Welcome
To Your Polar Bears Adventure!

When you’re standing on the outdoor platform of our Polar Rovers, the chill Arctic air feels invigorating. But not as much as the sight of the huge polar bear that wanders up alongside. When you come face to face with a polar bear, something powerful happens in that gaze as you make a connection with one of the world’s most charismatic—and most threatened—wild creatures.

These pre-departure materials are designed to help you get the most out of your adventure. They include a packing list, information about wildlife, photography tips, health information and much more.

Please don’t hesitate to contact your Adventure Specialist at 800-543-8917 if you have any questions at all.

Happy travels!

Ben Bressler
Founder & Director

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Prepared by Becky Pahl
Our goal is to be the world’s most environmentally responsible tour operator and to continually raise the “environmental bar” for the entire travel industry. We did this when we became *the world’s first carbon-neutral travel company in 2007* by offsetting the carbon emissions of our entire operation, both in-office and on all of our adventures. Many other tour companies and airlines have followed suit by offering ways for travelers to reduce their own impacts.

Global climate change is the most significant environmental threat we have ever faced, and the travel industry is a major contributor to the problem. We are proud of our own efforts to reduce this impact, and we encourage our guests to offset the emissions from their air travel by going to:

[www.nathab.com/traveler-resources/carbon-offsets](http://www.nathab.com/traveler-resources/carbon-offsets)

Our planet sincerely thanks you!
# Table of Contents

**Contact Information** ................................................................. 1  
**The Ebbs and Flows of Polar Bear Season** .................................... 2  

**Adventure Information**

<table>
<thead>
<tr>
<th>Travel Documents</th>
<th>................................................................. 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passport/Passport Card</td>
<td>Insurance Verification</td>
</tr>
<tr>
<td>Tourist Visa</td>
<td>Children Under 18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air &amp; Land Arrangements</th>
<th>................................................................. 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting To/From Winnipeg</td>
<td>Getting To/From Churchill</td>
</tr>
<tr>
<td>Immigration &amp; Customs</td>
<td>Luggage Allowances</td>
</tr>
<tr>
<td>Ground Transfers</td>
<td>Luggage Tags</td>
</tr>
</tbody>
</table>

**What to Pack** ........................................................................ 15  

**Money Matters** ..................................................................... 24  

<table>
<thead>
<tr>
<th>Inclusions/Exclusions</th>
<th>Gratuities</th>
<th>Currency</th>
</tr>
</thead>
</table>

**Health & Medical Information** ................................................ 29  

<table>
<thead>
<tr>
<th>Physical Requirements</th>
<th>Motion Sickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inoculations</td>
<td>Sleep Apnea</td>
</tr>
<tr>
<td>Medications</td>
<td>Safety</td>
</tr>
</tbody>
</table>

**Adventure Details** ................................................................ 32  

<table>
<thead>
<tr>
<th>Time Zone</th>
<th>A Note About Our Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>Meals &amp; Drinks</td>
</tr>
<tr>
<td>Electrical Current</td>
<td>Internet Availability</td>
</tr>
<tr>
<td>Accommodations</td>
<td>Laundry</td>
</tr>
<tr>
<td>Group Size</td>
<td>Metric Conversions</td>
</tr>
<tr>
<td>Adventure Activities</td>
<td>Please Be Considerate…</td>
</tr>
</tbody>
</table>

**Photography Equipment and “Getting the Shot”** ............................ 42  

**Before You Leave** .................................................................. 56  

**Destination Overview**

<table>
<thead>
<tr>
<th>Introduction</th>
<th>................................................................. 58</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Polar Bear</td>
<td>................................................................. 60</td>
</tr>
<tr>
<td>The Churchill Landscape</td>
<td>................................................................. 69</td>
</tr>
<tr>
<td>Churchill’s Living World</td>
<td>................................................................. 73</td>
</tr>
<tr>
<td>Places We Will Visit</td>
<td>................................................................. 80</td>
</tr>
<tr>
<td>Wildlife</td>
<td>................................................................. 84</td>
</tr>
</tbody>
</table>
Please Note

Since our adventures specialize in viewing wildlife, every effort is made to plan itineraries where wildlife is known to inhabit. However, the animals we visit do live wild and free, and we cannot fully predict or control their migratory patterns (nor would we want to). In an attempt to locate wildlife, which may have deviated from its normal pattern, or in the interest of traveler comfort or safety, we may be required to make reasonable changes in itineraries.

Also, the information in this Pre-Departure Briefing is prepared well in advance of the departure date. Due to the nature of the adventures we provide, hotels, modes of transportation, and in some cases, itineraries change. If this does occur, we will attempt to provide similar facilities, but are not always able to do so. We hope you understand. Please be certain to read the Wildlife Viewing, Terms & Conditions, and Refund Policy sections in our catalog prior to traveling on this adventure.
CONTACT INFORMATION

The following are contact numbers you, or your family members, may need to reference during your adventure. These numbers, as well as contact information for your accommodations throughout the adventure, are also listed on the last page of your daily itinerary.

Natural Habitat Adventures–U.S.
M–F, 8 am–5 pm
Saturday, 8 am–3 pm Mountain Time
Tel: 303-449-3711
Toll-Free: 800-543-8917
Fax: 303-449-3712

IN THE EVENT OF AN EMERGENCY

Should you experience problems just prior to your departure, or if your flight is delayed or changed while en route, please call our U.S. office at the number listed above during regular business hours. If you have an emergency outside of the listed NHA office hours, please call the Fort Garry Hotel in Winnipeg and ask to speak to a member of the Natural Habitat Adventures staff.

Fort Garry Hotel: 800-665-8088 or 204-942-8251

In the event of a serious emergency, if you have exhausted the above possibilities and still have an urgent need to reach a staff member, leave a detailed message on the Natural Habitat Adventures emergency line by calling the main office number at 800-543-8917 or 303-449-3711 and following the procedures outlined by the after-hours message. A staff member will return your call to assist you with your emergency situation.
THE EBBS AND FLOWS OF POLAR BEAR SEASON

Every day, prospective guests ask our Adventure Specialists, “When is the best time to go to Churchill to see polar bears?” While that is an impossible question to answer with 100-percent accuracy (after all, we cannot control nature), the best time to go depends on the type of experience you are seeking and the impact of weather conditions in any given year.

The descriptions below, which detail typical weather and polar bear migration patterns in and around Churchill, are gleaned from our nearly three decades of operating polar bear trips in the region. The photos in our published materials demonstrate a sampling of different conditions, from bare autumn tundra to full snow cover. Many of the images feature close-ups of bears, which makes sense, as we want to show you the highlights. But keep in mind that it’s rare to experience close-up views throughout the duration of a trip. It could be that some trips in a given year have very few close encounters with polar bears, or even none. It’s important to be aware of these variations when you book your trip, and to travel to Churchill with a focus on the entire Arctic experience.

EARLY SEASON
The first few weeks of polar bear season in Churchill are characterized by fall colors on the tundra and the arrival of bears from the entire western Hudson Bay ecosystem. The bears tend to be curious about our presence. Weather is generally a little warmer than later in the season, allowing visitors to explore the historic town of Churchill in relative comfort. Though we may see fewer bears than at the end of the season, it is the quality of these experiences that has left past visitors with indelible memories. In addition, this time of the year provides excellent opportunities to spot other wildlife. Without the cover of snow, animals such as Arctic fox, Arctic hare, snowy owl, willow ptarmigan, gyrfalcon and other birds stand out against the vibrant colors of the open subarctic landscape. We also have a better chance to spot caribou during the earlier, warmer weeks. Milder weather is also conducive to a more comfortable experience on the helicopter portion of our Ultimate Churchill trip or on our optional helicopter excursion.
**Middle of the Season**

The transition to the middle of polar bear season is subtle and does not occur at a precise moment, but the third and fourth weeks are typically characterized by a continuing drop in temperature while weather conditions become less predictable. Of course, polar bears like the colder temperatures, and we may begin to see more of them scattered throughout the area. Colder temperatures also bring higher activity levels. However, if wind and snowstorms move in, bears may become inactive as they hunker down to wait out adverse conditions. Fall color on the tundra may disappear beneath a sprinkling or blanket of snow. Other Arctic wildlife can become harder to spot, yet this adds a fun element to the adventure when someone shouts out excitedly that an elusive creature has been sighted, such as an Arctic hare camouflaged in winter-white against the snow. As we move into the fifth week, temperature and weather conditions can feel truly arctic—though there have been years in which a very cold stretch fades into a mid-season warming trend, and the bears disperse to a degree.

**Late Season**

As we approach the fifth and sixth weeks of polar bear season, the edges of Hudson Bay usually begin to freeze, and the bears start to become more active in anticipation of access to their winter home on the pack ice. We can state confidently, based on observation during previous seasons, that the highest bear concentrations generally occur during the week or so before the bay is frozen solid enough to support the bears’ weight, allowing them to depart. However, sightings may be at great distance as the bears begin to move to the edge of the ice to test its stability, and to position themselves to prey upon an unwary seal that hauls itself onto the ice to rest. The potential to see a greater number of bears comes with a caveat: There are definitely years when the bay freezes early, and a majority of the bears depart for the ice. There is no way to accurately predict when this will happen from year to year. In fact, the freeze may even occur during what we consider mid-season, resulting, in hindsight, in better bear viewing during the earlier weeks.

**A Word About Snow**

Churchill is a semi-arid environment with relatively little snowfall for a place associated so closely with the North. We have witnessed years when snow arrives by late September and remains throughout the season, and years when the ground is bare until late December. It is
impossible to predict snow cover, but travelers should be aware that the Churchill environment is not always white.

**IN CONCLUSION**

The best time to see polar bears in their natural habitat depends on a traveler’s own goals for the experience...affected, of course, by weather conditions that particular season. It is important to approach this exciting adventure having made the most informed decision possible, while knowing that nature is unpredictable. We trust this information describes what you can most likely expect during the Churchill polar bear season, and that it will help you as you plan.

If you have further questions, please speak with one of our Adventure Specialists at 800-543-8917.
ADVENTURE INFORMATION
TRAVEL DOCUMENTS

PASSPORT / PASSPORT CARD

All U.S. citizens must have a valid passport or passport card to enter Canada. Birth certificates and other government-issued photo IDs (i.e. driver’s license) are not accepted forms of identification for entry.

If you already have a passport or passport card, make sure that it will be valid for the duration of your adventure. If your document will expire within this time, you MUST have it renewed prior to your departure.

Please note that passport cards are only applicable to those guests traveling to Canada via land or sea, not by air. For more information on obtaining a passport card, go to: http://travel.state.gov/passport/ppt_card/ppt_card_3926.html

Endorsement pages are included at the back of the passport for the purpose of noting special amendments to the passport. They are not intended for entry or exit stamps. If you do not have enough blank pages to accommodate your entry and exit stamps when passing through Immigration, you will need to renew your passport before your departure.

IMPORTANT NOTE ABOUT YOUR PASSPORT DETAILS

Because Natural Habitat Adventures often must provide your name and passport details to our local partners for the purpose of issuing internal flights or park entrance tickets, and/or creating manifests for border crossings, etc., it is imperative that the passport information you provide matches that on the passport you will actually be carrying during the trip.

We must have your full first name (no nicknames or abbreviated names), any middle names and full last name as well as your passport number, date of issue and date of expiration. It is imperative that the passport information you provide to our office upon booking matches that on the passport you will actually be carrying during the trip. If there are any discrepancies between the information you provide to our office (on the NHA Booking Form) and the information on your passport, you could be denied boarding flights, entrances to wildlife parks, etc. If you have already returned your booking form and have any questions about the
information you provided, please call our office to confirm your specific details.

Make a copy of the information pages of your passport, or passport card, to carry separately from your original. Should your passport be lost or stolen, this copy will help in the replacement process. If you have a web-based email account (Gmail, Hotmail, etc.), you can also scan your travel documents and store an electronic copy in a personal email file.

TOURIST VISA
At the time of this printing, visas were not required for U.S. citizens traveling to Canada.

IMPORTANT: If you are a non-U.S. citizen, it is imperative that you check with your local authorities regarding documents required for entry into Canada, as entry requirements for your specific nationality may be different from those previously listed. Natural Habitat cannot be held responsible for any consequences that occur if travelers fail to abide by this notice.

ELECTRONIC TRAVEL AUTHORIZATION
Please note, some visa-exempt foreign nationals, including citizens from the UK and Australia, among other countries are now required to obtain an Electronic Travel Authorization (eTA). U.S. citizens do not need to apply for the eTA. More information can be found here:

www.cic.gc.ca/english/visit/eta.asp

INSURANCE VERIFICATION
If you purchased travel or medical evacuation insurance, please make sure our office has your policy numbers and insurance company contact information. If we have received that information from you, your Expedition Leader will have it available on-site for your reference, although not the details of what is covered by your specific plan. Coverage details for the NHA plan can be found at www.nathab.com/traveler-resources/traveler-insurance. If you purchased NHA’s comprehensive Travel Protection Plan, medical evacuation coverage is included. For questions about third-party plans, please contact your insurance provider directly.
TRAVELING WITH CHILDREN UNDER 18

If children under the age of 18 are accompanied on this adventure by only one parent, the adult must have in his or her possession a certified or notarized letter of consent from the absent parent. Likewise, guardians (grandparents, etc.) should carry a notarized letter from the parents granting temporary guardianship for each child in their care. You should also bring a notarized authorization giving consent for medical care, as well as a copy of the child’s/family’s medical insurance card.
GETTING TO & FROM WINNIPEG, MANITOBA

You will need to make the round-trip transportation arrangements from your home city to Winnipeg, Manitoba. We can best serve you if our Natural Habitat Adventures Travel Desk makes your reservations, as we are intimately familiar with the special requirements of this program and can arrange the most efficient travel. Please call us at 800-543-8917.

Note that while we offer you the best possible rates available to us on airfare and additional nights’ accommodations, you may find better fares online. Please be aware, however, that bookings for extra hotel nights made online at reduced rates may be for different room types than those used on our itinerary so you may potentially need to change rooms on Day 1 of your NHA itinerary. In order to keep the same room, we recommend booking extra nights through our office.

If you have booked your own flights we must receive a copy of your complete flight itinerary (to and from the start/end points of the adventure) at flights@nathab.com. Please do not send partial flight details as we need your full itinerary in order to provide the best ground service.

ARRIVING IN WINNIPEG

When making your travel arrangements, plan to arrive in Winnipeg on or before Day 1 of the adventure, as there is an informal group welcome dinner and orientation at approximately 7 pm.

Due to the limited availability of flights, it is highly recommended that you arrive in Winnipeg a day early. This will ensure you will have enough time to meet up with your group should any problems with flight connections occur.

To book extra nights at the Fort Garry Hotel in Winnipeg, please call the NHA office at 800-543-8917.
DEPARTING FROM WINNIPEG
You will be free to depart from Winnipeg at any time on the final day of the itinerary. The Fort Garry Hotel offers guests a delicious breakfast (included in the cost of your adventure) from 6 am to 11 am, M–F; 7 am to 11 am Saturday; and 8 am to 10 am, Sunday.

TRAVEL ADVISORIES
The Department of State issues travel advisories concerning serious health or security conditions that may affect U.S. citizens. If traveling to areas where security conditions are a concern, you may wish to inquire whether an advisory is in effect. Current advisories are available from the Bureau of Consular Affairs at travel.state.gov.

IMMIGRATION & CUSTOMS

FLYING TO WINNIPEG
All travelers are required to pass through Immigration and Customs upon their first entry into Canada. All bags, including both checked and carry-on luggage, are subject to inspection at this time.

The luggage procedures at Customs and Immigration vary depending on the connecting Canadian city, your flight’s point of origin and the airline. You may need to claim your luggage and then immediately recheck your bags to Winnipeg or in some circumstances your bags may be checked all the way through to Winnipeg. Please consult with your airline directly upon check-in and again in your connecting city.

Travelers on direct flights from the U.S. to Winnipeg will have to go through Immigration and Customs upon landing in Winnipeg, as this will be an international arrival.

FLYING FROM WINNIPEG
Immigration and Customs also take place at your last point of departure from Canada. Therefore, travelers on flights back to the U.S. from Winnipeg that have a connection in a Canadian city will go through Immigration and Customs in the connecting city and not in Winnipeg. Please schedule enough time between flights to accommodate this.

Travelers on direct flights from Winnipeg to the U.S. will have to go through Immigration and Customs in Winnipeg, and should therefore check in at least two hours prior to the departing flight time.
Upon arrival into the U.S., all travelers will simply collect their bags. It will not be necessary to go through Immigration and Customs.

If you have a connection and must clear Customs in a Canadian city (other than Winnipeg) either upon arrival in or departure from Canada, we recommend that you allow yourself 2–3 hours between flights (although the airlines do not require it) to ensure that you do not miss your connecting flight.

**GLOBAL ENTRY**

Global Entry is a U.S. Customs and Border Protection (CBP) program that allows expedited clearance for pre-approved, low-risk travelers upon arrival in the United States. All applicants undergo a rigorous background check and in-person interview before enrollment, and pay a fee once approved. Being a member of the Global Entry program is a great way to save time when entering the United States.

For more information about Global Entry and to fill out an application, go to www.cbp.gov/travel/trusted-traveler-programs/global-entry.

**GROUND TRANSFERS**

**INTERNATIONAL ARRIVALS**

If you are arriving on an international flight, turn left after exiting customs and the international arrivals area. From here, make your way toward the exit near the escalator where you will find the NHA booth. You will be greeted by an NHA representative at the booth for your transfer to the Fort Garry Hotel.

**DOMESTIC ARRIVALS**

If your flight into Winnipeg originates in or connects through another Canadian city, you will claim your bags in the domestic arrivals area. From here, make your way toward the exit near the escalator where you will find the NHA booth. You will be greeted by an NHA representative at the booth for your transfer to the Fort Garry Hotel.

A Natural Habitat Adventures representative will meet passengers at the NHA desk. Occasionally, there are multiple travelers arriving into Winnipeg at around the same time and the NHA representative will be momentarily away from the desk assisting another traveler. If you do not see the representative at the desk after about five minutes, please call our Winnipeg office at 204-926-6553. If you prefer not to wait for our
free shuttle, you are welcome to take a taxi to the Fort Garry Hotel at your own expense (approx CAD$15–$20).

Transfers to Fort Garry Hotel will be provided for all travelers, regardless of arrival date and time.

We will make arrangements for the shuttle to meet you based on the flight times you provide to our office. If you made your own flight arrangements and have not yet submitted that information to our office, please do so as soon as possible. Please note, our shuttle only transfers travelers to the Fort Garry Hotel. In addition, we are not able to provide transfers from the train station or other locations in Winnipeg. If you plan to drive to Winnipeg, please let us know your approximate arrival time to the Fort Garry Hotel.

**DEPARTING FROM WINNIPEG**
All travelers will be transferred to the airport from the Fort Garry Hotel to meet with their departing flights, regardless of departure date and time.

**GETTING TO & FROM CHURCHILL**

**Flight to Churchill**
Your roundtrip transportation from Winnipeg to Churchill is included in the tour cost. On Day 2 of the itinerary, we will be transferred from the hotel to the Winnipeg airport for our charter flight to Churchill. After an approximately two-and-a-half hour trip, we arrive in Churchill and transfer to our hotel in town.

**Return Flight to Winnipeg**
On our last day in Churchill, we will depart on an afternoon flight back to Winnipeg, where we will overnight. All charter flight arrangements have been taken care of by NHA staff, so you will not receive airline tickets for these flights.

**LUGGAGE ALLOWANCES**

*This information may have changed since you received your Preliminary Trip Information Letter upon booking. The following is the most current information we have regarding luggage restrictions for this adventure.*
Most airlines enforce baggage weight limits, in addition to checked bag fees. Please consult your airline directly to confirm details specific to your departure.

The weight limitation on our charter flights between Churchill and Winnipeg is 50 pounds per person for checked luggage. As luggage space on our transfer vehicles is limited, we ask that you limit your luggage to ONE piece of checked baggage per person.

We suggest one water-resistant or waterproof, soft-sided bag (wheels, handles and internal frames are allowed), one carry-on or daypack, plus one personal item (such as a purse) per person. We highly recommend packing light—take only the essentials you will need during your adventure. We have included a recommended packing list within this briefing for your reference.

While a water-resistant or waterproof bag is not required, it is a good idea to have one, as bags may be exposed to rain or snow during transfers. If you do not have a water-resistant or waterproof bag, and do not wish to purchase one for this adventure, a good alternative is to place everything inside your luggage in some type of waterproof liner. This will help ensure that, even if your bag gets wet, your items inside will stay dry.

If you are staying on the Tundra Lodge, partners should pack one small bag each, rather than combining everything into one large bag, as you will have separate rooms on the lodge. In addition, smaller, collapsible bags are easier to store in the limited space available on the lodge.

If necessary, you may leave any excess luggage at the Fort Garry Hotel and retrieve it upon your return to Winnipeg. We suggest locking left luggage to discourage theft.

**LUGGAGE TAGS**

Please attach the Natural Habitat luggage tags included with this briefing to all baggage, as they are very helpful for identification during transfers. Please contact our office if you require additional luggage tags.

Please do not use any colored tape or tags on your luggage! Both in Winnipeg and Churchill, our ground staff identify and transfer baggage between hotels and airports based on a color system.
Protecting our planet is a priority for us at Natural Habitat Adventures, and we insist that this core belief permeate everything we do, from working toward zero waste in our office to becoming the world’s first carbon-neutral travel company. We’ve even applied this philosophy to our travel gear and shipping materials.

The cotton used in our gear is organic, our NHA Safari Duffels are made of 100% PET recycled polyester, and our packaging is recycled, recyclable or compostable—right down to our stickers!

Most importantly, five percent of all gear sales are donated to the Natural Habitat Philanthropy which focuses conservation efforts on grass roots projects around the world.

Preparing for your trip is part of the fun. So go ahead and get what you need from our Gear Store knowing a little extra care has gone into the making of your gear and clothing, and take pride in the fact that you are helping to preserve our planet at the same time.

Items denoted by the gear icon on the packing list in the next section can be found here:

www.nathab.com/gear-store
Travel light! Our experience tells us the lighter you pack, the happier you will be. Following are some packing guidelines and a checklist to help you determine the right amount of gear to bring with you.

*Simplify your packing—shop at Nat Hab’s online Gear Store for some of the key items recommended for your adventure. Look for this icon in the list below, then go to: www.nathab.com/gear-store to start shopping.*

**TRAVEL DOCUMENTS**

- Valid passport or passport card (with photocopies or scanned to your email account)

- Copy of complete flight itinerary
  - Some airports require proof of flight itinerary in order to check in.

- Personal medical/dental insurance cards
  - Because medical care overseas can be expensive, you should review the coverage of your own personal health insurance policy before you go.

- Credit card (optional)
  - Record your card number and the phone number to report loss or theft and keep in a separate place.

- This Pre-Departure Briefing booklet and your itinerary
  - Good to have as a reference when clearing customs (your itinerary provides information on your destinations, accommodations, length of stay, etc.), in order to check operational procedures, to take notes, or to record wildlife seen during the adventure.

**GENERAL PACKING RECOMMENDATIONS**

- Bring sturdy, *soft-sided luggage*, which is easier to stow throughout the adventure and to carry in our vehicles during transfers.
• Carry any necessities, including travel documents, money, medications, and other vital supplies, in your carry-on bag and not in your checked luggage.

• Pack a change of clothing and any essentials (including toiletries) in a carry-on bag in the unlikely event your luggage is delayed or lost by the airlines.

• Pack only casual, weather-appropriate clothing.

• Due to potential dangers including fire, all Samsung Galaxy Note 7 devices, both original and replacement, are strictly banned on all flights to, from or within the United States.

• Many airlines now prohibit passengers from checking or carrying-on “smart luggage” with a non-removable lithium-ion battery. Smart luggage is defined as any piece of luggage that contains integrated lithium batteries, motors, power banks, GPS, GSM, Bluetooth, RFID or Wi-Fi technology. This new regulation is an effort by the airlines to decrease the risk of fire caused by lithium-ion batteries. If your smart luggage includes a removable battery, you will still be allowed to check your smart luggage, provided you carry the battery with you in the cabin. Check with your airline for any restrictions.

• Check with the Transportation Security Administration (www.tsa.gov) to determine which items are suitable for carry-on baggage, and which items should be packed in your checked luggage.

• If you plan to lock your luggage, use a TSA-approved security device.

• The U.S. Department of Transportation requires any lithium batteries packed in checked or carry-on luggage remain in the electronic device (camera, cell phone, laptop, etc.), in their original packaging, or in a separate re-sealable plastic bag.

• Leave expensive jewelry at home! A good rule of thumb: if you would be heartbroken to lose the item, then don’t bring it along. Find a cheap version to replace it during your travels.

• You and your travel partner (if applicable) may wish to temporarily combine belongings in your luggage during flights. If one set of
luggage is lost or delayed by the airlines, you will each have half your gear until the lost luggage catches up with you.

- Keep cash in more than one place. Should something happen, not all will be lost.

COLD WEATHER TIPS

Loose, comfortable layers are far better than single, bulky garments, as each layer you add traps warm air close to your body. We recommend wearing a base layer (silk, polypropylene, etc.) closest to the skin, a second layer (warm sweater or fleece), and an outer layer that is water and wind repellent (NHA will provide down parkas and boots for you to use). This will keep you toasty if outside temperatures are cold, and you can always shed layers if you grow too warm.

Wool and silk are superior to cotton because they trap warm air and stay dry. Many synthetic fabrics—polar fleece in particular—are also good for keeping you warm and dry.

It is important to note that rain is a possibility both in Winnipeg and Churchill, especially in October. Please keep this in mind when deciding what to pack.

PARKA & BOOTS

Fall in Churchill can be very cold, and we want you to be prepared for the possibility of frigid temperatures. We will provide a down winter parka and a pair of boots (to be worn with socks only, not over your shoes) to all travelers for use while in Churchill, which you will pick up and return in Winnipeg. You may be able to pick your gear up the afternoon of your arrival. The gear room is typically open from 2 pm to 6 pm, and your shuttle driver will be able to confirm gear distribution schedule upon your arrival. However, if you require an especially large or small size of either, please call our office to find out if we can accommodate you with our supply. There is no extra charge for the use of our boots and parkas.

Typically boots and parkas are not necessary for the Extra Day program in Winnipeg, however, if the weather warrants it, and you would like to use Nathab’s boots and parka on that day, please let a staff member know.

Should you wish to bring your own gear, the parka should be warm and roomy enough to accommodate several layers underneath. Your
boots should be warm, water-repellent or waterproof (remember, you may be walking in cold, snowy, or rainy conditions), and have slip-resistant tread.

**Gloves, Hat & Scarf/Neck Gaiter**

Body heat is most likely to be lost from the hands and feet. For maximum warmth, we recommend packing two pairs of gloves to protect your hands: thin glove liners and warm outer gloves/mittens (mittens are often warmer than gloves). Glove liners are great as you can take your heavy gloves/mittens off to take pictures, but still protect your hands from the cold. It may not be necessary, but you may want to pack a second set of mittens in case the first pair gets wet.

Also pack warm protection for your head, face, and neck. Be sure your hat covers your ears and that you can protect your face sufficiently if there is a cold wind blowing.

**Warm Trousers**

Layering works well for the legs, too. Long underwear underneath an outer pair of pants should be sufficient. You should also bring one pair of water-resistant pants so you stay dry if you come in contact with snow during the sled dog activity.

**Socks**

The rule of layers holds true for your feet as well. For maximum warmth, wear thin sock liners made of wicking fabrics, such as silk or polypropylene, underneath warm socks. Bring several pairs so they have time to dry completely between uses. Also bring several pairs of thick socks made of wool or warm synthetic material (not cotton) to wear with the boots we will loan you to create the best fit possible.

**Outer Layers**

Garments that “breathe” will help to keep you warm and dry. Wool and fleece are great materials that trap heat against the body.

**Underclothing**

Silk or polypropylene long underwear can be great for adding warmth without bulk. Long underwear is available in a variety of weights, which allows you to choose the version that best suits your personal thermostat. Turtlenecks are also great for layering because they provide added warmth for your neck.
CLOTHING

Check the current weather on the Weather Channel or on the Internet (www.weather.com) so you can be prepared for any unseasonable weather at our destination. The packing list below is based on seasonal norms and average high and low temperatures. Please alter your packing needs based on the most up-to-date weather forecast.

- Winter parka and boots (provided by Nat Hab)
- Warm gloves or mittens
- Glove liners
- Warm hat
  - Make sure it covers your ears
- Scarf or neck gaiter
- Warm pants (ski pants are good if you have them)
- Warm socks (several pairs)
- Silk or polypropylene long underwear for layering (tops and bottoms)
- Turtleneck shirts for layering
- Warm sweaters or fleece tops
- Comfortable warm pants (for wearing in the evenings)
- Underwear
- Sleepwear
- Swimsuit (if you wish to use the pool at the Fort Garry Hotel)

ADDITIONAL ITEMS

- Cash (see “Money Matters” section)
▪ For discretionary gratuities (you may want to bring envelopes for discreet presentation)

▪ For personal spending (souvenirs, Internet use, or food and beverages not included in your trip fee)

❑ Water-resistant daypack
  ▪ To carry equipment/gear during outings

❑ Binoculars
  ▪ **Binoculars are a must on the tundra.** For optimal viewing, we suggest those with specs between 10x42 and 8x42. You may even try 8x35, but only if they contain high quality glass. Practice using your binoculars before your adventure to make sure they are not too powerful or you do not have trouble holding them steady.

  ▪ Couples should consider bringing two pairs of binoculars, so both people can view wildlife simultaneously.

❑ Hand/foot warmers (highly recommended)
  ▪ These can help keep you toasty if you tend to have cold feet and hands. Per TSA regulations, you will need to pack these in your checked luggage on commercial flights.

❑ Sunglasses (with UV protection)

❑ Prescription glasses/contact lenses

❑ Goggles (optional)
  ▪ If you already own a pair of goggles, it might be useful to bring them along. However, we would not recommend buying a pair just for this adventure, as it is not a necessity. An example of when they might come in handy would be if you are participating in the sled dog excursion and conditions are windy and snowy.

❑ Yaktrax (optional)
  ▪ Please check the weather in Churchill just prior to your departure. If it has already snowed, or if snow is in the forecast, Yaktrax can be extremely helpful to prevent slipping in snowy or icy conditions: www.yaktrax.com. Other popular brands of traction devices include
DueNorth, Kahtoola, and Stabilicer. Make sure they are big enough to fit around bulky snow boots.

- Earplugs (helpful when sleeping in a new environment)

- Toiletries
  - Shampoo, conditioner, soap are provided at all accommodations.

- Moisturizing lotion

- Sunscreen and lip balm (SPF15+)
  - Bring protection for your hands, face, and lips, as the reflection off of snow and ice can be intense.

- Small medical kit

- Battery-operated alarm clock or wristwatch

- **Dry bags or reusable waterproof bags**
  - Great for wet or dirty clothing and to protect camera equipment.

- Sewing kit

- Tissue mini packs

- Hairdryers are provided at all accommodations, including the Tundra Lodge

**ADDITIONAL ITEMS (for those staying at the Tundra Lodge)**

- Small flashlight or headlamp (with spare batteries)
  - Helpful for locating personal items in the bedrooms.

- Hard-soled slippers (for walking on the decks between cars)

- Toiletry bag
  - Helpful for carrying personal items, as the bathrooms are located outside of your sleeping compartment.
If you are staying on the Tundra Lodge, please remember to pack in a small, soft-sided bag. This should be separate from your partner’s luggage, as you will each have your own room on the Tundra Lodge. It is also easier to store in the limited space available on the lodge. Additional luggage can be stored at the Fort Garry Hotel in Winnipeg.

PHOTOGRAPHY GEAR

Below is a list of photography gear you might find useful on this adventure. When packing for your trip, keep in mind there are many items that are critical for your enjoyment (e.g., specific clothing or proper footwear). However, camera gear is optional. Great photography results can be achieved by using a variety of equipment, and the suggestions we have given are only guidelines. Remember, the best camera is the one you have with you!

- **Camera(s)**

- **Lens(es) and lens hood**
  - Wide angle for landscapes, cityscapes and people; zoom/telephoto for wildlife and long distance landscape shots.
  - A lens hood will protect your lens(es) from dust and finger prints.

- **Polarizing filter**
  - Can be useful in reducing glare on bright surfaces (oceans, rivers, etc.)

- **Tripod**
  - A tripod may come in handy if you have a big lens, or wish to take low-light or long-exposure shots (such as silky-effect shots of waterfalls). Tripods are bulky and take up a lot of weight in your luggage allotment; therefore, you should only carry one if you are certain you will use it.

- **Extra lens caps**
  - Because lens caps often get lost, it’s a good idea to have extras on-hand. These can be bought at camera shops or ordered online. Canon and Nikon lens caps can be expensive, but cheaper generic brands are also available.
Lens cleaners/lens cloths

- We recommend a “lens pen,” which has a brush on one end and a soft cleaning pad on the other or a camel hair brush and a microfiber lens cloth. Always remember, no matter how soft your lens cloth is it must be clean of sand, grit and dust to eliminate scratching the glass. It’s a good idea to wash your cloth out every day and let it dry overnight.

Extra memory cards

- We recommend changing cards, or backing up to a computer or portable storage device, often to avoid losing your images if your camera is lost or stolen, or your memory card becomes damaged. Storage cards are inexpensive, so it’s best to shoot the highest quality images that your camera allows, rather than trying to save space.

Battery charger

Extra batteries

Power strips with surge protector or extension cord

- These can be very handy if you have multiple things to charge, especially in foreign countries where outlet converters may be limited. Keeping all of your charging materials in one place eliminates the possibility of forgetting the battery charger that was plugged into an obscure corner of your hotel room.

Cases for polarizers and UV filters

- As you may not want to use them all the time.

Lightweight towel

- To dry cameras and lenses.

Storm Jacket camera cover

Feel free to call our office for further details on gear or if you have any questions regarding what to pack.
INCLUDED IN THE COST OF YOUR ADVENTURE

DURING THE POLAR BEAR ADVENTURE

- Round-trip transportation between Winnipeg and Churchill
- Accommodations and activities as detailed in the itinerary
- Meals from dinner on Day 1 to breakfast on the final day
- Drinking water throughout the trip
- Soft drinks (soda, coffee and tea) with meals
- Hot beverages, and snacks while out on the tundra
- Beer and wine on the Tundra Lodge only
- Evening wildlife and cultural presentations
- Services of Natural Habitat Adventures professional Expedition Leader(s) and assistants
- Some gratuities (see “Gratuities” section)
- Activities/entrance fees
- Taxes and service charges

EXTRA DAY IN WINNIPEG (SEPARATELY BOOKED EXTENSION)

- Airport transfers
- Accommodations
- Breakfast and lunch
- Drinking water
- Guided tour of Winnipeg
- Guided tour of the Manitoba Museum
- Gratuities (see “Gratuities” section)
- Entrance fees

NOT INCLUDED IN THE COST OF YOUR ADVENTURE

DURING THE POLAR BEAR ADVENTURE

- Round-trip transportation from your home city to Winnipeg
- Alcoholic beverages, with the exception of beer and wine on the Tundra Lodge only
- Items of a personal nature (phone calls, laundry, Internet, etc.)
- Some gratuities (see “Gratuities” section)
- Optional activities
- Optional travel insurance
Extra Day in Winnipeg (Separately Booked Extension)

- Dinner on Day 1

Currency

In Canada, the national unit of currency is the Canadian dollar (CAD$), which is divided into 100 cents. Banknotes are printed in denominations of $5, $10, $20, $50, and $100 dollars, and coins come in denominations of 5, 10, 25 cents and $1 and $2 dollars.

Money Exchange

The acceptance of U.S. dollars is widespread in Canada, but to ensure the best exchange rate, we recommend changing your money into Canadian dollars. We suggest exchanging some money at your home bank before departure so you have cash available to you upon arrival.

If you would like to exchange Canadian dollars back to U.S. dollars at the airport upon your departure from Winnipeg, you can do so before or after going through security.

The current exchange rate is $1 USD equaling approximately $1.33 CAD.

The listed exchange rate was current at the time of printing and is subject to change. Check with your local bank or on the Internet at www.xe.com/ucc/ before your adventure to get current rates.

Banks

Banks are easily accessible by taxi in both Winnipeg and Churchill. Hours of operation are generally Mon–Thurs 11 am–3 pm, and Fri 11 am–4 pm.

Cash

We recommend having sufficient cash on hand to pay for incidentals, meals not included in the itinerary, alcoholic beverages, and gratuities. Churchill also has some wonderful local craft stores, so you may wish to bring extra money to purchase souvenirs.

ATMs

There is an ATM at the Fort Garry Hotel, and there are easily accessible ATMs at banks throughout the city in Winnipeg. There are also ATMs at the Seaport Hotel and at the bank in Churchill. All ATMs dispense Canadian dollars. Please note that ATMs located in hotel
lobbies are more likely to be out of service than those found in banks (especially during Polar Bear season).

**CREDIT CARDS**
The majority of hotels, restaurants, and shops in Manitoba take credit cards, but their acceptance is never guaranteed. Visa and MasterCard are more widely accepted than American Express, Discover, and Diner’s Club.

If your credit card has a chip, you may be required to first enter your PIN number in order to make purchases at some local establishments. Please be sure to bring your PIN number with you in case it is requested.

It is a good idea to notify your credit card company of your travel plans so charges on your card do not raise suspicion, which could result in the suspension of your account.

**GRATUITIES INCLUDED IN YOUR TRIP FEE**
- Airport and other transfers provided by NHA or the Fort Garry Hotel
- Baggage porterage
- Housekeeping and meals served as part of the tour (but not on alcoholic beverages purchased)
- Churchill bus drivers
- Local guides
- The sled dog excursion
- Helicopter excursion on the Ultimate Churchill Adventure only

**GRATUITIES NOT INCLUDED IN YOUR TRIP FEE**
*All amounts are listed in US dollars*

**EXPEDITION LEADERS**
We are confident that our Expedition Leaders are the best in the business. We hand-pick them for their depth of knowledge about our destinations, their passion for the wildlife and wild places we visit, and their commitment to doing whatever it takes to provide the best experiences possible for our guests. We do not include gratuities for them in the cost of our trips because we believe it is up to you, the traveler, to decide if they have added value to your experience.
Should you desire to give your Expedition Leader a gratuity, our office staff recommends approximately $20 USD per traveler, per day, including children. A portion of this gratuity is shared with local Natural Habitat Adventures staff for their assistance on your adventure.

If you are a guest on the Tundra Lodge, you will have the services of two Expedition Leaders. All tips will be combined and divided between the two guides at the end of the adventure. There is no need for you to double your tip amount.

On some departures we add additional trainee leaders (Nat Hab Expedition Leaders go through extensive training!). If there are any leaders in training on your trip, it is recommended that you tip only your primary Expedition Leader(s) and not the trainees.

**Polar Rover Drivers**

Polar Rover drivers may change on a daily basis, so gratuities for these individuals are usually given at the end of each trip on the tundra. If you feel that your drivers have done an outstanding job and wish to offer a gratuity, a guideline is $7 USD per traveler, per day.

**Tundra Lodge Staff**

The Tundra Lodge staff members work very hard to make your stay out on the tundra a comfortable and memorable one. Tips for these individuals are collected at the end of each group’s stay and will be split evenly between the chef, assistant chef, the lodge manager and the polar rover driver. If you enjoyed your time spent at the lodge and feel that the staff exceeded your expectations, we recommend a gratuity of approximately $20 USD per traveler, per day, including children.

**Optional Extensions**

**Extra Day in Winnipeg**

Your adventure fees include gratuities for program guides and drivers.

**Helicopter Pilots**

Helicopter pilots help you to see the tundra from a vantage like no other. If you feel your pilot has gone above and beyond, we recommend a gratuity of approximately $10 USD per traveler. These tips are included in the cost of the Ultimate Churchill Adventure only.
GRATUITIES WHILE TRAVELING ON YOUR OWN

RESTAURANTS/BARS
For guests traveling independently in Canada before or after the adventure, tipping is expected in local restaurants and bars, especially for exceptional service. A 15–20 percent gratuity is customary.

TAXIS
Tipping taxi drivers in Canada is customary. 10 percent of the fare is adequate.

HOTEL PORTERS
$1–$2 per bag is an adequate tip.

HOUSEKEEPING
$1–$2 per night is an adequate tip.
HEALTH & MEDICAL INFORMATION

Visitors to Manitoba face no serious health concerns. This pristine environment offers clean air and pure, safe drinking water. Because we are travel professionals, not health practitioners, we can only provide recommended guidelines for your health and well-being during this adventure. Please consult your physician for additional or specific information, and have them contact our office if they have any concerns.

PHYSICAL REQUIREMENTS

A polar bear expedition with Natural Habitat Adventures requires very little walking. Travelers must be able to walk up/down stairs. Our Polar Rover vehicles, designed to travel over the tundra for polar bear observation, can sometimes offer a bumpy ride. Travelers must be prepared for below-freezing temperatures and slippery surfaces.

NORTHERN WILDERNESS SLED DOG EXCURSION

The dog sled excursion is generally easy, and one guest is able to sit while another will stand. Guests should be able to stand on their own as it will be difficult for them to be pulled behind the dog sled if they require substantial assistance. Guests also need to be able to hold their own weight if they are in the sitting position as the dog sled will sway from side to side during turns.

ULTIMATE CHurchill Adventures Only

For those on our Ultimate Churchill Adventure, during our helicopter journey to an empty polar bear den, travelers must be able to walk for approximately 10 minutes across uneven snow to reach the denning site.

We stress that all activities are optional, and travelers should only participate in activities with which they feel comfortable. If you do not wish to participate in any of the planned activities, please let your Expedition Leader know so that he or she can attempt to arrange special activities for you.

If you are concerned with your own personal level of physical fitness, please contact your Adventure Specialist for details regarding the specific physical requirements for this adventure.
**SEPARATELY BOOKED EXTENSIONS**

**Extra Day in Winnipeg**
This extension is rated *Easy*.

The extra day in Winnipeg entails a bus tour and easy walking tour around the Manitoba Museum and Fort Whyte Alive or the Canadian Museum for Human Rights.

**Helicopter Flight**
This extension is rated *Easy*.

The helicopter flight is easy but guests need to be able to get up into the helicopter which involves two large steps which could be slippery.

**INOCULATIONS**

At the time of this printing, international regulations did not require any inoculations for entry into Canada. Your physician or local public health office will have the most updated information regarding travel health. You may also contact the Centers for Disease Control in Atlanta, GA at 800-232-4636 or on the web at www.cdc.gov.

**MEDICATIONS**

As it will be difficult to obtain medication during our adventure, plan to bring an adequate supply of any prescribed or over-the-counter medications you take on a regular basis. Keep all prescriptions in their original, labeled containers.

**MOTION SICKNESS**

Our specially designed Polar Rovers are quite comfortable and raise us safely above the wildlife, affording us sweeping views of the bay and the surrounding tundra environment. While exploring out on the tundra, however, we may travel over rough terrain. We will do our best to make the ride as smooth as possible, but it can be quite bumpy at times. If you are susceptible to motion sickness, we recommend bringing medication with you as a precaution.

**SLEEP APNEA**

For those with sleep apnea, CPAP machines can be accommodated on this adventure as long as advance notice has been given. It is highly recommended that you also bring a letter from your doctor stating your medical need for such a device. This will make it easier to carry as
hand luggage on flights. The weight of your CPAP machine will be counted toward the overall weight of your luggage.

Distilled water will be available in Churchill for those needing it for their CPAP machines.

SAFETY

Due to potential polar bear encounters, walking around town at night is dangerous and restricted. If you need any assistance or have any concerns about your safety, please talk to your Expedition Leader.
TIME ZONE
Manitoba is located within the Central Time Zone.

CLIMATE
October and November temperatures in Churchill tend to be very cold, ranging from 0°F to 45°F (with the wind chill, it can sometimes feel much colder). We spend most of our time on the tundra in heated Polar Rover vehicles, but with guests constantly moving in and out to the rear observation deck, and with windows being lowered and closed for photography, you should expect interior temperatures to range from from 30°F to 60°F, and wear sufficient layers to remain comfortable at that range. As with any location, temperatures in Churchill can vary widely, and we recommend checking the local weather before you leave home at www.weather.com.

Beginning in the fall, streets and sidewalks in Churchill can become very slippery with layers of ice and snow. Injuries suffered from slipping are very common, so please watch your step while walking around town! Yaktrax or other similar traction devices that you can strap onto your shoes/boots can provide more stable footing in slippery conditions (see the “What to Pack” section).

AVERAGE TEMPERATURE RANGES & PRECIPITATION:
(in Fahrenheit and inches)

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As hard as we have tried, we have not figured out a way to control the weather. Please keep in mind that these are averages, and that weather can be unpredictable. Be sure to check current weather conditions a few days before your departure at: www.weather.com. Remember to check the weather for each location on the itinerary, as conditions may vary.

### ELECTRICAL CURRENT

The electrical current in Canada is the same as in the U.S.—110 volts, 60 cycles; the outlet configurations are the same as well. If you wish to use personal appliances or recharge batteries, a power converter or outlet adapter will not be necessary.

### ACCOMMODATIONS

**Fort Garry Hotel**

The Fort Garry Hotel serves as our base of operations for our Polar Bear adventures. While you will encounter guests coming and going from many different departures during your time in Winnipeg, your trip activities will consist of only a small group of travelers, with the exception of the flight to Churchill.

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### CHURCHILL

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The hotel is located downtown, in the heart of Winnipeg, close to the Forks Market, Manitoba Museum, IMAX Theater, movie theaters, river walkway, planetarium, and many fine restaurants. Each guest room contains feather beds, down duvets and pillows, cable TV with Pay-Per-View movies, telephones with voicemail and data port, terrycloth bathrobes, hair dryers, irons, complimentary coffee and tea, and 24-hour room service. **If you have a down allergy, please alert us so we can provide you with a feather-free room.** In addition, this deluxe hotel offers an on-site restaurant, a large swimming pool, hot tub, steam room, and exercise room with running track. Safety deposit boxes and dry cleaning services are also available.

The Ten Spa at Fort Garry Hotel offers a full complement of therapeutic and rejuvenating facial and body care treatments. The pride of Ten is the exclusive *hamam*—a modern reinterpretation of the Turkish-Roman hot air bathing ritual. This marble-clad, fiber-optically lit facility is the only co-ed treatment hamam in Canada. These services are very popular and reservations should be made in advance. For more information, call the spa at 866-585-0772 or visit their website at www.tenspa.org.

If you are driving your own car to Winnipeg, parking rates at Fort Garry Hotel are $15 plus tax, per day for self-parking, or $21 plus tax, per day for valet parking.

**Hotels in Churchill**

Our accommodations in Churchill are not as modern as those in Winnipeg, but they are clean and comfortable, with private bathrooms and friendly staff. Hotel space in Churchill is extremely limited, and we use a variety of properties in order to accommodate demand. Occasionally, we must split groups between hotels. Room size, amenities, and service levels may vary among hotels despite comparable pricing. Unfortunately, we cannot take requests for specific hotels.

**Great White Bear Tundra Lodge**

If you are participating in a Tundra Lodge Adventure, Tundra Lodge & Town Adventure, or the Tundra Lodge Photo Tour, you will stay at the Great White Bear Tundra Lodge. This remarkable rolling hotel, built on separate mobile platforms, is located outside of Churchill on the tundra, itself. The Tundra Lodge is situated in an area of high bear density at the beginning of polar bear season and remains stationary throughout the season. The Tundra Lodge has 29 small and simple guest rooms, each 4’ x 8’ and resembling a sleeping compartment on a train. These are single
accommodations only, each with a single top or bottom bunk and a storage area for luggage (approximately 45” x 25” x 29,” with one shelf). There is no hanging space (except for hooks) or excess storage available. There are six bathrooms, each with a flush toilet and sink, and four basic showers to be shared among all guests staying on the lodge. These facilities are located between the two sleeper cars. Shampoo, conditioner, soap and towels are provided.

We cannot guarantee specific bunk requests. If you have specific mobility concerns, please let us know.

You will be unable to walk around outside of the lodge due to the risk of polar bear encounters, though you will be able to move throughout the four compartments, which include two sleeping cars, a lounge and a dining car. You can also get some fresh air on the lodge’s outdoor platforms, built specially for close-up encounters with the polar bears. The Tundra Lodge offers incomparable opportunities to commune with the bears in their natural habitat, along with an extremely comfortable and private experience.

A generator provides 24-hour electricity on board the lodge, and a small light is available in every sleeping room, along with an outlet for charging your camera batteries. There is a television with a DVD player in the lounge, (you are welcome to bring videos and DVDs) and a digital projector for presentations, and you may hook up your personal laptop to either of these during free time if you bring the appropriate cables. As certain appliances can create an increased pull on the generator, if you require electricity for a CPAP machine or other medical device please let our office know as soon as possible so we may accommodate you.

Please note, beer and wine are the only alcoholic beverages served on the Tundra Lodge. Travelers wishing to drink other alcohol will need to bring their own.

**GROUP SIZE**

We limit our town-based trip group sizes to 16 and our trips including the Tundra Lodge to approximately 29 travelers. Polar Rover excursions, regardless of the type of trip, are generally limited to 16, leaving plenty of room for you to spread out, store your gear, and move about the Rover to get the best perspectives on the polar bears.
**ADVENTURE ACTIVITIES**

**Extra Day in Winnipeg (Separately Booked Extension)**

Winnipeg is a fascinating city full of beauty and history. For those who wish to explore the city, we have arranged a guided tour of Winnipeg the day before you begin your Polar Bear adventure. On this full-day excursion, you will tour the city by bus and visit the renowned Manitoba Museum. In addition, you will visit either FortWhyte Alive (October adventures) or The Canadian Museum for Human Rights (November adventures).

This optional program includes hotel accommodations, breakfast, and lunch. In order to participate, you will need to arrive in Winnipeg the day before Day 1 of your itinerary. For more information, or to sign up for the “Extra Day in Winnipeg” program, please contact our office at 800-543-8917 and speak to your Adventure Specialist.

**Polar Rover Excursions**

While observing the greatest land carnivore in its natural habitat, we will travel in the comfort and safety of a specially-designed Polar Rover. These vehicles raise us safely above the bears without sacrificing viewing opportunities: the windows open for unencumbered photography, and there is a back viewing deck for an open-air experience of the tundra. The vehicles, utilitarian in design, are heated and equipped with toilets. Hot and cold beverages, along with picnic lunches (dinners on evening excursions) and snacks will keep you comfortable amidst the severe landscape of the Arctic tundra.

Please dress in warm layers when on the Polar Rovers so you can add or shed layers as necessary. Even though our Polar Rovers are heated, the windows are often open for photography purposes, and we want you to stay warm! We also travel over extremely rough terrain as we seek out the bears, and the ride can be very bumpy at times. Again, if you are prone to motion sickness, we recommend that you bring preventative medication, as none is available on the vehicle.

For those travelers staying in Churchill accommodations, you will have an early breakfast before 7 am and your group will depart at approximately 7:30 each morning to board the buses that will transport you to the Polar Rover. It is crucial that you meet your group at the time designated by your Expedition Leader. Your bus will leave
on time, even if you are not on it, so please follow your guide’s instructions very carefully.

Tundra Lodge guests will travel on the Polar Rover for one half-day excursion each day to various points of high bear density; the second half of each day you will be free to relax and enjoy bear viewing, special presentations, or other activities at the lodge.

Please remember that polar bears are among the most dangerous animals on earth! While exploring on the Polar Rovers or during your time at the Tundra Lodge, you will not be allowed to walk at ground level due to potential encounters with bears. In addition, it is crucial that you keep your hands, head, and any photographic equipment inside the vehicles at all times.

**Northern Wilderness Sled Dog Excursion**

Churchill is known as the “Gateway to the Arctic,” and as such, the region maintains many Arctic traditions, including the use of dog sleds for transportation and recreation. An introductory sled dog excursion is available on our polar bear expeditions, weather permitting. This overview outing is designed to introduce visitors to the tradition of sled dogs in the northland and includes a short but exhilarating, mile-long ride through the boreal wilderness. The focus of this excursion is to visit and learn about the dogs and the dog sledding tradition from an expert musher. For many of our travelers, this experience is a true highlight of their northern adventure!

**Helicopter Tour over the Tundra (Optional)**

The Arctic tundra is a vast and formidable landscape, and we have arranged an optional helicopter excursion for those travelers who wish to view the terrain and its inhabitants from above. Please see the *Helicopter Reservation Form* included with your Pre-Departure Briefing for more details, including pricing. Please note, the helicopter tour is weather dependent.

The helicopter tour is included in all Ultimate Churchill trips.

**Evening Presentations**

Most evenings will feature optional wildlife or cultural presentations for your enjoyment. Your Expedition Leader will provide you with details each day regarding the evening’s presentation.
**THE TOWN OF CHURCHILL**

Days on the tundra can be very tiring, but if you wish to explore Churchill on your own, there is a Town Centre Complex, which serves as the hub of administration, health services, and recreation for the town. It houses a health center, school, gymnasium, public library, curling rink, bowling alley, hockey arena, movie theater, and a swimming pool. Please remember that you must explore within the bounds of safety set up by the town. Walking around town at night is restricted due to the bears, so please let your Expedition Leader know if you would like to make special transportation arrangements.

**A NOTE ABOUT OUR SCHEDULE**

We are “The Nature People,” and our primary goal is to give you an unforgettable nature experience. Therefore, first and foremost, we spend as much time as possible on the tundra in order to maximize our polar bear viewing opportunities. We realize that this may make for a tight schedule at times, especially in the early evening between bear viewing and dinner. Because the small town of Churchill swells with visitors this time of year we sometimes have dinner a little early to avoid the worst of the crowds, and to take advantage of cultural programs offered at night. During what is a “once in a lifetime” visit for most of our travelers, we want to immerse you in nature and all this adventure has to offer. Although we never want you to feel rushed, the only way to relax the pace of the schedule would be to compromise your bear viewing time on the tundra, and we would never do that! Always remember that everything is optional, so if you need to take some downtime on your own, please do not hesitate to do so.

**MEALS & DRINKS**

All meals, as outlined in the “Money Matters” section of this booklet, are included in the cost of your adventure. Soft drinks will be included with meals, and drinking water will be provided throughout the adventure. The meals in Winnipeg are generally taken at the Fort Garry Hotel, and those in Churchill are taken at the hotel and at local restaurants. If you are staying on the Tundra Lodge, your meals will be in the dining car. Vegetarian and other reasonable special dietary needs will be accommodated to the best of our ability. Please give our office ample notice prior to your departure.

Please note, beer and wine are the only alcoholic beverages served and included in the cost of adventures on the Tundra Lodge. Travelers wishing to drink other alcohol will need to bring their own.
INTERNET AVAILABILITY
At the time of this printing, Internet access during the adventure is as follows (subject to change without notice):

FORT GARRY HOTEL
Internet access is available in the hotel business center, and Wi-Fi is available in guest rooms if you have a personal laptop. There are also two shared computers, with Internet access, in the lobby that guests may use free of charge.

IN CHURCHILL
*Please note, all Wi-Fi in Churchill can be slow and unreliable.*

- Seaport Hotel: Hotel guests may use a shared computer located in the lobby. Those travelers with personal laptops or Wi-Fi devices will also have access to the Internet in individual rooms via Wi-Fi.

- Polar Inn, Aurora Inn and Churchill Hotel: Wi-Fi connection is available for those guests with personal laptops or Wi-Fi devices.

LAUNDRY
Laundry service will be available, for a fee, at the Fort Garry Hotel in Winnipeg, and at the Churchill Hotel, Aurora Inn, Polar Inn and Seaport Hotel in Churchill. Because the duration of your adventure is relatively short, and because schedules may not permit additional free time, we recommend packing enough clothes for the entire adventure.

METRIC CONVERSIONS
In Canada, the metric system is the official system of weights and measures. The following are some conversions between the metric system and Avoirdupois, the system used in the U.S.:

<table>
<thead>
<tr>
<th>Metric System</th>
<th>U.S. System</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Kilogram</td>
<td>2.2 Pounds</td>
</tr>
<tr>
<td>1 Liter</td>
<td>1.057 Quarts</td>
</tr>
<tr>
<td>1 Meter</td>
<td>3.28 Feet</td>
</tr>
<tr>
<td>1 Centimeter</td>
<td>0.39 Inches</td>
</tr>
<tr>
<td>1 Kilometer</td>
<td>0.62 Miles</td>
</tr>
<tr>
<td>1 Gram</td>
<td>0.035 Ounces</td>
</tr>
<tr>
<td>1 Pound</td>
<td>0.45 Kilograms</td>
</tr>
<tr>
<td>1 Quart</td>
<td>0.946 Liters</td>
</tr>
<tr>
<td>1 Foot</td>
<td>0.305 Meters</td>
</tr>
<tr>
<td>1 Inch</td>
<td>2.54 Centimeters</td>
</tr>
<tr>
<td>1 Mile</td>
<td>1.60 Kilometers</td>
</tr>
<tr>
<td>1 Ounce</td>
<td>28 Grams</td>
</tr>
</tbody>
</table>
TEMPERATURE CONVERSIONS

To convert Centigrade into Fahrenheit, multiply the Centigrade temperature by 1.8 and add 32. To convert Fahrenheit into Centigrade, subtract 32 from the Fahrenheit temperature and divide by 1.8. The following are conversions between the two systems:

<table>
<thead>
<tr>
<th>Centigrade</th>
<th>Fahrenheit</th>
</tr>
</thead>
<tbody>
<tr>
<td>40°C</td>
<td>104°F</td>
</tr>
<tr>
<td>35°C</td>
<td>95°F</td>
</tr>
<tr>
<td>30°C</td>
<td>86°F</td>
</tr>
<tr>
<td>25°C</td>
<td>77°F</td>
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<tr>
<td>20°C</td>
<td>68°F</td>
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<tr>
<td>15°C</td>
<td>59°F</td>
</tr>
<tr>
<td>10°C</td>
<td>50°F</td>
</tr>
<tr>
<td>5°C</td>
<td>41°F</td>
</tr>
<tr>
<td>0°C</td>
<td>32°F</td>
</tr>
<tr>
<td>-5°C</td>
<td>23°F</td>
</tr>
<tr>
<td>-10°C</td>
<td>14°F</td>
</tr>
<tr>
<td>-15°C</td>
<td>5°F</td>
</tr>
</tbody>
</table>

PLEASE BE CONSIDERATE...

CELL PHONES & OTHER ELECTRONICS

Our unique adventures are designed to provide our guests with immersive nature experiences. With this goal in mind, during trips we try to minimize the use of electronics. Guests who require access to a cellular or satellite phone may bring one on their NHA trip. However, we ask that guests refrain from using their phones, tablets or computers during any group activities. This is especially applicable in secluded or enclosed areas, including mealtime when we are often recapping our day, preparing for the next day or just sharing stories of our nature encounters. If you are using the camera feature on your phone, please put it in silent mode. We appreciate your understanding.

TRAVELING WITH CHILDREN

If you are traveling with children, it is your responsibility (not the Expedition Leader or staff), to ensure they behave in a manner that does not disrupt wildlife or the experience for other travelers. It is also your responsibility to supervise children at all times, unless they are participating in an activity with an NHA staff member designed specifically for children, as is sometimes the case on our family trips.

DRONES/RADIO-CONTROLLED DEVICES

Please only use hand-held cameras to document your experience. Because Natural Habitat Adventures offers quiet, secluded and authentic nature experiences in wild places, the use of drones or any radio-controlled device, including mobile camera equipment, is strictly forbidden on our trips. These devices are illegal in many parks.
and reserves throughout the world due to their unpredictability, capacity for operator error and potential to disturb or harm wildlife.

**SMOKING**

All of our accommodations (including the Tundra Lodge) are non-smoking. Smoking, including the use of electronic cigarettes, is not permitted around other guests while on this trip. If you must smoke during this adventure, please ask your Expedition Leader to recommend an appropriate location.
PHOTOGRAPHY EQUIPMENT AND “GETTING THE SHOT”

Visit www.naturalphotographer.org for more tips and tricks for getting the best photos on your adventure. You will also find photography tips specific to your trip at the end of this section.

CAMERAS

There is no “right type” of camera to bring on your adventure. Excellent images can be obtained using a small point and shoot, a full size SLR, or even a smartphone. There are some distinct advantages to using an SLR, “mirrorless,” or other camera with interchangeable lenses (responsiveness, high ISO/low light capability, lens selection, etc.), so if possible, this an excellent choice.

Undoubtedly, you will be presented with numerous photo opportunities during your adventure, and certain ones could leave you longing for equipment other than what you have with you. This happens not only to first time visitors, but also to professional photographers with every lens imaginable. Remember, the best camera is the one you have with you!

IS YOUR CAMERA READY FOR THE TRIP?

- We strongly suggest familiarizing yourself with any new camera equipment before departing on your adventure. It’s also a good idea to bring the user manual with you. If you are bringing an iPad or computer, an electronic version of your user manual may be available from your camera’s manufacturer.

- If you plan to use an older camera, or have not used your camera for some time, it’s a good idea to have it inspected by a competent technician prior to your departure.

- Make sure your camera gear is properly protected from rain or humidity. If you are using a point-and-shoot camera, store it in a heavy, reusable waterproof bag whenever not in use to protect it from the elements and to keep it in working order. Silica gel packs can be purchased in bulk from online retailers and act as a drying agent when placed at the bottom of your camera pack.
• Camera and video camera batteries can be difficult to replace during the adventure. Even if the ones in your device are brand new, it is a good idea to bring extras.

• Tripods or monopods can be useful for long lenses or close-up photography and are essential if you plan to take any long-exposure shots (especially those at night).

• We recommend carrying a wide range of focal length lenses, or choosing a point and shoot that offers a wide range of zoom. Additional lens information is outlined later in this document.

• If you are interested in increasing the magnification of your lens, but cannot justify buying a longer lens just for this adventure, consider a good quality 1.4X, 1.6X, or 2.0X Tele-converter. But keep in mind, these often have drawbacks, including an overall decrease in photo quality at the pixel level.

• A flash unit can be helpful for people pictures and for reducing harsh shadows that can often develop during mid-day conditions. However, flashes can also produce unnatural shadows and lighting. In addition, your guide may ask you to refrain from using flash if it appears that it is disturbing the natural behavior of wildlife.

**TRAVELING WITH YOUR EQUIPMENT**

• A soft-sided backpack is a great way to carry and protect your photo equipment while traveling and will make it easy to keep your gear organized.

• Some photographers find it convenient to wear a “safari-style” photo vest with many pockets for storing photography components where they are easily accessible.

• If you are shooting with film, please carry all your film (both exposed and unexposed) in your carry-on luggage. Checked luggage is exposed to a higher level of radiation that may fog or lay stripes on film.

• If you are shooting digital, memory cards will not be damaged or affected by airport security x-ray equipment; however, it is still better to carry these cards with you on the plane.
• We strongly advise packing all camera gear (with the exception of tripods) in your carry-on luggage whenever possible (see the “Luggage Allowances” section of this booklet for information on weight limits specific to your tour).

• We suggest packing tripods or monopods in your checked luggage. Although they are not on the TSA’s list of prohibited carry-on items, some of our travelers have been asked to check them before passing through security.

STORING YOUR IMAGES

Memory cards come in many different shapes and sizes, so make sure that you have the correct type of card, and that you have enough storage for your needs on this trip. The number of images you can store is affected by the size of the card and the size of the image files your camera is producing. You can change the image size setting in your camera.

You can get the highest image quality by setting your camera to record RAW image files, but keep in mind that with RAW images you must “develop” them using software on your computer before they can be printed or posted on the web. Unless you are very serious about image quality, the JPEG setting is usually more than adequate to produce excellent high-quality images. But, if you want the ultimate in digital flexibility and ability to significantly edit your photos after the trip, consider using the RAW format.

If you have a computer or portable data storage device along, you can transfer images onto them to free up space on your memory card.

LENS SELECTIONS FOR SLR CAMERAS

Photo opportunities will often present themselves in a range of distances and conditions, so it’s advisable to bring a variety of lenses if you have them available. In general, a good wide angle to normal zoom, as well as a telephoto zoom or fixed focal length lens, will cover the majority of situations you will encounter. A telephoto focal length of 300mm or 400mm is useful for landscapes and general wildlife shots; a 17–50mm is a great range for many landscape and people shots; and a medium telephoto of 70–200mm is a useful range for a wide variety of subject matter.

If possible, a spare camera body can act as a replacement in the event that your main camera body malfunctions, and as a second body onto
which you may put an alternate lens. Conditions can sometimes be such that it is difficult to change lenses (dusty, foggy, raining, etc.), so having a spare body with a different lens attached provides additional flexibility in shooting both landscape and zoomed-in wildlife shots within quick succession of one another.

Natural Habitat Adventures has developed an exclusive program with LensRentals.com which allows our travelers to rent cameras, lenses, spotting scopes, tripods, flashes, backpacks and other equipment for their adventure at a discount. To review the available options, simply visit www.lensrentals.com. To obtain the discount, add the code “NATHAB10” to the “PROMOTION CODE” box and hit “APPLY” upon checkout.

CLEANING THE SENSOR (SLR CAMERAS ONLY)

Extra care should be taken when changing lenses, as any particles that get into your camera can affect your images. A large rubber bulb blower is a handy tool to remove unwanted particles from the image sensor. You can also buy special cleaning brushes from your local camera store. It is extremely important not to scratch the image sensor when cleaning. If you are nervous about cleaning the sensor, it is probably best to take it to a camera shop and have a professional do it for you.

POWER CONSIDERATIONS

Most camera chargers will accommodate worldwide electrical conditions. Information on compatibility is often found on the back of your electrical device and it is a good idea to verify these details before your adventure. If you are not sure of your devices’ compatibility with the electricity at your destination, we suggest bringing a converter to accommodate your equipment. Converters can be purchased at most electronics and/or travel stores.

Please refer to the “Adventure Details” section of this booklet for more information regarding electrical current and outlet configuration in the areas we will be visiting.

GETTING THE SHOT WITH ANY CAMERA

Large cameras with interchangeable lenses aren’t for everyone, and you shouldn’t feel like you need one to get show-stopping photos while on our adventures! The great thing about point and shoots is that
their simplicity allows you to focus on the fundamentals of photography, such as composition and lighting. We’ve assembled these tips and tricks to help you get the best shots so you’ll return with a lifetime of memories and photos!

**COMPOSITION**

Simply put, composition is critical to taking great photos. While all rules are always meant to be broken, in the world of photography, there are several key rules you should at least consider when setting up for the shot. If you choose to break them, at least you’ll know you’re doing so!

**RULE OF THIRDS**

There is a fair bit of mathematics behind aesthetics of art. Symmetry, anti-symmetry, angles, leading lines, and much more. However, these could (and do) take up entire books worth of material. Instead, the most powerful way to immediately improve your composition is to imagine a grid over your viewfinder, such that the scene is broken into thirds, both vertically and horizontally. The key is to break your photo up into thirds, while also trying to “add significance” to the four intersecting points.

For example, instead of placing the horizon of a beautiful sunrise right in the middle, 50/50 in your frame, have the sky take up 1/3 and the ground take up 2/3s. Or, vice versa, with the sky 2/3s and ground 1/3.
Lastly, see if you can position the sun over one of the four intersecting points to add dimension to the photo.

Similarly, when there is a single subject in your photo (e.g., lion, polar bear, toucan), try and place the animal near one of the intersecting points instead of right in the middle of the photo. Often, by having the subject of the photo slightly off center, it creates a much more intriguing photo.

**LIGHTING**

When photographing natural landscapes, wildlife, and travel in general, you rarely get the perfect lighting that you’re hoping for. Mother nature always has the final say on what the day’s conditions will be like! Thus, you’ll want to know how to adjust the light entering your camera to compensate for whatever is going on around you.

The quickest and easiest way is to adjust the exposure meter, often denoted by the icon below. Each camera is slightly different in terms of its menu system, so we recommend consulting your manual to get it right. However, once you become familiar with this tool, you’ll be amazed at how much more versatile your photography can be.

![Exposure Meter](image)

When your photos are looking too bright, adjust your exposure meter towards the negative side (to the left). If your photos are too dark, adjust towards the positive side (to the right). In general, if you want more contrast in your photo (e.g., sunsets), shift your exposure to negative. Generally, when shifting negative or positive, only do so in small increments, as small changes can make a big difference to your photo.

**MACRO SETTING**

Found on nearly every point-and-shoot camera is a small flower icon like the one here. By pressing this button, you can enable “macro” mode on your camera, which allows you to get surprisingly close to your subject to capture small details. Typical instances where you’d want to use this are for photographing flowers, insects, and other small things. With this setting, you’ll be able to capture their brilliance, no matter how tiny they are!
**MOVING TARGETS**

Getting great shots of wildlife can be tricky, since it can be hard to get them to stand still! While SLR cameras are capable of faster shutter speeds that are quick enough to capture a bird in flight or a cheetah in a chase, most point-and-shoots are not, and it can be frustrating looking at your blurry photographs later. To avoid this, use the “sports” feature activated by the icon here. This tells your camera to prioritize all settings to maximize fast shutter speeds in order to freeze motion. Try this setting for freezing running animals, breaching whales, or even fast flowing water to capture that single moment in time in crisp focus.

**APPS FOR IPHONE/SMARTPHONE PHOTOGRAPHY**

The cameras found in modern-day smartphones are getting to be very high quality and many travelers are using these exclusively for their travel photography. While the default cameras are great, here is a collection of “apps” that may help in expanding their capabilities to include long-exposure, creative filters, dramatic video recording, and more. There are many others, so feel free to explore what options are out there to find the one that will work best for you.

“**CAMERA +**” (A GENERAL CAMERA APP)
If you are interested in upping your photography and following along during discussions about white balance, adjusting exposure, macro mode, and editing techniques, this is an amazingly handy little smartphone tool. It allows you to adjust settings **before** the shot, as well as things like saturation, exposure, and sharpness **after** the shot.

“**SLOW-MO VIDEO**” (FOR STUNNING SLOW MOTION VIDEO)
This is not necessarily an additional app that you’d have to download, as many newer smartphones come with this capability, usually within the camera function. This can provide great fun and sensational slow-mo videos. It’s amazing for things like flying monarch butterflies, grizzlies fishing, or African animals running.

The one trick to this is to be sure you don’t record for too long, as the resulting video is about five to eight times as long as what you actually record (when it’s slowed down). Thus, a 10 second video could turn into several minutes.
“SLOW SHUTTER CAM” (FOR LONG EXPOSURES)
There are certain times where a long exposure can create dramatic and beautiful results. The most common application of this is for moving water, such as creeks and waterfalls. Try this long exposure app to help blur the movement of the water to create that coveted silky look.

“PRO HDR X” (FOR HDR PHOTOGRAPHY)
High Dynamic Range, or HDR for short, is a great way to take photos in challenging light conditions. When there are many harsh shadows, or parts of the scene with extremely bright areas, HDR helps to balance all this out, with the ultimate goal of capturing the scene similar to how your eye naturally sees light. Some smartphones have basic HDR capabilities without this app, but this app allows for better dynamic range and customization to get the most out of your landscape photography.

“WHITE ON WHITE” IMAGES
Today’s advanced camera meters are practically fool proof; but there are some circumstances where you will want to adjust your exposure for the best photo, including “white on white” photographic opportunities (such as arctic hares on snow). Your camera meter is set to look at the world as a gray zone, with the standard exposure set at 18 percent gray. Most of the time, this average is correct. When the only color visible through your lens is white, however, your camera will read it as gray, which will cause an under-exposed photograph.

In order to compensate for the camera’s false metering, you should increase your exposure time by one to two stops (one stop for a photo of a bear against a white background, or two stops if you are just shooting a landscape of bright snow). This is particularly important if you are shooting with slide film, which needs to have the correct exposure at the time that you take the picture. Print film is more forgiving. If it is print film that is exposed improperly, your photo lab should be able to correct the exposure at the time of developing.

If you are using slide film and have an opportunity to photograph in snowy conditions prior to your departure, expose a test roll of film using various over-exposure settings. This test roll will give you a good idea as to how your film will perform.

When using a digital camera, if you use the screen to set up your shot, you may notice that the image will either be too bright or too dark. To correct this problem, find a spot close to your subject that has some
contrast, such as a log in the snow. Point your camera at this spot, push the button half way, and then recompose your shot on the subject you want (and take the picture). If you play with this technique, you will see that by moving your camera slightly, you can significantly change the exposure of your images.

Digital cameras with interchangeable lenses do not normally use the screen to compose the picture, but the same principles can be applied just after the shot is taken. Review your image and adjust your setting accordingly, or meter off of a spot with more contrast near your subject.

THE NORTHERN LIGHTS

Although it’s not likely at this time of year, as skies are generally very overcast, a few of our polar bear travelers are lucky enough to witness another phenomenon of the Arctic—the northern lights. If you happen to be among those and would like to photograph the lights, there are a few tips that can help you to make a good picture. First, you will need a camera that allows you to adjust aperture and shutter speed manually. Your camera should be set to the BULB setting (B) so that the shutter will remain open as long as you keep your finger on the button. For best results, use a cable release for exposures of 30 seconds or longer. You must also have a tripod to steady your shots.

Wide angle lenses tend to work best for the northern lights (24mm or 35mm), and film with an ASA rating of 200 to 400 can help to ensure a good exposure. As for the actual exposure time, there is no set formula and you will have to do some guesswork. As a guideline, if your aperture is wide open, your shutter should stay open for about 20 seconds. However, to increase your chances of getting some good shots, we recommend that you take a large number of photos and experiment with varied exposure times.

PHOTOGRAPHING THE NORTHERN LIGHTS—TIPS FROM A PRO

By Court Whelan, NHA Adventure Specialist and photographer

Generally when shooting the aurora, you’ll want not just a wide angle, but an ultra-wide angle. This equates to something around 10mm for crop frame sensors or 17mm for full frame sensors (or around 8mm for mirrorless lenses). Fish eye lenses also make excellent choices, if you’re into the fish eye look. Once you are armed with a nice wide angle lens, you’ll want to set your camera on a tripod (absolutely critical to aurora photography) and then on a “manual” setting. This is usually denoted by “M” on your camera. You’ll then want to dial it to 50
the widest aperture possible (lowest f-stop number), which is usually something around f/2.8–f/3.5. The lower the number, the more light that is let into the camera, so if your camera can go lower, please do so. Next, you’ll need a long shutter speed (hence the tripod), something between 5–15 seconds. Lastly, you’ll need to set your ISO (similar to film speed) at a reasonably high number to pick up as much light as possible. ISO 800 or 1600 is usually necessary. Some cameras will let you go higher, which is great, but it’s always best to stay as low as you can with your camera’s ISO number.

Next, you’re going to want to focus on something really far away. This might be distant city lights, a car way far away, or better yet—the moon. If the moon is out, this is the ideal “focus point” for aurora photography. Then, and this is crucial, set your camera to manual focus. This allows your camera to “lock in” that distant focus so you don’t have to refocus for each aurora photo you take.

If you have a shutter release cable or remote, that’s great. If not, set your camera to the 2-second timer mode. This allows you to compose your shot and push the button directly on the camera without worrying about any resulting camera shake from button-pushing.

And just to reiterate, be sure to have your camera on a tripod for this entire setup process.

To get a bit more advanced, look to incorporate foreground elements. Getting the shot of a streaming, active aurora is amazing. But, you’ll want to “level up” once you get your first few photos. The best way is to incorporate something in the foreground—a golden rule of landscape photography.

Try locating some snow-covered trees, a rocky shoreline, or if you’re lucky enough to be on dedicated photo tour you may have something as interesting as an inukshuk or igloo to help frame the shot. Depending on lighting, these features may be completely dark, effectively rendering them useless for the photo. If they are too dark, try “painting” them with a flashlight. No need for anything fancy or extra-bright. A little light goes a long way at night. Experiment with painting for 1 or 2 seconds to get the desired effect. Painting is just like it sounds—just pass the light over the entire foreground element, as if you were painting over it on a computer with your mouse.

If you do have a foreground element in your photo, be sure to focus on it (rather than the moon or distant lights) so that it is in perfect focus. If
it is not in focus, it will be very obvious and make for a less-than-ideal photo.

To get even more creative, try getting other celestial bodies in the shot. The most logical is the moon. Some people think that the moon detracts from northern lights photography, but I disagree. I feel that it provides a very real context to the photo. It’s one thing to get a completely dark sky with a streamer of green going through it. But, it’s another thing to give your photo an earthly context by showing a familiar sight—the moon. This way, you show that you are indeed on earth and the aurora is truly above you in the same sky we all see the moon in each night.

Simply getting a photo of the northern lights in any capacity is a photographer’s dream. However, don’t forget to put the camera down for a moment and enjoy it in the moment!

**ADVENTURE-SPECIFIC GUIDELINES**

- **Lens Selections**

  A variety of lens focal lengths is recommended for this trip, as we will see bears and other wildlife up close and far away and also have great opportunities for wide-angle landscape shots. Although some people prefer the highest powered telephoto lens possible, most photographers agree that a 300 or 400mm lens is sufficient for most bear photography. Keep in mind, cameras with a cropped sensor (such as a Canon 50D or 7D, or Nikon D7100 or D300) will have more zoom power built in because of their smaller sensor size; for example, 200mm is actually closer to 320mm.

  How close is close? It is possible that a bear may look right into the window of the Polar Rover. For this, a wide-angle lens comes in handy (e.g., 18-55mm or 24-70mm). Even if the bear is a short distance from the vehicle, a wide-angle lens allows you to take photographs with both the bear and your fellow travelers in the same frame or the bear surrounded by its natural habitat. For photographing bears farther from the vehicle, or shots that fill the frame of your camera with only the bear, a longer telephoto lens is helpful. For this, lenses capable of telephoto range from 200mm to 400mm are suggested.

  Lenses longer than 400mm (e.g., 500mm or 600mm) may be helpful, but are generally not necessary on this trip. While a longer
lens may allow you to photograph bears across shorelines or those spotted from hundreds and hundreds of yards away, there is often a cost when it comes to the size, weight, maneuverability, and actual cost of the lens. We’ve found that typically when people do bring super telephotos, they do not use them for the majority of their photos, but rather for special instances. A versatile lens such as a 70–300mm or a 100–400mm tends to see the most use for telephoto wildlife photography.

Multipurpose lenses also work very well on this trip, as opportunities to photograph both landscapes and wildlife could happen in quick succession. Lenses such as 28-300mm or 18-200mm allow you to photograph a beautiful arctic scene one second and then a bear peeking up through the willows the next—without having to take time to change lenses.

- A second camera body can be helpful for the reasons stated above. There could be instances when you’ll want to shoot a wide landscape scene or a close bear one moment and then a more telephoto shot for something far away the next. A second body can also act as a backup should you have any problems with your primary camera.

- Filters

For the most part, filters are not needed for this trip, as most people prefer to change white balance settings either in their camera as they are photographing or in Photoshop/lightroom after the trip.

Polarizers tend to be a personal preference, as they can sometimes help give greater definition to clouds or saturate colors such as blues and greens. However, they are not critical for this trip.

A graduated neutral density filter (aka, Grad ND) may come in handy when photographing strong contrasts of light early and late in the day. Not critical for this trip, but something worth considering.

- Our visits to the tundra can be very bumpy, and we recommend a padded camera case to protect expensive photo equipment. Also, never place your camera bag on the floor of our vehicles, as the vibrations can be damaging. Keep them on your lap or on the seat next to you.
• Cold temperatures can sap battery power quickly or cause them to malfunction! Bring spare batteries (even if the ones in your camera or video recorder are new) so that you can have continuous power. Also, keep your extra batteries close to your body or add a hand/foot warmer to your camera bag when you are heading out into the cold and your batteries will last much longer.

• One of the primary challenges with photographing in the arctic is when there is ample snow on the ground, for this means you’ll be photographing white animals on a white background. Thus, the vast majority of your frame will be light in color. Your camera will try to adjust for this “excessive” amount of white and automatically darken your resulting photo. To compensate for this, you may wish to manually overexpose (lighten) your photos by 1/3, 2/3, or 1 full stop of light. Virtually all cameras allow you to do this, but depending on the make and model, it could be in different parts of your camera’s menu system. Once found, the exposure meter will look something like the image below, with each dot representing 1/3 of a stop. When the arrow and hash mark are on the + side, you are overexposing your shot (allowing more light). While it is not critical to do this, you may find that without doing so, your resulting photos will appear slightly more gray and drab than what you will see with your naked eye.

• Another challenge with photographing in snowy environments is getting the proper white balance. Within all digital cameras is a computer that tries to calibrate “pure white” based on the type and quality of light coming through. For example, pure white is actually quite different when illuminated via a fluorescent light vs. the
natural sun. Ever wonder why indoor photographs often appear very yellow or very blue? It’s all about the white balance. Most cameras have a spectrum of settings that allow you to manually compensate for this. While there are generally several settings to choose from, “auto” (AWB) will let the camera decide (safest if you don’t want to worry about any of this), but setting it on “Daylight” will inject more blue in the photo and “Shade” will inject more yellow (basically, white balance settings are a spectrum of yellow to blue). Thus, if you want your photos to look “cool,” you want more blue...if you want them to look “warm,” you want more yellow. This is where the original warming and cooling filters stem from. Now, with digital, it’s all done a different way.

- Video cameras are welcome on board the vehicles and while touring town. As with still cameras, we suggest that you bring an extra battery in case one malfunctions or so that you can charge one during the day while you are using the other out on the tundra.

- Tripods will be useful for long lenses or close-up photography, though the average leg size may fall through the grating on the deck of the Polar Rovers. Bring shoes or slashed tennis balls to increase the base of your tripod legs. You may also wish to insulate the legs with cushioned bicycle handlebar tape or pipe insulation (freezing metal can be difficult to handle for hours on end!).

- A photo beanbag can help to steady longer lenses inside the Polar Rovers by placing them over windows (beanbags are available for our guests to use). However, a soft sweatshirt or other puffy piece of clothing will also work, as the main purpose is to allow you to steady the tip of the lens on the edge of the window.

- Should you be lucky and the northern lights appear in the sky during your trip, and you wish to photograph them, you may need to make special considerations. A tripod is critical, as is a camera capable of long exposures (from 5 to 15 seconds). In addition, a very wide angle lens is helpful so that you can photograph the full sky along with some foreground like the Hudson Bay or other landmark. Those lenses capable of very wide apertures (low f/number) will do best, as they can capture more light in an otherwise very dark sky. F-stops in the range of f/2.8 and smaller are generally preferred by photographers shooting at night.
BEFORE YOU LEAVE

- Print a copy of your passport/passport card to bring with you or scan a copy to your email account.
- Print a copy of your flight itinerary to bring with you.
- Make seating arrangements and meal requests with the airlines.
- Leave a copy of your itinerary, passport, and emergency phone numbers with a friend or relative.
- Make arrangements for your mail and/or newspaper to be picked up or temporarily stopped while you are away.
- If no one will be home while you are away, adjust your thermostat to conserve energy and reduce your heating/cooling costs.
- Notify your credit card company of your travel plans so charges on your card do not raise suspicion.
- Put Natural Habitat luggage tags on all baggage.
- **VERY IMPORTANT:** Review your flight reservations 24 to 48 hours prior to departure to check for any last minute schedule changes. Please inform the NHA office of any changes that occur.
Destination Overview
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Think of all the bears you know and love. There’s the mischievous Yogi and Boo Boo, the fun-loving Baloo and polite Paddington. The Care Bears, with their unique personalities, are an old favorite, as is the jokester Fozzie and even the didactic Smokey. And who can forget about Winnie and all of his pooh-ness? So endearing are these bears that their presence persists from generation to generation. And surely you still have a soft spot for your favorite childhood Teddy Bear. What is it about bears that captivates us so?

Well, in many ways, bears are a lot like you and me. They can be sociable, affectionate, and exhibit a genuine sense of playfulness and curiosity. You’ll also find them to be driven, focused, and ferocious. And of course, their strength, confidence, and tenacity are the stuff of legend. Bears possess many admirable personality traits, and so it is natural that they command our attention.

In the high arctic, bears and people share not only these personality traits but also live a life that is in many ways quite similar. It can be easily argued that the ability of early humans to adapt and thrive in the wintry Arctic was in large part due to modeling ourselves after our kindred spirit, the polar bear.

The Inuit peoples of the Canadian north still hold tremendous respect for the white bear they call nanuq. In the northern view, people are just another creature, and all creatures depend upon each other for survival. Traditional mythology often speaks of the human-bear relationship and the spiritual and physical power of nanuq. In these stories, polar bears often take a human form by “shedding their skin,” and residing in small dwellings, not unlike people. Likewise, shamans, the spiritual leaders of the Inuit, have been said to take on the form of the polar bear. Legends even speak of people and bears adopting each other’s offspring.

The Inuit interpretation that all creatures have some commonalities and depend on each other in various ways is a powerful one. At the very core, this perspective reflects important themes of wildlife conservation, sustainability, and respect.
Today, the land that polar bears and people call home is changing rapidly. Robust data sets show that these changes include loss of sea ice, rising sea levels, acidification of the ocean, and melting of permafrost, to name a few. Churchill, our base for this adventure, is an isolated town at the edge of the Arctic where many of these changes are readily apparent. That makes it a fascinating place to visit and explore.

These pages contain information and ideas that will act as a foundation from which you can paint your own picture of the Arctic and a polar bear’s life. We ask you to consider how the Arctic is being affected by climate change, and how you may be able to help alleviate some of the challenges it presents. After all, if we can help the polar bear, perhaps we can help ourselves too.
WHAT’S IN A NAME?

Polar Bears probably don’t have a name for themselves, but we sure have a lot of names for them. Each country of the Arctic has their own term, and some groups, like the Inuit, even use different names, depending on where they reside. Perhaps one of the most intriguing names comes from the Greenlandic Inuit populations. Their word is tornassuk, which translates to “master of helping spirits” and connects the polar bear to shamanistic practices. Other names refer to more tangible characteristics and it is fun to use these names to build a foundation for understanding the life of a polar bear.

THE MARINE BEAR: LIFE AT SEA

A good place to start is with the name used by biologists, Ursus maritimus. Translated from Latin, this name means “marine bear,” and is particularly descriptive. While other bears such as brown and black bears may spend time on the coast, only the polar bear spends most of its time out on the frozen sea. In fact, the US government has officially listed the polar bear as a marine mammal, and it enjoys all of the same protections as a whale or dolphin.

That the polar bear is so closely associated with the marine environment is in many ways surprising. However, the Arctic Ocean is
an especially biologically productive place, and the polar bear has uniquely evolved to take advantage of a food source that would otherwise be neglected: Seals.

It’s worth taking a minute to understand how that works. The most important idea for understanding the ecosystem of the Arctic Ocean is that it completely freezes in wintertime, including Hudson Bay where Churchill lies. In fact, much of the high arctic basin is frozen even in summertime, year after year. It would be easy to think that the ice is a barrier to the ocean and that nothing exists on its snowy, windblown surface. However, frozen sea ice is subject to movements by ocean currents, wind and tides. This means that the ice is constantly being pushed around, creating cracks and sizable expanses of open water, allowing access to the bounties of the sea. It is in these areas, from atop the sea ice, that polar bears excel at hunting seals.

The reasons the seals are there are twofold. Firstly, since they are mammals, seals need to breathe air, and so the open water within the frozen ocean is necessary. Secondly, the seals are taking advantage of the richly productive sea ice habitat.

On the underside of the ice, various algae and phytoplankton bloom as sunlight filters through. This vegetation acts as the base of the food chain. Microscopic critters graze that vegetation, which are in turn eaten by small and young fish, which are consumed by larger fish that then serve as a meal for seals. Without the sea ice “nursery,” the Arctic would be significantly less productive and far fewer animals would be found.

The ringed seal is especially equipped to fit into this sea ice paradigm. From a polar bear’s point of view, this is great because more ice equals more ringed seals; the ice bear’s favorite prey. This is particularly true in areas like Hudson Bay, which melts and refreezes each year. That young ice is preferable to seals, and the higher concentration of prey means more polar bears per capita than you’d find in some of the more northerly locations where thicker sea ice persists from year to year.

Fast Fact – wwfgap.org/tracker
Where you can go online to track polar bears in the wild that have been tagged by WWF.
THE ICE BEAR: SUCCEEDING IN A FROZEN WORLD

While the marine bear is perfectly capable of swimming in the ocean for miles or even days on end, they can’t outcompete and kill a seal when swimming. Instead, polar bears capture seals by still-hunting or stalking from the sea ice, taking advantage of unsuspecting seals surfacing to breathe or rest. The Norwegians recognized that the polar bear not only depends on the sea but also specifically requires the frozen sea as a platform for hunting. And so, their name for the polar bear is isbjorn, the “ice bear.”

Polar bears are perfectly outfitted for life on the ice. One of the first things you’ll notice is the sheer size of the beast. Size is a great advantage in the cold arctic, allowing for efficient conservation of heat. Their furred feet also act as insulation against the cold ground while allowing for exceptional traction even on smooth ice. Claws are short and stout, best for grip rather than digging. Their feet are also disproportionately large, acting as snowshoes or as paddles when swimming. And, of course, they are white, perfectly camouflaged within their snowy domain. These white hairs are also important for insulation, with two layers that maximize warmth and protection from the wind. Beneath this coat is a layer of fat several inches thick, again insulating against heat loss. In fact, polar bears are so well insulated that an adult bear can rest comfortably in temperatures down to about minus 34°C! It is only below that when a healthy adult bear must move to stay warm.

<table>
<thead>
<tr>
<th>The Polar Bear at a Glance</th>
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<tr>
<td><strong>Status:</strong> Vulnerable</td>
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<tr>
<td><strong>Global Population:</strong> 22,000–31,000</td>
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<td><strong>Length:</strong> 6–9 feet long</td>
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<td><strong>Weight:</strong> males 800–1500 pounds; females 400–900 pounds</td>
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<td><strong>Largest recorded:</strong> 2,200 pounds</td>
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<td><strong>Oldest recorded wild bear:</strong> 32, a female in James Bay, Canada</td>
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<tr>
<td><strong>Countries with Polar Bears:</strong> 5</td>
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Picture yourself now as a polar bear. You’re up in the snowy arctic, warm and fit and it’s time for a meal. But there’s a problem. The sea ice you are on is constantly moving due to ocean and wind currents, which means the location of open water—seal hunting habitat—is constantly changing. You look left, right, and behind you but all you see is a great white expanse. How will you find the seals?
The good news for polar bears is that they are equipped with what is perhaps the most advanced seal detection technology available; their noses. While their sight and hearing are comparable to that of a human, their noses are exceptionally powerful. In fact, ship-based spotters have tracked polar bears moving across dozens of miles in a straight line, directly to a seal hauled out on the ice.

Take a look at the shape of a polar bear’s head, and you will get a sense of the capacity of its olfactory sense. The huge nose essentially begins on its forehead and extends down to the nostril. This is in stark contrast to the dish-shaped face of a brown bear that you may already be familiar with. Given the challenges presented by locating seals on a frozen ocean, it makes sense that the nose of a polar bear would be overdeveloped. And the large nasal passage also has a secondary duty; as the bear breathes in and out, the passage retains moisture, preventing dehydration, while at the same time it pre-heats cold, fresh air as it enters its body.

**THE WANDERING BEAR: KEEPING PACE**

So the polar bear is a great traveler, smelling its way from seal to seal, place to place, and keeping up with the changeable frozen ocean in search of its next meal. Inuit in the Churchill region recognized this behavior, and so named the white bear nanuq, “the wanderer.” During its lifetime, an individual polar bear may travel an area equal to twice the size of California, and almost all of that is out on the sea ice. There is some evidence that bears in more northerly populations travel even more; some individuals have been found to patrol an astonishingly large area, equal to the size of Alaska. Adult females, on the other hand, will typically have cubs. Naturally, they will travel together and tend to range far less than their adult male counterparts.

You may wonder how a polar bear defends an area that is so large. Well, the answer is that it doesn’t. Given that the frozen ocean is always in flux, today’s open water and plentiful seals can easily be iced over tomorrow. It just doesn’t pay off for a polar bear to fight and risk harming itself for a hunting location that is ephemeral. So an individual polar bear doesn’t have a territory—an area which it defends—but instead has a home range—an area within which it resides. The home ranges of individual bears overlap quite a bit, with each bear constantly on the move in search of food.

Nanuq does have its limits. Though their home ranges are generally quite large, they aren’t unbounded. In fact, bears within a certain
region are very loyal to that area and typically won’t wander elsewhere. In this way they know where the most likely hunting spots might be at certain times of the year, they know where good denning habitat is, and they know where they can rest on land when the sea ice melts if they reside in an area where that happens.

Given the advantages of local knowledge, polar bears have instinctively divided themselves into 19 sub-populations scattered throughout the Arctic basin. Each of these populations contains bears that are mostly reluctant to travel out of their region, though there is genetic flow that occurs from mating interactions near the boundaries between sub-populations.

Biologists estimate there are between 22,000 and 31,000 polar bears wandering the arctic. Mostly, these polar bears lead a solitary life. There are times, however when they do come together. One is, of course, bear season in Churchill in anticipation of the returning ice. Another time would be during the springtime seal pupping season when food is plentiful and consolidated into more discrete locales. This event occurs annually throughout all bear populations, and so it has extra importance as the mating season for polar bears. Polar bears will also tolerate each other in closer quarters in areas with abundant, yet transient food sources such as a whale washed ashore, or a trash midden associated with a northern hunting community.

In the Churchill area, there are approximately 900 bears that comprise the Western Hudson Bay sub-population. These are the bears you’ll be meeting on your trip, and you’ll encounter them on land along the coast of the bay. They come to land only because the sea ice within Hudson Bay melts during the summer months. They will stay on land until the ice refreezes, eager to begin hunting seals again. Normally, this hiatus lasts from sometime in July until late November for a typical bear.

**THE WHITE BEAR: IN BETWEEN WORLDS**

The Churchill region contains several areas where bears reside during the summertime in the highest densities. In large part, the Wapusk National Park was created to protect these denning areas, and it is generally inaccessible to people. The name wapusk is the Cree name for the polar bear, which translates to “white bear.” What a sight it is to encounter these enormous white bears on land and away from their preferred icy habitat. It’s almost comical to see them lumbering in the heat and dealing with mosquitoes, sprawled out among the purple

64
wildflowers. Their white coats make it clear that they are born of the ice and snow, and not the terrestrial environment like their bear cousins.

But polar bears still have some tricks up their proverbial sleeves. During these summer off-ice months, polar bears enter a physiological state similar to hibernation where their waste is recycled to prevent muscle loss while fasting. This allows them to live off their stored fat and conserve energy. They may also dig down into the frozen ground to stay cool, or even splash around in one of the countless shallow lakes along the coast. Some may even wander along the coast. On these long summer days, they also commit themselves seriously to the task of napping.

By the time Polar Bear Season rolls around in October and November, the bears congregate along the coast, instinctively knowing that the ice—and the seals—will reappear soon. It is for this reason that Churchill is the “Polar Bear Capital of the World”; the particular shape of the coastline, combined with persistent northerly winds and ocean currents, means that the ice forms here first, year after year.

A common question that comes up at this point is “why don’t the polar bears just eat other stuff?” Certainly, the other seven bear species found around the world are perfectly capable of procuring terrestrial foods. As it turns out, polar bears aren’t generally able to take advantage of alternate food sources since they are so precisely tuned-up for a carnivorous life on the ice. Sure, some polar bears will eat goose eggs or the occasional whale that washes ashore. But those sources aren’t reliable and certainly cannot feed and sustain a population of nine hundred 1,000-pound polar bears. And polar bears just aren’t fast enough to catch land-based prey like caribou, and they would likely overheat if they tried. So instead they sit and wait for the ice, patiently conserving their energy.

Let’s sum up what we’ve learned about the polar bear so far. As the marine bear, it relies on the frozen sea as its hunting grounds. As the ice bear, it has special adaptations that allow it to thrive out on the ice,

**Fast Fact – Polar bear collaring**

Polar bear tracking allows WWF to receive regular updates about how the polar bears behave in their Arctic environment and how they may be affected by climate change.
even in the dead of winter. As the wandering bear, it requires a sizeable chunk of arctic wilderness, yet stays within the boundaries of its sub-population. And as the white bear, we are reminded that it is seasonally forced from its icy realm yet has special traits that allow it to endure on land for periods of time. Collectively, these names paint a vivid picture of an individual bear’s life. However, there is one other name, originating from northern Europe, that speaks to the current challenges faced by the worldwide population of polar bears.

**THE OLD MAN IN THE FUR COAT**

The Sami people know the polar bear as “the old man in the fur coat.” You’ll recall that throughout the north polar bears are viewed as being remarkably similar to people. In the context of this mythology, it is easy to envision a polar bear returning from a day of hunting out on the ice, taking off its fur coat and coming into its warm abode for the evening. In the natural world, however, this quick adaptation to a warmer environment isn’t possible. Here we have a simple metaphor for the biggest challenge faced by polar bears: a changing climate.

You now appreciate that polar bears depend on sea ice. The frozen sea is where they hunt, where they rest, and where they raise their young. The funny thing about that arctic ice, though, is that much of it melts each summer, only to refreeze again in the autumn. Polar bears have evolved to work with this natural phenomenon, fasting on land for up to several months at a time. There, they cope with the relative heat and live off of their fat stores. But this is becoming more challenging for the polar bear.

In today’s arctic both summer and winter temperatures are rising, and this has a huge effect on the sea ice in two important ways. Firstly, the total area of sea ice— the extent— is diminishing over time. Modern satellite technology has offered us the ability to study Arctic ice since 1981, and a continuous daily record has been established through the present. What this immense collection of visual data has revealed is that the extent of summer Arctic sea ice has declined by about 13 percent per decade during that time. Think about what shrinking habitat may mean for polar bears. If their habitat is diminishing, the threat is that bear populations will be obliged to follow suit.

Secondly, the timing of the ice is changing too. Compared to just a few decades ago, the sea ice in many areas of the Arctic is melting off weeks earlier in the summer and freezing weeks later in the autumn. So not only do polar bears have less time on the ice for hunting, but
they additionally have more time on land where they are forced to fast. This all comes at an enormous energetic cost for the bears. One study showed that for every week earlier the ice breaks up, bears come ashore roughly 22 pounds lighter. Naturally, the longer they are required to stay ashore and fast, the less fit they become.

As one example of what this means to polar bears, we can look at reproduction. Past research has demonstrated that female polar bears will produce cubs based on their own fitness. That is, fat and healthy sows will typically birth and rear more cubs than those within their sub-population that are less fit. The early summer hunting time is especially important for these bears, with plenty of young naïve seals to prey upon. Consequently, a problem with decreased time hunting on the sea ice is that recruitment rates fall because females haven’t had as much time to fatten up. And if fewer cubs are being born, the population is in danger of decline.

To keep proper context within our example, know that the presence and timing of sea ice are not the only factors that affect polar bear reproduction rates. Genetics and experience, for instance, play an important role, and even in “bad” ice years there are plenty of sows successfully rearing multiple cubs. This complexity necessitates ongoing research to elucidate the longer-term population trends that are vital for policy-making and polar bear management.

Currently, the worldwide population of polar bears is estimated to be 22,000–31,000 individuals. If sea ice loss trends continue, combined with lowered recruitment rates, global polar bear populations are projected by the World Wildlife Fund to decline by 30 percent by 2050. For this reason, polar bears are listed as “vulnerable” by the International Union for the Conservation of Nature (IUCN). It’s no surprise that a highly specialized predator at the top of the food chain would be especially vulnerable to changes in the quality of its habitat. Because of this, the charismatic polar bear has become the poster-child for raising awareness of how climate change is affecting the Arctic.

A few sentences will never give merit to the intricacies needed to understand the complex concepts and processes involving climate change. Meteorology, oceanography, biology, glaciology, and numerous other disciplines all converge on the topic, ensuring that most of us will never fully appreciate it. However, the impacts of a changing climate are readily apparent to those who visit or live in the Arctic. Just a few years ago, for example, and for the first time in
history, commercial shipping vessels were able to navigate the Northwest Passage in the absence of summer ice. And today you can join a cruise ship tour to see it for yourself. On that same line, governments are now sanctioning and funding oil and gas explorations into areas that were historically inaccessible due to the presence of multi-year sea ice.

In communities like Churchill, on the edge of the Arctic, building foundations are collapsing due to the thawing of historically frozen soils. Likewise, new forests are developing as soils thaw and trees move northward, now able to extend their woody roots deeper into the rich soils. And as the landscape changes, so does the wildlife. With thawing soils and boreal forest marching northward, terrestrial arctic animals such as the arctic fox are beginning to lose habitat too.

These are just a few examples of the changes that have impacted the Arctic and our polar bears. Ultimately, these changes are symptomatic of larger issues surrounding climate change that affect us all in myriad ways. If you are curious to learn more, you are encouraged to visit the website of our partner, the World Wildlife Fund, at www.worldwildlife.org.

Fast Fact – WWF reduces polar bear-human conflict
In northern Canada, WWF provided steel food storage containers, so that local people storing food outside could protect it from marauding bears, and electric fences to separate bears from dog teams.
THE CHURCHILL LANDSCAPE

HOW ENVIRONMENT INFLUENCES THE LIVING WORLD

A visitor to Churchill can’t help but be impressed by the rocks. In the absence of many trees, the geology is readily available to you, from the exposed backbone of the celebrated Canadian Shield to the long, parallel rock ridges that tell the story of ancient coastlines. You may also be lucky enough to see fossils within the coastal rocks, especially if you’re visiting in the summertime. Even as we explore coastal polar bear habitat the diversity of stone types, colors, and sizes on the trail is striking. It’s only natural, then, to be curious about how these interesting formations came to be.

And while the nature and origin of the landscape has its inherent draw, it pays in other ways to carry with you some knowledge of Churchill’s geology. The types of rock present, the depth of soil, and glacial landforms all have an enormous impact on what might live there. Consider that some soils hold water while some drain rapidly, or that ridges may see more sun and higher winds versus protected swales. So even if you’re primarily interested in the living world, possessing some knowledge of geology will enhance your understanding of it.

THE CANADIAN SHIELD

One of the first things a visitor to Churchill notes is a special rock type that dominates the landscape along the coastal road. This rock thrusts upward from an otherwise perfectly flat landscape, forming long, complex ridges, which are no more than 20 or so feet in height. Up close, this fine-grained grayish rock looks like it has been through a war. And in some ways, it has. These rocks are the result of underwater rockslides along a primitive coastline. Millennia of heat and pressure then transformed the consolidated material into this extremely tough rock known as Churchill Quartzite. Long gashes and grooves point to a glaciated history, as does the smooth, polished feel. Though they move almost painfully slowly, glaciers exert a violent force on the surrounding landscape over the course of geologic time.

The Churchill Quartzite is part of an enormous regional formation known as the Canadian Shield. These ancient rocks encompass a huge expanse, from Greenland, across eastern Canada, south to the Great Lakes and the northern US, and up into Nunavut and Northwest
Territories. It is one of the oldest geologic features on earth, primarily due to its ability to resist forces that would otherwise render them back to tiny sand grains. Geologists estimate that the shield rock found in the Churchill region is approximately 4.1 billion years old, far older than polar bears and people, and nearly as old as the earth itself.

Polar Bears are quite partial to the shield rock. The complexity of the formation allows them to travel almost undetected along the coastline, which is perfect for a sneaky predator who excels in stalking its prey (even when on land, these opportunistic hunters are always working an angle). These rocks pass along the outer edge of the town itself, meaning the local conservation officers spend considerable time patrolling this lengthy geologic feature for would-be troublesome bears.

AN ICY PAST

As you travel the land in your exclusive Polar Rover, you’ll be aware that some trails are rough, some smooth, some straight, and some more winding. Notice that most of the smooth stuff is a little bit higher in elevation. There’s a reason for this, and it has to do with Churchill’s glacial past.

It’s true that Churchill has seen no fewer than three major advances and recessions of immense ice sheets of a continental scale. These ice sheets would have towered over a mile high, bulldozing and carrying rocks and sediment as they pushed their way southward from the earth’s arctic regions. It’s mind-boggling to imagine this low, coastal expanse blanketed by so much ice. And that ice wasn’t perfectly homogenous. Instead, it was littered with trapped rocks, stones, and boulders that it quarried during its journey. In the wake of the final ice age, as the glaciers melted away, we were left with new landscape features when this formerly trapped material was deposited over the top of the Canadian Shield rock. This includes the sinuous gravelly ridges upon which we travel, many of which are eskers, the remains of sub-glacial stream bottoms. The loosely packed gravel readily allows water to drain through, so we don’t have the chaotic and destructive freeze-thaw cycles that can lead to rough terrain.

Fast Fact – 1992
When WWF launched its Arctic work.
You can imagine that the higher gravelly ridges would also offer plants a drier place to call home, while the lower areas would offer better access to water. Well-drained areas are also best for some critters like burrowing arctic foxes, who can’t tolerate waterlogged or frozen soils for their underground dens. The relatively high ridges also make perfect perches for snowy owls in the treeless arctic, offering a distinct height advantage over their prey. You’ll increase your chances of spotting one if you focus on looking there. Polar bears use these small ridges too. Since they are easily annoyed by high winds, the bears will often rest on the leeward side of these low ridges, perhaps also tucked away within the protective shrubby willows.

**FROZEN GROUND**

There’s one other fascinating part of the geologic story that is unique to very cold places like the Arctic. With such cold temperatures, the water found underground within the local soils is permanently frozen. Geologists call this “permafrost,” and it has profound effects on flora, fauna, and human populations.

If you aren’t familiar with how permafrost works, imagine that the soils below you are full of frozen water. And this isn’t just in the wintertime. Even during the summer most of the ground remains frozen, all but the upper foot or two known as the active layer. The intensity of the summer sun is enough to melt the thin active layer, but it’s just too cold in the Arctic for the deeper soils to melt. So, the ground remains permanently frozen.

Think about how permafrost might affect the living world. Plant roots can only penetrate down one foot in depth, meaning larger plants can’t grow in the presence of permafrost. Likewise, animals cannot burrow for protection. Polar bears, though, are big fans of permafrost. In the summer months, when there is no sea ice, bears reside on land where it is often too hot for them to be active and comfortable. To combat the heat, they will dig a pit or den down to the permafrost as one of their methods of staying cool.

Even people change their behaviors as a result of permafrost. In the town of Churchill, most homes are built on short stilts, allowing cold air to circulate under the house. Without this feature, heating your home would mean melting the permafrost. This would affect the ability of the ground to support your house, and a more typical home foundation would collapse. We can use permafrost to our advantage in another interesting way too. Remote and traditional arctic
communities dig large holes into the permafrost, creating cold storage for meats and other perishable foods.

SURE IS COLD OUT HERE!

The connection between geology and the living world wouldn’t be complete without also considering the local climate. Even small differences in temperature, moisture, or windiness, for instance, are extremely consequential for the plants and animals that may live there. Geology and climate thus interplay to create myriad habitat types that are each preferred by different plants and animals.

This happens even on a very small scale. An example would be a tiny arctic plant eking out a living behind a boulder where it is relatively more hospitable, being protected from the cold and drying arctic winds. As you rove around looking for polar bears and other wildlife, you can look for vegetation patterns on the landscape, which attest to these localized microclimates.

Churchill is famed as a wildlife destination precisely because the local climate and geology are so unique. The cold maritime winds arriving from the north play a particularly important role, and they diminish as one moves inland. This has a profound effect on the vegetation that grows there. In a relatively short distance, one can travel from the marine environment, through the barren tundra, across treeline, and into the boreal forest. Each of these biomes contains an assemblage of vegetation that is unique to it, which in turn attracts a distinct set of animals. That means in one trip to Churchill you could see related critters that belong to different biomes, such as moose and red fox of the forested areas, and caribou and arctic fox of the tundra.

You can look forward to your Expedition Leader helping you to recognize the various landscape features that determine whether a particular plant or animal would live there. This, in turn, will allow you to be a better wildlife spotter yourself.
WINTER IS COMING

Churchill during “Polar Bear Season” is an extraordinarily different place than what you would experience in the summertime. In the late autumn, life in the Arctic is preparing itself for the inevitable coming of winter. All but eleven species of birds are compelled to migrate southward as food sources wane. Barren-ground caribou will migrate too, relocating to the protection of the forests. Ground squirrels, who have nearly doubled their weight since springtime, tuck away into their insulated burrows where they will hibernate for over half of the year. Likewise, insects and wood frogs enter a state of suspended animation that allows them to endure extreme winter temperatures until the arrival of spring. Each day more animals depart or become dormant, and once again the snow and silence descend upon the north.

Polar bears, though, are just getting started. As the snow geese, dunlins, and long-tail ducks race for lower latitudes, the polar bears move toward the coast in great anticipation of the icy hunting season that lies ahead. And the bears are not alone. Plenty of other critters remain, each one especially suited to life in the far north. These are the true arctic inhabitants, living amongst the snow and ice and beneath the otherworldly green glow of the northern lights.

The Arctic can certainly feel like a cold and forbidding place at this time of year. It would be reasonable to assume that life here would be hard, and it some ways it is. Impoverished and frozen soils, cold and dry winds, and exceedingly long days of winter darkness are just some of the challenges of living in the north. But bear in mind that each plant and animal within the Arctic is perfectly suited to its environment. Special adaptations allow species to procure everything they need from the land, and to tolerate anything the arctic throws at them.

As an example, a polar bear needs to hunt seals out on the ice, so it has a white coat that allows it to blend in, while its oversized paws allow it to travel easily on snow and ice. At the same time, the bear must tolerate extreme cold and wind, so it is super fat and has two layers of thick fur that allow it to stay warm. Each plant and animal uses a different combination of strategies for carving out a living. In
this way, life flourishes here, though just in different ways than what you may be personally used to.

You can challenge yourself to recognize and understand the traits and behaviors of each species that allow it to thrive in the Arctic. Notice, for instance, how a resting arctic fox uses its luxurious tail as a muffler. Why might it do that? Well, by breathing through the fur, moisture is trapped as the fox exhales, and then the incoming breath collects that moisture, thereby hindering dehydration in the cold, dry air.

You can think about plants in a similar way. Sharp-eyed observers will notice that the willow shrubs so common on the landscape have buds on them, sometimes even encased in ice through the winter. How might that be useful for the plant? The answer is that this is an indicator of a multi-year reproductive cycle, which makes sense for a large plant given the extremely short growing season. Those buds that grew this year will get a head start by being ready to burst forth immediately when spring arrives.

Here we have examples of both behavioral and physiological traits that ensure success in the arctic setting. Knowing how to ask questions about the plants and animals you encounter is an essential naturalist skill. Even if you don’t immediately know the answers, paying attention and asking questions will lead you to a deeper understanding the world around you.

**TUNDRA TIME**

For much of your trip, you’ll be traveling out on the tundra. Tundra describes a treeless, open landscape that is dominated by low-growing shrubs, mosses, lichens, and sedge. Many wildflowers reside within these miniature forests too, adding splashes of all colors in the summertime, as if Monet and his impressionistic brush decorated the scene. Arctic tundra is often associated with permafrost, though that is not a requirement since the designation is based on vegetation characteristics rather than geology or climate. Still, the vegetation you

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**Fast Fact – 500,000 square miles**

The size of the “Last Ice Area”—ice in the High Arctic of Canada and Greenland that scientists believe may persist longer than anywhere else. WWF is working with partners to establish a management plan for this area.
see is the direct result of the cold soils, cold air, and low precipitation characteristic of the highest latitudes.

Like all other biomes, there is a strong interconnectedness among living things within the tundra landscape, whereby one may not exist without the other, and each species contributes in its own special way to the ecosystem. The foundation of this interconnectedness lies in the plant communities, which offer food, shelter, and nesting grounds for wildlife.

Adorable rodents such as lemmings and tundra voles rely on seeds as their main source of food while using the protection of sedges, mosses, and lichens to avoid predators. Beautiful wildflowers provide nectar for countless insects, while the insects themselves assure each plant is properly pollinated. Many birds rely on small fruiting shrubs such as bilberry, cranberry, and crowberry, while the plants rely on the birds for seed dispersal. In these ways, the tundra, despite its seemingly bleak appearance in early winter, is beautifully in harmony throughout the year.

Key members of the tundra neighborhood are shrubs like willow. Growing up to six feet in height, the willow is by far the largest plant on the tundra. It typically grows densely, forming thickets that are the perfect place for animals to hide from predators and to avoid the chilling arctic winds. It’s always worth a moment to peer into the willows to see who may be hiding out.

The multi-year reproduction cycle of the willow means buds with fat-rich seeds can easily be found attached to the twigs of the shrub during the wintertime. This rich food source allows birds like ptarmigan to reside in the Arctic year-round. The snow buries most other potential food sources.

You’ll get to know the ptarmigan well during your trip, and avid birders will especially appreciate seeing them in their white winter plumage. Just about every carnivore would love to munch on a rotund ptarmigan, so they molt into a different color phase three times per year to better camouflage themselves. As a would-be delicacy, ptarmigan spend considerable time hiding and resting within the dense willow thickets. Notice too that feathers cover their legs and feet completely during wintertime. This is uncommon for most birds, but the adaptation helps them stay warm, and the extra feathers act as snowshoes in a snowy environment.
Ptarmigan aren’t the only animals that rely heavily on willows. Arctic hare also use the shrubs for resting and avoiding predators, and they eat every part of the plant. Another commonality between these two species is a change in color, with the hare being brown-gray in the summertime and pure white with black-tipped ears in the winter. Spotting an arctic hare during the latter part of bear season is a moment worth celebrating. They blend in with their snowy environment and are renowned for their ability to remain calm and still, so as not to give away their position—even with an enormous Polar Rover rambling by.

As you travel the winding trails across the tundra, keep a sharp eye out for the energetic arctic fox. This little fox will have assumed a luxurious white coat by the time you arrive, a remarkable change from its shaggy brownish-grey summertime coloring. This is the only canine in the world whose coat changes, making them remarkable among their kin. The changeable coat, in combination with excellent sight, smell and hearing, means that the arctic fox is a formidable hunter, perfectly suited to stalk its next meal of lemming or ptarmigan in any season of the year.

Arctic foxes are exceptionally tuned-up hunters, but it doesn’t stop there. Amazingly, they will also follow polar bears out on the sea ice just for the opportunity to steal morsels of seal. Since the bears will commonly eat just the fat from the seal, foxes can take advantage of the remains of the carcass, making for a relatively easy meal. Inuit hunters found this pillaging behavior to be a problem and had to take extra precautions to prevent their food caches from being raided.

Arctic fox will also continue to search for food throughout the day, even when satiated. In this case, it will cache any additional prey in a small hole. Often this is dug down to the permafrost to help preserve the dead rodent, goose egg, or stolen scrap of meat. The fox won’t recall where its caches are, but there’s a good chance it will rediscover them later—ideally during the sparse winter months—using its keen sense of smell. Many caches won’t be recovered though, which then decay into the earth to provide nutrients for plants. These clever behaviors allow the fox to be flexible in procuring food and thus successful year-round in the Arctic.

Another important predator of the tundra is the snowy owl. This is North America’s heaviest owl and is one of the largest in the world. Like the polar bear, its size equates to warmth and the addition of
dense feathers is a big advantage for fending off the freezing temperatures and wind.

Snowy owls are exceptionally patient hunters, hardly making a move for significant periods of time aside from rotating their heads around. This behavior, in combination with their white plumage, makes it hard to notice one within a snowy scene. But if your spotting skills and patience are up to the challenge, you’ll surely be rewarded with a penetrating stare from the owl’s bright yellow eyes.

Aside from its beautiful white plumage, the snowy owl differs in other ways from the typical owls that you may have in your neighborhood. Consider that in the tundra there are no trees from which the owl can hunt. Instead, snowies alight on the ground, preferring the slightly higher terrain offered by gravelly landforms left over from glacial times. Any height serves as an advantage, allowing them to study more terrain in search of prey. They are also diurnal, meaning that they are most active during the daylight hours. This makes sense when their chief prey—small mammals like lemmings and tundra voles—are generally more active during the day when the sun shines and it is warmer.

The presence of snowies depends on the presence of these rodents. Lemming populations go through a boom-bust cycle every few years. During years of abundance, large numbers of snowy owls will be born, resulting in extreme competition for prey the following year. This will cause many of the owls to leave the tundra for more southerly locations where hunting will be better. These are known as “irruption years” from the Latin irrumpere—to break in—since the owls seem suddenly to break into places they aren’t typically seen. Aside from these smaller rodents, adept snowy owls will happily tackle larger quarry such as ptarmigan or ducks. Even the arctic hare—weighing up to four times as much as the owl—is hardly a match for this powerful predator.

**Fast Fact – Sustainable industrial development**

WWF offers expertise on oil spill prevention and response and prepares sensitivity maps for areas of the Arctic to help maritime vessels stay clear of ecologically sensitive places.
THE TAIGA

You’ll recall that in the Churchill region the progression of tundra to taiga occurs in just a few dozen miles. So, while you’ll spend most of your time with the bears out on the tundra, you’ll get a sampling of what it’s like in the forested areas too.

The tundra and taiga are two completely different realms. Taiga is a terrestrial biome where spruce, fir, and tamarack forests dominate the landscape, interspersed with tracts of swampy bogs known as muskeg. Soils are cold and acidic, and water typically is close to the surface. If you’re flying into or out of Churchill on a clear day, peer downward, and you’ll get a sense of just how much standing water abounds. It is the world of moose, beavers, muskrat, and waterfowl. The taiga is generally considered the largest biome on the planet, found throughout the entirety of the northern hemisphere. It runs for hundreds, if not thousands, of miles north to south depending on what region of the world you are studying.

Traveling through the dense, wet regions of the taiga is remarkably tough going. Even today’s industrious and well-supported engineers have been able to develop precious few roads and railroads in the north. This is primarily due to waterlogged soils that create engineering issues. The seasonal freeze-thaw cycles wreak havoc on what infrastructure does exist, making for complicated and expensive remote repairs, which are unfortunately all too common. This is the reason why most northern communities rely on cargo planes (in the summer) or ice roads (in the winter) to receive supplies. Churchill is fortunate to have a rail line that extends to it, providing an artery from Winnipeg in the south. However, it too is plagued by flooding and

Taiga vs Boreal Forest

It is common to hear different terminologies regarding the northern forests. Taiga is arguably the most proper term, and this is what is used worldwide. However, the taiga is also often referred to as the boreal forest, especially in North America. In fact, most places in North America make the distinction that the true boreal forest comprises the seemingly unending forested expanses in the southern portion of the biome, while taiga is the more northern portion associated with the patchy forests as the land gives way to the icy tundra. You’ll hear both uses in Churchill and both are completely acceptable.
freeze-thaw cycles, making travel and the transport of goods unreliable even here.

During Polar Bear Season, you’ll have opportunities to get a sense of the forests around Churchill. Densely packed, snow-covered trees stand in plain contrast to the barren tracts of tundra preferred by the polar bears. Dog sledding and helicopter tours provide unique ways to experience the forests, each offering a different opportunity to get a feel for the biome and search for new and interesting critters. While on the ground, notice, in particular, all of the forest birds that remain here throughout the winter. The bright red and yellow pine grosbeak is a favorite, as is the amusingly clever whiskey jack. From the air, keep your eye out for moose or perhaps migrating snow geese and caribou if you’re visiting in the early part of the season.

TREELINE

To enter the tundra from the forest, you must first cross treeline, an irregular boundary where the colder northern climate dictates that trees are no longer capable of growing. It is the region where two of the world’s great biomes diverge; the rich conifer forests of the taiga dissipating into the barren tundra of the north. Because of this, the line was once the division between human communities, with the Dene and Cree populating the southern forests, and the Inuit calling the northern coasts home. Each of these cultures had their own methods and tools for living from the land; all based on what was available in their particular biome.

Treeline is important because it represents a significant change in climate, and separates various plants, animals and natural resources. It is, in reality, a fuzzy line, where geology and climate meld and merge in an erratic intermingling fashion, either favoring or foiling the growth of trees. The presence of permafrost also plays a particularly important role in the ability of tree saplings to establish in the Churchill region. Notice as you drive between town and the tundra how you weave in and out of the spruce forests, an indication that Churchill is indeed on the edge of the Arctic.
PLACES WE WILL VISIT

TRADE, TOURISM, AND PEOPLES OF MANITOBA

During your trip, you’ll visit places that have a history of bringing people together. Trade has been particularly important to the development of Winnipeg and Churchill alike, beginning with native peoples trading together, then moving to the fur trade era after European contact, and finally to today’s world of commerce and tourism. Since you’ll be following in the footsteps of all these people, it’s interesting to carry with you some knowledge of who’s been here before you and why the town of Churchill even exists in the first place.

MUDDY WATERS

Our story begins in the same place your trip will begin, in the bustling city of Winnipeg, Manitoba. This is a city famous for its long, cold winters, earning it the nickname “Winterpeg.” According to Environment Canada, it is the coldest city in the world with a population of more than 600,000 people. Despite the cold though, Winnipeg’s weather is characterized by an abundance of sunshine throughout the year, and the summers can, in fact, be quite hot and humid. And while Winnipeg may seem far removed from polar bears, it has a strong connection to the north.

Throughout history, the Winnipeg area has served as an important hub that connects northern and prairie communities of Canada. The city lies at the confluence of the Red and Assiniboine Rivers, a place known today as “The Forks.” These large rivers acted as highways to the interior and served to create trading opportunities between people far and wide. The Assiniboine and Cree peoples coexisted here for just that reason. Winnipeg was the original name for the place, a Cree word that translates to “muddy waters.”

European explorers arrived in the Winnipeg area as early as 1738 and immediately laid claim to the strategic Forks area. As the decades went by, fierce fighting ensued between the rival North West and Hudson’s Bay Companies, both wanting to control trade in the region. The Forks changed hands several times, with forts being built and subsequently destroyed. In 1822 the Upper Fort Garry was established as the main center of trade. This added to the power of the HBC, by this time a dominant commercial and political force in Canada. Ultimately, a
truce was formed, and the Hudson’s Bay Company took full control of the region by 1881.

ON THE SHORES OF HUDSON BAY

The Hudson’s Bay Company also had two trading forts on the shores of its namesake bay, both of which predated the Fort Garry. The most important was York Factory, built in 1684 and set at the mouth of the Nelson and Hayes Rivers. From there, a direct connection to Winnipeg existed. York Factory was functional for over 270 years before it closed in 1957.

The other outpost was the remote Fort Prince of Whales, originally constructed in 1717 near the mouth of the Churchill River. The Churchill River location was deemed significant because it offered access to northern communities as far west as Alberta, over 1,000 miles away. In the summertime, it hosted a large enclave of Dene peoples as well as the Cree from the south and some Inuit from the north. This fort essentially marked the founding of Churchill, and it has continued to play a notable role in both trade and tourism over the centuries.

The first inhabitants of Churchill date back as far as 1700 B.C. The pre-Dorset and Dorset people were members of the “Arctic Small Tool Tradition.” They lived in partially underground pit houses, summer tents, and snow houses. Tent rings and other artifacts from this culture can still be found in the region.

By 1000 A.D. Thule people from the western Arctic arrived, displacing the Dorset. This new group of people—ancestors of the present-day Inuit—was much more focused on the marine environment, where they hunted seals, whales and walrus with harpoons. Inland, the Dene culture emerged by about 500 A.D., arriving from as far west as Alaska. They are known as “the caribou people,” and their nomadic lives revolved around following caribou herds across the taiga. At the

Fast Fact – Inuit people
WWF supported the Inuit Qaujimaningit Nanurt (‘Inuit knowledge of polar bears’) project in Arctic Canada, including the publication of a book. WWF works with indigenous peoples to help collect and pass on generations’ worth of accumulated wisdom and traditional ecological knowledge.
time of European contact, the lands of the Inuit, Dene, and Cree all converged in the Churchill Region, and all contributed to trade at the fort in some way.

In 1790 the French launched a campaign to disrupt trade conducted by the British Hudson’s Bay Company. Arriving just as the bay thawed, the French caught Churchill’s Fort Prince of Wales off guard and took control without a fight. The sizable stone fort, however, was destroyed. French commander La Perouse knew that native peoples would be coming to trade during the summer months and that they had come to rely on supplies from the fort. In an act of great integrity and compassion, La Perouse saw that stores of supplies were laid out before he departed, in anticipation of the arriving traders.

The Hudson’s Bay Company did rekindle trade in the following years, but Churchill’s importance waned quickly, and by the late 1800’s it was nearly forgotten. Luckily though, Churchill has another attribute that makes it desirable for trade, which once again put it in the center of Manitoba’s trade and tourism industries. It turns out that the mouth of the Churchill River is very deep and it stays protected from all but the worst of arctic storms.

As early as 1880 the Canadian government was interested in establishing an arctic seaport. It would be faster to ship through Hudson Bay rather than the complex and expensive St. Lawrence Seaway system, at least for the portion of the year when the bay wasn’t frozen. The new port would be connected to Winnipeg by rail. Originally, the plan was to have the railroad exit at York Factory, which would certainly have left Churchill to fade away as the Hudson’s Bay Company’s influence diminished in the north. Construction began in 1883 and continued in fits and starts for decades due to financial troubles. Ultimately, the money did come, though by that time the shipping industry had changed significantly. Huge steel ships now dominated, and a ship that size couldn’t fit into the shallow delta created by the Nelson and Hayes Rivers at York Factory. Instead, engineers set their sights on the deep-water port of Churchill and in 1929 the railroad arrived. Once again, Churchill flourished.

GATEWAY TO THE NORTH

Although the train is not currently operating due to damage to the tracks, Churchill’s size, character, and reputation are owed in large
part to the rail line. While the railroad was intended for transporting grain to Churchill for export, its creation has had a much farther-reaching influence on the town. The construction of the airport, the hospital, the town center complex, and even our Polar Rovers were all made possible with support from the train. Two other notable locations were possible due to the rail line as well. The Canadian Space Agency was able to erect a rocket range, which became famous for contributing to our knowledge of the aurora borealis (northern lights), among other things. The train also supported the construction of the renowned Northern Studies Center, a state of the art scientific station that focuses on the Arctic. This facility conducted much of the research we discuss during the trip.

Even other communities benefit from the rail line to Churchill. It carries food, building materials, and other supplies that will be barged to even more remote communities along the shores of Hudson Bay; sometimes by sea, sometimes over the frozen land. And because of this connection to the north, Churchill also hosts a hospital, which serves the entire region. Perhaps most importantly the train and airstrip have offered the people of Churchill a connection to Winnipeg, where family and friends await.

Thanks to the train and airport, Churchill hosts the majority of the 530,000 yearly travelers to northern Manitoba. And these travelers contribute more than $115 million annually to the town and other northern communities. You may ask “what, besides the bears, makes Churchill so special?” Well, in addition to being the “Polar Bear Capital of the World,” Churchill is also the “Beluga Whale Capital of the World,” it is renowned for its regular and exquisite displays of aurora borealis, and it is also one of the top birding destinations in North America.

Churchill’s rich history, varied wildlife, and cultural diversity all contribute to making it one of the world’s most intriguing places to visit. On your trip, you’ll have exposure to much of this, including meeting some fascinating locals.

This Destination Overview was written by NHA Guide Colby Brokvist: Colby has an appetite for polar and mountain regions. He has been an Expedition Leader in the Canadian Arctic since 2006, and his resume includes over 50 trips to Churchill. Colby has been featured on National Geographic Weekend Radio as a polar bear guide and is a published travel & nature photographer.
The following is a brief introduction to some of the other wildlife we may encounter during our Polar Bears of Churchill expedition.

CARIBOU

For eons, indigenous cultures have relied on the “deer of the North” for food and clothing. A wealth of caribou would bring celebrations and feasting, while a scarcity meant famine and hardship. An iconic symbol of the North, this social herd animal—equally comfortable in the boreal forest and on the open tundra—makes more extensive migrations and occurs in larger herd numbers than any other North American land mammal.

Though they often follow similar migration patterns and frequent the same seasonal ranges, caribou can be unpredictable and diverge from their traditional routes. During summer, however, they tend to head to the coast where tidal flats offer a respite from the ubiquitous black flies of the interior.

PHYSICAL DESCRIPTION

Both sexes of caribou have antlers, a fact that differentiates them from all other deer species. The shape of each animal’s antlers varies significantly, and many believe that no two pairs of antlers look the same. Adult bulls shed their large antlers early in winter, but cows retain theirs until June when calving time arrives. This way, pregnant females can claim and protect optimal feeding areas through the winter when getting food of the highest quality is imperative to nurturing their quickly developing fetuses.

Numerous critical adaptations enable caribou to endure, and even prosper, during lengthy, frigid winters. The caribou maintains two different internal temperatures to avoid dangerous loss of heat from its lanky legs. While its core temperature stays near 105°F, its legs stay at least 50 degrees colder because the arteries and veins of the caribou run right next to each other, meaning that the out-flowing arterial blood transmits its warmth to the chilled, venous blood returning from the limbs. The blood vessels in the caribou’s extremities allow just
enough blood to flow so they lose very little valuable body heat to the chilly, ambient air, and their legs do not succumb to frost damage.

The caribou’s coat, made of dense, hollow club-shaped hair, shields the animal, including its feet, tail and muzzle, from extreme temperatures. These hairs, which have thicker tips than bases, create a coat with a thin, curly underwool and a thickly packed outside layer that has countless small spaces of air. With this extremely warm coat, caribou become practically invincible to even the nastiest Arctic weather. Because of all the adaptations that have made caribou able to thrive in the Arctic, some scientists refer to them as chionophiles, or “snow lovers.”

Giant feet that act as snowshoes allow caribou to stay on top of soft snow, another necessary adaptation for this environment. Their wide, sharp hooves also allow them to effortlessly break and clear snow when they dig craters in search of food.

**Calving**

The majority of caribou herds have been named after the remote locations of their calving grounds. Each spring, pregnant cows and their yearling fawns march to the areas of their birth, trekking 15 to 20 miles a day. They cross vast stretches of land, led by memories of past migrations. Cows rush determinedly towards their destination, while bulls lag behind at a leisurely pace.

After reaching the calving ground, the females scatter. The previous autumn, most breeding occurred all at once. Now, in mid-June, an astounding phenomenon takes place as most of the fawns are born within a five-day period. Within hours, newborns are able to stand and walk. Soon, they follow their mothers across the Arctic tundra. Synchronized birth has great advantages, as herds are able to rapidly regroup after calving. The caribou recognizes the dangers of straying behind—there is safety in numbers.

**Fast Fact – 22,000-31,000**
The new worldwide possible polar bear population range estimate released by the International Union for the Conservation of Nature (IUCN). Recent improved approaches for surveying some of the 19 polar bear subpopulations mean scientists can be more precise in their estimates of polar bear numbers.
Calving at the same time has its benefits, but it also leaves newborn fawns vulnerable. If a blizzard were to strike at any point during the crucial five days of birthing, or if freezing rain douses the fawns’ insulated fur, the calves can face death. In years of strife, fawns make up less than five percent of the herd, while in good years, they constitute up to 25 percent.

**Predation**
Wolves and humans are the caribou’s primary predators. Wolves are skillful hunters, strategically working in teams to chase down or ambush their prey. They are more than capable of taking down a healthy caribou, but prefer easier targets such as calves, strays and those in a weakened state due to sickness or old age.

**Ringed Seal**

![Ringed Seal](image)

**Habitat**
Reaching population levels near 6 or 7 million, the ringed seal is the most plentiful, pervasive and common seal of the Arctic. It is the most significant seal supporting the diet of indigenous peoples who inhabit the Northwest Territories. Living in the Northern Hemisphere’s circumpolar regions, the ringed seal gravitates to habitats comprised of pressure ridges, leads and polynyas in the Arctic Ocean’s land-fast ice, which is sea ice that forms in shallow water off the coast.

**Physical Characteristics**
Compared to other seals, ringed seals are small. Males typically weigh between 145 and 200 pounds and measure slightly more than 4 feet long, while females average 100 to 110 pounds. Rigid guard hairs comprise their light gray coats, which can display varied patterns, but always have black spots surrounded by lighter ring markings (giving them their name). Spots on their backsides often merge with each other so they appear like a stripe instead of a spot. Their undercoat is lighter and their bellies are usually clear, silvery-white to creamy yellow, and scattered with black spots.
**Behavior**

Using their well-honed sense of smell, hearing and vision, curious ringed seals often investigate unknown sounds and sights. Lounging seals continuously alternate between lying flat and lifting their heads skyward for a few moments. They utilize a variety of vocalizations including moans, whines, and growls, and they frequently heed cautions sent by other seals.

Though they periodically group up at haul-out areas or move in groups that are loosely organized, ringed seals are chiefly solitary beings. During winter, they separate according to age; adults stay in preferred breeding habitats, under stable ice in bays and fjords, while non-breeders remain at the edge of the floe where they move based on availability of food and population pressures.

In the water, seals utilize holes within the ice for breathing; they keep these holes open by using their fore flippers to claw the ice. Cone-shaped and covered with an ice dome perforated by a tiny vent, seals can hollow out the breathing hole if snow blows over it. Prior to surfacing, seals may blow bubbles through the hole to check for predators.

**Feeding Habits**

Seals have a number of physiological adaptions that allow them to dive deep into the icy ocean. They possess a high number of red blood cells, control the quantity of blood flowing to vital organs, and decrease their heart rate from 80-90 beats per minute to as low as 10-20. Average dives for food last approximately 3 minutes, interspersed with 1.5-minute intervals for breathing at the surface. Ringed seals can dive to depths of 295 feet for up to 45 minutes.

A ringed seal’s diet consists of a wide array of fish and crustaceans, including shrimp, arctic cod, crab and herring. They fast while molting, basking and mating.

**Reproduction**

At 5 to 10 years of age, ringed seals reach sexual maturity. After 10 years old, females have a high annual rate of pregnancy. Males who mate will become territorial and possess a musky, potent odor. April is peak breeding season. After mating, the embryo remains undeveloped for 81 days, after which gestation lasts nine months.
Pregnant females will find a snow cave, or dig a birthing den out of a snowdrift above a breathing hole. Seal pups are usually born between mid-March and early April, averaging 2 feet long and 10 pounds at birth. Pups have fine, soft white hair, called “lanugo,” which sheds by 8 weeks old. This keeps them warm until they gain the layer of blubber needed for insulation. Molted pups have a silvery coat of hair on their belly and a dark gray back. They are known as “silver jars.”

Mothers give birth to a single pup, nursing them for five to eight weeks in the sheltered warmth of the protected den. Males play no part in caring for their pups. Females leave their young when the ice begins to break up, usually in late June or early July. At 1 year old, young are about 70 percent of their mature size.

**Predators**

The ringed seal’s many predators include polar bears, arctic fox, walruses, wolves, dogs, wolverine, sharks, gulls, and humans—more than 25 percent of the pups in their dens are eaten by arctic foxes. Ringed seals are the main prey of polar bears, which will catch one seal about every five and a half days.

**Bearded Seal**

The bearded seal is a primary food source for polar bears and for the Inuit of the Arctic coast. Holding a place of esteem in the area, the native name for the seal is ugyuk or oogrook, and its skin is used to cover the traditional wood-frame boats known as an umiak. The bearded seal gets its generic name, Erignathus barbatus, from two Greek words that refer to its heavy jaw. In addition, the seal’s name refers to its most characteristic feature: conspicuous and very abundant whiskers.

**Physical Characteristics**

Entirely gray, with a darker back and dappled in tiny, dark spots, bearded seals are big animals; males and females measure more than 7 feet long and weigh approximately 570 pounds. As their name indicates, bearded seals have elongated whiskers covering their chin and nose. Bearded seals share some characteristics with monk seals. Most seals have beaded whiskers, but both bearded and monk seals
have smooth whiskers. And, while other seals have two nipples, bearded and monk seals both have four.

HABITAT & FEEDING HABITS

Bearded seals are found in many of the same circumpolar regions as ringed seals, primarily inhabiting shallow waters in the Arctic and subarctic. They also live along the islands and coasts of Europe, Asia and America. It is estimated that there are 500,000 to 1 million bearded seals on the planet.

Bearded seals eat a variety of small prey, including bottom-dwelling mollusks, crustaceans, clams, sea cucumbers, squid and fish.

PUPS

Newborn seal pups have fine gray-brown hairs with dabbles of white on the head and back. From mid-March to early May, pups are born on the thick pack ice. A mother’s lactation period lasts between 12 and 18 days.

ARCTIC FOX

The Arctic is a harsh environment in which few species can survive. The Arctic fox, a specialist at adapting to circumpolar regions, is an exception. Only as big as a large domesticated cat, this canine is one of the tiniest mammals to actively spend the long Arctic winter above the surface of the snow.

PHYSICAL CHARACTERISTICS

In winter, the Arctic fox looks bulky and rounded due to its long, thick, soft fur coat. Underneath their fur is a rather skinny body, and they typically weigh just 10 pounds. Despite living in temperatures that reach −20°F and lower, Arctic foxes are able to maintain their core temperature due to adaptations that include a short muzzle, legs and ears, and densely furred footpads. Using its keen hearing and profound sense of smell, the Arctic fox can detect lemmings, an important food source, scurrying under the snow’s surface. Living on the coast and offshore ice, the Arctic fox is a more skilled swimmer than other
Canines. Its shrill bark is easily identifiable, but the Arctic fox also periodically purrs in a cat-like manner.

Arctic foxes are dimorphic, which means they can exhibit one of two phases—brown or white. They are the lone canine to undergo a change in coat color from summer to winter. The white Arctic fox begins molting in early July to expose its summer fur, which is fawn-colored and brown. After approximately eight weeks, they begin to regrow their white coat for winter. Blue phase foxes have a pale grey coat in winter and a dark bluish one in summer. Though the reasons aren’t totally clear, the coastal populations of Jan Mayen Island, West Greenland, the Commander Islands and the Pribilof Islands are usually blue, while 99 percent of the continental foxes living on the mainland of Canada are white.

Behavior
During winter months, Arctic foxes do not hibernate. They exhibit a combination of nomadic and communal behavior, typically establishing small groups to search for food. These foxes usually construct dens in a rock mound at a cliff base or in stumpy knolls, 3 to 13 feet high, on the tundra. Some of these complex dens—with between four and eight entrances and a tunnel system that can reach over 300 square feet—have provided shelter for multiple generations of foxes, since they are used over and over for centuries. Each den, usually built in cliffs a minimum of a mile apart, houses a family—a social group comprised of the litter, a male adult, and two vixens. Born the previous year, one of these females is non-breeding but remains to assist in caring for the new litter.

Reproduction
Arctic foxes become sexually mature as soon as 10 months old. They are monogamous, generally mating for life. Breeding usually occurs between February and March, and afterward the mates are hard-pressed to find a birthing den, since permafrost must be low enough beneath the snow to allow the foxes to burrow. Gestation lasts approximately 53 days, and litters are born in the spring and early

**Fast Fact – CAP Scorecard 12**
 WWF’s Polar Bear CAP Scorecard summarizes the first two years of work on the Circumpolar Action Plan for the Conservation of Polar Bears (CAP).
summer. The number of kits in a litter depends upon the abundance of food, especially lemmings. Mothers typically give birth to between five and eight pups, but litters have been known to reach the incredible size of 25 kits.

Kits are born deaf, blind and without teeth. Each pup is the mere size of a tennis ball and they eagerly suckle from their mother. After they are weaned, kits emerge from their den at 2 to 4 weeks old. Fathers stay with the pups, helping catch prey to feed the young. He copulates again with the female just a few weeks after birth.

**FEEDING HABITS**

Arctic foxes leave their natal dens by the end of August, separating to hunt from dawn until dusk. In summer, the Arctic sun can shine for up to 24 hours a day, and foxes will continue to search for prey as long as there is light. They are opportunistic hunters, eating practically any animal, including small mammals and carrion. They will also eat insects, berries and even excrement.

In the summer, the central component of an inland Arctic fox’s diet is lemmings. During this season of bounty, foxes will make caches of food in preparation for the long, lean winter ahead. They store the food under stones in their den. Alwin Pedersen, a Danish naturalist, found one store that had enough birds to keep a fox fed for a month. It contained a long, neatly arranged row of two murres, four snow buntings and 36 dovekies, plus a pile of dovekie eggs.

During winter, Arctic foxes will become nomadic, often following polar bears to the coastal sea ice and scavenging the carcasses of bearded and ringed seals. The population of Arctic foxes rises and falls every three to five years, in a cycle dependent upon the number of lemmings. When prey is scarce, Arctic foxes have been known to migrate hundreds or thousands of miles.

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**Fast Fact – 5. 59 million square miles**

The second lowest year on record for the largest extent of Arctic winter sea ice, a decrease of about 448,000 square miles from the previous year. Polar bears depend on vast areas of sea ice in order to feed themselves and their young birthed over the winter.
THE STRUGGLE FOR SURVIVAL

There is a high rate of mortality in Arctic fox populations. Parents often abandon their litter of pups, and aggressive kits will sometimes kill their siblings. The deadly disease rabies ravages up to 20 percent of the Arctic fox population, increasing in times when immune systems are weakened from starvation, another killer. Although these creatures can live up to 10 years the wild, only one out of 25 will survive past 4 years old.

WILLOW PTARMIGAN

PHYSICAL DESCRIPTION

With squat, rounded wings and a slight black bill, this stout bird resembles a chicken. Reaching 15 to 17 inches long, the willow ptarmigan is the biggest of the three species of ptarmigan. Males weigh in at just over one pound and females weigh a little less. The red comb above their eyes and the square tail that remains black all year distinguish this bird from other ptarmigan. Females, which are more gray-brown, display heavy breast and flank barring while mature males have brilliant red “eyebrows.”

Thick feathers cover the willow ptarmigan’s legs and hide its nostrils to prevent snow from getting in. In autumn, ptarmigan also grow a solid clump of rigid feathers over their toes. These feather-covered feet act like snowshoes in winter, while their sharp, elongated claws assist the bird with crossing icy slopes. The snowy owl is the only other bird that is as well suited to survive unforgiving winters in the Arctic.

The ptarmigan’s plumage is in harmony with the colors dominating the landscape. In winter, ptarmigan are snowy white, but in late spring, they morph to piebald, a combination of summer brown and winter white. In summer, they turn deep tones of gray and brown, blending in with the ground. In fall, they turn speckled brown, white and gray before returning to a dazzling white in time for snow to cover the earth again.

Apparently conscious of their camouflage, they tend to gravitate toward surroundings that match their color so they can remain unnoticed by predators. For instance, white ptarmigan are extremely unwilling to travel across dark ground. Likewise, birds dressed in summer brown do their best to cross dark ground while circumventing snow patches. This
strategy helps ptarmigan remain inconspicuous year-round, with the exception of spring when males fervently court females.

**Habitat**

Willow ptarmigan favor summering sites in the tundra, the alpine tree line boundary and mountain slopes. In wintertime, the birds nest in willow trees and sheltered valleys. They inhabit most of their range during winter, and can be found roosting and feeding together during this time. Gathered in large numbers, the birds may migrate south. Ptarmigan are thought to be the most migratory species of upland game birds in North America.

**Behavior**

Though willow ptarmigan spend the majority of time on the ground, if they are startled, they burst into strong, swift flight and can cover a mile prior to landing. Because snow provides excellent insulation from the cold and offers a place to hide from predators, ptarmigan prefer to sleep under the snow. For this reason, you may see a ptarmigan flying straight into a snow bank; if it were to walk, a predator, such as a fox, may be able to trace its tracks.

**Feeding Habits**

During winter months, willow ptarmigan consume the twigs, buds and catkins of trees such as birch and willow. During the summer, they feast on brightly-colored kinnikinnick berries, cranberries, crowberries and blueberries. They also eat seeds, as well as the flowering buds and supple leaves of birch, alder and willow trees. Nestlings will eat spiders and insects, including caterpillars and beetles.

**Reproduction**

Males guard their territories vigorously against other imposing cocks. They may fight over hens, lashing out and plucking feathers in a bloody combat. A male will make a show of clucking, strutting and burping next to a female, flashing the vivid scarlet of his serrated head combs. With quick, dainty steps, he follows her, showcasing the large black feathers in his fanned tail that stand in stark contrast with the snowy white of his body. Dragging wings flung stiffly out to either side, he abruptly soars into the sky. Giving a cry of enthusiastic, gurgling song, he drifts down to the female, completing his elaborate display.

Willow ptarmigan are generally polygamous, as cocks typically mating with a number of hens. After breeding, a female will make a nest by digging a shallow depression at the base of a shrub, mound, log or...
cluster of grass. She lines the nest with soft feathers and grass, hidden on
the tundra or at the edge of a clearing. A willow ptarmigan cock will
stay with a hen while she incubates their eggs, unlike other ptarmigan
species. The male will guard the female and their young against
predators such as gulls, foxes, weasels, owls and hawks. Keeping
lookout from a nearby thicket, cocks will confront humans if they
attempt to steal their chicks, and there is even record of a male attacking
a curious brown bear!

Incubation lasts 21 to 22 days. Merely a week after hatching, chicks
begin attempting flight, and will soon leave the nest. Father and
mother care for their chicks until they are about 60 days old.

SNOWY OWL

**Physical Characteristics**

Weighing a little more than 3 pounds, measuring between 24 and 29 inches long,
and boasting a 5.5-foot wingspan on average, this powerful bird is the largest Arctic bird
species. In this sexually dimorphic species, females are heavier and larger than males.
Snowy owls are chiefly white, but they have dusky flecks and bands of dark brown cutting
across their plumage. More predominant in immature birds, these bands are barely
noticeable on males, and many older males are totally white. Snowy
owls have yellow eyes and white feathers, which offer protection from
the frigid Arctic weather, enveloping their feet and legs.

**Feeding Habits**

Snowy owls are carnivorous and powerful hunters. Their main food
sources are lemmings and mice, but they will also take ptarmigan,
murres and eiders, and can snatch char and trout from river shallows.
And although it weighs only about 3 pounds, a snowy owl can catch
and kill a 12-pound Arctic hare. It commonly hunts by perching high
above the land, gaining a view of potential prey below. Its visual
scanning of the area is facilitated by its ability to swivel its head 270
degrees.

**Reproduction**

Courtship lasts from mid-winter to early spring. Courting males will
strut to and fro, wings spread wide in an impressive display. Male
snowy owls may also catch and deliver prey to females, showcasing themselves as strong providers. In some regions snowy owls mate for years or for life, while in other areas pairs nest only for a single season.

As mentioned before, a snowy owl’s primary food source is lemmings. A female snowy owl’s fertility varies according to the abundance of lemmings. In years when lemmings are scarce, a female will have a small clutch of two to three eggs. When lemmings are bountiful, she may lay as many as 15 eggs. On average, the female will lay five to eight white eggs, produced one every two days. Incubation, completed by the female, lasts 32 to 34 days. Chicks hatch every other day. In large nests, there may be a great variation in sizes according to age. Nestlings who are born later often perish, trampled by stronger siblings in the rush for their mother’s food. Dead owlets are typically eaten by the mother, or she may feed them to her more fortuitous young.
ABOUT WORLD WILDLIFE FUND

WWF is the world’s leading conservation organization, working in 100 countries for half a century. With the support of almost 5 million members worldwide, WWF is dedicated to delivering science-based solutions to preserve the diversity and abundance of life on Earth, halt the degradation of the environment and combat climate change. Visit worldwildlife.org to learn more.

NHA & WWF: DISCOVERING OUR PLANET TOGETHER

Since 2003, World Wildlife Fund, the world’s leading environmental conservation organization, has partnered with Natural Habitat Adventures to offer conservation travel—sustainable travel that supports the protection of nature and wildlife. WWF selected Natural Habitat as its travel partner because of our long-standing commitment to conservation and the exceptional quality of our adventures.

NHA has provided more than $2 million to WWF and will continue to give 1 percent of gross sales plus $100,000 annually through 2023 in support of WWF’s mission to conserve nature and reduce the most pressing threats to the diversity of life on Earth. When you travel with NHA & WWF, you’ll join us as a force for change as a portion of your travel dollars directly support WWF priorities in some of the most precious yet imperiled places on the planet.

YOUR WWF SUBSCRIPTION

As thanks for traveling with NHA & WWF, we are pleased to provide you with a complimentary, two-year subscription to World Wildlife magazine. The quarterly publication provides an inspiring, in-depth look at the connections between animals, people and our planet—and gives you the tools to help solve some of the most pressing issues facing the natural world.

Along with the magazine, you’ll also receive our monthly conservation and travel E-newsletters (provided you gave your email address to your NHA Adventure Specialist).
LACK OF WINTER SEA ICE DISRUPTS LIFE IN THE ARCTIC

It’s the second-worst winter for sea ice in the Arctic, according to new data released by National Snow Ice Data Center scientists—the crescendo of a winter packed with environment-changing temperatures. Ice covered only an estimated 5.59 million square miles of ocean at its largest extent, that’s down roughly 448,000 square miles compared to previous years. It’s now receding as we move into the spring and summer months.

As this rapid warming trend continues, entire ecosystems are unraveling and the consequences are impacting daily life in the Arctic as well as life in coastal communities thousands of miles away.

POLAR BEAR RESEARCH TRIP CANCELLED

Polar bears are trying to adapt to a changing environment, particularly as one of their main habitats—sea ice—disappears. An important part of helping them adapt and become more resilient to the stress that comes with melting is better understanding polar bear populations through research. That’s getting more difficult to do as temperatures warm.

The US Fish and Wildlife Service recently canceled a polar bear study in the Chukchi Sea region, blaming “unusually warm weather and strong winds” for the lack of ice. Experts in Alaska concluded that “the risk to the bears and people is too high.”

The cancelled trip was intended to be the annual follow up to previous surveys of polar bear populations conducted in the region between Russia and the US since 2008.

LACK OF SEA ICE NEAR SHORE IN ALASKA

In the Bering Strait, the small community of Little Diomede Island has reported the worst winter for sea ice in their region in memory. Instead of ice off shore there have been long, unpredictable periods of open water, leaving the coasts extremely vulnerable to strong storms, high winds and dangerous surf.

GLOBAL IMPLICATIONS

Low levels of sea ice are a problem for the entire world. Millions of people will feel the effects.

Sea levels rise faster because of Arctic warming, and scientists warn that the regularity of extreme winter weather, as well as droughts,
flooding and damaging wind events, will continue to increase in part due to Arctic warming.

While the Arctic has undoubtedly changed, and will continue to, it’s not too late to take action. The science behind the Arctic’s new environmental reality can help to guide that work. WWF continues to support communities throughout the Arctic on climate smart, sustainable development, protect ecologically critical areas, and improve governance in the region. And efforts to reduce carbon emissions globally will make the difference between a new Arctic and one that collapses under the weight of devastating warmth.

“It is essential that we take action now to reduce emissions and move toward a low-carbon economy and climate-resilient world,” said David Aplin, interim managing director of WWF’s US Arctic program. “It is our shared responsibility to safeguard the Arctic and our planet from the ill effects of climate change, and we have no time to spare in doing so.”

THROUGH THE LOOKING GLASS

By Alison Henry, WWF

Elisabeth Kruger stood on the meter-thick ice of Lake Baikal in southern Siberia, just north of Mongolia. Peering down past air bubbles and crisscrossing cracks, she saw a fish swimming along in the dead of winter in the world’s deepest and oldest lake. And just like that, the deal was sealed; Kruger wholly fell in love with the North. After four years of living in Siberia, Kruger moved to Alaska to work with WWF. The location and position as a program officer working on polar bears offered Kruger her trifecta: living in the Arctic; working across borders; and practicing conservation.

“It was really just kind of perfect,” Kruger said. “I could work with not just a conservation organization, but a conservation organization that learns from local people and international experts, values the confluence of traditional knowledge and modern science, and has a lot of respect for the communities that were here long before anyone else.”

HELPING POLAR BEARS AND PEOPLE

Though Kruger wears many hats at WWF, her main focus is mitigating conflict between polar bears and people, and ensuring species
conservation is consistent in the three countries that are home to the Bering, Chukchi, and Beaufort Sea polar bears: the US, Russia and Canada.

Polar bears know no country boundaries; they travel freely from Russia to the United States, from the Canadian north to Alaska. Kruger and her WWF team are working with partners in Russia and Canada to create a transboundary plan outlining how the Arctic countries can collaborate and protect polar bears. The idea is to ensure threats on one side of the border don’t impact the species on the other.

“There’s actually quite a lot we don’t know about polar bears,” Kruger said. “Nine of the 19 subpopulations of polar bears are data-deficient. It makes it really difficult to do appropriate conservation and adaptive management when we have a lot of questions about what’s going on with those populations.”

To address the knowledge gap, WWF supports research institutions working on polar bears and groups exploring traditional knowledge about polar bears. We help collar and tag individuals to collect information about their movements and health. We also assist in facilitating international collaboration on this research.

**Working with Communities**

Kruger also works with communities who share a home with polar bears. Human and polar bear paths cross regularly in the Arctic; the smell of food or garbage facilities can draw polar bears to villages. And because of a changing climate, summer sea ice is retreating beyond the productive waters over continental shelves, into deep sea areas where prey is scarce. This brings some bears ashore, in need of food, and closer to humans for an extended time.

WWF takes a multifaceted approach to protect humans and bears. The polar bear team works around the Arctic, collaborating with villages to test existing methods for preventing bears from entering villages and safely deterring bears away if they do come into town. WWF shares this experience with similar villages in other parts of the Arctic, and helps provide access to and training on the methods people would like to try out. Part of this involves helping villages store food in polar bear-resistant containers and cordoning off garbage facilities with electric fences. Simple fixes such as improving street lighting so people can spot a polar bear sooner also help limit encounters. This work takes...
place around the Arctic, and the programs share information and build on one another.
Travelers have tremendous power to decrease the demand for illegal products by making informed purchases when travelling abroad and at home. Your purchases abroad and at home have a profound impact on wildlife.

Demand for illegal products made from endangered species fuels wildlife crime and devastates populations of elephants, marine turtles, rhinos and tigers, among other species.

**Ask these questions before buying souvenirs:**

1. What is this product made of?
2. Where did this product come from?
3. Does the country I’m visiting allow the sale and export of this product?
4. Do I need special permits or other documents to bring this item home?

If you have questions about wildlife purchases before you travel, you can check with a U.S. Fish & Wildlife Service wildlife inspection office. When traveling overseas, contact that country’s CITES Management Authority. For permit information, visit the US Fish & Wildlife Service’s permits website: [http://www.fws.gov/permits/](http://www.fws.gov/permits/)
Don’t Buy

❖ **Raw and Carved Ivory**
The illegal trade in elephant ivory has led to a poaching crisis in Africa. Illicit ivory markets remain one of the greatest threats to elephants today. Don’t fuel demand by buying ivory jewelry, carvings, souvenirs or other articles.

❖ **Tiger and Rhino Products**
All international trade of rhino and tiger products, whether used in folk or traditional medicine, as souvenirs or for “good luck” charms, is illegal.

❖ **Sea Turtle Products and Turtle Shells**
Six of the seven species of sea turtles are endangered or critically endangered. Avoid buying jewelry, musical instruments, accessories or other products made from sea turtles. All international trade in marine turtle products is banned.

❖ **Live Monkeys and Apes as Pets**
U.S. health laws prohibit such imports. Most primate species are protected, so you should also avoid curios, furs, or meats from these animals.

❖ **Medicinal Products**
Those made from rhino, tiger, leopard, Asiatic black bear, or musk deer are prohibited in the United States and other countries.

Buy Very Carefully

❖ **Coral**
Coral is extremely fragile and coral reefs are among the most sensitive ecosystems to warming oceans and may be the most impacted by climate change in the near future. Coral are
home to hundreds of fish species, marine turtles and sharks. Coral reefs help protect coastal shores from storm damage. If buying coral, make sure you find out if you need a CITES* permit. In the U.S., ask the retailer if the coral was imported with the necessary CITES permit.

❖ **Wild Birds**
Most live birds, including parrots, macaws, cockatoos, and finches and wild bird feathers and mounted birds require a CITES permit.

❖ **Leather Products**
Certain leather products, including some made from caiman, crocodiles, lizards and snakes require a CITES permit in order to take it out of the country. Check that the product has a permit.

❖ **Caviar**
Without a permit, you may only import up to 125 grams (about 8 ounces) of sturgeon caviar per person per trip, but the caviar of some species like beluga is completely prohibited.

❖ **Plants**
Many orchids, cacti and cycads are prohibited or require permits.

**What to Buy**

❖ **$** Support local communities and artisans by purchasing environmentally friendly items, such as handmade arts and crafts, not made from animal or plant products.
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