.

Non-defensive or Predatory Encounters

Predatory and non-defensive encounters are similar because, in each case, the bear will show no signs of stress. Non-defensive encounters are not necessarily predatory, but they can turn into predatory encounters. As with defensive encounters, it is extremely important that people are able to recognize this type of behaviour so they respond appropriately.

Non-defensive Behaviour

A bear that exhibits non-defensive behaviour may only be curious, looking for a handout or attempting to exert its dominance. **A bear that is aware of a human presence and approaches showing no signs of stress is behaving in a predatory or non-defensive manner.** The head may be up, the ears forward and there will be little or no vocalization. The bear may not have the intention of killing and eating the person, but non-defensive behaviour could turn predatory.

Predatory Behaviour

Predatory behaviour is similar to non-defensive behaviour because there will be little or no sign of stress and the bear may appear to stalk the person. Stalking is usually a sign of a predatory bear. The bear may circle around a person to try to detect their scent; it will remain quiet and will likely approach in a slow, hesitant manner with its head up and ears erect before making a rush from a short distance.

not uncommon for a bear to bluff charge

a bear attacking defensively is attempting to stop a threat, not kill the threat

most people survive bear attacks

Reaction to a Non-defensive or Predatory Encounter

If a bear has detected a person, continues to approach and comes within about 10 metres (about the length of a school bus) without any indications of leaving, a person should try to intimidate the bear. In a predatory or non-defensive encounter, it is extremely important that people not be submissive when the bear is at such a close range. This may involve acting aggressively towards the bear.

You Should:

- Not run and should keep facing the bear;
- Not stare the bear in the eye; this is a show of dominance;
- Act more aggressively as the bear gets closer;
- Make yourself as large as possible by standing on a stump, log or moving uphill;
- Shout at the bear in a loud, commanding voice;
- Prepare and use a deterrent, such as bear spray or bear bangers;
- Pick up a stick or rocks to use as a weapon;
- Stomp your feet and use rapid hand movements; and
- Become extremely forceful; in most cases the bear will move off.

Note:

Although climbing a tree may save someone from a predatory bear, some people have been dragged from a tree and killed or injured as a result.

If the bear does retreat, it is important the person continue to be aware and alert. The bear may not be far away and may return for another confrontation. The person should attempt to remain in an area with good visibility and continually scan the area, especially behind them.

Reaction to a Predatory Attack

If the bear physically attacks and contact is made, the person should **FIGHT BACK**. In a predatory attack, the person is fighting for their life. They have no other choice but to be as aggressive and forceful as possible. Predatory attacks are rare, but they do occur.

Playing dead is not an option as the bear does not see the person as a threat. Instead, the bear will see the person as a food source.

- Bears are extremely powerful and you will most likely be knocked to the ground.
- Continue to use bear spray, even in close contact with the bear.
- Try and remain on your back, facing the bear.
- Kick, punch and use whatever weapon is at hand. Hitting a bear with a rock is better than a fist.
- A belt knife or empty can of bear spray can also be used as a weapon.
- Focus strikes to the eyes, face and nose of the bear.



Deterrents



There are numerous effective deterrents that individuals can use. For all targeted audiences, bear spray is the preferred and recommended deterrent, and all audiences are encouraged to use bear-resistant garbage containers. A broader range of deterrents and garbage management systems are described for those working in industrial camps.

Individuals should be aware that some bears may respond dominantly to either a noise or a physical deterrent. Whenever using a deterrent, people should be prepared to defend themselves with bear spray in the event that the bear closes distance.

Non-Lethal Deterrents

Non-lethal deterrents can effectively prevent a physical encounter with a bear and, if used properly, cause no injury to the animal. Non-lethal deterrents can be broken into two categories, noise deterrents and physical deterrents.

Noise Deterrents

Noise deterrents can be effective in creating a negative experience without causing any harm or injury to the bear. Noise deterrents provide negative auditory and visual experiences. Noise deterrents include, but are not limited to, the following:

- air horn;
- bangers;
- screamers;
- 12-gauge crackers; and
- 12-gauge whistle crackers.

Physical Deterrents

Physical deterrents are very effective in creating a negative experience for a bear. There are a variety of deterrents available but caution is needed as many can seriously injure or kill the bear if used improperly. Physical deterrents include, but are not limited to, the following:

- bear spray;
- 12-gauge bean bags;
- 12-gauge rubber slugs; and
- 12-gauge rubber buckshot.



bear spray is the preferred and recommended deterrent

noise deterrents can be effective

physical deterrents are effective but caution is needed

Proper Use of Bear Spray

Bear spray has been used to stop and turn away many attacking bears. Even if it does not prevent a mauling, it still has the potential to diminish the duration and severity of the attack. Bear spray should be used as a deterrent or weapon. The spray must enter the bear's eyes, nose and mouth to be effective. Bears may be attracted to bear spray residue, so do not apply bear spray as a repellent.



Photo credit: A. Baker - ACA

- The spray might be required in a matter of seconds. It should be carried at a quick-draw position when you may encounter a bear. This may include at night if you are sleeping in a tent.
- Bear spray should be considered the best deterrent against a bear—before resorting to lethal methods, such as gunfire. Spray is cheaper to buy, more convenient to carry, legal in all bear habitats and effective in most cases.
- Avoid spraying upwind since the spray may be blown back and incapacitate you.
- If a bear charges, begin spraying when the bear gets within 12 metres (equivalent to a bus length).
- Release the spray in a cloud pattern, not a stream.
- The initial blast should be released when the bear is just within range. If it does not deter the bear and a charge continues, the rest of the spray should be released at the bear's head. The amount of spray to use on the initial blast should be matched to the situation. A longer initial blast may be needed on windy, rainy and cold days, or if the bear is particularly aggressive (e.g., a sow with cubs or a bear at a kill site). A shorter initial blast may be better if:
 - there is more than one bear,
 - you may encounter more bears, and
 - the spray has been used for previous attacks.

- Spray canisters can lose their pressure over time, particularly if they have been used once. This can be detected by precisely weighing the can using a good scale to determine the weight of the pressurized gas that has escaped.
- Bear spray must not be carried in the cockpit of an aircraft where an accidental discharge could disable the occupants.
- Bear spray has an expiry date, so check this date prior to potential use.

All bear pepper sprays have three components in common:

- oleoresin capsicum (an oily residue extracted from cayenne pepper that naturally contains the active ingredient—capsaicin—that elicits an intense burning sensation);
- a carrier that thins and dilutes the oleoresin capsicum; and
- a propellant that supplies the energy to expel the carrier and active ingredient from the can.

Choosing an Appropriate Bear Spray

When choosing an appropriate bear spray, look for the following:

- a minimum can size of 225 grams;
- a minimum concentration of .85 per cent capsaicin;
- a minimum effective range of three metres;
- a minimum spray duration of six seconds;
- a cloud spray pattern;
- the label states “deterrent” not “repellent”;
- the active ingredient is a derivative of oleoresin capsicum;
- a shelf life of four years after initial purchase; and
- registration under the *Pest Controls Product Act*.

How Bear Spray Works

When bear spray is deployed, it comes out as a fog and has an effective range of about three metres. The active ingredient, capsaicin, causes an inflammatory sensation when it comes in contact with skin, causing pain receptors to send the same impulses as those generated by burning heat.

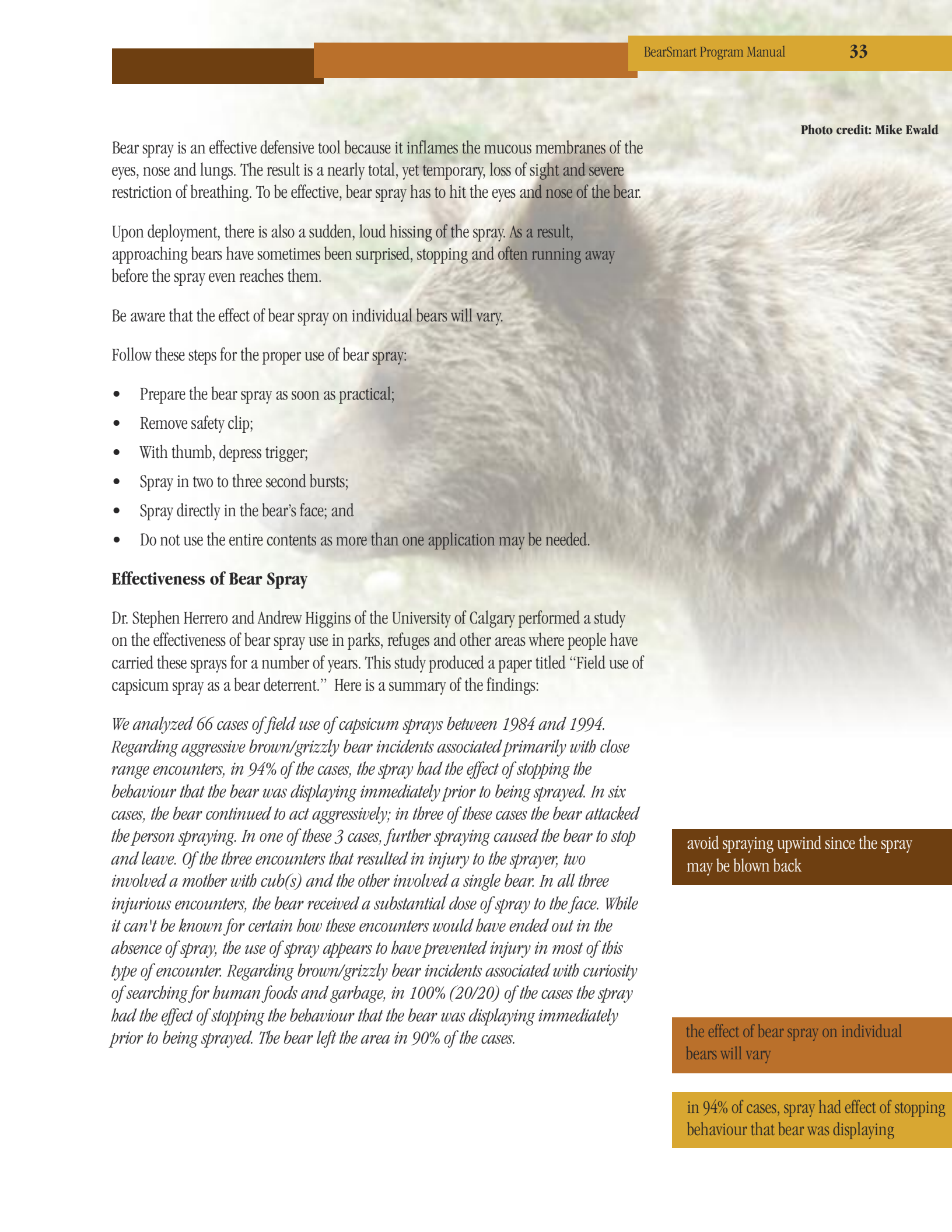
A close-up photograph of a bear's head, showing its thick, light-colored fur and the texture of its skin. The bear's eye is partially visible, and the background is a soft-focus natural setting.

Photo credit: Mike Ewald

Bear spray is an effective defensive tool because it inflames the mucous membranes of the eyes, nose and lungs. The result is a nearly total, yet temporary, loss of sight and severe restriction of breathing. To be effective, bear spray has to hit the eyes and nose of the bear.

Upon deployment, there is also a sudden, loud hissing of the spray. As a result, approaching bears have sometimes been surprised, stopping and often running away before the spray even reaches them.

Be aware that the effect of bear spray on individual bears will vary.

Follow these steps for the proper use of bear spray:

- Prepare the bear spray as soon as practical;
- Remove safety clip;
- With thumb, depress trigger;
- Spray in two to three second bursts;
- Spray directly in the bear's face; and
- Do not use the entire contents as more than one application may be needed.

Effectiveness of Bear Spray

Dr. Stephen Herrero and Andrew Higgins of the University of Calgary performed a study on the effectiveness of bear spray use in parks, refuges and other areas where people have carried these sprays for a number of years. This study produced a paper titled “Field use of capsiicum spray as a bear deterrent.” Here is a summary of the findings:

We analyzed 66 cases of field use of capsiicum sprays between 1984 and 1994. Regarding aggressive brown/grizzly bear incidents associated primarily with close range encounters, in 94% of the cases, the spray had the effect of stopping the behaviour that the bear was displaying immediately prior to being sprayed. In six cases, the bear continued to act aggressively; in three of these cases the bear attacked the person spraying. In one of these 3 cases, further spraying caused the bear to stop and leave. Of the three encounters that resulted in injury to the sprayer, two involved a mother with cub(s) and the other involved a single bear. In all three injurious encounters, the bear received a substantial dose of spray to the face. While it can't be known for certain how these encounters would have ended out in the absence of spray, the use of spray appears to have prevented injury in most of this type of encounter. Regarding brown/grizzly bear incidents associated with curiosity of searching for human foods and garbage, in 100% (20/20) of the cases the spray had the effect of stopping the behaviour that the bear was displaying immediately prior to being sprayed. The bear left the area in 90% of the cases.

avoid spraying upwind since the spray may be blown back

the effect of bear spray on individual bears will vary

in 94% of cases, spray had effect of stopping behaviour that bear was displaying

Precautions

Wind conditions

Wind speed and direction can affect the efficiency of bear spray. If the wind is blowing in the user's face, the spray will contaminate the user and not the bear. In addition, if there is a crosswind, the bear may not receive a full application of the spray. Prior to deployment of the spray, the user should move to where the wind direction is more favourable, if possible.

Accidental contamination

The inflammatory properties of the bear spray will affect humans in a similar way as bears. A person contaminated with bear spray will experience irritation and swelling of the mucous membranes of the eyes, nose and lungs. The eyes will involuntarily close and tear, the nose will run profusely and coughing will result. To de-contaminate upon an accidental contamination, the person should:

- Wash all affected areas with cool clean water;
- Remove contact lenses;
- Wash all contaminated clothing as soon as possible;
- Be aware of hypothermia in cool weather conditions; and
- Take short shallow breaths to avoid breathing in the spray.

It may take up to 20 minutes before relief from the symptoms are felt. If symptoms persist, the individual should seek medical attention.

Transportation and storage

When transporting bear spray, the carrier should ensure that the safety clip is on the trigger to prevent an accidental discharge. Bear spray should not be transported in the passenger compartment of a vehicle. On an aircraft, the pilot must be advised that bear spray is being transported. The bear spray should be placed in an airtight container and stored in an outside compartment of the aircraft.

When storing bear spray, the following guidelines should be used:

- Do not place cans near a heat source;
- Do not store at temperatures above 50 degrees Celsius;
- Do not store at temperatures below -10 degrees Celsius; and
- Do not puncture the can.

Other considerations:

- All bear spray cans have an expiry date and a shelf-life of about four years. Do not use expired cans.
- Replace bear spray as soon as practical after being deployed. Even one use can deplete half the contents.

Bear spray must be carried so it is easily accessible, preferably in a holster worn on a belt or pack.

Deterrent Systems

Garbage and human food are the two main causes of conflicts between humans and bears. Human foods and garbage are strong attractants to bears. A successful bear is a well-fed bear, and a bear will soon learn that garbage and human food can be an easily available food source. The amount of calories obtained from a bag of garbage is significant compared to the energy the bear had to expend to obtain it. Bears are in a constant search for food as their survival depends on how well they feed between leaving and re-entering their dens. In years where there is a natural berry crop failure, garbage becomes even more attractive to bears.

Proper garbage storage and disposal is vital as a preventive measure to reduce conflicts between humans and bears. Some of the main sources of garbage are industrial camps and landfills. At no time should bears be allowed access to this attractant. The most effective solution for handling bear problems is to eliminate garbage from the bear's environment before a problem develops.

- Never store garbage outside unless it is in a bear-resistant container.
- Minimize odours with plastic garbage bags and tight-fitting lids.

- Keep garbage cans free of odours and wash often.
- Do not leave garbage on a balcony or porch (black bears are expert climbers).

Other attractants that are sources of conflict can include stored grey water (sewage and used water), compost bins, fire pits, barbecues, petroleum products or anything else a bear perceives as food. As with garbage, steps should be taken to ensure that a bear is not attracted to an area where it is not welcome.

Bear-resistant Garbage Containers

A container is defined as bear resistant if it meets the following criteria established by the Interagency Grizzly Bear Committee.

A securable container constructed of a solid, non-pliable material capable of withstanding 270 joules (200 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.

Containers that do not have lids or have insufficient lids are not considered bear-resistant. Bear-resistant garbage containers are an effective means of restricting bear access to garbage only when the lids are properly secured. Often bears will access garbage through a poorly maintained lid or one that was left open. Ideally in an industrial camp, garbage containers should be located within an electric fence (with appropriate signs warning the public that electric fencing is a safety hazard).



Dogs in Bear Country

Many agencies discourage the presence of dogs in bear habitats since they may annoy people, harass wildlife and potentially bring bears back to their owners. However, there are many examples and a long history of dogs being used to efficiently and economically protect people and property from bears.

There are a few dog breeds that have been developed specifically for this purpose. The ability to deal effectively with bears is a trait of each individual dog. Some breeds, such as Karelian Bear Dogs, have been bred selectively to work with bears; however, not every dog in that breed will be capable of doing so effectively. People living or working in bear habitat may consider using dogs to minimize human-bear conflicts.

when transporting bear spray, prevent an accidental discharge

never store garbage outside unless in a bear-resistant container

dogs in bear habitats may bring bears back to their owners

The following points should be considered:

- The dog must be obedient and capable of being controlled by its handler at all times.
 - The dog must have a disposition that allows it to work with bears and should not be aggressive toward people or other animals. This requires intensive training and a strong commitment to maintaining the dog if good performance is expected.
 - A dog with high energy levels, medium body size (15 to 25 kilograms) and bold behaviour works best. Breeds of the spitz type (karelian bear dogs, laiko and huskies) have been bred for this work for hundreds of years. Individuals from other breeds, such as border collies, heelers and shepherds, may also work well.
 - A dog might be able to raise the alarm to the presence of a bear or even repel the bear, but a group of dogs could do so more effectively.
- The dog should be kept on leash as much as possible to reduce its ability to tree a bear, incite a fight or herd the bear in an undesirable direction. This also allows the bear time to vacate the area without injury. There are only rare situations where a dog should be allowed to chase the bear off-leash.





Key Messages for Audiences



Alberta BearSmart Community Program

Communities in bear country include residents, businesses, volunteers, community groups and town councils.

Community BearSmart messaging is focused on three levels of participation:

1. BearSmart household information and education;
2. BearSmart Community **best practices** for voluntary participation; and
3. BearSmart Community designation, obtained by the community adopting **best practices**, bear conflict prevention management actions and bylaws.

BearSmart Household Information and Education

Alberta BearSmart provides individual household information and education in the brochure *Bears and Residents*. This publication can be used in any community, acreage or rural setting in bear habitat as it is targeted to the individual homeowner.

Components

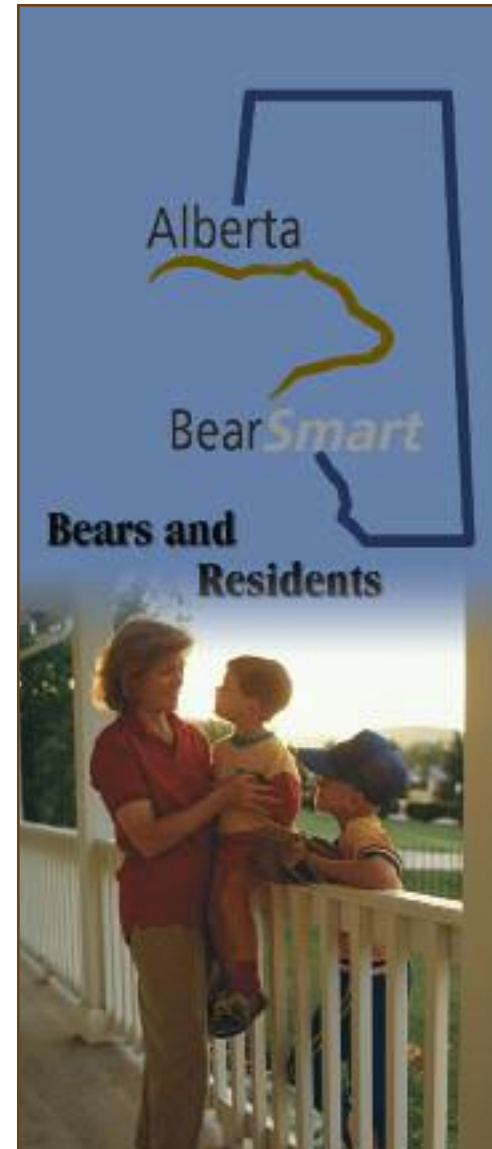
The acceptance and success of a Community BearSmart program depends upon the cooperation of the municipality, the provincial government, the business community and private citizens. Residents of communities and cottage developments in bear habitat areas will have access to general awareness information and education products through www.bearsmart.alberta.ca and their nearest local Fish and Wildlife office. These products focus on:

- garbage management;
- pet food and bird feeders and bear/ungulate management;
- storage of food, barbecues and other potential attractants; and
- gardens, berry-producing shrubs and fruit trees.

Key Messages

Residents can minimize the risk of having a negative encounter with a bear by following these strategies:

- Residents should store garbage in bear-resistant and odour-proof containers or buildings;
- Gardens and produce may attract bears. Sites that bears visit regularly may require electric fencing;
- Residents should clean barbecues after each use and keep barbecues in a bear-resistant structure if possible;
- Residents should aerate compost piles frequently and cover these with soil or lime. They should not put meat, fish, oils and milk products in the compost pile;



www.bearsmart.alberta.ca - to obtain BearSmart brochures

store garbage in bear-resistant and odour-proof containers

clean barbecues after each use

- Fruit trees and shrubs, including ornamental varieties, attract bears. If existing trees cannot be removed, picking the blossoms in spring can reduce problems. Residents should pick ripening fruit as early as possible in the season and clean windfalls and waste fruit daily before dark;
- Bird feeders should be hung at least three metres above the ground, decks or patios;
- Bird feeders (other than hummingbird) should not be used between April 1 and November 30;
- Smokehouses and animal carcasses, including bones, hides and waste, should be stored in bear-resistant buildings well away from people;
- Residents should use stout shutters or iron bars rather than inadequate screen doors and windows;
- Pet owners should not leave pet food and feeders outside overnight;
- Pets and the odours they produce should be well contained and protected. Bears may stalk pets as potential food;
- Dogs will warn of the presence of a bear. They can be effective at keeping bears away from yards and buildings;
- No one should feed wildlife—doing so may be illegal and can create dangerous situations for everyone;
- Curious bears should be repelled as quickly and effectively as possible by shouting, banging pots, firing a noisemaker, using bear spray or letting dogs bark; and
- Bear incidents should be reported immediately. A bear cannot be allowed to return repeatedly as they will become human- or food-habituated.

Keep Children Safe

Children are at particularly high risk if a bear encounters them. Small children lack the body size to intimidate a bear, and their rapid or erratic movements may stimulate an attack.

- Children must be closely supervised while they are outside.



- Children should be quietly carried to safety if a bear is present.
- Children's outdoor activities should be kept to a minimum in the evening, at night and at dawn, when bears are most active.
- Play areas should be located away from tree cover, shorelines and known bear travel routes.
- Children should be taught how to identify and respond appropriately to a bear encounter, and to promptly report bear sightings to adults.
- Dogs that have been trained to respond to the presence of bears should accompany children when they are outside. Children should be taught to retreat to the house whenever the dog barks an alarm.
- Adults should walk with their children and wait for the school bus, because children travel to school during risky times of the day. Bear spray can be carried to improve safety.

Community BearSmart Best Practices

BearSmart communities can adopt best practices to promote community safety. When appropriate, such practices should be implemented through new or amended bylaws.

Best Practices for Waste Management

- Restricting curb-side placement of garbage and recycling to the morning of pick-up.
- Modifying garbage collection schedules to allow residents to put their garbage out the morning of pick-up (e.g., begin pick-up no earlier than 8 a.m.).
- Using community bear-resistant dumpsters instead of curb-side garbage collection.
- Promoting the use of bear-resistant waste containers by residents.
- Promoting or requiring the use of bear-resistant dumpsters by commercial businesses that produce food waste.
- Developing community guidelines for appropriate waste management procedures at special community events, particularly outdoor events where food is being served.
- Installing bear-deterrent (electric or chain link) fence around recycling depots.

Best Practices for Landfills

- Covering domestic garbage deposited at landfill daily to limit the possibility of attracting bears.
- Installing permanent electric fencing to prohibit access to landfills (with appropriate signs warning the public that electric fencing is a safety hazard).
- Constructing a bear-resistant transfer station that ships the refuse outside of the area to a bear-resistant landfill facility or incinerator.
- Modifying or extending operating hours at landfill sites to make it more convenient for residents to dispose of their garbage on a regular basis.
- Installing temporary or portable electric fencing around the area of active operation to separate bears from people.
- Placing bear-resistant dumpsters at landfill sites for the public to drop off their waste. These can be emptied regularly and will serve to keep the public away from the active operating area of the landfill, helping to address safety concerns. To allow residents to dispose of their garbage regularly, locate the dumpsters so the public can access them when the landfill site is locked.

Any measures to exclude bears from landfill sites must be accompanied by a proactive education and awareness program to ensure human food and garbage do not attract bears into residential areas.

fruit trees and shrubs attract bears

Pet owners should not leave pet food outside overnight

Install electric fencing to prohibit access to landfills

Best Practices for the Control of Other Bear Attractants

- Consider the banning of all types of bird feeders from April 1 to November 30.
- Implement a community bear-resistant composting program (e.g., placing compost in a common bear-resistant enclosure using electric or chain-link fencing).
- Discourage improper composting; ban meat, fish or sweet food including fruit from compost piles; aerate piles often and sprinkle lime regularly to decrease odours.
- Ban composting in some situations, if warranted.
- Provide electric fencing to protect valuable trees, orchards, vegetable and berry patches.
- Develop guidelines, information and bylaws that encourage planting of non-attractant vegetation and discourage landscaping that attracts bears (e.g., berry bushes).
- Remove vegetation that attracts bears from municipal lands if there is a history of bear presence in area.

Best Practices for Design and Management of Green Spaces and Corridors:

- Clear brush, particularly bear-attractant plant and tree species, away from school yards, children's play areas and any bear incident hotspots.
- Locate green spaces and trails so they do not provide a continuous wildlife corridor between forested land and residential areas.
- Plan new housing developments so that green spaces are not too large and inviting for bears.
- Ensure that adequate wildlife travel corridors exist around the community.
- Avoid planting bear-attractant plant and tree species in new housing developments and green spaces within the

community.

Steps in Obtaining a BearSmart Community Designation

A long-range goal of the Alberta BearSmart program is to focus on more communities in bear habitat being designated BearSmart Communities. The community will commit to a BearSmart plan that includes **best practices** and implementing bylaws that address the following areas:

- Household, industrial, commercial and municipal/town garbage management;
- Management of other bear attractants;
- A continuing education program for residents and visitors;
- Commitment to non-lethal negative bear management; and
- Proper management and design of green spaces and corridors;

The community, in cooperation with local Fish and Wildlife staff, will:

- Prepare a bear hazard assessment of the community and surrounding area;
- Convene a community-based BearSmart stewardship committee;
- Prepare a human-bear conflict management plan;
- Implement an education program;
- Implement and maintain a bear-resistant solid waste management system;
- Monitor human-bear conflicts;
- Revise planning and policy documents when necessary; and
- Implement and enforce bylaws that reflect Alberta BearSmart community principles.

Components of the Hazard Assessment

- Review patterns of historic human-bear conflicts.
- Interviews with Fish and Wildlife and Conservation officers, biologists and other local experts to identify

high-risk sites and practices that result in human-bear conflicts.

- Identify non-natural foods and attractants within the community and area.
- Identify major non-natural features that may influence the travel patterns of bears.
- Identify bear habitat, movement patterns and visibility and other sensory issues.
- Identify high-risk human-use areas within the community.

Community BearSmart Implementation Strategies

- Ensure formation of a multi-stakeholder BearSmart planning and implementation group (with representation from municipal and provincial governments, business community and local community).
- Track problem bear incidents annually, through joint efforts of BearSmart staff and provincial and municipal officials, to gauge success of the program and areas to be improved.
- Secure funding for infrastructure costs of program (bear bins, etc.).
- Provide resource and background material on bylaws, sources of bear-resistant containers, etc.
- Actively support cooperative BearSmart Program within the provincial government to allow for expansion of the program (in scope and geographic reach).

Role of the Community in a BearSmart Program

Gaining the support of elected municipal officials and town administration staff for the BearSmart Program is vital, as they will play an active role in implementing the program.

Responsibilities of the town/municipal government include the following:

- Adopting and actively encouraging implementation of BearSmart **best practices**;
- Implementing BearSmart bylaws prohibiting the provision of food to bears as a result of intent, neglect or irresponsible management of attractants;
- Committing to conducting a bear-hazard assessment and designing a bear-conflict management plan for the community;
- Revising planning and decision-making documents to be consistent with the bear conflict management plan;
- Assisting with distribution of information and educational materials;
- Developing and maintaining a bear-resistant municipal solid-waste management program; and
- Ensuring representative(s) participate on multi-stakeholder BearSmart implementation team.

BearSmart best practices include a continuing education program

success is dependent on all partners working towards BearSmart

Fish and Wildlife staff assist in assessments of a community.

Role of Provincial Agencies

Support from the various provincial agencies (Alberta Sustainable Resource Development; Alberta Tourism, Parks and Recreation) is also critical to the success of a BearSmart Program. Agency officials should be engaged from the earliest planning phase of the program. Their responsibilities in the BearSmart Program include the following:

- Providing data on problem bear incidents and assisting in hazard assessments;
- Providing feedback on **best practices** needed within the community;
- Commitment to pursue non-lethal negative conditioning programs; and
- Assisting with public education and outreach efforts.

Education

Education efforts will build community support for the program through developing an awareness of the need and benefits (ecological, economical and human safety) of a bear safety program. Outreach efforts should also teach people about bear ecology, bear behaviour and what to do in

the event of a bear encounter. Through learning about bears, people will learn the strategies that will keep both bears and people safe and learn to coexist with bears.

Education strategies:

- Distribute information by inserting materials in tax notices, community newsletters or other community mail outs.
- Host public information meetings and workshops.
- Provide BearSmart information and safety tips at municipal offices, chambers of commerce, recreation centres, tourism offices, businesses, etc.
- Produce public service announcements for local radio and TV.
- Place advertisements and encourage articles in local paper.
- Engage schools in designing and implementing changes to make sure they have a BearSmart program in school.



Photo credit: Ken Schmidt

Outdoor Recreation

Campground users, hikers, backcountry campers, anglers, wildlife viewers, photographers, mountain bikers

Outdoor recreation in Alberta provides significant risks for human-bear conflicts. Campers, anglers, hunters and backcountry users are often in close proximity to bears in bear habitat.

Alberta BearSmart provides bear awareness messaging for each of these target audiences using a variety of products, including brochures, posters, bear awareness presentations, attendance at trade and sportsmen shows and information kiosks where available. These products include two brochures:

- *Bears and Outdoor Recreation*
- *Bears and Hunting*

No specific brochures are currently available for hikers, wildlife viewers, photographers and mountain bikers. In addition to the two brochures above, BearSmart information for residents of communities in bear country can be provided to those audiences. These products are available from Alberta Sustainable Resource Development. The can also be found online at www.bearsmart.alberta.ca.

Components

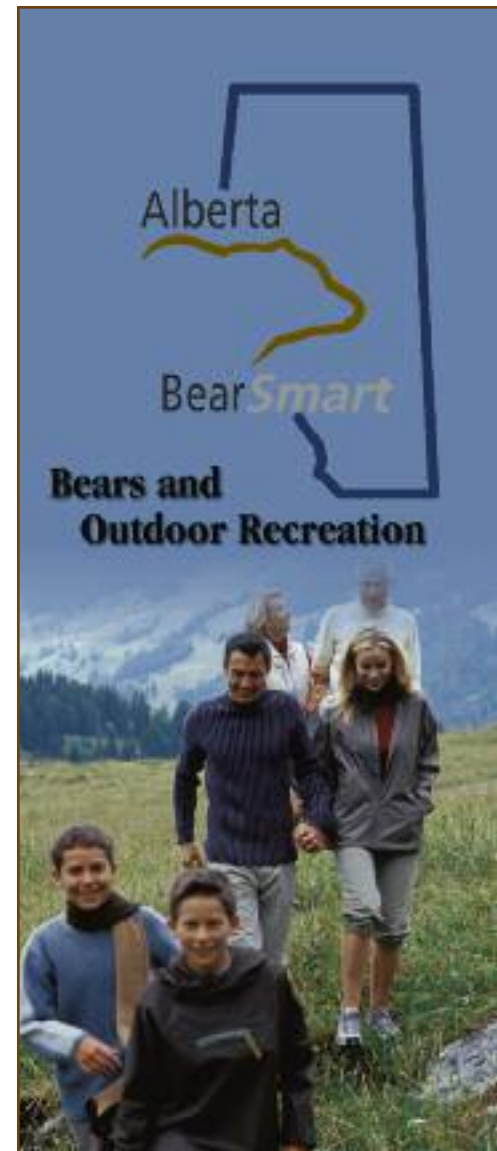
What Recreation Audiences Need to Know

- How to identify grizzly and black bears.
- Bear signs—what to look for.
- How to prevent bear encounters:
 - in campgrounds,
 - while fishing,
 - while hunting and managing carcasses, and
 - while backcountry hiking/camping.
- What to do if you encounter a bear.
- How to use non-lethal deterrents effectively.

Key Messages

Backcountry Camps

- Camps should be located in open sites away from tree cover and away from trails and shorelines, which are favoured bear-travel routes.
- There should be space between trailers, tents, vehicles and horses so that bears are less likely to become cornered among them.



backcountry camps should be located in open sites

keep bear spray accessible at all times

locate cooking and food storage areas at least 100 metres from sleeping areas

- Bear spray should be accessible at all times, particularly when campers are sleeping.
- Portable electric fences should be erected around cooking and sleeping areas for overnight stays in areas where bears are common.
- Horses or dogs should be located where they are likely to wake up the camper if they detect a bear during the night.
- Campers should store bear attractants, such as pet food, toothpaste, soap and deodorant, in their vehicles or a hard-sided structure. They should never take these items into a tent or trailer.
- Campers should not leave a campsite unattended with food or garbage not secured.
- Cooking and food storage areas should be at least 100 metres (about the length of a football field) away from sleeping areas. Campers should never sleep in the clothes they wore while cooking or while handling game.
- Campers should seal garbage in plastic bags and use bear-resistant bins to dispose of garbage.
- Water used for cleaning dishes and bathing should be dumped in toilets or sealed in plastic bags and placed in bear-resistant bins.
- Campers should never abandon, burn, or bury scrap food because bears have an extremely good sense of smell and are attracted to food odours.
- Campers should use a flashlight at night and move cautiously in and around the campsite.
- Campers should use dried foods and a portable camp stove.
- Food, garbage and equipment should be hung at least three metres above the ground between trees to discourage bears from investigating them. An alarm, such as bells or cans with rocks in them, can be attached to these items.
- All garbage should be placed in sealed bags and packed out.



Hunting in Bear Country

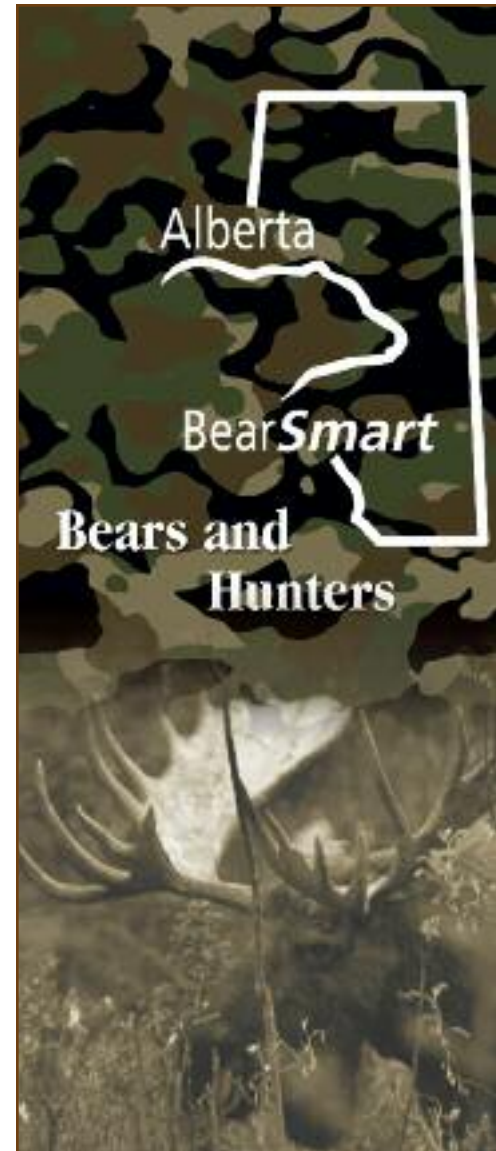
Hunters:

- Travel with partners as much as possible.
- Carry bear spray so that it is easily accessible to repel a bear.
- Know how to identify recent bear signs and leave the area if they encounter them.
- Avoid or be extremely wary in bear-feeding areas such as:
 - berry patches,
 - digging sites,
 - near animal carcasses,
 - grain fields,
 - garbage pits, and
 - bee yards.
- To reduce the risk of encountering a bear at close range, hunters should move upwind when:
 - noise levels in the immediate area are high due to wind, heavy rain or running water;
 - during dusk, night and dawn periods; or
 - when sightlines are short because of heavy cover, bends in trails or approaching hills.

- Be wary when using the following items to hunt species such as elk, deer and moose because they may attract bears, cougars or wolves or lead to the hunter becoming too close to these animals:
 - camouflaged clothing,
 - animal distress or mating calls,
 - decoys,
 - cover scents, and
 - ground blinds.
- Be wary of bears when tracking or searching for a wounded animal: a bear might be doing the same thing. Hunters should have a partner keep watch or take the time to look around.
- Pay attention when horses, dogs or wildlife exhibit behaviours such as staring, snorting, barking, shying away or pointing the ears forward. Animals may detect the presence of bears or their signs before a hunter does.

After the Kill

- Be wary while eviscerating a harvested animal. Entrails may attract bears before the hunter is finished.
- Do not leave a carcass or entrails near trails or roads where other people will travel. This could result in others having conflicts with bears.
- Do not drag your kill to camp because bears are excellent at following scent trails.
- Make every effort to remove an animal in one trip or in one day.
- If you must leave or store a carcass:
 - pick a spot you can see and approach with the longest sightlines possible; and
 - place the meat at least 100 metres (a football field away) from their camp, hung at least three metres in height between trees.
- Use extreme caution when returning to a kill site:
 - Do so cautiously from the upwind side;
 - Make plenty of noise.;
 - Allow time for any bear attracted to the site to leave;
 - Carry bear spray and be prepared to use it;
 - If there is a bear at the kill site, **the hunter should not attempt to chase it away**. Instead, hunters should leave the site and leave the carcass to the bear. They should report the incident to the nearest Fish and Wildlife Office. People can find out where to call by contacting the Alberta government through 310-0000. Office numbers are also available in the annual guide to sportfishing regulations and hunting regulations; and



hunters should travel with partners

be wary of bears if need to track a wounded animal

carry bear spray and be prepared to use it

- Ensure you thoroughly clean your campsite, storage sites and equipment before you depart the camp. Failure to clean up food scraps, garbage, spilled horse feed, pet food and pieces of hide and blood can attract bears to the site.

Fishing in Bear Country

- Make plenty of noise when approaching blind corners of rivers and streams and when walking into the wind. A loud shout every few minutes is more effective than wearing bear bells.
- Always keep your group together and be especially diligent in keeping any children with you at all times.
- If you see signs of recent bear activity, such as fresh diggings along trails, bear scat or claw marks on trees, leave the area. It is better to find a new fishing area.
- Clean fish at fish-cleaning stands or well away from camp. If you clean fish in the backcountry, you should puncture the air bladder and throw the entrails into the lake or stream. You should seal the fish in plastic bags and wash your hands to remove fish odours.
- Pack out all garbage in sealed bags.

Agriculture

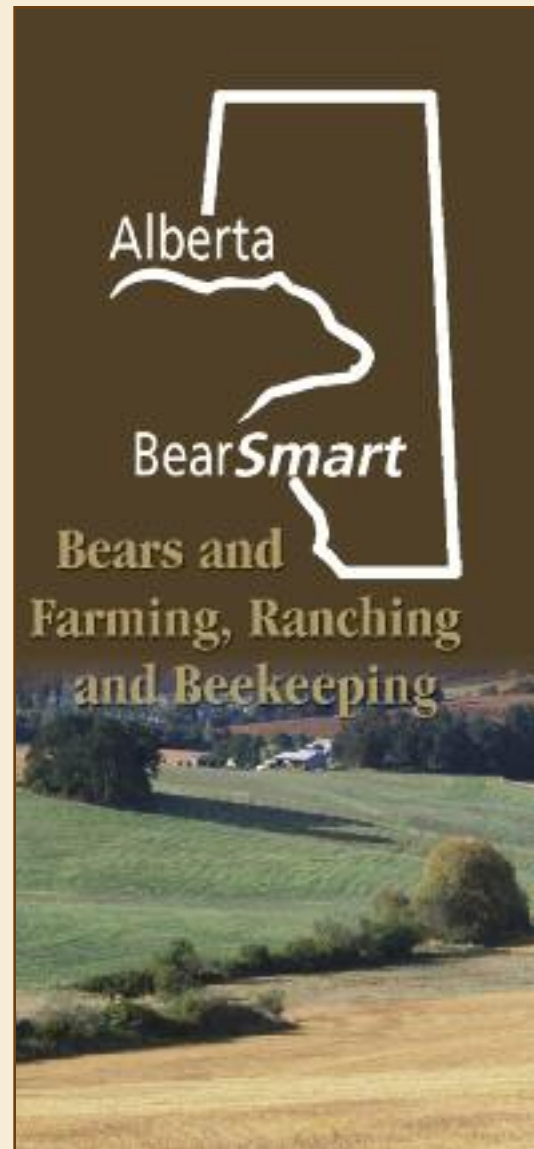
Livestock Producers, Grain Producers, and Beekeepers

Grain farmers, livestock producers, ranchers and beekeepers operating in bear habitat account for hundreds of bear incidents annually. Alberta BearSmart provides key bear awareness and conflict prevention messaging to agricultural producers through Alberta Sustainable Resource Development's Fish and Wildlife Division and Alberta Agriculture and Rural Development.

Information on bears and strategies to reduce bear-agricultural conflicts is outlined in the brochure *Bears and Farming, Ranching and Beekeeping*.

Components

- Livestock husbandry
- Bee yards



- Crops, grain storage and handling
- Yards and buildings
- Children
- Electric fencing to protect livestock
- Electric fencing for bee yards.

Key Messages

Livestock Predation

Both black and grizzly bears will prey on cattle, sheep and other domestic livestock. Predation can be minimized by herd and flock management.

- Calves should be more than three to four weeks old before being turned out onto the range. The small body size and limited protective instinct of calves make them more vulnerable to bears. They may even show curiosity toward bears. Pregnant cows and calves under the age of six months should not be put on remote pastures where there is a history of bear predation.
- Producers should keep livestock in for at least 10 days following:
 - castration,
 - dehorning, and
 - branding.
- Bears are most active at dusk and dawn—semi-confinement of sheep at night will reduce predation.
- Animal carcasses should be disposed of in accordance with the *Livestock Disease and Public Health Act*. The best option is to have the carcass promptly removed to a rendering plant. If a producer is disposing of a carcass, they should do so in a manner that will reduce the chances of attracting bears by:
 - burning the carcass completely, or
 - burying and covering it with lime under a minimum of 1.2 metres (four feet) of soil.
- All carcasses should be relocated to remote areas, well away from residences, feedlots, etc.
- Producers should conduct regular herd inspections to monitor herd health. Sick or injured livestock must be treated promptly or removed from open pasture. Bears are opportunistic and may prey on animals with compromised health or mobility.
- Producers should immediately report any suspected losses of livestock caused by bears to a Fish and Wildlife office so that control and compensation measures can be initiated.
- Stock predation can be more pronounced before spring green-up when bears are hard-pressed to find adequate food supplies. One preventive approach is to use intercept feeding. This involves using wildlife carcasses from road kills to feed bears before they move down onto lower elevations seeking food. This strategy has proven to be effective in southwest Alberta.
- Producers should monitor stock closely and act quickly to resolve any conflict. They need to be diligent and persistent when trying to alter a bear's activities. Bears can be taught to abandon a specific site. They are, however, also strong creatures of habit and can persist with problem behaviour, particularly if they have received any reward, such as food.
- Most bears show considerable respect and even fear of dogs that have the personality to work bears and have been properly trained. A single dog may raise an alarm or even repel a bear, but a group of dogs is more effective. The handler must be able to control and direct the dogs and understand when it is appropriate to use them to deal with a bear. See “Dogs in Bear Country,” page 35.



livestock predation can be minimized by herd and flock management

semi-confinement of sheep at night will reduce predation

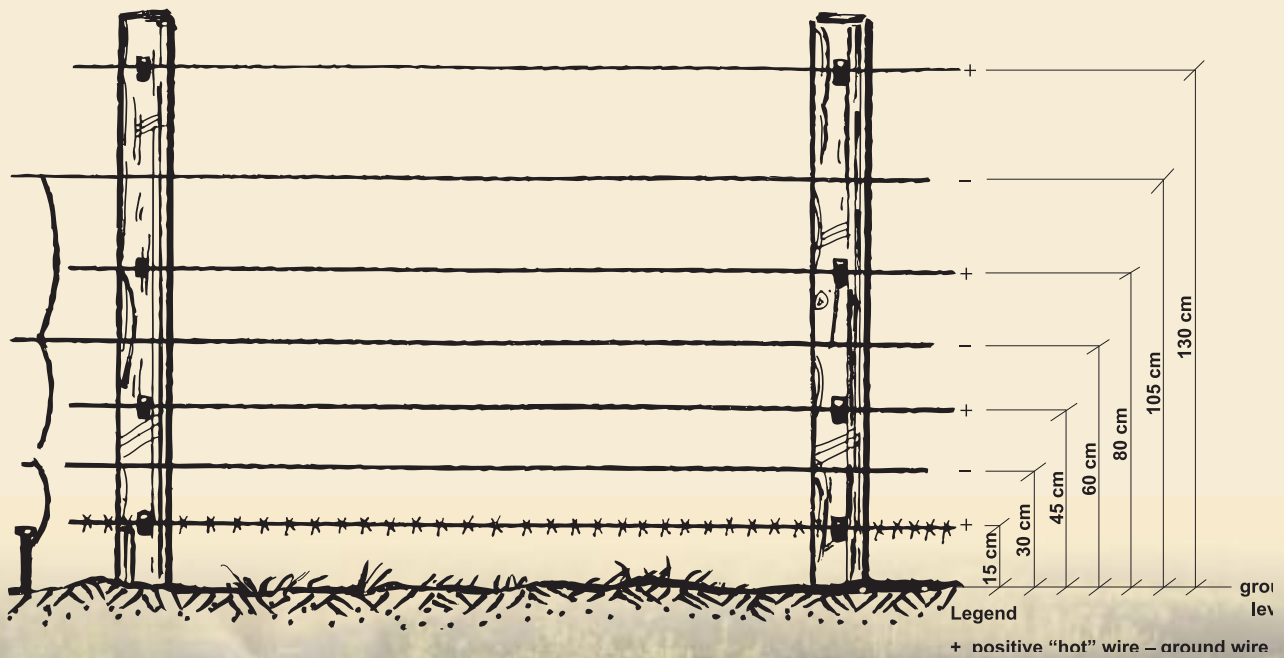
report suspected losses of livestock so control and compensation can be initiated

- Bears that have been captured and equipped with certain types of telemetry transmitters can be remotely monitored by wildlife managers. This can help Sustainable Resource Development staff identify and locate problem bears at conflict sites.
- Electric fencing used to protect sheep may deter other predators.

Bee Yards

Portable or permanent electric fencing that is properly grounded and well maintained will reduce most bear conflicts at bee yards. Bee yards should be located away from forested sites, including river banks and obvious bear travel routes.

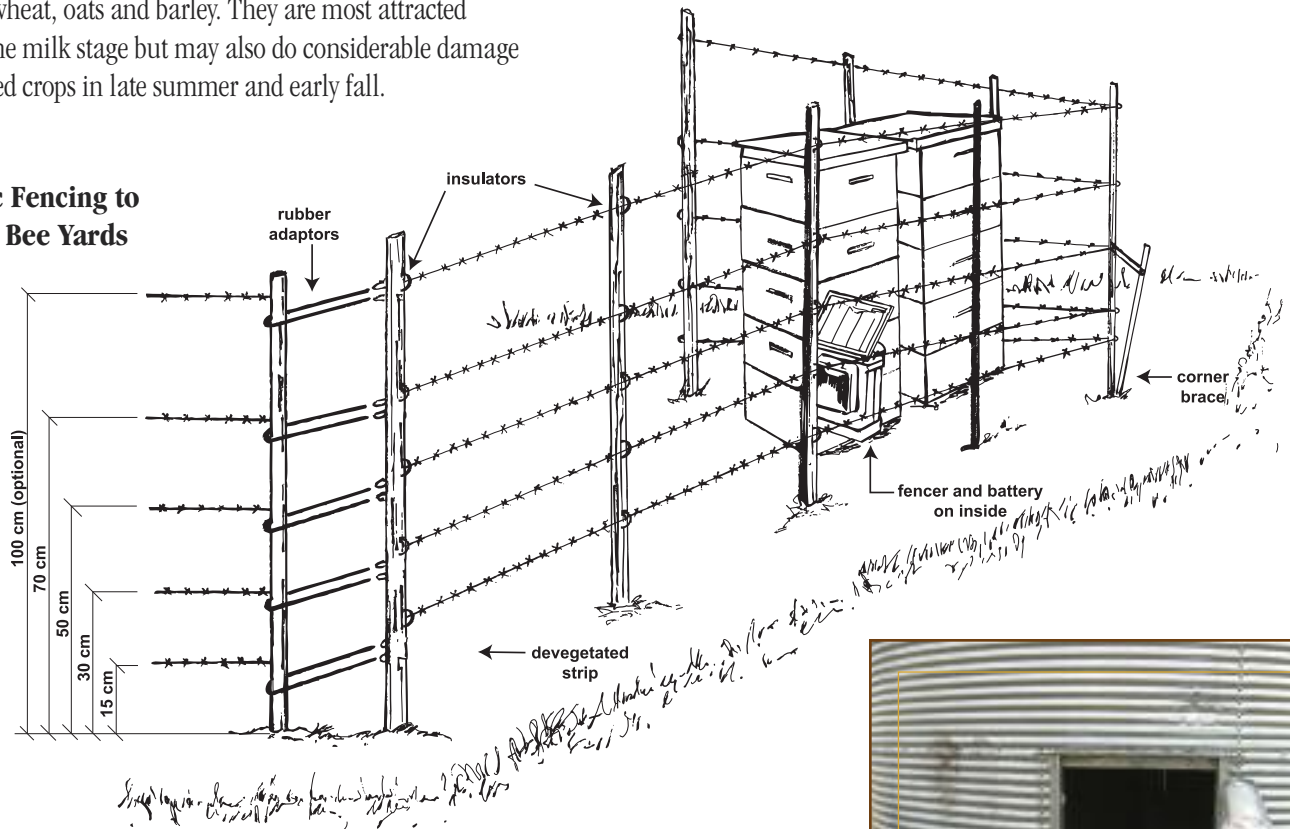
Electric fencing for calving or lambing areas (wire is on outside of fence)



Crops

Both black and grizzly bears are attracted to cereal crops, such as wheat, oats and barley. They are most attracted during the milk stage but may also do considerable damage to swathed crops in late summer and early fall.

Electric Fencing to Protect Bee Yards



- Producers should be cautious when working or walking in and near fields, especially during dusk and dawn hours. Carry bear spray.
- In a few situations, erecting electric fencing as a deterrent may be a wise economic choice. This decision will depend on:
 - the value of the crop,
 - the number and species of bears involved, and
 - the trails being used by the bears to enter the crop.
- At sites with chronic problems, producers should consider using the land for a crop that is less attractive to bears.

Stored Grain and Other Products

Bears will break into granaries, barns and outbuildings to feed on grain, pellet feed, liquid supplements, pet food and silage.

- Granaries should be well constructed and the door should be sturdy and well maintained.



bear damage of graneries can be severe

electric fencing will reduce most bear conflicts at bee yards

producers should repair leaks that result in spillage

- Producers should repair leaks that result in spillage. A knot hole or a small leak along a seam (such as caused by a bump from a truck) can result in loss of most of the grain to a single bear that will keep returning for months and even years.
- All spilled and waste grain should be cleaned up as soon as possible to limit the chance of a bear getting a food reward at the granary site. It should be disposed of:
 - thorough incineration, or
 - by complete removal.

Burial is not a good option since the fermented grain can be detected by bears and dug up from under several metres of overburden (soil).

- Silage pits and bags should be located out in the open, as far from tree cover as possible, to discourage use by bears. Sites with chronic bear problems may require electric fencing to prevent frequent bear damage.
- Producers should take special precautions with bins and buildings that are used daily and where spillage of grains and other attractants is unavoidable. These should be located as far as possible from areas of high human use and bear habitat. They may require seasonal electric fencing if bear use is chronic or risks to people are high.

- At high-priority sites, installation of alarm systems or initiation of intensive negative conditioning efforts may be warranted to protect humans, bears or valuable products. This is extremely expensive since the presence of a well-trained night-time crew is usually required for several days or weeks. Success depends on early detection of the problem—before the bear is overly habituated. Upgrading the structures to ensure they are bear-resistant may also be an option.
- Dogs may be used to repel bears from storage sites. Dogs should be trained or restrained to ensure they don't pursue people or other dogs. They must not chase the bear excessively, chase other wildlife or wander. See "Dogs in Bear Country," page 35.
- The last resort of wildlife managers is to remove or euthanize the targeted bear. These are not good solutions as they may impact the local bear population.

Country Homes: Residential Yards and Buildings

Residents can minimize human-bear conflicts at country homes and yards by taking the following actions:

- Removing garbage before dark or storing it in bear-resistant containers or buildings;



- Bringing pet food and feeders inside overnight;
- Consider removing fruit trees and ornamentals (berry bushes) that attract bears. If they keep these plants, they should pick ripening fruit as early as possible, especially fruit lying on the ground. Waste fruit should be collected before dark;
- Hanging bird feeders and hummingbird feeders at least three metres above the ground, decks and patios. Spillage needs to be cleaned up before dark;
- Cleaning barbecues after each use or keeping these in a bear-resistant structure;
- Aerating compost piles frequently and covering these with soil or lime. Meat, fish, oils and milk products should not be put in the compost;
- Storing smokehouses and animal carcasses (bones, hides and waste) in bear-resistant buildings well away from people;
- Gardens and produce may attract bears; residents may need to use electric fencing if they experience chronic problems with bears;
- Ensuring windows and doors are closed at night and when the house is unoccupied. Screen doors and windows are not adequate; stout shutters or iron bars are better;
- If a curious bear arrives near the yard, residents should repel it as quickly and effectively as possible (by shouting, pot banging, non-lethal gun fire, bear spray, dogs, etc.);
- Reporting bear incidents as soon as possible to the local Fish and Wildlife office. The level of habituation increases with each return visit, making it harder to deal with the bear without resorting to euthanization;
- Protecting pets (cats, dogs, chickens, pigs, llamas, etc.) because bears may stalk them as potential food;
- Taking warnings from dogs seriously. Dogs will sense the presence of a bear, and can also be effective at keeping bears away from yards and buildings; and
- Refraining from feeding wildlife. It is illegal to do so and can be dangerous.

Temporary Electric Fencing

- A fence charger that has a joule rating of more than 0.5 joules and delivers at least 5000 volts should be used. Either a 12-volt portable system or a 110v AC power system can be used where AC power is available. The 12-volt systems work best with a

bring pet food and feeders inside overnight

inform neighbours immediately of bear activity

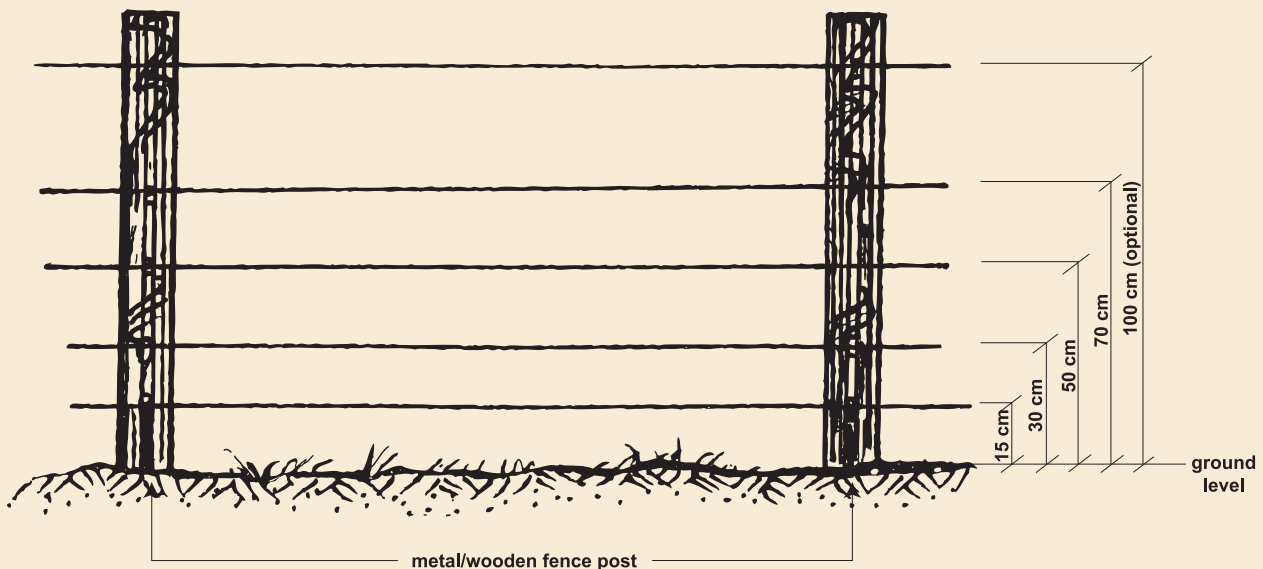
refrain from feeding wildlife – it's illegal and dangerous



12-volt deep-cycle marine battery connected to a solar panel, which keeps the battery charged. A 12-volt battery can power a fence for several days without recharging.

- Poly-wire with six to nine strands of metal wire interwoven with the poly-wire should be used for temporary fences as it is easy to install and tighten. The wire is preferable to tape, because tape can turn and slide over the back of a bear instead of sliding into the fur and making contact with the skin. Poly-wire has better strength and durability.
- A temporary fence should be a minimum of four wires with spacing starting from the ground at 15 centimetres, 30 centimetres, 50 centimetres and 70 centimetres. An additional wire can be added at 100 centimetres from the ground. All wires should be “hot.”
- A variety of insulators and lightweight plastic or fibreglass stakes or posts are available. If insulators are temporarily attached to trees, care must be taken not to injure the tree and all materials should be removed when leaving the site.
- The distance between posts is not critical as long as the wires remain within the chosen heights above the ground.
- A 120-centimetre (four-foot) ground rod pounded into the ground and attached to the grounded portion of the fence should be adequate at most sites.
- Ensure the charger is located within the fenced area.
- A gate can be constructed with the same materials and design and fastened with rubber fasteners.
- All vegetation must be cleared away from the fence area.
- You may wish to disconnect the power while people are moving about the site. The fence should be powered at night or when no one is in the site.
- There are a variety of testers, sensors and alarm systems that can be added to electric fences for increased effectiveness.
- Sites that require more permanent fencing may use a gated chain link fence. It should be at least 1.8 metres (six feet) high and have two strands of barbed wire above the chain link. A buried apron or electric outrigger wire may be required to prevent bears from digging under the fence.
- The fence should be marked with appropriate signs warning the public that electric fencing is a safety hazard.

Temporary Electric Fencing



Industry – Petroleum and Forest Management

Forest Industry, Petroleum Installation Workers, Industrial Camps, Fire Camps and Tower Residences

As more people work in bear habitat, the potential for human-bear interactions increases. BearSmart's information program, BearSmart Management Practices for Camps, focuses on awareness and conflict prevention messaging for industrial workers and industrial camp sites in Alberta. The Fish and Wildlife Division of Alberta Sustainable Resource Development launched BearSmart in 2005 and has been working co-operatively with both forest and oil and gas industry in developing management practices for all types of camps.



Photo credit: Ken Schmidt

Components

How Alberta BearSmart Applies to Industrial Workers and Camps

BearSmart Management Practices for Camps provides strategies for:

- setting up industrial camps, and
- operating industrial camps.

The program includes:

- a variety of brochures,
- posters, and
- PowerPoint presentation (delivered to industry by Fish and Wildlife staff).

Until BearSmart management practices come into wider use, Sustainable Resource Development has developed some conditions for area operating agreements, temporary field authorities and reviews of environmental field reports.

The petroleum industry (Enform) is actively working on a program that incorporates a wildlife awareness certification process that includes a bear awareness component. This will be developed into an industry standard.

BearSmart – Working in Partnership with Industry

BearSmart aims to help industries ensure the safety of their workers and camps in bear country, as well as the safety of bears. The BearSmart Program encourages industries to do the following:

- implement BearSmart management practices for camps, and
- ensure bear response plans are in place.

As more people work in bear habitat, potential for human-bear interactions increases

ensure bear response plans are in place

ensure camps adopt best practices to reduce bear attractants

Implementing BearSmart's management practices helps industries follow Alberta's Occupation Health and Safety Regulations. These regulations require that employers do everything they reasonably can to protect the health and safety of their workers.

BearSmart's management practices also help industries to comply with the *Wildlife Act*. The Act is designed to ensure that industries operating in bear country handle garbage, food, cooking areas and other attractants appropriately. Fish and Wildlife officers are authorized to ensure that camps do not adopt practices that attract bears. In some cases, industries may be required to erect electric fences or other permanent barriers.

Industrial workers are required to report all bear encounters promptly to the local Fish and Wildlife office by calling 310-0000. In an emergency situation, workers should call the Report a Poacher line at 1-800-642-3800.

Key Messages - Deterrents

Non-lethal Deterrents

Non-lethal deterrents can effectively prevent a physical encounter with a bear. If used properly, the animal will not be injured. Non-lethal deterrents can be broken into two categories:

- noise deterrents, and
- physical deterrents.

Various products are available to workers. Their use depends on their application (e.g., for personal defence or negative conditioning). The Pen Launcher is the most common personal defence noise deterrent, whereas bear spray is widely used as a physical deterrent.

Noise Deterrents

Noise deterrents can create a negative experience without causing any harm or injury to the bear. They provide negative auditory and visual experiences. Due to the variety of deterrents available, field personnel can vary their use so bears do not become conditioned to one sound. Noise deterrents include, but are not limited to, the following:



- air horn;
- bangers;
- screamers;
- 12-gauge crackers; and
- 12-gauge whistle crackers.

Air Horn

Air horns can be easily carried in bear country and used to create a piercing blast of sound. Sound intensity will vary with models and maker but more than 120 decibels is typical. The chemical propellant that creates the energy for the sound must be used in well-ventilated conditions.

Bangers

The banger is a 15-millimetre cartridge that is fired from a .22 calibre single or multi-shot launcher. When fired, the banger will travel about 30 metres and explode with a loud bang. The flight pattern of the banger is consistent.

Screamer

The screamer is a 15-millimetre cartridge fired from the same .22 calibre launcher as the banger. When fired, the screamer emits a loud, continuous screeching noise for approximately 100 metres. The flight pattern is erratic.

12-Gauge Cracker and Whistle Cracker

The cracker and whistle cracker are 12-gauge shotgun loads that, when fired, will travel about 100 metres and explode with a loud bang. The whistle cracker emits a loud screeching noise before exploding. The flight patterns are consistent. An unchoked shotgun must be used to prevent barrel obstruction. The design of the 12-gauge cracker and whistle cracker requires a low velocity; as a result, the over-powder wad may stick. Check the barrel of the gun after each shot to ensure there is no blockage.

Guidelines for the Use of Noise Deterrents

The improper use of the noise deterrents can injure bystanders or cause property damage. The following guidelines MUST be followed to prevent this:

- Always be aware of the line of fire;
- Be aware of the potential for a ricochet;
- Do not use the screamers or crackers in dry forest conditions;
- Do not shoot the noise deterrents at the bear; and
- Ensure the deterrent explodes between the operator and the bear.

Physical Deterrents

Physical deterrents create a negative experience for the bear. There are a variety of deterrents available. They should be used with caution because the bear can be seriously injured or die if they are used improperly. Physical deterrents include, but are not limited to, the following:

- bear spray;
- 12-gauge beanbags;
- 12-gauge rubber slugs; and
- 12-gauge rubber buckshot.

Bear Spray

Bear spray, which is largely used as a defensive tool, can be used as a deterrent to create a negative experience for the bear. Bear spray is limited in its application because of its effective range of three metres and the effect on the spray caused by wind. (Also see the discussion of bear spray in the “Non-Lethal Deterrents” section, page 31.)

the improper use of the noise deterrents can injure bystanders, and the bear

physical deterrents must not be abused

proper garbage storage and disposal is vital to reduce conflicts

12-Gauge Beanbags

The 12-gauge beanbag is a shotgun round that discharges a 2.5 centimetre (one-inch) fabric bag filled with lead shot. The muzzle velocity is about 92 metres (300 feet) per second and caution should be exercised as penetration or injury can occur if discharged from a distance closer than five metres. The maximum effective range for the round is 25 metres and the accuracy is reliable.

12-Gauge Rubber Buckshot

The 12-gauge rubber buckshot is a shotgun round that discharges rubber balls similar to the size of 00 buckshot. Muzzle velocity is 154 metres (500 feet) per second and caution should be exercised as penetration or injury can occur if discharged closer than five metres. The maximum effective range for the round is 30 metres as the spread pattern of the buckshot is too great at any further distance.

12-Gauge Rubber Slug

The 12-gauge rubber slug is a shotgun round that discharges a 73-grain rubber baton. The muzzle velocity is about 226 metres (738 feet) per second and caution should be exercised as penetration or injury can occur if it is discharged at a distance closer than 25 metres. The maximum effective range is 75 metres and the accuracy is reliable.

Guidelines for the Use of Physical Deterrents

Improper use of the physical deterrents can cause serious injury or death to bystanders or the bear. The following guidelines must be followed:

- 12-gauge rounds should be used in unchoked barrels only;
- Users should be aware of distances and not discharge any closer than the recommended minimum distance for each round;
- Impact rounds should be fired so they strike the bear in the hindquarter only. NO head shots;
- Users should be aware of the line of fire and be sure of their backdrop;
- Users should be aware of ricochets;
- Physical deterrents must not be abused; and
- It is recommended that deterrents be used by trained personnel only.

Deterrent Systems

Garbage and human food cause the greatest number of conflicts between humans and bears. Proper garbage storage and disposal is vital to reduce these conflicts. Some of the main sources of garbage are industrial camps and landfills. The most effective solution for handling bear problems is to eliminate garbage from the bear's environment before a problem develops.

- Never store garbage outside unless it is in a bear-resistant container.
- Minimize odours with plastic garbage bags and tight-fitting lids.
- Keep garbage cans free of odours and wash often.
- Do not leave garbage on a balcony or porch (black bears are expert climbers).

Other attractants that are sources of conflict can include stored grey water, compost bins, fire pits, barbecues, petroleum products or anything else a bear perceives as food. As with garbage, steps should be taken to ensure that a bear is not attracted to an area where it is not welcome.

Bear-resistant Garbage Containers

A container is defined as bear resistant if it meets the following criteria established by the Interagency Grizzly Bear Committee as:

- A securable container constructed of a solid, non-pliable material capable of withstanding 270 joules (200 foot-pounds) of energy. When secured and under stress, the container will not have any cracks, opening 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.

Containers that do not have lids or have insufficient lids are not considered bear-resistant. Bear-resistant garbage containers are an effective means of restricting bear access to garbage only when the lids are secured. Often bears will access garbage through a poorly maintained lid or one that was left open. Ideally in an industrial camp, garbage containment should be within an electric fence (with appropriate signs warning the public that electric fencing is a safety hazard).

Incineration

Garbage incinerators can help prevent bear problems. Burning garbage in pits or barrels can attract bears. Bears will dig up half-burned garbage. Fast-burning fuels and inadequate air, such as in a pit or a barrel/drum, result in scorched and smouldering garbage that will still attract bears.

High-temperature, complete-combustion incineration reduces edible material to ash. This method of garbage disposal makes garbage less appealing to bears. Steps must be taken to ensure that the method of incineration reduces all edible pieces to ash. Incinerator units are auxiliary-fuel fired (usually diesel or propane) and require a source of air that provides sufficient heat to completely burn waste.

Only non-toxic materials should be burned in incinerators. Incinerators in areas accessible to bears should be cleaned at regular intervals, because residues can act as an attractant. Accumulation of ash can also block air flow, reducing the effectiveness of the burn. To prevent a wildfire, caution should also be exercised when burning in dry forest fire conditions. As with garbage containment, incinerators should be contained within an electric fence.

Transfer Stations

Transfer stations are another method of controlling garbage as an attractant. The design of the transfer station must ensure that the facility or garbage containment cannot be penetrated by bears. Care must be taken to ensure garbage does not overflow containers and lids are secured. The transfer station should also be within an electric fence (with appropriate signs warning the public that electric fencing is a safety hazard). If used improperly, transfer stations can become a major bear attractant.

Electric Fences

All electric fences involve an enclosure of wires that carry a high voltage and low amperage charge that is delivered in short pulses. They are designed to cause pain or fear in an animal but not to cause injury.

Electric fences have been used for many years on farms and ranches to contain livestock. Electric fences for bears usually have a higher voltage than common livestock fences.

containers that have insufficient lids are not considered bear-proof

high-temperature incineration makes garbage less appealing to bears

control techniques are a last resort to respond to a nuisance bear

Electric fences have three main parts. When used properly, all three components create an open circuit, which closes when touched by a bear. This is similar to a lighting circuit in a home; the circuit remains open until someone turns on the switch, which closes the circuit and the light bulb comes on.

An electric fence is unlikely to injure people or bears because the current or amperage is very low. However, the voltage is very high. Energizers send power through the fence wires in pulses, about once every second. Because the current isn't continuous, an animal or human that comes in contact with the wire has a chance to break free of the fence, feeling only a quick nasty jolt.

Electric fences should be left on whenever possible. It is easy to shut off the power when inside the fenced enclosure, but it is advisable to always leave the fence on unless you are absolutely certain there are no bears anywhere near. If a bear visits the property while the fence is turned **off**, the bear will learn that the fence is not always something to be feared.

Appropriate signs warning the public that electric fencing is a safety hazard should be visible at all points.

Motion Detectors

Motion detectors are acoustic devices that use either a trip wire or a motion sensor that detects infrared heat or motion. When the device is activated, it emits a loud siren combined with a strobe light. Motion detectors can be used in temporary camps or set up in human-use areas that bears may frequent, such as garbage container areas or cook sheds.

Acoustic devices are effective as an initial deterrent, but the potential exists for the bear to become accustomed to the sound, making the devices ineffective.

Control Techniques

Control techniques are used by authorized personnel (Fish and Wildlife officer or bear monitor) as a last resort to respond to a nuisance bear. Using control techniques is not the average worker's responsibility. Nevertheless, it is important for their safety that workers have a general understanding of what control techniques may be used and what the limitations are.



Negative Conditioning

Negative conditioning requires the use of deterrents to teach a bear to associate a negative experience with its undesirable behaviour. Undesirable bear behaviour can be defined as “a bear that actively searches for food or has a reduced fleeing response in the presence of humans in a human-use area.” The objective of negative conditioning is to deliver a negative experience whenever a bear exhibits undesirable behaviour, so the bear will then avoid the associated food, place or event. For bears conditioned to human foods or to humans, this requires replacing the positive experience, such as getting food, with a negative experience. This negative experience can be delivered by a physical means (electric fence, rubber slug, bean bag or bear spray), an acoustic means (banger, screamer, sirens and fog horn) or a combination of both.

The goals of negative conditioning are the following:

- Alter the behaviour of bears that associate food rewards with the presence of humans;
- Instil a wariness of humans in bears; and
- Avoid habituating bears to the point where relocating or killing bears are the only practical management actions.

For negative conditioning to be effective, it must be applied immediately when the undesirable behaviour occurs and

every time the behaviour is displayed. The effectiveness of negative conditioning depends on the level of discomfort experienced by the bear; the attractiveness of the food source, the availability of natural food and the bear's level of habituation. A single positive reward during the aversive conditioning process can negate all previous efforts.

In most instances, bear monitors, who are specialists, will deliver negative conditioning on the worksite. Workers should understand the process so they don't interfere with the efforts of the bear monitor to keep the workplace safe.

- Do not encourage undesirable bear behaviour by allowing the animal to feel comfortable in the presence of humans.
- Be diligent in securing all food sources from bears by closing electric fences, securing lids of bear-resistant containers, not feeding wildlife or leaving human food, such as lunch scraps, around the worksite.
- Report all bear sightings.

BearSmart Management Practices for Camps

These management practices apply between April 1 and November 30 (bear season).

Purpose

To reduce bear-human conflicts and enhance safe working environments by reducing or eliminating attractants for bears and creating barriers to prevent bear access to camps.

Note: The disposition holder (company) is responsible for appointing a main contact person for all bear concerns on the disposition. It is recommended that the safety officer or the person appointed to oversee camp operations be the main contact. This person is responsible for responding to all inquiries about bear concerns before contacting Fish and Wildlife. This ensures that concerns are verified and any unsafe worksite practices are identified and immediate preventive actions are implemented.

If the camp or worksite is located in bear country, the company should conduct a hazard or risk assessment. This could be included in the company safety plan. This assessment would be as detailed as the project or camp location requires considering geographical location, history, etc. The assessment could be made available to the local Fish and Wildlife District Officer (who is also a resource to be consulted when developing the assessment).

If a Fish and Wildlife officer responds to a verified complaint or concern by the company contact person, the officer may direct the implementation of any management practices for camp not yet in place at that location. Any direction will be in writing either as a recommendation or as an order pursuant to the *Wildlife Act*.

translocation doesn't address why the bear became habituated

disposition holders are responsible for appointing a person for all bear concerns

Camps or worksites in bear country need to conduct hazard assessments

The following are practices that may be used in whole or in part for the development of a BearSmart industrial camp.

Standard Management Practices for Long-term and Seasonal Long-term Camps

- Two-metre buffer areas on each side of fences and vegetation controlled to prevent electrical failure.
- Bear-resistant garbage containers. Wood containers are not considered bear resistant unless they are reinforced with metal.
- Bear-resistant dumpsters. All lids must be kept closed when not being loaded.
- Garbage-containment receptacles (large bins) housed off-site (ideally at least one kilometre from the camp or facility) where possible (exceptions include sensitive areas, such as caribou areas).
- Totally enclosed, bear-resistant, black-water containment with disposal at an approved facility.
- Bear-resistant, secure, grease-storage containment. Lids are to be kept closed when not being loaded and the exterior must be kept clean.
- At worksites not enclosed by a perimeter fence, waste food and food containers/wrappers are to be disposed of in garbage containers in secure buildings or bear-resistant containers at the plant site. Waste should then be transferred to bear-resistant garbage containment within the enclosed perimeter fence at least daily prior to nightfall.
- All waste disposal or waste-storage facilities in camp or work-area parking lots should be within a fenced area.
- Where parking lots are not encompassed by a fence, signs are posted in those lots advising workers not to litter and to remove all waste from vehicles and dispose of it in waste containers within the enclosed camp area.
- Sightings of bears in camps or problems with bears must be reported to the local Fish and Wildlife office immediately.



Photo credit: Ken Schmidt

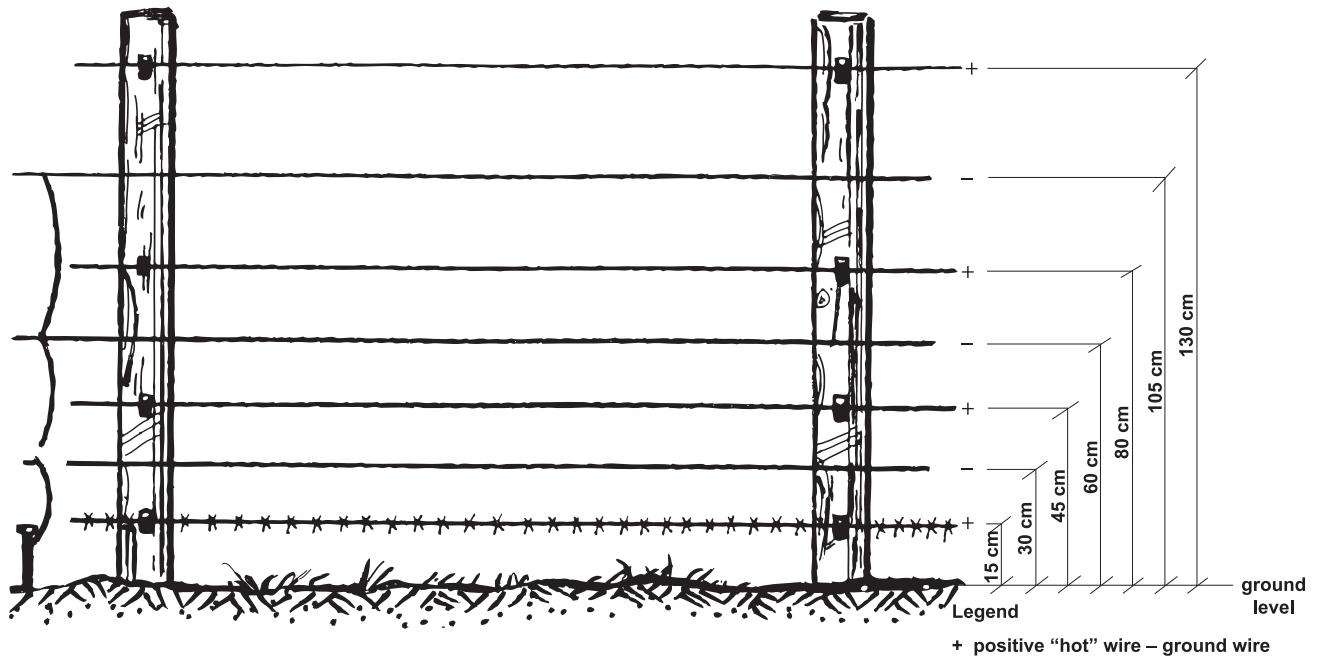
Long-term Industrial Camps (longer than one bear season)

These include processing plants, compressor sites or open lodging.

Standard Management Practices

- All garbage containment areas, waste-water containment, cooking facilities and accommodation facilities are encompassed ideally by a permanent two-metre (six-foot) chain-link, or game-proof fence with:
 - three strands of barbed wire on top surrounded by a four-strand electric fence complete with electric gate access, or
 - a seven-strand wire electrified fence complete with electrified gate access.

(This does not apply to kitchen facilities located within permanently constructed administrative or maintenance buildings at worksite locations.)



Seasonal Long-term Camps (one bear season)

These include industry service camps.

Standard Management Practices:

- All garbage containment areas, wastewater containment, cooking facilities and accommodation facilities are encompassed by a seven-strand wire electrified fence complete with electrified gate access. Function should be tested daily.

All electric fencing must have appropriate signs warning workers that electric fencing is a safety hazard and alerting those with medical conditions or devices such as pacemakers to the risks of contacting the fence.

Short-term Temporary Camps (less than one bear season)

These include drilling or tree planting camps.

Standard Management Practices

- Four-strand electric fence complete with electrified gate access encompassing all garbage containment areas, wastewater containment, cooking facilities and accommodation facilities.
- Two-metre buffer areas on each side of the fence and vegetation controlled to prevent electrical failure.
- Bear-resistant garbage containment with secure lids that must be kept closed when not being loaded.

Sightings in camps or problems with bears must be reported

All electric fencing must have signs warning workers

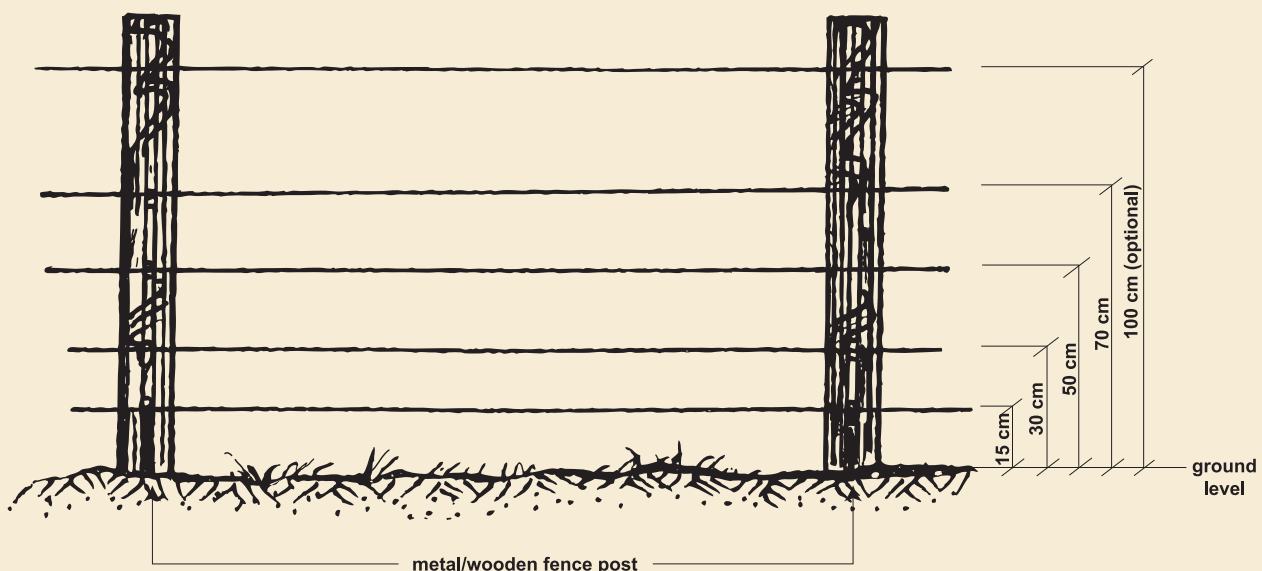
Bear-resistant garbage containment with secure lids must be kept closed

- Garbage containment receptacles (large bins) housed off-site (ideally at least one kilometre from the camp or facility) where possible (exclusions include sensitive areas such as caribou areas).
- Totally enclosed, bear-resistant black-water containment.
- Bear-resistant, secure, grease-storage containment. Lids must be kept closed when not being loaded, and the exterior must be kept clean.
- Non-food attractants, such as greases and oils at worksites, are to be kept in bear-resistant storage, such as hard-walled buildings, fuel sheds or strong boxes.
- At worksites not enclosed by the perimeter fence, waste food and food container and wrappers are to be disposed of in garbage containers in secure buildings or in bear-resistant containers at outdoor work sites and transferred to bear-resistant garbage containment within the enclosed perimeter fence daily prior to nightfall.

In addition to the above, the following management practices should be added where accommodations are in soft-walled structures:

- Locate camps in open areas with good visibility and at least 200 metres away from bear food sources (such as berries).
- Keep sleeping areas away from cooking and eating areas.
- Clean cooking and eating areas after eating and place food or dispose of waste in appropriate containment.
- Store all food indoors in bear-resistant containers or a hard-walled structure or trailer.
- Cook and eat in a central area or structure.
- Inspect the camp daily for compliance with best management practices.

Electric Fencing for Temporary Camps



Remote (helicopter access) Camp Management Practices

These management practices apply between April 1 and November 30 (bear season).

A staff member (or team in larger camp settings) should be delegated as the key contact person for other staff. This person is responsible for documenting bear sightings and conflicts, implementing identified safety practices to reduce human-bear interactions and contacting the Fish and Wildlife Division if necessary.

Standard Management Practices:

- All field staff receive bear-aware training courses.
- All odour and food attractants are minimized.
- Communication devices, such as radios, cell phones or satellite phones, are made available to staff.
- Four-strand electric fence (step-in or rebar posts) surrounding the camp; wire spacing at 15 centimetres, 30 centimetres, 50 centimetres and 70 centimetres from ground level.
- Two-metre buffer area on each side of the electric fence.
- The entire camp, including cooking, garbage, sleeping and wastewater sites, are contained within the electric fence.
- Daily removal of garbage (prior to nightfall).
- Daily disinfectant (lime - a calcium compound for sanitation treatment) of garbage receptacles.
- Open black system and odour control (liming).
- Central cooking and eating areas.
- No food or attractants in sleeping areas.
- No meat pits.
- All food stored in bear-resistant receptacles.
- Other non-food attractants stored in bear-resistant receptacles.

