

LEVELED BOOK • Q

# PLIGHT OF THE POLAR BEAR



Written by Ned Jensen

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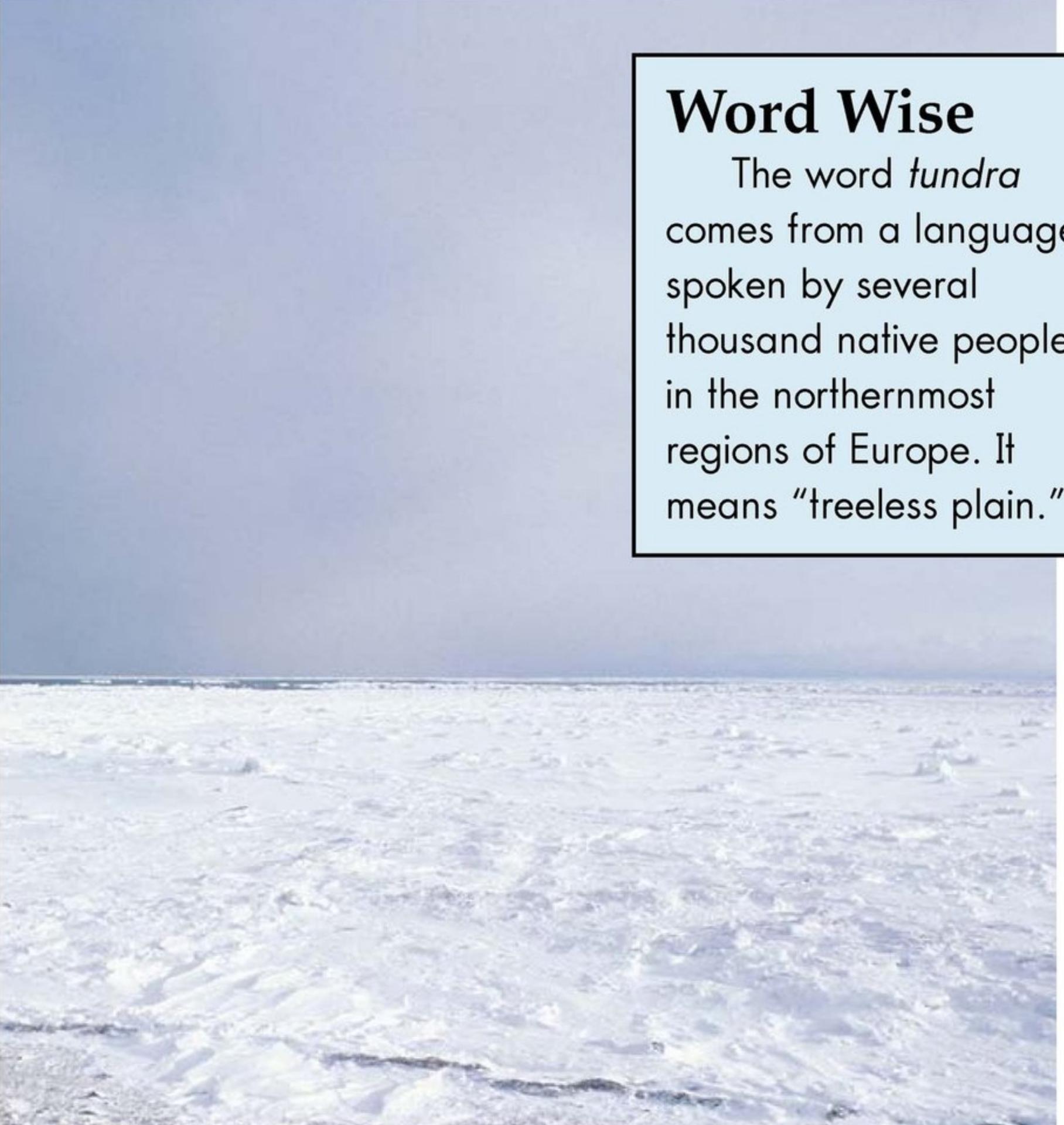
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## Table of Contents

Introduction .....	4
Tundra: Winter Versus Summer.....	5
Built to Survive.....	8
Shrinking Ice.....	12
Other Problems.....	16
Conclusion .....	18
Glossary.....	20



## Word Wise

The word *tundra* comes from a language spoken by several thousand native peoples in the northernmost regions of Europe. It means "treeless plain."

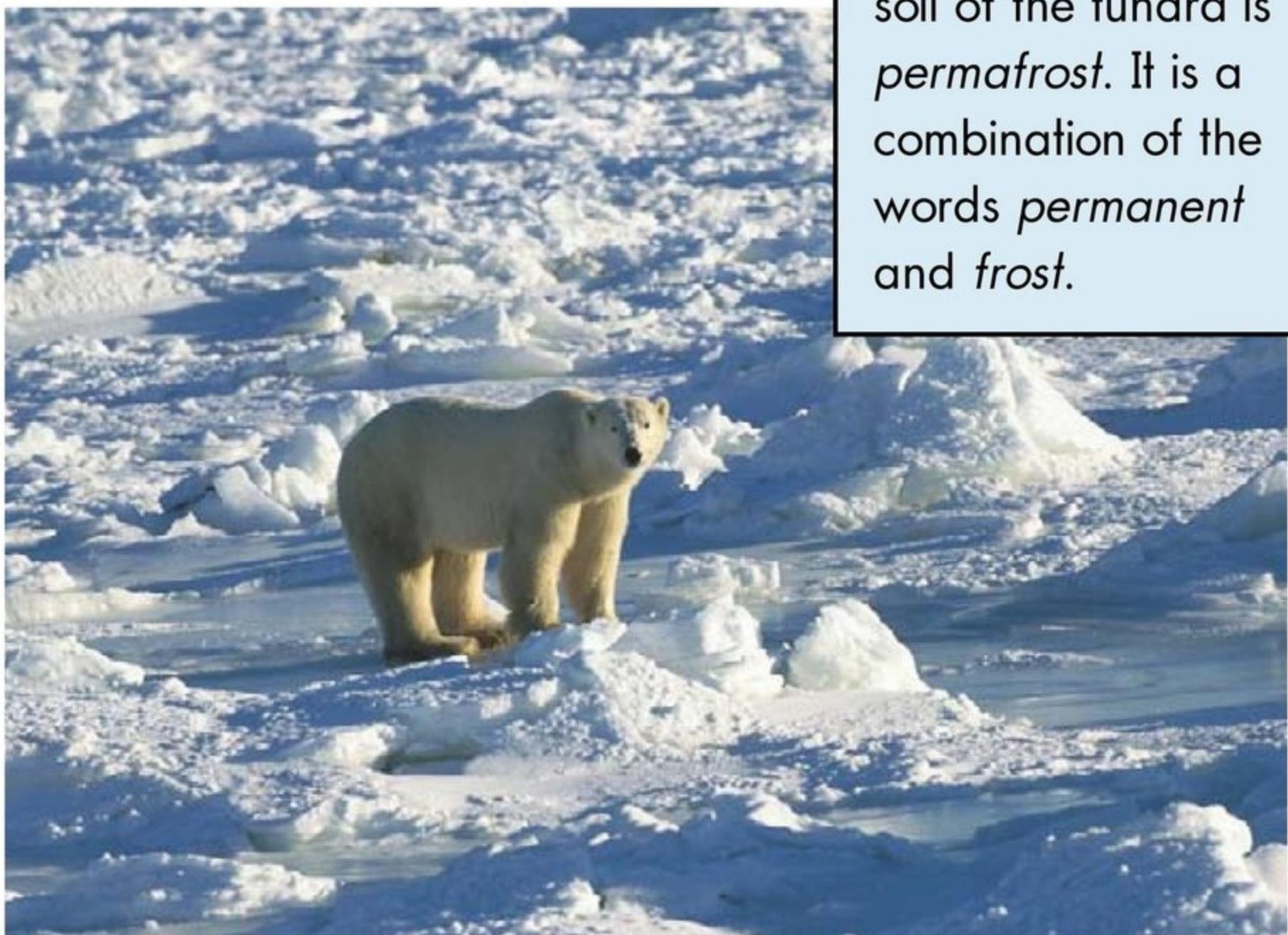
The tundra during winter

## Introduction

Venture into the vast snow-covered winter tundra of the northern Arctic and you will be surprised by the apparent absence of life. This region is a harsh, unfriendly place for most living things. But one living thing has managed to **thrive** in the tundra—that is, until now.

## Tundra: Winter Versus Summer

During much of the year, the temperature in the tundra is extremely low—well below freezing. Winter lasts for more than six months, and for several weeks during that time the sun never rises above the horizon. The soil just below the surface remains permanently frozen throughout the year. And to make conditions even harsher, there are no barriers like trees or hills to slow down the cold winds that sweep across this ice and snow-covered land.



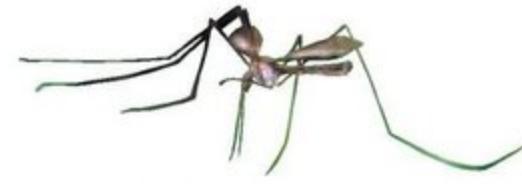
A polar bear in the northern tundra

### Word Wise

The word used to describe the frozen soil of the tundra is *permafrost*. It is a combination of the words *permanent* and *frost*.



The tundra in summer has mosquitoes, plovers, shrubs, lichen, mosses, and other low-growing plants.



Mosquito



Plover

Summer in the tundra is quite a contrast from winter. The sun does not set for several weeks on end. Often it just peeks over the horizon, appearing to move as Earth rotates. During this season, the average temperature remains above freezing.

The snow has a chance to melt, and low-growing plants such as mosses, **lichens**, grasses, and small shrubs grow. Millions of insects hatch and fill the air, ground, and pools of water. The abundance of insects attracts huge numbers of birds that **migrate** to the tundra and make it their summer home. Even mammals that migrated south to escape the harsh winter return to the tundra to feed each summer.

Yet despite the region's harsh conditions, one **inhabitant** lives there year round—one of Earth's most magnificent creatures, the polar bear.

This creature of the North is well suited to the **inhospitable** conditions of the tundra, but in recent years the polar bears living along the northern edge of the tundra have been struggling to survive. The tundra's harsh conditions are not the reason—it is the Earth and its rapid alterations.



### Do You Know?

Some scientists believe that polar bears cover their black noses with their paws to make themselves harder to spot as they hunt for seals.

## Built to Survive

Polar bears are adapted to survive the severe conditions of the Arctic. They appear to be all white, but each strand of hair is actually transparent. It has been commonly believed that this clear fur carries sunlight to the bears' black skin, where it is absorbed and changed to heat. However, studies on polar bear fur have proven that it does not transmit sunlight to a bear's skin. Since the sun is either low on the horizon or not even above the horizon during the coldest Arctic months, it wouldn't make much difference if the fur was able to transmit sunlight to the bear's skin.



Polar bear fur keeps them warm in icy water.



## Do You Know?

Polar bears have a very good sense of smell. They can smell a dead, rotting seal from 32 kilometers (20 mi) away.

Seals are an important part of the polar bear diet.

Polar bear fur is waterproof, so the icy waters in which they swim don't make them cold. Their white fur also helps them to blend in with the snow, making it easier for them to stalk their prey.

Polar bears' main food source is seals, but they also eat walruses, smaller whales, and some land animals. They do most of their seal hunting during the winter months when ice forms over the Arctic Ocean. By blending into the snowy landscape, a polar bear poised to pounce may not be spotted by a seal. Polar bears will wait patiently for hours near a hole in the ice where seals come up for air.



Polar bear paws can be up to 30 centimeters (12 in) in diameter. The claws, pads, and hair on a polar bear's paws keep the bear from slipping on the ice.

Adult polar bears need to eat a great deal of food to survive. They store fat to get them through the seasons in which they are not hunting. They have large stomachs and will eat nearly 45 kilograms (100 lbs) in a single meal. That would be like eating 400 quarter-pound hamburgers at one time!

Two layers of fur and a thick layer of body fat **insulate** polar bears from extremely cold temperatures. They even have fur on the bottoms of their large paws.

Polar bears are excellent swimmers. They have been spotted hunting seals up to 80 kilometers (50 mi) out to sea. They swim with their heads above water by dog-paddling at over 9 kilometers (6 mi) per hour. Bears use their huge paws like large paddles to move through the water. A thick layer of blubber helps them remain afloat.

$$\begin{array}{l} 4 = 3 + 5 + 2 = 10 - 4 + 10 \div 2 = 14 \times 2 - 3 = 25 - 5 \\ \hline 3 + 9 \times 2 \div 8 = 3 - 2 + 7 - 5 \times 3 = 9 + 4 - 1 \div 4 = 3 \times 5 - 3 \div 4 \\ \hline 14 \times 2 - 3 = 22 - 19 = 3 - 1 + 2 \times 2 = 8 \times 2 = 16 - 1 \div 5 \end{array}$$

### Math Minute

A polar bear swimming at an average speed of five kilometers per hour leaves the shore to swim to an ice floe. The bear swims to four more ice floes. It rests 10 minutes on each ice floe before swimming to the next one. When it reaches the final ice floe, it waits patiently near an air hole for a seal to surface. The bear swims a total of 30 kilometers. How much time passed from the time the bear left the shore until it reached the last ice floe?

A polar bear swimming

Answer: 6 hours and 40 minutes

## Shrinking Ice

The polar bear has only one enemy—humans. Currently, it is not so much humans hunting the polar bear that **poses** the greatest threat to its survival. Instead, it may be what humans are doing to the environment that poses the greatest threat.

Many scientists believe that Earth is getting warmer and warmer. This warming of Earth is known as **global warming**. Scientists believe global warming is caused by **pollutants** that are being released into the atmosphere. More pollutants are released each year as Earth's growing population burns more and more gasoline, oil, and coal.



Burning gasoline in cars releases pollutants into the atmosphere. Factories also release pollutants into the atmosphere.

Global warming is particularly troubling in regions where a great deal of ice exists. The warmer temperatures of the air and the sea cause the polar ice to melt. You might be thinking, so what? Why is it such a big deal that some ice is melting?

It may not seem like a huge problem to you, but it is to the polar bear. Polar bears depend on the sea remaining frozen for most months of the year. When the sea freezes over, polar bears walk onto the ice and search for air holes where seals are likely to surface for a fresh supply of oxygen. The longer the sea is frozen, the longer polar bears can hunt.

And the more they eat, the more food they store as fat for the short summer season when they **fast**.



Ice breaks away from a glacier.

Scientists who track the effects of global warming have calculated that the ice pack is melting at a rate that is 1.5 to 2 weeks faster than 20 years ago. Some scientists estimate that the ice pack is 14 percent smaller than it was 20 years ago. They also estimate that each week that the polar bear loses in its hunting season results in a loss of 10 kilograms (22 lbs) of body fat for the summer.



## Do You Know?

Many scientists believe that the melting of polar ice caps due to global warming will cause the oceans to rise. This will flood vast stretches of coastline in many parts of the world.



Scientists believe the east coast of the United States might look like this if the polar ice caps melted.



Polar bears come to Churchill, Manitoba, looking for food.

Due to their lower body weight, female polar bears are giving birth to fewer cubs. This is a grave problem for the survival of an animal that has an average of only two cubs every 28 months.

Polar bears in search of food are also venturing into areas inhabited by humans during the summer. In some places, these bears are captured and put into bear compounds until the winter ice returns. They are then released so they can hunt and restore their body fat.

## Other Problems

Global warming isn't the only bad effect of human activity on polar bears. Many pollutants reaching the air and water are **toxic**. These pollutants often end up in the blubber of seals. When bears eat these seals, they **ingest** the toxins.

### How Pollution Reaches Polar Bears



- 1 Toxic chemicals end up in Arctic air and water.



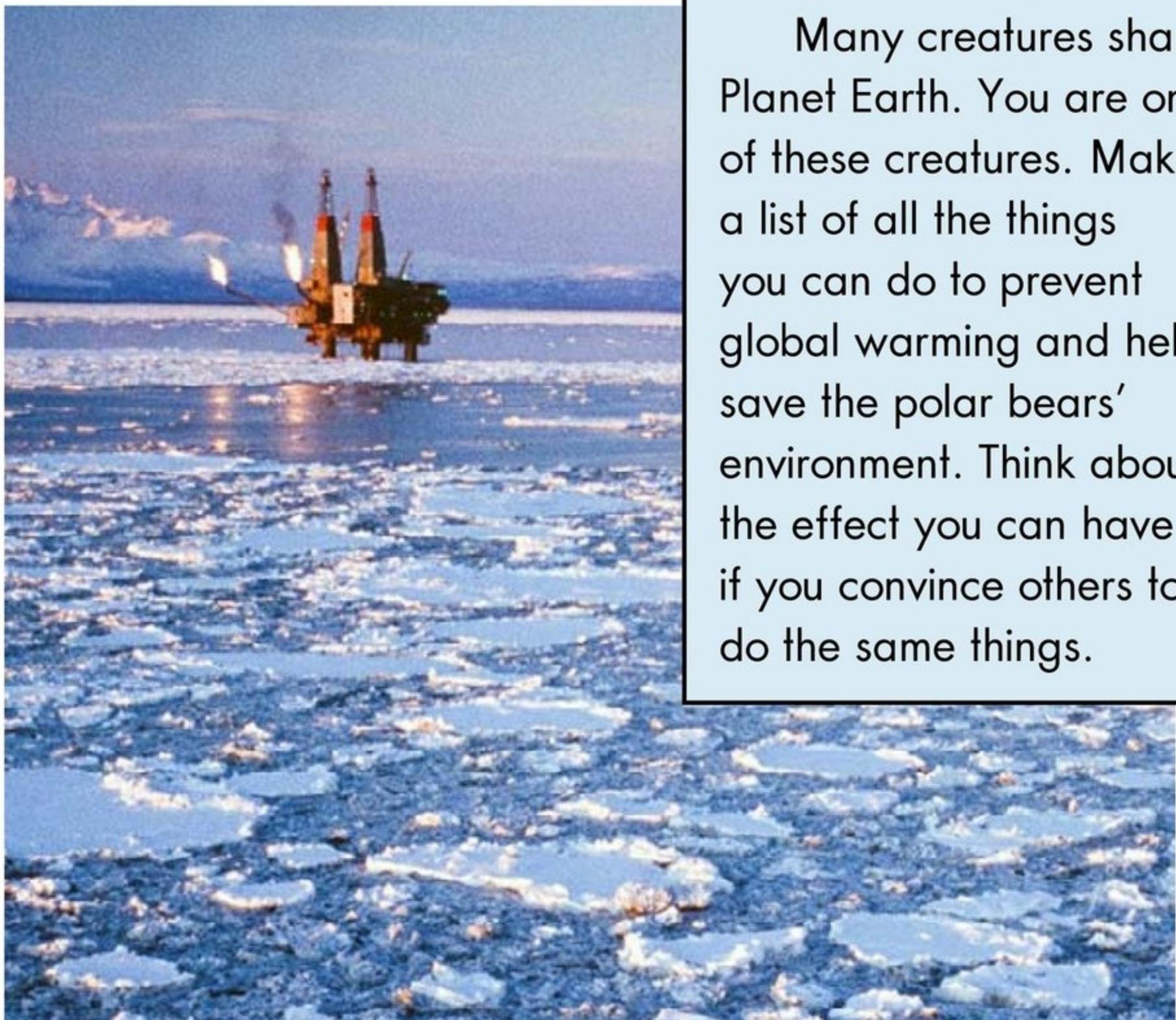
- 3 Polar bears eat Arctic seals whose body fat is full of stored toxic chemicals.



- 2 Arctic seals eat fish that have high levels of pollutants in their bodies.

## Think About It

Many creatures share Planet Earth. You are one of these creatures. Make a list of all the things you can do to prevent global warming and help save the polar bears' environment. Think about the effect you can have if you convince others to do the same things.



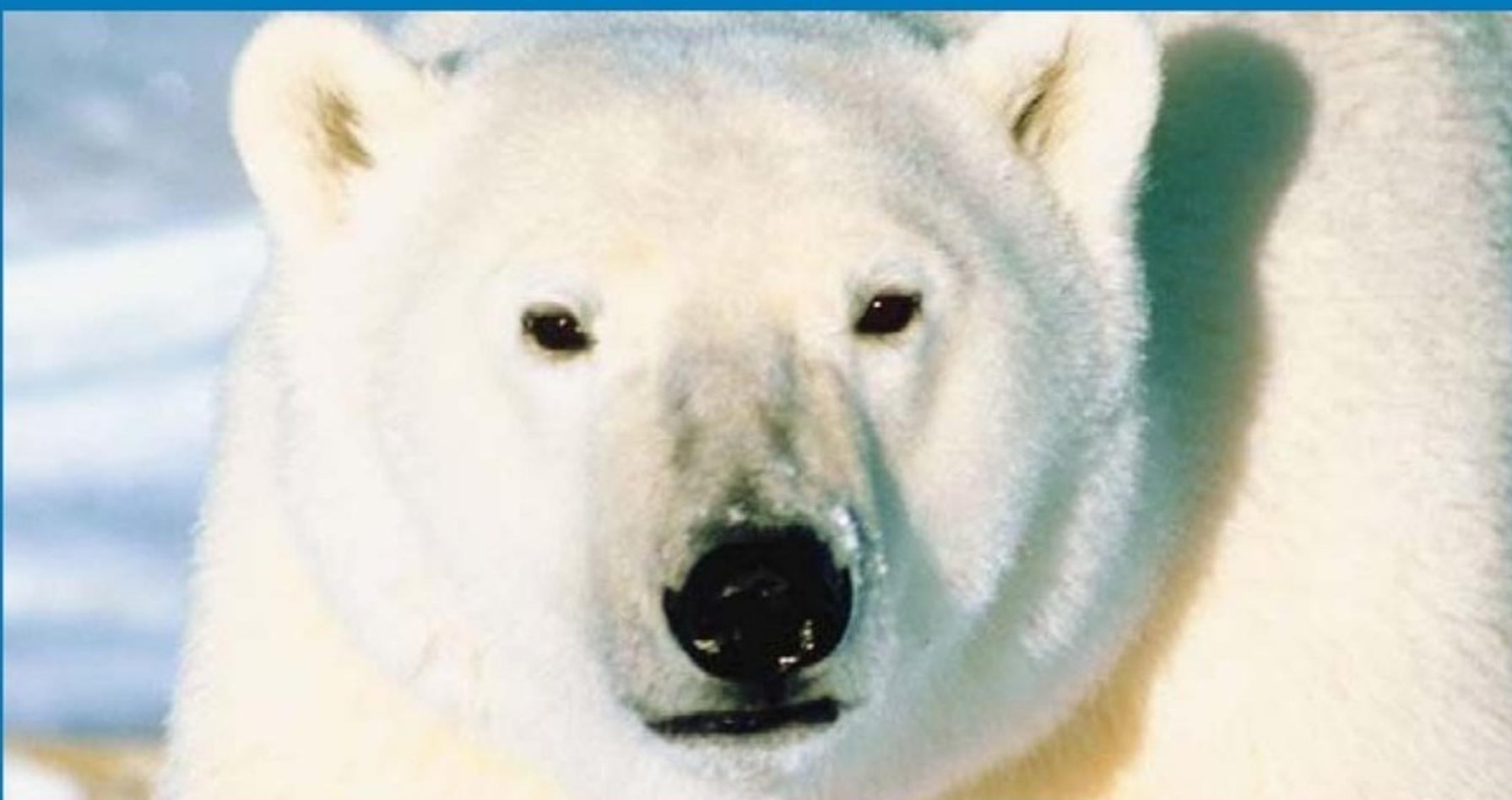
Drilling for oil in the Arctic

Another threat to polar bears comes from the desire of humans to use more and more fuel. To meet this human need, oil and gas companies are planning to drill in Arctic regions where polar bears live. Much of this drilling would occur where female polar bears build dens in which they give birth to their cubs. This exploration and drilling could have serious consequences for the polar bears' ability to survive.

## Conclusion

There is no question that the world's polar bear population is shrinking. In the Western Hudson Bay region of Northern Canada alone, the population has dropped from over 1,200 in 1995 to fewer than 900 bears in 2010.

### Polar Bear Facts



	Males	Females
Height	2.5–3.5 m (8–11 feet)	2–2.5 m (6–8 feet)
Weight	225–450 kg (500–1,000 lbs)	180–320 kg (400–700 lbs)
Color	Off-white	
Food	Mostly seals; some fish, seabirds, and berries	
Number of Babies	N/A	1–3 every 28 months
Average Life Span	25–30 years	



Polar bears need frozen sea to hunt for seals.

Many people and organizations like Polar Bears International and the World Wildlife Fund are concerned about the **plight** of the polar bear. They are taking steps to protect these magnificent creatures. For more information, visit their websites:

	Back	Forward	Stop	Refresh	Home
Address: <a href="http://www.worldwildlife.org/polarbears">www.worldwildlife.org/polarbears</a>					
	Back	Forward	Stop	Refresh	Home
Address: <a href="http://www.polarbearsinternational.org/">www.polarbearsinternational.org/</a>					

## Glossary

<b>fast</b> ( <i>v.</i> )	to abstain from or eat very little food (p. 13)
<b>global warming</b> ( <i>n.</i> )	the increase in the average temperature of Earth's atmosphere and oceans (p. 12)
<b>ingest</b> ( <i>v.</i> )	to consume or eat (p. 16)
<b>inhabitant</b> ( <i>n.</i> )	an animal that lives in a certain location (p. 7)
<b>inhospitable</b> ( <i>adj.</i> )	harsh, unwelcoming (p. 7)
<b>insulate</b> ( <i>v.</i> )	to retain (keep in) heat (p. 10)
<b>lichens</b> ( <i>n.</i> )	crusty fungi that grow on rocks and trees (p. 6)
<b>migrate</b> ( <i>v.</i> )	to move from one region to another (p. 6)
<b>plight</b> ( <i>n.</i> )	unfortunate or terrible situation (p. 19)
<b>pollutants</b> ( <i>n.</i> )	dirt or debris in the air or on the ground (p. 12)
<b>poses</b> ( <i>v.</i> )	causes (p. 12)
<b>prey</b> ( <i>n.</i> )	an animal that is hunted for food (p. 9)
<b>thrive</b> ( <i>v.</i> )	to grow and be healthy (p. 4)
<b>toxic</b> ( <i>adj.</i> )	poisonous; dangerous to life (p. 16)

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