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Encounters with wildlife in Greenland

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*Henning Ting*



**Atuakkiorfik** 

# Encounters with wildlife in Greenland

*Animal – Human Interactions*

*by*

*Henning Thing*

*Greenland Home Rule Government*

*Department of Environment & Wildlife  
Management*

**Atuakkiorfik**

Encounters with wildlife  
in Greenland  
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# 1. GENERAL

Whether you are living, working, or travelling in Greenland you are likely to experience some close encounters with various species of wild birds and mammals around inhabited areas or in the wilderness. Viewing wildlife at close range in a pristine environment is a highly valued experience and may be some of your most appreciated memories from the Arctic.

However, you should always keep in mind that you are a visitor in the home of the animals - and accordingly strongly advised to

- REMEMBER
- not** to disturb birds at their nesting sites
  - not** to disturb flightless, moulting ducks and geese
  - not** to disturb mammals accompanied by juveniles
  - not** to harass birds or mammals with low-flying aircrafts or with vehicles or boats
  - not** to feed any animal.

In Greenland you may meet various species of large mammals of which **Polar Bear**, **Walrus**, **Muskox**, **Arctic Wolf**, and **Arctic Fox** may all present a potential hazard to people at close range.

An encounter with a large mammal close may result in problems for both animal and human if the necessary precautions are not taken.

In order to reduce possible conflicts it is recommended that you focus on **alertness**, **avoidance**, **attractants**, **detection**, and **deterrents**.

**For your own safety** - and the continued welfare of the animals - you should therefore be aware of the following essentials while staying in the Greenland wilderness:

## 2. POLAR BEAR

### 2.1. BIOLOGY.

Despite its size and awesome strength the polar bear is swift and agile, moves easily on rough ice and steep slopes, and is an excellent swimmer. Polar bears are curious, and often investigate any strange object, smell, or noise. They have an acute sense of smell that will lead any bear to a food source many kilometers away. Its eyesight is thought to equal that of a human. Therefore do not underestimate the ability of bears to find carelessly stored food.

Polar bears are meat eaters. Ringed seals constitute the major part of their diet; however, any animal - including humans - is potential prey. They often find attractive many of the goods which accompany humans in Greenland such as rubber, plastic, rope, canvas, engine oil, groceries, and garbage.

Polar bear distribution is influenced by sea ice movements and patterns of break-up and freeze-up. From

early March until about mid October bears are active and may be observed in the coastal and drift ice regions indicated in Fig. 1.

Between October and March almost all polar bears stay in winter hibernation dens in snow banks. Males may den for shorter periods whereas females will remain in the den throughout the period.

Keep in mind that during the summer months when coasted drift ice may be temporarily absent, polar bears may visit inland valleys in search of food.

## 2.2. BEHAVIOUR

The behaviour of a polar bear can be as individual as in individual people. Keep in mind that our understanding of their behaviour is limited; bears can therefore seem unpredictable.

Bears are normally solitary animals (except females with cubs) which only temporarily meet for mating or at concentrated food sources.

It is not possible to predict exactly how a bear will react to you in an encounter. The bear may

- 1) flee,
- 2) charge, or
- 3) remain trying to pick up your scent by sniffing the air and/or swaying its head from side to side, sometimes erect on its hind legs.



Fig. 1  
Polar bear distribution in Greenland.  
● indicates known important denning areas.

If the bear remains it may show various threat displays as it would toward another bear, such as

- huffing, panting, hissing, or growling,
- looking directly at you with lowered head,
- turning sideways to display its size,
- slapping front paws on the ground/ice,
- rapidly opening and closing its mouth, or
- charging to within a few meters, then suddenly stopping or veering to the side.

The purpose of these displays is to establish dominance without fighting, display behaviours being part of a bear's normal reaction to an encounter.

*Unprovoked attacks on people are extremely rare.* Predatory behaviour is different from threat behaviour. A hunting bear does not bother with displays. It may make a direct approach at a fast walk or run, follow you, or circle carefully, making cautious approaches. The bear will show no fear, but rather intense interest.

Upon your encounter with a polar bear the animal's reaction will depend on various factors, such as

- 1) Your position in the bear's dominance hierarchy.  
Unfortunately, it is hard to know where people fit in the bear's social system. Your "status" will depend on e.g. your body size, the number of people with you, and the bear's sex, age, reproductive status, and its familiarity with humans.
- 2) Your behaviour.

If you run or make sudden movements this may cause the bear to attack. Backing away slowly or standing your ground, depending on the situation, is more likely to result in the bear leaving.

3) The individual bear.

Very old or wounded bears can be dangerous. They may be starving or in pain and may, therefore, aggressively seek food from humans. Bears who are encountered in coastal waters or on land in South and West Greenland have travelled on the drift ice far away from their usual haunts and will probably be very hungry. If they detect food they may be aggressive in obtaining it.

Any bear which has previously eaten food from human sources and become accustomed to people is dangerous. Such a bear has learned to associate food with people and often becomes aggressive in its effort to obtain human food. But remember, all bears are potentially dangerous.

5) The bear's perception of threat.

The bear will react according to how threatening it perceives the encounter with people to be. It will actively defend its immediate surroundings, its cubs, and its food. If any of these seems endangered, the bear's natural behaviour is to remove the threat by scaring it off with displays or by attacking.

## 2.3. AVOIDING BEAR PROBLEMS

Take advantage of the fact that humans -like other Apes- investigate and explore their surroundings visually (by eyesight) whereas polar bears rely heavily on their sense of smell. Be alert and look around every now and then exploring your near and distant surroundings. This will most often bring you in the advance to prepare avoidance because bears first need to pick up your scent to detect and locate you.

### 2.3.1. Responding to a bear around camp

The best defense against polar bears is to avoid the encounter. However, if you do get a bear in sight this is recommended in the following scenarios:

- 1) A polar bear is sighted at a distance, approaching camp.
  - Walk to the nearest safe shelter.
  - Make sure everyone in the area is aware of the bear.
  - Try to drive the bear away using an appropriate deterrent method (see later). Continue using the deterrent until the bear is far away. Keep track of the bear's movement and direction of travelling as long as possible. Be aware that a bear can stay in the vicinity for several days, hiding in order to

approach your camp later. Always keep a loaded firearm ready as a back-up.

- Time permitting, try a different deterrent if the bear continues to approach. Fire warning shots.
  - Give the bear a chance. It may leave after its curiosity is satisfied. Shooting the bear should always be considered the very last resort.
- 2) A bear is in camp.
    - If camp occupants are not in immediate danger, try to scare the bear away.
    - You may have to act quickly if a bear is attempting to enter an occupied tent or building. If people are in *immediate* danger, shooting the bear may be your only option.

### 2.3.2. Responding to a chance encounter away from camp

In the scenarios below the following response is recommended:

- 1) The bear is unaware of you and feeding.
  - If you can do so undetected, leave the area. Quietly go back the way you came. Move only when the bear is not facing you and stop when it raises its head to look around. Stay downwind. When you are a safe distance away, wait until the bear leaves or make a wide detour around it.

- If you cannot leave undetected, let the bear sense you by smell first. Quietly move upwind. If possible, keep the bear in sight. The bear may leave when it smells a person nearby.
- 2) The bear is unaware of you, but approaching.
    - Give the bear the right-of-way.
    - Try to get out of the way without being noticed. If that is impossible, announce your presence by shouting.
    - Give the bear a chance to leave.
  - 3) The bear is aware of you, but distant.
    - Stay calm.
    - Continue walking slowly, but in a direction away from the bear.
    - Do not run unless you are sure you can reach safety. A bear is fast and can outdistance you in a short time if so inclined.
    - If the bear follows, leave behind a pack or other personal gear to distract it. Leave food only as a last resort.
  - 4) The bear is aware of you and close.
    - In close confrontations, the bear is likely to feel threatened. Its natural tendency is to reduce or remove the threat. Help the bear by acting as non-threatening as possible. Do not make sudden movements and avoid direct eye contact with the bear.
    - Help the bear identify you as a person. It may leave. Stay upwind if possible. Talk in low tones and slowly wave your arms.

- Give the bear the opportunity to leave. Make sure it has an open escape route.
  - Back away slowly and/or climb a big rock if appropriate.
  - Try to deter the bear if you are in a safe position.
- 5) The bear is close to you and threatening.
    - Try to scare the bear off with an appropriate deterrent if you are equipped to do so.
    - If you have no deterrent, or if the attempt is unsuccessful, act as non-threatening as possible.
    - Talk in a calm, but authoritative voice.
    - Do not make fast or sudden movements which might startle or provoke the bear.
    - Do not imitate a bear's aggressive sounds, signals, or postures.
    - Back off slowly, dropping a pack or other article to distract the bear. Drop food only as a last resort.
  - 6) The bear is hunting and you are the prey.
    - If the bear is treating you as potential food and you do not have a gun, do **not** play dead.
    - Act instead aggressively and defend yourself with whatever means available.
    - You want to appear dominant and frighten the bear. Jump up and down, shout, wave your arms. Fight back. It may help to raise your jacket or pack to make you look bigger.
    - Fighting back does **not** apply in situations when you have surprised a bear at close range.
    - Fighting back applies **only** when a bear is stalking



you and shows clear signs that it considers you prey.

7) The bear charges.

- A polar bear charges at high speed, on all four legs. It does not charge on its hind legs.
- Many charges are bluffs. Bears often stop or veer to the side at the last moment. However, it may be difficult to know if a charge is a bluff until the bear is very close.
- If you are faced with a charging polar bear, you have two options: shoot to kill if you have a gun; or play dead if you are unarmed.

### 2.3.3. *Playing dead*

Playing dead may prevent serious injury if a surprise encounter brings on an attack, and you are unable to kill the bear. Do **not** play dead if the bear appears to consider you prey (see section 2.3.2. # 6 above).

Playing dead may reduce the threat you represent to the bear. If you appear harmless, the bear may leave.

If the bear attacks, playing dead will help protect your vital areas.

Lie on your side, curled up into a ball with your legs drawn to your chest and your head buried in your knees. Clasp your hands behind your neck. Keep your legs tightly together. Try to stay in this position even if the bear moves you.

Try not to resist or struggle as it may intensify the attack.

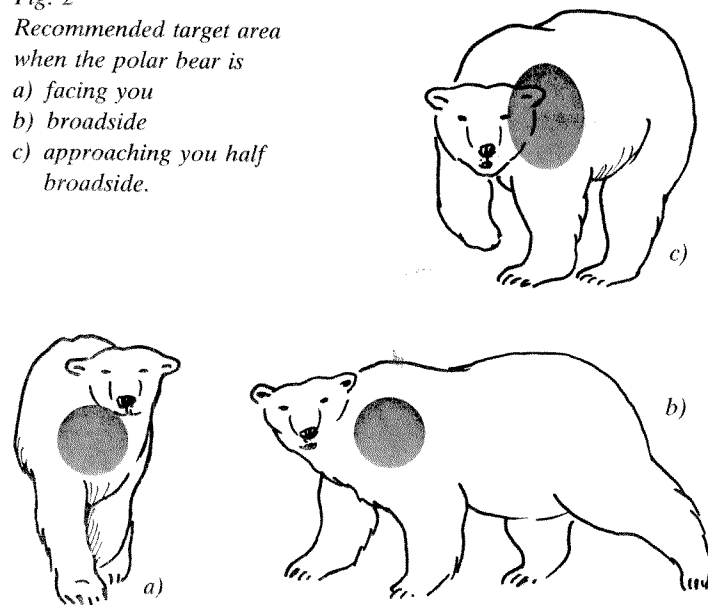
Look cautiously and be sure the bear is gone before moving.

## 2.4. SHOOTING A POLAR BEAR

### 2.4.1. *When to shoot*

The decision to shoot a polar bear is a personal decision, and has to be made quickly. The "right" moment for you to squeeze the trigger depends on your

Fig. 2  
Recommended target area  
when the polar bear is  
a) facing you  
b) broadside  
c) approaching you half  
broadside.



experience and confidence with a gun, how fast the bear is approaching, - and your nerve.

We all have different thresholds, or imaginary line, at which we shoot. It is recommended to wait until the bear is within 10-15 meters before shooting. You may feel confident enough to wait and see if the charge was a bluff.

The decision to shoot can be made only by the person facing the charging bear. Remember that an accurate shot fired at close range has a greater chance of killing a bear than one fired from further away.

#### *2.4.2. Where to shoot*

The first shot is the most important one. If you must kill a bear, kneel down and aim for

- 1) the low neck if the bear is broadside, (see Fig. 2b)
- 2) low centre neck between the shoulders if the bear is facing you (see Fig. 2a), or
- 3) the front shoulder area to knock the bear down and disable it (see Fig. 2c).

Avoid head shots, as they often do not kill a bear. Do not stop to check the results of your shot. If the bear goes down, keep shooting vital areas until it is still. Make sure it is dead.

Be aware that a bullet fired from a high-powered rifle at close range may penetrate the bear and injure people standing behind or lying under the bear.

#### *2.4.3. If you wound a bear*

Try to kill the bear cleanly and quickly. A wounded polar bear is indeed dangerous. Tracking a wounded polar bear is a task most people prefer to avoid.

If you injure a bear, it is your responsibility to find it and kill it. At least two armed and organized people are needed to track down a wounded polar bear. Stay together, keep guns ready, and communicate. Be prepared for a close encounter with an angry polar bear.

#### *2.4.4. Hunting regulation*

In all of Greenland and its territorial waters polar bear hunting is legal **only** for permanent residents holding a valid "full time subsistence hunter"'s permit. Thus **no visitor** to the country is eligible to hunt or kill polar bears.

There is a general open season from September 1 through June (from October 1 through July in Tasiilaq municipality); adult females with accompanying cubs are protected all year round. Adult males may be hunted legally year round.

It is illegal to disturb or excavate polar bears in dens.

If you could not avoid killing a polar bear in **self-defense** - and you do not qualify as a legal hunter or the killing took place in a protected area or in the closed season - you must **report the incident imme-**

**diately** to the police and to the Greenland Home Rule, Department for Wildlife Management.

It remains **your responsibility to salvage the hide** and see that it is taken to the nearest storage facility from where it will eventually be forwarded by action of the authorities.

A polar bear killed in an alleged self-defense cannot be claimed by the "hunter". The submitted report of the killing will be scrutinized by the authorities which also decide whether an official indictment for illegal hunting should be issued.

## 2.5. CAMP DESIGN AND MAINTENANCE

### 2.5.1. Camp location

You can reduce the risk of bear visits by avoiding the following areas:

- close to an active glacier front,
- heavily pressured ridges of sea ice,
- coastal crevasses or canions,
- along sea shore lines,
- near den sites,
- locations where bear signs (e.g. tracks, fresh droppings) are evident, or
- locations where loud noise (e.g. from a river) would drown out the sound of an approaching bear.

### 2.5.2. Camp layout

A proper arrangement of the tents, cabins, or other facilities makes your camp safer if a bear does come to investigate (see Fig.3). The guidelines below should be followed when setting up camp:

- A few big tents are better than several small ones. A polar bear surrounded by unfamiliar structures may feel trapped and confused and may charge.
- Therefore, keep tents or cabins well-spaced but not scattered, and place them in a line or semi-circle, not a circle. This gives the bear an avenue of escape.
- Cooking, food storage, and latrine should be at least

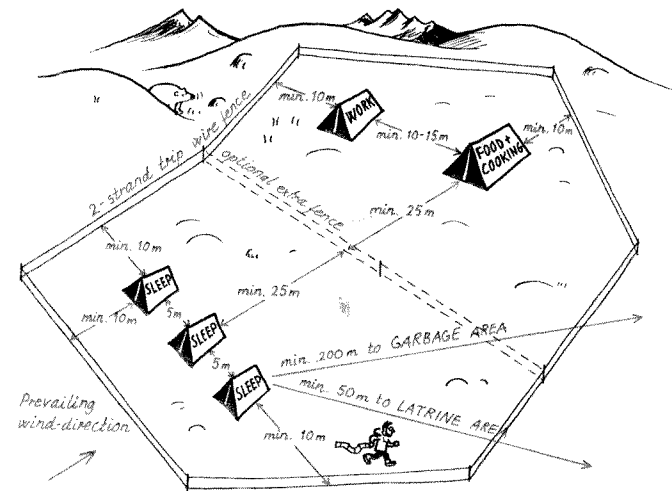


Fig. 3  
Recommended camp layout in polar bear country.

- 50 meters away from, but in view of, sleeping quarters.
- Garbage should be burned well away from camp (at least 200 meters), but in an area visible from camp. Solid waste should be stored at the burn site until it can be brought to the nearest official registered dump.
  - Sleeping quarters should preferably be upwind (based on prevailing wind direction) from cooking and waste disposal areas.

### 2.5.3. *Food preparation and storage*

Special care is needed for food preparation and storage if you are camping in polar bear country. Do not underestimate the acuteness of the bear's nose for finding food.

These rules apply to all situations in polar bear country:

- Keep a clean camp.
- Produce few food wastes.
- Eliminate or reduce food odours.
- Maintain special areas for cooking and food storage. Restrict food to those areas. Do not keep food in sleeping or working quarters.
- Use up leftovers as soon as possible. If necessary, store them for a short time in sealed, airtight containers.

- Grease is especially attractive to bears. Cook non-greasy foods as much as possible. Re-use excess grease right away. Store grease in an airtight container.

### 2.5.4. *Waste disposal*

Careless handling of garbage is a major cause of polar bear problems. Bears make no distinction between the dump and the kitchen tent, and will seek meals from either one. Because polar bear are initially attracted by odours, it is odours which must be eliminated.

Garbage smells can be controlled by:

- complete incineration of all wastes on a daily basis, or
- frequent removal of garbage from camp. Pack it out in a plastic bag if you are continually moving camp, or send it out with your supply flights.

Burying garbage does **not** eliminate smells. Bears can easily dig into the ground to find buried garbage.

Greasy dishwater should be dumped in a pit away from camp.

If you have a semi-permanent or long-term camp the "products" in your latrine facility should be covered with earth (or lime) on a regular basis.

## 2.6. BEAR DETECTION SYSTEMS

Surprise is a common factor in polar bear encounters. Bears have been shot in defence because their approach went unnoticed until they were right in the camp, just outside a tent, or in the process of devouring the camp's food supply. Close encounters can be prevented by using detection systems to warn of a bear's approach.

The purpose of a detection system is to sound an alarm when a bear enters a camp. An effective detection system warns people of a bear's approach early enough for them to take action to prevent a serious problem. It is much easier to stay calm and use common sense when the noise that wakes you is an alarm and not the growl of a bear.

A detection system will not necessarily deter the bear. The alarm is intended to **warn** camp personnel. Remember that the warning will not improve safety unless people respond to it **every** time it is triggered. Also detection systems are effective only if properly installed and maintained, and even well-maintained systems can unexpectedly fail to operate.

### 2.6.1. Trip-wire fence

A basic trip-wire system (see Appendix, page 59) consists of two or three parts:

- 1) electrical wire (or monofilament line) long enough to construct a fence (preferably 2-strand) around the camp,
- 2) an alarm activating device (or terminal board) to which the wire is attached, and sometimes
- 3) a battery-powered alarm unit connected to a terminal board by a cable. The cable allows placement of the alarm in a tent away from the terminal board and fence.

The bear walks through the fence, breaking the wire (or pushing the line), and setting off the alarm. The alarm must be loud and easily heard in camp.

Numerous modifications of the trip-wire system are possible. For instance, a system can be designed which eliminates the cable between the alarm unit and the terminal board. A multi-tone alarm can be used to indicate which section of the fence has been activated, or a siren can be added to warn of a bear. Similarly, the displacement of the fence line can be set to trigger the activation of flares or thunder-flashes mounted on the fence posts.

A trip-wire fence **does not** provide a 100% effective 24-hour warning system. However, if it is constructed and implemented according to specifications **and** tended to very frequently by you the fence system will have a detection reliability that most people can accept. The system has the definite advantage of being small, lightweight, portable, inexpensive, and easy to use.

The trip-wire fence should surround the entire camp. First and foremost it should enclose sleeping and working tents and sites with food and other polar bear attractants. The fence perimeter should be large enough to allow people time to respond to a warning. A minimum distance of 10 meters from all sides of camp is recommended. If the fence is too large, it will be difficult to keep the wire (line) tight.

The trip-wire system is easy to set up and operate and requires little equipment. The wire may be strung through any convenient supports such as extra tent poles, jerry cans, makeshift posts, or posts designed for the fence. Protection increases with the number of strands of wire used. Although one strand offers minimum protection, two or more are recommended. A polar bear is less likely to go over or under a fence of two or more strands.

Whenever a wire strand is broken, the fence must be manually reset by splicing the broken wire. In addition, the wire can be broken, and the alarm triggered, by other animals such as muskox, Arctic wolf, Arctic fox, or Arctic hare.

You may construct a trip-wire system yourself, or have it constructed, using the electronic circuitry diagram provided in the back of this booklet. The parts of the basic system cost \$35 - \$45 (approx. 250-300 DKK).

### 2.6.2. *Chili con Carne - Alarm*

Instead of a trip-wire fence or preferably as a supplement to the fence you may want to set up one or more baited alarms at the periphery of your camp - about 50 m away from the tents.

The Chili con Carne - alarm (see Fig. 4) is constructed of cheap and simple materials and should be reliable. The bait is on **open** can of chili con carne (or similar food with a very potent smell) put on the top platform holding down a switch de-activating an alarm.

When an approaching polar bear is lured to the can by the strong odour of chili it will eventually turn over the can to investigate the contents; the alarm is then activated (e.g. a 110 dB loud siren), scrambling people in the tents soon enough to start deterring the bear or take other appropriate steps of protection.

This alarm is used in the field by personnel of the Greenland Geological Survey when operating in Northeast Greenland and can be recommended as an inexpensive, but reliable polar bear detection device. Technical specifications for the Chili con Carne - Alarm is given as an appendix after the cited literature.

### 2.6.3. *Dogs*

Instead of or in addition to a trip-wire fence you may want to have one or more dogs chained up close to

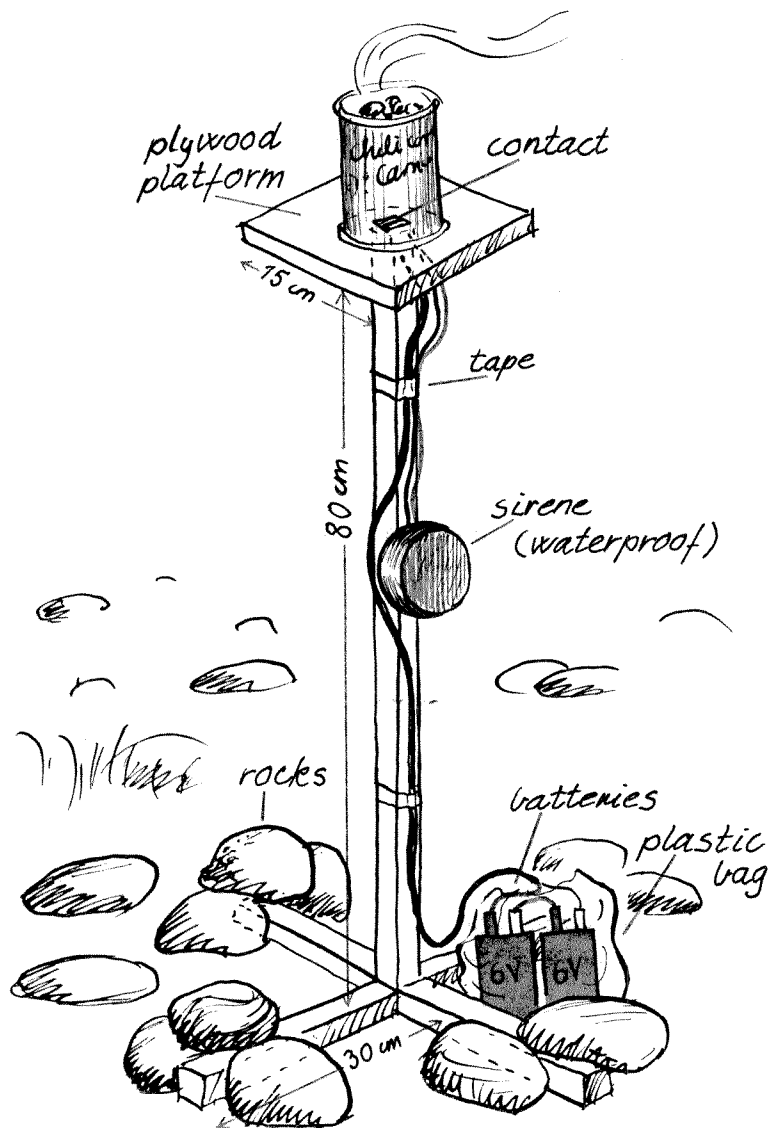


Fig. 4  
Suggested construction of the Chili con Carne-Alarm. Materials are listed in Appendix.

your camp to warn of an approaching bear. It is recommended to use only Greenland huskies, and it is important to use dogs which are known to be alert, experienced with bears, and trained to bark if bears approach. Such dogs are, however, exceedingly difficult to get hold of. Inexperienced dogs which fail to warn of a polar bear's approach or show other unexpected and inappropriate behaviour will be a hazard to you so don't rely on any untrained, inexperienced dog for your protection.

Dogs should have an experienced handler to whom they are responsive at all times, even when excited.

One or more dogs in camp may not provide consistent 24-hour protection. Even an experienced dog may fail to detect a bear. Dogs may sleep through a polar bear's approach and wake up too late to provide sufficient warning. However, dogs is a simple and cheap method of detection and can be used as long as you realize their limitations.

Having dogs around camp may actually attract some polar bears and as the dogs should remain chained up, you cannot rely on the dogs to chase away a bear. A polar bear which has approached your camp should be scared away by you using the appropriate deterrents available.

## 2.7. POLAR BEAR DETERRENTS

A deterrent is a device or method designed to chase away hazardous wildlife such as polar bears.

A deterrent is successful if it chases a polar bear from the area. Sometimes a bear may return after it has been deterred. If a bear has previously obtained food from human sources it may be quite difficult to deter. However, a polar bear which is not familiar with people and their food might be chased away permanently after just one exposure to a deterrent.

### 2.7.1. *Types of deterrents*

Whatever deterrent you may chose to use, it is very important that you have practiced with them before you need them in an encounter, so you know them and are familiar with their range and know where to aim.

Out of at least 15 different deterrents tested the following types can be recommended for deterring polar bears in Greenland:

#### 1) **Pencil flare guns.**

Portable, pencil-size devices which shoot small flares or cracker shell. Useful and effective in most cases. Flares produce a loud hissing noise and a bright light when fired, one type of flare explodes with a loud

bang. Flares have a range of about 30 meters fired vertically and about 40 meters fired horizontally. To obtain the optimal response you should aim your pencil flare gun directly at the polar bear trying to hit it or the ground in front of it with the flare.

#### 2) **Thunderflashes.**

Look like large firecrackers or small road flares. Very portable, easy to handle, and quite effective in most cases. They are lit like a flare and thrown by hand. They explode with a loud noise. When throwing, try to hit the bear or the ground in front of it, but remember that the range is limited by the strength of your arm, and by wind conditions.

#### 3) **Cracker shells / Bird scaring cartridges.**

These deterrents require a 12-gauge shotgun available. They are not always effective in scaring away polar bears which also may habituate to the explosions. The deterrents travel in an arc for about 80 meters before exploding with a loud noise and/or flash. **Remember** to fire the gun at a 45° angle in the air to the side of the bear. Do **not** fire directly at the bear as the shot may injure or kill it.

#### 4) **Warning shots.**

Requires a firearm available. Firing warning shots with a rifle or a shotgun is a commonly used method of scaring away polar bears. However, this method is not always effective.



Avoid hitting the bear, shoot in the air to the side of the animal or in the ground or ice. Remember that bullets will ricochet off frozen ground, rocks, or ice, - and may therefore accidentally hit and wound the bear.

Keep in mind that each shot fired means one shot less in the gun. Warning shots may become less effective with repetition as the bear gets accustomed to the noise.

#### 5) **Chart-a-ball.**

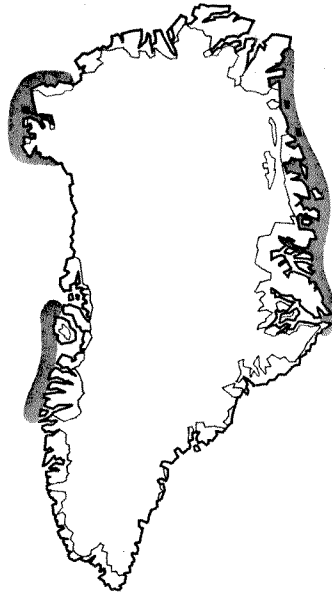
This type of deterrent is a rubber ball fired from an ordinary 12-gauge shotgun. It is usually effective in scaring most bears away. It can hit the bear accurately at a 50-70-meter range, and has a significant impact at this distance. However, **remember** that you may injure the bear if you fire the rubber ball at it closer than about 40 meters.

## 3. WALRUS

### 3.1. BIOLOGY

The Atlantic walrus is indigenous to northeastern and northwestern Greenland and associated to drift ice habitats (Fig. 5). Walruses occur in groups, feed almost exclusively on bottom-dwelling invertebrates (various species of bivalves), and therefore usually dive to depths less than 100 meters. Both sexes have tusks; adult males have very large ones, adult females medium sized ones, and subadult small ones. Their eyesight is poor, but hearing and smelling are excellent. As any marine mammal they are of course eminent swimmers. The females give birth in May - June. Mating is between February and April.

Fig. 5  
Walrus distribution in  
Greenland.



### 3.2. BEHAVIOUR

Due to hunting and an increased disturbance level haul-out places for walrus on land are now exceedingly rare in Greenland. The animals haul out on drifting ice floes to sleep and rest, except in the National Park in North East Greenland where a few resting places on land are still in use.

### 3.3. ENCOUNTERING WALRUSES

If you happen to observe walrus hauled out on land you may approach them **very carefully downwind** un-

til 40-50 meters away. Stop here and take your pictures from this distance. Do **not** walk right up to the animals just to have your picture taken.

When navigating walrus habitats in a zodiac, a dinghy, a kayak, or any other vessel, realize that walrus may approach you to check out the boat; in extreme cases a walrus may put its head with tusks over the side of the boat and - unprovoked - launch an attack on you. Therefore, if you have spotted one or several walrus near by and you are onboard a small vessel, be prudent and get away as soon as possible. Their behaviour sometimes seem malevolent and they may dive and surface right under your boat trying to rock or capsize it. Show respect for these huge animals and avoid close contact both on land and in the water.

Do **not** purposely disturb resting, sleeping, feeding, or swimming walrus. Females with calves as well as adult males may be formidable opponents if they feel threatened and decide to defend themselves or their kin.

Should you have to shoot a walrus in **self-defence** you must do so directly in the head, i.e. through the skull in the back of the head. Avoid shooting at the very thick part of the skull around the nose. The best killing effect will be seen using full-coated ammunition of caliber .30-06.

### 3.4. HUNTING REGULATIONS

A walrus **cannot** be legal game for any visitor to Greenland. Harvesting of walruses is an exclusive privilege for permanent residents holding valid permits as part-time or full-time subsistence hunter. There is a general open season in West Greenland from 1 January through May. In north and east Greenland the walrus may be hunted by qualified residents all year round.

If you should be forced to shoot and kill a walrus in **self-defense** you must report this very unusual incident to the authorities immediately. The reporting of the alleged self-defense killing will be evaluated by the police who might decide to take legal action against you. No part of an illegally killed walrus can be claimed or possessed by the "hunter". The skull with tusks shall be salvaged and handed over to the authorities as soon as possible.

## 4. MUSKOX

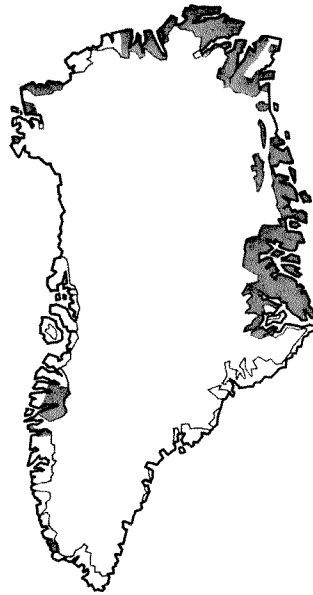
### 4.1. BIOLOGY

Muskoxen are plant eating ruminants and occur naturally in Northeast Greenland southwards to Scoresby Sound (c.70°N). A large introduced population occupies the inland ranges around Sondrestrom Air Base in West Greenland. Furthermore there are small introduced populations in the Thule region (North Greenland) and around Ivittuut in South Greenland (Fig. 6).

Muskoxen live in groups and may leave the false impression of being rather docile and slow animals. In fact they are animals superbly adapted to an energy-conserving life in the Arctic, and if need be they are very agile and fast. Their eyesight, hearing, and smelling are excellent. Muskox cows give birth to their single calf in the beginning of May. The rutting season is in August - September.

Both sexes have horns; adult males can be distin-

Fig. 6  
Muskox distribution in  
Greenland.



guished from adult females by their larger body size, thicker shape, and much broader base of the horns. Muskoxen have very thick and insulating coats, especially during winter months. Therefore, they easily over-heat if forced to run (if disturbed by humans) and they may subsequently die because of *hyperthermia*.

#### 4.2. BEHAVIOUR.

If disturbed or upon encountering unusual elements in their surroundings, muskoxen prefer to take their stand in a close defense formation with adults on the

flanks and the young ones in the middle; in this way they will wait and defend themselves, rather than run away if alarmed. This behaviour has evolved as an efficient way of dealing with an attack from their traditional predator, the Arctic wolf, but may be detrimental to them when confronting people with firearms.

Subadults and females with calves generally try to stay clear of people, but during the rutting season adult males may show "unpredictable" behaviours towards humans in their surroundings. As a natural part of its display and threatening behaviour an adult muskox male may approach anybody perceived as a potential opponent and initiate an array of behaviours, such as pit digging, rubbing/scent marking, parallel walk, head-down mock attack, or eventually a true head-on attack.

#### 4.3. ENCOUNTERING MUSKOXEN

If you accidentally come across one or several muskoxen at close range the most prudent thing is to slowly back out of the encounter and then watch the animals or take pictures from a safe distance.

It is tempting for many people to approach muskoxen - single individuals or a group in defense formation - to get close-up photos of these strange-looking ani-

mals; however, **do not** approach muskoxen closer than 25 m, or you are likely to experience the muskox as a very fast and potentially dangerous animal when it charges.

Never corner a muskox; always leave an easy escape route open for the animals if you try to approach them in the field. Because it is hard to predict the behaviour of lone bulls during the August - September rutting season, it is therefore **strongly** advised to stay clear of any lone bull you may spot in this period.

In areas with a high density of muskoxen you will often be able to identify distinct muskox trails in the landscape. These paths are used by the animals for moving between favoured feeding areas, - and camping in close vicinity to such trails may increase the likelihood of unexpected close encounters with muskoxen, and therefore also situations potentially hazardous for both you and the animals.

Never disturb, distress, or harass muskoxen intentionally whether you are on foot, in a vehicle, on a snow mobile, or in an aircraft.

#### **4.4. DETERRENTS**

When you want a close-by or approaching muskox to leave, you need to deter it with one or several deterrents available to you. Depending on the animal's

sex, age, familiarity with people, physical condition, reproductive status, and the season of the year you may see various levels of reaction to your deterring efforts.

##### *4.4.1. Types of deterrents*

The following deterrents have proved efficient in most cases:

###### **1) Shouting.**

It is important to make it quite clear to an approaching or already close muskox which has not yet got your scent or otherwise identified the situation that you are not one of its kin but actually a human. This message is given by shouting words (**not** screaming or howling) and waving your arms, coat, backpack etc. You may increase the impact of your behaviour by climbing a large rock; this will definitely make you look bigger and it will bring you in a safer position.

###### **2) Pencil flare gun.**

This small and portable device has a deterring effect in most cases. However, it is important to know that the usual flares with white, green, or red light only rarely scare away a muskox. The best effect is reached by using the type of flare which detonates at a distance of 30-40 meters. Do **not** aim right at the muskox, you may easily over-shoot. Instead, send the de-

tonating flare up at a 45° angle so that it detonates in the air above the animal. The reaction is most often instantaneous, - the muskox flees.

You should be aware that **warning shots** by shotgun or rifle **cannot** be recommended to deter muskoxen because it is usually without the desired reaction to fire warning shots above or in the ground in front of the animal. A bull in the rutting season might even get quite annoyed if you are shooting in the ground in front of it. Besides, bullets may ricochet from hard ground or rocks and the chance of injuring or killing the muskox is significant.

#### 4.5. HUNTING REGULATIONS.

Visitors to Greenland **cannot** legally kill muskoxen. Hunting of muskoxen is reserved for the permanent resident holding a valid permit as a full-time subsistence hunter. The Department for Wildlife Management announces annual muskox harvest quotas for the areas in East and West Greenland where muskox hunting is permitted. Licenses are allotted to interested, qualifying hunters. In Maniitsoq and Sisimiut municipalities (West Greenland) there is an open season from 1 August until 25 September, in Ittoqqortoormiit municipality (East Greenland) muskox hunting is legal only in the periods 20 August -20 September and 20 November - 20 December.

If you shoot at or kill a muskox in an alleged self-defense action, you must **report** the incident **immediately** to the police and/or the Department of Wildlife Management. Based on the report and other information that can be obtained the police will decide whether to take legal action against you for illegal hunting.

No parts of a muskox killed in self-defense may be claimed or possessed by the "hunter" or other private citizens. Upon a self-defense killing it is your responsibility to see that the animal is salvaged. Skin the animal and bring out the meat, the skull, and the coat as soon as possible. Deliver the above items to the nearest police station.

## 5. ARCTIC WOLF

### 5.1. BIOLOGY

Arctic wolves are almost exclusively confined to the National Park in North and East Greenland (Fig. 7). The wolves are few and widely scattered over this vast territory and live alone, in pairs, or rarely in packs. Only breeding wolves with cubs in a den are sedentary within a small home range, all other are highly mobile and roam over very large areas to secure their food.

The Arctic wolf is a carnivore at the top of the ecological food chain and preys on eggs, birds, lemmings, Arctic hares, and large mammals as the musk-ox. The wolf has acute senses of seeing, hearing, and smelling.

### 5.2. BEHAVIOUR

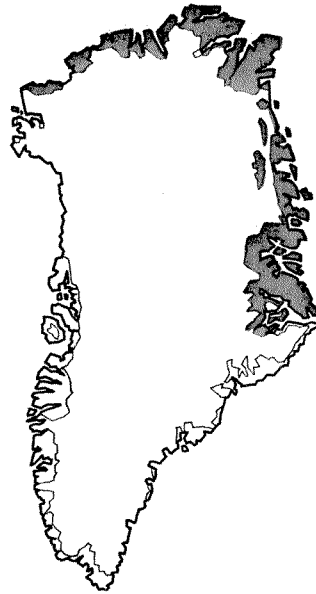
The Arctic wolf is harmless to humans, but you should be aware that it is part of the natural behavioural pattern to approach any new, strange object, incl. people, to check them out. During the approach the animal may show a subordinate, submissive behaviour with ears back, tail low, and often a somewhat arched back. This behaviour is a usual inquisitory behaviour characteristic of the Arctic wolf and should **not** be misinterpreted as aggressive.

### 5.3. ENCOUNTERING ARCTIC WOLVES

If you are fortunate enough to spot a wolf in the Greenland wilderness you will most frequently experience this wary and intelligent animal at a distance. Have you come across breeding wolves leading small cubs or with cubs in a den do **not** disturb or distress the animals. It is - of course - also prohibited to chase or in other ways harass wolves with any vehicle or aircraft.

Although you might be tempted to put out food for wolves you have spotted in order to get close-up pictures of the animals, you must remember that **feeding** wildlife is **not** permitted and must be avoided by all available means.

Fig. 7  
Arctic wolf distribution  
in Greenland.



After your stay in the wilderness you are urged to report any sighting of Arctic wolves, localities, and dates of observation to Department of Wildlife Management, P.O.Box 1015, DK-3900 Nuuk, Greenland.

#### 5.4. DETERRENTS

No deterrent should be necessary for you when encountering an Arctic wolf. Unless the wolf is attracted by food or edible waste it will be easy to scare away -

if you should want to - by shouting loudly and waving your arms.

Wolves may sometimes seek the company of the Greenland sled dogs at remote weather stations and the like. Such a visit seems to be of mutual interest and after some time the visiting wolf will leave on its own without your interference.

#### 5.5. HUNTING REGULATIONS.

Arctic wolves are protected year round in all of Greenland. If the unfortunate happens and you have killed a wolf in an alleged self-defense action, you **must** report this immediately to the nearest legal authority. It also remains your responsibility to salvage the dead wolf and bring it in whole (or the salvaged gutted body) to the nearest permanent habitation as soon as possible. Your report on the shooting will subsequently be evaluated by the police which may decide to take legal action against you for illegal hunting.



## 6. ARCTIC FOX.

### 6.1. BIOLOGY.

The Greenland foxes belong to one species but occur in two colour phases: one in an entirely white winter coat (white fox) and one in a grey-blue winter and summer coat (blue fox). Foxes are often abundant and occur in all parts of Greenland, although scarce on the southeast coast (Fig. 8).

The Arctic fox is a rather small animal. The adults weigh up to 4 - 4.5 kg; for comparison adult Arctic hares weigh up to 5.0 kg. In May foxes have their pups in a dug out den in a dry sandy location and the litter may be as big as 6-7.

### 6.2. BEHAVIOUR

Foxes will eat or try to eat anything. Their extraordinary sense of smelling will lead them to any food source. Foxes simply can not resist checking out any new smell. They are experts in finding cached or buried food or garbage, and they will chew on anything chewable.

Most Arctic foxes will show very little fear of people and will easily adapt to being around camp and other human activities.

### 6.3. ENCOUNTERING ARCTIC FOXES

You **must** resist the temptation to feed foxes around your camp. Wildlife should **not** live on hand-outs.

Arctic foxes are harmless to people and will present a hazard only when they have contracted **rabies**.

If you encounter a **rabid** fox showing strange and aggressive behaviour towards any object, stay clear of the animal or - if you have to - kill it. The **rabies** virus may be transferred to you via the saliva of the fox. Therefore, **never** let a fox lick your hands or bite you, nor should you touch the head or skull of a dead fox.

### 6.4. HUNTING REGULATIONS

All permanent residents in Greenland may hunt Arctic foxes. Visitors to the country must purchase a tourist sport hunting licence in order to legally hunt foxes. A licence can be purchased at any police station in Greenland. There is a general open season from 16

Fig. 8  
Arctic fox distribution  
in Greenland.



September until 14 May. Foxes are protected from hunting in the National Park in North and East Greenland. If you have had to kill a fox suspected of having **rabies** you must immediately report the incident to the nearest police station. If possible, salvage the head of the killed fox but be careful when handling it so you do not get the animal's saliva on your hands.

## 7. FIREARMS

You may choose to take firearms along on your trip to the Greenland wilderness but remember that carrying firearms as a protective measure towards hazardous encounters with large mammals primarily should be considered a **psychological** support for yourself. Shooting and killing an animal in self-defense should always be the very last means of ending an encounter between people and wildlife.

### 7.1. CHOOSING FIREARMS

The choice of a firearm for personal protection should be based on:

- your experience and confidence with firearms,
- personal preference for a particular type of firearm,
- weather conditions in which the gun will be used,
- and

- the versatility required (i.e. whether the firearm will be used for purposes other than e.g. polar bear protection).

You should be aware that it is **illegal** to take **handguns, shotguns** and **.22 caliber rifles** into the **National Park**. Rifles of larger caliber may be imported to or possessed within the National Park **only** with written, individual permission from the Chief Constable.

#### 1) **Shotguns.**

A short-barrelled, 12-gauge pump action shotgun provides reliable protection and is the most suitable gun for people with little shooting experience. It has good killing ability on polar bears when used with a combination of rifled slugs and large buckshot. A shotgun with an improved-cylinder choke is recommended because it is effective at close range and can also be used for firing deterrents. Cracker shells may jam in a shotgun with a tighter (modified or full) choke.

#### 2) **Rifles.**

A rifle of caliber .30-06, .308, or comparable power with open or aperture sight (*no scope sight!*) is suitable protection for people who are confident with a rifle. Inexperienced shooters may find it difficult to use in stressful situations because a rifle requires more accuracy in shooting than a shotgun. Soft point bullets of 200 grains or heavier are recommended.

#### 3) **Handguns.**

The use of handguns for personal protection in Greenland is very restricted because the present firearm legislation generally does **not** permit possession or use of handguns.

Should you decide to bring a handgun to Greenland you **must** apply to the Chief Constable for a specific and personal exemption to the general ban on handguns. A handgun permit will most often be difficult to obtain. It is **illegal** to bring into Greenland any handgun for which you have not obtained a written, special, and individual permit from the Chief Constable **prior to** your arrival in Greenland.

Although a handgun is convenient and easy to carry, considerable confidence and expertise are necessary to use it effectively. Handguns are not recommended except under special circumstances where a larger firearm can not be carried. **Only** revolvers of caliber **.44 Magnum** are capable of effectively stopping and killing a charging polar bear, muskox, or walrus, - but only in the hands of a person trained and experienced with handguns. A double-action revolver is preferable to a single-action type. Be aware that the revolving cylinder of the .44 Magnum may freeze up in very cold weather; this will render the weapon useless. Take the cylinder off and keep it inside a warm pocket when climatic conditions are extreme.

## 7.1. FIREARM REGULATIONS

If you will be visiting Greenland you are free to bring firearms (except handguns) into the country without any special import permit. However, be **aware** that there are special restrictions for possession of **firearms in the National Park** in North and East Greenland.

If you are living outside Denmark and want to take your firearm **through** Denmark in transit on your way to Greenland you may do so **without** a special permit. Upon your arrival in Denmark you have to produce to the authority at the border station your **firearm possession licence** issued by your country's legal authority **or** a written statement from the same authority that such a licence is not required to legally possess firearms in your home country.

If you are a Danish citizen and plan to stay in Greenland **in excess of 3 months** you can bring your firearms (except handguns), and you can bring those firearms back into Denmark as long as you have filled out a special form (Firearm Export Form #P375) at your local Danish police station prior to your departure for Greenland.

**All** persons may – without special permit – import, purchase, possess, or use any shotgun or rifle in Greenland, **except** in the National Park. **However**, semi – or fully automatic shotguns or rifles are illegal for hunting birds and terrestrial mammals (incl. polar bears).

Shotguns and rifles of various calibers and ordinary ammunition can be purchased at very reasonable prices in shops (e.g. "KNI" and/or "BRUGSEN") in the towns of Greenland. To do so and to possess firearms in Greenland you need **not** have a firearm licence.

### Addresses:

Chief Constable:

Politimesteren i Grønland, P.O. Box 1006,  
DK-3900 Nuuk, Greenland; phone +299-21448,  
fax +299-24194

Danish Department of Justice:

Justitsministeriet, 4. kontor, Slotsholmsgade 10,  
DK-1216  
Copenhagen K, Denmark; phone +45-33-923340,  
fax +45-33-93 35 10

## 8. LITERATURE

Throughout this booklet's chapter on polar bear encounters and safety in polar bear country information from Marianne Bromley's 1985 and 1986 publications (cited below) has been used extensively, and these excellent sources have been greatly appreciated during the writing of this public wildlife encounter manual. Furthermore, E.W. Born's personal communication, cooperation, and his and Helle Brieghel's constructive comments to the manuscript are thankfully appreciated. Finally, Quartermaster Ib Olsen, G.G.U., is acknowledged for making the information on the Chili con Carne - alarm available.

BORN, E.W. 1982

Methods of reducing conflicts between people and polar bears.

Norsk Polarinstitut, Rapportserie vol.8: 60pp.(in Danish).

(Available from Norwegian Polar Research Institute, P.O.Box 158, N-1330 Oslo Lufthavn, Norway).

BROMLEY, M. 1985

Safety in bear country. A reference manual.

N.W.T. Department of Renewable Resources: 100pp.

(Available from: N.W.T. Government, Department of Renewable Resources, Yellowknife, N.W.T., X1A 2L9 Canada).

BROMLEY, M. 1986

Safety in polar bear country.

N.W.T. Department of Renewable Resources: 24pp.

(Available from same as above).

FLECK, S. & HERRERO, S. 1988

Polar bear conflicts with humans.

Parks Canada (Prairie Region) & N.W.T. Government, Department of Renewable Resources, Contract Report Number 3: 155pp.

(Available from same as above).

N.W.T. RENEWABLE RESOURCES 1981

Bears are dangerous.

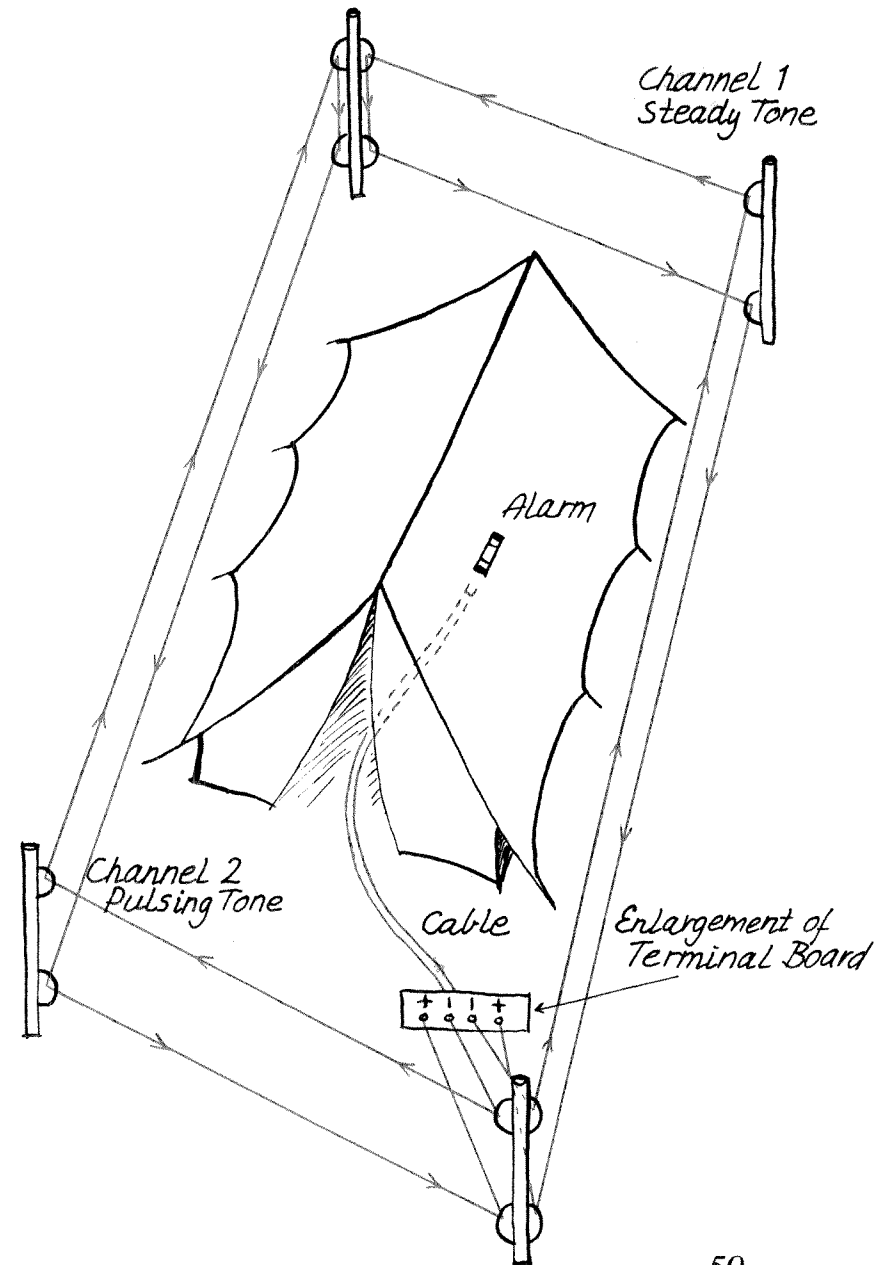
N.W.T. Government, Department of Renewable Resources, Wildlife Service: 11pp.

(Available from same as above)

# APPENDIX

## Example of Trip-Wire Fence Installation

- Setting up half the fence (two sides of the camp) at a time, string the wire through the supports to form a two-strand fence. Make certain the wire is clear of brush or branches. The length of wire forming the fence (half) must begin and come back to the same point. When half the camp has been enclosed with one strand, the wire is doubled back to make the second strand.
- Attach the ends of the wire to the terminal board. The board has two pairs of (+) and (-) spring grip terminals. Attach one end of the wire to a (+) and the other end to a (-) terminal to make the electrical connection which, when broken, sounds the alarm.
- Repeat the procedure for the other half of the fence.
- Attach the colour-coded banana plugs on the end of the terminal board cable to the sockets on the alarm unit.
- Leave the terminal board along the fence.
- Put the alarm unit inside a tent or where it can be easily heard.



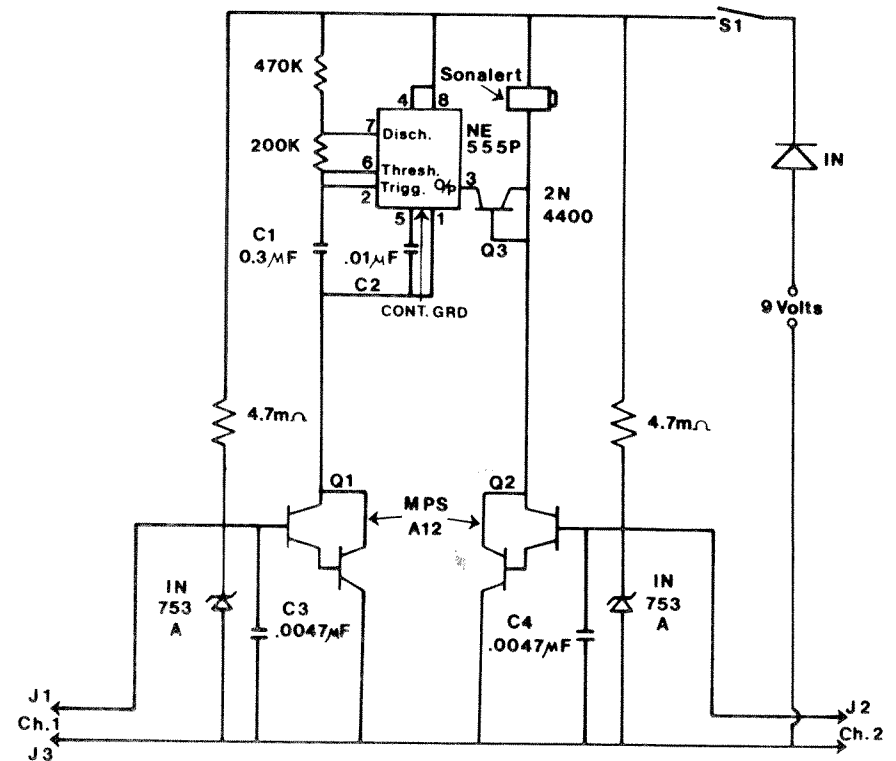
# APPENDIX

Technical specifications for the Chili con Carne - Alarm (section 2.6.2.):

- 1 80 cm long 2x2 cm metal rod
- 4 30 cm long 2x2 cm metal rod
- 1 connecting part # 2550
- 1 connecting part # 2515
- 4 end parts # 2510
- (all above parts refer to the Danish Termotex Corner System)
- 1 waterproof alarm # B/SE04
- 1 micro-switch #1005-1004
- 1 cable plug # 42 R041311(0)
- 1 cable socket # 43 R011311(0)
- 2 flat contact shoes (6.3mm long x 0.8mm wide)
- 1 crown muff
- 2 electrical cords (each c.1m long)
- 2 6 Volt batteries (inside waterproof plastic bag)

# APPENDIX

Electronic Circuitry of a Typical Trip-Wire Fence.



(from Bromley)