

This WWF Species Action Plan was compiled by Geoffrey York, Vicki Sahanatien, Gert Polet and Femke Koopmans.

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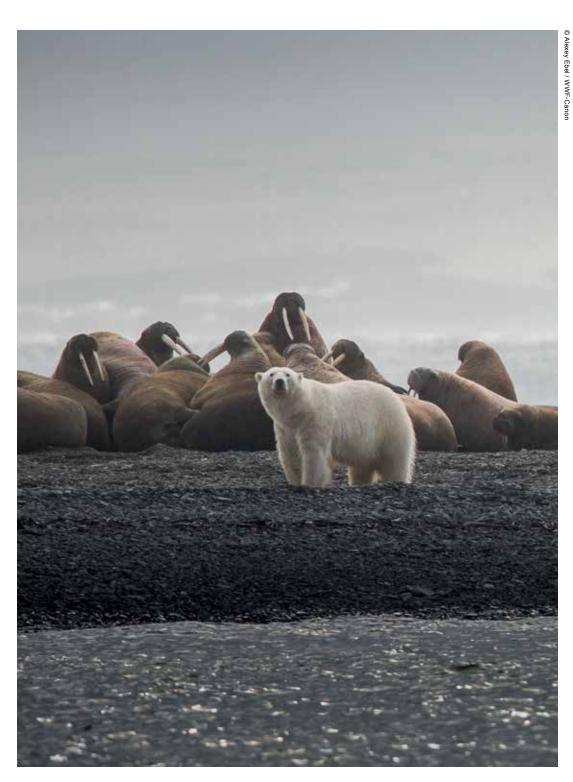
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panda.org/what\_we\_do/endangered\_species

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 $An adult \ male \ polar \ bear \ investigating \ a \ walrus \ haul \ out \ at \ Maria \ Pronchish cheva \ Bay \ in \ the \ Laptev \ Sea, \ 2013$ 

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## <u>ACRONYMS</u>

ACIA: Arctic Climate Impact Assessment

ACPB: International Agreement on the Conservation of Polar Bears and

Their Habitats

CBD: Convention on Biological Diversity

CITES: Convention on the International Trade in Endangered Species of

Wild Fauna and Flora

CMS: Convention on Migratory Species

CWS: Canadian Wildlife Service (for the Canadian federal government)

ESA: Endangered Species Act (USA)

IUCN: International Union for the Conservation of Nature

MMPA: Marine Mammal Protection Act (USA legislation)

NWMB: Nunavut Wildlife Management Board

PBSG: Polar Bear Specialist Group (of IUCN's Species Survival Commission)

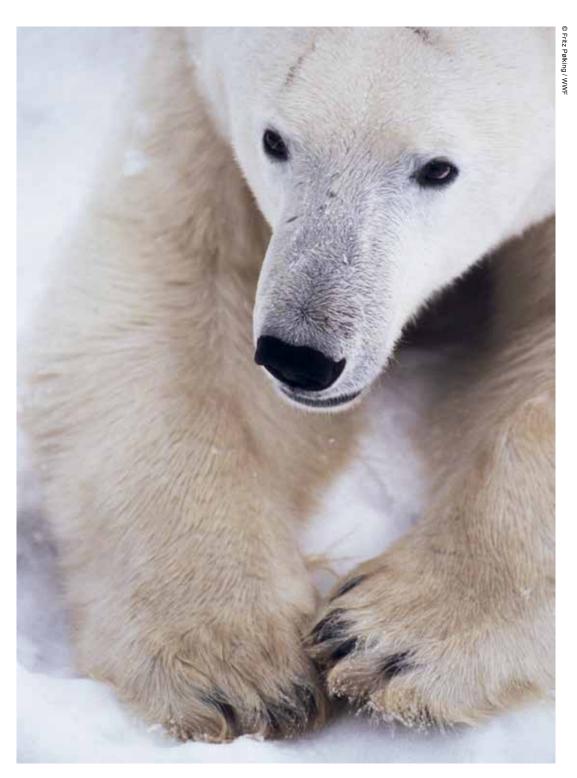
WWF: World Wide Fund for Nature (World Wildlife Fund in North America)

UNCLOS: United Nations Convention on the Law of the Sea

UNFCCC: United Nations Framework Convention on Climate Change

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey



Polar bear (*Ursus maritimus*) Hudson Bay, Churchill area Manitoba, Cananda

## **FOREWORD**

Polar bears are seriously threatened by disappearing sea ice habitat. So, why not do something substantial about it? When we see the graphs depicting sea ice cover plummeting towards zero, when the scientific community is in about the dramatic changes that will impact all

agreement about the dramatic changes that will impact all Arctic communities – then why the headwind from sceptics, people, politicians, organizations that live in the same reality as everyone else and that should see the same thing?



Dag Vongraven, Chair IUCN/Polar Bear Specialist Group

The sensitivities and challenges in play around management of the world's polar bears is at times hard to fathom. Reasonable, knowledge-based actions that can make a difference have shown hard to implement. I think some of the reason for this is that the climate threat that is now making headlines is unlike any other threat we have dealt with before. In the past, management actions to mitigate the threat have been agreed and implemented only when clear impacts have been seen in the populations in question. The projected speed and scale of climate warming, however, force us to act largely before we have seen clear and undisputable effects of climate change manifest in most populations.

To an outsider it is impressive how WWF has managed to have an impact in remote areas, mitigating human-wildlife conflict, and on high levels of administration in many countries. With dedication and knowledge within its management, WWF has the potential to get things done – including when it comes to climate change mitigation and polar bear conservation. It is vital that we have such players on the international scene, players that can set the agenda.



# **EXECUTIVE SUMMARY**

The polar bear, icon of the Arctic and an indicator of that ecosystem's health, is at a significant crossroads. Recent analyses predict that by the mid-21st century two-thirds of the world's polar bear population may vanish due to the rapid loss of sea ice habitat they depend upon for survival. This abrupt and rapid change to the Arctic's once stable ice

cover is a direct result of anthropogenic climate warming due to greenhouse-gas (GHG) emissions.

At the same time, and driven by this very loss of sea ice, the Arctic is facing new opportunities and new threats from increased interest of extractive industries, including hydrocarbon, fisheries and mining, and from commercial shipping. As a long-lived and slow to reproduce (or K-selected) species, polar bears are also at risk from potential overharvest. Harvest can become a threat under several scenarios: unreported and illegal hunting is a concern in some regions; regulated harvest can also become an issue in areas where management changes do not kept pace with reported population status, or where accurate population information is lacking; and the death of bears from human-wildlife conflict can spike total harvest levels in some regions if not managed. Rapid ecosystem changes across the Arctic also increase concerns around species/prey shifts, introduction of novel disease, and the background risk of contaminant burdens of this top predator as a cumulative health threat.

The Polar Bear Species Action Plan (SAP) is a forward-looking strategic guide for WWF's global conservation efforts to help protect this unique species and its Arctic home. This plan defines the threats and opportunities facing polar bears while providing a focused framework for WWF resource investment in the areas of greatest opportunity and conservation impact. This strategic plan seeks to achieve the ambitious vision and goal of the SAP:

2020
BY 2020, HUMAN
ACTIVITIES IN
THE ARCTIC ARE
NOT DETRIMENTAL
TO POLAR BEAR
POPULATIONS AND
THEIR HABITAT

#### The 2050 conservation vision set by WWF is:

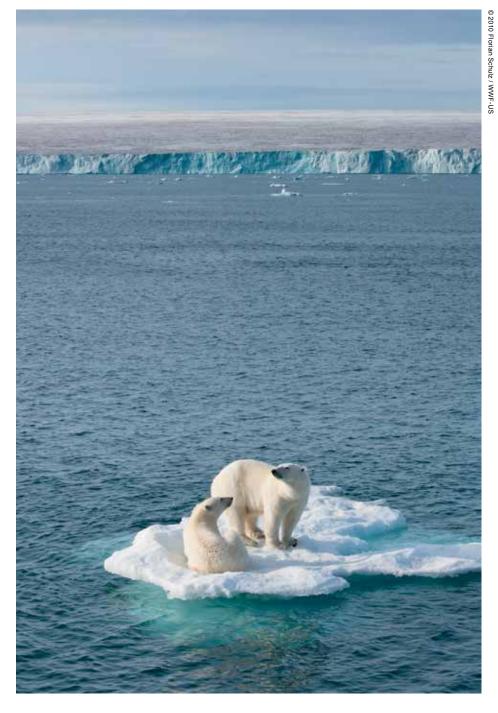
Viable polar bear populations live freely throughout their available range, maintaining their ecological and cultural importance in the Arctic.

#### The conservation goal is:

By 2020, human activities in the Arctic are not detrimental to polar bear populations and their habitat.

In the face of these challenges, hope remains. Polar bears are the global face of the impacts of climate change, raising awareness and gaining traction with civil society, industry and government leaders worldwide. Polar bears illustrate that we cannot continue business as usual and that we must reduce GHG emissions. Immediate and aggressive action is required to prevent irreversible change to Arctic ecosystems. In spite of the immediate threats to polar bear populations, there are reasonable approaches society can take that balance the needs of people with the needs of wildlife and wild places.

Even with the predicted losses of sea ice, there will remain areas of critical habitat throughout the Arctic – notably in the High Arctic Islands (or Archipelagos). Fortunately, the Canadian High Arctic archipelago and Northern Greenland region is predicted to experience limited ice loss and change. Polar bears are also a resilient, intelligent and long-lived species. We know they are less prone to some human

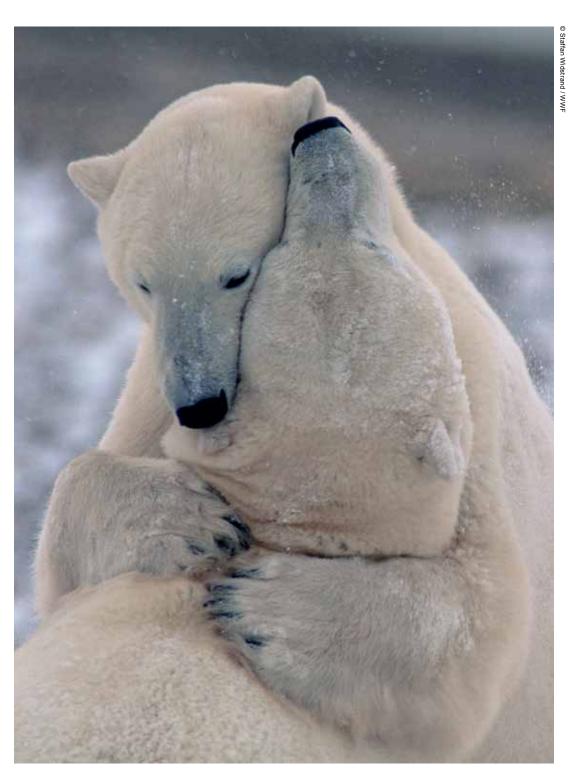


"You remember the first time you see a polar bear. For me, it was July 15 2008, in Svalbard. Large and powerful, its movements an effortless expression of masteryof its environment, whether gripping jumbled ice blockswith long, sharp claws or casually paddling in icy watersthat would kill a person in minutes. That first sighting is a thrill comparable to seeing other wonders of the world the Taj Mahal, RedSquare, the Parthenon, the pyramids of Central America and Egypt. Except that people didn'tmake this icon and are instead in; grave danger of destroying it."

Jim Leape, former DG of WWF International

disturbances than other Arctic wildlife such as caribou, musk ox, and cetaceans. They have also demonstrated considerable adaptation across their current range – from bears who rarely leave sea ice, to Hudson Bay where bears spend long periods fasting onshore.

If we can successfully stabilize and roll back GHG emissions, and exercise caution when developing Arctic resources, we can build resilience for polar bears, Arctic peoples, and the environment they depend upon. We provide the best chance for polar bears to survive increasingly rapid climate change. By acting to conserve polar bears we also provide opportunity for wise and proactive management of a key ecosystem that regulates global climate and sustains a healthy living planet.



Polar bears play fighting ( $Ursus\ maritimus$ ) Churchill, Manitoba, Canada, Arctic

## 1. INTRODUCTION

Polar bears face an uncertain future as climate change melts the sea ice they need for survival.

As the Arctic warms they face additional stress from

industry, human interactions, and novel exposure to diseases and toxins. Recent research suggests up to two-thirds of the world's polar bears could vanish by the middle of this century. It's not too late. WWF's conservation efforts are meeting the challenge and preserving hope for this global symbol of the Arctic.

#### 1.1 ABOUT WWF

"The solution for polar bears is to save their habitat from the worst of global warming. Mitigating green house gas emissions, if we do it now, can still reduce warming, limit sea ice loss, and ultimately benefit polar bears. Coupled with proactive management of other stressors today, we can still make sure polar bears roam the Arctic for future generations."

Geoff York, WWF WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- Conserving the world's biological diversity;
- Ensuring that the use of renewable natural resources is sustainable;
- Eliminating pollution and minimizing wasteful consumption.

To guide WWF in its task of achieving the mission, the following principles have been adopted. WWF will:

- Be global, independent, multicultural and non-party political;
- Use the best available scientific information to address issues and critically evaluate all its endeavours;
- Seek dialogue and avoid unnecessary confrontation;
- Build concrete conservation solutions through a combination of field-based projects, policy initiatives, capacity building and education work;
- Involve local communities and indigenous peoples in the planning and execution
  of its field programmes, respecting their cultural as well as economic needs;
- Strive to build partnerships with other organizations, governments, business and local communities to enhance WWF's effectiveness;
- Run its operations in a cost-effective manner and apply donors' funds according
  to the highest standards of accountability.

WWF prioritizes conservation efforts through our Global Programme Framework, which identifies priority places, species and footprint issues. The Arctic is a WWF priority place, the polar bear is a WWF priority species and climate change is a WWF priority footprint issue, making this SAP of particular importance to WWF and our network of supporters worldwide.

#### 1.2 THE WWF APPROACH TO SPECIES ACTION PLANS

Species action plans (SAPs) are the blueprints for WWF's major conservation programmes to conserve our flagship species across their range. SAPs comprise a full suite of objectives designed to ensure the long-term, sustainable conservation of the entire extent of habitat necessary to support viable populations of the species and to mitigate the threats to their survival. As WWF flagship species are generally long-lived, complex

animals that require diverse habitats on a large scale, SAPs by definition address broad ecosystem conservation.

SAPs are not intended to reflect all the conservation actions required to save a species or species group. SAPs reflect the specific interventions that WWF intends to take in collaboration with its broad range of public and private partners. This SAP is designed to:

- Provide a framework for WWF's polar bear conservation efforts through a global strategy focused on the most effective interventions.
- 2. Take advantage of lessons learned and experience gained at local, regional and international levels, and apply successful strategies more broadly throughout the network.
- Initiate new efforts that address strategic priorities and capitalize on existing or planned work.
- 4. Integrate polar bear conservation action with other WWF initiatives and multiply the impact of our conservation efforts.

#### **WWF POLAR BEAR SPECIES ACTION PLAN**

Polar bear SAP coordinator

Species action plans (SAPs) are the blue prints for WWF's major conservation programmes to conserve our flagship species across their range. SAPs comprise a full suite of objectivs designed to ensure the longterm, sustainable conservation of the entire extent of habitat necessary to support viable poulations of the species and to mitigate the threats to their survival.

- · Representation of WWF at fora on polar bear issues
- Coordination and facilitation of polar bear conservation work throughout the network
- · Capacity building on polar bear conservation work for polar bear country offices
- · Leading discussions on policy and strategy development

WWF NATIONAL OFFICES					
Russia	US	Canada	Denmark Greenland	Norway	

#### 1.3 POLAR BEAR STATUS AND CONSERVATION ISSUES

The polar bear (*Ursus maritimus*) is the world's largest species of bear, the largest land predator, and the top predator of the Arctic marine ecosystem. Found in most sea ice-covered areas in the northern hemisphere, polar bears spend much of their time on the sea ice over shallow, productive waters where food sources are most abundant. The sea ice provides the platform from which they are able to travel, mate and capture seals. Ringed seals are the primary prey; however, bearded seal, harp seal, hooded seal and Greenland seal, as well as young walruses, beluga whales and narwhal are part of their diet, which varies across regions. Polar bears will eat berries, fish and bird eggs when on land, but these are no energetic substitute for the preferred fat-rich and calorie-dense seals (Vongraven et al 2012).

New evidence suggests that precursors to modern polar bears first appeared about 4 or 5 million years ago, making the beginning of the evolutionary split much earlier than previously thought (Talbot and Shields 1996), though the lack of fossil evidence continues to challenge the story of their evolution. Polar bears evolved over a long period, adapting to

a unique life of hunting seals and thriving year round in the extreme cold, quite different from terrestrial brown bear adaptations (e.g. hibernation). The latest information also suggests that there is little genetic diversity in today's polar bears, suggesting past bottleneck periods, when their numbers were greatly reduced (Miller et al 2012).

Polar bears are classified as marine mammals in the US and Norway, and by the IUCN Polar Bear Specialist Group (Vongraven et al 2012). They are superbly adapted to their Arctic environment. A thick layer of body fat along with abundant fur and long guard hair provide insulation against the cold and crucial energy storage. Compared to other bear species, the polar bear has a relatively small, long and narrow head, smaller and shorter fur-covered ears, and short sharp claws with fur-covered pads. Their longer predatory teeth and sharper molars are adaptations to a diet focused on protein and fat. Adult polar bears can have enormous home ranges, are capable of walking long distances, and are excellent swimmers (Stirling 2011).

Polar bears have access to food year round, which is why only pregnant females den during the winter months. Breeding occurs from early spring through mid-summer and delayed implantation of the fertilized egg occurs in the autumn. Pregnant sows create den sites in areas with good snow accumulation, such as coastal bluffs, inland mountain valleys, riverbanks, raised beaches, and sometimes on the multi-year pack ice (Larsen 1985, Amstrup and Gardner 1994). In southern regions like Hudson and James Bay, females dig dens into peat banks (Derocher et al 1992).

The spring and early summer are an important time for polar bears as they have easy access to young, naïve seals that spend much of their time out of the ocean, in sea ice snow lairs or out in the open basking on sea ice. Historically, as the Arctic sea ice retreats in the summer, most bears follow the retreating ice in order to stay close to seals and other prey. A growing subset of bears spend their summers on land waiting for the sea ice to reform in the fall, living off body fat stored from hunting in the spring and winter.

The warming Arctic, and subsequent decline in summer sea ice, is creating new challenges for bears using either strategy. Summer sea ice is no longer present over productive coastal shelf waters in many years as the Arctic continues to warm and sea ice extent dramatically decreases. As a result, bears who stay with the shifting sea ice may experience decreased foraging opportunities, while those coming ashore are experiencing longer fasting periods and risk negative encounters with people (Stirling and Derocher 2012).

While considered a threatened species across most of its range, the polar bear is not facing imminent extinction and continues to inhabit most of its historic range. The primary danger to polar bears is loss of sea ice habitat driven by human-caused climate warming. Sea ice is predicted to shrink rapidly over the next few decades, both in extent and thickness or volume (Maslanik et al 2007, Maslanik et al 2011, Comiso et al 2008). Current research suggests that populations will be unable to survive in areas that experience extended sea ice loss and that global polar bear populations will decrease in both size and range by mid-century (Amstrup et al 2007, Molnar et al 2010). We still have a chance to make wise management decisions for polar bears and their habitat, but that window of opportunity is time limited.



THE PRIMARY
DANGER TO POLAR
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OF SEA ICE HABITAT
DRIVEN BY
HUMAN-CAUSED
CLIMATE
WARMING

#### 1.4 POPULATION

The global polar bear population is currently estimated between 20,000 and 25,000 individuals (Aars et al 2006). Polar bears are not evenly distributed throughout the Arctic (Figure 5) and are most commonly found in areas of shallow water over continental shelves, in the near shore, and in areas where upwelling drives marine productivity (Stirling 2011). They are presently divided into 19 subpopulations for management purposes, 13 of which are found within or shared by Canada and the remainder within or adjacent to the US, Russia, Norway and Greenland (Figure 2). Polar bears are currently considered a single, circumarctic population for conservation purposes (Amstrup 2003).

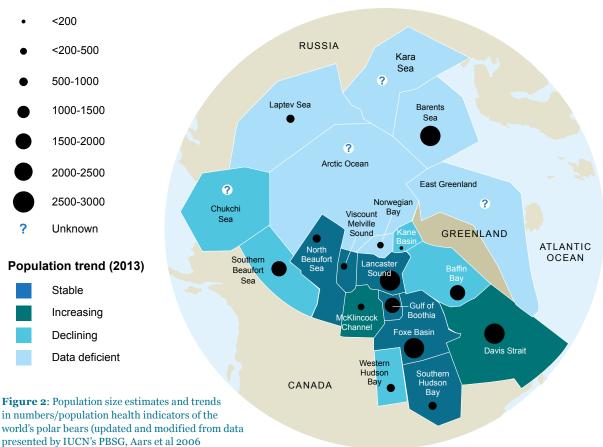
The IUCN/SSC Polar Bear Specialist Group (PBSG) and the Canadian Polar Bear Technical Committee (PBTC) regularly assess the status and trend of polar bear subpopulations. The PBTC assesses the status of the 13 Canadian subpopulations on an annual basis and in collaboration with neighbouring jurisdictions. The PBSG assesses the status of all 19 subpopulations on a 3-5 year frequency at present, though it is examining mechanisms to allow annual review and updating as new information is made available.

Based on current information at the time of publication, five subpopulations appear to be exhibiting fairly stable numbers (Southern Hudson Bay, Foxe Basin, Gulf of Boothia, Davis Strait and Northern Beaufort Sea). One subpopulation may be increasing from past overharvest (McClintock Channel), while four are declining or showing significant signs of ecological stress (Western Hudson Bay, Baffin Bay, Kane Basin and Southern Beaufort Sea). The remaining nine subpopulations (Viscount Melville Sound, Norwegian Bay, Lancaster Sound, East Greenland, Barents Sea, Kara Sea, Laptev Sea, Chukchi Sea and the Arctic Basin) have insufficient data on which to base a status assessment at this time (Figure 2).

### TRENDS IN POLAR BEAR SUBPOPULATIONS

#### Subpopulation size

Number of bears



and by PBTC data, 2012).



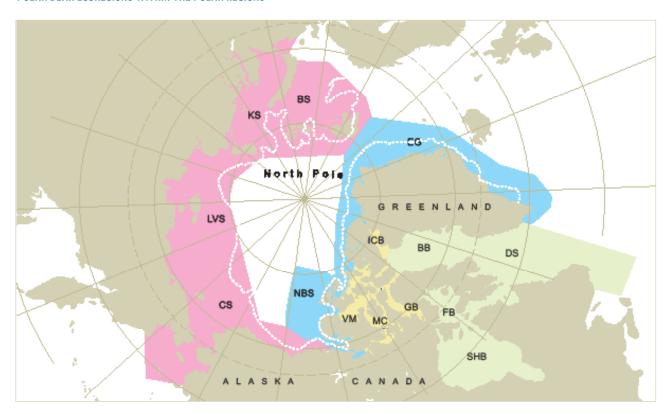
Polar bear mother and cub, Arctic National Wildlife Refuge, Alaska

Alternative delineations for polar bear conservation, based on genetics and other ecological metrics, have been proposed for Canada (Thiemann et al 2008). A classification based on sea ice dynamics was suggested for the entire range (Amstrup et al 2008). WWF has adopted this latter framework in our polar bear SAP as we feel it is the best current paradigm that captures ecologically meaningful polar bear population designations at the global scale. Amstrup's model identifies four ecoregions based on similarities in annual sea ice dynamics and available polar bear movement data at the time of the analysis (Figure xx). Both frameworks provide useful hypotheses for future discussions and management of polar bear populations.

#### 1.5 HISTORY OF HUMAN RELATIONSHIPS WITH POLAR BEARS

Polar bears and people shared the Arctic for thousands of years and are further linked by a common prey item – ice seals. Polar bears were, and continue to be, harvested by local people, providing important nutritional, clothing, economic and cultural values.

#### POLAR BEAR ECOREGIONS WITHIN THE POLAR REGIONS



Divergent Ice – 8500 bears

Convergent Ice – 2400 bears

300m depth contour

Archipeligo – 5000 bears

> Seasonal Ice – 7500 bears

Figure 3: Map showing the four ecoregions which are referred to in the USGS reports: Seasonal Ice Ecoregion (WHB – Western Hudson Bay, SHB – Southern Hudson Bay, FB – Foxe Basin, DS – Davis Strait, BB – Baffin Bay); Archipelagic Ecoregion (GB – Gulf of Boothia, MC – McClintock Channel, LS – Lancaster Sound, VM – Viscount Melville Sound, NW – Norwegian Bay, KB – Kane Basin); Polar Basin Divergent Ecoregion (SBS – Southern Beaufort Sea, CS – Chukchi Sea, LVS – Laptev Sea, KS – Kara Sea, BS – Barents Sea); Polar Basin Convergent Ecoregion (EG – East Greenland, QE – Queen Elizabeth, NBS – Northern Beaufort Sea)

FIREARMS
AND MOTORIZED
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RANGE

Prior to the arrival of firearms and motorized transportation, Inuit hunted polar bears using dogs, kayaks, spears, and bow and arrow, taking advantage of bears mainly in the water and at maternity dens (Foote 1992). It is likely that the numbers taken were very small (Stirling 1998). Indigenous cultures traditionally have profound respect for polar bears (Kochnev et al 2003, Brower and Brewster 2004). Small numbers of Arctic indigenous people have been killed or injured by polar bears for as long as people have lived alongside this species.

Firearms and motorized transportation have undoubtedly enabled people to hunt and kill more polar bears across a larger geographic range. During the late 18th and 19th centuries, commercial whalers, hunters and trappers in many parts of the Arctic killed large numbers of polar bears. In the early 20th century, between 1924 and 1939, the average annual kill of Svalbard polar bears was 355 (Stirling 1998). Exports of polar bear hides for trade are documented from as early as 1796 from Greenland (Rosing 2002). As market demand increased for polar bear skins/rugs, both local and southern hunters increased their take of polar bears in many Arctic countries. During that time, there was limited population data available to gauge if the level of harvest was biologically sustainable, though many northerners and outside experts strongly suspected that hunting rates were far too high (Amstrup et al 1986).

By the late 1960s there was widespread concern among range states and public outrage at the hunting methods and scale of some polar bear hunts, especially those using aircraft in Alaska, ships in the Barents Sea, and automatic "set guns" in Svalbard. Eventually this led to the signing by all five range states (Canada, Denmark/Greenland, Norway, Russia and the US) in November 1973 of the Agreement on the Conservation of Polar Bears (Prestrud and Stirling 1994; Peacock et al 2011). After 1973, the management of polar bear populations improved greatly, and increased resources were given to polar bear research and survey initiatives.



A first year Polar bear in the Southern Beaufort Sea, Alaska Polar bear hunting is currently illegal in Svalbard and Russia, although poaching is reported as widespread in Arctic Russia: a new report from WWF-Russia suggests current harvest has dropped from a high of nearly 200 in one year (Kochnev 2004) to an estimate of approximately 30 bears per year from Chukotka today (WWF-RU pers com). There is no estimate for other regions of the Russian Arctic at present.

In Alaska and Greenland, only indigenous people are allowed to take polar bears, for subsistence needs. In Greenland, the use of planes, helicopters and motorized vehicles (including snowmobiles), as well as boats larger than 40 gross registered tonnage, are forbidden when hunting polar bears or when travelling to and from hunting areas. There are also prohibitions on the use of poison, traps, snares, and semi- or fully automatic rifles (Born et al 2011).

No quotas were observed in Greenland prior to 2006, when subjective quotas (set using the best available information at the time) of 100 for West Greenland (Kane Basin and Baffin Bay) and 50 for East Greenland were decreed. In 2009, the quotas were reduced to 76 for West Greenland and 54 for East Greenland following increased collaboration and data sharing with Canada. In 2012, the quota for East Greenland was raised to 64 while the quota for West Greenland was reduced to 70. In 2013, the quotas remained at 2012 levels for both East and West Greenland.

In 2010, a Russia-US commission governed by the bilateral agreement on the conservation and management of the Chukchi Sea subpopulation agreed to let native subsistence hunters in each country take 29 bears, for a total of 58 annually. While the aim of legalizing a harvest in Russia was to decrease the high levels of poaching and to involve native hunters in management and monitoring efforts, the Russian government subsequently decided to disallow any take in Russia by not issuing any hunting tags to indigenous peoples for a subsistence harvest.

1960s
INUIT HUNTING
OF POLAR BEARS
HAS CONTINUED
IN CANADA SINCE
THE 1960S

Inuit hunting of polar bears has continued in Canada since the 1960s. A total allowable harvest is calculated and annual quotas allocated to communities, based on the best available scientific and traditional knowledge and applying the precautionary principle. All forms of human-caused mortality are accounted for in the total allowable harvest for each subpopulation in Canada, including indigenous hunts, trophy hunts, and bears killed in defence of life or property. During the 1970s and 1980s, European and American interest in polar bear trophy hunting increased within Canada, providing some Inuit communities with significant revenue (e.g., Smith and Stirling 1975; Wenzel & Dowsley 2005). Trophy hunting is currently permitted in both Nunavut and the Northwest Territories, although numbers have declined since 2008, when the US listed polar bears as "threatened" under the Endangered Species Act, resulting in an import ban of hides into the US.

Much of the traditional polar bear harvesting by local communities appears to have been sustainable over time. However, the IUCN/SSC PBSG documents that potential overharvest, combined with ongoing changes in sea ice habitat due to climatic warming, is a cause for concern in some regions (Derocher et al 1998, Stirling and Derocher 2012).

Inadequate population and harvest monitoring in Russia creates added uncertainty and concern across several subpopulations. It is not known if removal of polar bears is biologically sustainable, nor how those polar bears are responding to habitat changes and increased human activities. In the absence of active management, there is reason for concern about the status of these subpopulations.

#### 1.6 CURRENT LEGISLATION AND MANAGEMENT OF POLAR BEARS

Each of the five polar bear nations has established its own regulatory framework and conservation practices for the species with varying degrees of investment and success. In some areas, polar bear populations are shared by more than one jurisdiction and, in

those cases, Article VII of the Agreement on the Conservation of Polar Bears calls for the contracting parties to coordinate polar bear research, consult with each other, and exchange information on research and management programmes, research results and data (an overview can be found in Annex 2)

It is critical that populations are managed cooperatively by those jurisdictions that share them. In recent years, several bilateral agreements have been signed between member range states to facilitate collaborative and coordinated management and conservation of polar bears in these shared subpopulations. There is varying success in the effectiveness of these agreements to date. An overarching theme is the lack of proper implementation due to inadequate commitments of financial and human resources over time.

Below is a listing of national and international legislation directly relevant for polar bear conservation. It is important to note that the Canadian constitution uniquely recognizes sustainable harvesting of natural resources as a right of its indigenous peoples.

### International agreements, conventions and tools

- 1973 Agreement on the Conservation of Polar Bears
- Convention on International Trade in Endangered Species of Flora and Fauna (CITES)
- Convention on Biological Diversity (CBD)
- · IUCN Red List of Threatened Species

#### **Bilateral agreements**

- Canada-Greenland (2009): Memorandum of Understanding between the Government of Canada, the Government of Nunavut, and the Government of Greenland for the Conservation and Management of Polar Bear Populations
- Canada-US (2008): Memorandum of Understanding between Environment Canada and the United States Department of the Interior for the Conservation and Management of Shared Polar Bear Populations
- US-Russia (2007): Agreement on the Conservation and Management of the Alaska-Chukotka Polar Bear Population

#### **National legislation**

- · The Red Data Book of the Russian Federation (RDBRF)
- US Endangered Species Act
- US Marine Mammal Protection Act (MMPA) of 1972
- Greenland Home Rule Executive Order no. 21 of 22 September 2005 on the Protection and Hunting of Polar Bears
- Svalbard Environmental Protection Act
- Decree No. 738 On Protection of Arctic Animals (Russia)
- Act of 22 March 1957 No. 4 relating to the Protection and Hunting of Polar Bears (Norway)
- Species at Risk Act (Canada)

#### **Habitat protection**

Article II of the 1973 Agreement states that signatory nations "shall take appropriate action to protect the ecosystems of which polar bears are a part". This was innovative at the time of signing, but there has been relatively little follow-up of this part of the agreement in marine areas (Prestrud and Stirling 1994). Several terrestrial protected areas have nevertheless been established in the Arctic with the primary goal of protecting polar bear denning habitat (Figure xx).

#### **United States/Alaska**

The matrix of land ownership and legal authorities is complex in Alaska. Much of the land in federal ownership in Alaska is designated as National Wildlife Refuge or National Park, although no land or marine areas have been set aside strictly as polar bear habitat.

The Arctic National Wildlife Refuge on Alaska's North Slope is the most important denning area in the US for polar bears. The refuge is currently under pressure from possible development of oil and gas along the coastal plain.

#### Canada

Several national parks (Auyuittuq, Sirmilik, Quttinirpaaq, Ukkusiksalik, Ivvavik, Aulavik, Wapusk and Torngats) and proposed national parks (North Bathurst) provide protection to polar bears as summer sanctuaries and for denning areas, although in many cases this is coincidental. Ukkusiksalik National Park's boundary was designed to include a polar bear denning area on the south shore of Wager Bay.

Polar bears are protected when on federal lands in Canada; however, hunting by Inuit is permitted within national parks located in Nunavut and other regions. The Nunavut Wildlife Act does provide protection to polar bears while in dens across the territory.

Ontario's Polar Bear Provincial Park, at the junction of James and Hudson bays, was established primarily to protect the world's southernmost polar bear population.

Wapusk National Park, which stretches along the Manitoba coast south of Churchill to the Ontario border, was established in 1996 to protect a core of the maternity denning areas for this region. Managing the tourism generated by the high density of polar bears found near Churchill each autumn is a high priority for park authorities. However, only a small proportion of the polar bears in this population ever come near the tourism activities and the latter are well regulated, so at present, the beneficial aspects of tourism are thought to greatly outweigh any negative aspects.

There are no Canadian offshore areas where polar bear habitat is protected and significant gaps exist in the identification and management of denning areas beyond those noted above.

#### Greenland

An area in Melville Bay has been set aside as a polar bear reserve, while the Northeast Greenland National Park is the largest protected area in the world. However, polar bear hunting by Inuit is permitted within the protected areas on Greenland.

#### **Norway**

About 65% of the terrestrial area of Svalbard is protected, and about 85% of the marine environment in the territorial waters (extending out to the 12 nautical mile zone) is designated as either national park, nature reserve or a special protected area. These protective measures were not established specifically to benefit polar bears, but in some cases protecting polar bear habitat was an important factor when these designations were made, as early as the 1970s.

As part of the Nordaust-Svalbard Nature Reserve, the islands of Kong Karls Land in Svalbard's northeast archipelago are protected as a strict nature reserve especially for the conservation of polar bears. Some of the most important denning areas for the Barents Sea population are found here. The area is closed to the public and access highly restricted even for research and government patrolling.

THE ARCTIC
NATIONAL WILDLIFE
REFUGE ON
ALASKA'S NORTH
SLOPE IS THE
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IN THE US
FOR POLAR BEARS

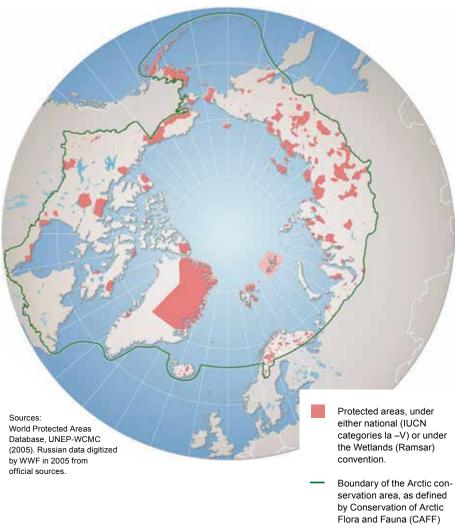


#### Russia

Wrangel Island and Herald Island are the only areas in Russia protected as strict nature reserves to preserve important polar bear denning areas. Enforcement of this protection has, however, been lacking, and the scale of illegal hunting is not known.

Other protected areas in northern Russia overlap polar bear habitat, but were not established with this in mind. Monitoring and enforcement in most of these protected areas has also been weak or non-existent due to serious financial constraints and inadequate allocation/training of human resources.

#### **CURRENT PROTECTED AREAS IN THE ARCTIC**



**Figure 4**: Map of existing protected areas in the Arctic. Actual protection levels vary considerably by region.







Young polar bear in freezing water during autumn freeze up, Bernard Spit, 1002 area of the Arctic National Wildlife Refuge, North Slope, Alaska, Beaufort Sea

# 2. THREATS TO POLAR BEARS

The top threats to the polar bear according to the IUCN/SSC PBSG are (in no particular order) habitat loss and fragmentation, human-caused mortality (harvest, illegal harvest, and defence kills), oil and gas activities (exploration and exploitation), toxic chemicals, shipping, tourism, and mining. WWF has broken these out into the following direct threats: GHG emissions,

oil and gas development, shipping, mining, illegal harvest, trophy hunting, conflict kills, subsistence harvest, and tourism.

#### 2.1 CLIMATE CHANGE

Polar bears face a significant threat throughout their range: a rapidly warming Arctic. Analyses recently published by the US Geological Survey show that by the mid-21st century, two-thirds of the world's polar bear population could be lost, mainly due to reduction of sea ice (Amstrup et al 2007). As this sea ice habitat decreases, the entire food chain will be affected – from the tiniest plankton to forage fish, the ringed seal and the polar bear. The impacts of climate change on polar bears have been well documented in the scientific record (Stirling et al 1999, Derocher 2004, Stirling and Parkinson 2006, Amstrup 2007, Wiig 2008, Molnar et al 2010, Amstrup 2011, Stirling and Derocher 2012). While the impacts will vary over time and across regions, anticipated climate warming will negatively impact polar bear habitat, prey, and their reproduction and survival range-wide by the end of this century.

#### 2.2 HABITAT DEGRADATION AND LOSS

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A fundamental characteristic of polar bears is their almost complete dependence on sea ice habitat (Derocher et al 2004). Anything that significantly changes the distribution and abundance of sea ice will have profound effects on polar bears, and fragmentation of polar bear sea ice habitat has been documented (Sahanatien and Derocher 2012). Comparable habitat loss or fragmentation is well documented as a leading cause of extinctions (Beissinger 2000, Ceballos and Ehrlich 2002): as Derocher (2008) writes, "Loss of sea ice is similar to deforestation of tropical rain forests: lose the habitat and, with few exceptions, you lose the species."

Experts agree that the once-characteristic ecosystem of the Arctic is undergoing an accelerating warming trend (ACIA 2004; Serreze et al 2000, Parkinson and Cavalieri 2002, 2008, Comiso 2002a, 2002b, 2003). In some cases, this is profoundly altering the fundamental biological components that are usually associated with the Arctic (e.g. Grebmeier et al 2006). This information confirms what has been known for some time by native peoples inhabiting this region (e.g. ACIA 2004; WWF Climate Witness testimony www.panda.org/arctic).

The Arctic ice cap grows each winter as the sun sets for several months and shrinks each summer as the sun rises higher in the northern sky. Each year the Arctic sea ice reaches its annual minimum extent in September. Since 1979, September Arctic sea ice extent has declined by roughly 13% per decade. It hit a record low in 2012, and the downward trend seen over the last 34 years continued in 2013. Scientists attribute this trend in large part to warming temperatures caused by climate change. Summer sea ice extent is important because, among other things, it reflects sunlight, keeping the Arctic region cool and moderating global climate.

In addition to the decline in sea ice extent, a two-dimensional measure of the ice cover, the ice cover has grown thinner and less resistant to summer melt. Recent data on the age of sea ice, which scientists use to estimate the thickness of the ice cover, shows that the youngest, thinnest ice, which has survived only one or two melt seasons, now makes up the large majority of the ice cover.

Climate models have suggested that the Arctic could lose almost all of its summer ice cover by 2100, but in recent years, ice extent has declined faster than the models predicted (NSIDC 2012).

Polar bears spend much of their time at or near the edges of the sea ice and prefer areas in the shallower waters of the continental shelf when available (Durner 2004). This habitat is where they are most likely to find their primary prey: ringed and bearded seals. As the southern edges of the Arctic ice melt in summer, most bears follow the retreating ice north, remaining close to seals and other sea ice-dependent prey. Historically, a small percentage of polar bears in the polar basin spend their summer on land, living off body fat stored from hunting in the spring. However, as the sea ice continues its dramatic retreat, more bears are coming ashore (Rode 2008; Molnar et al 2010, 2011, WWF-Russia pers. com). Polar bears are increasingly sighted in areas where they have never been seen before or where sightings are quite rare (interior Alaska, interior Canada, Iceland, Southern Greenland all in 2008).

FOR PREGNANT
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TO THE COAST

Changes to ice habitats will also impact polar bear denning opportunities. As the distance from ice edge to coasts increases, it will become progressively more difficult for them to reach their preferred locations (Derocher et al 2004, Bergen et al 2007, Molnar et al 2010, 2011). For females that den on multiyear ice rather than stable land, increased drift rates of this habitat could mean longer distances to travel with new cubs to reach the core of their normal home range (Derocher et al 2004).

Such increased energy expenditure by individual polar bears could result in both lower survival and lower reproductive rates in the long term (Derocher et al 2004) by reducing stores of adipose tissue, negatively affecting body condition. Prolonged periods of time on shore, where food is not available, may be especially problematic for females. As the climate warms and availability of sea ice is reduced, it is predicted that litter sizes will decrease. Indeed, it has been predicted that litter size declines may occur in over one-third of the global subpopulations (Molnar et al 2010).



In Western Hudson Bay, progressively earlier ice breakup and a longer open water period have already resulted in well-documented negative effects on polar bears (e.g. Stirling et al 1999, Regehr et al 2007, Molnar et al 2010, Stirling and Derocher 2012, Castro de la Guardia et al 2013). In this region, the decline in the annual survival rate of cubs, subadults and the oldest bears is significantly related to the timing of breakup: the earlier the breakup, the shorter the length of the most important period of the year for preying on seals, and the poorer the survival of bears of those age classes. These negative changes have set off a decline in total population size of 22% between 1987 and 2004 (Regehr et al 2007). The estimated average weights of lone (and suspected pregnant) adult female polar bears in the fall has declined from approximately 280kg in 1980 to about 230kg in 2004 (Stirling and Parkinson 2006). No female polar bear in Western Hudson Bay weighing less than about 190 kg in the fall has been recorded with cubs the following year, suggesting that although females below that weight can survive, they don't reproduce. At the present rate of decline in their fall weights, it seems likely that in a few more decades, few adult females will be capable of reproducing in Western Hudson Bay.

Research in Southern Hudson Bay has confirmed that the ice is now breaking up earlier than it used to. There was a corresponding decline in the condition of polar bears of all ages and both sexes between the mid-1980s and 2005 (Obbard et al 2006, 2007). The similarity of these recently confirmed trends to those in the adjacent population of

Western Hudson Bay suggests a decline in the polar bear population in Southern Hudson Bay will follow in the near future, if it has not already started (Obbard et al. 2007).

In the southern Beaufort Sea, the polar bear population, shared by northern Alaska and northwestern Canada, appears to have declined from about 1,800 in the 1980s to about 1,500 in 2006 (Regehr et al 2006). The major known ecological change during that period is that the southern edge of the remaining ice in summer now retreats further to the north, away from the productive continental shelf area along the coast where seals are more abundant, and the ice remains further north for longer periods than it used to. In 2001 and 2002, the ice-free period was relatively short (a mean of 92 days) and the annual survival of adult female polar bears was approximately 99 per cent. In 2004 and 2005, however, because of unusually warm summers, the ice-free period averaged 135 days and survival of adult female polar bears was only about 77 per cent (Regehr et al 2007). Polar bears in the southern Beaufort Sea, and elsewhere, appear to be swimming long distances more frequently, increasing their energetic demands and risk of drowning (Durner et al 2011; Pagano et al 2012). Further evidence of nutritional stress in the southern Beaufort Sea, coinciding with years of extended open water, includes several instances of starvation, cannibalism, and bears desperate enough for seals that they claw through solid ice in a vain attempt to capture seals that might have breathing holes below (Amstrup et al 2006; Stirling et al 2008).

"Climate change is placing stress on both bears and people. Our ability to deal with an increasingly difficult situation will depend on flexible and adaptive management that is done with – or by – Indigenous peoples and considers the social, economic, and traditional roles ofpolar bears in human life."

Dr. Eric Regehr, USFWS Alaska (USA) In the Chukchi, southern Beaufort, Laptev and Barents seas, ice breakup is also occurring earlier while freeze-up is later. This means both the extent and duration of vast areas of open water north of the coast through summer and fall are increasing. Consequently, more bears from those areas are now spending extended periods on land. At the same time, the southern edge of the offshore pack ice, where the rest of the bears from those regions spend the summer, now lies increasingly over deep, unproductive water far from the coast, where there are likely to be fewer seals to hunt.

#### 2.3 PREY DISRUPTION AND DISPLACEMENT

Sea ice also is the preferred habitat for polar bears' main prey: ringed and bearded seals (Stirling and Archibald 1977, Smith 1980). Although these are preferred prey species, other species such as harp and hooded seals, and walruses can be of regional significance in some parts of the Arctic (Thiemann et al. 2008). In some circumstances, polar bears are able to take belugas and narwhals, though this occurs mainly on an opportunistic basis. It is not clear how accessible some prey species will be in an altered sea ice environment or, indeed, how well they will survive and reproduce in their own right. Sea ice is the physical platform from which polar bears hunt; they only rarely capture prey successfully in open water (Furnell and Oolooyuk 1980). The emerging warmer climate regime is likely to negatively impact polar bears both by reducing the duration, thickness and extent of available hunting habitat (as described above) and by reducing populations of prey species, which, like polar bears, are sensitive to perturbations in the sea ice environment and related changes in primary productivity (Derocher et al 2004). Changes in ice characteristics have been documented to have a significant negative effect on population size and recruitment of ringed seals and subsequently of polar bears (Stirling 2002). Thus, predicted and observed changes in sea ice distribution, characteristics and timing have the potential to affect the species profoundly and negatively at the population level (Stirling and Derocher 1993, Derocher et al 2004).

Suggestions that polar bears will be able to adapt to ice-free conditions for all or much of the year, by foraging on berries, seaweed and birds' eggs, and scavenging from carcasses, appear far-fetched. No credible polar bear scientists or people who truly understand polar bears and Arctic ecosystems support this hypothesis (Smith 1980, DeMaster and Stirling 1981, Stirling and Øritsland 1995; Obard et al 2007; Hobson et al 2009). The reality is that

polar bears evolved from a shared relative with brown bears in cold conditions (Lindqvist et al 2010), and their large size and huge stores of fat enabled them both to fast and to conserve heat in such environments. The energy demands of such a highly adapted animal resident in the Arctic require large quantities of fat to be consumed. At this point, there appear to be no serious food or annual energy-balance alternatives for this predator (Rode et al 2014).

#### 2.4 LACK OF KNOWLEDGE

WWF's Arctic conservation work is underpinned by the best available science and traditional knowledge, which draws together research and the knowledge of local people with cutting-edge methods of data collection and sophisticated climate model projections. All of these approaches help us understand better what the future may look like for polar bear habitat in this region so that we can lay the groundwork, now, to protect it.

An examination of the polar bear status map (Figure 2). An examination of the polar bear status map (Figure 2) highlights the extent of our knowledge about polar bear status, and identifies significant knowledge gaps. Most of North America has either baseline information or ongoing monitoring of identified subpopulations, though several regions suffer from dated information. The results of these monitoring efforts, along with research in the Barents Sea led by Norway, have provided significant insight into the status of polar bear populations across the Arctic and the threats they face.

However, many areas still lack sufficient investment of financial and human resources for baseline study and population-monitoring efforts. Related, improved understanding of sea ice dynamics and a host of lower trophic systems is crucial to our broader understanding of this ecosystem. Additionally, core habitat (denning, feeding and summer resting) is not adequately identified, prioritized and protected across the Arctic. While some of the remaining unstudied regions may be of little importance to the species writ large, some may hold unique populations or critical habitats. Lack of knowledge is a real and present danger to our conservation efforts.

Polar bear (*Ursus maritimus*) on sea ice, off the coast of Svalbard, Norway



#### 2.5 HABITAT PROTECTION

As mentioned previously, the 1973 Agreement committed the range states to the identification and protection of polar bear habitat. With all due respect to the signatories, this was a relatively easy commitment in the 1970s and 80s as the remote landscapes, challenging weather and heavy sea ice all acted as natural barriers to most disturbances. A rapidly warming Arctic has significantly changed and challenged this assumption. Today, outside of Svalbard, Norway and places in the Russian Arctic like Wrangel Island or Nova Zemlyya, few range states have adequately identified nor are actively managing to protect and conserve critical polar bear habitat necessary today or likely to become important in the future.

With ice loss exceeding model predictions and the looming reality of an ice-free Arctic before mid-century, identification and management of areas that may become important refugia for polar bears is also a pressing question. Adaptive and forward-looking management regimes will be critical for conservation success as habitat use is likely to shift in coming years. Areas once important for denning may become less so as bears react to fundamental changes in the timing and extent of sea ice cover, snowfall, and even once-stable permafrost landforms used in some regions.

Equally glaring is the role most of the range states play in the larger threat to polar bear habitat: climate change-induced sea ice loss. While the signatories to the Agreement recognized climate change as the primary threat to polar bear conservation, those same nations have not shown global leadership in addressing this threat through mechanisms such as the UNFCCC nor through national leadership and actions to reduce GHGs and short-term climate drivers like black carbon. Clearly the range states have a unique ethical, and arguably legal, obligation to address this primary threat.

#### 2.6 COMMERCIAL ACTIVITIES IN THE ARCTIC

Petroleum exploration, extraction, transportation and processing in the Arctic may affect polar bears and their habitat in many ways. There are large installations and operations already in place, and it is a growing industry in the Arctic. Onshore Arctic oil installations (including capped wells, and new exploration) are currently found in Russia, Canada and Alaska (AMAP 1997). There is one true offshore oil production installation in the Arctic, in the Alaskan Beaufort Sea, but exploratory activities have taken place in the Barents, Kara and Pechora seas, the Sea of Okhotsk, as well as the Davis Strait, Baffin Bay and the Canadian High Arctic Islands. Further offshore development is expected, particularly in the Russian Arctic and in the Norwegian part of the Barents Sea.

Oil and oil products pose serious health risks to polar bears (Øritsland et al 1981; Hurst and Øritsland 1982; Griffiths et al 1987). In the event of a spill in the marine habitat, oil will reduce the insulating effect of the bears' fur. The direct effect of losing insulation is that the bear must use more energy to keep warm, and must compensate for this energy loss by increasing its caloric intake, which may be difficult. Given that polar bears have very limited access to food for long periods of time, such an increased demand for food may result in starvation. Polar bears ingest oil after an oil spill both through grooming of their own contaminated pelts, and through scavenging and preying on contaminated seals, seabirds or other food items. The ingested oil causes liver and kidney damage, as well as general physiological impairment, and it has long-term toxicity (Hurst and Øritsland 1982, Hurst et al 1991). Griffiths et al (1987) concluded that even a brief oiling of the fur of a polar bear can kill it, primarily by poisoning through grooming, swallowing the oil, and resultant irreversible kidney damage. It appears likely that a large number of affected polar bears would likely die if an oil spill occurred in prime polar bear habitat (Durner 2000, Amstrup et al 2006).

In addition to the oil itself, the extraction process can result in discharges of a number of toxic substances that may pose a threat to polar bears and their environment. These include both



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processed chemicals, such as oil-based drilling mud, which can contain both heavy metals and persistent organic pollutants (POPs), and even naturally occurring substances from the geological structure such as alkyphenols (WWF 2001, AMAP 1997). Also, disturbances due to seismic blasting, construction, transportation or operation of facilities, as well as disturbances and contamination in connection with oil spill clean-up operations, can negatively impact polar bears (Derocher et al 1998).

Offshore operations pose the greatest risk, since routine emissions, spills or leaks will be discharged directly into the sea or on the sea ice. A large-scale spill at or near the ice edge, either from ship or installation, represents the most dangerous scenario for polar bears. If a major spill occurs at or near areas with high concentrations of polar bears (such as Churchill Manitoba or Kaktovik Alaska) or denning sites (for example Hopen Island in the Barents Sea or Wrangel Island in the Chukchi Sea), it could have population-wide consequences (Isaksen et al 1998). However, onshore activities such as mining that may require year-round shipping could also put pressure on polar bears. For example, the Mary River iron ore mine located on North Baffin Island in the Qikqtani Region of Nunavut is expected to operate for 12 months a year, necessitating year-round shipping through the Hudson Strait and up through Foxe Basin. Polar bears congregate on the islands in Foxe Basin during the ice-free season (Garshelis et al 2012) and may come into contact with ships and/or any oil spills that may result from a shipping accident. (Note: at the time of printing the company has proposed a new shipping route through Eclipse Sound, Baffin Bay and Davis Strait: www.baffinland.com/mary-river-project).

Further, with accelerating thinning and loss of sea-ice cover during increasing portions of the year in both the Northeast Passage and now the Northwest Passage and Beaufort Sea, there is an increasing probability of increased commercial shipping in these poorly charted Arctic waters. Up to now, liquid hydrocarbons remain the only source of fuel for such vessels. The risk of accidents and resultant spillage of fuel oil, ballast or crude oil into partially iced waters will only increase as shipping companies try to shave thousands of kilometres off European-North American-Asian freight routes by using these newly opening Arctic waters.

There is currently no proven effective method for cleaning or controlling an oil spill in icy, Arctic waters, where difficult weather conditions are common (see the WWF report Oil Spill Response Challenges in Arctic Waters, 2007).

Despite these obvious negative impacts, and certain cases of individual bears or family units being disturbed, injured or killed as a result of oil development, there is no evidence to date of population-level impacts on polar bears that can be linked to such development. Lack of significant impacts to date may be due to commercial development being relatively limited in key polar bear habitats, and precautions being implemented where obvious conflicts exist. However, polar bear populations will come under increased pressure if oil and gas developments in the Arctic continue according to industry plans and without forward-looking, ecosystem-based management plans in place.

Other human infrastructure development and activity in the Arctic can also negatively affect polar bears. Such development includes industrial development, military installations, scientific research stations, new human settlements, road and pipeline construction. The growing tourist industry also increasingly brings large numbers of humans directly into prime polar bear habitat and even denning areas.

While polar bears, like other bears, have habituated to human presence in some areas, such as Churchill, Manitoba on the Hudson Bay coast of Canada, expanding commercial development and activity may lead to habitat fragmentation. If human disturbances take place in areas with high concentrations of denning females, they could have negative effects on the polar bear populations of those areas. For example, disturbances of denning females in the Arctic National Wildlife Refuge in Alaska could undermine recruitment to the Beaufort Sea polar bear population (Amstrup 1993).

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"Doing research in the Arctic - like any remote part of the world – is logistically challenging and hugely expensive. Working on Arctic marine mammals is that much more challenging and costly. New technology foraerial surveys and monitoring via satellite is promising asare unmanned aerial vehicles and other remote-controlled drones. New methodology for genetic mark and recapture is also effective for estimating population size while reducing cost and disturbance. But nothing replaces the physical capture and handling of wildlife."

> Geoff York, WWF Global Arctic Programme

#### 2.7 HUMAN REMOVAL: OVEREXPLOITATION, DEFENCE KILLS AND ILLEGAL TRADE

Polar bears are a charismatic Arctic species and the anticipated effects of climate change on their habitat have gained increasing international attention, making the species a high-profile conservation priority. Changes to the Arctic ecosystem will not only affect polar bears and their habitat, but also the relationships between people and bears, and the livelihoods of Arctic communities.

For the Arctic's indigenous people, hunting polar bears helps maintain cultural identity and provides a strong link to the environment. As well as contributing to a traditional subsistence economy (e.g. by providing food and clothing) in the Arctic, the polar bear hunt also provides an important source of income through sport hunting activities and the sale of polar bear parts and derivatives where legally pursued.

#### Consumptive use: unsustainable harvest and illegal take

Indigenous harvest occurs in Greenland, Canada and Alaska. Although population estimates exist for most polar bear management areas where harvest legally occurs, several polar bear populations do not have established or recent population estimates (McClintock Channel, Lancaster Sound, Viscount Melville and the Chukchi Sea). Due to insufficient monitoring efforts, quotas for subsistence harvest could become unsustainable in some regions, specifically where populations are shared, such as between the US and Russia and between Greenland and Canada (Taylor 2008), and where changes in sea-ice dynamics caused by accelerating climate change have been greatest. Harvest of polar bears in any subpopulation with a declining population trend should be considered unsustainable in the absence of a clear management objective.

Range states have significantly improved the management and conservation of polar bears though international and bilateral agreements, increased research and monitoring activities, and the establishment of harvest limits and/or quotas for the majority of subpopulations where harvest legally occurs. Although concerns have been raised on harvest levels in some jurisdictions and in specific years, authorities are working to address issues by adjusting or implementing harvest limits where needed, mitigating conflict kills, and updating population research and monitoring data. Historic lack of baseline or long-term monitoring is a concern for many subpopulations.

#### **Human-polar bear conflict**

As the top predator in the Arctic, polar bears are curious and generally fearless by nature. The large and capable predators can be dangerous to people and cause serious damage to property. In places where polar bears and people overlap, there is potential for conflict. Every year, people kill polar bears in self-defence, or to defend property. In Svalbard, for example, these are the only forms of removal from the population. In some populations (e.g. all those in Canada and the US), problem kills are subtracted from the overall harvest quotas, though this is not yet the case for Greenland.

With declining levels of summer sea ice, polar bears are spending more time on land and increasingly coming into contact with humans. This gives rise to serious conflict situations between polar bears and humans, especially if the bears are in poor body condition and are attracted to alternative sources of food in the villages and surrounding camps/cabins. These conflicts have the potential to end in death or injury for people and polar bears. Concurrently, communities across the North are making efforts to improve waste management and traditional food storage to reduce polar bear attractants.

While incidental kills alone do not threaten any polar bear population at present, they are directly related to community harvest levels, adding additional stress to population management (as in Hudson Bay communities). Conflicts are on the rise and defence

kills are increasing steeply in some communities, alarming both managers and residents. For management purposes, it is important that incidental kills are included as part of the overall effect of humans on polar bear populations. The more people who live in or move through polar bear habitat, the larger will be the number of conflicts and killed, wounded or stressed bears, unless there is serious commitment to mitigate such potential conflict.

Increased interaction with polar bears will also challenge local people's views and acceptance of the species. Long-term polar bear conservation requires the support of the people who live among the bears. By using a combination of education, attractant management and non-lethal deterrence measures, people can protect themselves, their communities and their property from bears, while avoiding unnecessary killing.

#### **Trade**

Historically, polar bears were hunted by indigenous peoples using traditional methods and likely well below sustainable levels; however, as noted earlier, large numbers of polar bears were hunted for sport and harvested commercially from the 1700s to the mid-1900s. As a result of the signing of the 1973 Agreement on the Conservation of Polar Bears and subsequent conservation efforts and actions taken by the range states, polar bears are still found in much of their historic range today. Polar bears have not been commercially harvested since 1973 and only Canada permits the sport hunting of polar bears. Russia and Norway have had no legal polar bear hunting since 1956 and 1957 respectively. Canada, the US and Greenland are the only range states that currently allow hunting of polar bears for subsistence purposes. From 2006 to 2011 on average 735 bears (min 651 to max 813) were harvested in a given year from an estimated global population of 20,000 to 25,000 bears. This is approximately 3-4% of the global population, which is considered within sustainable limits.

For many Arctic communities, hunting activities are not only aimed at satisfying cultural, social and nutritional needs, but also the financial needs of families and households. Money earned from the sale of animal products is used to purchase equipment for harvesting activities and to pay for household living expenses. The polar bear hunt is highly regarded and hunters are often seen as role models for the community. The value of a subsistence hunt cannot be determined solely by the monetary value of the animal parts as it would not take into account other aspects of the hunt (food, cultural value and spiritual value).

International trade in polar bear parts and derivatives is regulated by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The polar bear was listed in Appendix II in 1975, which requires CITES export permits for trade crossing international borders. However, before a CITES export permit can be issued, polar bear range states must prove that international trade is not detrimental to the survival of the species in the wild. This is known as a non-detriment finding. Other legislation, such as the European Union Wildlife Trade Regulations, the US Marine Mammal Protection Act and the US Endangered Species Act, has restricted imports of polar bears and their parts from some areas. Since 2008, imports of polar bears from the Canadian management units of Baffin Bay and Kane Basin into the EU have been temporarily restricted and imports of any polar bears into the US have been prohibited unless permitted under specific circumstances with issuance of permits. Greenland also has an export ban on all polar bear products.

CITES holds the only comprehensive international trade data available for polar bears. The data provides an overview of international trade in polar bears and their parts and derivatives, but the data, as collected today, cannot provide an estimate of the actual number of polar bears represented in international trade. Much of the data is based on information from permits issued, not from permits used. International trade is

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Norwegian Polar Institute scientists obtain a suite of measurements and health samples from a tranquillized adult polar bear near Svalbard, Norway

> represented by a variety of commodities, such as specimens, claws, carvings, skulls and skins, and it can be difficult to extrapolate from the reported trade in these specimens to the total number of bears traded.

Although the value of polar bear skins in trade has increased in recent years, and demand for skins has increased in some years (notably from China), the total number of skins exported from 2005 to 2009 did not increase significantly. While not currently a threat to the population, trade represents a potentially significant driver of mortality for some subpopulations (notably within Russia) in concert with predicted range restriction and habitat loss. As we have seen all too often with other species, poorly managed trade can have devastating consequences. However, unlike other species, we have an opportunity to prevent trade from becoming a significant threat to polar bears through careful monitoring, transparent reporting and precautionary management – if we take those actions now.







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#### Implementation and coordination of the Species Action Plan

WWF offices in the US, Canada, Denmark (Greenland), Norway and Russia will implement the Polar Bear SAP. The work is coordinated by the PB SAP Leader in collaboration with the GAP and the Species Programme at WWF International. This arrangement will also secure the necessary links between the efforts of WWF offices in the field with global/regional-level policy activities.

This SAP is an overarching framework, which overlaps with other WWF priority programmes such as the GAP, thematic GIs (Climate and Energy, Market Transformation and China Shift) and ecoregion programmes (Bering and Barents Sea ecoregions). The PB SAP also collaborates closely with the Species Programme at WWF International, and with TRAFFIC. It builds on these programmes (and their own respective strategies and action plans), pulling together aspects relevant to polar bears into a global vision and strategy for WWF's broad conservation efforts.

WWF SAPs are not just a collection of activities that are already under way. They are a visionary set of objectives that will guide the actions considered of highest priority for furthering conservation at regional and global levels. The SAP will also lay the groundwork for our equally ambitious fundraising efforts: not all of our planned activities are funded, but they are considered critical to achieve the SAP's vision. Securing additional financial and human resources will be necessary to ensure full implementation of the PB SAP.

A major part of making this SAP a success will be effective coordination across National Offices, ensuring that project leaders are able to learn from the successes and failures of similar initiatives undertaken elsewhere, and that capacity building on best practices for polar bear conservation is increased. These coordination functions are the focus of the PB SAP Leader.

Finally, and most importantly, the vision of this SAP and its goals and objectives cannot be achieved by WWF on its own. Establishing effective partnerships with governments, the private sector, communities, scientists, NGOs, intergovernmental organizations and civil society will be a critical and core component of the work undertaken through this SAP. The success of these partnerships will determine our ability to achieve our vision. Successful polar bear conservation will require the ability of people and organizations to work together and share information, requiring long-term commitments and synthesis of knowledge, along with resources to implement the full suite of needed activities.

Separate annual work plans will be defined under the leadership of the PB SAP following the same structure of objectives and results as defined in this document with clearly identifiable sections for each of the implementing offices and the SAP Leader. For national affairs and field programmes, implementation responsibility lies with the WWF National Offices in each of the polar bear range states. The PBSAP Leader has responsibility for international and cross-boundary issues, for providing technical advice to National Offices and ensuring their work aligns with this SAP.

#### Multiplication by design

Through all species action plans, WWF aims to create a transformational effect that multiplies the impact of our conservation efforts by effectively engaging key partners and stakeholders. At the policy level, we will continue developing partnerships with local, regional, national and international authorities to develop and implement effective legislation for the conservation of polar bears. We will work with partners to support and enhance regional agreements such as the US/Russia bilateral agreement on the conservation of polar bears in the Chukchi Sea, the US/Canada MOU for the conservation and management of shared polar bear populations, the Canada/Greenland bilateral

agreement on the conservation of polar bears, and the Inupiat/Inuvialuit agreement on polar bear management. At the international level, we will continue promoting a forward looking conservation agenda that delivers concrete results through the 1973 Agreement, CITES and the CBD, among others.

WWF will continue efforts to inform and engage communities, the public and private sectors, as well the media and the public in the conservation of polar bear through environmental education, public awareness, and social and mass media. We will support efforts to build the organizational and institutional capacity of local communities and regional organizations, enabling them to develop and lead financially sustainable polar bear conservation initiatives that benefit local livelihoods.

WWF will also continue partnering with other conservation organizations, academics and scientific institutions (such as the IUCN and International Bear Association), to share best practices and cross-cutting information, and use the tools available to expand our outreach. By developing external partnerships, we can determine synergies to build upon each other's efforts and expertise. As a global network, we can place WWF's priority species issues on shared agendas and make a difference for polar bears when and where they most need it.

#### The social dimension

This SAP aligns with WWF's four guiding social policies:

- Indigenous peoples: we respect indigenous and traditional peoples' human and development rights and recognize the importance of conserving their cultures and knowledge.
- Poverty and conservation: we find equitable solutions for people and the
  environment, making special efforts to enable local people to play a key part in
  crafting solutions for sustainable development.
- Human rights: we respect human rights and promote them within the scope of our conservation initiatives.
- Gender: we are committed to equity, integrating a gender perspective in our policies, programmes and projects, as well as in our own institutional structure.

# 3. POLAR BEAR ACTION PLAN

#### 3.1 VISION AND GOAL

The 2050 conservation vision set by WWF is:

Viable polar bear populations roam freely across their available range, maintaining their ecological and cultural importance in the Arctic.

The conservation goal is:

By 2020, human activities in the Arctic are not detrimental to polar bear populations and their habitat.

Milestones include adoption of a range-wide conservation plan by 2015 with full implementation across range states by 2017.

#### 3.2 OBJECTIVE 1

Conservation and management of polar bears is enhanced through better understanding of polar bear habitat requirements and population trends, harvest, trade issues and dynamics; effective legislation and enforcement; and increased awareness of conservation issues among stakeholders in all five range states and in consumer countries.

### 1. Policy and advocacy

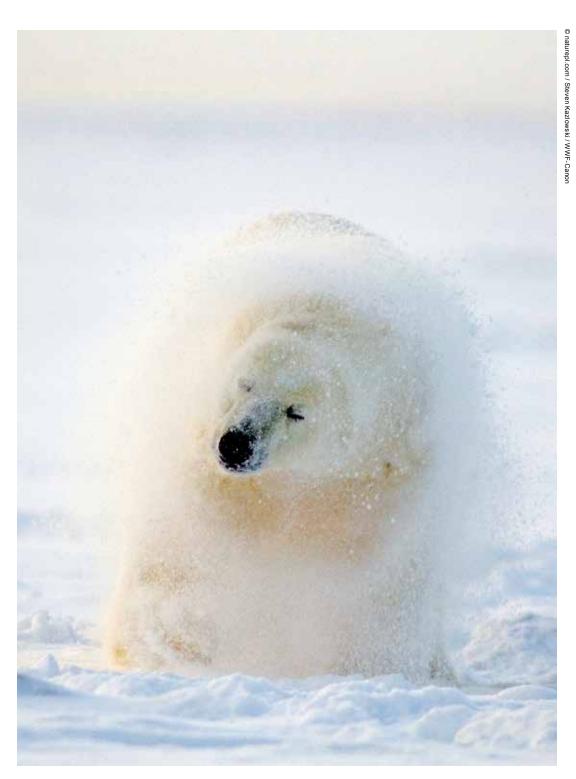
To secure implementation of policy and legislation that is effective and appropriate for the conservation of polar bears across their range, includes the direct engagement of indigenous peoples, and incorporates the best available science and traditional knowledge.

- **1.1:** By 2015, the range states have adopted a circumarctic polar bear conservation strategy.
- **1.2:** By 2020, the 1973 Agreement on the Conservation of Polar Bears and CITES are being applied appropriately to ensure viable polar bear populations.
- **1.3:** By 2016, the polar bear range states have each adopted a national polar bear conservation strategy that is aligned with the circumarctic polar bear conservation strategy.
- 1.4: By 2020, all polar bear range states have adopted land use and sectoral (shipping, mining, oil and gas) policies and legislation which ensure viable polar bear populations and their habitat.

#### 2. Habitat

To ensure the necessary extent, integrity and functioning of critical habitats (quantity, quality, proactive management).

- **2.1:** By 2020, the plight of the polar bear and sea ice habitat loss is effectively used to obtain concrete climate mitigation commitments.
- **2.2:** By 2018, current polar bear key habitats including feeding, denning, summer resting and corridors are identified and mapped in each of the polar bear range states.
- **2.3:** By 2020, at least 50% of prioritized key habitats are adaptively managed through implementation of national and international conservation plans.
- **2.4:** Given the current and rapid loss of sea ice, areas likely to act as refugia for polar bears are identified by 2015 and protected across the polar bear range by 2020.



Polar bear shaking snow off after a good roll along the Arctic coast, 1002 area of the Arctic National Wildlife Refuge, Alaska, Beaufort Sea

#### 3. Overutilization

To ensure that human use does not threaten the long-term survival of the species in all 19 recognized subpopulations.

- **3.1:** By 2016, national and international monitoring plans are being implemented to ensure availability of adequate population and habitat data for the precautionary management of polar bears across recognized subpopulations.
- **3.2:** By 2016, implementation and enforcement of legislation and policy governing trade in polar bears is strengthened in the most important range, transit and consumer countries.
- **3.3:** By 2016, the range states adopt more effective reporting and monitoring practices that support polar bear conservation and management practices and implement procedures to better identify legally traded specimens and to verify the authenticity of trade documents.
- **3.4:** By 2016, the range states demonstrate strengthened international, national and regional collaboration on monitoring and enforcement efforts to ensure illegal hunting and illegal trade do not threaten the viability of polar bear populations.
- **3.5:** By 2016, the supply chain and consumer demand dynamics of trade in polar bear parts and products are better documented and understood and help inform management decisions.
- 3.6: By 2020, demand for illegal polar bear parts and products in the main consumer countries is reduced through increased public and consumer awareness programmes.

### 4. Human-wildlife conflict

By 2020, human-polar bear conflict plans are in place and implemented in all range States, resulting in the elimination of human harm, property loss, or defensive killing of polar bears.

- **4.1.** By 2020, all Range States management authorities incorporate human-polar bear conflict into their planning and management decisions and implementation of polar bear conservation programmes.
- **4.2.** By 2020, safety of polar bears, humans, and property is improved in all Range States by implementing best management practices on attractant management, polar bear deterrence, and other safety measures.
- **4.3.** By 2020, expertise to address human-polar bear conflict in local communities, the tourism sector and industry is in place in all five Range States with regular exchange of information and shared analysis.
- **4.4.** By 2020, all human-polar bear interactions, actual conflicts and the effects of preventive and reactive measures are monitored in a standardized way across the Arctic.

# 4. STRATEGIC APPROACH

To address the identified pressures on polar bears and to achieve WWF's vision, goals and objectives, the following strategies are implemented:

#### 4.1 INFLUENCING GLOBAL POLICY

WWF is engaging global leaders to implement sound policies in support of polar bear conservation.

Like the species itself, many of the threats and challenges to polar bears are transboundary; they need to be addressed at a circumpolar and even global level. The signatory countries of the 1973 Agreement on the Conservation of Polar Bears thus have a significant responsibility. WWF is uniquely positioned to support the signatory states of the Agreement to continue their conservation efforts and coordination, protect key habitats, and finalize the Circumpolar Action Plan for polar bears by 2015.

WWF will work closely with the scientific community, governments, international conventions like CITES and CBD, and specifically the IUCN/PBSG, to support key research and monitoring efforts, facilitate assessments, and draft recommendations regarding polar bear conservation challenges such as loss of habitat, direct threats from industrial activity and human-wildlife conflict.

In addition to contributing content and proposals for solutions to the governance process, WWF will campaign to raise the ambitions and anticipated outputs of the range states meetings and other fora and initiatives to a level that is adequate for the threats polar bears face today.

**4.2 PROTECTING CRITICAL HABITAT** 

Protecting regions anticipated to have sea ice longest as refugia in the future in order to build resilience to climate change for polar bear populations.

Arctic sea ice is diminishing at a dramatic rate. However, scientific models predict that year-round sea ice will persist the longest in the high latitudes of the Canadian Archipelago and northern Greenland. Protecting these key areas (which at present are rarely visited and sparsely inhabited) from development will ensure polar bears and other ice-related species have an intact habitat for retreat as a refugium thereby maximizing their long-term survival prospects. It will also be important to establish a baseline of information on polar bear and seal distribution and abundance in this area in order to be able to monitor any changes.

WWF is initiating a well-researched inventory of key areas for polar bears across their current range, protecting a network of special areas, and protecting the vast High Arctic Canadian Archipelago as a potential refuge for ice-dominated ecosystems for the rest of this century. This approach will be costly and ambitious, considering the remote location of the regions and their relatively unknown status. It will also require long-term working relationships with local communities and the management authorities and governments of each range state.

"It's a law of physics that the world must warm as greenhouse gas concentrations rise. There will be no new stable state or new equilibrium unless we mitigate the rise of greenhouse gases. Hence, without such mitigation, polar bears will be expected to occur only in increasingly northerly climes until they ultimately wink out. Remember, too, there is only so far they can go. When the last vestiges of sea ice are gone, so will the polar bears be gone."

> Dr. Steven Amstrup, Chief Scientist, Polar Bears International

## 4. 3 & 4. REDUCING OVEREXPLOITATION BY COMBATING ILLEGAL TAKE AND OVERHARVEST AND MINIMIZING HUMAN-POLAR BEAR CONFLICTS

To address the threats posed by unsustainable or illegal harvest and the related driver of illegal trade, WWF will continue to monitor harvest where it occurs legally, work to eliminate illegal harvest, and research the impact of international trade on polar bears. A rapidly warming Arctic will add additional challenges for consumptive use of this species, requiring adaptive management and more frequent monitoring of population metrics. Working with TRAFFIC, we will continue to monitor the legal and illegal trade of polar bear parts and their derivatives to ensure that trade does not pose a significant threat to the species. WWF will also continue working with governments to implement the recommendations of the polar bear trade report, Icon on Ice (Shadbolt et al. 2013), and subsequent pledges made at the 2013 Polar Bear Forum in Moscow, Russia.

To encourage and support better sustainable practices from subsistence and other user groups, WWF will work with scientists, government, local authorities and indigenous communities to gather the best available information on population health combined with accurate data on total removals (harvest and defence kills) in regions where harvest is legal and sustainable. In areas where sustainable harvest is no longer feasible or legal, WWF will work with interested communities in developing alternative, sustainable sources of income such as responsible tourism.

WWF will build on the positive experiences and global knowledge base for the reduction of human-wildlife conflict. We will support cooperation among communities around the Arctic to learn from and share successful conflict-reduction strategies. Professional workshops will be facilitated to foster greater circumpolar collaboration of communities and managers regarding polar bear conflict mitigation efforts. In addition, WWF will continue to facilitate the implementation of the Polar Bear-Human Information Management System (PBHIMS): an initiative of the range states to document all human-bear conflicts, and examine the effectiveness of various deterrent techniques.

#### 4.5 CROSSCUTTING STRATEGIES

#### Facilitating key research

WWF works with academia and governments to fill information gaps, pilot new research nd fill critical funding gaps required for long-term monitoring of polar bear populations.

The IUCN/PBSG has indicated that the following research elements should be included in all national and sub-national conservation plans:

- Population size and/or trend
- · Harvest and other removals
- Distribution
- · Physical condition
- · Human-bear conflicts
- Habitats
- · Pollution and disease
- Vital rates.

The group emphasized the need for continued research and monitoring to detect and understand trends in populations.

"Indigenous peoples have lived among these majestic animals for thousands of years and they continue to play an important part in our diets, clothingand traditional economies. Not only is Canada committed to sustaining healthy polar bear populations, so are the people who still depend on them for their livelihood."

Leona Aglukkaq, Canadian Minister of the Environment, Chair of the Arctic Council

#### Reducing threats from industrial development

WWF is working with partners to eliminate or manage direct threats to polar bears and their sea ice habitat such as high-risk offshore oil and gas development, and increased Arctic shipping.

Across the Arctic, in all range states, extensive plans to expand offshore oil development are under way. This is evident in the financially record-setting oil leases in Alaska's Chukchi Sea, concurrent leasing activity in the Canadian and Alaskan Beaufort Sea, leasing and development in Russia, and development in Norway's Barents Sea.

WWF will work with experts to map the growing, cumulative picture of oil, gas, shipping, mining and other resource extraction activities, shipping traffic, and infrastructure development in polar bear habitat. Using this information, we will seek to eliminate immediate threats and advocate for the designation of protected areas important for polar bears — migration corridors, summer resting areas, denning habitat and key areas of sea ice habitat. In many regions these conservation measures should become embedded in well-crafted and well-balanced long-range land- and resource-use plans. In the US and Canada, WWF will press hard for the identification and effective protection of "critical habitat" as required by national legislation. In Greenland and Canada, WWF will lay the groundwork for conserving the "Last Ice Area" in the High Arctic.

#### Combating climate change

WWF is combating climate change through direct engagement with individuals, organizations, businesses and governments to rapidly lower GHG emissions worldwide through our Global Climate and Energy Initiative. WWF provides up-to-date and reliable information on the effects of warming in the Arctic to policymakers across the globe in order to stimulate policies and actions that combat climate change. We also support field-based projects in the Arctic where information on climate change is generated or collected. WWF assists in the development and implementation of adaptation strategies for species, ecosystems and cultures in coping with a changing climate in the Arctic, particularly by contributing to the activities of the Circumarctic Protected Areas Network (CPAN) and the Arctic Climate Impact Assessment (ACIA).



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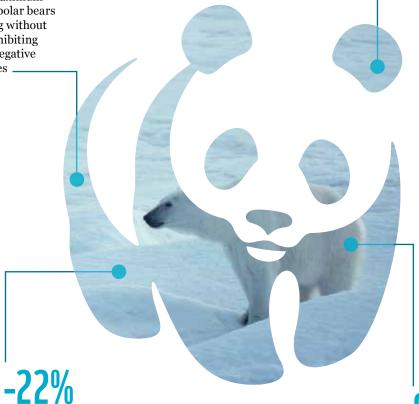
# Polar bears SAP in numbers

## 20-25,000

Current estimation of polar bear numbers across their range

**180 DAYS** 

The estimated maximum time adult male polar bears can spend fasting without sea ice before exhibiting significant and negative survival outcomes



The documented decline of the Western Hudson Bay polar bear sub-population between 1984 and 2004 and directly linked to sea ice loss 308

In the Arctic, temperature has increased at twice the rate as the rest of the globe, and could increase by another 8°C (14°F) by the end of this century



#### Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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