ENVIRONMENTAL MANAGEMENT PLAN

FOR THE ASTON BAY PROPERTY
(ALSO KNOWN AS THE STORM PROPERTY)
NUNAVUT, CANADA

Prepared For:

ASTON BAY

And

AMERICAN WEST METALS LIMITED

Prepared By:

APEX GEOSCIENCE

Effective December 1, 2025

Amendments

Date of Change	Plan Version Number	Section Number	Summary of Changes Made
June 2020	1.0		
March 2025	2.0		*Material Safety Data Sheet (MSDS)* replaces with *Safety Data Sheet (SDS)*
		1	Additional statement regarding location of project, with reference to IOL, and subsection *1.2 Purpose and Scope* moved to section *1. Introduction*
		1.2	Subsection *5.1 Designated Environmental Areas* moved to subsection *1.2* and updated in reference to new property boundary and 2023 RNLUP designations
			Subsection *1.1 Contact Details, 1.4 Other Plans, 1.5 Project Description* removed, and section *2. Applicable Legislation and Guidelines* removed
		2	*Environmental Protection Measures* changed from section *3* to section *2*
			Section *4. Stakeholders* removed
		3	*Archaeological or Paleontological Sites* changed from subsection *4.1* to section *3*
		4	Section *5. Identification of Potential Impacts and Proposed Mitigation Measures* changed to section *4. Impacts and Mitigation*, and subsequent subsections
		4.1.1	Subsection *5.2.2 Migratory Birds and Waterfowl* changed to subsection *4.1.1 Migratory Birds and Avian Species*. Additional statement recognizing avian species of concern local to project area, and includes previous subsection *Peregrine Falcon, anatum/tundrius complex, Red-necked Phalarope and Short-eared owl, other Raptors - Special Concern (COSEWIC/SARA)*
		4.1.2, 4.1.3	Additional statements regarding species of concern local to project area for aquatic life and regarding Peary caribou calving grounds and ice crossings
		4.1.5	Subsection *5.2.6 Other Species of Concern* changed to subsection *4.1.5 Carnivores and Dens*
		4.1.6	Subsection *4.1.6 Muskox* added

		4	*Table 1. Information Sumary of Species at Risk* added to end of section 4. Summarizes species characteristics, sentitive periods and COSEWIC/SARA status
		5	*Vegetation, Soil and Permafrost Disturbance Mitigation* subsection *5.3* changed to section *5*
		5.1	*Air and Noise Quality* subsection *5.4* changed to subsection *5.1.* Additional statements regarding noise mitigation due to aircraft
		5.2	Subsection *5.5 Drilling Operations* changed to subsection *5.2 Surface and Groundwater*. Additional statements regarding drill cuttings and residual water, dewatering, winter water withdrawal, camp grey water, and pacto toilets
			Removal of sections *6. Hazardous Materials, 7. Waste Management Planning* and *8. Abandonment and Restoration.* See applicable management plans for more information
		Appendix A	Figures updated with current mineral tenure, property outline and camp layout. Additional figure showcasing *2023 RNLUP Designations*
		Appendix B	removal of *Government of Nunavut - Environmental Staff Directory*. Key contacts have been kept
		Appendix C	additional Appendix for *Bear Safety*
October 2025	3.0	1.	Added Joint Venture Partner American West Metals Ltd. to Title Page and section *1. Introduction* and removed property description.
December 2025	4.0	All	Format update & additional clarification to processes and procedures.

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1. Introduction

This Environmental Management Plan (EMP) applies to mineral exploration activities conducted by, or on behalf of, by Aston Bay Holdings Ltd. (Aston Bay) and Joint Venture partner, American West Metals Ltd. (American West) (collectively, the Companies), at the Aston Bay Property (the Property or the Project), also referred to as the Storm Property or Storm Copper Project, located on Somerset Island, Nunavut. Subject to approval by the applicable regulatory authorities, the effective date of this EMP is December 1, 2025. Copies of this ARP, including any approved revisions or amendments, may be obtained by contacting Aston Bay or American West.

The purpose of the EMP is to outline the Companies' environmental policy and to identify, mitigate, and manage environmental issues associated with exploration activities at the Aston Bay Property. The plan provides guidance to ensure exploration is carried out in a manner that minimizes environmental impacts and adheres to all applicable regulatory requirements.

The EMP includes the following:

- An overview of the environmental protection measures specific to the Property.
- Procedures for identifying and responding to anthropological or archaeological sites.
- A description of potential disturbances to land, flora, and fauna resulting from exploration activities.
- Wildlife management practices, including protocols for deterrence and the appropriate use of firearms.
- Environmental requirements and best practices for diamond and reverse circulation drilling operations.

Emergency response guidelines are beyond the scope of this plan. In the event of an environmental emergency, personnel will defer to the Property Emergency Response Plan and Spill Prevention and Response Plan for guidance.

1.1. Environmental Policy

Aston Bay is firmly committed to protecting and conserving the natural environment and ensuring the health and safety of all employees, contractors, and people in surrounding communities. The Companies will conduct exploration in a manner that minimizes impacts, meets regulatory expectations, and maintains constructive relationships with local and territorial stakeholders.

The environmental policy for the Aston Bay Property is to:

- Develop the Project in a socially and environmentally responsible manner.
- Fully comply with all applicable environmental legislation, regulations, permits, and license conditions.
- Work cooperatively with federal, territorial, and local governments, as well as other relevant regulatory agencies, and the general public, on all aspects of environmental protection and policy.
- Identify, assess, and mitigate potential environmental impacts while minimizing risks to the health and safety of employees, contractors, and the general public.
- Ensure all contractors operate according to the Aston Bay Property environmental policies and procedures.
- Use proactive planning, training, and risk-reduction measures to limit the impacts of unforeseen events.
- Provide ongoing instruction and training on environmental policies, best practices, and spill prevention and response procedures to all employees and contractors.
- Maintain clear communication with employees, contractors, inspectors, government, and regulatory authorities regarding any changes to site conditions or project activities.

2. Identification of Potential Impacts and Proposed Mitigation Measures

Exploration activities at the Property will be assessed for environmental impact risks and every reasonable measure will be taken to protect and preserve the natural environment. The Project Supervisor is responsible for implementing environmental policies, training staff, overseeing day-to-day environmental practices, and managing the environmental monitoring program.

Environmental training, monitoring, reclamation, and site clearance surveys will be built into the program budget to ensure adequate resources are allocated to environmental management. Preference will be given to contractors with high standards of environmental stewardship, and who have a proven track record of responsible environmental practice.

Wildlife reports, documenting sightings, interactions, denning or nesting observations, and any related work suspensions, will be submitted annually to Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), the Nunavut Water Board (NWB), the Nunavut Impact Review Board (NIRB), and any additional interested parties, including the Government of Nunavut Ecosystem Biologist.

2.1. Vegetation, Soil, and Permafrost

Vegetation and permafrost may be affected by camp and drilling activities. Mitigation measures include limiting vegetation disturbance by making camp and drillpad areas as small as possible. Areas with patterned ground, clay-rich soil, or wetlands will be avoided to the extent possible.

Because heat radiating from camp structures may thaw permafrost, all heated buildings will be slightly elevated to allow air circulation. Sumps may require limited excavation at camp or drill sites; however natural depressions and areas free of vegetation will be used whenever possible. Any displaced topsoil will be collected for future reclamation and re-vegetation. Excavated sumps will be barricaded until they can be backfilled.

Soil quality can be impacted from spills of fuel, contaminants, or waste. Preventative measures include appropriate storage in approved locations with secondary containment. All fuel, hazardous materials, and drilling equipment will be located a minimum of 31 metres from the ordinary high-water mark of any waterbody. Refueling will be conducted carefully, with drip trays or absorbent pads placed beneath transfer points and stationary equipment. Drums and hoses will be inspected regularly for leaks. Additional guidance is provided in the Property Spill Prevention and Response Plan.

2.2. Air and Noise Quality

Air quality may be affected by exhaust emissions from aircraft, drilling equipment, generators, and incineration. A batch-feed, controlled-air, dual-chamber incinerator will be used for combustible waste to minimize emissions. Dust generated by reverse-circulation drilling will be localized and short-lived, with no anticipated long-term effects. Given the remote location, the limited scale of operations, and the absence of existing air-quality concerns, no measurable impacts are expected.

Noise may result from aircraft, drilling, and camp activities, potentially disturbing wildlife. The following mitigation measures will be implemented:

- Helicopters and fixed wing aircraft will avoid areas with known nests, dens, staging areas, and large mammals.
- Low altitude flights will be minimized.
- Pilots will be instructed not to land where wildlife is present except in emergency situations. If a landing occurs for any reason in the presence of wildlife, it will be

documented and reported to CIRNAC and the Nunavut Department of Environment in the Property Annual Report.
- Drill sites will be positioned away from wildlife nests or dens.
- All activities, including drilling, will cease if caribou are sighted within 10 km.

The remoteness of the Project mitigates the potential for noise disturbance to communities. If it is known that a group of people (e.g., Inuit hunters or fishers) are within the Project area on Somerset Island, they will be notified about the activities taking place and the potential disturbances. In the above case, input from local Inuit will be sought regarding how best to facilitate safe passage through or near the Property and to take measures that will minimally disrupt Inuit traditional harvesting activities.

2.3. Surface and Groundwater

Drilling contracts will be awarded to companies that demonstrate strong environmental practices and adhere to the policies for the Property. The following conditions apply:

- Drill sites will be as small as practicable while maintaining adequate area for safety and fire protection.
- Fuel and hazardous materials will be stored in secondary containment at a minimum of 31 metres from the ordinary high-water mark of any water body.
- Policies and procedures outlined in the Property Spill Prevention and Response Plan will be followed to mitigate the risk of spills.
- Biodegradable drill additives will be used whenever possible (see SDS information in Appendix D of the Property Spill Prevention and Response Plan).
- Recirculation and filtration equipment will be used to minimize the amount of water used and additives released.
- Residual water will be siphoned off, and cuttings will be shoveled into sumps or suitable natural depression to prevent drill fluids from entering water bodies and to allow for slow infiltration into the soil.
- Sumps will be located a minimum of 31 metres from the ordinary high-water mark of any water body. Sumps will be positioned downslope from the drill collar so runoff flows into the sump.
- Any artesian flow encountered will be sealed by plugging and cementing in bedrock. Any artesian water flow will be reported on a timely basis to CIRNAC and the NWB.
- Screens will be installed on all water intakes at camp and at the drill to reduce the potential for fish entrapment in accordance with DFO guidance

- Water sources will be assessed prior to and during drilling to ensure withdrawals do not cause excessive reduction in water levels or flows.. Small streams or watercourses will not be used during low-flow periods.
- Water withdrawals rates will remain below 10% of instantaneous flow and will not reduce flows below 30% of mean annual discharge.
- Winter water withdrawals will follow the 2010 Protocol for Winter Water withdrawal in NWT and NU, with a maximum of 10% of under-ice volumes removed.

Camp grey water will be stored and treated in an excavated sump located at least 31 metres from the ordinary high-water mark of any water body. Storm Camp grey water sumps are approximately 2 by 2 ft in area and approximately 3 ft deep, plywood walls and loose cobbles to promote filtration, support the walls, and prevent slumping. Grease traps and filters will be installed on kitchen drains to prevent solid food wastes from entering the sumps and attracting wildlife. Sumps and associated piping will be inspected at regular intervals for leaks or overflows. Filled sumps will be covered with enough material for future ground settlement. Upon seasonal shutdown, partially used sumps will be covered with plywood for future use.

Pacto toilets will be used at Storm Camp. All Pacto bags will be incinerated on site in a batch-feed, dual-chamber, controlled air incinerator designed for sewage waste. The incinerator will be located at least 31 metres from the ordinary high-water mark of any body of water. Incineration of sewage will occur on a regular schedule. Upon seasonal shutdown, all sewage will be incinerated and the Pacto structure winterized.

Waste recovery and reuse options at the Property are limited due to the site's remote location and available technology and equipment. Any available opportunity for waste recovery and reuse will be taken. All waste will be covered and stored inside sheds or other secure buildings or containers to keep rain and snow out of the waste and reduce wildlife attraction. Hazardous waste and materials not suitable for incineration will be stored in sealed, appropriate containers in designated areas until they can be removed from site for treatment or disposal at an accredited waste management facility. All waste storage areas will be located at least 31 metres from the ordinary high-water mark of any body of water. Additional details are provided in the Property Waste Management Plan.

2.4. Archaeological or Paleontological Sites

Tent rings and cultural remains attributed to Thule culture (AD 1000 - 1400) are known in the broader region, including in the vicinity of Arctic Watch Lodge, along the northern coast of Somerset Island, approximately 37 km north of the Property.

The Companies will take all reasonable actions to ensure that archaeological or palaeontological sites or artifacts are not disturbed. The following measures will be implemented:

- No staff, contractors, or Project visitors will operate vehicles over any known or suspected archaeological or paleontological site.
- No staff, contractors, or Project visitors will remove, disturb, or displace any archaeological artifact, paleontological material, or site feature.
- The Companies will immediately contact the Government of Nunavut Department of Culture and Heritage (CH) and the Land Administration division at CIRNAC, should an archaeological site or artifact, or a paleontological site, be encountered during any land use activity. A report will be prepared documenting the discovery and sent to CH and CIRNAC. Reports will include GPS coordinates, a brief description of the site and/or artifact and photos (if possible).
- All personnel will immediately cease any activities that may disturb an archaeological or paleontological site until CH and CIRNAC authorizes work to resume.
- Staff, contractors, and visitors will follow all directions provided by CH regarding site protection or restoration of any inadvertently disturbed archaeological or paleontological sites. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act, CIRNAC's directions will also be followed.
- Staff, contractors, and visitors will provide any information requested by CH and CIRNAC concerning encounters with archaeological sites, artifacts, fossils, or paleontological materials encountered during any land use activity.
- Where possible, field personnel conducting till sampling, geological mapping, prospecting, or ground geophysical surveys will be provided maps with any known sites marked.
- Prior to commencing any work where ground disturbance may occur, the area will be surveyed for the potential for archaeological or paleontological sites.
- The construction of inuksuk by staff, contractors, or visitors is prohibited.
- The Companies will ensure that all personnel working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.

2.5. Wildlife and Habitat

Avoidance is the primary method of wildlife and habitat mitigation. Intentionally approaching, disturbing, or feeding wildlife is strictly prohibited. Any incidents will be

investigated and may result in disciplinary action. All personnel will be required to record any wildlife sightings and will be properly trained in wildlife disturbance mitigation, deterrent use, and interaction protocols.

All wildlife observations, including species listed in the Species at Risk Act (SARA) or by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), will be documented in the Wildlife Record Log and submitted to CIRNAC and the Government of Nunavut Department of Environment (DOE) as part of the Property Annual Report.

Protection measures based on species and/or wildlife are outlined below, including stop work thresholds and procedures. Any nuisance or aggressive wildlife will be reported to the Project Supervisor and the Government of Nunavut DOE Resolute Wildlife Office.

2.5.1. Migratory Birds and Avian Species

The Companies acknowledge that exploration activities may inadvertently disturb migratory birds, nests, or eggs. Measures to protect avian species, including the following species listed under SARA/COSEWIC, will be implemented:

- Red-Necked Phalarope
- Buff-Breasted Sandpiper
- Ivory Gull
- Red Knot (*islandica* subspecies)
- Ross's Gull
- Short-Eared Owl

Mitigation measures include:

- Educating all personnel on relevant legislation and regulations, and enforcing compliance.
- Strictly prohibiting approaching birds, nests, or eggs.
- Never moving, disturbing, or destroying nests or eggs of any birds.
- Preventing birds from nesting on man-made structures whenever possible.
- Maintaining a 1.5 km buffer from known nesting sites when travelling by aircraft.
- Minimize flights during migration, nesting, and molting periods, particularly near Leopold Island and Creswell Bay.
- Maintaining a 3 km buffer around known waterfowl staging areas.
- Avoiding excessive hovering or circling aircraft over areas likely to have birds.

- Immediately reporting any inadvertent disturbance of migratory birds, nests, or eggs.
- Implementing additional monitoring during breeding and migratory bird nesting periods, between May and September (Nesting Zone C8).
- Any **nest** found during the **nesting** period should be protected with a buffer zone until the young have permanently left the vicinity of the **nest**.
- Recording, photographing, and reporting any newly discovered nests to the Project Supervisor for further action.

2.5.2. Marine Mammals and Freshwater Aquatic Life

The large, mammalian species of concern listed in Schedule 1 of the *SARA* or those designated as "at risk" by the COSEWIC, are as follows:

- Atlantic Walrus (High Arctic population)
- Beluga Whale (Eastern High Arctic Baffin Bay population)
- Killer Whale (Northwest Atlantic/Eastern Arctic population)
- Bowhead Whale (Eastern Canada/West Greenland population)

The above-mentioned species have the potential to be observed within the ocean waters surrounding Somerset Island. No critical habitat is known within the vicinity of the Property, so impact is expected to be minimal. However, Aston Bay has been identified by the NPC as an area where there may be beluga whale and narwhal calving. In consideration of the above and also due to hazardous ice conditions, sealift activity will be not occur between May 1 and mid-Augustto avoid impacts on cetacean calving windows.

Impacts to freshwater can impact aquatic life including fish, benthic organisms, zooplankton, and phytoplankton, and can also impact waterfowl and other wildlife dependent on aquatic life and fresh water.

Mitigation measures include:

- Ensuring no waste or discharge enters any freshwater body or marine waters
- Maintaining a 31 m setback for camps, waste storage, sumps, and fuel caches.
- Ensuring activities near water do not disturb aquatic habitat.
- Properly screening all freshwater intakes according to the Freshwater Intake End-of-Pipe Screen Guideline.
- Submitting required notifications of water use to DFO.
- Ensuring pumps are temporary installations and stored when not in use.

2.5.3. Caribou Mitigation and Monitoring

The Aston Bay Property lies within the range of the Peary Caribou. Peary Caribou are considered a threatened species under both SARA and COSEWIC. The Barren-ground Caribou are known to inhabit the Boothia Peninsula, located south of Somerset Island, and could potentially migrate further north. The Barren-ground Caribou are considered threatened under COSEWIC. The NPC have identified a possible caribou calving ground to the southwest of the Property, likely utilized by Peary Caribou, and a caribou ice crossing corridor between the western coast of Somerset Island, south of Aston Bay, and Prince of Wales Island.

Mitigation measures include:

- Prioritizing avoidance of caribou at all times.
- Planning activities to avoid critical caribou timing windows.
- Ceasing all exploration (ground and airborne) in calving areas between June 13 and July 12 and during active migration.
- Avoiding disturbance of ice crossings, including avoiding sealift activity along the western coast between December 1 and July 31.
- Implementing a caribou alert system to track sightings and proximity to camp, drill sites, and exploration areas. Pilots and passengers will monitor for caribou during flights, and any potential sightings will be reported to the Project Supervisor.
- Recording the number, distance, direction, and behaviour of caribou.
- When safe to do so, suspending low-level flights (<300 m) in the presence of cows/calves or migrating groups.
- Suspending all operations if cows/calves come within 10 km of work areas.
- Suspending operations if pregnant cows, cows with calves, or groups ≥50 caribou approach within 1 km of drilling. Activities will not resume until all of the caribou have moved out of the area.
- Ensuring no activity results in alteration of migratory movement.

The Companies will communicate with the local HTO's and any other interested parties regarding caribou sightings and movements in the area, and include all records in the annual report to the applicable regulatory bodies.

It is of note that the preliminary results of a reconnaissance conducted during the summer of 2025 did not detect any caribou within the Storm Property claim area. Two Barren-ground Caribou were identified south of the property claim area.

2.5.1. Muskox

Muskox may be observed during exploration activities. Personnel will not approach muskox to prevent herd displacement or disturbance during calving and breeding seasons. Critical time to avoid male muskox is during breeding season (August to September).

Mitigation measures include:

- Maintaining at least 200 m from muskox during calving (April–June).
- Ceasing ground equipment use and low-level aircraft (<610 m) when pregnant cows, cows with calves, or large groups (≥50 animals) approach within 1 km of operations.

2.5.2. Carnivores and Dens

Mitigation measures include:

- Proper handling and storage of food and waste to minimize wildlife attraction.
- Avoiding bears, wolves, wolverines, and all dens at all times.
- Reporting all wildlife interactions immediately to the Project Supervisor for further action.
- Ensuring all personnel receive bear safety training and understand penalties and consequences for killing wildlife, even in self-defence.
- Implementing the following buffers (per Northern Land Use Guidelines):
    - 1 km around active bear dens (Sept 30–Mar 30)
    - 300 m around all bear species (May 16–Jul 15)
    - 300 m around berry patches (Jul 15–Sept 15)
    - 2 km around active wolverine dens (Oct 15–Jul 15)

2.5.3. Polar Bears

Polar Bears are listed as Special Concern by SARA and COSEWIC. The Property resides within the range of the Lancaster Sound Polar Bear Subpopulation. Denning normally begins in late fall, located in areas with abundant snow cover in early winter and near the coast to provide high seal populations in the spring when the bears emerge. Dens are often excavated from snow and closed off by snowdrifts. It is unlikely any work will be ongoing during the denning period as the snow inhibits access and exploration activities on the Property. Noise and activity from exploration work near dens could cause disturbance, therefore the following mitigation measures will be undertaken in addition to the applicable measures mentioned in 4.1.2 Carnivores and Dens:

- Avoiding all Polar Bears and their dens at all times.
- Conducting no work near suspected or confirmed dens.
- Recording GPS coordinates of any suspected den and reporting to the Project Lead and applicable regulators.
- Maintaining a 1 km buffer around occupied dens between Sept 15 and Apr 15 (or until confirmed inactive).
- Ceasing operations if Polar Bears approach camp or work areas until they have safely left the area.A polar bear safety management protocol will be developed for implementation during the 2026 field season to mitigate risk of polar bear encounters and to minimize potential impact to the for the 2025 field season to ensure safe work practices and minimize potential impacts to the species.

Table 1 Information Summary for Species at Risk

Species	**Distinguishing** Features	**Sensitive Period**	Status
Polar Bear  (***Ursus maritimus***)	• Thick white or yellowish fur • Longer necks with narrow heads	September – April (denning and birthing)	SARA / COSEWIC: Special Concern
Wolverine  (*Gulo gulo*)	• Looks like a "small bear" • Glossy, coarse fur (brown to black) • Pale facial mask, and tan-yellowish lateral body stripes • Long, busy tail	May – August (breeding) January – May (implantation, pregnancy and birthing)	SARA / COSEWIC: Special Concern
Peary Caribou  (*Rangifer tarandus pearyi)*	• Smallest North American Caribou • Mostly white with a slate back and grey stripe down the front legs • Slate color antler velvet	June – July (calving) Late September – October (rutting)	SARA / COSEWIC: Threatened

Beluga Whale (Eastern High **Arctic Baffin Bay)**  *(Delphinapterus leucas)*	• Medium-sized toothed whale • White in color	June – August (calving)	COSEWIC: Special Concern
Red-necked Phalarope  (*Phalaropus lobatus*)	• Breeding adults have a white throat with a reddish patch on the neck • Non-breeding adults are grey with a streaky back and black ear patches • Center stripe down tail	June – July	SARA / COSEWIC: Special Concern
Bu**ff** Breasted Sandpiper  *(Tryngites subruf**fi**collis*)	• Medium sized shorebird with buff colored face • Brown to black speckling on wings and back	Late May to early September	SARA / COSEWIC: Special Concern

Ivory Gull  (*Pagophila eburnea*)	• Entirely white plumage as an adult • Short black legs • Large dark eyes	Year round, patchy breeding distribution	SARA / COSEWIC: Endangered
Red Knot (islandica subspecies)  (*Calidris canutus islandica*)	• Medium-long bill with a small head • Plumage is rufous red during breeding • Upper plumage is dark brown or black	June - July	SARA: Special Concern COSEWIC: Not at Risk
Ross's Gull  *(Rhodostethis rosea)*	• Small Arctic gull with quick, shallow wingbeats • Wedge-shaped tail • Distinctive black collar	Unknown – (tendency to skip breeding due to weather conditions and change breeding locations)	SARA: Threatened COSEWIC: Endangered

Short-eared Owl  (*Asio flammeus*)	• Active during daylight • Mottled brown bodies • Yellow eyes • Black markings around the eyes resembling eye shadow	April – August	SARA: Special Concern COSEWIC: Threatened

2.6. Wildlife Monitors

Wherever possible, wildlife and environmental monitors will be hired from local communities. Monitors will be stationed at camp or at drill sites, to mitigate any response to bears or other wildlife presence.

2.7. Firearms

Registered firearms will be located in camp and at drill sites to ensure the safety of all personnel on the Property. Firearms will be stored unloaded and in a locked cabinet or gun case. All persons carrying or handling a firearm must have a valid Firearms License and be approved by the Project Supervisor.

Hunting is strictly prohibited for all employees and contractors and will result in immediate termination and potential charges for any territorial hunting violations. Firearms discharge of any kind must be reported immediately to the Project Supervisor. Non-lethal deterrents will always be used whenever possible to deter problem wildlife with lethal rounds only being used in defense of life or property and only as a last resort.

3. Baseline Studies

Since 2023, both field-based and desktop baseline studies have been conducted at the Storm Copper Project to support ongoing exploration work and potential future mining development proposals. These studies were completed by Ausenco Sustainability ULC and subcontractors. The following work has been completed:

- During the 2023 field season, reconnaissance water quality studies were completed in streams and small lakes within the Property where most advanced exploration activities are focused.
- During 2024, field activities during July and August included:
    - Surface water quality and hydrology on nearby water bodies
    - Bathymetry of nearby lakes
    - Aquatic fish habitat and fish studies on nearby water bodies
    - Installation of a meteorological station
    - Reconnaissance aquatic studies including fish and benthos
    - Archaeological survey
- During 2024, desktop-based surveys included:
    - Marine mammal survey
    - Regional weather survey
- During 2025, field activities during July and August included:
    - Shallow marine fish and fish habitat survey in proposed Marine Landing Area
    - Another round of surface water quality and hydrology surveys
    - Another round of more focused aquatic fish habitat and fish studies on nearby water bodies
    - Reconnaissance level aerial wildlife survey
    - Archaeological survey
- During 2025 desktop-based study (currently underway) included a socio-economic study focused on nearby and further afield Inuit communities

Reporting for the above studies is currently in progress and will be completed in early 2026 in the form of existing conditions baseline reports.

Appendix A: Environmental Emergency Contacts

Wildlife Emergency Contacts

Name	Position-Company	Phone Number(s)
Chris Livingstone	Project Supervisor-APEX Geoscience Ltd.	778-847-7450 (mobile)
Thomas Ullrich	Chief Executive Officer-Aston Bay	416-456-3516
Nunavut Department of Environment	Iqaluit Main Office	867-975-7700
Nunavut Department of Environment	Resolute Conservation Office	867-252-3879
Nunavut Department of Culture and Heritage	Iqaluit Main Office	867-975-5500 Fax: 867-975-5504

Hazardous Waste Contacts

INAC Manager of Field Operations 867-975-4295

Environmental Protection Division
Nunavut Department of Environment
Inuksugait Plaza, P.O. Box 1000, Stn. 1300
Iqaluit, NU X0A 0H0
Tel: 867-975-7700
Fax: 867-975-7742
Email: environment@gov.nu.ca

Dr. Michael Patterson
Office of Chief Medical Officer of Health
Nunavut Department of Health
P.O. Box 1000, Stn. 1000
Iqaluit, NU X0A 0H0
Tel: 867-975-5760
Email: MPatterson@gov.nu.ca

Workers' Safety and Compensation Commission
Qamutiq Building, 2nd Floor
630 Queen Elizabeth II Way, Box 669
Iqaluit, NU X0A 0H0
Tel: 867-979-8500
Fax: 867-979-8501

NU-NT 24 Hour Spill Report Line
Tel: 867-920-8130
Fax: 867-873-6924
Email: spills@gov.nt.ca

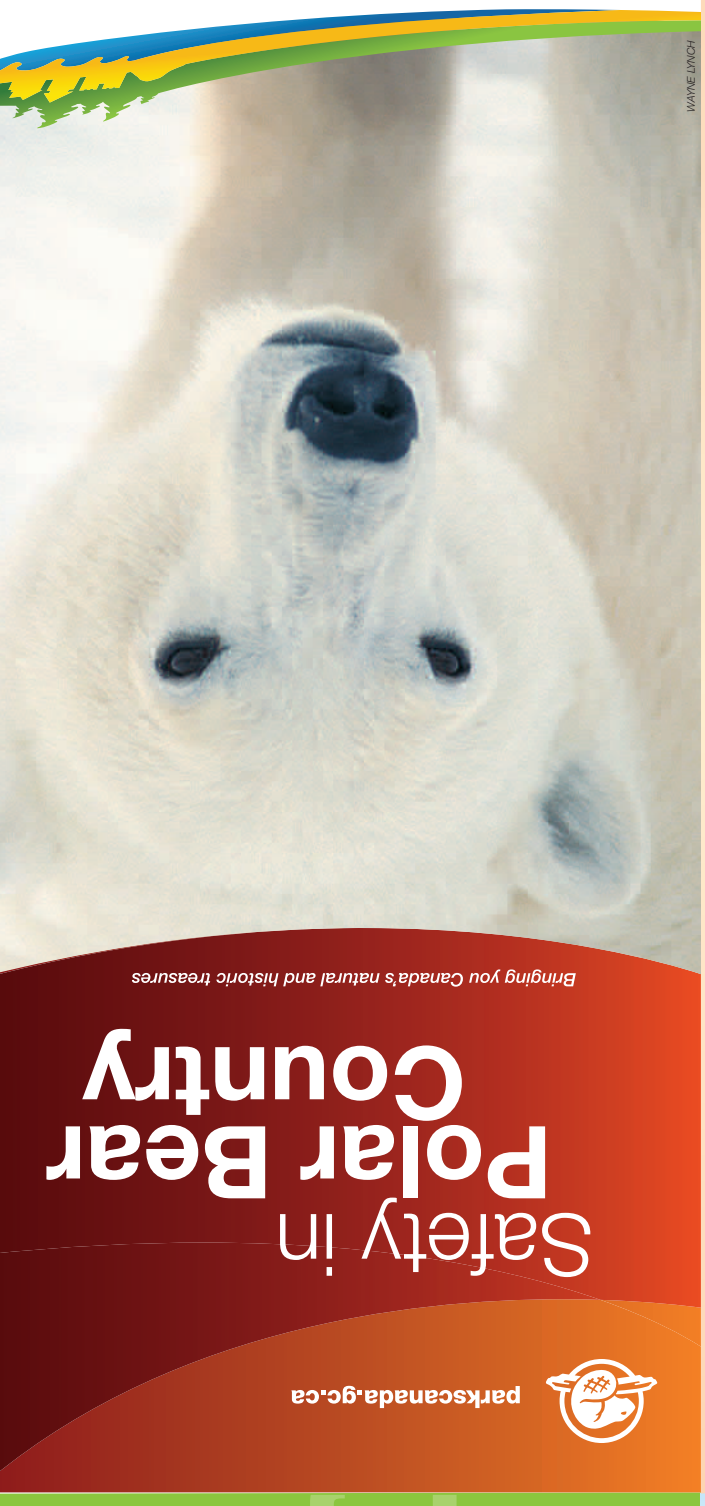
Nunavut Emergency Management
Emergency 24 Hour
Emergency Services Response 24 Hours:
867-979-6262 / 1-800-693-1666

Nunavut Department of Community and Government Services
W.G. Brown Building, 4th Floor
P.O. Box 1000, Stn. 700
Iqaluit, NU X0A 0H0
Tel: 867-975-5400
Fax: 867-975-5305

Fire Marshall
Safety Services
Nunavut Department of Community and Government Services
Tel: 867-975-5310
Fax: 867-979-4221

Emergency Services Response 24 Hour TOLL Free: 1-800-693-1666
Emergency Services Response 24 Hours: 867-979-6262

Appendix B: Bear Safety



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Bringing you Canada's natural and historic treasures

Safety in Polar Bear Country

parkscanada.gc.ca

SAFETY in Polar Bear Country

Each encounter with a polar bear is unique. Good judgement, common sense and familiarity with polar bear behaviour are required in all situations. This pamphlet provides guidelines for avoiding and dealing with polar bear encounters. For your safety and the safety of the bears, please read this pamphlet carefully and seriously consider the risks involved with travel in polar bear country. Further information is available in the DVD *"Polar Bears: A Guide to Safety"* developed by Parks Canada and the Safety in Bear Country Society.

After a *polar bear attack* or *encounter* follow this emergency check list:

1. **STAY CALM** and ensure you are safe.
2. Check that all people in your group are accounted for.
3. Call for help by radio or satellite phone. (Get contact numbers at your orientation to the park.)
4. Report location and time of incident.
5. Report number of people involved.
6. Report extent of injuries and property damage.
7. Report numbers and last locations of all polar bears involved in the incident.
8. Report reason for the attack if known (female protecting cubs, surprise, defending food source, etc.)
9. Report description of bears (male or female, size, markings, etc.)
10. Stand by to provide additional information to rescuers.

Polar bear behaviour is **very different** from that of **grizzly** and **black bears**.

Polar bears are predators, primarily hunting seals, while grizzlies and black bears mostly eat plants. As predators, polar bears will investigate humans, their camps and may even consider humans as a food source.

Polar Bear CONSERVATION

Nanuq, the great white bear, is found in many of Canada's northern national parks and in some national historic sites. Whenever bears and people occupy the same area, conflict can arise. Polar bears and people have coexisted for thousands of years but contact between the two must be minimised to continue this legacy. Successful polar bear conservation requires your co-operation.

For your safety, and the safety of the bears, learn about safe travel in polar bear country and take precautions. By choosing to travel in polar bear country you not only accept the associated risks, but also the responsibility to alter your plans, actions and attitudes to accommodate these magnificent animals.

Report all polar bear sightings and signs to park staff, as soon as possible.

FOR MORE INFORMATION:

Auyuittuq National Park and Quttinirpaaq National Park
Box 353
Pangnirtung, NU X0A 0R0
PHONE: **867-473-2500**
E-MAIL: nunavut.info@pc.gc.ca

Sirmilik National Park
Box 300
Pond Inlet, NU X0A 0S0
PHONE: **867-899-8092**
E-MAIL: sirmilik.info@pc.gc.ca

Ukkusiksalik National Park
Box 220
Repulse Bay, NU X0C 0H0
PHONE: **867-462-4500**
E-MAIL: ukkusiksalik.info@pc.gc.ca

Torngat Mountains National Park
Box 471
Nain, NL A0P 1L0
PHONE: **1-800-922-1290** or **709-458-2417**
E-MAIL: torngats.info@pc.gc.ca

Wapusk National Park
Box 127
Churchill, MB R0B 0E0
PHONE: **204-675-8863**
E-MAIL: wapusk.np@pc.gc.ca

Western Arctic
Ivvavik National Park
Aulavik National Park
Tuktut Nogait National Park
Pingo Canadian Landmark
Box 1840, Inuvik, NT X0E 0T0
PHONE: **867-777-8800**
E-MAIL: inuvik.info@pc.gc.ca

Margo Supplies
A supplier of bear deterrents and warning devices.
www.margosupplies.com

ISBN: 978-1-100-16418-2 R62-342/2010E

SUGGESTED READINGS

Bromley, Marianne. 1996. *Safety in Polar Bear Country.* Northwest Territories Renewable Resources, Yellowknife. 24 pp.

Canadian Wildlife Service. *Hinterland Who's Who.* http://www.hww.ca/hww2.asp?id=99

Stirling, I. 1988. *Polar Bears.* University of Michigan Press. Available in soft cover from Fitzhenry and Whiteside, Markham, ON. 220 pp.

Safety in Bear Country Society. 2006. *Polar Bears: A Guide To Safety.* Available from Distribution Access, 1-866-999-5292. DVD.

CREDIT: *Bromley, Marianne. 1996.* Safety in Polar Bear Country. *Northwest Territories Renewable Resources, Yellowknife, NWT. 24 pp.*

This pamphlet was developed for national parks in the Arctic. Polar bears and bear encounters are more numerous in Ukkusiksalik and Wapusk National Parks than other Arctic national parks. Independent travelling in these parks is not recommended, but guided trips are available. Contact Ukkusiksalik or Wapusk National Parks for further information.

MORE about Polar Bears

Polar bears are the largest land carnivore in North America. An adult male typically weighs 300-450 kg, stretching 3 metres from nose to tail. They are strong, fast, agile on land or ice, and are expert swimmers and divers. Their sense of smell is exceptional, their eyesight comparable to a human's. Polar bears are naturally curious, not fearless as they have been labelled. They are shy and prefer to avoid confrontations with humans and other polar bears. Their primary prey is the ringed seal but they will also prey on birds, eggs, small mammals, and even humans. They also scavenge anything from beached whales to human garbage. In the heat of summer, polar bears may appear slow and docile, but they are capable of moving swiftly and with purpose.

AVOIDING an ENCOUNTER

Ask Parks Canada staff about current bear activity. Some areas may be closed due to bear activity; obey written and oral warnings.

Be alert and aware of your surroundings. Scan all around with binoculars at regular intervals. Be vigilant! Watch for signs such as tracks, droppings, diggings, wildlife carcasses and polar bear dens.

Travel in daylight and avoid areas of restricted visibility. Be especially careful in areas along the coast, where a polar bear may be hidden behind boulders, pressure ridges (pushed up sea ice), driftwood or vegetation.

Travel in groups and stay together to increase your safety. The larger the group the greater the chances of deterring a bear.

Never approach a bear for any reason. Every bear defends a "critical space", which varies with each bear and each situation: it may be a few metres or a hundred metres. Intrusion within this space is considered a threat and may provoke an attack. Approaching a bear could be considered disturbing wildlife which is an offence under the National Parks Wildlife Regulations.

Never approach a fresh kill or carcass as polar bears will defend their food. Adult polar bears will often only eat the fat of beached whales, seals and other kills, but other bears may scavenge from these carcasses.

Never feed bears. A bear that finds food from a human source begins to associate humans with food. This can result in the bear losing its natural tendency to avoid people and becoming persistent in its search for human food. The consequences for you and the bear can be serious. A bear that associates food with humans is more likely to injure people and these bears may have to be relocated or killed. It is also illegal to feed any wildlife in a national nark.

Use sealed bags and containers or bear-proof canisters to store food and garbage. Pack out all garbage.

Eliminate or reduce odours from yourself and your camp. Avoid using scented soaps and cosmetics and avoid bringing strong smelling foods.

Consider hiring a guide if you are uncertain about your ability to deal with polar bears. Ask about their experience, how they will avoid encountering a polar bear and about plans of action should you encounter a bear. A larger group can also increase safety, ask about the size of group.

CHOOSING a SAFE Campsite

Avoid bear feeding areas.
A polar bear's primary food source is seal so these species are often found in the same places.

- **In fall, winter and early spring** most polar bears are on the sea ice hunting seals by the floe edge, open water leads and along pressure ridges. Bears and seals can also be found in places where the ice is thin or cracked, such as tide cracks in land-fast ice or at toes of glaciers. Seals can more easily maintain breathing holes in these areas.
- **In early spring,** females with cubs tend to hunt along pressure ridges and cracks in land-fast ice (particularly in bays) where seal birthing dens are found.
- **During the ice-free summer season,** when polar bears are forced ashore, they can be found anywhere but they generally hunt and scavenge along coastlines, beaches and rocky islands. Keep an eye on the ocean, polar bears are often well hidden when swimming.

Stay away from polar bear den sites.
Unlike other bears, there is no time when all polar bears are inactive in dens.

- **Maternity dens** are excavated by pregnant females in snow drifts on leeward (wind protected) slopes of coastal hills and valleys. In the Baffin Region, dens can be found at high elevations on snowfields and glaciers. Maternity dens are occupied from fall to early spring. The dens are inconspicuous, however, bear tracks leading to and from the site in early autumn or late spring or ventilation holes can indicate their presence.
- **Temporary dens** are excavated in snow drifts or pressure ridges by polar bears (males, females and females with cubs) that are active over the winter. The dens can be used as resting places or as temporary shelter from bad weather. They can be used from a few days to several months.
- **Summer retreat dens** are excavated during the open water season in the remaining snow banks or into the permafrost. These can also be at higher elevations on snowfields and glaciers or the valleys leading up to them. Male and female bears of all age groups use them to keep cool and avoid insect harassment.

Avoid camping on beaches, islands, along coastlines and on obvious movement corridors.

- Before making camp, look around for tracks or other signs of bear activity.
- Polar bears often travel along coastlines using points of land and rocky islets near the coast to navigate.
- In the summer, blowing sea ice may transport polar bears into coastal areas. Avoid areas where the pack ice is blowing in to shore.
- Valleys and passes are often used to cross peninsulas or islands and to move from one area to another.
- Polar bears travel and hunt along the edges of ice floes.

Camp inland on a butte or bluff with a good view of surrounding terrain. Avoid areas where bears might hide, such as blind corners, snow banks, pressure ridges and other places with visual impediments.

Set up tents in a line rather than a circle and maintain at least 5 metres between them. If a bear comes into camp, it will not feel surrounded and will have an avenue of escape without feeling threatened. Keep watch 24 hours per day. Take turns keeping watch during sleeping periods.

Do not sleep in the open without a tent. You may look like a seal and polar bears are very curious. People sleeping in the open have been attacked.

Cook at least 50 metres from your sleeping area in a place visible from your tent. Strain food particles from dishwater and store with garbage. Dump dishwater at least 50 metres from your sleeping area, rivers, streams and lakes.

Store food and garbage in bear-proof containers or sealed bags and containers secured under rocks within view of your tent. A permit is required to set up a food cache.
Placing pots on top may serve as an alarm. If you have a warning system, store your food within its perimeter. DO NOT store food inside your tent.

HANDLING an ENCOUNTER

Before your trip, discuss possible plans of action for dealing with bears in a variety of circumstances and be sure everyone understands. The actions of each individual either contribute to or detract from the safety of everyone else.

Every attack or encounter is different. To find out more about bear behaviour, hire a guide or talk to knowledgeable people in the community.

Stay calm, notify everyone in the group, be aware of your surroundings and assess the situation. What is the bear doing? What is the bear's behaviour?

If a bear does not know you are there:

- **quietly back away and leave the area** either in the direction you came or make a wide detour around the bear. Do not run, move quickly or make motions that might attract the bear's attention.
- **stay downwind,** so the bear cannot smell you and detect your presence.
- **keep an eye on the bear.**

If a bear knows you are there and shows signs of being curious, such as:

- moving slowly with frequent stops,
- standing on hind legs and sniffing the air,
- holding its head high with ears forward or to the side,
- moving its head from side to side, or
- trying to catch your scent by circling downwind and approaching from behind.

THEN:

- **help it to identify you as a human,**
- **wave your arms over your head and talk in low tones,**
- **move slowly upwind** of the bear so it can get your scent.

If the bear has been surprised at close range or shows signs of being agitated or threatened, such as:

- huffing, panting, hissing, growling or jaw-snapping,
- stamping its feet,
- staring directly at a person, or
- lowering its head with ears laid back.

THEN:

- **act non-threatening.** Do not shout or make sudden movements, which might provoke the bear. Never huff or hiss as this can cause a polar bear to charge.
- **avoid direct eye contact.**
- **back away slowly.** DO NOT RUN.
- **be prepared to use deterrents.**

If the bear shows signs of stalking or hunting you, such as:

- following you or circling you,
- approaching directly, intently and unafraid,
- returning after being scared away, or
- appears wounded, old or thin.

THEN:

- **fight back!** Use any potential weapon, group together and make loud noises.
- **DO NOT RUN.**
- **be prepared to use deterrents.**

If a bear charges:

- **stand your ground and be prepared to fight!** Focus on hitting the bear in sensitive areas, especially the face and nose if possible. Bluff charges are rare.

Never get between a bear and her cubs.

If a female with cubs is surprised at close range or separated from her cubs she will likely attack to defend her cubs.

- **leave the area immediately.**
- **stay in a group.**
- **fight back if she attacks.**

WAYNE LYNCH

Always leave an escape route for the bear.

Carry deterrents and know how to use them.

Report all bear sightings and signs to park staff.

CONTACT PARKS CANADA FOR MORE INFORMATION.

DETERRENTS

Reducing the threat posed by a polar bear during an interaction may be difficult. Non-lethal deterrents cannot be depended on to ensure safety. The best way to live safely with bears is to avoid contact with them.

Any potential weapon must be considered, such as skis, poles, rocks, blocks of ice or even knives.

Stay together as a group. This can be a deterrent and actions, such as making noise, jumping, waving arms, throwing things, may help to drive a polar bear away.

COMMERCIAL deterrents

- **Noisemakers** including air horns, pistol and pen launched bear bangers may scare a bear away.
- **Pepper spray** is effective against polar bears, but has some limitations. It must be warm enough to atomize and it must be used at close range. Also be aware of wind direction to avoid having the spray blow into your face.
- **Know how and when to use these deterrents and practice beforehand.**
- **Availability of commercial deterrents is limited in the north,** most will have to be purchased elsewhere and transported as dangerous goods.
- **Portable solar electric fences** may deter a bear at your campsite if properly installed and maintained.
- Contact Parks Canada for more information.

In Canada's national parks it is unlawful to possess a firearm unless you are a licensed guide or bear monitor with a permit. Consider hiring a guide or a bear monitor for increased safety. If you operate a guiding or outfitting business and wish your guides to be considered for a firearms permit, please contact the National Park or Site or Field Unit Office.

The exception to this regulation is for beneficiaries of the Inuvialuit Final Agreement, the Nunavut Land Claim Agreement, the Labrador Inuit Land Claims Agreement, the Nunavik Inuit Land Claim Agreement and any future land claim agreements, who can carry firearms when engaged in traditional activities within national parks within their land claim area.

WARNING systems

Set up a portable trip-wire or motion detector alarm system around your tent to alert you if a polar bear approaches your camp. Before leaving home, contact Parks Canada for more information.

You may wish to take a dog, but only one that has proven experience with polar bears. Several dogs are better than one. Know how to handle them. Keep them staked so they cannot run to you for protection and stake them downwind from your sleeping area. Be sure to clean up any dog food leftovers. Dogs must be under control at all times within national parks to avoid wildlife harassment.

Designate a bear monitor to keep watch if a polar bear might be nearby. Consider moving your camp if there is a bear in the area.

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Building Nunavut Together
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Bâtir le Nunavut ensemble

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Department of Environment
Avatiliqiyikkut
Ministère de l'Environnement

BEAR SAFETY

Reducing Bear-People Conflicts in Nunavut

Table of Contents

Prepared By: Tyler Ross, Sarah Medill and Bob Hansen

Safety

Some equipment designed to prevent and reduce wildlife damage is hazardous. It is especially dangerous to use the equipment in an unsafe manner or contrary to the manufacturer's instructions.

Users must correctly install and use all equipment as per manufacturer's instructions and provide regular maintenance of the equipment.

Those acquiring detection/deterrent equipment must acknowledge they use the equipment at their own risk and may have to sign a waiver of liability before taking possession of certain equipment when applied for through the Wildlife Damage Prevention and/or Compensation Programs.

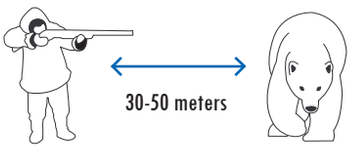
If possible, contact a Conservation Officer before using any of the detection and/or deterrent equipment described in this resource.

DETERRENTS

Rubber Bullets

Some bears are not deterred by noise. When noise is unsuccessful, rubber bullets are often the most effective alternative to lethal management. Less-lethal projectiles, such as rubber bullets, are used to inflict pain, creating a negative association with the situation and with humans. These rounds are designed to cause momentary discomfort and surprise; when used correctly they do not penetrate the hide or seriously injure the bear. Rubber bullets are effective between **30-50 meters (100-165 ft.).**

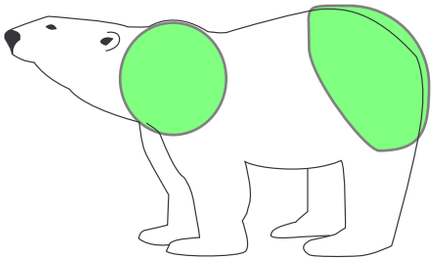
Load rubber bullets one at a time directly into the chamber of a shotgun with an open-choke (cylinder bore). Load the magazine with lead slugs (lethal ammunition) so you are prepared if the bear attacks. Do not use rubber bullets in semi-automatic shotguns, as the low powder loads in rubber bullets do not work properly with the action - rounds can jam and render the firearm useless. Use a pump-action shotgun with a chamber size of 2 ¾" or larger.



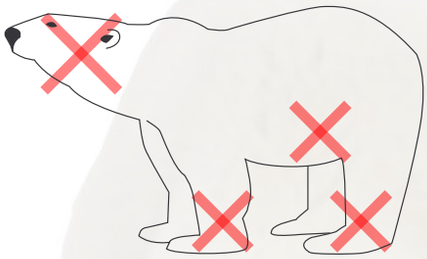
Call out to the bear before firing so that it associates you (humans) as the source of the pain. Make sure the bear has a clear path to escape.

Safety Precautions

- Do not shoot at people; it may cause death or serious injury
- Do not shoot at wildlife closer than 30 meters
- Have a lethal firearm present and ready
- Use only in recommended firearm (12 gauge shotgun with open choke)
- Do not use rubber bullets in semi-automatic shotguns, as the low powder loads in rubber bullets do not work properly with the action - rounds can jam and render the firearm useless



- Load rubber bullets directly into the chamber of a shotgun with an open-choke (cylinder bore)
- Aim for a large muscle mass, such as shoulder or rump
- Let the bear know your location before firing
- Make sure the bear has a clear path to escape



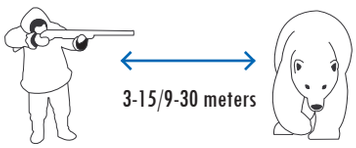
- Do not shoot for the head, belly, hindquarters, or lower limbs. This could severely injure the bear.

DETERRENTS

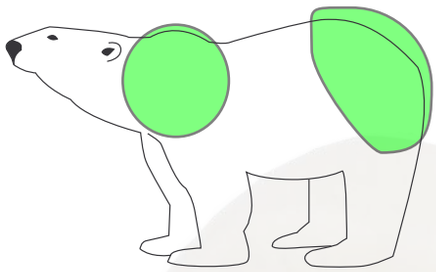
Bean-Bag Round

Similar to rubber bullets, bean-bag rounds are an effective alternative to lethal management. These less-lethal projectiles are used to inflict pain, creating a negative association with the situation and with humans. Bean-bag rounds are designed to cause momentary discomfort and surprise; when used correctly they do not penetrate the hide or seriously injure the bear. Bean-bag rounds can be used at close ranges: **3-15 meters (10-50 ft.).** A "standard round" is also available, which works at a longer range: **9-30 meters (30-100 ft.)**

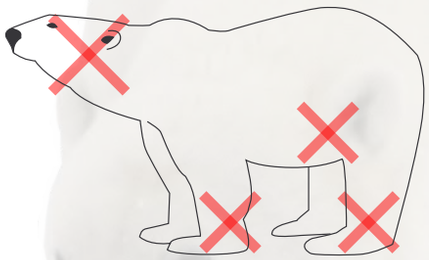
Load bean-bag shells one at a time directly into the chamber of an open-choke shotgun. Load the magazine with lead slugs (lethal ammunition) so you are prepared if the bear attacks. Do not use bean-bag rounds in semi-automatic shotguns, as the low powder loads in the shells do not work properly with the action - rounds can jam and render the firearm uses. Use either a hinge or pump-action shotgun with a chamber size of 2 ¾" or larger.



Call out to the bear before firing so that it associates you (humans) as the source of the pain. Make sure the bear has a clear path to escape.



- Load rubber bullets directly into the chamber of an open-choke shotgun
- Aim for a large muscle mass, such as shoulder or rump
- Let the bear know your location before firing
- Make sure the bear has a clear path to escape



- Do not shoot for the head, belly, hindquarters, or lower limbs. This could severely injure the bear

Safety Precautions

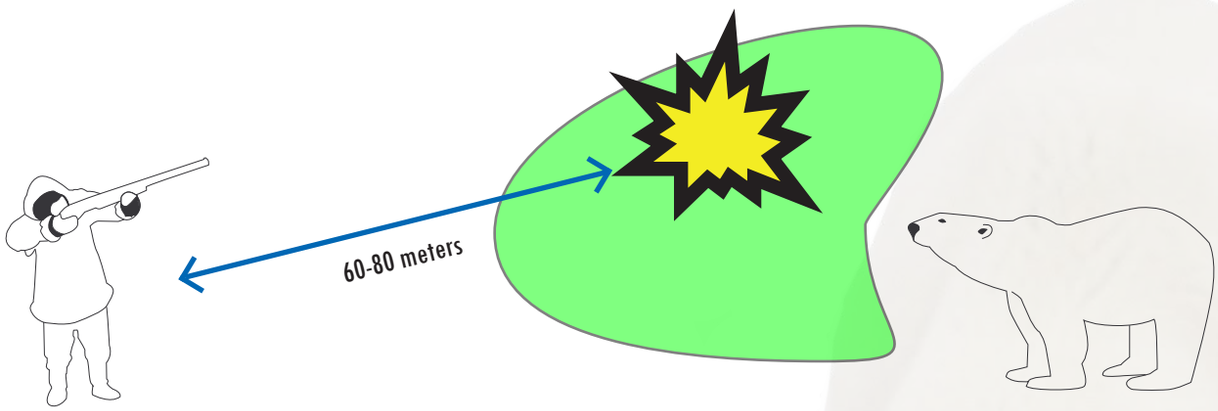
- Do not shoot at people; it may cause death or serious injury
- Do not shoot at wildlife closer than recommended
- Have a lethal firearm present and ready
- Use only in recommended firearm (12 gauge shotgun with open choke)
- Do not use rubber bullets in semi-automatic shotguns, as the low powder loads in rubber bullets do not work properly with the action - rounds can jam and render the firearm useless

DETERRENTS

Cracker Shells

Bears dislike sudden loud noises. Cracker shells are fused projectiles that travel a certain distance before exploding. The abrupt loud noise creates a negative association with the situation and with humans. Most bears are scared off by cracker shells but others learn to ignore the noise, especially when there is nothing else to deter the bear or if there are attractants or food. 12 gauge Cracker shells are effective between **60-80 meters (165-ft.).**

When used properly, cracker shells cause no physical harm or discomfort to a bear. Load shells one at a time into an open-choke shotgun. Do not use cracker shells in semi-automatic shotguns, as the low powder loads in the shells do not work properly with the action - rounds can jam, making the firearm useless. Use either a hinge or pump-action shotgun with a chamber size of 2 ¾" or larger. Load the magazine with lead slugs (lethal ammunition) so you are prepared if the bear attacks.



- Do not shoot directly at the bear - **You want the shell to explode between you and the bear**
- Fire into the air at a **45 degree angle above the ground**, judging distance and wind speed/direction
- Judge your distance. **If the shell explodes behind the bear the blast may scare the bear towards you**
- Let the bear know your location before firing. If it does not know the source of the noise it may run in your direction
- Make sure the bear has a clear path to escape

Safety Precautions

- Do not shoot at people; it may cause death or serious injury
- Cracker shells pose a fire risk. Ensure that there are no flammables downrange
- Do not shoot at dry vegetation, gas products, or wildlife closer than 60 meters
- Have a lethal firearm present and ready
- Use only in recommended firearm (12 gauge shotgun with open choke)
- Do not use cracker shells in semi-automatic shotguns, as the low powder loads in rubber bullets do not work properly with the action - rounds can jam and render the firearm useless

DETERRENTS

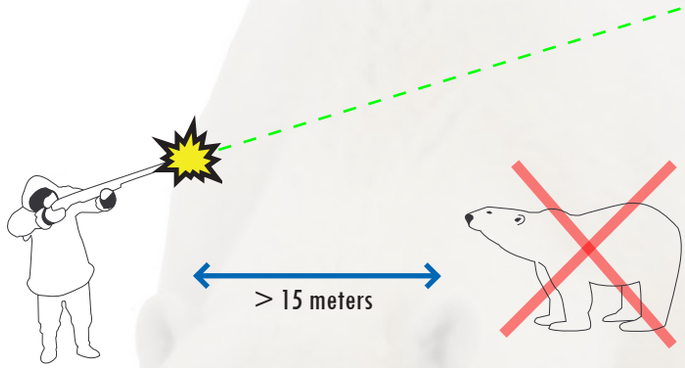
Warning Shots

Warning shots create a loud abrupt noise at the gun's muzzle and a slight disturbance to the ground upon the bullet's impact. Shots fired from a firearm may scare a bear; however, some bears show little concern for warning shots and will continue to approach or remain in the area. Warning shots can also be a safety hazard for bears and people. Often bears are injured by ricocheting bullets intended to scare it away. Using a firearm to deter bears does allow for immediate use of lethal force.

Warning shots can be fired from any firearm that makes a loud noise when discharged. Keep track of the number of warning shots fired - each one fired means that there is one less shell or cartridge left in the firearm for you to use if you must shoot the bear.

Think about where you are shooting . Do not fire warning shots in the direction of people, communities, known campsites/ cabins, or other populated areas.

- Let the bear know your location before firing. If it does not know the source of the noise it may run in your direction
- Do not shoot directly towards the bear. Shoot in the air and to the side of the bear
- Make sure the bear has a clear path to escape
- If the warning shots are not working switch to another technique (other deterrents, yelling and/ or throwing things at the bear) - you do have a firearm if the bear turns its attention to you



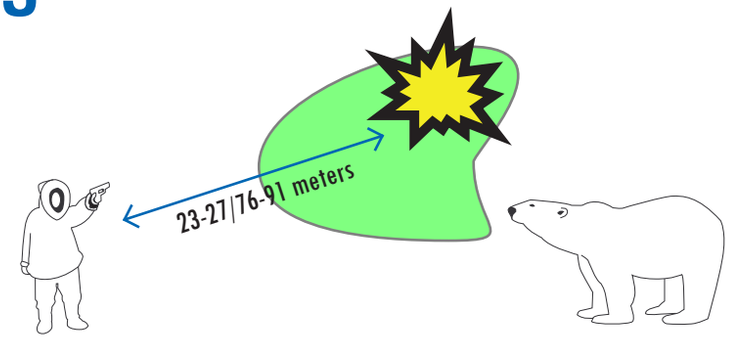
Safety Precautions

- Be conscious of where your warning shot will land - do not shoot at or near people, or objects off which a bullet may ricochet
- Do not shoot directly at wildlife
- Do not fire all rounds - you may need to shoot the bear if it turns its attention to you

DETERRENTS

15mm Scare Cartridges

Bear Scare Cartridges are 15mm projectiles that create loud noises when fired. The abrupt loud noise creates a negative association with the situation and with humans. Most bears are scared off by scare cartridges but others learn to ignore the noise, especially when there is nothing else to deter the bear or if there are attractants or food. 15mm cartridges are fired from a 'pistol launcher', which uses blanks to project the cartridge. There are three different types of bear scare cartridges:



Bangers - A flash bang cartridge that explodes, creating a sudden loud noise and flash of light. Bangers are effective between **23-27 meters (75-90 ft.)**

Screamers - Make a loud screeching sound while traveling through the air. In low light conditions they produce a strong visual effect. Screamers are effective between **76-91 meters (250-300 ft.)**

Flaming Whistles - Produce a loud whistling noise and a sparkling tracer effect as they travel through the air. Flaming Whistles are effective between **76-91 meters (250-300 ft.)**

Safety Precautions

- Do not shoot at people; it may cause death or serious injury
- 15mm scare cartridges pose a fire risk. Ensure that there are no flammables downrange
- Do not shoot at dry vegetation, gas products, or wildlife closer than recommended
- Have a lethal firearm present and ready
- This ammunition must only be used to deter nuisance wildlife or wildlife that is endangering human safety. If possible, contact a conservation officer before using this deterrent

- Fire into the air at a **45 degree angle above the ground**, judging distance and wind speed/direction
- Judge your distance. **If the shell explodes behind the bear the blast may scare the bear towards you**
- Let the bear know your location before firing. If it does not know the source of the noise it may run in your direction
- Make sure the bear has a clear path to escape
- Do not shoot directly at the bear - **You want the shell to explode between you and the bear.**

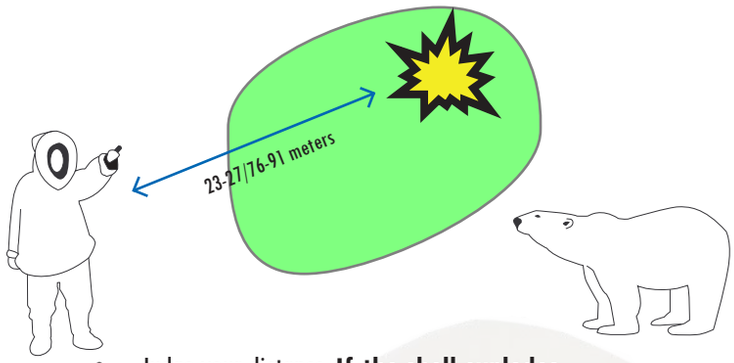
DETERRENTS

Pen Launcher

A different style of 15mm Bear Scare Cartridges can be fired from a 'pen launcher'. The cartridges are screwed into the end of the launcher one at a time; the thumb lever is then drawn back and released to fire the cartridge. A variety of signal and safety flares can also be fired from pen-type launchers. There are two different types of bear scare cartridges that can be fired from the pen launcher.

Salute Flares - Also known as Bear Bangers, these cartridges explode with an extremely loud bang after traveling approximately 125 ft. Salute Flares are effective between **23-27 meters (75-90 ft.)**

Siren Flares - Also known as Screamers, these cartridges make a loud high pitched screeching sound while traveling through the air. Siren Flares are effective between **76-91 meters (150-200 ft.)**



- Judge your distance. **If the shell explodes behind the bear the blast may scare the bear towards you.**
- Let the bear know your location before firing. If it does not know the source of the noise it may run in your direction
- Make sure the bear has a clear path to escape

Safety Precautions

- Do not shoot at people; it may cause death or serious injury
- 15mm scare cartridges pose a fire risk. Ensure that there are no flammables downrange
- Do not shoot at dry vegetation, gas products, or wildlife closer than recommended
- Have a lethal firearm present and ready
- This ammunition must only be used to deter nuisance wildlife or wildlife that is endangering human safety. If possible, contact a conservation officer before using this deterrent

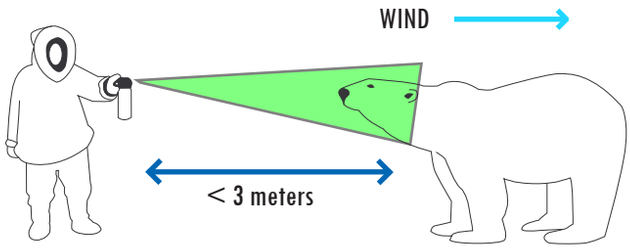
DETERRENTS

Pepper Spray

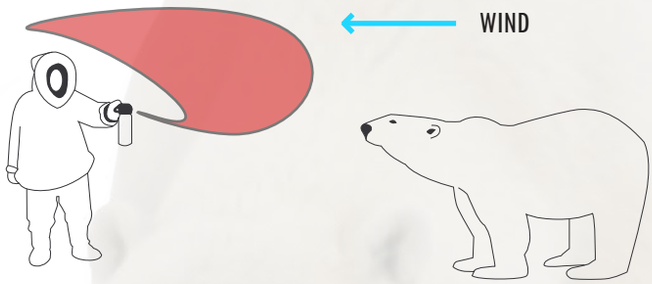
Pepper spray, also known as capsicum spray or bear spray, is a chemical deterrent that causes temporary burning, tearing and swelling in the eyes and nose, and inflammation of the throat and lungs, which restricts breathing to shallow gasps. It also causes severe irritation to the surface of the skin. These effects are only temporary and cause no permanent damage to bears, or people who accidentally come into contact with the spray. Unlike other projectile deterrents, pepper spray is only effective at short distances: **< 3 meters (165- ft.)** Therefore, it should only be used as a last resort.

Pepper spray does not work well in damp, rainy or cold weather. Keep the canister in a holster under your jacket to keep the canister at an effective working temperature.

Pepper spray is not a repellent - it will not keep bears from investigating or damaging property.



- Remove the "safety wedge"
- Discharge the pepper spray with the wind at your back
- Aim for the animal's face, specifically the eyes, nose and mouth
- Leave the area immediately after using the pepper spray



IMPORTANT

Judge wind direction - do not discharge the pepper spray into a head-wind, as it may blow back into your face

Safety Precautions

- Do not use on people; it may cause serious injury
- It is illegal to use pepper spray for any purpose other than defending yourself from an animal attack
- Do not use in cabins, tents, vehicles or other enclosed areas, as it will incapacitate the user(s)
- Effects are only temporary and a predatory bear may resume its approach once it has recovered
- This product must only be used to deter nuisance wildlife or wildlife that is endangering human safety. If possible, contact a conservation officer before using this deterrent

Bear reacts to pepper spray - © Bob Saunders

DETERRENTS

Noisemakers

Noisemakers can be considered anything that makes loud, unfamiliar noise. Commercial products such as rattlers or air horns are available for purchase. However, simple home solutions are also effective; pots and pans, banging on the walls of a shed or cabin, etc. Use whatever is available to you.

Noisemakers are a simple, first level deterrent. However, bears quickly become accustomed to sounds when no other negative effect is present. Have other deterrents or a lethal firearm present and ready in case the noisemakers are ineffective.

Safety Precautions

- Do not use sirens or horns on/near people; it may result in hearing damage or loss
- Have a lethal firearm present and ready
- Use noise makers when bears show interest in your camp, cabins, or persons

Electric Fencing

Electric fences deliver a shock to bears that come into contact with the wires. The shock causes momentary surprise and discomfort. The effects are only temporary and cause no permanent damage to bears, or people who accidentally come into contact with the wires.

Alternating positive and negative charges between wires will deliver a shock even on dry ground or rocky conditions. Permanent fences can be erected to protect outpost camps, cabins, caches, etc. Portable fences can be used at temporary camps.

Fence charging units can be recharged either by generators or by solar power. Fences do require regular maintenance and monitoring to ensure that an appropriate level of charge is being delivered. When snow begins to accumulate they may become grounded out or buried.

Consult the manufacturer's guidelines for safety and installation instructions.

A permanent high tensile electric fence and a solar-powered charger

Temporary electric fencing around a camp site

Safety Precautions

- Have other deterrents and/or a lethal firearm present and ready in case the fence is damaged and/or ineffective
- Follow the manufacturors guidelines for instilation, operation and maintainance

DETERRENTS

Vehicles

Bears are less of a risk to people who are travelling by all-terrain vehicles (ATV), snowmobiles, on-road vehicles (cars and trucks), boats or aircraft. When chasing problem wildlife away from people and/or property, consider the following when traveling with a vehicle:

- Do not depend entirely on your vehicle for protection. If it breaks down you may be forced to stay on the land longer than you anticipated, or you may have to travel on foot
- If a bear is approaching, and it is safe to do so, start the engine of your ATV, boat, or snowmobile. The noise and/or movement may encourage the bear to leave
- Do not use your vehicle as an excuse to approach wildlife. This includes watching bears and other wildlife at garbage dumps The more experience a bear has with any deterrent the less effective it becomes.
- Do not use your vehicle to chase an animal if the terrain makes it unsafe to do so. Do not chase a bear with your vehicle while towing a trailer or sled. You may need to stop and turn abruptly.
- If using a helicopter stay 100m behind the bear and 30m above the ground, in this position, drive the bear towards an obvious, or desired escape route

Safety Precautions

- Never chase a bear if you are unarmed. If your vehicle breaks down you may be vulnerable
- Remain at a safe distance
- Do not chase a bear alone. Have a second person present, following in an additional vehicle if possible
- Vehicles must only be used to deter nuisance wildlife or wildlife that is endangering human safety. If possible, contact a conservation officer before chasing any animal

WARNING

Bears, particularly during the summer, may overheat and die from the stress and overexertion caused by a fast and/or long chase

Wildlife Act - Section 74 - Pursuit of a wild animal

(1) No person shall chase, weary, harass or molest a wild animal

(2) A person does not contravene subsection (1) by lawful harvesting

(3) Notwithstanding anything else in the Act, a person may use a vehicle to chase a bear away from a dwelling, municipality, camp or settlement or its immediate vicinity if it is necessary to defend life or property and may avoid killing the bear

DETECTION

Dogs

A trained dog and an experienced handler can effectively detect and deter bears. Certain breeds of dogs, such as the Canadian Inuit Dog (sled dog), the Blackmouth Cur and the Karelian Bear Dog, are well known for their ability to avert bears and chase them from areas where they may come into contact with people. Regardless of the breed, it is important to know beforehand how your dog(s) will react to an approaching bear. An inexperienced dog, or one which fails to warn of an approaching bear, is more of a hazard than a help.

Dogs used to detect and deter bears should not be treated as pets and are best kept on a leash when travelling, or chained outside of tents and/or cabins. A loose dog may not be useful in you encounter a bear, as the dog could run away.

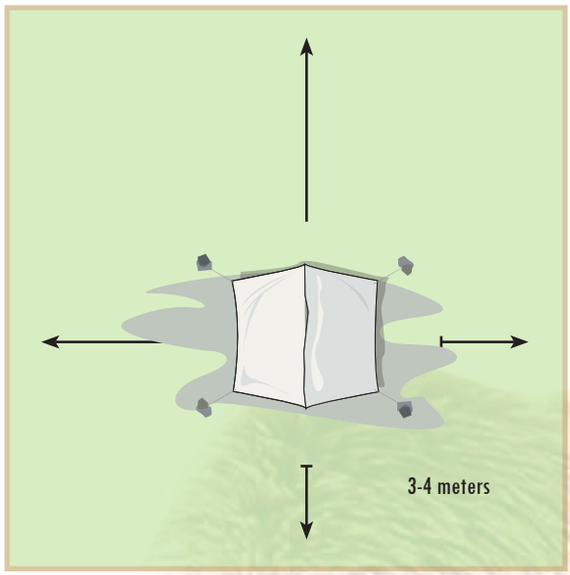
Dogs are naturally pack animals and may be more confident when two or more are kept together for bear detection and defense. A small group of dogs may be able to chase and scare a bear from the area, creating an unpleasant encounter that may discourage the bear from returning. A single barking dog may be enough to prevent a bear from approaching a camp. However, some dogs may not bark at bears when tied up because they may feel vulnerable to an attack.

Additional care must be taken when travelling on the land with a dog. Dog food can attract bears; uneaten food should not be left out overnight and care should be taken to ensure a dog does not cache uneaten food around camp.

DETECTION

Tripwire Fences

Tripwire fences can provide advanced warning of an approaching bear. In some cases the noise produced by a tripwire fence may be enough to deter a bear. However, they are intended to be a means of detection, and you should always carry additional deterrents or firearms. Tripwire fences can be as basic as setting up a rope with noisemakers (pots and pans, bells, etc.) attached at various points. There are also commercially available models that, when triggered, set off loud sirens and lights.



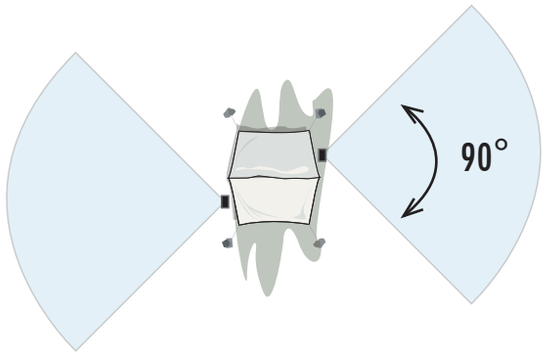
The fence should be set a height that cannot easily be stepped over, or passed under by a bear.

Tripwire fences, whether homemade or commercially purchased, should be placed at a distance of several meters around your camp in order to allow for easy movement and enough time to react to an approaching bear.

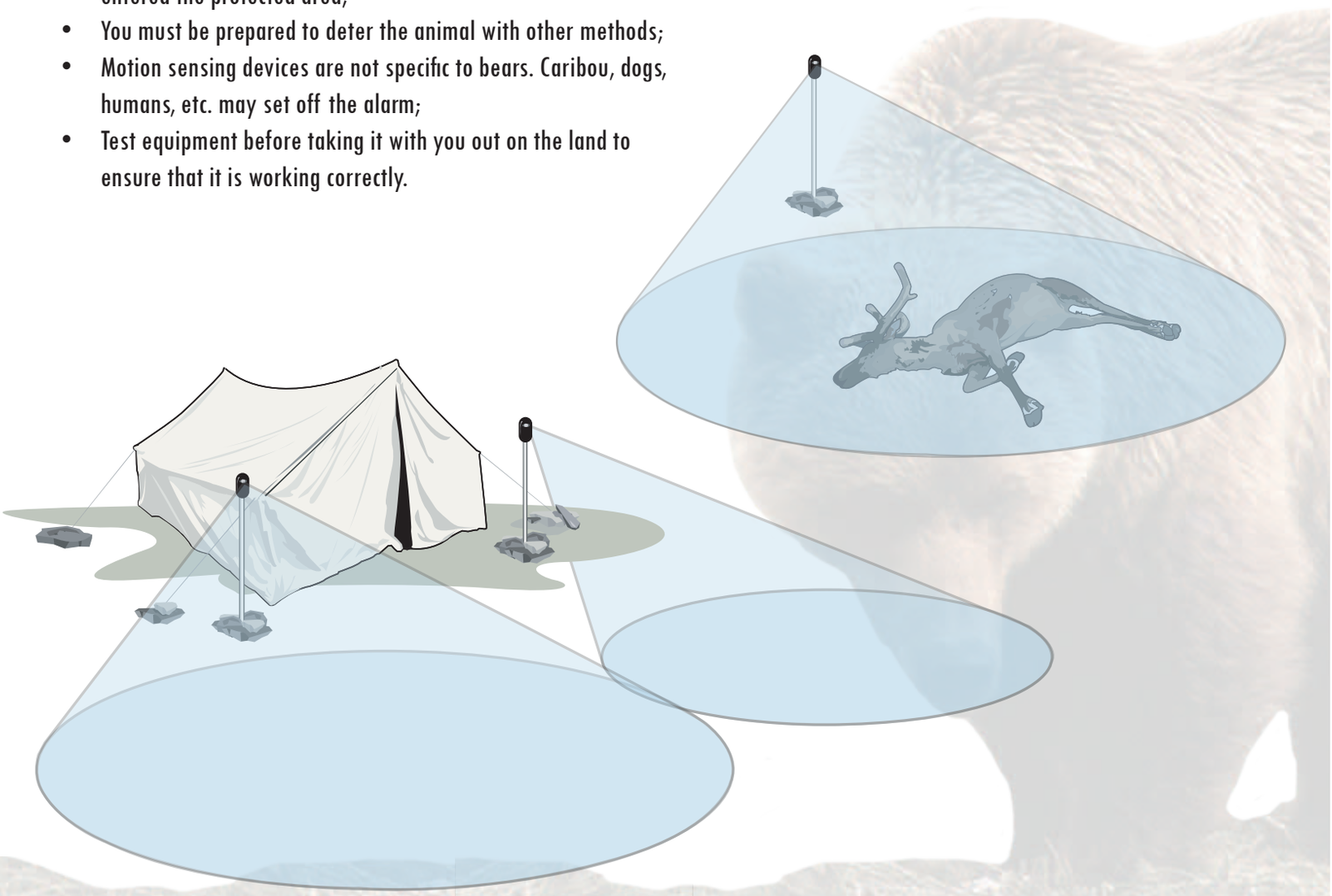
DETECTION

Motion Sensing Devices

Commercially-made devises are available that set off alarms and flashing lights when heat and movement are detected. Most motion sensors detect movement within 40 meters of the unit, but only in the direction in which the sensors face. There may be issues with short battery lifespan in periods of cold weather.



- Lights and sirens may be enough to scare away some curious animals but not all animals will be deterred;
- Detection systems are meant to alert you that animals have entered the protected area;
- You must be prepared to deter the animal with other methods;
- Motion sensing devices are not specific to bears. Caribou, dogs, humans, etc. may set off the alarm;
- Test equipment before taking it with you out on the land to ensure that it is working correctly.



CAMP SAFETY

Tent Camping

When choosing where to camp, safety should be your top priority. Regardless of whether you are in polar bear or grizzly bear habitat, you should choose campsites that meet the following criteria:

- Ensure that you have a clear view of the surrounding area;
- Avoid camping in areas with bear signs (scat, tracks, hair, daybeds, and kills);
- Avoid camping near rushing water and waterfalls - water features can make it difficult to hear approaching bears and may make it difficult for a bear to hear you and your deterrents;
- Place camps well back from any coast, river bank, flow edge, pressure ridge, or open water as these are likely travel/hunting routes for bears;
- Valleys and passes are also more frequently used and may contain more of the bear's natural food than higher ground
- In the summer, remnant snow banks can attract bears as it provides a cool place to rest and an escape from nuisance insects;
- Do not camp near animal carcasses or areas of recent whaling or havest;
- Avoid preexisting campsites if they are littered. Visitors before you may have allowed a bear access to food or garbage, which increases the likelihood of future bear problems in that area.

Tents surrounded by a temporary electric fence.

CAMP SAFETY

Cabins

When staying overnight in cabins the same care should be taken to reduce the chance of attracting a bear to the area; this means proper handling of food and garbage. Failure to maintain a clean cabin may result in a bear approaching the area looking for food.

- Cooking areas (inside or outside the cabin) need to be kept clean. Cooking stoves and other equipment must be kept free of grease;
- If possible, maintain seperate sleeping and food storage/cooking areas;
- Honey buckets should be emptied daily into the latrine;
- Bear deterrents should be at hand;
- Having a flashlight or other lights may be helpful. Remember that if you leave a lit building into the darkness it is difficult to see. Exterior lights can make working in and around the cabin safer in the dark season;
- Be careful when exiting the cabin and look around for bears;
- Consider using additional detection and deterrent systems to protect yourself and your cabin.

A cabin window covered by a bear board

(Above) Barrels with a metal ring and lever/bolt system provide reasonable resistance to bears. These containers are ideal for storing or transporting large quantities of food (or wastes) and other attractants for longer stays at camps or cabins.

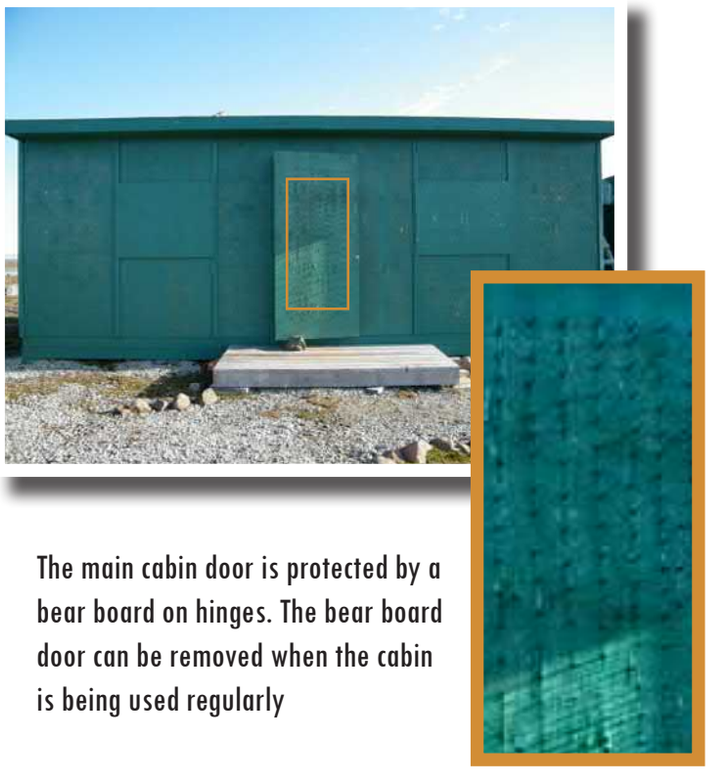
(Left) A metal, bear-proof box that can be used to secure country foods and waste from bears. These boxes are well-suited for use around homes and permanent camps.

CAMP SAFETY

Cabins

When cabins are unoccupied for a period of time, special considerations should be taken to prevent damage from bears.

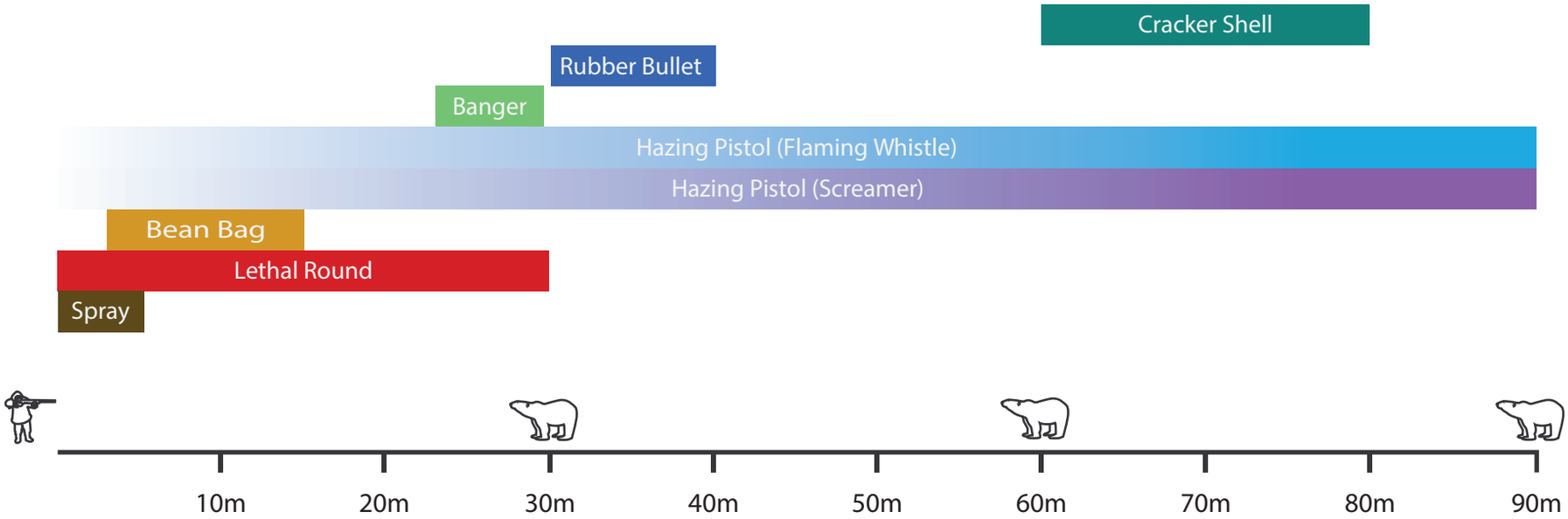
- Treat grey water and latrines with lime and bury with earth;
- Remove any attractants (food, garbage, dirty clothes, oil, anti-freeze, fuels) or store them in a bear resistant or airtight container;
- Bears have been known to chew on inflatable boats, plastic gas cans, sleeping bags, tents, and snow machine seats. These should be made inaccessible;
- Board windows and doors for extra protection to prevent bears from breaking in. Bears often gain entry by pushing on the doors or windows;
- Build “bear boards” by driving plenty of nails or screws through plywood so that $1^{1/2}$ - 2 inch points are exposed on the outside of the board. This will discourage a bear from pushing on windows or doors;
- To maintain year-round emergency access you can still secure a “bear board” on the doors and windows, allowing them to be opened by human hands only. The boards can be removed when staying at the camp to prevent injury or damage to clothing;
- When bear boards are placed on vertical surfaces you reduce the risk of severe injuries to bears. Also, they remain in place and work when snow buildup might make boards placed on the ground ineffective.



The main cabin door is protected by a bear board on hinges. The bear board door can be removed when the cabin is being used regularly

Properly-spaced nails on a bear board covering a cabin door

DETERRENT RANGES



Bear spray is an option of last defense, as its effective range is less than 3 meters.

A bean bag round should be used when the bear is 3-15 meters away; a "standard round" is also available, which is effective between 9 and 30 meters (consult the manufacturer's guidelines). A bean bag round fired from closer than the prescribed range could penetrate the bear's hide and severely wound the bear.

The explosive screamer round makes a continuous noise right from the muzzle of the pistol to a maximum distance of 90 meters. Bears typically flee from the source of the noise, so the screamer can be used throughout its range of travel.

The flaming whistle round makes a continuous noise right from the muzzle of the pistol to a maximum distance of 90 meters. Bears typically flee from the source of the noise, so the screamer can be used throughout its range of travel.

The explosive noise of the banger must occur between the shooter and the bear. A banger can travel 23-27 meters before exploding, so they are not to be used on a bear closer than 30 meters.

A rubber bullet should be used when the bear is 30-50 meters away. A rubber bullet fired from closer than 30 meters could penetrate the bear's hide and severely wound the bear.

The explosive noise of the cracker shell must occur between the shooter and the bear. A cracker shell can travel 60-80 meters before exploding, so they are not to be used on a bear closer than 60 meters.

MAKE SURE THE BEAR HAS A CLEAR AND OBVIOUS ESCAPE PATH BEFORE FIRING DETERRENTS

Nunavut