

**The World Heritage Convention and Polar Bear Conservation: Creating a
Transboundary Polar Bear World Heritage Reserve**



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The International Environmental Law Project (IELP) is a legal clinic at Lewis & Clark Law School that works to develop, implement, and enforce international environmental law. IELP works on a range of issues, including wildlife conservation, climate change, oceans and fisheries, and issues relating to trade and the environment

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Preface

When a rich cultural tradition is lost, a historic monument destroyed, or one of earth's great natural areas damaged, humanity itself is diminished. In recognition of this, nations come together through the World Heritage Convention to protect sites of cultural and natural importance throughout the world. For 40 years, the World Heritage Convention has formally recognized and sought to protect areas of "outstanding universal value." It has become one of the most widely ratified multilateral treaties of all time.

At no point in human history has so much World Heritage been threatened as it is presently, particularly because climate change is altering Earth in countless ways. We know unequivocally that the Arctic is experiencing temperature increases that are twice that of other parts of the world. As a consequence, the Arctic's ice environment and the species dependent on that ice are at great risk. Through the World Heritage Convention, however, nations can band together to protect the Arctic and the iconic polar bear.

The purpose of this paper is to describe how the World Heritage Convention may be used to help protect and manage the polar bear and its Arctic habitat. Specifically, this paper recommends the establishment of a Transboundary Polar Bear World Heritage Reserve in which important polar bear habitat is designated as World Heritage either because of the rich cultural traditions or superlative ecological attributes of the areas. In designating these areas as World Heritage, range States and other members of the World Heritage Convention can collaborate to help protect polar bears through capacity building, education, funding, and management support.



Credit: Ludovic Hirlimann

The World Heritage Convention and Polar Bear Conservation

The World Heritage Convention identifies, protects, and preserves areas of cultural and natural heritage considered to be of “outstanding universal value.”¹ These “World Heritage Sites,” as they are known, may include,² among other things, the world’s finest architectural and artistic achievements, such as the Taj Mahal in India;³ areas of significance to human traditions, such as Xanadu in China;⁴ and areas of superlative natural phenomenon, such as Kilimanjaro National Park in Tanzania.⁵ World Heritage Sites may also include the most important and significant natural habitats, such as those containing “threatened species of outstanding universal value,” such as the Whale Sanctuary of El Vizcaino, which contains the most important breeding grounds of the Eastern subpopulation of the North Pacific Grey Whale.⁶ These sites are all part of our world heritage, meriting international cooperation for their protection.

Similarly, the Arctic habitats and areas of spectacular natural beauty of which the polar bear is a part are worthy of World Heritage status. Vast expanses of the Arctic are unique, irreplaceable, and of “outstanding universal value,” such as the polar desert of Quttinirpaaq in Canada,⁷ the Bering Land Bridge commemorating the journey of peoples that crossed from Asia to North America 10,000 years ago,⁸ and Franz Josef Land boasting geologic features from the Early and Middle Jurassic period.⁹

Significantly, all of these areas are also important habitats of the polar bear, a threatened species that is itself of outstanding universal value. In fact, perhaps no creature fits the description of a threatened species of outstanding universal

value better than the polar bear. Known as Nanuq by some Inuit tribes, the polar bear lives only on the Arctic ice cap.¹⁰ This majestic and iconic creature is known for its highly refined hunting and swimming skills and ability to survive in some of the most extreme conditions on Earth. Despite its adaptation to the Arctic’s extreme



Polar bear resting. Credit: Susanne Miller / USFWS

conditions and protected status in the United States¹¹ and other international agreements,¹² the polar bear is declining throughout its range. The IUCN has classified the polar bear as vulnerable¹³ due to loss of habitat and a decline in habitat quality, with continued declines inevitable.¹⁴ The loss of sea ice habitat is of particular concern because polar bears are almost entirely dependent on sea ice for hunting and denning.¹⁵

International recognition of polar bear habitat as World Heritage could enhance existing conservation efforts and attract greater international attention to polar bear conservation efforts. Inclusion of a site on the World Heritage List raises a site’s prestige, which helps raise public awareness,

increases tourist revenue and, more importantly, creates a global commitment to save the irreplaceable. Arctic ecosystems and cultures are under-represented on the World Heritage List.¹⁶ Likewise, the inclusion of additional Arctic territory as World Heritage, specifically sites within polar bear territory, could bring international legitimacy, attention, and support to conservation efforts in the area.



Credit: Creative Commons

The five polar bear range States—Canada, Denmark (Greenland), Norway, Russia, and the United States—all have polar bear habitats that meet the World Heritage criteria and are critical for polar bear survival. If the range States, individually and jointly, designated important polar bear habitat as World Heritage, they could create a Transboundary Polar Bear World Heritage Reserve that galvanizes public support for conservation of polar bears, the Arctic environment, and cultural traditions.

The World Heritage Convention

In 1959, Egypt announced plans to build the Aswan High Dam and submerge the famous 13th century Abu Simbel Temples in the dam's reservoir.¹⁷ Fearful that such important cultural artifacts would be destroyed, 50 countries voluntarily funded the dismantling and relocation of the temples to a safer location.¹⁸ This demonstration of solidarity among nations to save a valued cultural site exemplifies the spirit behind the World Heritage Convention.

Officially titled the Convention concerning the Protection of World Culture and Natural Heritage, the World Heritage Convention recognizes that the loss of significant natural areas and cultural sites is a loss for all nations of the world.¹⁹ It also recognizes that natural and cultural heritage is “increasingly threatened with destruction.”²⁰ To prevent destruction of natural and cultural heritage, it provides financial resources, technical assistance, and research connections for natural and cultural sites of outstanding universal value.²¹

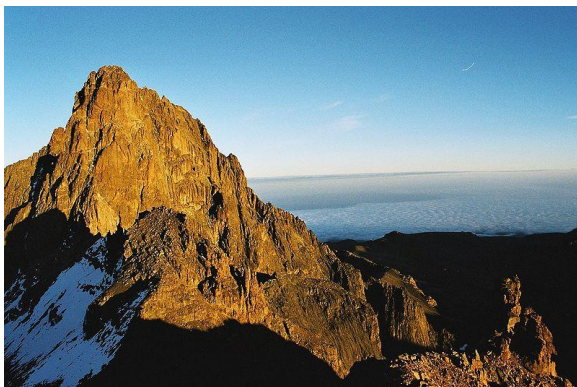
Forty years after the World Heritage Convention was signed, its goals are more important than ever. The threat of climate change is already a major problem for many natural and cultural sites.²² Particularly in the Arctic, climate change is affecting different sites through record surface ice melting, record high temperatures thawing permafrost zones, and changes in terrestrial ecosystems.²³ The World Heritage Convention can provide the impetus for governments to revisit management of Arctic habitats to address these impacts.



The Benefits of World Heritage Designation

States that join the World Heritage Convention become part of a group of nations that are invested in protecting natural and cultural heritage for future enjoyment, research, and limited use.²⁴ They assist each other in safeguarding the world's most important cultural and natural heritage. If the polar bear were one major reason for listing an Arctic site, the Convention's Parties would be there to provide technical support, perhaps contribute financial resources, and encourage the international community to take appropriate action to minimize threats to the polar bear.

Mount Kenya. Credit: Håkon Dahlmo



"Blaenafon Ironworks," a UNESCO World Heritage site in Wales, UK. Credit: [Alan Stanton](#)

Designation of a site as "World Heritage" also offers more other benefits. In some cases, the Convention's reporting obligations may provide sufficient incentive for a State to enforce its conservation laws more rigorously. In other cases, the designation of a species' habitat as a World Heritage site, with its globally recognized status, may bring international legitimacy, attention, and support to conservation efforts in the area. This designation can increase the importance of the site to the national government and result in additional conservation efforts.²⁵ It can also be used as "leverage to influence development decisions and legislation affecting protected areas."²⁶ One site manager noted that the designation of an area as a World Heritage Site was used "to stop bad ideas even before they became projects" and that the World Heritage Site designation has helped orient policies toward sustainability.²⁷ Similarly, the Convention's processes for reviewing the status of World Heritage sites may help States protect World Heritage. For example, when industrial developments threatened Mt. Kenya National Park in Kenya and the Whale Sanctuary of Vizcaino in Mexico,²⁸



Description: Belucha Mountain, Altai. Photo Credit: Creative Commons

the World Heritage Committee notified both States about the impacts these developments would have on the sites. Kenya and Mexico then took action to address these threats and conserve two important World Heritage sites.²⁹

In addition, World Heritage sites gain prestige and attention just from the designation.³⁰ This attention often incentivizes further protection and awareness.³¹ The added public awareness that World Heritage sites typically receive usually increases tourism that, when properly managed, brings funds to both the site and the local area. The Blaenavon Industrial Landscape World Heritage Site



Photo credit: Patrick M. Loeff

provides an excellent example. With the town's poor social and economic conditions contributing to the deterioration of the community's significant industrial heritage, site managers developed a strategy that led to the site's designation as World Heritage and to £35 million in programs benefitting the local community and conserving the town's

ironworks and other industrial heritage.³²

A World Heritage designation can also lead to international funding through the World Heritage Fund,³³ which provides approximately \$4 million annually in general funding and emergency support. One site manager stated that he noticed a "demonstrable step change in the attitude of funding bodies in the wake of World Heritage designation."³⁴ In addition to direct funds, a World Heritage designation can lead to the creation of other sustainable development projects funded by UNESCO or other international agencies.³⁵

The Town of Luang Prabang in Lao People's Democratic Republic shows how to make excellent use of a grant from the World Heritage Fund. The Town of Luang was listed as World Heritage for its affirmation of national identity and independence for the Lao people.³⁶ However, site managers had to strike a balance between preserving the historical value of the city and allowing the city to grow.³⁷ A grant from the World Heritage Fund for city planning catalyzed other grant-

based aid projects for the area. Seventeen years later, the city has received more than €29 million in grants to upgrade the city's infrastructure while maintaining its historic urban environment.³⁸

A World Heritage designation also provides site managers and national governments with access to the World Heritage network and management workshops, trainings, and other exchanges of information.³⁹ For example, experts in the development of comprehensive management and preservation plans offer support to managers of World Heritage sites.⁴⁰ The experts offer technical training with local managers so that the site's preservation plan has a greater chance of success.⁴¹ The threat of climate change impacts on World Heritage sites makes UNESCO experts an even greater asset, as exemplified by Russia's Golden Mountains of Altai. These mountains sit in the permafrost zone of Siberia and harbor mummified bodies and other preserved

human artifacts.⁴² Due to climate change, the permafrost is thawing, exposing these preserved items to the elements.⁴³ UNESCO and Ghent University in Belgium have surveyed the area using satellite techniques, which will now allow experts to monitor changes to the permafrost and develop a plan to preserve the site's artifacts.⁴⁴

Designating Sites as World Heritage

To gain World Heritage status, a site must have “outstanding universal value” from the point of view of history, art, science, aesthetics, conservation, or natural beauty.⁴⁵ The Operational Guidelines for implementing the World Heritage Convention are much more specific about what constitutes “outstanding universal value” (*See Box, page 9*). Today, 759 cultural sites, 193 natural sites, and 29 mixed cultural-natural sites have received World Heritage status.⁴⁶ States, individually or jointly for cross-border sites, select and



Credit: Ole J. Petersen

nominate sites to the World Heritage Committee (the Committee), which then decides which sites qualify as sites of “outstanding universal value.” Once

selected, the site remains in the control and possession of the State, but receives conservation, financial, and technical support from the Convention’s institutions.⁴⁷

A Conservation Success Story: Chitwan National Park in Nepal

In the foothills of the Himalayas, Chitwan National Park provides protection for one of the last populations of the greater one-horned rhinoceros and a refuge for the Bengal tiger.^a In 1984, when the site received World Heritage designation, around 30 rhinoceroses and 40 adult tigers lived in the park.^b More recent assessments indicate that 503 rhinoceros and 125 adult tigers now inhabit the park.^c

Chitwan’s continuing conservation success is attributed to the park’s World Heritage status. Since Chitwan gained World Heritage status, populations of certain megafauna have grown to a point where Nepal is considering expanding buffer areas and the park’s western border. It is also developing wildlife habitat corridors to make space for growing wildlife populations.^d Local communities are invested in the success of the park and the community of Sauraha requested that 100 hectares be added to the park.^e However, some resentment for the park does exist, mostly due to crop damage caused by wildlife, especially rhinoceroses.^f Attempts have been made to address this threat through compensation schemes.^g Chitwan also promotes World Heritage values through park management, educational programs for local schools, and newsletters and other written materials.^h

Since the park’s inscription, tourism has increased dramatically. In 1983–84 approximately 11,774 people visited to the park. By 1998–99, 105,884 visitors came to Chitwan National Park, providing 94% of the area’s general revenue. The nearby town of Sauraha maintains 800 beds in 60 hotels to serve visitors to Chitwan National Park.ⁱ Because of the high tourism levels, a tourism management plan was developed in 2001.^j

International cooperation through the World Heritage Committee has also helped to protect the park’s World Heritage values. In the early 1990s, the World Heritage Committee questioned the findings of Nepal’s environmental impact assessment of the proposed Rapti River diversion project. When a revised assessment concluded that the project would threaten riparian habitats critical to the rhino inside the park, Nepal abandoned the project.^k In 2004, the World Heritage Committee raised concerns that construction of the Kasara Bridge over the Rapti River and the installation of a transmission line would harm Chitwan.^l Although Nepal moved forward without undertaking an environmental impact assessment, it developed a system of controls for using the Kasara Bridge and associated roads to minimize the negative impacts of the project.^m Nepal also agreed to follow all the Committee’s recommendations to minimize impacts from the transmission line project.ⁿ



Sunset at Chitwan National Park Nepal
Photo Credit: Worldizen



Rhinoceros unicornis- Indian Rhinoceros in Chitwan National Park
Credit: Hans Stieglitz

The World Heritage Committee is a subset of twenty-one of the Convention's members tasked with managing the site list, receiving site reports, and determining when sites are in danger. It also receives and evaluates requests for assistance and determines which sites will benefit from the resources of the World Heritage Fund.⁴⁸ The Committee also delegates and distributes non-monetary support, such as experts, technicians, specialized equipment, and staff training.⁴⁹ The United Nations Educational, Scientific, and Cultural Organization oversees the World Heritage Convention and the World Heritage Committee.



Credit: Ansgar Walk

Designating Polar Bear Habitat as World Heritage

Just as hundreds of cultural and natural sites have benefited from their World Heritage status, so, too, can polar bears and their habitat. Polar bears range widely in their search for food and suitable denning habitat. But because this majestic creature survives in some of the most extreme conditions on Earth, its abundance is declining due largely

to the loss of its sea-ice habitat, which it depends on for hunting and denning.⁵⁰ International recognition of polar bear habitat as a Transboundary Polar Bear World Heritage Reserve could galvanize global attention on polar bear conservation, bring additional resources to conserve polar bears, and give polar bears a chance to adapt as their ice habitat melts.

Much polar bear habitat is undeniably of “outstanding universal value,” as discussed below. Many of the Arctic environments they inhabit include spectacular scenery, contain superlative natural phenomena,

represent major stages of Earth's life history, and contain important and significant habitats for the threatened polar bear and other threatened species. Other habitats offer a unique or exceptional testimony to cultural traditional or represent an outstanding example of a traditional human settlement, land use, or sea use. Moreover, the polar bear, due to its iconic status and

important role in the Arctic ecosystem, could be considered a “World Heritage Species,” although no such designation formally exists.

Current Polar Bear Protection Efforts

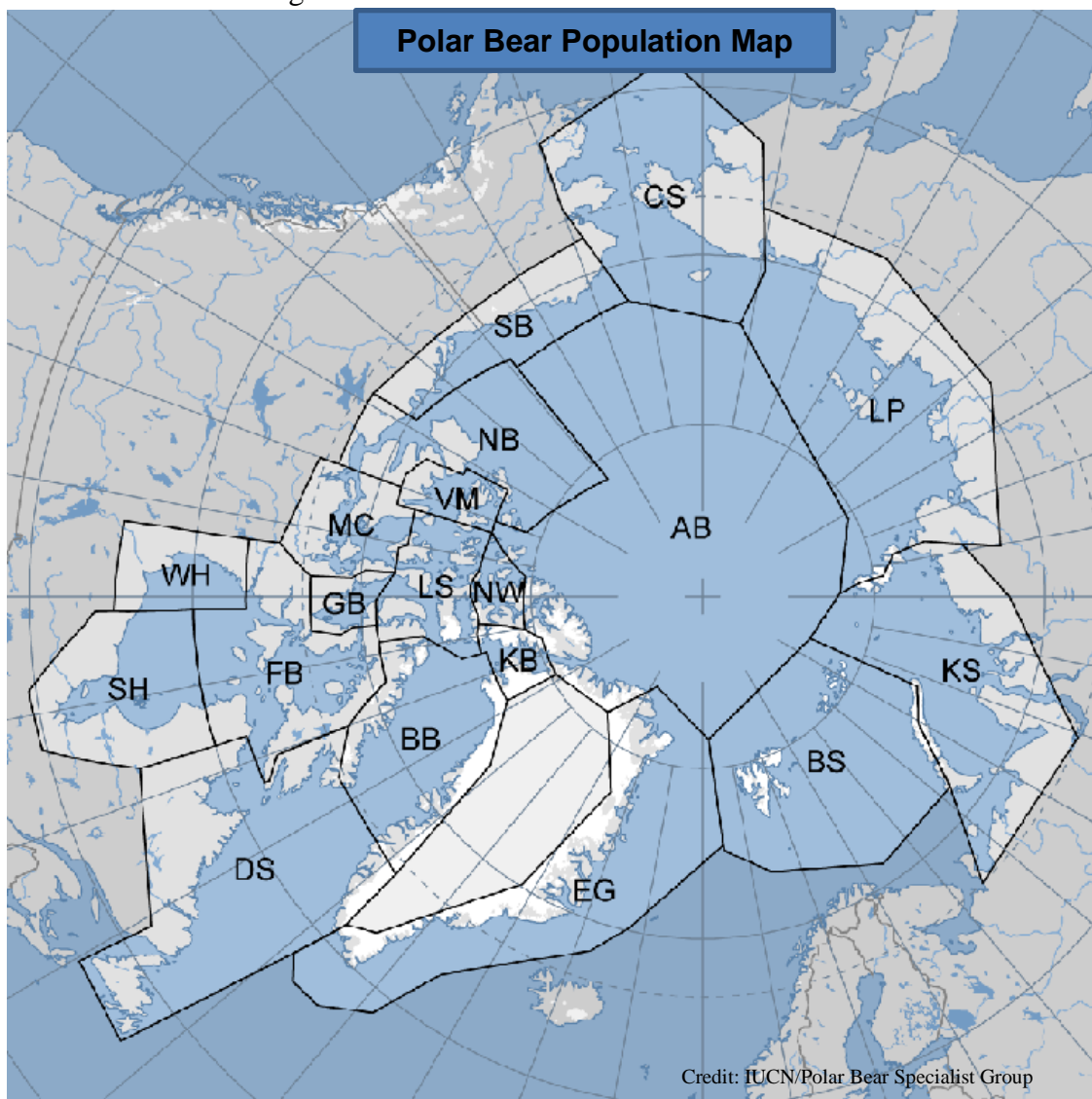
There are 19 polar bear subpopulations, all of which live on the Arctic ice cap and spend most of their time in coastal areas.⁵¹ See map on page 8. Some polar bear habitat has been protected by individual countries

such as the United States under the Endangered Species Act,⁵² through reserves such as Wrangell Island in Russia,⁵³ and national parks in Canada⁵⁴ and Greenland.⁵⁵ However, the majority of polar bear habitat remains without protection and continues to face human-induced threats.⁵⁶ In addition, because polar bears are deviating from their traditional migration routes due to climate change, they now require greater protection in mainland areas not traditionally inhabited by polar bears. Scientists predict that by 2040, due to climate change, only a fringe of ice will remain in Northeast Canada and Northern Greenland.⁵⁷ As a result, protection efforts through the World

Heritage Convention should encompass designation of both existing and new, anticipated habitat areas.

Polar Bears as a World Heritage Species

The World Heritage Species concept, while not having any official status in international law, recognizes that certain species play an especially significant role in our cultural and natural heritage and that these species warrant a newly defined global conservation effort.⁵⁸ Thus, certain species may be considered “World Heritage Species”



because they embody “outstanding universal value” and reflect valuable aspects of our cultural and natural heritage. The concept is also intended to raise the profile of a species to encourage governments, individually and collaboratively through international agreements, to protect a species and motivate private and public financing for conservation.⁵⁹

The polar bear certainly embodies “outstanding universal value” as the Arctic’s most iconic creature. Polar bears have captivated humans for thousands of years and remain an important symbol and food source for some indigenous groups.⁶⁰

However, the polar bear has also become the iconic symbol of an Arctic region melting due to climate change. The trade restrictions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)⁶¹ and the largely unknown Agreement on the Conservation of Polar Bears (the Polar Bear Agreement)⁶² have been inadequate to meet the challenges facing the polar bear. Within the World Heritage Convention, only Russia’s Wrangel Island Reserve is listed as World Heritage because it is polar bear habitat. While individual range States have made some efforts to protect polar bears, no agreements acknowledge that non-range States may

Ten Criteria for Listing a Site as World Heritage

The World Heritage Committee considers a site as having outstanding universal value if it meets one or more of the following criteria:

- (i) represent a masterpiece of human creative genius;
- (ii) exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
- (iii) bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;**
- (iv) be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
- (v) an outstanding example of a traditional human settlement, land use or sea use which is representative of a culture,
- (vi) to be directly or tangibly associated with events or living traditions,
- (vii) contain superlative natural phenomena or exceptional natural beauty and aesthetic importance,**
- (viii) outstanding examples representing major stages of earth’s history,**
- (ix) outstanding examples of significant ongoing ecological and biological processes,**
- (x) contain the most important habitats for in situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value from the point of view of science or conservation.**

UNESCO, OPERATIONAL GUIDELINES FOR THE IMPLEMENTATION OF THE WORLD HERITAGE CONVENTION, WHC. 11/01, ¶ 77 (Nov. 2011). The criteria in bold indicate those criteria most relevant for listing polar bear habitat.

have an interest in this species of “outstanding universal value.” Designating the polar bear as a World Heritage Species would recognize the significance of the polar bear as a species that belongs to all people.

Because the polar bear embodies the characteristics of a World Heritage Species, the international community should take further steps to protect this species of outstanding universal value for future generations. By working within the World Heritage Convention, a network of protected sites could encourage adaptation strategies for polar bears and polar bear habitat. In that light, the sites could encompass both existing polar bear habitat and territory that might become critical to the polar bear in the face of environmental changes. If territory from all five range States was incorporated into the Transboundary Polar Bear World Heritage Reserve under the Convention, States and scientists could cooperate through management plans. Sites could receive both expert help through the World Heritage Committee and increased tourism, which could generate revenue to conserve and manage the polar bear more effectively. Ultimately, this network of sites would recognize the importance of the polar bear and help protect the species into the future.

Applicable Criteria for Polar Bears: Natural Site Selection Criteria

To be considered of “outstanding universal value” under the World Heritage Convention, a site should have “cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.”⁶³ To ensure that a site meets this standard, it must meet one of ten listing

criteria. Most polar bear habitat has significant attributes that meet most of the natural criteria; some areas also meet a number of cultural criteria. The criteria most applicable to polar bear habitat is listed in bold in the box on page 9.

Some, if not all, polar bear habitat, meets one or more of these criteria. Polar bear habitat varies but includes areas of superlative natural phenomena and exceptional beauty—permanent snowfields, tundra, plateaus, canyons, large valleys, fjords and fjord glaciers, beaches, wetlands, and most of the last truly wild areas left on Earth.⁶⁴ The vast territory of the Arctic contains diverse flora and fauna with more than 21,000 species, including many globally significant populations of unique and cold-adapted mammals, birds, fish, invertebrates, plants, fungi, and microorganisms, some found nowhere else on Earth.⁶⁵



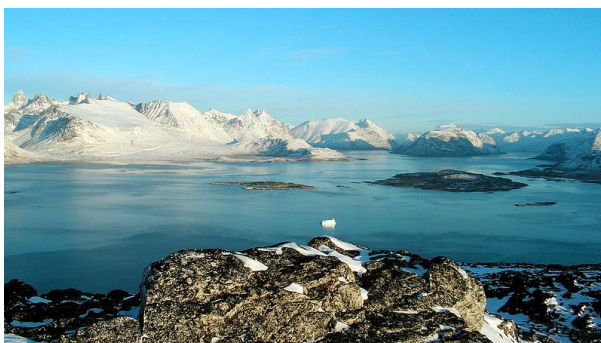
Arctic regions that are home to the polar bear also include rare mammals, such as the walrus and narwhal, and a variety of rare Arctic birds. As such, they most likely meet criterion (x) because they contain important habitat for conservation of biological diversity and “threatened species of Outstanding Universal Value.” The spectacular scenery, diverse landscapes, and

complex ecologies of Arctic areas could also meet the criteria (vii)-(ix) for natural sites.⁶⁶ In addition, many areas containing polar bears are traditional hunting sites for indigenous people,⁶⁷ and as such may meet criterion (v) as sites constituting outstanding examples of a traditional human settlement, land use or sea use that is representative of a culture.

In fact, the Parties to the Convention have already used these criteria to list one important area of polar bear habitat—the Wrangel Island Reserve in Russia. As described more fully below, the Parties designated Wrangel Island Reserve as World Heritage because of the presence of threatened species like the polar bear and for exemplifying a major stage in Earth’s history.

Requirements of Authenticity and Integrity

In addition to meeting one of the listing criteria, a site may also be required to meet the conditions of “integrity” and/or “authenticity” and have adequate protection and management.⁶⁸ All natural and cultural sites must meet the conditions of integrity, and cultural sites meeting criteria (i)-(vi) must also meet the conditions of authenticity.⁶⁹ Because many potential sites with polar bear habitat may meet only the natural criteria, they will not be required to meet the conditions of authenticity.



Ravnefjeldet, Greenland Credit: Jensbn



Ice on the Coast of Svalbard. Credit: Vidar Stensen

Authenticity relates to the credibility and truthfulness of sources that describe the value of a site’s cultural heritage.⁷⁰ To meet this condition, a site’s cultural values must be truthfully and credibly represented and judged within the cultural context of the site. Sites may meet the conditions of authenticity if their cultural values are expressed through a variety of sources of information, including form and design, use, traditions, location and setting, language, spirit and feeling,⁷¹ and other internal and external factors.

Integrity is a measure of wholeness and intactness of the natural and/or cultural heritage and its attributes.⁷² Examining the condition of integrity requires assessing the extent to which the site (1) includes all elements necessary to express its outstanding universal value, (2) is of adequate size to assure that the site’s features are fully conveyed, and (3) suffers adverse effects of development and/or neglect. In addition, for sites nominated under the cultural criteria (i) to (vi), its significant features should be in good condition. For sites nominated under the natural criteria (vii) to (x), bio-physical processes and landform features should be relatively intact.⁷³

Sites nominated under criteria (vii) to (x) must meet additional requirements of

integrity. Criterion (vii) sites, those that “contain superlative natural phenomena or exceptional natural beauty and aesthetic importance,” should include areas essential for maintaining the beauty of the site. Criterion (viii) sites, those that contain “outstanding examples representing major stages of earth’s history,” should include most key interrelated elements in their natural relationships. Criterion (ix) sites, those “outstanding examples of significant ongoing ecological and biological processes,” should have sufficient size. Criterion (x) sites, those that contain the most important sites for the conservation of biological diversity, should, for example, “contain habitats for maintaining the most diverse fauna and flora characteristic of the bio-geographic province and ecosystems under consideration.”⁷⁴

Importantly, these indicators of integrity recognize that all natural areas are dynamic and to some extent involve human contact. In addition, the effects of climate change are not necessarily a barrier to meeting the integrity requirement, especially if a site is listed because of climate change.

Protection and Management

The World Heritage Convention not only recognizes and celebrates incredible sites of global natural and cultural heritage, but it also ensures that States adopt adequate protection and management systems for World Heritage sites. This protection should include clearly delineated boundaries, a reasonable buffer zone (where necessary for the proper protection of the site), and adequate protection at the national, regional, municipal, and/or traditional level for the nominated site.⁷⁵ In addition, each site should have an appropriate management plan that specifies how a site will be preserved.⁷⁶

Procedure for Site Designation

Submission of a Tentative List

The first step to World Heritage Site designation is to make an inventory of important natural and cultural heritage sites. This inventory, known as a “Tentative List,” contains sites within a State’s territory that it considers suitable for inclusion on the World Heritage List. A State should submit a Tentative List at least one year prior to the submission of any nomination.⁷⁷

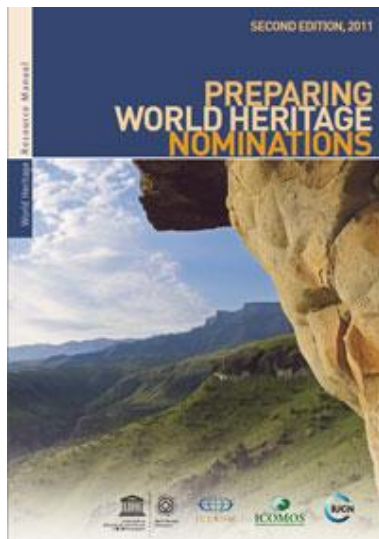
Nomination File and Content

A State may nominate a site for World Heritage status only if the site has previously been included in the State’s Tentative List Site. The State must submit a nomination document, which becomes the primary basis on which the World Heritage Committee considers the site for inclusion on the World Heritage List.⁷⁸ The nomination must identify the boundaries of the site and a buffer zone (if necessary), describe the site, and justify why the site merits protection and meets at least one of the listing criteria.⁷⁹ The nomination must also include the current state of conservation and factors affecting the site, current management efforts, and a monitoring plan for the site.⁸⁰ The nomination must also demonstrate the full commitment of the State to preserve the heritage concerned.⁸¹

Timeline for Submission

Listing a site takes approximately two years. A State must submit a complete nomination to the World Heritage Committee by February 1 to be considered for inclusion on the World Heritage List the following year.⁸² Prior to submission, a State may also submit a draft nomination to the Secretariat for comment and review prior to final

submission. States are encouraged to submit the draft by September 30 of the year preceding the February deadline.⁸³ By March 1 after the deadline, the Secretariat will inform the State whether the submission is complete.⁸⁴ Over the next 15 months, the appropriate advisory bodies will evaluate the nomination.⁸⁵ The World Heritage Committee then examines the nominations and makes its decision at the Annual Session of the World Heritage Committee.⁸⁶



Evaluation of Nominations by Advisory Bodies

Three advisory bodies evaluate nominated sites by consulting with the nominating State and other groups, conducting their own research, and preparing a recommendation to the World Heritage Committee. The International Union for the Conservation of Nature (IUCN) is tasked with evaluating natural sites,⁸⁷ while the International Council on Monuments and Sites (ICOMOS) evaluates and monitors cultural sites.⁸⁸ The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) provides expert advice on how to conserve listed sites, although it does not participate in formal evaluations of nominated sites.⁸⁹ The

advisory bodies reviewing proposed sites must be objective, rigorous, and scientific in their evaluations and evaluate each site systematically according to all relevant criteria, including its state of conservation.⁹⁰

The Transboundary Polar Bear World Heritage Reserve

The creation of a Transboundary Polar Bear World Heritage Reserve would ideally serve as a proxy for the international community to take action against climate change and other human-induced threats to protect this species of outstanding universal value. It would provide an opportunity for increased scientific research and monitoring of polar bears and their habitats, while bringing attention to, and increasing the international community's understanding of polar bear habitat needs. There are a number of large polar bear habitat that could become a part of this Reserve, ideally including some of the most important habitat for one of the larger polar bear subpopulations. The site would ideally consist of traditional polar bear habitat with surrounding terrestrial range areas in anticipation of changing habitat needs. Importantly, the Transboundary Polar Bear World Heritage Reserve should include an area large enough to encompass a subpopulation's migratory route and could include one large, contiguous transboundary site or a number of sites in different polar bear range states.

A number of unique and outstanding polar bear habitats could be considered for the Transboundary Polar Bear World Heritage Reserve. Some of these are already World Heritage sites, although not designated for polar bear conservation. Other sites have already been protected in varying degrees by States. In other words, the nucleus already exists for a Transboundary Polar Bear World Heritage Reserve.

Current World Heritage Sites in Polar Bear Territory

Five current World Heritage sites include polar bears and their habitat,⁹¹ and these sites could form the core of a Transboundary Polar Bear World Heritage Reserve. Only one of these sites, Wrangel Island in Russia, focuses on the polar bear as a justification for inclusion on the World Heritage List.⁹² Although the four other sites do not currently focus on the polar bear, the sites' justifications could be modified in various ways to include long-term protection of polar bear habitat as a goal.⁹³

Wrangel Island Reserve

Wrangel Island Reserve, a World Heritage site since 2004, provides both an easy and important first element of a Transboundary Polar Bear World Heritage Reserve. Not only is Wrangel Island Reserve already listed, but it is also listed in part due to the presence of polar bears and other threatened species of outstanding universal value.⁹⁴ In fact, the inscription decision recognizes that the world's highest density of polar bear dens occurs on Wrangel Island.⁹⁵

The World Heritage Centre and the IUCN approved Russia's comprehensive management plan, but concluded that tourism planning and climate change monitoring could use more detail.⁹⁶ As of 2012, the World Heritage Centre recognized the Reserve's



Flowering Plants Wrangel Island Russia. Credit: Ngaire Lawson

increased inspectorial staff and monitoring activities but had not yet received any results from the increased monitoring.⁹⁷ Nonetheless, the polar bear's presence on Wrangel Island supports the site's significance for polar bear conservation and evaluating the effects of climate change on polar bears. Increased scientific monitoring and reporting, specifically with regard to the effects of climate change, will enable the World Heritage Committee to take further steps to preserve polar bear habitat.

The Ilulissat Icefjord

Greenland's Ilulissat Icefjord, nominated by Denmark, exemplifies a major stage of



Ilulissat Icefjord from the air. Credit: Rino Rasmussen

Earth's history—the most recent ice age.⁹⁸ Ilulissat Icefjord is an example of a glacial ice-stream breaking off into a fjord and has been an object of scientific study for more than 250 years.⁹⁹ Studies of the Ilulissat Icefjord play a critical role in climate change science and research.¹⁰⁰

The decision to designate Ilulissat Icefjord as World Heritage in 2004 does not recognize the presence of polar bears and polar bears are rare visitors to the fjord.¹⁰¹ Nonetheless, the site could play an important part in a Transboundary Polar Bear World Heritage Reserve for two reasons. First, the polar bear's range includes Ilulissat Icefjord. Second, the role that Ilulissat Icefjord plays in climate change research is essential to a greater understanding of how climate change affects Arctic habitat, including polar bear habitat.

Ilulissat Icefjord could become part of a Transboundary Polar Bear World Heritage Reserve in two different ways. First, the site's listing documents could be amended to include the presence of the polar bear as a threatened species. If this approach is taken, the site's management plan would need to be revised to include polar bear management, and Denmark/Greenland would need to monitor and periodically report on the polar bear's status. To include the polar bear in Ilulissat Icefjord's listing, the request should be submitted as if it were a new nomination,¹⁰² a process that takes about two years.¹⁰³ Because Ilulissat Icefjord is not known as important polar bear habitat, the polar bear's presence may not justify adding this criterion to Ilulissat's listing, but discussing the importance of this site in the broader context of a Transboundary Polar Bear World Heritage Reserve may be compelling.

A simpler method for incorporating the polar bear into Ilulissat Icefjord is to reinforce the site's connection to climate change science with the polar bear used as a case study for observing the climate change effects on a species. The site's educational material could be refocused to discuss the effects of climate change on the polar bear, a species of outstanding universal value, and how research done at Ilulissat will help the long-term survival of the polar bear.

Gros Morne National Park, Red Bay Basque Whaling Station, and L'Anse aux Meadows

The Canadian province of Newfoundland and Labrador has three current sites—Gros Morne National Park, Red Bay Basque Whaling Station, and L'Anse aux Meadows—and one site on the Tentative List—Mistaken Point—all of which are in polar bear territory.¹⁰⁴ None of these sites acknowledge the polar bear in their descriptions, and it is unclear how often and for what length of time polar bears visit the area. Polar bear habitat does extend southward to the southern shore of Labrador and the island of Newfoundland, but more research and observation are needed to determine how frequently polar bears visit the site.



Gros Morne. Credit: Douglas Sprott

Potential Additions to the World Heritage List and the Trans-boundary Polar Bear World Heritage Reserve

A number of unique and outstanding polar bear habitats could be listed as World Heritage and form part of the Transboundary Polar Bear World Heritage Reserve. Because States have already protected some of these sites, they should already have well-defined boundaries and, potentially, management plans that account for polar bears, elements that could simplify the process for listing them as World Heritage.

Norway

Norway and Russia share the Barents Sea polar bear subpopulation, which adjoins the Russian Kara Sea subpopulation,¹⁰⁵ and efforts should be made to incorporate habitat for this subpopulation from both countries. Nonetheless, Svalbard in and of itself is significant for polar bears and, as an area included in Norway's Tentative List, efforts should be made to designate it as World Heritage as soon as possible.

Svalbard

Svalbard, currently on Norway's Tentative List for World Heritage Nomination, is an archipelago in the Arctic Ocean that is home to as many as 2,650 polar bears on several different islands.¹⁰⁶ Svalbard's Sør-Spitsbergen National Park contains important polar bear habitat in the Hornsund Fjord and boasts magnificent

scenery with distinctive jagged rock formations.¹⁰⁷ Kong Karl's Land, the easternmost of the Spitsbergen Islands, is a known denning site and a polar bear reserve since 1939.¹⁰⁸ Nordvest-Spitsbergen National Park also provides important polar bear denning habitat.¹⁰⁹ Currently undesignated as protected areas, both Hopen Island and Kongsøya Island have well known polar bear dens.¹¹⁰ Although declining in den numbers due to melting sea ice, these two sites have been some of the primary denning sites in Svalbard.¹¹¹ The presence of polar bears and incredible land formations suggest that a number of these sites could meet various natural criteria. Already on the Tentative List for Norway, the Svalbard archipelago contains many unique landscapes of outstanding universal value.¹¹²



Polar Bear Mother and Cubs on Svalbard Ice. Credit: Alastair Rae

Russia

The Russian Arctic contains a number of protected natural areas covering about 5%¹¹³ of the Russian Arctic, including a national park, a number of strict nature reserves (zapovedniki), and the Franz Josef Land federal sanctuary (zakaznik). While estimates of polar bear populations in Russia are uncertain, the Barents Sea region appears to be the most populated, with an estimated population of 2,650.¹¹⁴ The Russian Arctic National Park, protecting an area between the Barents and Kara Seas, and a number of other nature reserves and sanctuaries in the Barents Sea, Kara Sea, and Arctic Ocean regions could meet a number of criteria for inclusion on the World Heritage List. A potential Transboundary Polar Bear World Heritage Reserve could span across the Arctic Ocean from Svalbard to Franz Joseph Land, down to the Barents Sea including Novaya Zemlya and over to the Kara Sea including Severnaya Zemlya.

Franz Josef Land

Franz Josef Land, an archipelago of 191 islands in the Russian Arctic, contains important polar bear habitat.¹¹⁵ A portion of it is already a State Nature Reserve.¹¹⁶ The area boasts unique geological features of Early and Middle Jurassic marine deposits that could meet criterion (viii) as “outstanding examples representing major stages of earth’s history.” In addition, the area, with varied Arctic vegetation and ice formations, could meet criterion (ix) as an “outstanding example[] of significant ongoing ecological and biological processes.” With rare mammals, including polar bears, Arctic fox, walrus, and bearded seal, the area could also meet criterion (x) as an area containing “the most important habitats for in situ conservation of biological diversity, including those containing threatened species of Outstanding Universal Value.”



This map shows the area inhabited by (1) the Barents Sea subpopulation (east of Spitsbergen and west of Franz Josef Land down the eastern side of Novaya Zemlya), (2) the Kara Sea subpopulation (from the western side of Novaya Zemlya and westward to roughly Cape Chelyuskin), and (3) the Laptev Sea population (from roughly Cape Chelyuskin westward beyond the New Siberian Islands to the Chukchi Sea, which is off the map). A fourth population inhabits the Arctic Ocean basin. Compare with the map on page 8.

Russian Arctic National Park

The vast Russian Arctic National Park, which spans an area between the Barents and Kara Seas, covers the northern part of Novaya Zemlya and stretches across the waters near Franz Josef Land and Victoria Island.¹¹⁷ This park and the greater part of Novaya Zemlya contain key habitat for polar bears, walrus, narwhal, wild reindeer, and bird populations.¹¹⁸ Already protected under one of the strictest federal conservation designations in Russia, the park contains 793,910 hectares of land area with unique geological, glaciological, botanical, and zoological landscapes.¹¹⁹ It is one of the most important breeding grounds for the Kara-Barents Sea polar bear subpopulation.¹²⁰ Because of the park's many threatened and other species and unique geographical formations, this site could easily meet criteria (ix) and (x), and potentially (viii).

The Great Arctic Zapovednik

The Great Arctic Zapovednik, Eurasia's largest protected area, extends more than 1,000 kilometers from west to east and more than 600 kilometers from north to south; it totals 41,692 square kilometers and is surrounded by the Kara and Laptev Seas.¹²¹ Polar bears are relatively common here, making this important habitat for the species.¹²² With tundra and Arctic desert, this Zapovednik also provides habitat for reindeer, walrus, and beluga whales.¹²³ Containing one of only two Arctic continental deserts in the world, and providing important polar bear habitat, this site could meet criteria (ix) and (x).

Other Potential Sites in Russia

Of other sites that could be explored for World Heritage status in Russia, Vaygach Island, southeast of the Novaya Zemlya archipelago, is important. This island contains a 243,000 hectare nature reserve known for polar bears, Atlantic walruses, gray seals, harbor porpoises, bottlenose dolphins, humpback whales, northern blue whales, northern fin whales, and sei whales.¹²⁴ In addition to the natural biological diversity, the island is a sacred site for the indigenous Nenets people, who until the 20th century made an annual pilgrimage to the Island from across the Kanin and Taymyr Peninsula.¹²⁵ This site could meet a number of the natural and cultural criteria.

The Nenetsky Zapovednik in the Barents Sea provides 313,400 hectares of protected habitat for marine mammals including the polar bear, bearded seal, beluga, and Atlantic walrus.¹²⁶ The presence of the polar bear and these other animals suggests that the site could meet criterion (x), and land features such as the important wetlands in the reserve also suggest the site meets criterion (ix) as "significant ongoing ecological and biological processes."



Greenland

Greenland shares the Davis Strait, Baffin Bay, and Kane Basin polar bear subpopulations with Canada,¹²⁷ with another polar bear subpopulation of unknown size inhabiting eastern Greenland.¹²⁸ For the East Greenland subpopulation, as well as the Arctic Basin subpopulation of polar bears, Greenland's enormous Kalaallit Nunaat National Park (also known as Northeast Greenland National Park) would provide an important addition to the Transboundary Polar Bear World Heritage Reserve. The park covers 972,000 square kilometers, making it the world's largest national park.¹²⁹ The vast, high Arctic tundra of Kalaallit Nunaat is unique and fragile.

Animals in the park include the muskox (40% of the world's population), Arctic wolf, polar bear, and seals.¹³⁰ The land is mostly composed of Paleozoic age gneiss and sedimentary rock. Covered in heath, fellfield, and snow patches, the park also contains fens of water sedge and cottongrass, heaths of Arctic bell heather, striking wildflowers such as sulphur buttercup, alpine foxtail, nodding lychnis, and snowbed vegetation of mosses and lichens.¹³¹ These unique and fragile land formations, containing important habitat for polar bear and other species of outstanding universal value, suggests that the park could likely meet all natural criteria (vii)–(x).



Two polar bears in the distance.
Credit: Steve Hillebrand / USFWS

The United States

Alaska is home to two subpopulations of polar bears, the Chukchi-Bering sea subpopulation in the west and the Beaufort Sea subpopulation in the north.¹³² Due to the polar bear's threatened status under the Endangered Species Act, the U.S. Fish & Wildlife has designated terrestrial denning, sea-ice, and barrier island habitat of the polar bear in the United States as "critical to the species' survival" and thus as "critical habitat" under the Endangered Species Act.¹³³ Although a court has set aside this determination for the moment,¹³⁴ the determination of critical habitat could be used to identify habitat in the United States that could form part of a Transboundary Polar Bear World Heritage Reserve.

The Chukchi–Bering Sea subpopulation uses the western coast of Alaska for general hunting, with females denning primarily on Russia’s Wrangel Island,¹³⁵ which is already a World Heritage site. Despite the lack of identified denning sites in the United States for his subpopulation, specific areas of polar bear habitat in the region likely meet one or more criteria for listing as World Heritage, including two federally protected areas, the Bering Land Bridge National Preserve and the Cape Krusenstern National Monument.

The Bering Land Bridge National Preserve protects the last remnant of the Bering Land Bridge and commemorates the journey of the peoples that crossed from Asia to North America 10,000 years ago.¹³⁶ Inupiaq villages lie

outside the preserve but residents of these villages may use the park for traditional hunting and gathering.¹³⁷ The park also has some unique geographical features such, as the world’s largest maar lakes—created by the explosive reaction between magma and permafrost.¹³⁸ The beach ridges at Cape Krusenstern National Monument preserve 5,000 years of Inupiaq history. The preservation of these beach ridges is so detailed that they provide information on “every known cultural period in arctic Alaska.”¹³⁹ Cape Krusenstern also has many inland lagoons that provide an interconnected web of habitat for migratory birds.¹⁴⁰ Polar bears from the Chukchi–Bering Sea subpopulation visit both parks seasonally.¹⁴¹



The United States could seek mixed cultural–natural World Heritage status for these parks as one site. Together, they are an example of (v) land-use and sea-use which is representative of a culture and human interaction with the environment, (viii) a major stage of earth’s history, as an area with significant geomorphic features, and (x) habitat for a threatened species of outstanding universal value.

The Southern Beaufort Sea sub-population dens and hunts along the northern Alaskan coast.¹⁴²

Unlike other high-density denning areas, dens in northern Alaska are much more diffuse.¹⁴³ Regardless, the Southern Beaufort Sea subpopulation has approximately 1,500 bears and its numbers may be declining due to reduced sea ice.¹⁴⁴

Because a collection of tentative World Heritage sites exists just across the Canadian border, if all or part of the northern Alaskan polar bear habitat was also listed as World Heritage, this could put a large part of the Southern Beaufort Sea subpopulation under World Heritage protection. A World Heritage listing of the entire coast could be difficult due to land use concerns, such as plans to initiate oil and natural gas extraction in the area.¹⁴⁵ But, with an environmental assessment, oil drilling in World Heritage sites is possible.¹⁴⁶ Despite these concerns, these areas should be considered as part of a Transboundary Polar Bear World Heritage Reserve for designation as World Heritage because polar bears use the barrier islands in this region for hunting, denning, and movement and

because these islands are devoid of human presence.¹⁴⁷

Canada

Canada is home to approximately 70% of the world's polar bears and thirteen of the nineteen subpopulations.¹⁴⁸ Therefore, Canada's site nominations for the Transboundary Polar Bear World Heritage Reserve are critical to the project. Canada regards the polar bear as a significant cultural species and has taken steps to protect polar bears. As a "species of special concern" under the federal Species at Risk Act (SARA),¹⁴⁹ Canada must prepare a management plan, which is currently being developed.¹⁵⁰ In addition, the federal government advises First Nations on polar bear harvest management as required by the Agreement on the Conservation of Polar Bears,¹⁵¹ and federal legislation regulates imports and exports of live polar bears and polar bear products.¹⁵² Importantly, Canada has established new protected areas based on polar bear habitat through national, provincial, and territorial parks.¹⁵³ Canada now has 77 protected areas in polar bear habitat—5 National Wildlife Area, 11 National Parks, 3 Marine Protected Areas, and 58 Provincial or Territorial Parks.¹⁵⁴ Finally, Canada continues to collaborate with the four other polar bear range States to develop bilateral and multilateral international agreements to protect the species.¹⁵⁵ Listing some or all of these sites as World Heritage would help make the Transboundary Polar Bear World Heritage Reserve a reality.

Canada's Tentative World Heritage Site List

Canada's Tentative Site list includes two important sites for the Transboundary Polar

Bear World Heritage Reserve: Quttinirpaaq, and Ivvavik/Vuntut/Herschel Islands.

Quttinirpaaq

One of the northernmost protected areas in the world, Quttinirpaaq is only 720 kilometers from the North Pole.¹⁵⁶ Currently a Canadian National Park, most of the park receives less than 2.5 centimeters of annual precipitation, making a majority of the park a polar desert.¹⁵⁷ Canada seeks World Heritage status for Quttinirpaaq as a mixed cultural and natural site under criteria (iii), (vii), (viii), and (x).

Polar bears use the coastal areas of Quttinirpaaq and nearby ice shelves and floats, but they are not included in the Tentative List description.¹⁵⁸ Important polar bear prey species, such as ringed and bearded seal, are common in the park and ice shelves and ice floats are present year round due to the park's proximity to the North Pole.¹⁵⁹ Because this area is important for polar bears, Canada should include the presence of polar bears in its nomination.

Ivvavik/Vuntut/Herschel Island

In 2004, Canada placed on its Tentative List a 15,500 square kilometer area comprising

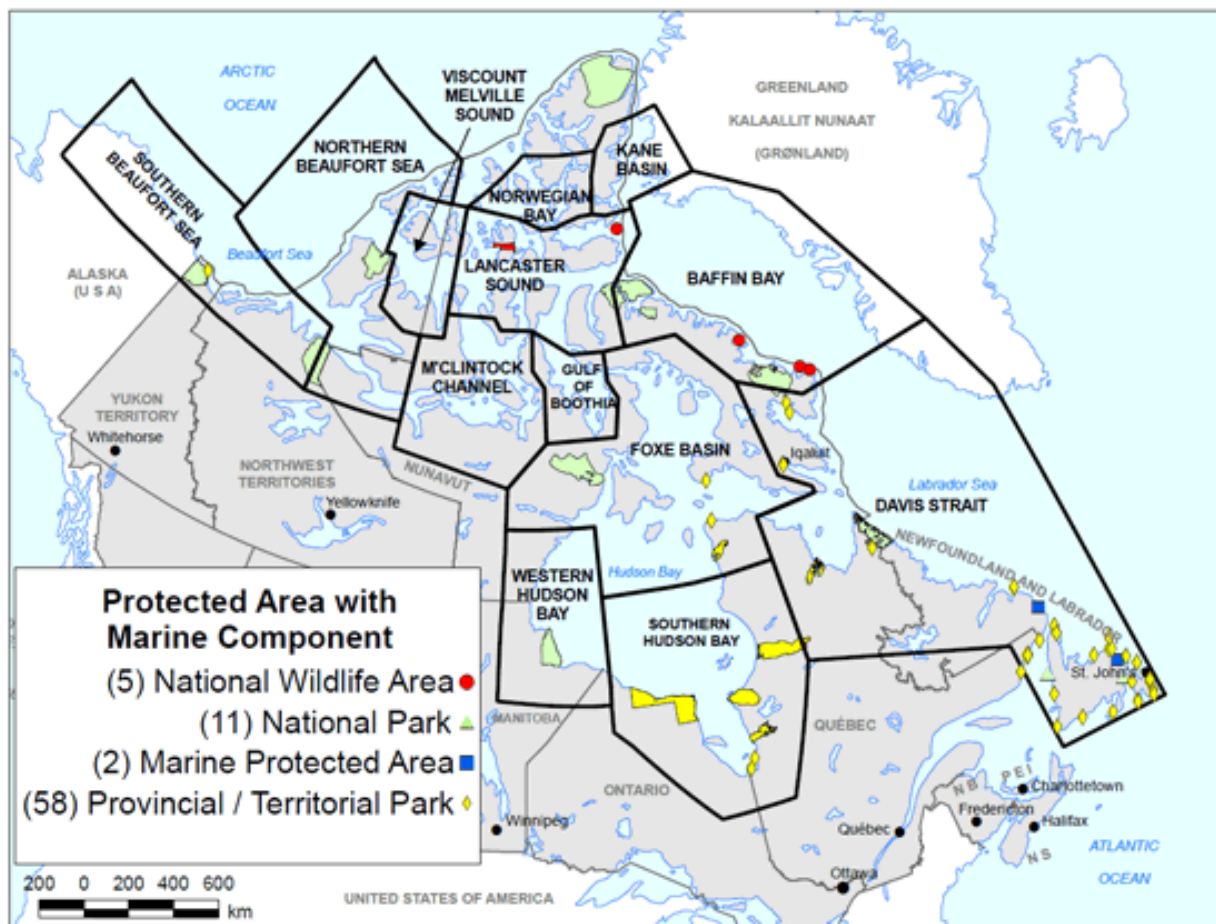
Polar Bear Hunting

Canada allows polar bear hunting. Tags are issued to indigenous hunters in seven provinces/territories and sport hunting occurs in the Northwest Territories and Nunavut. Subsistence and traditional hunting may contribute to a site's World Heritage value under criterion (v) as an example of traditional human land-use, which is representative of an indigenous culture. Listing a site as World Heritage should not prevent sport hunting, as sport hunting is allowed on other World Heritage sites such as Wrangell-St. Elias in Alaska.

two national parks and a territorial park. Together, Ivvavik National Park, Vuntut National Park, and Herschel Island Territorial Park include the Yukon coastal plain, the Richardson Mountains, and an Arctic island.¹⁶⁰ Since that listing, Canada has established a Marine Protected Area known as Tarium Niryutait (TNMPA) off the coast of the adjacent Northwest Territories.¹⁶¹

With the Southern Beaufort Sea polar bear subpopulation inhabiting these areas for breeding and hunting,¹⁶² they would add an important part to the Transboundary Polar Bear World Heritage Reserve. The Southern

Beaufort Sea subpopulation migrates across the northern Alaska coast all the way to the Northwest Territories/Nunavut border. This subpopulation frequents Herschel Island and Ivvavik National Park mostly in the winter after spending summers on the ice pack offshore.¹⁶³ Canada established the TNMPA mostly to protect a beluga population that summers in the Mackenzie River Delta. However, polar bears also make use of the TNMPA, as do bowhead whales and ringed seals.¹⁶⁴ In the late 1980s, approximately 1,800 bears roamed the area, but more recent population estimates indicate a decline to 1,500 due to ice loss.¹⁶⁵



Canadian Sub-populations of Polar Bears & Protected Areas. Credit: Environment Canada

Female polar bears den on Herschel Island in the winter,¹⁶⁶ but the island's polar bears are just one reason to list the area as World Heritage. About 123,000 caribou from the Porcupine herd migrate through Ivvavik National Park to get to calving and post-calving areas on the coastal plain.¹⁶⁷ The Firth River travels through Ivvavik from Margaret Lake all the way to the coast, creating 135 miles of navigable waterway that cuts a deep canyon exposing evidence of massive geological shifts that occurred 400 million years ago.¹⁶⁸ Warm water from the McKenzie River flows northward, fostering a diverse marine ecosystem around Herschel Island that includes whales, fish, seals, and sea birds.¹⁶⁹

This area also holds significant cultural value. Archeological discoveries show that eight different cultures have lived or used the area of the park, with the oldest recorded site estimated to have been used 8,000 years ago.¹⁷⁰ The Vuntut Gwitchin, for example, traditionally lived south of Ivvavik National Park and fished in areas of the park known as “fish holes.” They traveled through the park to trade at Herschel Island.¹⁷¹ The Inuvialuit continue to use the park for subsistence hunting.¹⁷² In fact, the national park was created from the Inuvialuit's land claim to the area.¹⁷³

If Herschel Island, Ivvavik National Park, and TNMPA were listed as World Heritage sites, a significant portion of the Canadian



habitat of the Southern Beaufort subpopulation would be included in the Transboundary Polar Bear World Heritage Reserve. Polar bears are mentioned in the tentative site description for Ivvavik/Vuntut/Herschel Island¹⁷⁴ and therefore the management plan for the site would need to include polar bears. Protection of the Southern Beaufort subpopulation would be strengthened if some northern Alaska habitat was also designated as World Heritage. This network of protected areas would significantly benefit a subpopulation of an estimated 1,500 bears that is in decline due to ice melt by providing a protected place for the species to freely adapt to the changing environment.¹⁷⁵

Current National, Provincial, and Territorial Protected Areas in Polar Bear Habitat

A few other Canadian sites should be high on the priority list for inclusion in a Transboundary Polar Bear World Heritage Reserve, including Polar Bear Provincial Park in northeast Ontario, Wapusk National Park in Manitoba, and Ukkusiksalik

National Park in Nunavut. These parks are critical areas for the Western Hudson Bay, Southern Hudson Bay, and Foxe Basin subpopulations, respectively.¹⁷⁶ Canada could nominate all of these sites under any of the four natural criteria, (vii)–(x).



Polar Bear Tracks. Credit: Michael Haferkamp

Wapusk National Park is known for its polar bear dens. Research indicates that 90% of the Western Hudson Bay subpopulation dens occur in this park, making it one of the most important denning areas in the world.¹⁷⁷ In addition to polar bears, an array of rare birds, such as peregrine falcon, great gray owl, and ivory gull, inhabit Wapusk.¹⁷⁸ Wapusk National Park also includes North America's most extensive mantle of peat.¹⁷⁹ The landscape has been rising slowly since the last glacial period, leaving behind ancient beach ridges.¹⁸⁰

The polar bears of Ukkusiksalik National Park are part of the roughly 2,197 polar

bears composing the Foxe Basin subpopulation.¹⁸¹ In fact, polar bears are more prevalent in this park than in most other Arctic parks.¹⁸² However, the specific significance of this site for the polar bear is unclear: Polar bears are known to congregate at Ukkusiksalik National Park in the summer,¹⁸³ but more research is needed to determine whether or not Ukkusiksalik National Park is a major denning site, a major hunting site, or both. Ukkusiksalik is also known as an important hunting site for indigenous peoples, and it has many examples of geologic features shaped by the Pleistocene glaciers.¹⁸⁴

A particularly interesting site is Polar Bear Provincial Park in Ontario. This park is very difficult to access, and the only traces of human presence are four landing strips and an abandoned radio station.¹⁸⁵ Because of the lack of human encroachment, many Arctic species are present in the park. Polar bears are present year round, and during the peak period in November, up to 200 bears wander the park's 2,355,200 hectares.¹⁸⁶ Also, belugas, moose, seals, walruses, caribou, beavers, and black bears are common.¹⁸⁷ Finally, the inland ponds and lakes are known to turn multiple colors—yellow, green, turquoise, and ivory—in the spring due to microorganisms and minerals in the water.¹⁸⁸

Conclusion

Designation of expanses of polar bear habitat as World Heritage and collectively referred to as the Transboundary Polar Bear World Heritage Reserve could spur increased international research into how climate change and other human induced threats are affecting the polar bear, how the polar bear is adapting, what its population numbers are, where polar bears are relocating their dens, as well as other behavioral changes in an altered habitat. As highlighted by the Ilulissat Icefjord World Heritage Site example, where designation of the site has spurred international climate change research, designation of a World

Heritage site encompassing a significant amount of polar bear habitat could similarly help the international community protect and manage the changing habitat needs of the polar bear. Through increased scientific research, public awareness, and transboundary collaboration among polar bear range States, the World Heritage Convention can protect a portion of existing polar bear habitat and provide a refined understanding of how the international community can further safeguard the polar bear now and for future generations.



U.S. Geological Survey, Department of the Interior/USGS
U.S. Geological Survey/photo by Jessica Robertson

Endnotes

¹ The Convention Concerning the Protection of the World Cultural and Natural Heritage, signed Nov. 16, 1972, entered into force Dec. 17, 1975, 1037 U.N.T.S. 151, available at:

<http://whc.unesco.org/archive/convention-en.pdf> [hereinafter World Heritage Convention].

² See UNESCO, OPERATIONAL GUIDELINES FOR IMPLEMENTATION OF THE WORLD HERITAGE CONVENTION ¶ 77 (2013) (including ten specific criteria for identifying areas as of “outstanding universal value.”) [hereinafter “OPERATIONAL GUIDELINES”].

³ UNESCO, World Heritage List, Taj Mahal, <http://whc.unesco.org/en/list/252>.

⁴ UNESCO, World Heritage List, Site of Xanadu, <http://whc.unesco.org/en/list/1389>.

⁵ UNESCO, World Heritage List, Kilimanjaro National Park, <http://whc.unesco.org/en/list/403>.

⁶ UNESCO, World Heritage List, The Whale Sanctuary of El Vizcaino, <http://whc.unesco.org/en/list/554>.

⁷ *Id.*

⁸ National Parks Service, Bering Land Bridge National Preserve, History and Culture, <http://www.nps.gov/bela/historyculture/index.htm>.

⁹ John C. Bailey & C. Kent Brooks, *Petrochemistry and Tectonic Setting of Lower Cretaceous Tholeiites from Franz Josef Land, U.S.S.R.*, 37 BULL. GEOL. SOC. 31(1988).

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¹¹ Determination of Threatened Status for the Polar Bear (*Ursus maritimus*) Throughout Its Range, 73 Fed. Reg. 28,212 (May 15, 2008) (“Polar Bear Listing Rule”).

¹² Range States have agreed to undertake polar bear conservation efforts through the Agreement on Conservation of Polar Bears, (Oslo, 15 Nov 1973) 27 UST 3918; 13 ILM 13 (1974), available at <http://sedac.ciesin.org/entri/texts/polar.bears.1973.html>. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) regulates international trade in polar bear parts. Mar. 3, 1973, 993 U.N.T.S. 243 (entered into force on July 1, 1975).

¹³ S. Schliebe, et al. (IUCN SSC Polar Bear Specialist Group), *Ursus maritimus* (2008), in IUCN, IUCN RED LIST OF THREATENED SPECIES: VERSION 2013.2 (2013), at <http://www.iucnredlist.org/details/22823/0>.

¹⁴ *Id.* at “Assessment Information.”

¹⁵ Polar Bear Listing Rule, *supra* note 11, at 28213–15.

¹⁶ UNESCO, Tentative Lists, Svalbard Archipelago, at <http://whc.unesco.org/en/tentativelists/5161/> (stating that “[p]olar areas are, in general, poorly represented on the World Heritage List.”).

¹⁷ World Heritage Centre, The World Heritage Convention, <http://whc.unesco.org/en/convention/>.

¹⁸ *Id.* The entire removal and relocation cost US \$80 million of which the international community donated half.

¹⁹ World Heritage Convention, *supra* note 1, at preamble, para. 2.

²⁰ *Id.* at preamble, para. 1.

²¹ *Id.* at art. 22.

²² World Heritage Committee, Decision 29 COM 7B.a., ¶ 5, in Decisions of the 29th Session of the World Heritage Committee, WHC-05/29.COM/22, at 36 (Sept. 9, 2005), at <http://whc.unesco.org/en/decisions/351/>.

²³ National Oceanic and Atmospheric Administration, Arctic Report Card: Update for 2012, Executive Summary, http://www.arctic.noaa.gov/reportcard/exec_summary.html.

²⁴ UNESCO, World Heritage Centre, Benefits of Ratification, <http://whc.unesco.org/en/convention/#Benefits-of-Ratification>.

²⁵ See UNESCO, World Heritage Centre, Case Study: Sian Ka’an–Mexico, § 2, at <http://whc.unesco.org/en/activities/614/>, (former site manager discussing Sian Ka’an’s importance in national conservation efforts after its World Heritage designation).

²⁶ *Id.* at § 2.

²⁷ *Id.*

²⁸ UNESCO, World Heritage Centre, Success Stories, Finding Solutions, <http://whc.unesco.org/en/107/>.

²⁹ *Id.*

³⁰ Benefits of Ratification, *supra* note 25.

³¹ *Id.*

³² Catherine Thomas, *World Heritage Site Status—A Catalyst for Heritage-led Sustainable Regeneration: The Blaenavon Industrial Landscape, United Kingdom*, in WORLD HERITAGE: BENEFITS BEYOND BORDERS 290, 292 (Amareswar Galla ed., 2012).

³³ World Heritage Centre, “Benefits of Ratification,” <http://whc.unesco.org/en/convention/-Benefits-of-Ratification>.

³⁴ UNESCO, World Heritage Centre, Case Study: Dorset, <http://whc.unesco.org/en/activities/612/>.

(quoting Site Manager and Team Leader Tim Badman).

³⁵ See Case Study: Sian Ka'an, *supra* note 26, at § 3.

³⁶ Minja Yang, *Capacity-building for Sustainable Urban Development—Town of Luang Prabang, Lao People's Democratic Republic*, in *BENEFITS BEYOND BORDERS*, *supra* note 33, at 94.

³⁷ *Id.* at 99–100.

³⁸ *Id.* at 100–01.

³⁹ See Case Study: Sian Ka'an, *supra* note 26.

⁴⁰ Benefits of Ratification *supra* note 25.

⁴¹ *Id.*

⁴² AUGUSTIN COLETTE, CASE STUDIES ON CLIMATE CHANGE AND WORLD HERITAGE 62–63 (2007), at <http://whc.unesco.org/en/activities/473/>.

⁴³ *Id.*

⁴⁴ *Id.* at 63.

⁴⁵ World Heritage Convention, *supra* note 1, at arts. 1–2.

⁴⁶ World Heritage Centre, World Heritage List, <http://whc.unesco.org/en/list/>.

⁴⁷ World Heritage Convention, *supra* note 1, at arts. 4, 6.

⁴⁸ *Id.* at arts. 8(1), 11(1)–(4), 15(1), 13 & 20.

⁴⁹ *Id.* at art. 22 (a)–(d).

⁵⁰ See Schliebe et al., *supra* note 13.

⁵¹ IUCN/SSC Polar Bear Specialist Group, Population Status Reviews, <http://pbsg.npolar.no/en/status/>.

⁵² Designation of Critical Habitat for the Polar Bear (*Ursus maritimus*) in the United States; Final Rule, 75 Fed. Reg. 76086, 76087 (Dec. 7, 2010), <http://www.fws.gov/policy/library/2010/2010-29925.html>.

⁵³ Federal State Budget Institution, State Nature Reserve, Wrangell Island, <http://eng.ostrovwrangelya.org/geography.html>.

⁵⁴ See, e.g., Parks Canada, Ivvavik National Park of Canada, <http://www.pc.gc.ca/eng/pn-np/yt/ivvavik/index.aspx>.

⁵⁵ See, e.g., World Wildlife Fund, Kalaallit Nunaat High Arctic Tundra, <http://worldwildlife.org/ecoregions/na1112>.

⁵⁶ See Schliebe et al., *supra* note 13.

⁵⁷ National Oceanic and Atmospheric Administration, Future of Arctic Climate and Global Impacts, Sea Ice, http://www.arctic.noaa.gov/future/sea_ice.html.

⁵⁸ Chris Wold, WORLD HERITAGE SPECIES: A NEW LEGAL APPROACH TO CONSERVATION, 20 GEO. INT'L ENVTL. L. REV. 337, 368 (2008).

⁵⁹ *Id.*

⁶⁰ Canada's First Peoples, The Inuit, Food/Hunting, at http://firstpeoplesofcanada.com/fp_groups/fp_inuit3.html.

⁶¹ CITES, *supra* note 12.

⁶² Agreement on the Conservation of Polar Bears, *supra* note 12.

⁶³ OPERATIONAL GUIDELINES 2013, *supra* note 2, at ¶ 49.

⁶⁴ See, e.g., Svalbard Archipelago, *supra* note 16.

⁶⁵ CONSERVATION OF ARCTIC FLORA AND FAUNA, ARCTIC BIODIVERSITY ASSESSMENT: REPORT FOR POLICY MAKERS 4 (2013), at <http://www.arcticbiodiversity.is/index.php/the-report/report-for-policy-makers/policy-recommendations>.

⁶⁶ Russian Geographical Society, Arctic Scenery, <http://int.rgo.ru/arctic/arctic-news/arctic-scenery/>.

⁶⁷ See, Canada's First Peoples, *supra* note 75.

⁶⁸ See OPERATIONAL GUIDELINES, *supra* note 2, at ¶ 79.

⁶⁹ *Id.*

⁷⁰ *Id.* at ¶ 80.

⁷¹ *Id.* at ¶ 82.

⁷² *Id.* at ¶ 88.

⁷³ *Id.* at ¶¶ 89–90.

⁷⁴ *Id.* at ¶¶ 92–95.

⁷⁵ See *id.* at ¶¶ 96–107.

⁷⁶ *Id.* at ¶¶ 108–118.

⁷⁷ *Id.* at ¶¶ 62, 65.

⁷⁸ *Id.* at ¶120.

⁷⁹ See *id.* at ¶ 132 & Annex 5.

⁸⁰ See *id.* at ¶ 129 & Annex 5.

⁸¹ See *id.* at ¶ 53.

⁸² *Id.* at ¶ 128.

⁸³ *Id.* at ¶ 127.

⁸⁴ *Id.* at ¶ 168.

⁸⁵ *Id.* at ¶ 168.

⁸⁶ *Id.* at ¶ 168.

⁸⁷ *Id.* at ¶ 145.

⁸⁸ *Id.* at ¶ 144.

⁸⁹ *Id.* at ¶ 33.

⁹⁰ *Id.* at ¶ 148.

⁹¹ Compare World Heritage Centre, World Heritage List, <http://whc.unesco.org/en/list/>; with IUCN/SSC Polar Bear Specialist Group, Polar Bear Population Map, <http://pbsg.npolar.no/en/status/population-map.html>.

⁹² World Heritage Committee, Decision 28 COM 14B.14, ¶ 1, in Decisions Adopted at the 28th Session of the World Heritage Committee, WHC-04/28.COM/26, at 22 (Oct. 29, 2004), <http://whc.unesco.org/archive/2004/whc04-28com-26e.pdf>.

⁹³ OPERATIONAL GUIDELINES, *supra* note 2, at ¶ 166.

⁹⁴ Decision 28 COM 14B.14, *supra* note 108, at 22. Wrangel Island was listed under natural criteria ii and iv under the previous Operational Guidelines, which correspond to criteria (ix) and (x) under the current Operational Guidelines.

⁹⁵ *Id.*

⁹⁶ See World Heritage Committee, Decision 33 COM 7B.30, in Report of Decisions of the 33rd Session of the World Heritage Committee, WHC-09.33.COM/20, at 79 (July 20, 2009),

<http://whc.unesco.org/archive/2009/whc09-33com-20e.pdf>; State of Conservation Report, Natural System of Wrangel Island Reserve (2009),

<http://whc.unesco.org/en/soc/647> (a World Heritage Committee summary of reports submitted by IUCN on the current conservation issues at Wrangel Island).

⁹⁷ See World Heritage Committee, Decision 36 COM 7B.20, in Decisions Adopted by the World Heritage Committee at its 36th Session, WHC-12/36.COM/19, at § 21 (2012); World Heritage Committee, State of Conservation of World Heritage Properties Inscribed on the World Heritage List, WHC-12/36.COM/7B, § 20 (May 11, 2012) (a World Heritage Committee summary of reports submitted by IUCN on the current conservation issues at Wrangel Island).

⁹⁸ Decision 28 COM 14B.8, in WHC-04/28.COM/26, *supra* note 108, at 18.

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ World Heritage Centre, Ilulissat Icefjord—Long Description, <http://whc.unesco.org/en/list/1149>.

¹⁰² Ilulissat Icefjord is listed under criteria (vii) and (viii), natural beauty and significant geological development respectively. These categories do not cover the polar bear or its presence at the icefjord. To include the polar bear in the site management plan, criteria (ix) or (x) would have to be added to the site, which requires the Greenland/Denmark to submit the change as if it were a new site. OPERATIONAL GUIDELINES, *supra* note 2, at ¶ 166.

¹⁰³ *Id.* at ¶¶ 166, 168.

¹⁰⁴ Compare World Heritage Centre, World Heritage List, <http://whc.unesco.org/en/list/>; and World Heritage Centre, Tentative Lists—Mistaken Point, <http://whc.unesco.org/en/tentativelists/1942/>; with IUCN/SSC PBSG, Polar Bear Population Map <http://pbsg.npolar.no/en/status/population-map.html>.

¹⁰⁵ IUCN/SSC PBSG, Barents Sea (BS), <http://pbsg.npolar.no/en/status/populations/barents-sea.html>.

¹⁰⁶ *Id.* This is the estimate for the entire Barents Sea population, which Norway shares with Russia.

¹⁰⁷ Miljø Direktoretet, Sør-Spitsbergen, <http://www.miljodirektoratet.no/no/Tema/Verneomraeder/Norges-nasjonalparker/Sor-Spitsbergen/> (Feb. 7, 2010) (Google Translate, original Norwegian, “Sør-Spitsbergen nasjonalpark har et storslått landskap, med karakteristiske spisse fjellformasjoner,” translated to

“South Spitsbergen National Park boasts magnificent scenery, with characteristic jagged rock formations.”).

¹⁰⁸ IUCN/SSG PBSG, IUCN/Polar Bear Specialist Group 1st meeting, http://pbsg.npolar.no/en/meetings/stories/01st_meeting.html.

¹⁰⁹ Place names in Norwegian Polar Areas, Nordvest-Spitsbergen Nasjonalpark, <http://placenames.npolar.no/stadnamn/Nordvest-Spitsbergen+nasjonalpark?lang=en>.

¹¹⁰ Norwegian Polar Institute, Hopen Nature Reserve, <http://www.npolar.no/en/the-arctic/svalbard/hopen.html>; Norwegian Polar Institute, Polar Bear, <http://www.npolar.no/en/species/polar-bear.html>.

¹¹¹ Norwegian Polar Institute, Polar Bears, <http://www.npolar.no/en/species/polar-bear.html>.

¹¹² Svalbard Archipelago, *supra* note 16.

¹¹³ Ministry for Economic Development of the Russian Federation, *Strategic Action Programme for Protection of the Russian Arctic Environment*, 9 (2009), <http://npa-arctic.ru>.

¹¹⁴ IUCN/SSC Polar Bear Specialist Group, Polar Bear Population Map, <http://pbsg.npolar.no/en/status/population-map.html>.

¹¹⁵ NIKITA OVSYANIKOV, POLAR BEARS 35 (1998).

¹¹⁶ GRID-Arendal, Polar Bear (*Ursus maritimus*; Female) on melting Sea ice, Franz Josef Land, Russian Arctic National Park, http://www.grida.no/photolib/detail/polar-bear-ursus-maritimus-female-on-melting-sea-ice-franz-josef-land-russian-arctic-national-park_95a4.

¹¹⁷ Ministry of Natural Resources and Ecology of the Russian Federation, Rosiskaya Arktika Nationalni Park, Territory, <http://www.rus-arc.ru/ru/AboutPark/Territory> (Google Translate, original Russian “Территория национального парка включает в себя северную часть острова Северный островов Новая Земля, Большие и Малые Оранские острова, о. Лошкина, о. Гемскерк и ряд других островов... Баренцево море, омывающее территорию парка с запада, под влиянием теплого Северо-Атлантического течения полностью не замерзает. Восточное Карское море, напротив, покрывается сплошным льдом на долгие месяцы,” translated to, “[t]he National Park includes the northern part of North Island island of Novaya Zemlya, Large and Small Islands of Orange, Fr.Loshkina about. Genskerk and several other islands ... [t]he Barents Sea washes the park from the west, under the influence of the warm North Atlantic Current is completely frozen. Eastern

Kara Sea, by contrast, is covered by ice solid for months.”).

¹¹⁸ *Id.* (Google Translate, original Russian, “На территории «Русской Арктики» встречаются белые медведи, моржи, нерпы, гренландские тюлени, песцы и даже северные олени,” translated to “In the “Russian Arctic” encountered polar bears, walruses, seals, harp seals, arctic foxes and even reindeer.”).

¹¹⁹ *Id.* (Google Translate, original Russian, “Площадь суши «Русской Арктики» составляет 632 090 га, акватории - 793 910 га,” translated to “The land area of ‘Russian Arctic’ is 632 090 ha, water area - 793,910 hectares.”).

¹²⁰ RIA Novosti, Administratiya Nenetskovo Avtonomnovo Okruga, Nationalni Park: Roskaya Arktika, June 17, 2009, <http://www.adm-nao.ru/?show=news&id=2460&PHPSESSID=9aa7498197d970c343758afd1e269f8d> (Google Translate, original Russian, “В частности, на островах нацпарка находится один из важнейших очагов размножения белого медведя карско-баренцевоморской популяции, в его акватории в течение всего года обитают нарвал и гренландский кит,” translated to, “In particular, the islands of the National Park is one of the most important breeding areas polar bear Kara-Barents Sea population in its waters throughout the year live narwhal and bowhead whale.”).

¹²¹ Inga Chuprova & Valery Chuprov, *Bolshoi Arktichesky Zapovednik: Monitoring Pollution in Russia's Largest Nature Reserve*, RUSSIAN CONSERVATION NEWS 18, 18 (Summer 2004).

¹²² Center for Russian Nature Conservation—Wild Russia, Great Arctic Zapovednik, http://www.wild-russia.org/bioregion1/Great_Arctic/arctic.htm.

¹²³ *Id.*; Chuprova & Chuprov, *supra* note 137, at 18.

¹²⁴ Wildlife Extra, A New Nature Reserve for Vaigach Island in the Western Russian Arctic, <http://www.wildlifeextra.com/go/safaris/vaigach-island.html-cr>.

¹²⁵ Arctic Russia Travel, Vaygach Island, <http://www.arcticrussiatravel.com/nenets-autonomous-okrug/vaygach-island/>.

¹²⁶ Center for Russian Nature Conservation—Wild Russia, Nenetsky Zapovednik, http://www.wild-russia.org/bioregion1/Nenetsky/1_Nenetsky.htm.

¹²⁷ IUCN/SSC Polar Bear Specialist Group, Summary of Polar Bear Population Status per 2010, <http://pbsg.npolar.no/en/status/status-table.html>; IUCN/SSC Polar Bear Specialist Group, Polar Bear Population Map, <http://pbsg.npolar.no/en/status/population-map.html>.

¹²⁸ IUCN/SSC Polar Bear Specialist Group, Summary of Polar Bear Population Status per 2010, <http://pbsg.npolar.no/en/status/status-table.html>.

¹²⁹ Official Tourism Site of Greenland, Greenland National Park, <http://www.greenland.com/en/explore-greenland/nationalparken.aspx>; Northeast Greenland National Park Maps, [http://naalakkersuisut.gl/~media/Nanoq/Files/Attached Files/Engelske-tekster/Publications/North-East Greenland National Park.pdf](http://naalakkersuisut.gl/~media/Nanoq/Files/Attached%20Files/Engelske-tekster/Publications/North-East%20Greenland%20National%20Park.pdf).

¹³⁰ WWF—Places, Ecoregions, Tundra, Kalaallit Nunaat High Arctic Tundra, <http://worldwildlife.org/ecoregions/na1112>.

¹³¹ *Id.*

¹³² 75 Fed. Reg. 76086, 76087 (Dec. 7, 2010).

¹³³ *Id.* at 76133, codified at 50 C.F.R. § 17.95.

¹³⁴ 75 Fed. Reg. at 76087; Alaska Oil and Gas Assn. et al. v. Salazar, et al., 916 F.Supp.2d 974, 984 (D. Alaska, Jan. 11, 2013) (The District Court of Alaska issued an order overturning the designation of polar bear critical habitat as “arbitrary and capricious.” Therefore, at this point there is no official polar bear critical habitat.).

¹³⁵ 75 Fed. Reg. at 76090.

¹³⁶ National Parks Service, Bering Land Bridge National Preserve, History and Culture, <http://www.nps.gov/bela/historyculture/index.htm>.

¹³⁷ National Parks Service, Bering Land Bridge National Preserve, People, <http://www.nps.gov/bela/historyculture/people.htm>.

¹³⁸ NATIONAL PARKS SERVICE, BERING LAND BRIDGE NATIONAL PRESERVE: GENERAL MANAGEMENT PLAN, LAND PROTECTION PLAN, AND WILDERNESS SUITABILITY REVIEW 18, 63–64 (1985).

¹³⁹ National Parks Service, Cape Krusenstern, Nature & Science, <http://www.nps.gov/cakr/naturescience/index.htm>.

¹⁴⁰ National Parks Service, Cape Krusenstern, Natural Features & Ecosystems, http://www.nps.gov/cakr/naturescience/naturalfeature_sandecosystems.htm.

¹⁴¹ Alaska Department of Fish and Game, Bering Land Bridge National Preserve, http://www.adfg.alaska.gov/index.cfm?adfg=viewing_locations.beringbridge; National Parks Service, Cape Krusenstern, Obtaining a Research Permit, <http://www.nps.gov/cakr/naturescience/researchpermit.htm>.

¹⁴² 75 Fed. Reg. at 76087.

¹⁴³ 75 Fed. Reg. at 76087.

¹⁴⁴ IUCN/SSC Polar Bear Specialist Group, Southern Beaufort Sea (SB), <http://pbsg.npolar.no/en/status/populations/southern-beaufort-sea.html>.

¹⁴⁵ 75 Fed. Reg. at 76114.

¹⁴⁶ Matea Osti et al., *Oil and Gas Development in the World Heritage and Wider Protected Area Network in Sub-Saharan Africa*, 20 BIODIVERSITY & CONSERVATION 1863, 1873 (2011)(indicating that four Sub-Saharan World Heritage Sites contain oil and gas wells and two contain oil or gas pipelines; also Selous Game Reserve in Tanzania contains an oil well that was drilled post designation).

¹⁴⁷ 75 Fed. Reg. at 76114.

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¹⁴⁹ Species at Risk Act, S.C. 2002, c. 29, (2) (“species of special concern”) (Can.), at <http://laws-lois.justice.gc.ca/PDF/S-15.3.pdf>.

¹⁵⁰ Environment Canada, Conservation of Polar Bears in Canada, *supra* note 164.

¹⁵¹ *Id.*

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ Environment Canada, Maps of Global and Canadian Sub-populations of Polar Bears and Protected Area, http://www.ec.gc.ca/nature/default.asp?lang=En&n=F77294A3-1-pb_pa (this map lists two Marine Protected Areas but does not identify Tarium Nirvutait Marine Protected area which was established in 2010, presumably after the map was published).

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¹⁵⁹ Quttinirpaaq National Park of Canada—Mammals, *supra* note 174.

¹⁶⁰ World Heritage Centre, Tentative Lists, Canada—Ivvavik /Vuntut /Herschel Island (Qikiqtaruk), <http://whc.unesco.org/en/tentativelists/1939/>.

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¹⁶² D. COBB ET AL., BEAUFORT SEA LARGE OCEAN MANAGEMENT AREA: ECOSYSTEM OVERVIEW AND

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¹⁷² *Id.* at § 2.

¹⁷³ *Id.*

¹⁷⁴ Ivvavik /Vuntut /Herschel Island (Qikiqtaruk), *supra* note 178.

¹⁷⁵ Southern Beaufort Sea (SB), *supra* note 180; ERIC V. REGEHR ET AL., POLAR BEARS IN THE SOUTHERN BEAUFORT SEA I: SURVIVAL AND BREEDING IN RELATION TO SEA ICE CONDITIONS, 2001-2006 2 (USGS 2007) (available at <http://www.who.edu/files/server.do?id=31364&pt=2&p=35187>).

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