

Arctic People

The extreme Arctic climate makes the region a forbidding place to travel and a challenging place to live. Even so, people have found ways to explore and live in the Arctic. Indigenous peoples have lived in the Arctic for thousands of years. Explorers, adventurers, and researchers have also ventured into the Arctic to explore its unique environment and geography.

In the winter, cold Arctic temperatures and extreme wind chills make it dangerous to venture outdoors without proper clothing and gear. Strong storms can make travel difficult. And heating a home can be challenging and expensive without trees to cut for firewood. However, people have found ways to adapt, survive, and thrive in the Arctic.



For transportation, people in the arctic often travel by sled pulled by a pack of huskies.

—Credit: Andy Mahoney

Indigenous People



Inuit hunters spear fish for salmon in a river in the early 1900's. —Credit: Frank and Frances Carpenter Collection/Library of Congress.

Residents of the Arctic include a number of indigenous groups as well as more recent arrivals from more southern latitudes. In total, only about 4 million people live in the Arctic worldwide, and in most countries indigenous people make up a minority of the Arctic population.

Archaeologists and anthropologists now believe that people have lived in the Arctic for as much as twenty thousand years. The Inuit in Canada and Greenland, and the Yu'pik, Iñupiat, and Athabascan in Alaska, are just a few of the groups that are native to the Arctic. Traditionally, Arctic native peoples lived primarily from hunting, fishing, herding, and gathering wild plants for food, although some people also practice farming, particularly in Greenland. Northern people found many different ways to adapt to the harsh Arctic climate, developing warm dwellings and clothing to protect them from frigid weather. They also learned how to predict the

weather and navigate in boats and on sea ice. Many Arctic people now live much like their neighbors to the south, with modern homes and appliances. Nonetheless, there is an active movement among indigenous people in the Arctic to pass on traditional knowledge and skills, such as hunting, fishing, herding, and native languages, to the younger generation.

People in the Modern Arctic

Many people in the Arctic today live in modern towns and cities, much like their neighbors to the south. People also work in the Arctic, extracting oil and gas from rich deposits beneath the permafrost, working in tourism, or conducting research. Other people in the arctic still live in small villages much the way their ancestors did.

Arctic people today face many changes to their homes and environment. Climate change is causing sea ice to melt and permafrost to thaw, threatening coastal villages with bigger storms and erosion. And the declining sea ice means that the Arctic Ocean could open up for commercial shipping or tourist cruises.



Skyline of Alaska's largest city, Anchorage.

—Credit: Flickr/robotbrainz



Sled dogs sun themselves outside the small village of Siorapaluk, Greenland, one of the world's northernmost inhabited settlements. —

Credit: Andy Mahoney.

Arctic Exploration

Compared to indigenous people who have lived in the Arctic for thousands of years, European explorers are relative newcomers. Europeans started venturing north into Arctic regions of Scandinavia and Russia only around a thousand years ago, with much exploration taking place in the 18th and 19th centuries.

Vikings from Scandinavia traveled to Greenland around A.D. 930, during an unusually mild period throughout most of the Northern Hemisphere. They settled for a time along the south and southwest coasts, the only habitable part of Greenland. For nearly five centuries the Norse settlements persevered, depending on their cattle, sheep and goats, as well as on seal and caribou hunts.

Contacts between the Norse settlements and the outside world ceased in the late 1400s. We now know that as the weather got steadily colder and the pasture and farming lands shrank under the advancing ice and snow, the inhabitants suffered a painful annihilation. The rapid cooling that signaled the beginning of the Little Ice Age in the early 1300s caused sea ice to expand over the North Atlantic, which made it impossible to navigate between Greenland and Iceland, trapping people in their settlements and halting trade.



Dogs provided companionship and entertainment for people exploring the Arctic. They also alerted the camp when polar bears were present. Here, dogs are approaching a polar bear as it emerges from a lead (crack) in the ice. Dogs chase the polar bear, ensuring that it does not approach the camp.

—Credit: EWG

Who Lives in the Tundra?

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By Kelly Masi

Tundras are one of the coldest, harshest biomes on the Earth. The average temperature is 10 to 20 degrees Fahrenheit. Tundras are located on tops of mountains where cold, rainy climates exist. There are many groups of people who live on these tundras still today.

Inuit

Inuit, also know as Eskimos live in the Canadian Arctic and Greenland. They are the largest group of people who reside in tundras. They live along the coast and hunt caribou, seal, whales and fish. They speak Inuktitut which includes seven different dialects. They make and dress in traditional clothing made primarily of caribou skins and fur.

Innu

Innu are the Native Algonquin Indian people of Nitassinan. They reside in the northern Labrador and Quebec tundra regions. They were avid hunters and experts in making skin clothing, wooden utensils and stone tools. In the 1950's, settlers began trapping in the Innu territory which caused for the decrease in caribou and this lead to starvation for many Innu. The people relied on government assistance to get them through these difficult times which led them to more restrictions. They began land claim negotiations to try and win back the hunting grounds they once called home.

Yakut

The Yakut people live in Siberia tundras. They spend their days fishing, which is the primary economic activity, and hunting which they do primarily for the furs. They change locations twice a year with winter hunting camps and summer hunting camps. Their diet consists of dairy, fish, vegetables and meat. They are also known as excellent herders of horses and cattle.

How People Have Traditionally Survived the Arctic

Human beings have lived in the Arctic and Subarctic for thousands of years. Their survival has been possible because there exists among them a profound understanding of the nuances within this extreme environment. Survival is also contingent on the relationship which exists between the human being and the animals, which provide major sources of food and clothing. By understanding the animals' winter modes and behaviors, Arctic communities have traditionally survived through the long, cold winters. The fisherman who knows where to cut an ice hole could find the fish. Caribou migrating south could be caught in quantities to survive through the winter, providing a good supply of meat and fat to a community. Seals need a breathing hole to obtain air and the knowledgeable hunter knows how to identify those critical locations. In the Subarctic forests, moose leave clear tracks, ruffed grouse collect in groups near tree roots and rabbits' winter tracks make them easy to locate. Hunters can provide their families with an excellent diet, in fact, because of the winter.

Warmth for Hunters

Caribou-skin or polar bear-skin clothing can provide warmth for a hunter who lies on the ice for hours waiting for his target to appear. The caribou fur, for example, provides very effective insulation especially in the early autumn when the caribou are growing new winter coats. The density of the new hair is amazing: each follicle of hair is hollow, providing a "cushion of air." Skilled at preparing hides and sewing seams, the women design very well-insulated clothing. Dressed in two layers of caribou hide with the inner fur against the skin and the outer toward the air, a hunter can stay warm even in the most extreme conditions.

Housing

Finally, the most famous traditional example of housing is the snow house or "igluviga." "Iglu" is an Inuit word for interior or any form of dwelling. Made from blocks of wind-packed, dry snow, an igluviga can be erected in as little as half an hour. The snow, like the hair of the caribou, traps the air within. Inside, a seal-oil lamp can provide enough warmth for people to sit comfortably in a single layer of clothing. In fact, only a small minority of Arctic people made use of snow houses. Many Inuit have built "karmat," stone, whalebone and sod huts, as winter village sites. These are made warm by reinforcing the base with blocks of snow.

Like many native cultures, the traditional northern peoples of the Arctic have survived in the most challenging of circumstances because of their deep understanding of the surrounding environment.

Schools in the Arctic Tundra

According to Kuwajima, if the children remained with their families in the tundra for the entire year, it would be difficult for them to keep up with their studies, let alone learn about Russian culture. "Their families have a nomadic lifestyle and travel with their reindeer around the tundra, so if the children are with their parents, it would be very hard to get even a primary education—their life is very isolated from the outside world," he says. "Also, they have their own Nenets language, and otherwise they wouldn't learn Russian, which their parents think is increasingly important for their kids to learn. That's why there is a boarding school to host the children and give them an education."

People and Frozen Ground



Figure 1. The village of Qanaaq, Greenland, in the Arctic, is built on permafrost.

—Credit: Andy Mahoney/NSIDC

Figure 2. Engineers had to invent special techniques to build the Qinghai-Xizang railroad in China on ground that stays frozen all year long.

—Credit: Henry Chen

Figure 3. This damaged building in Dawson City, Canada, shows what can happen when the warm interior of a building causes the permafrost underneath to thaw.

—Credit: Andrew Slater

Frozen ground can affect people's lives. When it thaws, it can damage buildings and transportation. When all the water near the surface is frozen into ice, it can make finding drinking water for towns difficult. Many people worldwide live in places with seasonally frozen ground. Hundreds of thousands of people in Alaska, Canada, and Russia live on [permafrost](#) (Figure 1).

What is it like to live with frozen ground?

One place that has a lot of permafrost is the Tibetan Plateau in southwestern China.

Designing and building the railroad was difficult because it had to cross permafrost. Building and running a railroad could create heat that would thaw the permafrost. Scientists also see evidence that Earth's climate will get warmer and cause the frozen ground to thaw. If the frozen ground thawed, it would become soft and uneven, and the track would buckle. To make sure that the ground stayed frozen, Chinese engineers used special techniques. They used crushed rock to insulate the ground, and built high bridges to keep the train tracks above the permafrost (Figure 2).

How does frozen ground affect buildings?

Constructing lasting buildings on frozen ground is difficult. Huge layers of ice can grow underground and thicken over time. When ice forms underground, it expands. This can make the ground move, causing [frost heave](#). Frost heave lifts up the ground, as well as everything on top of it.

Building on permafrost is also challenging. Buildings that are heated from the inside give off heat. The heat can thaw the permafrost underneath the building. Once the permafrost thaws, it sinks, damaging the building it supports (Figure 3).

Engineers sometimes solve this problem by preventing the ground under the building from getting warm. They put the building on top of a steel frame, a few feet above the ground, so cold air can flow under the house. The cold air stops the permafrost from thawing. Another way to stop damage from thawing permafrost is to thaw the ground first. This method makes the ground more stable to build on. Then there is no danger of the ground beneath the new structure refreezing, because the structure keeps the ground from freezing.

BUILDINGS AND HOMES

Permafrost is very challenging to build on, which is one of the reasons that very few people inhabit the tundra. In the summer most of the arctic tundra is covered in marshes and bogs because the top soil melts, turning firm, frozen soil into soggy, melted soil. Even on solid ground in the winter, building on permafrost can cause the ground to melt underneath, which disrupts the foundation of the building.

Houses where permafrost is present, in the **Arctic**, are built on **stilts** to keep permafrost under them from melting. Permafrost can be up to 70% water. While frozen, it provides a stable foundation.

Though many homes in the early days of forced Northern settlements were hastily put up and crudely designed, houses today are conceived and constructed to accommodate and adapt to their immediate—and often dynamic—surroundings. Here's how geological, climatic and local economic factors influence the look and feel of houses up here.

From the bottom up:

First, the ground is either unstable or too stable. Most communities rest on permafrost or bedrock, which explains why you're not going to find many basements in the North. "With permafrost, obviously the concern is both degradation of the permafrost and the fact that, seasonally, your ground has considerable temperature changes and condition changes, so that you usually have an active layer of soil that warms up," says Taylor. When it does and the ground thaws, it can slump, which can cause the buildings sitting on it to shift or even collapse.

"I mean we're dealing with frozen ground," says Antonio Zedda, a partner with Kobayashi + Zedda Architects Ltd., which has designed more than 500 building projects in the Yukon, Northwest Territories, Alberta and British Columbia. "You don't have to deal with that in the rest of Canada."

That's why you see houses on stilts. Many structures are elevated on steel piles driven into the bedrock to keep the heat inside the home from going directly into the frozen ground. Other homes—often trailers—sit on wood blocks. With the heaving of the ground, they need to be levelled every few years to keep the home from shifting too much. (Don't worry, there's someone in town who can do that.)

Keeping warm and staying cool.

The overall look and plan of a house can be different from a dwelling in the south. For instance, many Northern houses will have the bedrooms downstairs, and the common areas upstairs. Heat rises, so rooms closer to the ground tend to be cooler, while upstairs living areas capture and retain more of that precious heat in winter, as well as getting more sunlight. But while darkness may descend every winter, for months at a time the sun doesn't set in the summer, so you have to manage those extremes. "You don't just want to plonk a window in a room because you've got a room and need a window," says Taylor. "You want to make sure where you put that window has some positive impact." The orientation of the window will mean that in the winter, you get much needed daylight, but you're not roasting yourself like a rotisserie chicken in the summer. What that light is shining on matters too—the flooring you pick next to your window could determine whether your wooden floors warp in the sun or your linoleum is freezing in the winter.