

The Hudson Bay Project Polar Bear Safety Program

Polar bears are frequent visitors to the La Pérouse Bay and Cape Churchill region. They winter on the ice on Hudson Bay where they feed mainly on seals. As the ice breaks in June and July, the bears swim ashore or raft there on ice flows. Once ashore, they remain in the general area waiting for fall freeze-up. Due to prevailing winds, water movements in the Bay, and other factors (such as lower salinity due to rivers emptying into the bay) the La Pérouse Bay region has some of the earliest ice formation in Hudson Bay. The bears have learned this and it is one of the reasons for their high local numbers during the summer and fall. The other is the presence of denning areas south east of us. While in our area, the bears spend their time wandering, foraging and sleeping. These activities bring them into potential contact with researchers at the La Pérouse Bay Research Station. In 1999, Discovery Channel Canada filmed and aired examples of our safety program. We were chosen as an exemplar of one of the few, if not only, research stations to have never had an incident resulting in harm to either staff or bears.

Polar bears are a fact of life at La Pérouse Bay. In 1998 and 1999, there were 30-45 day stretches where bears were encountered daily either in the field or around camp. We have learned to adjust to the hazards of this dangerous predator and as of this writing no researchers have been harmed at La Pérouse Bay. Just as importantly, no bear has been harmed or destroyed. This record is the result of our polar bear safety program. This program has evolved over the 30 years we have worked in the area. It has benefited from cumulative personal experiences and extensive discussions with other researchers, local residents and native peoples who have worked and lived with these animals. We vigorously practice this program and all members of the research team as well as visitors to the facility are required to learn it and practice it. Failure to comply with any aspect of the safety program is sufficient grounds for immediate removal from the facility.

A safe polar bear is a distant polar bear. This phrase, taken from a poster distributed by Manitoba Department of Natural Resources, is a basic tenet of our program. Vigilance is the key to making this tenet work and minimizing encounters. Spotting a bear approaching workers in the field or the camp before it reaches either is our best initial line of defense. Another crucial element to our program is knowledge of polar bears and their behavior. With that in mind, some biology is in order.

Basic Polar Bear Biology

Polar bears are large animals - males often exceed 1200 pounds and females can reach 800 pounds. They are top-end predators and are by nature highly inquisitive. They move silently, have reasonably keen eyesight and hearing and an exceptionally sensitive sense of smell (they can smell a hamburger or open tin of sardines from several miles). They present the appearance of ponderous lumbering animals, yet are notably one of the faster animals on earth in a standing start 30 meter dash. They can sustain sub-8 minute miles for several miles. Their feet are very large, allowing them to run on top of the soft, wet and mushy surfaces your feet will sink into.

Breeding takes place in early spring out on the ice. Once impregnated there is a period of delayed implantation of the embryo. This gives the female a chance to put on sufficient reserves to last her through her pregnancy. Should she fail to fatten sufficiently by the time the ice breaks up the pregnancy usually aborts. Should the pregnancy continue, she will spend the summer as most bears do (mostly just taking things easy). Come fall she will seek out a denning site. This may be scooped out of an embankment or possibly dug into a snow bank. She will give birth somewhere about the first of the year and actually emerge from the den with the cubs in early March. Twins are common in the west Hudson Bay population; triplets are rare but have been seen. The cubs will remain with their mother through their first summer, spend the next winter with her out on the ice, and likely leave her by the next fall.

Polar bears feed throughout the winter and more or less fast during the summer. Old-timers and unskilled sub-adults, especially those that have not been successful feeding prior to ice break-up, may not be able to contain their hunger and are a particular danger. The same applies for females with young of the year cubs since these females may not have fed for many months. Additionally, polar bears are opportunistic feeders and are likely to indulge in any meal that presents itself. Their natural dietary tastes run the gamut from geese and eggs to lemmings and sea weed. We have seen them browsing buds and they appear to be fond of ripening berries. On the less natural side, they are attracted to the smells of

most human food – bacon and roast pork seem particularly attractive. On the more “inedible” side, they have a real fondness for axle grease, plastic and foam rubber.

A successful carnivore is usually curious about its environment. Polar bears are no exception. If you mix hunger and curiosity you have a dangerous situation, especially when the hungry, curious critter weighs over five times what you do, it moves more quietly than you do, is able to outrun and outwalk you, and can seemingly disappear by just lying down behind any convenient willow (or use its rock camo to just plain blend in). As with many top-end predators, especially those with pronounced size differences owing to sex and age, behaviors have evolved that reduce intra-specific aggression. This is not to say there is not intra-specific aggression nor even predation (young of the year are a favorite meal of large males). However, these behaviors exist and, if understood, can be used to your advantage. Bluffs, threats, posturing and appropriate respect and submission are among the tools used to maintain social position and avoid physical confrontation. We will explain how to use them later.

Polar bears rest when they feel like it and move when they feel like it. Ian Stirling of the Canadian Wildlife Service put it best when he said that when a bear gets something into its head, it is best, if at all possible, to simply let it carry that out. If it wants to sit in a particular spot, leave it alone. If it is walking away slowly, don't try to hurry it. Generalizations about their activity patterns such as “its too hot for a bear to travel” don't always hold true (maybe they tend to move even more as they search for someplace to cool off). Similarly, during the winter, bears hunt round-the-clock so pegging their activity patterns to our diurnal cycle is a risky business. Just because we are sleeping we can not let down our guard.

Safety Procedures

Bear safety at the La Pérouse Bay camp can broadly be divided into three categories: general guidelines that apply under most all circumstances, camp procedures and field procedures. Thirty years of personal experiences as well as the combined knowledge of locals, natives, and natural resource officers are difficult to distill into a document intended to train and explain in a concise manner. This document is a starting point. Our formal training (required for all research team members) normally involves more than a full afternoon of lectures. Informally, training goes on throughout our entire field season. There are discussions following most every incident to explain why this was done and that was not. There are practice walks with experienced crew members who pose virtual problems that require split second solutions. Finally, our policy is to **defer to experience**. The camp is never without an individual with more than 5 years of experience. If you do not know what to do, **ask**.

General Procedures

Vigilance - our best policy is to always be on the alert. Remember, **WE** are the prey. Bears may show up at any time, day or night, in the field or around camp. They may show up at camp while no one is around. While you are staring at a study plot or looking down searching out bird nests, a bear may seem to appear out of nowhere. Always look around. Use a timer to remind you if necessary (a five minute interval is recommended). While walking (either in the field or around camp) keep looking all around. Don't be offended if experienced crew members don't look you in the eye while conversing: They would rather spend their time scanning the horizon while talking to you. Likewise, the best positions to occupy while indoors are those that allow you a view out a window.

Look around before you go anywhere. Don't go rushing out doors, especially at night. Open the door slowly and peak out first. While in camp, scan from the roof with binoculars on a regular basis (keeping an eye on field workers and “defending” the camp). Before leaving camp for the field, do a thorough roof scan with binoculars. In the field, get up on a rock to and get a good look around you before moving from one study location to another.

Elevation is crucial to getting a good view at La Pérouse Bay. You can simply step up out of a streambed, or climb on a rock, or, if in camp, get up on a roof. You may feel you have a good view from wherever you may be standing, but if you can spot a bear an extra half mile away (or one hidden just on the other side of a willow stand) you will be far safer.

Learn the terrain. There are many rocks that at a distance look just like bears lying down. And quite often a bear lying down looks just like a rock. Learn the areas that may conceal bears, and avoid going into them. Learn the local names for various locations around camp and the La Pérouse Bay region.

Don't assume that the new name that you and your partner have assigned to a spot are known by everyone else. **This is especially crucial** – the experienced crew and the local helicopter pilots who may be able to save your life use a long-standing set of names for things and places – **learn them**. Also, learn compass directions and learn to estimate distance. If you need assistance in these matters don't hesitate to ask (these things can be tricky to get the hang of).

Use your binoculars. They are an invaluable resource and should never be left behind. There should be a pair in most buildings. There will be spotting scopes available in camp and at the towers. Keep your optics clean, it makes a world of difference.

Use your ears. Although bears can walk near silently over the tundra, they splash through the river channels surrounding the camp. So do the herds of caribou (which are not carnivorous). Polar bears are generally not in herds. Your ears are most important at night. If a bear should breach the electric fence (see below), the most likely target will be the Ice Box (where we cook, eat and keep much of the food). The ice box contains chairs that 600 to 1200 pound critters scoot noisily and knock over. Bears like to lick things and knock them off shelves. New members of the team, who often have difficulty sleeping through the snoring and noises of the Quonset where we all sleep, are likely to be the first to hear these noises. If you hear something, awaken an experienced crew member. Do not, under any circumstance, check the noise out yourself.

Do not reduce or eliminate your chances of hearing bears or attempts to contact you by using walkman type devices that require the use of headphones. The same applies to the volume level of the camp stereo. Don't be offended if a more experienced crew member reduces the volume of your favorite tunes. If you are using the telephone, make sure someone else knows that and is listening for noises and monitoring the camp radio frequency.

Use the buddy system. Although some of the more experienced folks may go out into the field alone, it is a risky practice and requires permission of those in charge of the station. Four eyes are better than two and a partner can give a second opinion as to whether a rock is a rock. The buddy system extends to telling someone where you are going to be - both within the camp and in the field. It is crucial, for example that we know you went to the outhouse so that if someone sees a bear approaching it, you can be warned. (The outhouse, by the way, has windows to allow the "user" to watch for bears as well.). Before leaving for the field, enter your destination(s) and timing into the log book kept by the radio.

Stay in touch. The camp owns sufficient communications radios to allow all field crews to have a radio. Avoid using the radio for trivial communications (which may cause other folks to avoid monitoring due to the "noise"). Always monitor the camp channel: You never know when someone else may need assistance, or when someone else may be trying to contact you. While in camp make certain that someone is able to monitor the base radios. You will be thoroughly trained on the use of our radios and on proper radio protocols.

Be familiar with your weapon. Although crew members will have been required to take the classes and tests associated with acquiring relevant permits, they are not allowed to handle any weapons until you have completed our half-day, hands-on gun course and demonstrated your proficiency at use **and safety** to the satisfaction of one or more of the individuals in charge of the station. Visitors are not allowed to handle the weapons except in extreme emergencies. We have very strict rules regarding weapons and a zero tolerance for violations. We are as proud of the fact that we have never had any gun injuries as we are of our record on no bear injuries. Learn to treat your weapon well - keep it clean, and pray you will never need to use it. Don't put it down and walk away to your next study plot. It may be awkward to carry it all the time but please do.

Life in remote areas is stressful even without bears. Humor is a great way of reducing stress and you will find that teasing and joking are a way of life at La Pérouse Bay. There are 2 exceptions. **Jokes involving weapons or bears are not allowed**. We do not tolerate anything other than safe handling of weapons. We are also intolerant of any pranks or jokes involving bears or anything that might look like a bear.

Camp Procedures

We follow a fairly strict protocol in camp relating to bear safety. Everything from personal behavior to kitchen cleanliness is involved in running a safe camp. There is an electrified perimeter fence, weapons may be used to launch noisemaker deterrents, and all camp participants are expected to follow the instructions of camp leaders. We are a research TEAM at La Pérouse Bay, and safety demands a team effort.

The Fence

The La Pérouse Bay camp is situated on an island surrounded by an electric fence. This fence is a standard cattle fence that puts out a jolt of about 10,000 volts once a second. This will shock anything that touches it (if it is making good contact with the ground) but will not generally harm the creature (or person). (Newcomers to camp are encouraged to test the fence in the time honored tradition of touching it. Some folks tend to do this on a regular basis.) The wire this fence is made from is not very strong; we've seen it broken by a large dog, and most bears are bigger than that. Bears approaching camp tend to sense the presence of the fence (maybe they sense the electric field) and have been seen to lick or bump the fence with their nose; we count on the surprise factor to set them moving away from camp. Sometimes they surprise us and run straight through into camp.

The fence charging unit is powered by a 12 volt battery that is kept charged by a solar panel. Proper operation of the charger may be verified by observing that the meter needle is "pegged" to the right hand side of the meter. A clicking sound of robust tone will be heard at one second intervals when the unit is functioning properly. The charger is usually mounted on the south wall of the shower. Every member of camp should learn the sound of a properly working charger; the camp manager should be notified if there is a hint of trouble.

The fence needs to be maintained. If it rubs against the posts, if grass grows into it, or if spiders use it to anchor their webs it will not have it's desired effect. It should not be used as a laundry line. Grasses need to be kept trimmed and not allowed to touch the fence. Spider webs need to be brushed off. There is a ground mat along a portion of the fence that occasionally needs to be pulled up and placed back on top of the vegetation so paws make good contact with the wire. It is a good policy to have someone walk the fence at least every other day. If you are in camp and not doing anything important, maintain the fence, please.

On alert and the roof

Our best defense against polar bears is our own vigilance. We must constantly be on the alert, always scanning the horizon, always looking around while outside, always looking out the windows. On opening a door to the outside it is imperative to look around before exiting. Rooftop scans are a must; elevation is an important aide in our defenses. Binoculars are indispensable in deciding if a rock is a rock or if it is a bear (this may sound amusing but it can be nearly impossible to distinguish between a sleeping bear and a rock). Someone (you, perhaps) should scan from the roof every 15 minutes or so.

When a bear is sighted it may be close to camp or at a distance. If you spot a bear, notify everyone in the camp, especially one of the camp leaders. If the bear is at a "safe" distance, someone will be designated to keep an eye on it. Field workers should be notified of the bear's location and direction of movement (if any). If it is determined that the bear is moving away from camp or is otherwise not an imminent threat then the camp can stand down to normal bear awareness protocol.

If a bear is spotted approaching camp, the person in charge of camp will decide how closely the bear will be monitored. When the bear moves close enough, everyone in camp will move up to a rooftop. Depending on circumstances, it will be either the roof of the Icebox or the Greenhouse (with the Greenhouse roof being preferred; it's a newer building). Under ideal circumstances folks may have enough warning time to allow them to grab their cameras before going up on the roof. It is best to ask the person in charge if it's alright to take the time to do so. We prefer that all camp members go up on the same roof (granted this is not always possible but it is preferred). Since we may be there a while, it is best to have a jacket with gloves and a hat in the pockets (as well as bug dope) handy.

Once on the roof we wait. We stay quiet as the bear approaches. One or more members of the camp will be designated gunners with cracker shells (and no slugs) in their shotguns; one or more members will

stand ready with slugs in their guns. Sometimes the bear may approach then veer off. Sometimes they skirt the camp along the fence without ever touching it. And sometimes they sniff or lick the fence. **Only when they do that, do we reinforce their shocking surprise by firing a volley of cracker shells and shouting loudly.** One goal is to have the bears associate negatively with researchers and our camp. The other is to pair the shock with the noise of cracker shells.

This is very important. Cracker shells are crucial for safety and only work only if bears run from the noise. Bears on Akimiski Island, for example, are not normally deterred by the noise, likely because they have been exposed to gunfire related to local duck and goose hunting. By always waiting until bears approaching the camp touch the fence and get a shock before firing cracker shells, we are “shaping” the bears in a standard animal behavior fashion to associate the noise with the shock. The principle is that they will associate the two and “forget” which came first, “shock” or “bang”. The fact that numerous bears begin running when they hear the “click-click” of a round being chambered in a Remington 870 is consistent with the success of our shaping.

Short notice

It can happen that you spot a bear as it is at or very near the fence. Immediately start screaming and get yourself and everyone else onto the roof of the Icebox or Greenhouse. We will rehearse for this situation and designated folks will have grabbed weapons. Take radios and check to see if any field workers are approaching camp. (It does happen that they are unwittingly moving the bear in front of them.) If so, have them stand down and hold position (see below). Make sure someone checks the shower and the outhouse. It is crucial that everyone follow the directions of the person in charge (remember we defer to experience). **Do not hesitate to do exactly what you are told – immediately.** (We'll apologize later, if need be.) If you are in a building and can not exit without moving towards the bear, scream your location to others in camp. Those handling the situation will not necessarily know that your banging and chair-scraping is you **unless you call out your location.** Odd as it may seem, try to stay calm or at least keep your wits about you. We have been in these situations before and have handled them without incident.

Food handling

Food is stored either in the food shelter, the freezer, or the Icebox (cooking building). No food is to be stored or consumed in the Quonset. If you have brought personal food please inquire of the camp manager as to where it may be stored (usually in the food shelter). Meals should be eaten in the Icebox. Please do not discard scraps in building trash receptacles except in the Icebox. Kitchen trash should be burned daily. It is probably best burned during the day so as to not present a smoldering barbecue all night long. While someone will be the designated camp garbage pyromaniac, everyone is encouraged to help. Morning coffee and late afternoon libations are often enjoyed by a group around the burning trash barrels.

Approaching Camp

There is a tall flag pole mounted on the banding shed in the camp compound. When a bear is spotted in the general vicinity and people are in the field, an orange flag is raised. As you return to camp, check to see if the flag is flying. If so, hale the camp by radio for instructions. The same is true if you see people on the roof. Also, there are several blind spots associated with willows and streams near the camp. When you are returning from the field, hale the camp on your radio when you are about 1 km out and ask that someone go to the roof and scan the area for you (elevation is everything).

In the event that a bear is between you and the camp, you must rely on directions given to you by the folks there. Every situation is different but people on the roof will likely have you either hold on where you are or will have you move so that you are upwind of the animal (this increases the chances the bear will know where you are and not be surprised or feel threatened – see below). Once they feel the bear's position is stable or they have deterred it in the opposite direction, they will have you walk into camp.

Instructions will preferably be given to you over the radio. In the event radio communication does not work, we use a set of standardized hand signals. Using the standardized set eliminates confusion and they will be demonstrated to you. The key principal, however, is simple and crucial. **Always point to safety. Never point at a bear.** Doing so could inadvertently cause someone to move towards it.

In the Field

Vigilance

You should be ever-alert in the field. Scan the horizon and closer regularly as you walk. Make sure you look behind you. Periodically stop, get on a rock and scan 360 degrees with your binoculars. If you are working at a nest or on the ground look around at least every 5 minutes. Never walk into a blind spot or area. It may take longer, but walk around it.

If you spot a bear, remember our main principle – **a safe bear is a distant bear**. Your actions should always maintain or increase the distance. Never move towards it. Most often, it will not be moving towards you. If it is a kilometer or more away, just stop and watch until it is a very distant bear. If it is moving in your general direction, move laterally away (and upwind – see below). The lateral move will let you judge if it is really moving towards you or is moving to (or through) where you were. In the event it is moving towards you, haul the camp or anyone else in the field on the radio (all of the experienced camp leaders have radios with them). Tell them the exact situation and seek their advice. Remain calm.

The other type of bear you may spot, especially from an elevated perch, is a sleeping bear. The old adage is the best one. **Let sleeping bears lie**. To avoid waking it up, give it a very wide berth if you need to be on the other side of it. Make sure you notify the camp and other field workers of its location.

There is another important principle related to sleeping or relaxing bears and work. Part of research in the north is the realization that sometimes data just do not get collected or that they get collected on northern time. Bears in a study area are a case in point. Except in extraordinary circumstances, and only when approved by camp leaders, we do not move bears so that we can work where they were. There is always plenty of other work you can do.

Odor is good and More Is Better

While it is hard to imagine an animal this large feeling threatened or nervous, bears appear to be so, especially if they are not certain of their surroundings, including you. You are foreign to them and they appear to be less edgy when they have you firmly positioned. Bears rely most heavily on their sense of smell and we take advantage of that. The best place to be is upwind from the bear. This allows it to localize you – they will often rise on their hind legs and carefully “scent” you. If you are in a group, it is important that you get and stay close to each other. This centralizes and strengthens the odor field. Data so far suggest that the odor of ripe, minimally washed field biologists is offensive to bears. We often find that as a group moves upwind, the bear will scent us and then turn and leave – often running.

Backing Off

It is possible that even with vigilance and careful movements, you will confront a bear or have one approach you directly. This is where knowledge of polar bear behavior, and that of large carnivores in general, can save your life. Remember that these critters have evolved highly sophisticated systems of behavioral cues to prevent killing each other – if they hadn't, they'd likely be extinct. We take advantage of these. First, stay calm (or at least pretend to be). Bears can sense fear and it may make them consider you a subordinate that they can do with what they want. Second, back away slowly – do not turn your back on the bear. Third, look at the bear but avoid direct eye contact. Try to convey the notion that while you are not afraid, you are yielding the space. (For those of us that work in New York it is just like dealing with hostiles on the subway.) Once you have put 500 meters or so between you and the bear, turning and walking away fast (but not running) is wise – but keep an eye on the bear even as you make it more distant. (If you are with a partner, get together with the one closest to the bear facing it and the other leading the way.)

Remember they are curious. Slowly remove your day pack and place it on the ground as you continue backing away. Most likely the bear will spend time inspecting it and especially its contents – giving you time to make it a distant bear. If need be, drop additional items. Sandy, for example, managed to get back to camp when a bear, who ignored and stepped over her pack, stopped and spent a long time inspecting and chewing the shirts she removed and dropped. They do seem to have a fascination with odors!

Cracker shells in the field

You can deter an approaching bear with cracker shells but their use is more complicated than it might seem. The theory is simple – place the charge between you and the approaching bear and when it explodes the bear will run away. There are two sets of problems. First, the loads are light and tend to be blown excessively by the ever-present winds. The charge could go beyond the bear and when it explodes the bear could run towards you. Alternatively, the charge could be blown out of effective range. The second issue is there are usually other people or teams in the region and you have to be very careful not to chase the bear towards them. Knowing where everyone is at all times is important. You will receive extensive training on both sets of problems. More of the live portion of our gun training is on use of cracker shells than of slugs and such. (Most of the training is on general safety and gun care and cleaning). You will not be permitted in the field with a weapon until you have convinced some of the senior members of the camp that you can both place the shells correctly and know when to do so.

Safe Havens

There are 2 safe towers in the area – Randy's Tower and the Monstrous Blot. Under certain circumstances, your best bet is to head for them and stay there until the bear leaves.

Helicopter Support

Usually from late June, there are helicopters in the area. The pilots monitor our radio frequency and are all quite knowledgeable about bears. If you can not get away from a bear or can not contact experienced camp members, you can hale the helicopter over the radio. We will explain the protocol during our radio session. This, however, is a last ditch option since our arrangement with the pilots is to involve them only in life-threatening situations.

Some Closing Thoughts

We have worked safely around polar bears for 30 years without injuries or deaths to either bears or personnel. This document summarizes the major points of our safety program. Although it should be thoroughly read before coming to the camp, it **DOES NOT** replace the formal training session given at the camp and it certainly **DOES NOT** substitute for the experience you need to gain to begin working safely around these animals.