

= Polar bear =

The polar bear (*Ursus maritimus*) is a carnivorous bear whose native range lies largely within the Arctic Circle , encompassing the Arctic Ocean , its surrounding seas and surrounding land masses . It is a large bear , approximately the same size as the omnivorous Kodiak bear (*Ursus arctos middendorffi*) . A boar (adult male) weighs around 350 ? 700 kg (772 ? 1 @, @ 543 lb) , while a sow (adult female) is about half that size . Although it is the sister species of the brown bear , it has evolved to occupy a narrower ecological niche , with many body characteristics adapted for cold temperatures , for moving across snow , ice , and open water , and for hunting seals , which make up most of its diet . Although most polar bears are born on land , they spend most of their time on the sea ice . Their scientific name means " maritime bear " , and derives from this fact . Polar bears hunt their preferred food of seals from the edge of sea ice , often living off fat reserves when no sea ice is present . Because of their dependence on the sea ice , polar bears are classified as marine mammals .

Because of expected habitat loss caused by climate change , the polar bear is classified as a vulnerable species , and at least three of the nineteen polar bear subpopulations are currently in decline . For decades , large @-@ scale hunting raised international concern for the future of the species , but populations rebounded after controls and quotas began to take effect . For thousands of years , the polar bear has been a key figure in the material , spiritual , and cultural life of circumpolar peoples , and polar bears remain important in their cultures .

= = Naming and etymology = =

Constantine John Phipps was the first to describe the polar bear as a distinct species in 1774 . He chose the scientific name *Ursus maritimus* , the Latin for ' maritime bear ' , due to the animal 's native habitat . The Inuit refer to the animal as nanook (transliterated as nanuq in the Inupiat language) . The Yupik also refer to the bear as nanuuk in Siberian Yupik . The bear is umka in the Chukchi language . In Russian , it is usually called ?? ? ??? ????? ? ?? (bélyj medvédj , the white bear) , though an older word still in use is ????? ? ? (Oshkúj , which comes from the Komi oski , " bear ") . In French , the polar bear is referred to as ours blanc (" white bear ") or ours polaire (" polar bear ") . In the Norwegian @-@ administered Svalbard archipelago , the polar bear is referred to as Isbjørn (" ice bear ") .

The polar bear was previously considered to be in its own genus , *Thalarctos* . However , evidence of hybrids between polar bears and brown bears , and of the recent evolutionary divergence of the two species , does not support the establishment of this separate genus , and the accepted scientific name is now therefore *Ursus maritimus* , as Phipps originally proposed .

= = Taxonomy and evolution = =

The bear family , Ursidae , is thought to have split off from other carnivorans about 38 million years ago . The Ursinae subfamily originated approximately 4 @. @ 2 million years ago . The oldest known polar bear fossil is a 130 @, @ 000 to 110 @, @ 000 @-@ year @-@ old jaw bone , found on Prince Charles Foreland in 2004 . Fossils show that between 10 @, @ 000 and 20 @, @ 000 years ago , the polar bear 's molar teeth changed significantly from those of the brown bear . Polar bears are thought to have diverged from a population of brown bears that became isolated during a period of glaciation in the Pleistocene or from the eastern part of Siberia , (from Kamchatka and the Kolym Peninsula) .

The evidence from DNA analysis is more complex . The mitochondrial DNA (mtDNA) of the polar bear diverged from the brown bear , *Ursus arctos* , roughly 150 @, @ 000 years ago . Further , some clades of brown bear , as assessed by their mtDNA , are more closely related to polar bears than to other brown bears , meaning that the polar bear might not be considered a species under some species concepts . The mtDNA of extinct Irish brown bears is particularly close to polar bears . A comparison of the nuclear genome of polar bears with that of brown bears revealed a different

pattern , the two forming genetically distinct clades that diverged approximately 603 @, @ 000 years ago , although the latest research is based on analysis of the complete genomes (rather than just the mitochondria or partial nuclear genomes) of polar and brown bears , and establishes the divergence of polar and brown bears at 400 @, @ 000 years ago .

However , the two species have mated intermittently for all that time , most likely coming into contact with each other during warming periods , when polar bears were driven onto land and brown bears migrated northward . Most brown bears have about 2 percent genetic material from polar bears , but one population , the ABC Islands bears has between 5 percent and 10 percent polar bear genes , indicating more frequent and recent mating . Polar bears can breed with brown bears to produce fertile grizzly ? polar bear hybrids , rather than indicating that they have only recently diverged , the new evidence suggests more frequent mating has continued over a longer period of time , and thus the two bears remain genetically similar . However , because neither species can survive long in the other 's ecological niche , and because they have different morphology , metabolism , social and feeding behaviours , and other phenotypic characteristics , the two bears are generally classified as separate species .

When the polar bear was originally documented , two subspecies were identified : *Ursus maritimus maritimus* by Constantine J. Phipps in 1774 , and *Ursus maritimus marinus* by Peter Simon Pallas in 1776 . This distinction has since been invalidated . One alleged fossil subspecies has been identified : *Ursus maritimus tyrannus* became extinct during the Pleistocene . *U.m. tyrannus* was significantly larger than the living subspecies . However , recent reanalysis of the fossil suggests that it was actually a type of brown bear .

= = Population and distribution = =

The polar bear is found in the Arctic Circle and adjacent land masses as far south as Newfoundland . Due to the absence of human development in its remote habitat , it retains more of its original range than any other extant carnivore . While they are rare north of 88 ° , there is evidence that they range all the way across the Arctic , and as far south as James Bay in Canada . Their southernmost range is near the boundary between the subarctic and humid continental climate zones . They can occasionally drift widely with the sea ice , and there have been anecdotal sightings as far south as Berlevåg on the Norwegian mainland and the Kuril Islands in the Sea of Okhotsk . It is difficult to estimate a global population of polar bears as much of the range has been poorly studied ; however , biologists use a working estimate of about 20 ? 25 @, @ 000 or 22 ? 31 @, @ 000 polar bears worldwide .

There are 19 generally recognized , discrete subpopulations , though polar bears are thought to exist only in low densities in the area of the Arctic Basin . The subpopulations display seasonal fidelity to particular areas , but DNA studies show that they are not reproductively isolated . The thirteen North American subpopulations range from the Beaufort Sea south to Hudson Bay and east to Baffin Bay in western Greenland and account for about 54 % of the global population . The Eurasian population is broken up into the eastern Greenland , Barents Sea , Kara Sea , Laptev Sea , and Chukchi Sea subpopulations , though there is considerable uncertainty about the structure of these populations due to limited mark and recapture data .

The range includes the territory of five nations : Denmark (Greenland) , Norway (Svalbard) , Russia , the United States (Alaska) and Canada . These five nations are the signatories of the International Agreement on the Conservation of Polar Bears , which mandates cooperation on research and conservation efforts throughout the polar bear 's range .

Modern methods of tracking polar bear populations have been implemented only since the mid @-@ 1980s , and are expensive to perform consistently over a large area . The most accurate counts require flying a helicopter in the Arctic climate to find polar bears , shooting a tranquilizer dart at the bear to sedate it , and then tagging the bear . In Nunavut , some Inuit have reported increases in bear sightings around human settlements in recent years , leading to a belief that populations are increasing . Scientists have responded by noting that hungry bears may be congregating around human settlements , leading to the illusion that populations are higher than they actually are . The

Polar Bear Specialist Group of the IUCN Species Survival Commission takes the position that " estimates of subpopulation size or sustainable harvest levels should not be made solely on the basis of traditional ecological knowledge without supporting scientific studies . "

Of the 19 recognized polar bear subpopulations , three are declining , six are stable , one is increasing , and nine have insufficient data , as of 2014 .

= = Habitat = =

The polar bear is a marine mammal because it spends many months of the year at sea . However , it is the only living marine mammal with powerful , large limbs and feet that allow them to cover miles on foot and run on land . Its preferred habitat is the annual sea ice covering the waters over the continental shelf and the Arctic inter @-@ island archipelagos . These areas , known as the " Arctic ring of life " , have high biological productivity in comparison to the deep waters of the high Arctic . The polar bear tends to frequent areas where sea ice meets water , such as polynyas and leads (temporary stretches of open water in Arctic ice) , to hunt the seals that make up most of its diet . Freshwater is limited in these environments because it is either locked up in snow or saline . Polar bears are able to produce water through the metabolism of fats found in seal blubber . Polar bears are therefore found primarily along the perimeter of the polar ice pack , rather than in the Polar Basin close to the North Pole where the density of seals is low .

Annual ice contains areas of water that appear and disappear throughout the year as the weather changes . Seals migrate in response to these changes , and polar bears must follow their prey . In Hudson Bay , James Bay , and some other areas , the ice melts completely each summer (an event often referred to as " ice @-@ floe breakup ") , forcing polar bears to go onto land and wait through the months until the next freeze @-@ up . In the Chukchi and Beaufort seas , polar bears retreat each summer to the ice further north that remains frozen year @-@ round .

= = Biology and behaviour = =

= = = Physical characteristics = = =

The only other bear of a similar size to the polar bear is the Kodiak bear , which is a subspecies of brown bear . Adult male polar bears weigh 350 ? 700 kg (772 ? 1 @,@ 543 lb) and measure 2 @.@ 4 ? 3 metres (7 ft 10 in ? 9 ft 10 in) in total length . The Guinness Book of World Records listed the average male as having a body mass of 385 to 410 kg (849 to 904 lb) and a shoulder height of 133 cm (4 ft 4 in) , slightly smaller than the average male Kodiak bears . Around the Beaufort Sea , however , mature males reportedly average 450 kg (992 lb) . Adult females are roughly half the size of males and normally weigh 150 ? 250 kg (331 ? 551 lb) , measuring 1 @.@ 8 ? 2 @.@ 4 metres (5 ft 11 in ? 7 ft 10 in) in length . Elsewhere , a slightly larger estimated average weight of 260 kg (573 lb) was claimed for adult females . When pregnant , however , females can weigh as much as 500 kg (1 @,@ 102 lb) . The polar bear is among the most sexually dimorphic of mammals , surpassed only by the pinnipeds such as elephant seals . The largest polar bear on record , reportedly weighing 1 @,@ 002 kg (2 @,@ 209 lb) , was a male shot at Kotzebue Sound in northwestern Alaska in 1960 . This specimen , when mounted , stood 3 @.@ 39 m (11 ft 1 in) tall on its hindlegs . The shoulder height of an adult polar bear is 122 to 160 cm (4 ft 0 in to 5 ft 3 in) . While all bears are short @-@ tailed , the polar bear 's tail is relatively the shortest amongst living bears , ranging from 7 to 13 cm (2 @.@ 8 to 5 @.@ 1 in) in length .

Compared with its closest relative , the brown bear , the polar bear has a more elongated body build and a longer skull and nose . As predicted by Allen 's rule for a northerly animal , the legs are stocky and the ears and tail are small . However , the feet are very large to distribute load when walking on snow or thin ice and to provide propulsion when swimming ; they may measure 30 cm (12 in) across in an adult . The pads of the paws are covered with small , soft papillae (dermal bumps) , which provide traction on the ice . The polar bear 's claws are short and stocky compared

to those of the brown bear , perhaps to serve the former 's need to grip heavy prey and ice . The claws are deeply scooped on the underside to assist in digging in the ice of the natural habitat . Research of injury patterns in polar bear forelimbs found injuries to the right forelimb to be more frequent than those to the left , suggesting , perhaps , right @-@ handedness . Unlike the brown bear , polar bears in captivity are rarely overweight or particularly large , possibly as a reaction to the warm conditions of most zoos .

The 42 teeth of a polar bear reflect its highly carnivorous diet . The cheek teeth are smaller and more jagged than in the brown bear , and the canines are larger and sharper . The dental formula is $3 \frac{1}{1} \frac{4}{4} \frac{23}{23} \frac{1}{1} \frac{4}{4} \frac{3}{3}$

Polar bears are superbly insulated by up to 10 cm (4 in) of adipose tissue , their hide and their fur ; they overheat at temperatures above 10 ° C (50 ° F) , and are nearly invisible under infrared photography . Polar bear fur consists of a layer of dense underfur and an outer layer of guard hairs , which appear white to tan but are actually transparent . The guard hair is 5 ? 15 cm (2 ? 6 in) over most of the body . Polar bears gradually moult from May to August , but , unlike other Arctic mammals , they do not shed their coat for a darker shade to camouflage themselves in the summer conditions . The hollow guard hairs of a polar bear coat were once thought to act as fiber @-@ optic tubes to conduct light to its black skin , where it could be absorbed ; however , this hypothesis was disproved by a study in 1998 .

The white coat usually yellows with age . When kept in captivity in warm , humid conditions , the fur may turn a pale shade of green due to algae growing inside the guard hairs . Males have significantly longer hairs on their forelegs , which increase in length until the bear reaches 14 years of age . The male 's ornamental foreleg hair is thought to attract females , serving a similar function to the lion 's mane .

The polar bear has an extremely well developed sense of smell , being able to detect seals nearly 1 @. @ 6 km (1 mi) away and buried under 1 m (3 ft) of snow . Its hearing is about as acute as that of a human , and its vision is also good at long distances .

The polar bear is an excellent swimmer and often will swim for days . One bear swam continuously for 9 days in the frigid Bering Sea for 400 mi (687 km) to reach ice far from land . She then travelled another 1 @, @ 100 mi (1 @, @ 800 km) . During the swim , the bear lost 22 % of her body mass and her yearling cub died . With its body fat providing buoyancy , the bear swims in a dog paddle fashion using its large forepaws for propulsion . Polar bears can swim 10 km / h (6 mph) . When walking , the polar bear tends to have a lumbering gait and maintains an average speed of around 5 @. @ 6 km / h (3 @. @ 5 mph) . When sprinting , they can reach up to 40 km / h (25 mph) .

= = = Hunting and diet = = =

The polar bear is the most carnivorous member of the bear family , and throughout most of its range , its diet primarily consists of ringed (*Pusa hispida*) and bearded seals (*Erignathus barbatus*) . The Arctic is home to millions of seals , which become prey when they surface in holes in the ice in order to breathe , or when they haul out on the ice to rest . Polar bears hunt primarily at the interface between ice , water , and air ; they only rarely catch seals on land or in open water .

The polar bear 's most common hunting method is called still @-@ hunting : The bear uses its excellent sense of smell to locate a seal breathing hole , and crouches nearby in silence for a seal to appear . The bear may lay in wait for several hours . When the seal exhales , the bear smells its breath , reaches into the hole with a forepaw , and drags it out onto the ice . The polar bear kills the seal by biting its head to crush its skull . The polar bear also hunts by stalking seals resting on the ice : Upon spotting a seal , it walks to within 90 m (100 yd) , and then crouches . If the seal does not notice , the bear creeps to within 9 to 12 m (30 to 40 ft) of the seal and then suddenly rushes forth to attack . A third hunting method is to raid the birth lairs that female seals create in the snow .

A widespread legend tells that polar bears cover their black noses with their paws when hunting . This behaviour , if it happens , is rare ? although the story exists in the oral history of northern peoples and in accounts by early Arctic explorers , there is no record of an eyewitness account of

the behaviour in recent decades .

Mature bears tend to eat only the calorie @-@ rich skin and blubber of the seal , which are highly digestible , whereas younger bears consume the protein @-@ rich red meat . Studies have also photographed polar bears scaling near @-@ vertical cliffs , to eat birds ' chicks and eggs . For subadult bears , which are independent of their mother but have not yet gained enough experience and body size to successfully hunt seals , scavenging the carcasses from other bears ' kills is an important source of nutrition . Subadults may also be forced to accept a half @-@ eaten carcass if they kill a seal but cannot defend it from larger polar bears . After feeding , polar bears wash themselves with water or snow .

Although polar bears are extraordinarily powerful , its primary prey species , the ringed seal , is much smaller than itself , and many of the seals hunted are pups rather than adults . Ringed seals are born weighing 5 @.@ 4 kg (12 lb) and grown to an estimated average weight of only 60 kg (130 lb) . They also in places prey heavily upon the harp seal (*Pusa groenlandica*) or the harbor seal . The bearded seal , on the other hand , can be nearly the same size as the bear itself , averaging 270 kg (600 lb) . Adult male bearded seals , at 350 to 500 kg (770 to 1 @,@ 100 lb) are too large for a female bear to overtake , and so are potential prey only for mature male bears . Large males also occasionally attempt to hunt and kill even larger prey items . It can kill an adult walrus (*Odobenus rosmarus*) , although this is rarely attempted . At up to 2 @,@ 000 kg (4 @,@ 400 lb) and a typical adult mass range of 600 to 1 @,@ 500 kg (1 @,@ 300 to 3 @,@ 300 lb) , a walrus can be more than twice the bear 's weight , and has up to 1 @-@ metre (3 ft) -long ivory tusks that can be used as formidable weapons . A polar bear may charge a group of walruses , with the goal of separating a young , infirm , or injured walrus from the pod . They will even attack adult walruses when their diving holes have frozen over or intercept them before they can get back to the diving hole in the ice . Yet , polar bears will very seldom attack full @-@ grown adult walruses , with the largest male walrus probably invulnerable unless otherwise injured or incapacitated . Since an attack on a walrus tends to be an extremely protracted and exhausting venture , bears have been known to back down from the attack after making the initial injury to the walrus . Polar bears have also been seen to prey on beluga whales (*Delphinapterus leucas*) and narwhals (*Monodon monoceros*) , by swiping at them at breathing holes . The whales are of similar size to the walrus and nearly as difficult for the bear to subdue . Most terrestrial animals in the Arctic can outrun the polar bear on land as polar bears overheat quickly , and most marine animals the bear encounters can outswim it . In some areas , the polar bear 's diet is supplemented by walrus calves and by the carcasses of dead adult walruses or whales , whose blubber is readily devoured even when rotten . Polar bears sometimes like to go fishing where they swim underwater to catch fish like the Arctic charr or the fourhorn sculpin .

With the exception of pregnant females , polar bears are active year @-@ round , although they have a vestigial hibernation induction trigger in their blood . Unlike brown and black bears , polar bears are capable of fasting for up to several months during late summer and early fall , when they cannot hunt for seals because the sea is unfrozen . When sea ice is unavailable during summer and early autumn , some populations live off fat reserves for months at a time , as polar bears do not ' hibernate ' any time of the year .

Being both curious animals and scavengers , polar bears investigate and consume garbage where they come into contact with humans . Polar bears may attempt to consume almost anything they can find , including hazardous substances such as styrofoam , plastic , car batteries , ethylene glycol , hydraulic fluid , and motor oil . The dump in Churchill , Manitoba was closed in 2006 to protect bears , and waste is now recycled or transported to Thompson , Manitoba .

= = = Dietary flexibility = = =

Although seal predation is the primary and an indispensable way of life for most polar bears , when alternatives are present they are quite flexible . Polar bears will consume a wide variety of other wild foods , including muskox (*Ovibos moschatus*) , reindeer (*Rangifer tarandus*) , birds , eggs , rodents , crabs , other crustaceans and other polar bears . They may also eat plants , including

berries , roots , and kelp ; however , none of these are a significant part of their diet , except that beachcast marine mammal carcasses are an exception . When stalking land animals , such as muskox , reindeer , and even willow ptarmigan (*Lagopus lagopus*) , polar bears appear to make use of vegetative cover and wind direction to bring them as close to their prey as possible before attacking . Polar bears have been observed to hunt the small Svalbard reindeer (*R. t. platyrhynchus*) , which weigh only 40 to 60 kg (90 to 130 lb) as adults , as well as the barren @-@ ground caribou (*R. t. groenlandicus*) , which is about twice as heavy as that . Adult muskox , which can weigh 450 kg (1 @,@ 000 lb) or more , are a more formidable quarry . Although ungulates are not typical prey , the killing of one during the summer months can greatly increase the odds of survival during that lean period . Like the brown bear , most ungulate prey of polar bears is likely to be young , sickly or injured specimens rather than healthy adults . The polar bear 's biology is specialized to require large amounts of fat from marine mammals , and it cannot derive sufficient caloric intake from terrestrial food .

In their southern range , especially near Hudson Bay and James Bay , Canadian polar bears endure all summer without sea ice to hunt from . Here , their food ecology shows their dietary flexibility . They still manage to consume some seals , but they are food @-@ deprived in summer as only marine mammal carcasses are an important alternative without sea ice , especially carcasses of the beluga whale . These alternatives may reduce the rate of weight loss of bears when on land . One scientist found that 71 % of the Hudson Bay bears had fed on seaweed (marine algae) and that about half were feeding on birds like sea ducks , especially the oldsquaw (53 %) , common eider , long @-@ tailed duck or dovekie by swimming underwater to catch them . They were also diving to feed on blue mussels and other underwater food sources like the green sea urchin . 24 % had eaten moss recently , 19 % had consumed grass , 34 % had eaten black crowberry and about half had consumed willows . This study illustrates the polar bear 's dietary flexibility but it does not represent its life history elsewhere . Most polar bears elsewhere will never have access to these alternatives , except for the marine mammal carcasses that are important wherever they occur .

In Svalbard , polar bears were observed to kill white @-@ beaked dolphins during spring , when the dolphins were trapped in the sea ice . The bears then proceeded to cache the carcasses , which remained and were eaten during the ice @-@ free summer and autumn .

= = Behaviour = =

Unlike grizzly bears , polar bears are not territorial . Although stereotyped as being voraciously aggressive , they are normally cautious in confrontations , and often choose to escape rather than fight . Satiated polar bears rarely attack humans unless severely provoked . However , due to their lack of prior human interaction , hungry polar bears are extremely unpredictable , fearless towards people and are known to kill and sometimes eat humans . Many attacks by brown bears are the result of surprising the animal , which is not the case with the polar bear . Polar bears are stealth hunters , and the victim is often unaware of the bear 's presence until the attack is underway . Whereas brown bears often maul a person and then leave , polar bear attacks are more likely to be predatory and are almost always fatal . However , due to the very small human population around the Arctic , such attacks are rare . Michio Hoshino , a Japanese wildlife photographer , was once pursued briefly by a hungry male polar bear in northern Alaska . According to Hoshino , the bear started running but Hoshino made it to his truck . The bear was able to reach the truck and tore one of the doors off the truck before Hoshino was able to drive off .

In general , adult polar bears live solitary lives . Yet , they have often been seen playing together for hours at a time and even sleeping in an embrace , and polar bear zoologist Nikita Ovsianikov has described adult males as having " well @-@ developed friendships . " Cubs are especially playful as well . Among young males in particular , play @-@ fighting may be a means of practicing for serious competition during mating seasons later in life . Polar bears have a wide range of vocalisations , including bellows , roars , growls , chuffs and purrs .

In 1992 , a photographer near Churchill took a now widely circulated set of photographs of a polar

bear playing with a Canadian Eskimo Dog (*Canis lupus familiaris*) a tenth of its size . The pair wrestled harmlessly together each afternoon for ten days in a row for no apparent reason , although the bear may have been trying to demonstrate its friendliness in the hope of sharing the kennel 's food . This kind of social interaction is uncommon ; it is far more typical for polar bears to behave aggressively towards dogs .

= = = Reproduction and lifecycle = = =

Courtship and mating take place on the sea ice in April and May , when polar bears congregate in the best seal hunting areas . A male may follow the tracks of a breeding female for 100 km (60 mi) or more , and after finding her engage in intense fighting with other males over mating rights , fights that often result in scars and broken teeth . Polar bears have a generally polygynous mating system ; recent genetic testing of mothers and cubs , however , has uncovered cases of litters in which cubs have different fathers . Partners stay together and mate repeatedly for an entire week ; the mating ritual induces ovulation in the female .

After mating , the fertilized egg remains in a suspended state until August or September . During these four months , the pregnant female eats prodigious amounts of food , gaining at least 200 kg (440 lb) and often more than doubling her body weight .

= = = Maternity denning and early life = = =

When the ice floes break up in the fall , ending the possibility of hunting , each pregnant female digs a maternity den consisting of a narrow entrance tunnel leading to one to three chambers . Most maternity dens are in snowdrifts , but may also be made underground in permafrost if it is not sufficiently cold yet for snow . In most subpopulations , maternity dens are situated on land a few kilometers from the coast , and the individuals in a subpopulation tend to reuse the same denning areas each year . The polar bears that do not den on land make their dens on the sea ice . In the den , she enters a dormant state similar to hibernation . This hibernation @-@ like state does not consist of continuous sleeping ; however , the bear 's heart rate slows from 46 to 27 beats per minute . Her body temperature does not decrease during this period as it would for a typical mammal in hibernation .

Between November and February , cubs are born blind , covered with a light down fur , and weighing less than 0 @.@ 9 kg (2 @.@ 0 lb) , but in captivity they might be delivered in the earlier months . The earliest recorded birth of polar bears in captivity was on 11 October 2011 in the Toronto Zoo . On average , each litter has two cubs . The family remains in the den until mid @-@ February to mid @-@ April , with the mother maintaining her fast while nursing her cubs on a fat @-@ rich milk . By the time the mother breaks open the entrance to the den , her cubs weigh about 10 to 15 kilograms (22 to 33 lb) . For about 12 to 15 days , the family spends time outside the den while remaining in its vicinity , the mother grazing on vegetation while the cubs become used to walking and playing . Then they begin the long walk from the denning area to the sea ice , where the mother can once again catch seals . Depending on the timing of ice @-@ floe breakup in the fall , she may have fasted for up to eight months . During this time , cubs playfully imitate the mother 's hunting methods in preparation for later life .

Female polar bears are noted for both their affection towards their offspring , and their valor in protecting them . Multiple cases of adoption of wild cubs have been confirmed by genetic testing . Adult male bears occasionally kill and eat polar bear cubs . As of 2006 , in Alaska , 42 % of cubs were reaching 12 months of age , down from 65 % in 1991 . In most areas , cubs are weaned at two and a half years of age , when the mother chases them away or abandons them . The Western Hudson Bay subpopulation is unusual in that its female polar bears sometimes wean their cubs at only one and a half years . This was the case for 40 % of cubs there in the early 1980s ; however by the 1990s , fewer than 20 % of cubs were weaned this young . After the mother leaves , sibling cubs sometimes travel and share food together for weeks or months .

===== Later life =====

Females begin to breed at the age of four years in most areas , and five years in the Beaufort Sea area . Males usually reach sexual maturity at six years ; however , as competition for females is fierce , many do not breed until the age of eight or ten . A study in Hudson Bay indicated that both the reproductive success and the maternal weight of females peaked in their mid @-@ teens .

Polar bears appear to be less affected by infectious diseases and parasites than most terrestrial mammals . Polar bears are especially susceptible to *Trichinella* , a parasitic roundworm they contract through cannibalism , although infections are usually not fatal . Only one case of a polar bear with rabies has been documented , even though polar bears frequently interact with Arctic foxes , which often carry rabies . Bacterial leptospirosis and Morbillivirus have been recorded . Polar bears sometimes have problems with various skin diseases that may be caused by mites or other parasites .

===== Life expectancy =====

Polar bears rarely live beyond 25 years . The oldest wild bears on record died at age 32 , whereas the oldest captive was a female who died in 1991 , age 43 . The causes of death in wild adult polar bears are poorly understood , as carcasses are rarely found in the species 's frigid habitat . In the wild , old polar bears eventually become too weak to catch food , and gradually starve to death . Polar bears injured in fights or accidents may either die from their injuries or become unable to hunt effectively , leading to starvation .

===== Ecological role =====

The polar bear is the apex predator within its range , and is a keystone species for the Arctic . Several animal species , particularly Arctic foxes (*Vulpes lagopus*) and glaucous gulls (*Larus hyperboreus*) , routinely scavenge polar bear kills .

The relationship between ringed seals and polar bears is so close that the abundance of ringed seals in some areas appears to regulate the density of polar bears , while polar bear predation in turn regulates density and reproductive success of ringed seals . The evolutionary pressure of polar bear predation on seals probably accounts for some significant differences between Arctic and Antarctic seals . Compared to the Antarctic , where there is no major surface predator , Arctic seals use more breathing holes per individual , appear more restless when hauled out on the ice , and rarely defecate on the ice . The baby fur of most Arctic seal species is white , presumably to provide camouflage from predators , whereas Antarctic seals all have dark fur at birth .

Brown bears tend to dominate polar bears in disputes over carcasses , and dead polar bear cubs have been found in brown bear dens . Wolves are rarely encountered by polar bears , though there are two records of Arctic wolf (*Canis lupus arctos*) packs killing polar bear cubs . A rather unlikely killer of a grown polar bear has reportedly included a wolverine (*Gulo gulo*) , anecdotely reported to have suffocated a bear in a zoo with a bite to the throat during a conflict . Polar bears are sometimes the host of arctic mites such as *Alaskozetes antarcticus* .

===== Long @-@ distance swimming and diving =====

Researchers tracked 52 sows in the southern Beaufort Sea off Alaska with GPS system collars ; no boars were involved in the study due to males ' necks being too thick for the GPS @-@ equipped collars . Fifty long @-@ distance swims were recorded ; the longest at 354 kilometres (220 mi) , with an average of 155 kilometres (96 mi) . The length of these swims ranged from most of a day to ten days . Ten of the sows had a cub swim with them and after a year , six cubs survived . The study did not determine if the others lost their cubs before , during , or some time after their long swims . Researchers do not know whether or not this is a new behaviour ; before polar ice shrinkage , they opined that there was probably neither the need nor opportunity to swim such long distances .

The polar bear may swim underwater for up to three minutes to approach seals on shore or on ice floes .

= = Hunting = =

= = = Indigenous people = = =

Polar bears have long provided important raw materials for Arctic peoples , including the Inuit , Yupik , Chukchi , Nenets , Russian Pomors and others . Hunters commonly used teams of dogs to distract the bear , allowing the hunter to spear the bear or shoot it with arrows at closer range . Almost all parts of captured animals had a use . The fur was used in particular to make trousers and , by the Nenets , to make galoshes @-@ like outer footwear called tobok ; the meat is edible , despite some risk of trichinosis ; the fat was used in food and as a fuel for lighting homes , alongside seal and whale blubber ; sinews were used as thread for sewing clothes ; the gallbladder and sometimes heart were dried and powdered for medicinal purposes ; the large canine teeth were highly valued as talismans . Only the liver was not used , as its high concentration of vitamin A is poisonous . Hunters make sure to either toss the liver into the sea or bury it in order to spare their dogs from potential poisoning . Traditional subsistence hunting was on a small enough scale to not significantly affect polar bear populations , mostly because of the sparseness of the human population in polar bear habitat .

= = = History of commercial harvest = = =

In Russia , polar bear furs were already being commercially traded in the 14th century , though it was of low value compared to Arctic fox or even reindeer fur . The growth of the human population in the Eurasian Arctic in the 16th and 17th century , together with the advent of firearms and increasing trade , dramatically increased the harvest of polar bears . However , since polar bear fur has always played a marginal commercial role , data on the historical harvest is fragmentary . It is known , for example , that already in the winter of 1784 / 1785 Russian Pomors on Spitsbergen harvested 150 polar bears in Magdalenefjorden . In the early 20th century , Norwegian hunters were harvesting 300 bears per year at the same location . Estimates of total historical harvest suggest that from the beginning of the 18th century , roughly 400 to 500 animals were being harvested annually in northern Eurasia , reaching a peak of 1 @, @ 300 to 1 @, @ 500 animals in the early 20th century , and falling off as the numbers began dwindling .

In the first half of the 20th century , mechanized and overpoweringly efficient methods of hunting and trapping came into use in North America as well . Polar bears were chased from snowmobiles , icebreakers , and airplanes , the latter practice described in a 1965 New York Times editorial as being " about as sporting as machine gunning a cow . " Norwegians used " self @-@ killing guns " , comprising a loaded rifle in a baited box that was placed at the level of a bear 's head , and which fired when the string attached to the bait was pulled . The numbers taken grew rapidly in the 1960s , peaking around 1968 with a global total of 1 @, @ 250 bears that year .

= = = Contemporary regulations = = =

Concerns over the future survival of the species led to the development of national regulations on polar bear hunting , beginning in the mid @-@ 1950s . The Soviet Union banned all hunting in 1956 . Canada began imposing hunting quotas in 1968 . Norway passed a series of increasingly strict regulations from 1965 to 1973 , and has completely banned hunting since then . The United States began regulating hunting in 1971 and adopted the Marine Mammal Protection Act in 1972 . In 1973 , the International Agreement on the Conservation of Polar Bears was signed by all five nations whose territory is inhabited by polar bears : Canada , Denmark , Norway , the Soviet Union , and the United States . Member countries agreed to place restrictions on recreational and commercial

hunting , ban hunting from aircraft and icebreakers , and conduct further research . The treaty allows hunting " by local people using traditional methods " . Norway is the only country of the five in which all harvest of polar bears is banned . The agreement was a rare case of international cooperation during the Cold War . Biologist Ian Stirling commented , " For many years , the conservation of polar bears was the only subject in the entire Arctic that nations from both sides of the Iron Curtain could agree upon sufficiently to sign an agreement . Such was the intensity of human fascination with this magnificent predator , the only marine bear . "

Agreements have been made between countries to co -@-@ manage their shared polar bear subpopulations . After several years of negotiations , Russia and the United States signed an agreement in October 2000 to jointly set quotas for indigenous subsistence hunting in Alaska and Chukotka . The treaty was ratified in October 2007 . In September 2015 , the polar bear range states agreed upon a " circumpolar action plan " describing their conservation strategy for polar bears .

Although the United States government has proposed that polar bears be transferred to Appendix I of CITES , which would ban all international trade in polar bear parts , polar bears currently remain listed under Appendix II . This decision was approved of by members of the IUCN and TRAFFIC , who determined that such an uplisting was unlikely to confer a conservation benefit .

= = = = Canada = = = =

Polar bears were designated " Not at Risk " in April 1986 and uplisted to " Special Concern " in April 1991 . This status was re @-@ evaluated and confirmed in April 1999 , November 2002 , and April 2008 . Polar bears continue to be listed as a species of special concern in Canada because of their sensitivity to overharvest and because of an expected range contraction caused by loss of Arctic sea ice .

More than 600 bears are killed per year by humans across Canada , a rate calculated by scientists to be unsustainable for some areas , notably Baffin Bay . Canada has allowed sport hunters accompanied by local guides and dog @-@ sled teams since 1970 , but the practice was not common until the 1980s . The guiding of sport hunters provides meaningful employment and an important source of income for northern communities in which economic opportunities are few . Sport hunting can bring CDN \$ 20 @,@ 000 to \$ 35 @,@ 000 per bear into northern communities , which until recently has been mostly from American hunters .

The territory of Nunavut accounts for the location 80 % of annual kills in Canada . In 2005 , the government of Nunavut increased the quota from 400 to 518 bears , despite protests from the IUCN Polar Bear Specialist Group . In two areas where harvest levels have been increased based on increased sightings , science @-@ based studies have indicated declining populations , and a third area is considered data @-@ deficient . While most of that quota is hunted by the indigenous Inuit people , a growing share is sold to recreational hunters . (0 @.@ 8 % in the 1970s , 7 @.@ 1 % in the 1980s , and 14 @.@ 6 % in the 1990s) Nunavut polar bear biologist , Mitchell Taylor , who was formerly responsible for polar bear conservation in the territory , has insisted that bear numbers are being sustained under current hunting limits . In 2010 , the 2005 increase was partially reversed . Government of Nunavut officials announced that the polar bear quota for the Baffin Bay region would be gradually reduced from 105 per year to 65 by the year 2013 . The Government of the Northwest Territories maintain their own quota of 72 to 103 bears within the Inuvialuit communities of which some are set aside for sports hunters . Environment Canada also banned the export from Canada of fur , claws , skulls and other products from polar bears harvested in Baffin Bay as of 1 January 2010 .

Because of the way polar bear hunting quotas are managed in Canada , attempts to discourage sport hunting would actually increase the number of bears killed in the short term . Canada allocates a certain number of permits each year to sport and subsistence hunting , and those that are not used for sport hunting are re @-@ allocated to indigenous subsistence hunting . Whereas northern communities kill all the polar bears they are permitted to take each year , only half of sport hunters with permits actually manage to kill a polar bear . If a sport hunter does not kill a polar bear before

his or her permit expires , the permit cannot be transferred to another hunter .

In August 2011 , Environment Canada published a national polar bear conservation strategy .

= = = = Greenland = = = =

In Greenland , hunting restrictions were first introduced in 1994 and expanded by executive order in 2005 . Until 2005 Greenland placed no limit on hunting by indigenous people . However , in 2006 it imposed a limit of 150 , while also allowed recreational hunting for the first time . Other provisions included year @-@ round protection of cubs and mothers , restrictions on weapons used , and various administrative requirements to catalogue kills .

= = = = Norway = = = =

= = = = Russia = = = =

The Soviet Union banned the harvest of polar bears in 1956 ; however , poaching continued and is estimated to pose a serious threat to the polar bear population . In recent years , polar bears have approached coastal villages in Chukotka more frequently due to the shrinking of the sea ice , endangering humans and raising concerns that illegal hunting would become even more prevalent . In 2007 , the Russian government made subsistence hunting legal for indigenous Chukotkan peoples only , a move supported by Russia 's most prominent bear researchers and the World Wide Fund for Nature as a means to curb poaching .

Polar bears are currently listed as " Rare " , of " Uncertain Status " , or " Rehabilitated and rehabilitating " in the Red Data Book of Russia , depending on population . In 2010 , the Ministry of Natural Resources and Environment published a strategy for polar bear conservation in Russia .

= = = = United States = = = =

The Marine Mammal Protection Act of 1972 afforded polar bears some protection in the United States . It banned hunting (except by indigenous subsistence hunters) , banned importing of polar bear parts (except polar bear pelts taken legally in Canada) , and banned the harassment of polar bears . On 15 May 2008 , the United States Department of the Interior listed the polar bear as a threatened species under the Endangered Species Act , citing the melting of Arctic sea ice as the primary threat to the polar bear . It banned all importing of polar bear trophies . Importing products made from polar bears had been prohibited from 1972 to 1994 under the Marine Mammal Protection Act , and restricted between 1994 and 2008 . Under those restrictions , permits from the United States Fish and Wildlife Service were required to import sport @-@ hunted polar bear trophies taken in hunting expeditions in Canada . The permit process required that the bear be taken from an area with quotas based on sound management principles . Since 1994 , hundreds of sport @-@ hunted polar bear trophies have been imported into the U.S. In 2015 , the U.S. Fish and Wildlife Service published a draft conservation management plan for polar bears to improve their status under the Endangered Species Act and the Marine Mammal Protection Act .

= = Conservation status , threats and controversies = =

Polar bear population sizes and trends are difficult to estimate accurately because they occupy remote home ranges and exist at low population densities . Polar bear fieldwork can also be hazardous to researchers . As of 2015 , the International Union for Conservation of Nature (IUCN) reports that the global population of polar bears is 22 @,@ 000 to 31 @,@ 000 , and the current population trend is unknown . Nevertheless , polar bears are listed as " Vulnerable " under criterion A3c , which indicates an expected population decrease of ? 30 % over the next three generations (~ 34 @.@ 5 years) due to " decline in area of occupancy , extent of occurrence and / or quality of

habitat ". Risks to the polar bear include climate change , pollution in the form of toxic contaminants , conflicts with shipping , oil and gas exploration and development , and human @-@ bear interactions including harvesting and possible stresses from recreational polar @-@ bear watching .

According to the World Wildlife Fund , the polar bear is important as an indicator of Arctic ecosystem health . Polar bears are studied to gain understanding of what is happening throughout the Arctic , because at @-@ risk polar bears are often a sign of something wrong with the Arctic marine ecosystem .

= = = Climate change = = =

The International Union for Conservation of Nature , Arctic Climate Impact Assessment , United States Geological Survey and many leading polar bear biologists have expressed grave concerns about the impact of climate change , including the belief that the current warming trend imperils the survival of the polar bear .

The key danger posed by climate change is malnutrition or starvation due to habitat loss . Polar bears hunt seals from a platform of sea ice . Rising temperatures cause the sea ice to melt earlier in the year , driving the bears to shore before they have built sufficient fat reserves to survive the period of scarce food in the late summer and early fall . Reduction in sea @-@ ice cover also forces bears to swim longer distances , which further depletes their energy stores and occasionally leads to drowning . Thinner sea ice tends to deform more easily , which appears to make it more difficult for polar bears to access seals . Insufficient nourishment leads to lower reproductive rates in adult females and lower survival rates in cubs and juvenile bears , in addition to poorer body condition in bears of all ages .

In addition to creating nutritional stress , a warming climate is expected to affect various other aspects of polar bear life : Changes in sea ice affect the ability of pregnant females to build suitable maternity dens . As the distance increases between the pack ice and the coast , females must swim longer distances to reach favored denning areas on land . Thawing of permafrost would affect the bears who traditionally den underground , and warm winters could result in den roofs collapsing or having reduced insulative value . For the polar bears that currently den on multi @-@ year ice , increased ice mobility may result in longer distances for mothers and young cubs to walk when they return to seal @-@ hunting areas in the spring . Disease @-@ causing bacteria and parasites would flourish more readily in a warmer climate .

Problematic interactions between polar bears and humans , such as foraging by bears in garbage dumps , have historically been more prevalent in years when ice @-@ floe breakup occurred early and local polar bears were relatively thin . Increased human @-@ bear interactions , including fatal attacks on humans , are likely to increase as the sea ice shrinks and hungry bears try to find food on land .

The effects of climate change are most profound in the southern part of the polar bear 's range , and this is indeed where significant degradation of local populations has been observed . The Western Hudson Bay subpopulation , in a southern part of the range , also happens to be one of the best @-@ studied polar bear subpopulations . This subpopulation feeds heavily on ringed seals in late spring , when newly weaned and easily hunted seal pups are abundant . The late spring hunting season ends for polar bears when the ice begins to melt and break up , and they fast or eat little during the summer until the sea freezes again .

Due to warming air temperatures , ice @-@ floe breakup in western Hudson Bay is currently occurring three weeks earlier than it did 30 years ago , reducing the duration of the polar bear feeding season . The body condition of polar bears has declined during this period ; the average weight of lone (and likely pregnant) female polar bears was approximately 290 kg (640 lb) in 1980 and 230 kg (510 lb) in 2004 . Between 1987 and 2004 , the Western Hudson Bay population declined by 22 % , although the population is currently listed as " stable " .

In Alaska , the effects of sea ice shrinkage have contributed to higher mortality rates in polar bear cubs , and have led to changes in the denning locations of pregnant females . In recent years , polar bears in the Arctic have undertaken longer than usual swims to find prey , possibly resulting in four

recorded drownings in the unusually large ice pack regression of 2005 .

A new development is that polar bears have begun ranging to new territory . While not unheard of but still uncommon , polar bears have been sighted increasingly in larger numbers ashore , staying on the mainland for longer periods of time during the summer months , particularly in North Canada , traveling farther inland . This may cause an increased reliance on terrestrial diets , such as goose eggs , waterfowl and caribou , as well as increased human ? bear conflict .

= = = Pollution = = =

Polar bears accumulate high levels of persistent organic pollutants such as polychlorinated biphenyl (PCBs) and chlorinated pesticides . Due to their position at the top of the ecological pyramid , with a diet heavy in blubber in which halocarbons concentrate , their bodies are among the most contaminated of Arctic mammals . Halocarbons are known to be toxic to other animals , because they mimic hormone chemistry , and biomarkers such as immunoglobulin G and retinol suggest similar effects on polar bears . PCBs have received the most study , and they have been associated with birth defects and immune system deficiency .

Many chemicals , such as PCBs and DDT , have been internationally banned due to the recognition of their harm on the environment . Their concentrations in polar bear tissues continued to rise for decades after being banned as these chemicals spread through the food chain . Since then , the trend seems to have discontinued , with tissue concentrations of PCBs declining between studies performed from 1989 to 1993 and studies performed from 1996 to 2002 . During the same time periods , DDT was notably lower in the Western Hudson Bay population only .

= = = Oil and gas development = = =

Oil and gas development in polar bear habitat can affect the bears in a variety of ways . An oil spill in the Arctic would most likely concentrate in the areas where polar bears and their prey are also concentrated , such as sea ice leads . Because polar bears rely partly on their fur for insulation and soiling of the fur by oil reduces its insulative value , oil spills put bears at risk of dying from hypothermia . Polar bears exposed to oil spill conditions have been observed to lick the oil from their fur , leading to fatal kidney failure . Maternity dens , used by pregnant females and by females with infants , can also be disturbed by nearby oil exploration and development . Disturbance of these sensitive sites may trigger the mother to abandon her den prematurely , or abandon her litter altogether .

= = = Predictions = = =

Steven Amstrup and other U.S. Geological Survey scientists have predicted two @-@ thirds of the world 's polar bears may disappear by 2050 , based on moderate projections for the shrinking of summer sea ice caused by climate change , though the validity of this study has been debated . The bears could disappear from Europe , Asia , and Alaska , and be depleted from the Canadian Arctic Archipelago and areas off the northern Greenland coast . By 2080 , they could disappear from Greenland entirely and from the northern Canadian coast , leaving only dwindling numbers in the interior Arctic Archipelago . However , in the short term , some polar bear populations in historically colder regions of the Arctic may temporarily benefit from a milder climate , as multiyear ice that is too thick for seals to create breathing holes is replaced by thinner annual ice .

Polar bears diverged from brown bears 400 @,@ 000 ? 600 @,@ 000 years ago and have survived past periods of climate fluctuation . It has been claimed that polar bears will be able to adapt to terrestrial food sources as the sea ice they use to hunt seals disappears . However , most polar bear biologists think that polar bears will be unable to completely offset the loss of calorie @-@ rich seal blubber with terrestrial foods , and that they will be outcompeted by brown bears in this terrestrial niche , ultimately leading to a population decline .

= = = Controversy over species protection = = =

Warnings about the future of the polar bear are often contrasted with the fact that worldwide population estimates have increased over the past 50 years and are relatively stable today . Some estimates of the global population are around 5 @,@ 000 to 10 @,@ 000 in the early 1970s ; other estimates were 20 @,@ 000 to 40 @,@ 000 during the 1980s . Current estimates put the global population at between 20 @,@ 000 and 25 @,@ 000 or 22 @,@ 000 and 31 @,@ 000 .

There are several reasons for the apparent discordance between past and projected population trends : estimates from the 1950s and 1960s were based on stories from explorers and hunters rather than on scientific surveys . Second , controls of harvesting were introduced that allowed this previously overhunted species to recover . Third , the recent effects of climate change have affected sea ice abundance in different areas to varying degrees .

Debate over the listing of the polar bear under endangered species legislation has put conservation groups and Canada 's Inuit at opposing positions ; the Nunavut government and many northern residents have condemned the U.S. initiative to list the polar bear under the Endangered Species Act . Many Inuit believe the polar bear population is increasing , and restrictions on commercial sport @-@ hunting are likely to lead to a loss of income to their communities .

= = In culture = =

= = = Indigenous folklore = = =

For the indigenous peoples of the Arctic , polar bears have long played an important cultural and material role . Polar bear remains have been found at hunting sites dating to 2 @,@ 500 to 3 @,@ 000 years ago and 1 @,@ 500 @-@ year @-@ old cave paintings of polar bears have been found in the Chukchi Peninsula . Indeed , it has been suggested that Arctic peoples ' skills in seal hunting and igloo construction has been in part acquired from the polar bears themselves .

The Inuit and Alaska Natives have many folk tales featuring the bears including legends in which bears are humans when inside their own houses and put on bear hides when going outside , and stories of how the constellation that is said to resemble a great bear surrounded by dogs came into being . These legends reveal a deep respect for the polar bear , which is portrayed as both spiritually powerful and closely akin to humans . The human @-@ like posture of bears when standing and sitting , and the resemblance of a skinned bear carcass to the human body , have probably contributed to the belief that the spirits of humans and bears were interchangeable . Eskimo legends tell of humans learning to hunt from the polar bear .

Among the Chukchi and Yupik of eastern Siberia , there was a longstanding shamanistic ritual of " thanksgiving " to the hunted polar bear . After killing the animal , its head and skin were removed and cleaned and brought into the home , a feast was held in the hunting camp in its honor . In order to appease the spirit of the bear , there were traditional song and drum music and the skull would be ceremonially fed and offered a pipe . Only once the spirit was appeased would the skull be separated from the skin , taken beyond the bounds of the homestead , and placed in the ground , facing north . Many of these traditions have faded somewhat in time , especially in light of the total hunting ban in the Soviet Union (and now Russia) since 1955 .

The Nenets of north @-@ central Siberia placed particular value on the talismanic power of the prominent canine teeth . They were traded in the villages of the lower Yenisei and Khatanga rivers to the forest @-@ dwelling peoples further south , who would sew them into their hats as protection against brown bears . It was believed that the " little nephew " (the brown bear) would not dare to attack a man wearing the tooth of its powerful " big uncle " (the polar bear) . The skulls of killed polar bears were buried at specific sacred sites and altars , called sedyangi , were constructed out of the skulls . Several such sites have been preserved on the Yamal Peninsula .

= = = Symbols and mascots = = =

Their distinctive appearance and their association with the Arctic have made polar bears popular icons , especially in those areas where they are native . The Canadian Toonie (two @-@ dollar coin) features the image of a polar bear and both the Northwest Territories and Nunavut license plates in Canada are in the shape of a polar bear . The polar bear is the mascot of Bowdoin College in Maine and the University of Alaska Fairbanks (see also Alaska Nanooks) and was chosen as mascot for the 1988 Winter Olympics held in Calgary . The Eisbären Berlin professional hockey team , playing in the DEL top @-@ level pro hockey league of Germany uses a roaring polar bear (seen head @-@ on) as their team logo .

Companies such as Coca @-@ Cola , Polar Beverages , Nelvana , Bundaberg Rum , and Good Humor @-@ Breyers have used images of the polar bear in advertising , while Fox 's Glacier Mints have featured a polar bear named Peppy as the brand mascot since 1922 . This has supported the popularity of the polar bear , and it has since become one of a collection of creatures who are associated with Christmas , including penguins , reindeer and the European robin .

= = = Fiction = = =

Polar bears are also popular in fiction , particularly in books aimed at children or teenagers . For example , The Polar Bear Son is adapted from a traditional Inuit tale . The animated television series Noah 's Island features a polar bear named Noah as the protagonist . Polar bears feature prominently in East (also released as North Child) by Edith Pattou , The Bear by Raymond Briggs (adapted into an animated short in 1998) , and Chris d 'Lacey 's The Fire Within series . The panserbjørne of Philip Pullman 's fantasy trilogy His Dark Materials are sapient , dignified polar bears who exhibit anthropomorphic qualities , and feature prominently in the 2007 film adaptation of The Golden Compass . The television series Lost features polar bears living on the tropical island setting .

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