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Management Plan for Peary Caribou in Nunavut 2014 – 2020

Prepared in collaboration with

The Hunter and Trappers Organizations of Grise Fiord, Resolute Bay, Arctic Bay, Cambridge Bay, Gjoa Haven, Taloyoak, Kugaaruk, GN Department of Environment, Nunavut Tunngavik Inc., and the Nunavut Wildlife Management Board

Third Draft, January 2014

Note:

This draft is based upon the format and language used in the document “*Taking Care of Caribou -The Cape Bathurst, Bluenose West, and Bluenose East Barren Ground Caribou Herds Management Plan*” developed by the stakeholders and Terriplan Consultants and submitted to the Advisory Committee for the Cooperation on Wildlife Management. The majority of technical information is derived from the GN DoE report “*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut*”. The information contained herein is an amalgamation of both documents and the work in both those documents represents the talent, skill and considerable efforts of those involved respectively.

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1.0 Summary

Peary caribou (*Rangifer tarandus pearyi*) are a distinct caribou subspecies that occurs almost entirely on islands within the Canadian Arctic Archipelago. These ungulates live the farthest north of all caribou in North America, and are the smallest in stature and in population size. In February 2011 Peary caribou were listed as Endangered under the *Species at Risk Act* (SARA) due to declines in abundance and expected unpredictable declines due to changes in long-term weather patterns.

Caribou are of major cultural, traditional and economic importance to Inuit, and are also a vital part of the Arctic ecosystem. Nunavummiut are concerned about the status of Peary caribou and their habitat as determined through public workshops in Grise Fiord and Resolute Bay. Peary caribou harvest in Nunavut has not been restricted through legislation; rather the Resolute Bay Hunters and Trappers Association (HTA) and the Iviq HTA of Grise Fiord have imposed temporary harvest restrictions on their members during periods of marked declines. Inuit knowledge however suggests that increasing land-use activity, such as resource exploration, poses a greater potential threat to Peary caribou and their habitat than hunting pressure.

The Department of Environment of the Government of Nunavut (GN DoE) has the ultimate responsibility for the management and conservation of Peary caribou within its jurisdiction. To address the DoE mandate for management this plan recommends management units and harvest levels to establish the basis of new regulations under the *Wildlife Act* as well as recommendations for ongoing monitoring of population trends and harvest through an inclusive approach with all co-management partners. This will include provisions for future monitoring and research, Inuit involvement in research, monitoring and decision making, and consensus based decision making in response to observed changes in population.

2.0 PURPOSE OF THE PLAN

The need for a management plan for Peary caribou is born out of several issues including Inuit harvest rights, territorial responsibility for species management, changes in land use needs, population declines, and changing climate. The long term Department of Environment study on Peary caribou "*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut*" has produced the first modern, comprehensive assessment of the current status of Peary Caribou in Nunavut. With the completion of the DOE report, and the success of community workshops held in Grise Fiord and Resolute, the development of management plans is essential. The need for a plan is also connected to the survey results, which for some areas are becoming outdated, although the results remain valid as a baseline.

The Peary Caribou Management Plan provides a snapshot of current population estimates and trends for the species across its range and establishes overall principles and goals for the conservation of Peary caribou in Nunavut. It highlights the critical need for co management partners to work together, defines roles of stakeholders, and provides a framework to guide management of the species throughout its range to accomplish the goals identified in Section 4.0.

The GN DoE report “*Recent trends and abundance of Peary Caribou and Muskoxen in the Canadian Arctic Archipelago, Nunavut*” provides greater technical detail on the specific island groups and their status, both historical and current. The more recent GN report “*Distribution and abundance of Peary caribou (*Rangifer tarandus pearyii*) and muskox (*Ovibos moschatus*) on the Bathurst Island Group, May 2013*” provides additional information.

2.1 CO-MANAGEMENT

This plan was developed through cooperation and dialogue between co management partners in Nunavut including participation by:

Iviq Hunters and Trappers Association (Grise Fjord)
Resolute Bay Hunters and Trappers Association
Ikajutit Hunters and Trappers Organization (Arctic Bay)
Spence Bay Hunters and Trappers Organization (Taloyoak)
Ekaluktutiak Hunters and Trappers Organization (Cambridge Bay)
Kurairojuark Hunters and Trappers Organization (Kugaaruk)
Gjoa Haven Hunters and Trappers Organization
Nunavut Tunngavik Inc., Wildlife Department
Nunavut Department of Environment, Wildlife Management Division

3.0 HOW THE PLAN WAS DEVELOPED

The Plan was developed in collaboration with the communities that harvest Peary caribou as well as the other co management partners under the *Nunavut Land Claims Agreement* (NLCA). Two rounds of community workshops were conducted in 2010 and 2011 in Grise Fiord and Resolute Bay in addition to the ongoing exchange of information during the aerial and ground surveys.

The workshops were designed to:

- Share results of GN DoE research
- Gather local expert knowledge
- Seek consensus on management and monitoring actions

The initial draft was developed for further community and stakeholder involvement by GN DoE and consultations were conducted in March 2012 in the Qikiqtaalik Region and

March 2013 in the Kitikmeot Region. The final draft will be submitted to the NWMB for approval and will form the basis for development of Regulations under the *Wildlife Act*.

4.0 GOALS OF THE PLAN

The goals of the Management Plan are to provide guidance and direction to the co-management partners and are as follows:

- To manage Peary caribou in a co-operative manner that involves the full participation of communities and engagement of co management partners.
- To include Inuit Qaujimajatuqangit and scientific knowledge equally in the management process.
- To promote local and regional involvement in decision making.
- To protect, conserve and manage Peary caribou in a sustainable manner.
- To ensure the full and effective participation of Inuit and co management partners in ongoing monitoring and management of Peary caribou, and decision making.

4.1 INUIT QAUJIMAJATUQANGIT

Inuit Qaujimajatuqangit (IQ) is the knowledge and insight gained by Inuit through generations of living in close contact with nature. For Inuit, IQ is an inseparable part of their culture and includes rules and views that affect modern resource use.

The practical application of IQ with scientific information demonstrates the value of local consultations, and documenting and preserving IQ before it is lost. The communities, through the HTOs, will be consulted on an on-going basis to ensure that IQ is utilized in conjunction with scientific information in the management of Peary caribou.

This plan supports those values and reflects the following principles:

- Management decisions will reflect the wise and sustainable use of Peary caribou.
- Adequate habitat (quantity and quality) is fundamental to the welfare of Peary caribou.
- Management decisions will be based on the best available information - both science and IQ; and management actions will not be postponed in the absence of complete information, whether from science or IQ.
- Effective management requires participation, openness and cooperation among all users and agencies responsible for caribou and their habitat.
- We must anticipate and minimize negative impacts to caribou and their habitat.

5.0 PEARY CARIBOU BIOLOGY AND MANAGEMENT

Common name (English): Peary caribou

Common name (French): Caribou de Peary

Inuktitut name: Tuktu

Innuinaqtun name: Qinianaq or Tuktuinal ('small caribou')

Scientific Name: *Rangifer tarandus pearyi*

Status: SARA – Endangered
Wild Species 2010 – At Risk

5.1 PEARY CARIBOU RANGE

Endemic to Canada, the terrestrial range of Peary caribou is roughly 540,000 km² and extends across the Queen Elizabeth Islands in the north, the mid-Arctic islands and from the west of Banks Island to Somerset and the Boothia Peninsula in the southeast (Figure 1). Ice surrounds the islands for most of the year and caribou on some islands use the sea ice during seasonal migrations. The range is vast and the area is characterized by extreme weather, long periods of either continual darkness or continual light, and large expanses of ice, bare ground, and rock. The landscape is characterized by a polar desert and polar semi-desert where environmental conditions approach the physiological tolerance limits of plants.

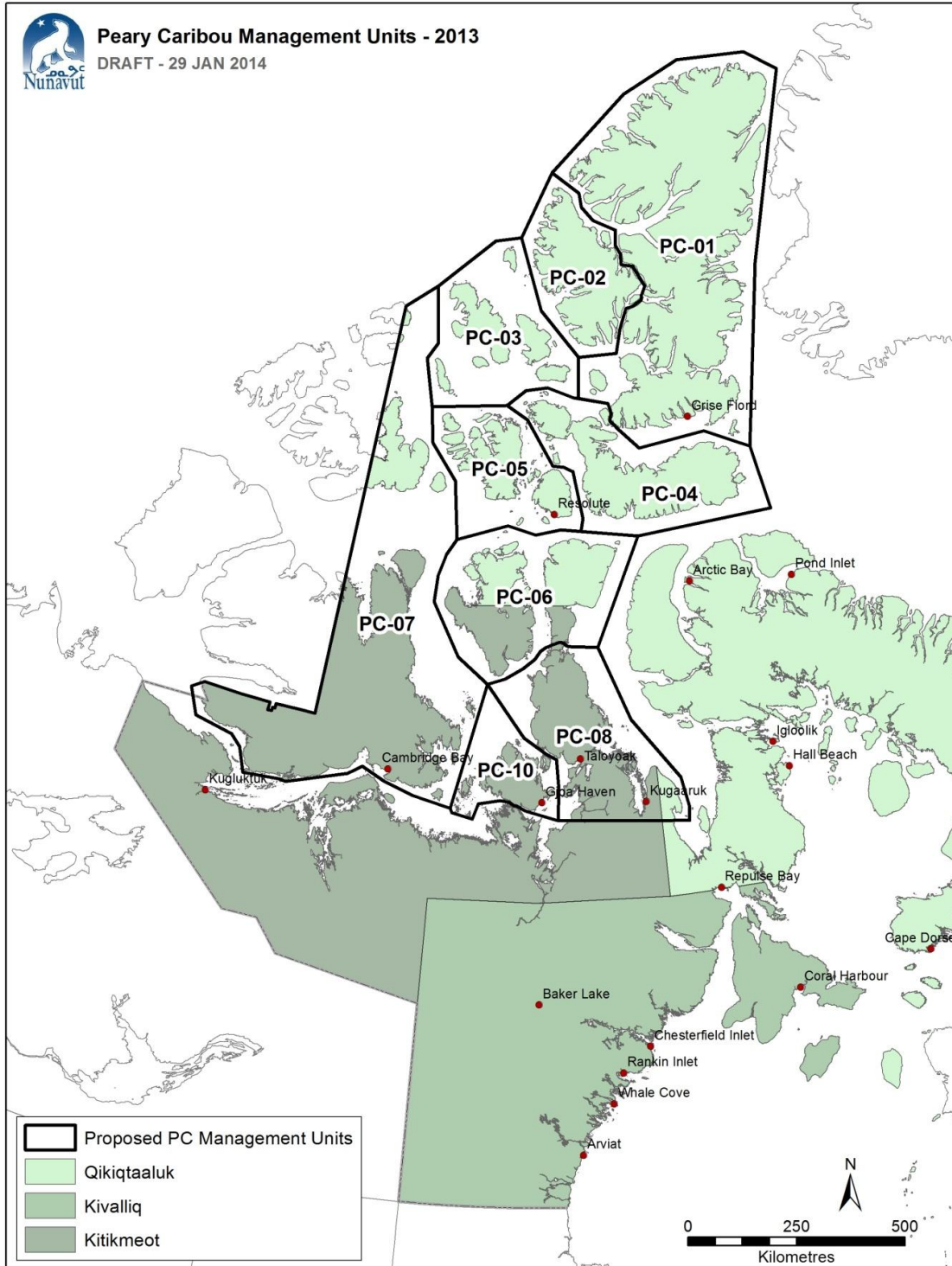
5.2 MANAGEMENT OF PEARY CARIBOU BY ISLAND GROUPS

The GN DoE report "*Recent trends and abundance of Peary Caribou and Muskoxen in the Canadian Arctic Archipelago, Nunavut,*" is the most reliable study of Peary caribou in Nunavut to date on which to base this management plan. This report provides the baseline for scientific knowledge of Peary caribou, as well as providing the estimates of numbers of Peary Caribou and specific habitat for management purposes.

As outlined in the report, Peary caribou make seasonal movements among islands within their range, and are also known to make longer distance movements in response to severe weather. The following proposed island grouping (Figure 1) applies the best available scientific information and Inuit knowledge about Peary caribou movement and proposes geographic units that are useful for management of the species. This plan refers to each management group by the 'Island Group' name. For the purpose of the management plan, it is important to note that the island group management units are not to be considered as discrete populations or sub-populations as adequate genetic information is not available to define populations at this time.

The Queen Elizabeth Islands (QEI) form the majority of the island groups, with the Bathurst Island group, the Axel Heiburg Island group, the Ringnes Island Group, the Ellesmere Island Group and the Devon Island Group being wholly within the QEI.

Figure 1. Proposed Peary Caribou Management Units



Melville Island for the purposes of this management plan is placed within the Victoria Island group.

5.2.1 Ellesmere Island Group (PC-01). Ellesmere Island is the largest of the Queen Elizabeth Islands (197,577 km²). The island is largely covered by mountain ranges and glaciers that are separated by a series of east-west passes. These features fragment the island, particularly where the north end of Vandom Fiord approaches the Prince of Wales Ice Cap, and divides the southern portion of the island from the north. Vegetation is sparse with mosses, lichens, and cold-hardy vascular plants such as sedges and cottongrass dominant at higher elevations while mosses and low-growing herbs and shrubs, such as purple saxifrage, *Dryas spp.*, arctic willow, kobresia, sedge, and arctic poppy more common at lower elevations.

5.2.2 Axel Heiberg Group (PC-02). Axel Heiberg Island (42,319 km²) is separated from Ellesmere Island by Nansen and Eureka Sound. This island is mountainous and includes the Princess Margaret Range, which runs north to south through its center. Large ice caps cover much of the landmass and spawn many glaciers that flow primarily to the west. East of the Princess Margaret Range, vegetation progresses from an herb-shrub transition zone at higher elevations to an enriched low shrub zone along the low-lying coast. There, plant species are diverse and dense, dominated by shrubs and sedge meadows.

5.2.3 Ringnes Island Group (PC-03). This island group consists of Ellef Ringnes, Amund Ringnes, Lougheed, King Christian, Cornwall, and Meighen Islands, all situated to the west of Axel Heiberg Island and north of the Bathurst Island Complex. Lougheed Island (1,321 km²) has vegetation described as entirely herbaceous with rich vegetation patches. Ellef Ringnes Island (11,428 km²) is sparsely vegetated with low plant diversity.

Amund Ringnes Island (5,299 km²) is relatively low lying but features greater relief in the north. Vegetation is entirely herbaceous with the southern half of the island supporting more diverse vegetation, primarily herbaceous plants with some shrubs and sedges. To the south of Amund Ringnes is Cornwall Island, a small hilly landmass also dominated by herbaceous vegetation. Meighen Island (approximately 933 km²), to the northeast of Amund Ringnes, is low-lying with sparse herbaceous vegetation and a large centrally located glacier. King Christian Island is located southwest of Ellef Ringnes, has an area of 647 km².

5.2.4 Devon Island Group (PC-04). Devon Island (55,534 km²; including small proximal islands) is characterized by several mountain ranges (e.g. Cunningham Mountains, Treuter Mountains, and the Douro Range), coastal lowlands, and extensive glaciers. The Devon Ice Cap covers a large portion of eastern Devon Island. Extensive uplands stretch west of the Ice Cap across central Devon Island. Low-lying areas occur in

coastal areas, primarily along the north and western coast (the Truelove lowlands), but also other smaller areas. The landscape is predominantly polar desert with sparse cover of vascular plants; however low lying areas support a greater diversity of vegetation dominated by low shrubs and sedges.

5.2.5 The Bathurst Island Group (PC-05). This group of islands includes the Bathurst Island Complex (BIC), and Cornwallis and Little Cornwallis Islands. The BIC (19,644 km²) includes Bathurst Island and five major satellite islands (> 200 km²; Cameron, Vanier, Alexander, Massey, and Helena), and three minor satellite islands. These islands are low-lying with few areas exceeding 300 m elevation. The terrain is sparsely vegetated however low-lying wetlands such as at Goodsir-Bracebridge Inlet have a higher cover of sedges and low-growing willows. Cornwallis and Little Cornwallis Islands (7,474 km² including small proximal islands) are low-lying with uplands and hills below 300 m and mostly polar desert with sparse vegetation. Portions of the western coastline and Eleanor Lake watershed (Cornwallis Island) support more diverse vegetation, including prostrate shrubs in moderately moist habitats, and sedges in the wet areas.

5.2.6 Prince of Wales/Somerset Island Group (PC-06). Prince of Wales (33,274 km²) is a tundra-covered island that features many small inland lakes. Although the island is generally below 300 m in elevation, some uplands occur along the eastern coast and across the north. Russell Island and Prescott Island are small proximal islands north and east of Prince of Wales, respectively. Somerset Island (24,548 km²), separated from Prince of Wales Island by Peel Sound, is hilly with extensive uplands.

5.2.7 Victoria Island Group (PC-07). This group includes Victoria Island (217,291 km²) and Melville Island (42,149 km²). Both of these islands have a shared border with the Northwest Territories. The eastern two thirds of Victoria Island lie in Nunavut along with roughly the eastern half of Melville Island. The majority of Victoria Island lies within the Victoria Lowlands is characterized by a discontinuous upland vegetative cover dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. Remaining upland areas are largely devoid of vegetation. Besides the presence of Mount Pelly and Little Pelly, elevations lie predominantly below 100 m asl. except in central Victoria Island where elevations rise up to over 200 m asl.

A small portion of Victoria Island, along the northwest boundary with NWT, is composed of the Shaler Mountains. The Shaler Mountains are characterized by a 40-60% vegetative cover mixed with exposed bedrock. Tundra vegetation includes purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. The centre part of the mountains reaches about 760 m asl.

Melville Island is predominately within the Parry Plateau. It has a sparse and discontinuous vegetative cover of moss, along with mixed low-growing herbs and shrubs such as purple saxifrage, *Dryas spp.*, arctic willow, kobresia, sedge, and arctic poppy. The terrain of this plateau is strongly ridged. Their elevations average less than 250 m asl. Separate, flat-floored, longitudinal valleys are transected by rugged, ravine-like cross valleys. On Melville Island, a few hills reach 760 m asl, and cliff-walled fjord-like bays and straits cut deeply into the uplifted plateau.

5.2.8 Boothia Peninsula (PC-08). Boothia Peninsula (32,331km²) is predominately covered by the Boothia Plateau uplands. Vegetation is discontinuous, and dominated by tundra species such as purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. It averages around 760 m asl. Bedrock outcroppings are common.

The eastern side of the Boothia Peninsula along the lowland coastal fringes of Boothia and Simpson peninsulas is composed of plains. It is characterized by discontinuous upland tundra vegetation, dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. The region slopes gently southward, ranging from sea level to about 300 m asl.

The south-western coastal portion of the Boothia Peninsula lies within the Victoria Lowlands which is characterized by a discontinuous upland vegetative cover dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. Elevations lie predominantly below 100 m asl.

5.2.9 King William Island Group (PC-10). King William Island (13,111 km²) is separated from the Boothia Peninsula by the James Ross Strait to the northeast, Rae Strait to the east, Victoria Strait to the west, and Simpson Strait to the south. Satellite islands include the Irving Islands, the Todd Islets, Matty Island, the Tennent Islands, and the Clarence Islands.

This group is in the Victoria Lowlands region which is characterized by a discontinuous upland vegetative cover dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. Remaining upland areas are largely devoid of vegetation. Elevations lie predominantly below 100 m asl.

6.0 THE USERS

Inuit are the traditional and current users of Peary caribou. The communities of Resolute Bay and Grise Ford were established in the early 1950's by the Canadian government as part of an arctic sovereignty program. Inuit that were relocated to these communities relied on the availability of Peary caribou as a food source. This reliance continues today. Arctic Bay is also an occasional user in the Qikiqtaaluk region. In the Kitikmeot region, the communities of Cambridge Bay, Taloyaok, Gjoa Haven, and Kugaaruk are also occasional users of Peary caribou; when Peary caribou are available they are taken opportunistically by harvesters from these communities.

7.0 STATUS OF THE ISLAND GROUPS

7.1 SURVEY HISTORY

In 1961 the first comprehensive survey of Peary caribou done in a single season across the Queen Elizabeth Islands was completed. During this survey approximately 25,845 Peary caribou were estimated. The majority of caribou (approximately 94%) were located in the western Queen Elizabeth Islands (QEI) (Bathurst Island Complex, Cornwallis, Melville, Prince Patrick, Eglinton, Emerald, Borden, Mackenzie King, and Brock). Survey coverage of some island groups, particularly Ellesmere, was minimal.

The first population estimates for the western Arctic islands included a 1972 estimate of 11,000 Peary caribou on Banks Island, a 1974 estimate of 5,515 Peary caribou on the eastern islands of Prince of Wales and Somerset Islands and 561 Peary caribou on the Boothia Peninsula in 1974, and a 1980 estimate of 4512 Peary caribou on northwestern Victoria Island. Combined with the 1961 QEI estimate, these estimates of abundance reveal a historic number of 48,000 Peary caribou throughout their entire range.

The decline of Peary caribou is characterized by four major die-offs which were observed primarily in the western Queen Elizabeth Islands between 1970 and 1998. Die-off events have been associated with deep snow and icing, which can limit access to forage, increase energy requirements, and lead to extreme under-nutrition and death. Observations by local Inuit are in agreement, reporting up to 2 inches of ice in some years.

Although limited, the data suggests that periods of decline and recovery vary among island groups, and a variety of factors such as human activities, landscape changes, predation, hunting, and competition with other herbivores may also contribute to the fluctuation of caribou. Inuit in Resolute Bay and Grise Fiord have identified exploration activities (i.e. oil and gas, coal and base minerals) as an additional stressor for caribou during some winters. They suggest that during years of high snow accumulation, industrial activities can prevent caribou from moving into areas that may be vital for their survival.

7.2 STATUS OF ISLAND GROUPS

7.2.1 Ellesmere Island Group

Results from the first aerial survey in 1961 suggested that there were approximately 200 caribou on Ellesmere Island, but only a small portion of the island was studied. The most recent survey (2005 and 2006) for Ellesmere Island revealed extremely low densities of 8-9 caribou/1000 km² for Peary caribou, which implies approximately 1,000 animals. Unfortunately surveys of Ellesmere Island are infrequent and limited in their spatial coverage making the determination of a trend in number impossible in this group. By 2003, Inuit reported that numbers of caribou on southern Ellesmere were increasing.

7.2.2 Axel Heiberg Island Group

The 1961 estimate of about 300 caribou on the island was based on limited survey coverage. No other surveys of the island have occurred since that time until 2007. The last survey results show a higher number of caribou than the only previous description of caribou abundance for Axel Heiberg Island. Lack of data and this 50-year gap in monitoring make it impossible to discuss population status or trends for Peary caribou on Axel Heiberg Island.

The Axel Heiberg Group currently supports the largest population of Peary caribou in Nunavut, with an estimated 2,291 animals based on 2007 survey results. This population accounts for a significant portion of the total estimated Peary caribou population within the Nunavut range. This may be a consequence of the local climate, plant biomass and diversity of vegetation, the varied topography, and isolation from human disturbance.

7.2.3 Ringnes Island Group

The 2007 survey of the Ringnes Island Group estimated a total of 654 caribou. Survey results suggest that caribou abundance is lower than the historical value of 1,324 in summer 1961. Overall it is difficult to interpret trends or fluctuation within this Island Group as survey information is limited, typical seasonal movement patterns are unknown, and the only two surveys completed have occurred at different times of year. Nonetheless, the overall proportion of calves (14%) observed in 2007 is encouraging given the extreme northern latitude and the small calf crops recorded for other survey areas.

7.2.4 Devon Island Group

The few surveys conducted suggest that Devon Island supports only a low number of Peary caribou. During a full island survey completed in 1961, 150 Peary caribou were estimated. Minimum counts for western Devon Island in 2002 suggested that caribou

numbers were low. In 2008, the count remained low with 17 Peary caribou. Thus, it appears that Peary caribou have existed at low numbers in the Devon Island group, although numbers are decreasing from previous estimates or counts which indicate a declining trend.

Movement patterns for caribou on Devon Island are not well understood and it is possible that there were caribou in other areas of the island at the time surveys were conducted. Inuit knowledge indicates that there have been caribou on the northeastern coast of Devon Island, on the Grinnell Peninsula, and that they can reliably be found along the western coast of the island.

7.2.5 Bathurst Island Group

The 2013 survey showed a significant increase in Peary caribou numbers, more than 1200 caribou, over the previous 2001 estimate of 187, however it is still low in relation to historical values of over 3,000 individuals (including calves) in both 1961 and 1994. Although evaluation of trends in abundance is complicated by differences in survey design and the inclusion or exclusion of calves, the overall trend of decline and current recovery is apparent.

This group has seen sharp fluctuations in 1973-74, and again in 1995-1997. The first two surveys of the Bathurst Island Complex (BIC, which consists of Bathurst, Vanier, Cameron Alexander, Massey, and Marc islands) were separated by 12 years (1961-1973) and revealed an 83% reduction in this caribou population from 3,565 to 608 (both estimates including calves). Late winter and summer surveys in 1973 and 1974 respectively identified a further reduction in caribou numbers to 228 (no calves were observed). This additional 62% decline was attributed to deep snow cover and icing, which caused widespread mortality and resulted in little or no reproductive success. Subsequent surveys from 1985 to 1994 indicated an increase and by 1994 Peary caribou were estimated at 3,100 on the BIC. Aerial surveys in 1995, 1996, and 1997 revealed a second die-off with an all-time low estimate of 78 caribou in 1997. Based on carcass counts, it was estimated that 85% of the overall decline was directly related to caribou mortality (and not movement). During the survey in 2001, the number of caribou in this group was estimated at 187.

Since that time Inuit have reported a slow increase in Peary caribou numbers. In 2010, Parks Canada conducted a reconnaissance survey on Bathurst Island and counted 300 Peary caribou in a non-systematic survey with no estimate derived. An aerial survey was conducted of the entire Bathurst Island group in May 2013 which generated a preliminary updated estimate of 1300 caribou which corresponds to Inuit observation of recovery since 2001.

For the Cornwallis Islands the only observation of live caribou in the 2001 survey was on northwest Cornwallis Island. Two caribou were seen on southern Cornwallis Island, and another single caribou on Little Cornwallis Island during the 2013 survey, but occasional tracks and local knowledge also suggest densities remain very low. Previous estimates that include both Cornwallis Island and Little Cornwallis Island are limited to the summer 1961 and 1988, when 43 and 51 caribou (with calves) were estimated respectively. Earlier surveys of Little Cornwallis in 1973 and 1974, produced estimates of 8 and 12 caribou, respectively, with no calves observed. By the mid- to late 1960s, Inuit reported that it was difficult to find caribou on this island and that none were observed from 1990 to 2003. These observations are consistent with ground and aerial survey results from 2002.

7.2.6 Prince of Wales Island Group

Peary caribou in this Group declined from an estimated 5,682 caribou (one year or older) in 1974 to a minimum count of two in 1996. Current scientific knowledge indicates that there has been little recovery since 1996. During the 2004 aerial survey, no Peary caribou were observed on the Prince of Wales Island Group. These results are consistent with ground surveys of Prince of Wales Island in 2004 and Somerset Island in 2005, in which crews reported only four caribou after traveling a distance of 4,831 km. Local knowledge however, indicates that there has been some return or increase in recent years as they see more caribou on the coast of Prince of Wales Island however there is presently no monitoring in place to help determine if the herd is recovering.

7.2.7 Boothia Peninsula Group.

Boothia Peninsula has had aerial surveys from 1961 to 1995. During this time some surveys have counted both Peary and Barren ground caribou together and others have counted them separately so extrapolation of trend is difficult. Regardless, local knowledge indicates that Peary caribou numbers have always been relatively low with some fluctuation over periods of decades. Peary caribou have been seen primarily north of Taloyoak and less frequently north of Kugaaruk and at the north end of the Simpson Peninsula. Peary caribou are known to have used Lady Parry Island.

Hunters in Taloyoak harvest Peary caribou opportunistically with a couple taken every year. Historically more Peary caribou were taken in the 1960's and 1970's when they were more abundant. In Kugaaruk, harvest is also opportunistic with only a caribou harvested every few years. There is currently no system in place to report the Peary caribou harvested at these locations and thus monitor harvest rate.

7.2.8 Victoria Island Group.

Both Victoria Island and Melville Island have a long history of aerial surveys. Peary caribou have been more consistently observed, and at higher numbers on Melville

Island with a high of over 10,000 adults in 1961 and a low of 700 in 1972. A recent survey of Melville Island conducted by the Government of Northwest Territories (GNWT) has produced a new estimate of 2,990 adults in 2012 which suggests a recovery from the 1972 low. No harvest currently occurs in the Nunavut portion of Melville Island.

Local and scientific knowledge indicates that Victoria Island has consistently supported Peary caribou at low numbers. IQ also indicates that the distribution for Peary caribou in the Nunavut portion is largely in the north-east near Hadley Bay. The known high was 4,500 (including calves) in 1980 with a known low of 20 adults in 1993. The most recent estimate conducted by GNWT was 150 adults in 2010. Peary caribou are harvested by Inuit from Cambridge Bay opportunistically, usually in conjunction with polar bear hunters travelling to Hadley Bay. Harvest is low with only a few Peary caribou every few years although their harvest is not monitored. Caribou harvest is targeted to Dolphin and Union caribou which are typically closer to the community. Local preference even when Peary caribou are mixed with Dolphin-Union caribou is to harvest the latter.

7.2.9 King William Island Group

This group has little scientific data and most recent data indicates that this area lies outside the normal range of Peary caribou. Local knowledge indicates that Peary caribou occasionally move from Boothia Peninsula to the north coast of King William Island. Local knowledge suggests that here may also be mixing with Dolphin and Union caribou that migrate from Victoria Island.

8.0 MONITORING

The number of Peary caribou per Island Group shows fluctuation over time, with periods of abundance and periods of scarcity. Caribou are also known to move over time in response to environmental conditions. Monitoring programs collect information about changes in number, distribution, and changes in ecological factors that affect caribou numbers and health. It is important to involve both scientists and community harvesters in monitoring efforts. This plan seeks to ensure that both science and IQ are effectively collected and used for research and decision making.

The effects of individual factors, such as weather or human disturbance, can affect caribou both individually and at the Island Group level. These factors however can work in combination such that the total or cumulative effects may be greater than that which occurs from each factor on its own. These impacts may be either positive or negative.

8.1 MAIN CRITERIA FOR ASSESSING ISLAND GROUP STATUS

The main pieces of information on which management actions will be based include:

- Population size

- Recruitment
- Bull-to-cow ratio
- Body condition and health
- Harvest levels
- Number trend by management units

8.1.1 ISLAND GROUP STATUS

The main factor to assess island group status, and the key consideration when recommending the sustainable harvest level for any given island group, is the estimated number of animals in the Island Group. The current baseline survey completed by GN DoE was conducted with aerial distance sampling. Although effective and accurate for determining the number of Peary caribou in an Island Group, this method is costly. Aerial surveys will continue as required. However the implementation of a community-based monitoring program involving ground surveys can be conducted in predetermined areas, such as traditional hunting areas or areas where caribou are normally seen but absent, and provide data to help inform decision making in the interim between aerial surveys.

8.1.2 RECRUITMENT

Recruitment refers to the number of calves that survive to one-year of age. Calf/cow ratios are used as a measure of recruitment. Herd composition observed during community-based ground surveys and/or aerial surveys will be useful for determining the cow/calf ratio.

These ratios, while informative, are often difficult to interpret as they are influenced by various factors such as changes in cow mortality. Typically, recruitment rates are low before the number of animals begins to decline, whereas high recruitment rates, particularly several years in a row, may indicate an increase in herd size.

8.1.3 BULL-TO-COW RATIO

Caribou bulls can mate with many females within the same season. It is important to monitor the bull-to-cow ratio to help determine if there are enough bulls to impregnate cows. Monitoring herd structure can be done during the rut both by aerial surveys and ground based surveys, by scientists or harvesters, who can provide information on the number of bulls observed in relation to the number of cows.

8.1.4 BODY CONDITION AND HEALTH

The health and condition of individual caribou can affect productivity and survival of calves and adults. Sample kits are provided to harvesters to measure or collect: pregnancy (presence of fetus), back fat thickness, left kidney with the fat to assess contaminant levels and condition, blood samples to assess disease, body condition

score, collection of lower front teeth for age determination, and location, date and sex of the animal harvested. When a sample kit is not provided, harvesters typically have a general overview of the condition of caribou. Body condition information collected by community members, harvesters and scientists provides supporting evidence of health.

8.1.5 HARVEST

Long term monitoring of harvest levels is very important for management decisions, and to help determine sustainable harvest rates. However, there is currently no obligation to report harvest of Peary caribou in the communities. Establishing a harvest monitoring program is a priority and fundamental to the overall monitoring of caribou. Harvest reporting is also a means of participation in management by the users at the individual level.

8.1.6 ISLAND GROUP TREND AND RATE OF CHANGE

The trend or the rate of increase or decrease is also a key indicator of island group status. Trend can be determined by comparing island group estimates over many years. When a population estimate is not possible, we can look at other data to help determine the trend, such as recruitment, body condition and health, harvest levels, and bull-cow ratio. Beyond the scope of scientific studies, information on the changes in abundance, movement, and distribution of caribou on an Island Group can be provided by Inuit Qaujimaqatuqangit.

8.2 ADDITIONAL CRITERIA FOR ASSESSING ISLAND GROUP STATUS

In addition to information on caribou such as population size and cow/calf ratios, there is important information about habitat and land use that should be considered. This can include habitat quality and quantity, predation, and human disturbance that may limit caribou access to parts of their range. Co-management partners can support long-term research and monitoring of these factors that will allow provide greater information for decision making and more effective review into land use permitting processes.

8.2.1 PREDATORS

Predators affect caribou behaviour and mortality. Predator numbers tend to decline as caribou decline but usually there is a delay of one or two years. If other prey species are available, predator numbers may not decline at all. When caribou numbers begin to decrease, the impact of predation may become proportionately greater. Caribou users have requested increased monitoring of predator populations, measurement of predation and the impact of predation on the populations.

8.2.2 ENVIRONMENT AND HABITAT

Better understanding of cumulative effects at the ecosystem level can be obtained through long term research on habitat quality and quantity and impacts of human

activities. Co management partners can continue to call for and support such long-term research and monitoring. With improved understanding there is a better opportunity to use regulatory management tools to limit disturbance on caribou.

Community workshops held in Grise Fiord and Resolute indicate that a combination of heavy snow and increased oil exploration and activity (particularly Bent Horn) in the early 1970s created a combined effect that may have impacted caribou more than either would have on their own. Caribou can move in response to changes in local environmental conditions such as increased snow or severe ice events. However at this time the increased activities on the land, including seismic activity, may have disrupted this ability to move. It was this combination of weather and human activity that caused die-offs during this period. This information highlights the importance of improving our understanding of cumulative effects and collection and use of local knowledge.

Some steps to assess habitat conditions for each island group are:

- Develop and monitor key habitat indicators of quality and quantity using remote sensing and ground surveys;
- Monitor trends in climate and weather; and
- Define seasonal and occasional movement patterns.

8.2.3 HUMAN DISTURBANCE

Disturbance of caribou from human activities such as aircraft over-flights and resource development can influence caribou behaviour and energy use, which in turn can affect condition and health. Indirect effects can also include a reduction in quality and quantity of habitat or access to quality habitat. Particularly when caribou numbers are low, human activities have the potential to alter the rate and extent of the decline or length of time it takes the population to recover.

The range of Peary caribou extends over lands that are protected from development and lands where exploration is occurring. Concern about the impacts of non-renewable resource development has increased as changing ice and weather patterns encourage a renewed surge in exploration and potential resource development.

9.0 TOOLS FOR DECISION MAKING

9.1 HOW CARIBOU POPULATIONS CYCLE OVER TIME

Inuit Qaujimagatuqangit and scientific knowledge agree that caribou populations rise and fall over time. The length of the phases varies, particularly the length of time that a population stays at a low level. Scientific evidence, the journals of missionaries and trading post managers, and IQ all suggest that caribou populations go through cycles 30-60 years long. The causes for these population cycles in caribou are not well

understood, but likely result from several factors such as habitat quality and quantity, climate, and disease. In addition to population cycling, caribou can also move over time.

Although Peary caribou have existed at higher levels than today, they have never existed at numbers such as the large barren ground herds found to the south. The climate and topography of their range favours smaller groups dispersed over the landscape. These groups move with weather and food availability and are more susceptible to extreme weather events which can cause large die offs.

9.2 WHEN TO TAKE ACTION

Actions to ensure the future of Peary caribou will be determined in part by the number of Peary caribou found in each island group, and whether it is increasing or decreasing. Management decisions will also be influenced by other information from harvesters and research and monitoring programs, such as recruitment, bull-to-cow ratio, body condition and health.

In this management plan there are four levels of island group status and associated management actions. These are colour-coded green, yellow, orange, and red. The island group status provides a trigger for specific management actions.

Green:	The population level is high
Yellow:	The population level is increasing
Orange:	The population level is decreasing
Red:	The population level is low

9.3 USING MONITORING INFORMATION TO MAKE DECISIONS

Accurate and timely information is necessary for making good management decisions. Because the island groups are shared between communities and regions, it is also important that information is collected and shared by all harvesters and managers.

Island group status (e.g. green, yellow, orange or red) will be determined based on information including:

- Estimate of the overall population size of the island group
- Previous estimates to provide a trend (increasing, decreasing, or stable)
- Additional monitoring indicators such as ground based surveys to supplement the interpretation.

It is important to have up-to-date information so ensuring sufficient frequency of research and monitoring effort is very important. Certain monitoring will take place regardless of whether the island group status is green, yellow, orange or red. However, the frequency and intensity of monitoring will vary in response to island group status.

Long-term monitoring of environmental factors, including range quality and quantity, development activity and trends, and disturbances that influence caribou populations are important in understanding changes in caribou health and abundance.

Some of these indicators of population status can be difficult or expensive to measure. In these cases there may be some information available through long-term research programs or methodical collection of IQ. All of this information will be considered by the co management partners.

Working with all stakeholders an ongoing community based ground survey program will be established with the appropriate financial and technical support. This would occur, due to the spatial scale, on a rotating basis so that areas will be monitored at least every two or three years, unless observations of decline trigger more intensive efforts. The ground based surveys will be primarily in areas where regular community harvest occurs. Surveys should be followed with an annual meeting of stakeholders to review the results and recommend management changes if required.

Further changes observed from community monitoring programs (observations of die offs, starvation, population increase or decrease) can trigger:

- 1) Aerial surveys if declines are considered significant,
- 2) Increased frequency and coverage of community ground survey if declines are considered less significant but still of concern,
- 3) Community-based changes in harvest level that would occur within a predetermined upper and lower limit.

9.4 WHAT MANAGEMENT ACTIONS CAN WE TAKE

The NWMB has the responsibility for decision making as the primary instrument of wildlife management under the NLCA. Regional Wildlife Organizations (RWOs) have the authority to allocate harvest among their member HTOs, and in turn the HTOs can regulate their harvesters and allocate their share of a Total Allowable Harvest (TAH). Through regular annual meetings of the stakeholders, consensus on recommended actions can be reached and submitted to the NWMB for decision. Further, HTOs can make decisions to regulate local harvest through seasons, sex selectivity, area restriction, or reduction. These consensus-based recommendations can also be made to government and land use agencies following the general management actions described below.

9.4.1 HARVEST

As an Endangered species under SARA, Peary caribou are automatically protected from harvest, with the exception of Inuit harvest which would require a decision by the NWMB. Any decision of the NWMB should be informed by the consensus based recommendations of the co management partners developed through annual stakeholder meetings or as recommended in this plan. Recommendations can also take the form of harvest composition (e.g. sex selective) or seasonal restrictions or other Non-Quota Limitations (NQLs).

9.4.2 LAND USE ACTIVITIES

Increasing land use activity demands that meaningful input and review be provided into the various permitting process in Nunavut, whether it be the Nunavut Impact Review Board (NIRB), Nunavut Water Board (NWB), or the Nunavut Planning Commission (NPC) land use plan. Effort should be made to ensure capacity is available within all co management agencies to ensure effective participation. The community-based ground surveys will gather valuable information for both HTOs and DOE to effectively participate in these permitting processes. Co management partners can continue to recommend actions to help reduce the negative impacts of exploration and development on caribou. Advice can be given to avoid important caribou seasonal ranges like calving grounds, and how to mitigate disturbance from noise and access.

9.4.3 COMMUNICATION AND EDUCATION

Co management partners can work together to provide active and accessible communication programs, and recommend education programs. This can include different programs and approaches for elders, harvesters and youth to encourage traditional harvesting practices, use of alternate species and increased trade and barter of traditional foods. It can also include work with members of industry including resource developers.

9.4.4 HABITAT

Co management partners can continue to encourage and support increased research and monitoring related to seasonal range use, key habitat indicators, trends in climate and weather, and delineation of calving grounds.

9.5 MANAGEMENT ACTIONS BASED ON STATUS

The type of management action and the degree of management intervention will vary depending on the status of each island group. There are four levels of island group status which are colour-coded green, yellow, orange, and red. The island group status will trigger specific management actions or a change in the frequency of action, as described below:

Green: the population level is high

Management actions include:

- Support harvest
- Provide standard advice on mitigation of the impacts of exploration and development activities to proponents and regulators
- Provide active and accessible communication, and recommend education programs for all

Yellow: the population level is increasing

Management actions include:

- Recommend easing limits on harvest
- Provide standard advice on mitigation of industrial impacts to proponents and regulators
- Provide active and accessible communication and recommend education programs for all

Orange: the population level is decreasing

Management actions include:

- Recommend a TAH
- Recommend a majority-bulls harvest
- Recommend harvest of alternate species and encourage increased trade and barter of traditional foods
- Recommend increased community monitoring
- Provide active and accessible communication and recommend education programs for all

Red: the population level is low

Management Actions include:

- Recommend no harvest
- Work directly with proponents and regulators of exploration and development activities to advise on mitigation measures
- Recommend harvest of alternate species and meat replacement programs, and encourage increased trade and barter of traditional foods.
- Recommend increased enforcement including increased use of community monitors.
- Provide active and accessible communication and recommend education programs for all.

9.6 PROCESS TO MAKE DECISIONS

The co management partners shall meet annually to discuss results of all recent research and monitoring efforts which may include harvest reporting, caribou health monitoring, and ground or aerial surveys. The purpose of this annual meeting is to review information and reach consensus-based recommendations, if required, for

submission to the NWMB. Action may also be taken at the local level by HTOs based on the information reviewed.

9.6.1 GUIDING DOCUMENTS: ACTION PLAN

This Management Plan is supported by an Action Plan which outlines the management actions to be taken and how they will be implemented. Based in large part on the island group status, the Action Plan will outline specific management actions and how they will be implemented, by whom, and within what timeframe. Funding for the management action will be discussed by the co management partners. A third document, the GN DoE report “*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut,*” will provide the technical baseline for decision making. Inuit Qaujimagatuqangit will be provided by the participating HTOs in the Stakeholder Working Group (See Appendix B). New information will be reviewed as it becomes available ensuring decisions are based on the most up to date scientific and local knowledge.

Implementation of the Action Plan is cooperative, and ongoing community input and support will help to develop and implement management actions. Each co management partner will be responsible for approving the Action Plan for its implementation. The effectiveness of the Action Plan will be reviewed annually.

9.6.2 STAKHOLDER MEETINGS

Stakeholders will meet annually after survey work has been completed and annual data summarized to review all new information and implementation of the Action Plan. It will be presented with the best available IQ and scientific knowledge and community based monitoring information. The Action Plan will be reviewed, and possibly updated, at the same time that the stakeholders review the current status of the Island Groups. Although normally revised only following an aerial survey, an Island Group’s status or Action Plan may be revised more frequently if, for example, there has been some extreme change observed through community-based ground surveys.

9.6.3 ALLOCATION OF HARVEST

If a Total Allowable Harvest (TAH) is recommended it shall be determined and allocated in accordance with processes described in the NLCA.

10.0 COMMUNICATION BETWEEN STAKEHOLDERS AND WITH USERS

Communication is the responsibility of all parties engaged in wildlife management. Knowledge must flow both ways - between local knowledge holders and management agencies. There will be varied communication and education techniques used depending on the message and the intended audience. They may include local radio

programs, visits to schools, posters or presentations, public meetings, and on-the-land gatherings.

Stakeholders will meet on an annual basis to discuss survey results and island group status and to take appropriate actions when needed. Further details on the annual meeting will be provided in the Action Plan.

The information communicated to the public will include island group status; any voluntary or management limits on harvesting; what is being monitored and why; the results of the monitoring programs; why harvesting mostly bulls rather than cows may be preferable; and education of youth in traditional hunting practices.

11.0 UPDATING THE MANAGEMENT PLAN

The Plan will first be reviewed after seven years (i.e. 2020) and at ten-year intervals thereafter. Any party may request a review, at any time, through a letter to the other signatories.

12.0 SIGNATORIES TO THE PLAN

Iviq Hunters and Trappers Association

Resolute Bay Hunters and Trappers Association

Ikajutit Hunters and Trappers Organization

Spence Bay Hunters and Trappers Organization

Ekaluktutiak Hunters and Trappers Organization

Kurairojuark Hunters and Trappers Organization

Gjoa Haven Hunters and Trappers Organization

Nunavut Tunngavik Inc., Wildlife Department

Qikiqtaaluk Wildlife Board

Kitikmeot Hunters and Trappers Association

Nunavut Department of Environment, Wildlife Management Division

APPENDIX B

Recommended stakeholder working group for annual meetings

The stakeholder working group consists of the Chairpersons (and/or their alternates) of:

Iviq Hunters and Trappers Association

Resolute Bay Hunters and Trappers Association

Ikajutit Hunters and Trappers Organization

Spence Bay Hunters and Trappers Organization

Ekaluktutiak Hunters and Trappers Organization

Kurairojuark Hunters and Trappers Organization

Gjoa Haven Hunters and Trappers Organization

Qikiktaalik Wildlife Board

Kitikmeot Hunters and Trappers Association

And staff from the:

- Nunavut Wildlife Management Board
- Nunavut Tunngavik Inc.
- GN DoE, Regional Biologists and Regional Managers

Additional experts, either scientists or qaujimanilik, will be invited as required for support.

RECOMMENDATIONS AND TOTAL ALLOWABLE HARVEST BY ISLAND GROUP

General Recommendations

It is recommended to establish management units based on the proposed nine Island Groups. This includes six as presented in “*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut*”, and three additional management units in the Kitikmeot region. This will facilitate future collection of consistent data for comparison and management decisions. However there is a need for provisions within the management plans to allow for finer scale management in response to changes in Peary caribou numbers, such as those observed through community observations or by additional survey work where warranted. In particular, the HTOs should control local harvesting within an agreed upon herd size, thus allowing for management at the community level.

Working with all stakeholders, an ongoing community-based ground survey program should be established with the appropriate financial and technical support. This would occur, due to the spatial scale, on a rotating basis so that areas will be monitored at least every two or three years, unless observations of decline trigger more intensive efforts. The ground based surveys would be primarily in areas other than where regular community harvest occurs as normal harvest areas will be monitored through harvest reporting. Surveys should be followed with an annual meeting of stakeholders to review the results and recommend management changes where required.

Observed changes from the community monitoring program (observations of die-offs, starvation, population increase or decrease) would trigger:

- 1) Potential aerial surveys if declines are considered significant,
- 2) Increased frequency and coverage of community ground survey if declines are considered less significant but still noteworthy,
- 3) Community based changes in harvest level that would occur within a predetermined upper and lower limit.

Predominately all island groups have declined and remain at low density with the exception of Bathurst and Melville, which are both showing signs of recovery. Caution must be exercised to prevent local extirpations. As harvest restrictions may only be to the level to address a valid conservation concern, there is currently a strong argument to maintain harvest restrictions for several island groups.

Harvest restrictions must allow communities to have input and control over how harvest will be allocated by allowing flexibility for HTO's to respond to changes in Peary caribou numbers that they observe and monitor through community-based ground surveys. These surveys may trigger more extensive ground or aerial surveys in the case of observed declines. An annual survey/meeting structure will allow for management action at the community level to occur in a timely and responsive manner.

Harvest reporting and sample collection is critical information for management. Each harvest should be reported through a hunter report. Information collected on the reports should include date, location (Latitude and Longitude), hunters name, tag number, sex, approximate age, and size of group harvested from. A Peary caribou health monitoring program should be established and sample kits provided to the hunters. The information provided will further our understanding of survival rates, diet, health, and space use. There is also a need to identify population boundaries to better manage Peary caribou.

With the current low numbers of Peary caribou in some of the island groups it is suggested to consider male sex selective harvests to help conserve females in the effort to reduce impacts and promote potential recovery.

Specific Island group TAH recommendations

Ellesmere Island Group (PC-01)

It is recommended to maintain existing harvest levels with a TAH of 45- 50 (allowing community to adjust as required within that amount). This harvest rate may impact caribou on south Ellesmere negatively; to alleviate this effect there should be encouragement and support to increase harvest on north Ellesmere. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Axel Heiburg Group (PC-02)

No harvest occurs here and the population is abundant, therefore no TAH is required. Should harvest start to occur here, as determined through harvest reporting, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Ringnes Islands Group (PC-03)

No harvesting occurs here, therefore no TAH is required. Should harvest start to occur here, as determined through harvest reporting, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Devon Island Group (PC-04)

With only 17 animals observed in 2008 and no abundance estimate, this group should be under a moratorium until such time as an increase is observed through community-based ground surveys. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Bathurst Island Group (PC-05)

Managing for recovery, a conservative TAH based on the preliminary results of the 2013 estimate of 1200 caribou would be 36 caribou (a 3% harvest rate). Although scientific knowledge and local knowledge agree that there is recovery in this group caution is warranted in order to not jeopardize that recovery. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Prince of Wales Group (PC-06)

With too few caribou to support harvesting at current numbers, this group should be under a moratorium until such time as an increase is observed through community based monitoring. Survey frequency should be increase to monitor sign of recovery. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Victoria Island Group (PC-07)

As there is no targeted harvest in the area and only an occasional caribou is taken opportunistically, no TAH is required. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement. Should harvest reporting indicate an increase over the current rate of sporadic opportunistic harvest the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Boothia Peninsula Group (PC-08)

As there is no targeted harvest in the area, and only an occasional caribou is taken opportunistically, no TAH is required. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement. Should harvest reporting indicate an increase over the current occasional harvest, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

King William Island Group (PC-10)

As there is no targeted harvest in the area and only an occasional caribou is taken opportunistically, no TAH is required. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement. Should harvest reporting indicate an increase over the current rate of

sporadic opportunistic harvest, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Management Plan for Peary Caribou in Nunavut 2014 – 2020

Prepared in collaboration with

The Hunter and Trappers Organizations of Grise Fiord, Resolute Bay, Arctic Bay, Cambridge Bay, Gjoa Haven, Taloyoak, Kugaaruk, GN Department of Environment, Nunavut Tunngavik Inc., and the Nunavut Wildlife Management Board

Third Draft, January 2014

Note:

This draft is based upon the format and language used in the document “*Taking Care of Caribou -The Cape Bathurst, Bluenose West, and Bluenose East Barren Ground Caribou Herds Management Plan*” developed by the stakeholders and Terriplan Consultants and submitted to the Advisory Committee for the Cooperation on Wildlife Management. The majority of technical information is derived from the GN DoE report “*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut*”. The information contained herein is an amalgamation of both documents and the work in both those documents represents the talent, skill and considerable efforts of those involved respectively.

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1.0 Summary

Peary caribou (*Rangifer tarandus pearyi*) are a distinct caribou subspecies that occurs almost entirely on islands within the Canadian Arctic Archipelago. These ungulates live the farthest north of all caribou in North America, and are the smallest in stature and in population size. In February 2011 Peary caribou were listed as Endangered under the *Species at Risk Act* (SARA) due to declines in abundance and expected unpredictable declines due to changes in long-term weather patterns.

Caribou are of major cultural, traditional and economic importance to Inuit, and are also a vital part of the Arctic ecosystem. Nunavummiut are concerned about the status of Peary caribou and their habitat as determined through public workshops in Grise Fiord and Resolute Bay. Peary caribou harvest in Nunavut has not been restricted through legislation; rather the Resolute Bay Hunters and Trappers Association (HTA) and the Iviq HTA of Grise Fiord have imposed temporary harvest restrictions on their members during periods of marked declines. Inuit knowledge however suggests that increasing land-use activity, such as resource exploration, poses a greater potential threat to Peary caribou and their habitat than hunting pressure.

The Department of Environment of the Government of Nunavut (GN DoE) has the ultimate responsibility for the management and conservation of Peary caribou within its jurisdiction. To address the DoE mandate for management this plan recommends management units and harvest levels to establish the basis of new regulations under the *Wildlife Act* as well as recommendations for ongoing monitoring of population trends and harvest through an inclusive approach with all co-management partners. This will include provisions for future monitoring and research, Inuit involvement in research, monitoring and decision making, and consensus based decision making in response to observed changes in population.

2.0 PURPOSE OF THE PLAN

The need for a management plan for Peary caribou is born out of several issues including Inuit harvest rights, territorial responsibility for species management, changes in land use needs, population declines, and changing climate. The long term Department of Environment study on Peary caribou "*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut*" has produced the first modern, comprehensive assessment of the current status of Peary Caribou in Nunavut. With the completion of the DOE report, and the success of community workshops held in Grise Fiord and Resolute, the development of management plans is essential. The need for a plan is also connected to the survey results, which for some areas are becoming outdated, although the results remain valid as a baseline.

The Peary Caribou Management Plan provides a snapshot of current population estimates and trends for the species across its range and establishes overall principles and goals for the conservation of Peary caribou in Nunavut. It highlights the critical need for co management partners to work together, defines roles of stakeholders, and provides a framework to guide management of the species throughout its range to accomplish the goals identified in Section 4.0.

The GN DoE report “*Recent trends and abundance of Peary Caribou and Muskoxen in the Canadian Arctic Archipelago, Nunavut*” provides greater technical detail on the specific island groups and their status, both historical and current. The more recent GN report “*Distribution and abundance of Peary caribou (*Rangifer tarandus pearyii*) and muskox (*Ovibos moschatus*) on the Bathurst Island Group, May 2013*” provides additional information.

2.1 CO-MANAGEMENT

This plan was developed through cooperation and dialogue between co management partners in Nunavut including participation by:

Iviq Hunters and Trappers Association (Grise Fjord)
Resolute Bay Hunters and Trappers Association
Ikajutit Hunters and Trappers Organization (Arctic Bay)
Spence Bay Hunters and Trappers Organization (Taloyoak)
Ekaluktutiak Hunters and Trappers Organization (Cambridge Bay)
Kurairojuark Hunters and Trappers Organization (Kugaaruk)
Gjoa Haven Hunters and Trappers Organization
Nunavut Tunngavik Inc., Wildlife Department
Nunavut Department of Environment, Wildlife Management Division

3.0 HOW THE PLAN WAS DEVELOPED

The Plan was developed in collaboration with the communities that harvest Peary caribou as well as the other co management partners under the *Nunavut Land Claims Agreement* (NLCA). Two rounds of community workshops were conducted in 2010 and 2011 in Grise Fiord and Resolute Bay in addition to the ongoing exchange of information during the aerial and ground surveys.

The workshops were designed to:

- Share results of GN DoE research
- Gather local expert knowledge
- Seek consensus on management and monitoring actions

The initial draft was developed for further community and stakeholder involvement by GN DoE and consultations were conducted in March 2012 in the Qikiqtaalik Region and

March 2013 in the Kitikmeot Region. The final draft will be submitted to the NWMB for approval and will form the basis for development of Regulations under the *Wildlife Act*.

4.0 GOALS OF THE PLAN

The goals of the Management Plan are to provide guidance and direction to the co-management partners and are as follows:

- To manage Peary caribou in a co-operative manner that involves the full participation of communities and engagement of co management partners.
- To include Inuit Qaujimaqatugangit and scientific knowledge equally in the management process.
- To promote local and regional involvement in decision making.
- To protect, conserve and manage Peary caribou in a sustainable manner.
- To ensure the full and effective participation of Inuit and co management partners in ongoing monitoring and management of Peary caribou, and decision making.

4.1 INUIT QAUJIMAJATUQANGIT

Inuit Qaujimaqatugangit (IQ) is the knowledge and insight gained by Inuit through generations of living in close contact with nature. For Inuit, IQ is an inseparable part of their culture and includes rules and views that affect modern resource use.

The practical application of IQ with scientific information demonstrates the value of local consultations, and documenting and preserving IQ before it is lost. The communities, through the HTOs, will be consulted on an on-going basis to ensure that IQ is utilized in conjunction with scientific information in the management of Peary caribou.

This plan supports those values and reflects the following principles:

- Management decisions will reflect the wise and sustainable use of Peary caribou.
- Adequate habitat (quantity and quality) is fundamental to the welfare of Peary caribou.
- Management decisions will be based on the best available information - both science and IQ; and management actions will not be postponed in the absence of complete information, whether from science or IQ.
- Effective management requires participation, openness and cooperation among all users and agencies responsible for caribou and their habitat.
- We must anticipate and minimize negative impacts to caribou and their habitat.

5.0 PEARY CARIBOU BIOLOGY AND MANAGEMENT

Common name (English): Peary caribou

Common name (French): Caribou de Peary

Inuktitut name: Tuktu

Innuinaqtun name: Qinianaq or Tuktuinal ('small caribou')

Scientific Name: *Rangifer tarandus pearyi*

Status: SARA – Endangered
Wild Species 2010 – At Risk

5.1 PEARY CARIBOU RANGE

Endemic to Canada, the terrestrial range of Peary caribou is roughly 540,000 km² and extends across the Queen Elizabeth Islands in the north, the mid-Arctic islands and from the west of Banks Island to Somerset and the Boothia Peninsula in the southeast (Figure 1). Ice surrounds the islands for most of the year and caribou on some islands use the sea ice during seasonal migrations. The range is vast and the area is characterized by extreme weather, long periods of either continual darkness or continual light, and large expanses of ice, bare ground, and rock. The landscape is characterized by a polar desert and polar semi-desert where environmental conditions approach the physiological tolerance limits of plants.

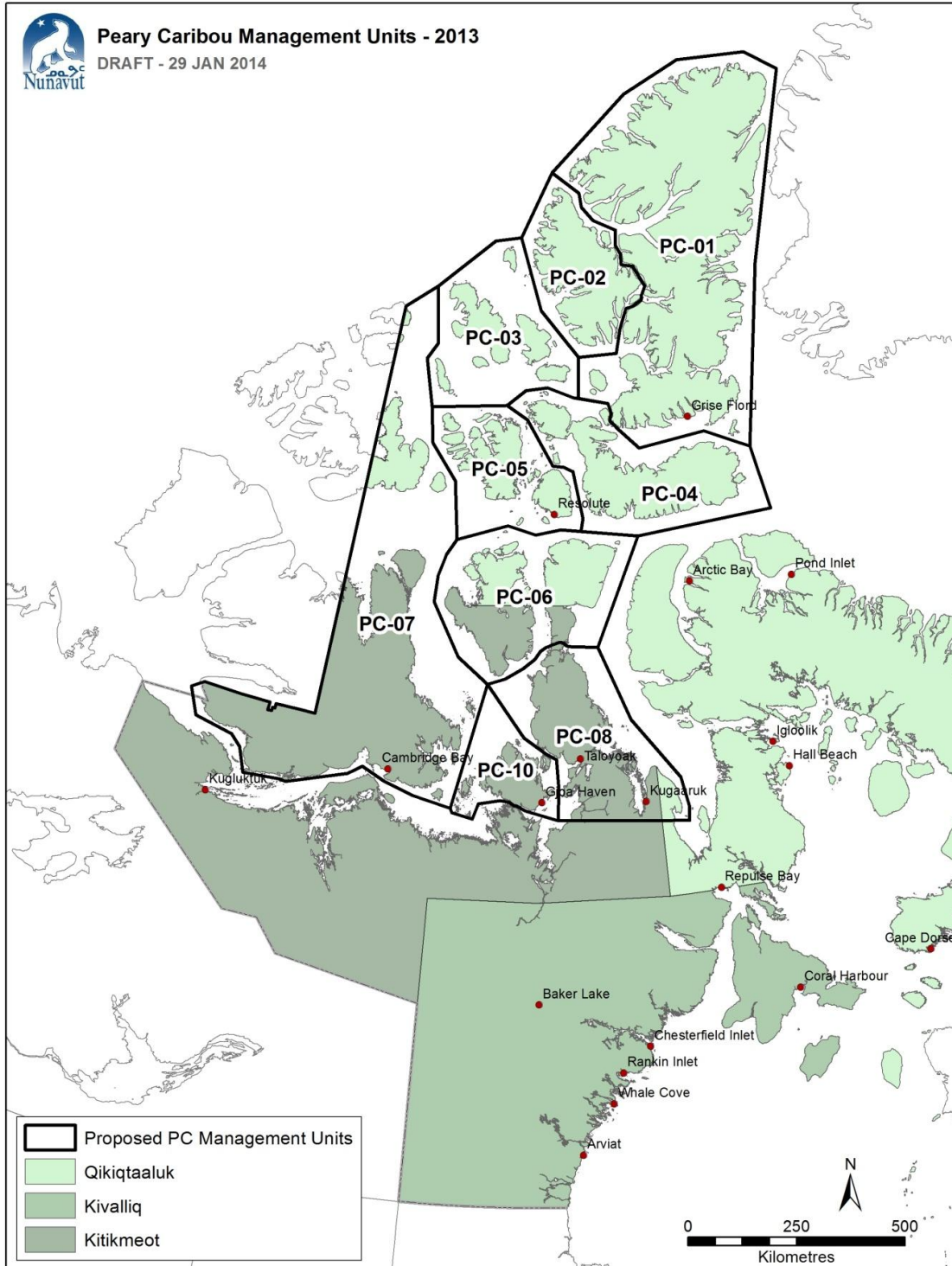
5.2 MANAGEMENT OF PEARY CARIBOU BY ISLAND GROUPS

The GN DoE report "*Recent trends and abundance of Peary Caribou and Muskoxen in the Canadian Arctic Archipelago, Nunavut,*" is the most reliable study of Peary caribou in Nunavut to date on which to base this management plan. This report provides the baseline for scientific knowledge of Peary caribou, as well as providing the estimates of numbers of Peary Caribou and specific habitat for management purposes.

As outlined in the report, Peary caribou make seasonal movements among islands within their range, and are also known to make longer distance movements in response to severe weather. The following proposed island grouping (Figure 1) applies the best available scientific information and Inuit knowledge about Peary caribou movement and proposes geographic units that are useful for management of the species. This plan refers to each management group by the 'Island Group' name. For the purpose of the management plan, it is important to note that the island group management units are not to be considered as discrete populations or sub-populations as adequate genetic information is not available to define populations at this time.

The Queen Elizabeth Islands (QEI) form the majority of the island groups, with the Bathurst Island group, the Axel Heiburg Island group, the Ringnes Island Group, the Ellesmere Island Group and the Devon Island Group being wholly within the QEI.

Figure 1. Proposed Peary Caribou Management Units



Melville Island for the purposes of this management plan is placed within the Victoria Island group.

5.2.1 Ellesmere Island Group (PC-01). Ellesmere Island is the largest of the Queen Elizabeth Islands (197,577 km²). The island is largely covered by mountain ranges and glaciers that are separated by a series of east-west passes. These features fragment the island, particularly where the north end of Vandom Fiord approaches the Prince of Wales Ice Cap, and divides the southern portion of the island from the north. Vegetation is sparse with mosses, lichens, and cold-hardy vascular plants such as sedges and cottongrass dominant at higher elevations while mosses and low-growing herbs and shrubs, such as purple saxifrage, *Dryas spp.*, arctic willow, kobresia, sedge, and arctic poppy more common at lower elevations.

5.2.2 Axel Heiberg Group (PC-02). Axel Heiberg Island (42,319 km²) is separated from Ellesmere Island by Nansen and Eureka Sound. This island is mountainous and includes the Princess Margaret Range, which runs north to south through its center. Large ice caps cover much of the landmass and spawn many glaciers that flow primarily to the west. East of the Princess Margaret Range, vegetation progresses from an herb-shrub transition zone at higher elevations to an enriched low shrub zone along the low-lying coast. There, plant species are diverse and dense, dominated by shrubs and sedge meadows.

5.2.3 Ringnes Island Group (PC-03). This island group consists of Ellef Ringnes, Amund Ringnes, Lougheed, King Christian, Cornwall, and Meighen Islands, all situated to the west of Axel Heiberg Island and north of the Bathurst Island Complex. Lougheed Island (1,321 km²) has vegetation described as entirely herbaceous with rich vegetation patches. Ellef Ringnes Island (11,428 km²) is sparsely vegetated with low plant diversity.

Amund Ringnes Island (5,299 km²) is relatively low lying but features greater relief in the north. Vegetation is entirely herbaceous with the southern half of the island supporting more diverse vegetation, primarily herbaceous plants with some shrubs and sedges. To the south of Amund Ringnes is Cornwall Island, a small hilly landmass also dominated by herbaceous vegetation. Meighen Island (approximately 933 km²), to the northeast of Amund Ringnes, is low-lying with sparse herbaceous vegetation and a large centrally located glacier. King Christian Island is located southwest of Ellef Ringnes, has an area of 647 km².

5.2.4 Devon Island Group (PC-04). Devon Island (55,534 km²; including small proximal islands) is characterized by several mountain ranges (e.g. Cunningham Mountains, Treuter Mountains, and the Douro Range), coastal lowlands, and extensive glaciers. The Devon Ice Cap covers a large portion of eastern Devon Island. Extensive uplands stretch west of the Ice Cap across central Devon Island. Low-lying areas occur in

coastal areas, primarily along the north and western coast (the Truelove lowlands), but also other smaller areas. The landscape is predominantly polar desert with sparse cover of vascular plants; however low lying areas support a greater diversity of vegetation dominated by low shrubs and sedges.

5.2.5 The Bathurst Island Group (PC-05). This group of islands includes the Bathurst Island Complex (BIC), and Cornwallis and Little Cornwallis Islands. The BIC (19,644 km²) includes Bathurst Island and five major satellite islands (> 200 km²; Cameron, Vanier, Alexander, Massey, and Helena), and three minor satellite islands. These islands are low-lying with few areas exceeding 300 m elevation. The terrain is sparsely vegetated however low-lying wetlands such as at Goodsir-Bracebridge Inlet have a higher cover of sedges and low-growing willows. Cornwallis and Little Cornwallis Islands (7,474 km² including small proximal islands) are low-lying with uplands and hills below 300 m and mostly polar desert with sparse vegetation. Portions of the western coastline and Eleanor Lake watershed (Cornwallis Island) support more diverse vegetation, including prostrate shrubs in moderately moist habitats, and sedges in the wet areas.

5.2.6 Prince of Wales/Somerset Island Group (PC-06). Prince of Wales (33,274 km²) is a tundra-covered island that features many small inland lakes. Although the island is generally below 300 m in elevation, some uplands occur along the eastern coast and across the north. Russell Island and Prescott Island are small proximal islands north and east of Prince of Wales, respectively. Somerset Island (24,548 km²), separated from Prince of Wales Island by Peel Sound, is hilly with extensive uplands.

5.2.7 Victoria Island Group (PC-07). This group includes Victoria Island (217,291 km²) and Melville Island (42,149 km²). Both of these islands have a shared border with the Northwest Territories. The eastern two thirds of Victoria Island lie in Nunavut along with roughly the eastern half of Melville Island. The majority of Victoria Island lies within the Victoria Lowlands is characterized by a discontinuous upland vegetative cover dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. Remaining upland areas are largely devoid of vegetation. Besides the presence of Mount Pelly and Little Pelly, elevations lie predominantly below 100 m asl. except in central Victoria Island where elevations rise up to over 200 m asl.

A small portion of Victoria Island, along the northwest boundary with NWT, is composed of the Shaler Mountains. The Shaler Mountains are characterized by a 40-60% vegetative cover mixed with exposed bedrock. Tundra vegetation includes purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. The centre part of the mountains reaches about 760 m asl.

Melville Island is predominately within the Parry Plateau. It has a sparse and discontinuous vegetative cover of moss, along with mixed low-growing herbs and shrubs such as purple saxifrage, *Dryas spp.*, arctic willow, kobresia, sedge, and arctic poppy. The terrain of this plateau is strongly ridged. Their elevations average less than 250 m asl. Separate, flat-floored, longitudinal valleys are transected by rugged, ravine-like cross valleys. On Melville Island, a few hills reach 760 m asl, and cliff-walled fjord-like bays and straits cut deeply into the uplifted plateau.

5.2.8 Boothia Peninsula (PC-08). Boothia Peninsula (32,331km²) is predominately covered by the Boothia Plateau uplands. Vegetation is discontinuous, and dominated by tundra species such as purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. It averages around 760 m asl. Bedrock outcroppings are common.

The eastern side of the Boothia Peninsula along the lowland coastal fringes of Boothia and Simpson peninsulas is composed of plains. It is characterized by discontinuous upland tundra vegetation, dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. The region slopes gently southward, ranging from sea level to about 300 m asl.

The south-western coastal portion of the Boothia Peninsula lies within the Victoria Lowlands which is characterized by a discontinuous upland vegetative cover dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. Elevations lie predominantly below 100 m asl.

5.2.9 King William Island Group (PC-10). King William Island (13,111 km²) is separated from the Boothia Peninsula by the James Ross Strait to the northeast, Rae Strait to the east, Victoria Strait to the west, and Simpson Strait to the south. Satellite islands include the Irving Islands, the Todd Islets, Matty Island, the Tennent Islands, and the Clarence Islands.

This group is in the Victoria Lowlands region which is characterized by a discontinuous upland vegetative cover dominated by purple saxifrage, other saxifrage *spp.*, *Dryas spp.*, arctic willow, alpine foxtail, and wood rush. Wet areas have a continuous cover of sedge, cottongrass, saxifrage *spp.*, and moss. Remaining upland areas are largely devoid of vegetation. Elevations lie predominantly below 100 m asl.

6.0 THE USERS

Inuit are the traditional and current users of Peary caribou. The communities of Resolute Bay and Grise Ford were established in the early 1950's by the Canadian government as part of an arctic sovereignty program. Inuit that were relocated to these communities relied on the availability of Peary caribou as a food source. This reliance continues today. Arctic Bay is also an occasional user in the Qikiqtaaluk region. In the Kitikmeot region, the communities of Cambridge Bay, Taloyaok, Gjoa Haven, and Kugaaruk are also occasional users of Peary caribou; when Peary caribou are available they are taken opportunistically by harvesters from these communities.

7.0 STATUS OF THE ISLAND GROUPS

7.1 SURVEY HISTORY

In 1961 the first comprehensive survey of Peary caribou done in a single season across the Queen Elizabeth Islands was completed. During this survey approximately 25,845 Peary caribou were estimated. The majority of caribou (approximately 94%) were located in the western Queen Elizabeth Islands (QEI) (Bathurst Island Complex, Cornwallis, Melville, Prince Patrick, Eglinton, Emerald, Borden, Mackenzie King, and Brock). Survey coverage of some island groups, particularly Ellesmere, was minimal.

The first population estimates for the western Arctic islands included a 1972 estimate of 11,000 Peary caribou on Banks Island, a 1974 estimate of 5,515 Peary caribou on the eastern islands of Prince of Wales and Somerset Islands and 561 Peary caribou on the Boothia Peninsula in 1974, and a 1980 estimate of 4512 Peary caribou on northwestern Victoria Island. Combined with the 1961 QEI estimate, these estimates of abundance reveal a historic number of 48,000 Peary caribou throughout their entire range.

The decline of Peary caribou is characterized by four major die-offs which were observed primarily in the western Queen Elizabeth Islands between 1970 and 1998. Die-off events have been associated with deep snow and icing, which can limit access to forage, increase energy requirements, and lead to extreme under-nutrition and death. Observations by local Inuit are in agreement, reporting up to 2 inches of ice in some years.

Although limited, the data suggests that periods of decline and recovery vary among island groups, and a variety of factors such as human activities, landscape changes, predation, hunting, and competition with other herbivores may also contribute to the fluctuation of caribou. Inuit in Resolute Bay and Grise Fiord have identified exploration activities (i.e. oil and gas, coal and base minerals) as an additional stressor for caribou during some winters. They suggest that during years of high snow accumulation, industrial activities can prevent caribou from moving into areas that may be vital for their survival.

7.2 STATUS OF ISLAND GROUPS

7.2.1 Ellesmere Island Group

Results from the first aerial survey in 1961 suggested that there were approximately 200 caribou on Ellesmere Island, but only a small portion of the island was studied. The most recent survey (2005 and 2006) for Ellesmere Island revealed extremely low densities of 8-9 caribou/1000 km² for Peary caribou, which implies approximately 1,000 animals. Unfortunately surveys of Ellesmere Island are infrequent and limited in their spatial coverage making the determination of a trend in number impossible in this group. By 2003, Inuit reported that numbers of caribou on southern Ellesmere were increasing.

7.2.2 Axel Heiberg Island Group

The 1961 estimate of about 300 caribou on the island was based on limited survey coverage. No other surveys of the island have occurred since that time until 2007. The last survey results show a higher number of caribou than the only previous description of caribou abundance for Axel Heiberg Island. Lack of data and this 50-year gap in monitoring make it impossible to discuss population status or trends for Peary caribou on Axel Heiberg Island.

The Axel Heiberg Group currently supports the largest population of Peary caribou in Nunavut, with an estimated 2,291 animals based on 2007 survey results. This population accounts for a significant portion of the total estimated Peary caribou population within the Nunavut range. This may be a consequence of the local climate, plant biomass and diversity of vegetation, the varied topography, and isolation from human disturbance.

7.2.3 Ringnes Island Group

The 2007 survey of the Ringnes Island Group estimated a total of 654 caribou. Survey results suggest that caribou abundance is lower than the historical value of 1,324 in summer 1961. Overall it is difficult to interpret trends or fluctuation within this Island Group as survey information is limited, typical seasonal movement patterns are unknown, and the only two surveys completed have occurred at different times of year. Nonetheless, the overall proportion of calves (14%) observed in 2007 is encouraging given the extreme northern latitude and the small calf crops recorded for other survey areas.

7.2.4 Devon Island Group

The few surveys conducted suggest that Devon Island supports only a low number of Peary caribou. During a full island survey completed in 1961, 150 Peary caribou were estimated. Minimum counts for western Devon Island in 2002 suggested that caribou

numbers were low. In 2008, the count remained low with 17 Peary caribou. Thus, it appears that Peary caribou have existed at low numbers in the Devon Island group, although numbers are decreasing from previous estimates or counts which indicate a declining trend.

Movement patterns for caribou on Devon Island are not well understood and it is possible that there were caribou in other areas of the island at the time surveys were conducted. Inuit knowledge indicates that there have been caribou on the northeastern coast of Devon Island, on the Grinnell Peninsula, and that they can reliably be found along the western coast of the island.

7.2.5 Bathurst Island Group

The 2013 survey showed a significant increase in Peary caribou numbers, more than 1200 caribou, over the previous 2001 estimate of 187, however it is still low in relation to historical values of over 3,000 individuals (including calves) in both 1961 and 1994. Although evaluation of trends in abundance is complicated by differences in survey design and the inclusion or exclusion of calves, the overall trend of decline and current recovery is apparent.

This group has seen sharp fluctuations in 1973-74, and again in 1995-1997. The first two surveys of the Bathurst Island Complex (BIC, which consists of Bathurst, Vanier, Cameron Alexander, Massey, and Marc islands) were separated by 12 years (1961-1973) and revealed an 83% reduction in this caribou population from 3,565 to 608 (both estimates including calves). Late winter and summer surveys in 1973 and 1974 respectively identified a further reduction in caribou numbers to 228 (no calves were observed). This additional 62% decline was attributed to deep snow cover and icing, which caused widespread mortality and resulted in little or no reproductive success. Subsequent surveys from 1985 to 1994 indicated an increase and by 1994 Peary caribou were estimated at 3,100 on the BIC. Aerial surveys in 1995, 1996, and 1997 revealed a second die-off with an all-time low estimate of 78 caribou in 1997. Based on carcass counts, it was estimated that 85% of the overall decline was directly related to caribou mortality (and not movement). During the survey in 2001, the number of caribou in this group was estimated at 187.

Since that time Inuit have reported a slow increase in Peary caribou numbers. In 2010, Parks Canada conducted a reconnaissance survey on Bathurst Island and counted 300 Peary caribou in a non-systematic survey with no estimate derived. An aerial survey was conducted of the entire Bathurst Island group in May 2013 which generated a preliminary updated estimate of 1300 caribou which corresponds to Inuit observation of recovery since 2001.

For the Cornwallis Islands the only observation of live caribou in the 2001 survey was on northwest Cornwallis Island. Two caribou were seen on southern Cornwallis Island, and another single caribou on Little Cornwallis Island during the 2013 survey, but occasional tracks and local knowledge also suggest densities remain very low. Previous estimates that include both Cornwallis Island and Little Cornwallis Island are limited to the summer 1961 and 1988, when 43 and 51 caribou (with calves) were estimated respectively. Earlier surveys of Little Cornwallis in 1973 and 1974, produced estimates of 8 and 12 caribou, respectively, with no calves observed. By the mid- to late 1960s, Inuit reported that it was difficult to find caribou on this island and that none were observed from 1990 to 2003. These observations are consistent with ground and aerial survey results from 2002.

7.2.6 Prince of Wales Island Group

Peary caribou in this Group declined from an estimated 5,682 caribou (one year or older) in 1974 to a minimum count of two in 1996. Current scientific knowledge indicates that there has been little recovery since 1996. During the 2004 aerial survey, no Peary caribou were observed on the Prince of Wales Island Group. These results are consistent with ground surveys of Prince of Wales Island in 2004 and Somerset Island in 2005, in which crews reported only four caribou after traveling a distance of 4,831 km. Local knowledge however, indicates that there has been some return or increase in recent years as they see more caribou on the coast of Prince of Wales Island however there is presently no monitoring in place to help determine if the herd is recovering.

7.2.7 Boothia Peninsula Group.

Boothia Peninsula has had aerial surveys from 1961 to 1995. During this time some surveys have counted both Peary and Barren ground caribou together and others have counted them separately so extrapolation of trend is difficult. Regardless, local knowledge indicates that Peary caribou numbers have always been relatively low with some fluctuation over periods of decades. Peary caribou have been seen primarily north of Taloyoak and less frequently north of Kugaaruk and at the north end of the Simpson Peninsula. Peary caribou are known to have used Lady Parry Island.

Hunters in Taloyoak harvest Peary caribou opportunistically with a couple taken every year. Historically more Peary caribou were taken in the 1960's and 1970's when they were more abundant. In Kugaaruk, harvest is also opportunistic with only a caribou harvested every few years. There is currently no system in place to report the Peary caribou harvested at these locations and thus monitor harvest rate.

7.2.8 Victoria Island Group.

Both Victoria Island and Melville Island have a long history of aerial surveys. Peary caribou have been more consistently observed, and at higher numbers on Melville

Island with a high of over 10,000 adults in 1961 and a low of 700 in 1972. A recent survey of Melville Island conducted by the Government of Northwest Territories (GNWT) has produced a new estimate of 2,990 adults in 2012 which suggests a recovery from the 1972 low. No harvest currently occurs in the Nunavut portion of Melville Island.

Local and scientific knowledge indicates that Victoria Island has consistently supported Peary caribou at low numbers. IQ also indicates that the distribution for Peary caribou in the Nunavut portion is largely in the north-east near Hadley Bay. The known high was 4,500 (including calves) in 1980 with a known low of 20 adults in 1993. The most recent estimate conducted by GNWT was 150 adults in 2010. Peary caribou are harvested by Inuit from Cambridge Bay opportunistically, usually in conjunction with polar bear hunters travelling to Hadley Bay. Harvest is low with only a few Peary caribou every few years although their harvest is not monitored. Caribou harvest is targeted to Dolphin and Union caribou which are typically closer to the community. Local preference even when Peary caribou are mixed with Dolphin-Union caribou is to harvest the latter.

7.2.9 King William Island Group

This group has little scientific data and most recent data indicates that this area lies outside the normal range of Peary caribou. Local knowledge indicates that Peary caribou occasionally move from Boothia Peninsula to the north coast of King William Island. Local knowledge suggests that here may also be mixing with Dolphin and Union caribou that migrate from Victoria Island.

8.0 MONITORING

The number of Peary caribou per Island Group shows fluctuation over time, with periods of abundance and periods of scarcity. Caribou are also known to move over time in response to environmental conditions. Monitoring programs collect information about changes in number, distribution, and changes in ecological factors that affect caribou numbers and health. It is important to involve both scientists and community harvesters in monitoring efforts. This plan seeks to ensure that both science and IQ are effectively collected and used for research and decision making.

The effects of individual factors, such as weather or human disturbance, can affect caribou both individually and at the Island Group level. These factors however can work in combination such that the total or cumulative effects may be greater than that which occurs from each factor on its own. These impacts may be either positive or negative.

8.1 MAIN CRITERIA FOR ASSESSING ISLAND GROUP STATUS

The main pieces of information on which management actions will be based include:

- Population size

- Recruitment
- Bull-to-cow ratio
- Body condition and health
- Harvest levels
- Number trend by management units

8.1.1 ISLAND GROUP STATUS

The main factor to assess island group status, and the key consideration when recommending the sustainable harvest level for any given island group, is the estimated number of animals in the Island Group. The current baseline survey completed by GN DoE was conducted with aerial distance sampling. Although effective and accurate for determining the number of Peary caribou in an Island Group, this method is costly. Aerial surveys will continue as required. However the implementation of a community-based monitoring program involving ground surveys can be conducted in predetermined areas, such as traditional hunting areas or areas where caribou are normally seen but absent, and provide data to help inform decision making in the interim between aerial surveys.

8.1.2 RECRUITMENT

Recruitment refers to the number of calves that survive to one-year of age. Calf/cow ratios are used as a measure of recruitment. Herd composition observed during community-based ground surveys and/or aerial surveys will be useful for determining the cow/calf ratio.

These ratios, while informative, are often difficult to interpret as they are influenced by various factors such as changes in cow mortality. Typically, recruitment rates are low before the number of animals begins to decline, whereas high recruitment rates, particularly several years in a row, may indicate an increase in herd size.

8.1.3 BULL-TO-COW RATIO

Caribou bulls can mate with many females within the same season. It is important to monitor the bull-to-cow ratio to help determine if there are enough bulls to impregnate cows. Monitoring herd structure can be done during the rut both by aerial surveys and ground based surveys, by scientists or harvesters, who can provide information on the number of bulls observed in relation to the number of cows.

8.1.4 BODY CONDITION AND HEALTH

The health and condition of individual caribou can affect productivity and survival of calves and adults. Sample kits are provided to harvesters to measure or collect: pregnancy (presence of fetus), back fat thickness, left kidney with the fat to assess contaminant levels and condition, blood samples to assess disease, body condition

score, collection of lower front teeth for age determination, and location, date and sex of the animal harvested. When a sample kit is not provided, harvesters typically have a general overview of the condition of caribou. Body condition information collected by community members, harvesters and scientists provides supporting evidence of health.

8.1.5 HARVEST

Long term monitoring of harvest levels is very important for management decisions, and to help determine sustainable harvest rates. However, there is currently no obligation to report harvest of Peary caribou in the communities. Establishing a harvest monitoring program is a priority and fundamental to the overall monitoring of caribou. Harvest reporting is also a means of participation in management by the users at the individual level.

8.1.6 ISLAND GROUP TREND AND RATE OF CHANGE

The trend or the rate of increase or decrease is also a key indicator of island group status. Trend can be determined by comparing island group estimates over many years. When a population estimate is not possible, we can look at other data to help determine the trend, such as recruitment, body condition and health, harvest levels, and bull-cow ratio. Beyond the scope of scientific studies, information on the changes in abundance, movement, and distribution of caribou on an Island Group can be provided by Inuit Qaujimaqatuqangit.

8.2 ADDITIONAL CRITERIA FOR ASSESSING ISLAND GROUP STATUS

In addition to information on caribou such as population size and cow/calf ratios, there is important information about habitat and land use that should be considered. This can include habitat quality and quantity, predation, and human disturbance that may limit caribou access to parts of their range. Co-management partners can support long-term research and monitoring of these factors that will allow provide greater information for decision making and more effective review into land use permitting processes.

8.2.1 PREDATORS

Predators affect caribou behaviour and mortality. Predator numbers tend to decline as caribou decline but usually there is a delay of one or two years. If other prey species are available, predator numbers may not decline at all. When caribou numbers begin to decrease, the impact of predation may become proportionately greater. Caribou users have requested increased monitoring of predator populations, measurement of predation and the impact of predation on the populations.

8.2.2 ENVIRONMENT AND HABITAT

Better understanding of cumulative effects at the ecosystem level can be obtained through long term research on habitat quality and quantity and impacts of human

activities. Co management partners can continue to call for and support such long-term research and monitoring. With improved understanding there is a better opportunity to use regulatory management tools to limit disturbance on caribou.

Community workshops held in Grise Fiord and Resolute indicate that a combination of heavy snow and increased oil exploration and activity (particularly Bent Horn) in the early 1970s created a combined effect that may have impacted caribou more than either would have on their own. Caribou can move in response to changes in local environmental conditions such as increased snow or severe ice events. However at this time the increased activities on the land, including seismic activity, may have disrupted this ability to move. It was this combination of weather and human activity that caused die-offs during this period. This information highlights the importance of improving our understanding of cumulative effects and collection and use of local knowledge.

Some steps to assess habitat conditions for each island group are:

- Develop and monitor key habitat indicators of quality and quantity using remote sensing and ground surveys;
- Monitor trends in climate and weather; and
- Define seasonal and occasional movement patterns.

8.2.3 HUMAN DISTURBANCE

Disturbance of caribou from human activities such as aircraft over-flights and resource development can influence caribou behaviour and energy use, which in turn can affect condition and health. Indirect effects can also include a reduction in quality and quantity of habitat or access to quality habitat. Particularly when caribou numbers are low, human activities have the potential to alter the rate and extent of the decline or length of time it takes the population to recover.

The range of Peary caribou extends over lands that are protected from development and lands where exploration is occurring. Concern about the impacts of non-renewable resource development has increased as changing ice and weather patterns encourage a renewed surge in exploration and potential resource development.

9.0 TOOLS FOR DECISION MAKING

9.1 HOW CARIBOU POPULATIONS CYCLE OVER TIME

Inuit Qaujimajatuqangit and scientific knowledge agree that caribou populations rise and fall over time. The length of the phases varies, particularly the length of time that a population stays at a low level. Scientific evidence, the journals of missionaries and trading post managers, and IQ all suggest that caribou populations go through cycles 30-60 years long. The causes for these population cycles in caribou are not well

understood, but likely result from several factors such as habitat quality and quantity, climate, and disease. In addition to population cycling, caribou can also move over time.

Although Peary caribou have existed at higher levels than today, they have never existed at numbers such as the large barren ground herds found to the south. The climate and topography of their range favours smaller groups dispersed over the landscape. These groups move with weather and food availability and are more susceptible to extreme weather events which can cause large die offs.

9.2 WHEN TO TAKE ACTION

Actions to ensure the future of Peary caribou will be determined in part by the number of Peary caribou found in each island group, and whether it is increasing or decreasing. Management decisions will also be influenced by other information from harvesters and research and monitoring programs, such as recruitment, bull-to-cow ratio, body condition and health.

In this management plan there are four levels of island group status and associated management actions. These are colour-coded green, yellow, orange, and red. The island group status provides a trigger for specific management actions.

Green:	The population level is high
Yellow:	The population level is increasing
Orange:	The population level is decreasing
Red:	The population level is low

9.3 USING MONITORING INFORMATION TO MAKE DECISIONS

Accurate and timely information is necessary for making good management decisions. Because the island groups are shared between communities and regions, it is also important that information is collected and shared by all harvesters and managers.

Island group status (e.g. green, yellow, orange or red) will be determined based on information including:

- Estimate of the overall population size of the island group
- Previous estimates to provide a trend (increasing, decreasing, or stable)
- Additional monitoring indicators such as ground based surveys to supplement the interpretation.

It is important to have up-to-date information so ensuring sufficient frequency of research and monitoring effort is very important. Certain monitoring will take place regardless of whether the island group status is green, yellow, orange or red. However, the frequency and intensity of monitoring will vary in response to island group status.

Long-term monitoring of environmental factors, including range quality and quantity, development activity and trends, and disturbances that influence caribou populations are important in understanding changes in caribou health and abundance.

Some of these indicators of population status can be difficult or expensive to measure. In these cases there may be some information available through long-term research programs or methodical collection of IQ. All of this information will be considered by the co management partners.

Working with all stakeholders an ongoing community based ground survey program will be established with the appropriate financial and technical support. This would occur, due to the spatial scale, on a rotating basis so that areas will be monitored at least every two or three years, unless observations of decline trigger more intensive efforts. The ground based surveys will be primarily in areas where regular community harvest occurs. Surveys should be followed with an annual meeting of stakeholders to review the results and recommend management changes if required.

Further changes observed from community monitoring programs (observations of die offs, starvation, population increase or decrease) can trigger:

- 1) Aerial surveys if declines are considered significant,
- 2) Increased frequency and coverage of community ground survey if declines are considered less significant but still of concern,
- 3) Community-based changes in harvest level that would occur within a predetermined upper and lower limit.

9.4 WHAT MANAGEMENT ACTIONS CAN WE TAKE

The NWMB has the responsibility for decision making as the primary instrument of wildlife management under the NLCA. Regional Wildlife Organizations (RWOs) have the authority to allocate harvest among their member HTOs, and in turn the HTOs can regulate their harvesters and allocate their share of a Total Allowable Harvest (TAH). Through regular annual meetings of the stakeholders, consensus on recommended actions can be reached and submitted to the NWMB for decision. Further, HTOs can make decisions to regulate local harvest through seasons, sex selectivity, area restriction, or reduction. These consensus-based recommendations can also be made to government and land use agencies following the general management actions described below.

9.4.1 HARVEST

As an Endangered species under SARA, Peary caribou are automatically protected from harvest, with the exception of Inuit harvest which would require a decision by the NWMB. Any decision of the NWMB should be informed by the consensus based recommendations of the co management partners developed through annual stakeholder meetings or as recommended in this plan. Recommendations can also take the form of harvest composition (e.g. sex selective) or seasonal restrictions or other Non-Quota Limitations (NQLs).

9.4.2 LAND USE ACTIVITIES

Increasing land use activity demands that meaningful input and review be provided into the various permitting process in Nunavut, whether it be the Nunavut Impact Review Board (NIRB), Nunavut Water Board (NWB), or the Nunavut Planning Commission (NPC) land use plan. Effort should be made to ensure capacity is available within all co management agencies to ensure effective participation. The community-based ground surveys will gather valuable information for both HTOs and DOE to effectively participate in these permitting processes. Co management partners can continue to recommend actions to help reduce the negative impacts of exploration and development on caribou. Advice can be given to avoid important caribou seasonal ranges like calving grounds, and how to mitigate disturbance from noise and access.

9.4.3 COMMUNICATION AND EDUCATION

Co management partners can work together to provide active and accessible communication programs, and recommend education programs. This can include different programs and approaches for elders, harvesters and youth to encourage traditional harvesting practices, use of alternate species and increased trade and barter of traditional foods. It can also include work with members of industry including resource developers.

9.4.4 HABITAT

Co management partners can continue to encourage and support increased research and monitoring related to seasonal range use, key habitat indicators, trends in climate and weather, and delineation of calving grounds.

9.5 MANAGEMENT ACTIONS BASED ON STATUS

The type of management action and the degree of management intervention will vary depending on the status of each island group. There are four levels of island group status which are colour-coded green, yellow, orange, and red. The island group status will trigger specific management actions or a change in the frequency of action, as described below:

Green: the population level is high

Management actions include:

- Support harvest
- Provide standard advice on mitigation of the impacts of exploration and development activities to proponents and regulators
- Provide active and accessible communication, and recommend education programs for all

Yellow: the population level is increasing

Management actions include:

- Recommend easing limits on harvest
- Provide standard advice on mitigation of industrial impacts to proponents and regulators
- Provide active and accessible communication and recommend education programs for all

Orange: the population level is decreasing

Management actions include:

- Recommend a TAH
- Recommend a majority-bulls harvest
- Recommend harvest of alternate species and encourage increased trade and barter of traditional foods
- Recommend increased community monitoring
- Provide active and accessible communication and recommend education programs for all

Red: the population level is low

Management Actions include:

- Recommend no harvest
- Work directly with proponents and regulators of exploration and development activities to advise on mitigation measures
- Recommend harvest of alternate species and meat replacement programs, and encourage increased trade and barter of traditional foods.
- Recommend increased enforcement including increased use of community monitors.
- Provide active and accessible communication and recommend education programs for all.

9.6 PROCESS TO MAKE DECISIONS

The co management partners shall meet annually to discuss results of all recent research and monitoring efforts which may include harvest reporting, caribou health monitoring, and ground or aerial surveys. The purpose of this annual meeting is to review information and reach consensus-based recommendations, if required, for

submission to the NWMB. Action may also be taken at the local level by HTOs based on the information reviewed.

9.6.1 GUIDING DOCUMENTS: ACTION PLAN

This Management Plan is supported by an Action Plan which outlines the management actions to be taken and how they will be implemented. Based in large part on the island group status, the Action Plan will outline specific management actions and how they will be implemented, by whom, and within what timeframe. Funding for the management action will be discussed by the co management partners. A third document, the GN DoE report “*Recent trends and abundance of Peary Caribou (Rangifer tarandus pearyi) and Muskoxen (Ovibos moschatus) in the Canadian Arctic Archipelago, Nunavut,*” will provide the technical baseline for decision making. Inuit Qaujimagatuqangit will be provided by the participating HTOs in the Stakeholder Working Group (See Appendix B). New information will be reviewed as it becomes available ensuring decisions are based on the most up to date scientific and local knowledge.

Implementation of the Action Plan is cooperative, and ongoing community input and support will help to develop and implement management actions. Each co management partner will be responsible for approving the Action Plan for its implementation. The effectiveness of the Action Plan will be reviewed annually.

9.6.2 STAKHOLDER MEETINGS

Stakeholders will meet annually after survey work has been completed and annual data summarized to review all new information and implementation of the Action Plan. It will be presented with the best available IQ and scientific knowledge and community based monitoring information. The Action Plan will be reviewed, and possibly updated, at the same time that the stakeholders review the current status of the Island Groups. Although normally revised only following an aerial survey, an Island Group’s status or Action Plan may be revised more frequently if, for example, there has been some extreme change observed through community-based ground surveys.

9.6.3 ALLOCATION OF HARVEST

If a Total Allowable Harvest (TAH) is recommended it shall be determined and allocated in accordance with processes described in the NLCA.

10.0 COMMUNICATION BETWEEN STAKEHOLDERS AND WITH USERS

Communication is the responsibility of all parties engaged in wildlife management. Knowledge must flow both ways - between local knowledge holders and management agencies. There will be varied communication and education techniques used depending on the message and the intended audience. They may include local radio

programs, visits to schools, posters or presentations, public meetings, and on-the-land gatherings.

Stakeholders will meet on an annual basis to discuss survey results and island group status and to take appropriate actions when needed. Further details on the annual meeting will be provided in the Action Plan.

The information communicated to the public will include island group status; any voluntary or management limits on harvesting; what is being monitored and why; the results of the monitoring programs; why harvesting mostly bulls rather than cows may be preferable; and education of youth in traditional hunting practices.

11.0 UPDATING THE MANAGEMENT PLAN

The Plan will first be reviewed after seven years (i.e. 2020) and at ten-year intervals thereafter. Any party may request a review, at any time, through a letter to the other signatories.

12.0 SIGNATORIES TO THE PLAN

Iviq Hunters and Trappers Association

Resolute Bay Hunters and Trappers Association

Ikajutit Hunters and Trappers Organization

Spence Bay Hunters and Trappers Organization

Ekaluktutiak Hunters and Trappers Organization

Kurairojuark Hunters and Trappers Organization

Gjoa Haven Hunters and Trappers Organization

Nunavut Tunngavik Inc., Wildlife Department

Qikiqtaaluk Wildlife Board

Kitikmeot Hunters and Trappers Association

Nunavut Department of Environment, Wildlife Management Division

APPENDICES

APPENDIX A

RECOMMENDATIONS AND TOTAL ALLOWABLE HARVEST BY ISLAND GROUP

General Recommendations

It is recommended to establish management units based on the proposed nine Island Groups. This includes six as presented in “*Recent trends and abundance of Peary Caribou (*Rangifer tarandus pearyi*) and Muskoxen (*Ovibos moschatus*) in the Canadian Arctic Archipelago, Nunavut*”, and three additional management units in the Kitikmeot region. This will facilitate future collection of consistent data for comparison and management decisions. However there is a need for provisions within the management plans to allow for finer scale management in response to changes in Peary caribou numbers, such as those observed through community observations or by additional survey work where warranted. In particular, the HTOs should control local harvesting within an agreed upon herd size, thus allowing for management at the community level.

Working with all stakeholders, an ongoing community-based ground survey program should be established with the appropriate financial and technical support. This would occur, due to the spatial scale, on a rotating basis so that areas will be monitored at least every two or three years, unless observations of decline trigger more intensive efforts. The ground based surveys would be primarily in areas other than where regular community harvest occurs as normal harvest areas will be monitored through harvest reporting. Surveys should be followed with an annual meeting of stakeholders to review the results and recommend management changes where required.

Observed changes from the community monitoring program (observations of die-offs, starvation, population increase or decrease) would trigger:

- 1) Potential aerial surveys if declines are considered significant,
- 2) Increased frequency and coverage of community ground survey if declines are considered less significant but still noteworthy,
- 3) Community based changes in harvest level that would occur within a predetermined upper and lower limit.

Predominately all island groups have declined and remain at low density with the exception of Bathurst and Melville, which are both showing signs of recovery. Caution must be exercised to prevent local extirpations. As harvest restrictions may only be to the level to address a valid conservation concern, there is currently a strong argument to maintain harvest restrictions for several island groups.

Harvest restrictions must allow communities to have input and control over how harvest will be allocated by allowing flexibility for HTO's to respond to changes in Peary caribou numbers that they observe and monitor through community-based ground surveys. These surveys may trigger more extensive ground or aerial surveys in the case of observed declines. An annual survey/meeting structure will allow for management action at the community level to occur in a timely and responsive manner.

Harvest reporting and sample collection is critical information for management. Each harvest should be reported through a hunter report. Information collected on the reports should include date, location (Latitude and Longitude), hunters name, tag number, sex, approximate age, and size of group harvested from. A Peary caribou health monitoring program should be established and sample kits provided to the hunters. The information provided will further our understanding of survival rates, diet, health, and space use. There is also a need to identify population boundaries to better manage Peary caribou.

With the current low numbers of Peary caribou in some of the island groups it is suggested to consider male sex selective harvests to help conserve females in the effort to reduce impacts and promote potential recovery.

Specific Island group TAH recommendations

Ellesmere Island Group (PC-01)

It is recommended to maintain existing harvest levels with a TAH of 45- 50 (allowing community to adjust as required within that amount). This harvest rate may impact caribou on south Ellesmere negatively; to alleviate this effect there should be encouragement and support to increase harvest on north Ellesmere. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Axel Heiburg Group (PC-02)

No harvest occurs here and the population is abundant, therefore no TAH is required. Should harvest start to occur here, as determined through harvest reporting, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Ringnes Islands Group (PC-03)

No harvesting occurs here, therefore no TAH is required. Should harvest start to occur here, as determined through harvest reporting, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Devon Island Group (PC-04)

With only 17 animals observed in 2008 and no abundance estimate, this group should be under a moratorium until such time as an increase is observed through community-based ground surveys. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Bathurst Island Group (PC-05)

Managing for recovery, a conservative TAH based on the preliminary results of the 2013 estimate of 1200 caribou would be 36 caribou (a 3% harvest rate). Although scientific knowledge and local knowledge agree that there is recovery in this group caution is warranted in order to not jeopardize that recovery. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Prince of Wales Group (PC-06)

With too few caribou to support harvesting at current numbers, this group should be under a moratorium until such time as an increase is observed through community based monitoring. Survey frequency should be increase to monitor sign of recovery. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement.

Victoria Island Group (PC-07)

As there is no targeted harvest in the area and only an occasional caribou is taken opportunistically, no TAH is required. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement. Should harvest reporting indicate an increase over the current rate of sporadic opportunistic harvest the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

Boothia Peninsula Group (PC-08)

As there is no targeted harvest in the area, and only an occasional caribou is taken opportunistically, no TAH is required. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement. Should harvest reporting indicate an increase over the current occasional harvest, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

King William Island Group (PC-10)

As there is no targeted harvest in the area and only an occasional caribou is taken opportunistically, no TAH is required. Harvest reporting and sample submission for genetics will assist greatly in understanding the dynamics of Peary caribou genetics and movement. Should harvest reporting indicate an increase over the current rate of

sporadic opportunistic harvest, the stakeholder working group should discuss potential harvest limits. Recommend no harvest by non- Inuit.

APPENDIX B

Recommended stakeholder working group for annual meetings

The stakeholder working group consists of the Chairpersons (and/or their alternates) of:

Iviq Hunters and Trappers Association

Resolute Bay Hunters and Trappers Association

Ikajutit Hunters and Trappers Organization

Spence Bay Hunters and Trappers Organization

Ekaluktutiak Hunters and Trappers Organization

Kurairojuark Hunters and Trappers Organization

Gjoa Haven Hunters and Trappers Organization

Qikiktaalik Wildlife Board

Kitikmeot Hunters and Trappers Association

And staff from the:

- Nunavut Wildlife Management Board
- Nunavut Tunngavik Inc.
- GN DoE, Regional Biologists and Regional Managers

Additional experts, either scientists or qaujimanilik, will be invited as required for support.

APPENDIX C ACTION PLAN

The following action plan supports the implementation of the management plan. It lists essential tasks that the co management partners recommend for the ongoing monitoring and management of Peary caribou. The actions support and emphasize programs and projects that will be invaluable in decision making and recommends what needs to be done to achieve the goals of the management plan.

The Action Plan assigns responsibilities for conducting programs and projects and covers the following categories:

1. Aerial survey program
2. Community-based ground survey program
3. Establishing harvest reporting and caribou health monitoring programs
4. NWMB Decision on Regulatory Changes
5. Annual Stakeholders meeting

1. Establishing an Aerial Survey Program

Background:

Aerial surveys are expensive and require significant logistic preparation. An aerial survey will be used in two fashions, as part of a cyclic program over the long-term to monitor population size and trend as well as other indices such cow/calf ratio and bull/cow ratio.

Problem Statement:

GN DoE has limited funds available for research of all species under its mandate for all of Nunavut. Regular surveys are expensive both in terms of financial and human resources. Co management partners need to agree on a monitoring cycle that is financially viable and still allow for surveys to occur in emergent situations when ground-based surveys observe significant die-offs or declines.

Objectives:

1. Seek support from NWMB for Nunavut Wildlife Research Trust (NWRT) funding for a long term survey as well as seek out other funding sources, such as INAC, and Environment Canada under federal funding programs for species at risk.
2. Stakeholders will agree upon an aerial survey schedule and thresholds that will trigger aerial surveys in emergent situations.

Methods:

1. GN DoE proposal to NWMB for NWRT with inventory schedule and maximum three year term request.
2. GN DoE to make formal requests to other third parties, via letter, for additional financial support for monitoring programs

Schedule:

Upon acceptance of Management Plan – GN DoE to seek support from third parties

January 2015 – GN DoE proposal to NWMB

January 2015 – Letter from co management partners to NWMB supporting DoE proposal

Evaluation: Ongoing at annual Stakeholder meeting

Lead Role: GN DoE

Support Role: HTOs, QWB

2. Establishing a Community-Based Ground Survey Program

Ground surveys are expensive and require significant logistic preparation. Community-based ground surveys will be used as part of a cyclic program over the long term to monitor population size and trend as well as other indices such as cow/calf ratio and bull/cow ratio.

Problem Statement:

HTOs have limited capacity to conduct monitoring programs. Regular surveys are expensive both in terms of financial and human resources. Co management partners need to agree on a monitoring cycle that is financially viable and has the financial and technical support to succeed.

Objectives:

1. Seek commitment from NWMB for HTO proposals to the Community Studies Fund for support of community based ground surveys on an annual and cyclic basis. HTOs to seek out other sources such as Habitat Stewardship Program and Aboriginal Fund for Species At Risk.
2. Stakeholders will agree upon a ground survey schedule and thresholds that will trigger additional ground surveys such as observed die offs and extreme weather events.

Methods:

1. HTOs submit proposal to NWMB for Studies Fund.
2. Co management partners to provide technical, logistic and financial support.

Schedule:

Upon acceptance of Management Plan – HTOs to seek support from third parties

January 2015 – HTO proposals to NWMB

January 2015 – Letter from co management partners to NWMB supporting HTOs proposals.

Evaluation: Ongoing at annual Stakeholder meeting

Lead Role: Each HTO that wishes to participate in the ground-based survey

Support Role: QWB, NIWS, GN DoE

3. Establishing Harvest Reporting and Caribou Health Monitoring Programs

Background:

Harvest monitoring and caribou health monitoring are identified in the Plan as important factors for management decisions. Collection of harvest data and condition and health data are means of Inuit involvement at the individual level

Problem Statement:

Currently harvest monitoring is not official or well-organized. Efforts have been made at establishing a general caribou health monitoring program, but this needs to be expanded to Peary caribou.

Objectives:

1. Get commitment from stakeholders to implement a harvest reporting program.
2. Harvest reporting will include sample submission that will be utilized in the health and condition monitoring program.

Methods:

1. NIWS, NTI and GN DOE to assist QWB, KRWB in preparing Management Plan
2. NTI and GN DOE to provide letters of support

Schedule:

Upon acceptance of plan - Determine harvest and sample collection needs and design reporting form

Evaluation: Annually at stakeholder meeting

Lead Role:

QWB/ KRWB / HTOs/ GN DOE / NTI Wildlife

4. NWMB Decision on acceptance of the Plan and Regulatory Changes

Background:

The co management partners are responsible for the protection, conservation, and management of Peary caribou in a sustainable manner. However the NWMB has the mandate to make decisions under the NLCA with regards to changes in TAH and approval of management plans. GN DoE has the responsibility to develop regulations under the *Wildlife Act*. This Plan will serve as the basis for development of Regulations for the management of Peary caribou under the *Wildlife Act*.

Problem Statement:

The NWMB must approve the proposed management plan, action plan and recommended changes to the regulations. The plan is the result of consultation with the co-management partners.

Objectives:

The co management partners have developed the Management Plan and Action Plan in regard to implementing changes in the management of Peary caribou. The objective is to have the plan approved by NWMB so that the plan can be implemented and regulatory changes can be implemented.

Methods:

1. DoE will submit the draft plan to the NWMB for decision.

Schedule:

Upon completion of an acceptable draft plan submit the draft and briefing note to NWMB for first available regular meeting

January 2014 –submit briefing note and supporting documents to NWMB

Lead Role: GN DOE

5. Annual Stakeholder Meeting

Background:

The co-management partners need to ensure that all information gathered annually on Peary caribou, such as harvest and survey results, are shared fully and reviewed

collaboratively for the purposes of taking action when needed. The action plan shall undergo annual review at this meeting and be amended as required.

Problem Statement:

Scheduling and financing meetings in the remote communities of Nunavut is a challenge. Support is needed by all co management partners to ensure that the parties can meet and discuss, by whatever means available, the current information available.

Objectives:

To ensure that participants are adequately supported to effectively participate in the annual stakeholder meeting.

Methods:

1. Co management partners will seek to plan and budget the adequate resources for their respective participants to effectively participate in the annual meeting.
2. Where possible the participants may already be in joint attendance at other meetings (i.e. NWMB) and this should be capitalized upon.

Schedule:

The annual general meeting shall occur at a mutually convenient time that allows for the data collected in the previous year to be analyzed and summarized for use by the co management partners.

Evaluation: Annual stakeholder meeting

Lead Role: QWB/KRWB / GN DOE / NTI Wildlife/ HTOs

ACTION PLAN

The following action plan supports the implementation of the management plan. It lists essential tasks that the co management partners recommend for the ongoing monitoring and management of Peary caribou. The actions support and emphasize programs and projects that will be invaluable in decision making and recommends what needs to be done to achieve the goals of the management plan.

The Action Plan assigns responsibilities for conducting programs and projects and covers the following categories:

1. Aerial survey program
2. Community-based ground survey program
3. Establishing harvest reporting and caribou health monitoring programs
4. NWMB Decision on Regulatory Changes
5. Annual Stakeholders meeting

1. Establishing an Aerial Survey Program

Background:

Aerial surveys are expensive and require significant logistic preparation. An aerial survey will be used in two fashions, as part of a cyclic program over the long-term to monitor population size and trend as well as other indices such cow/calf ratio and bull/cow ratio.

Problem Statement:

GN DoE has limited funds available for research of all species under its mandate for all of Nunavut. Regular surveys are expensive both in terms of financial and human resources. Co management partners need to agree on a monitoring cycle that is financially viable and still allow for surveys to occur in emergent situations when ground-based surveys observe significant die-offs or declines.

Objectives:

1. Seek support from NWMB for Nunavut Wildlife Research Trust (NWRT) funding for a long term survey as well as seek out other funding sources, such as INAC, and Environment Canada under federal funding programs for species at risk.
2. Stakeholders will agree upon an aerial survey schedule and thresholds that will trigger aerial surveys in emergent situations.

Methods:

1. GN DoE proposal to NWMB for NWRT with inventory schedule and maximum three year term request.
2. GN DoE to make formal requests to other third parties, via letter, for additional financial support for monitoring programs

Schedule:

Upon acceptance of Management Plan – GN DoE to seek support from third parties

January 2015 – GN DoE proposal to NWMB

January 2015 – Letter from co management partners to NWMB supporting DoE proposal

Evaluation: Ongoing at annual Stakeholder meeting

Lead Role: GN DoE

Support Role: HTOs, QWB

2. Establishing a Community-Based Ground Survey Program

Ground surveys are expensive and require significant logistic preparation. Community-based ground surveys will be used as part of a cyclic program over the long term to monitor population size and trend as well as other indices such as cow/calf ratio and bull/cow ratio.

Problem Statement:

HTOs have limited capacity to conduct monitoring programs. Regular surveys are expensive both in terms of financial and human resources. Co management partners need to agree on a monitoring cycle that is financially viable and has the financial and technical support to succeed.

Objectives:

1. Seek commitment from NWMB for HTO proposals to the Community Studies Fund for support of community based ground surveys on an annual and cyclic basis. HTOs to seek out other sources such as Habitat Stewardship Program and Aboriginal Fund for Species At Risk.
2. Stakeholders will agree upon a ground survey schedule and thresholds that will trigger additional ground surveys such as observed die offs and extreme weather events.

Methods:

1. HTOs submit proposal to NWMB for Studies Fund.
2. Co management partners to provide technical, logistic and financial support.

Schedule:

Upon acceptance of Management Plan – HTOs to seek support from third parties

January 2015 – HTO proposals to NWMB

January 2015 – Letter from co management partners to NWMB supporting HTOs proposals.

Evaluation: Ongoing at annual Stakeholder meeting

Lead Role: Each HTO that wishes to participate in the ground-based survey

Support Role: QWB, NIWS, GN DoE

3. Establishing Harvest Reporting and Caribou Health Monitoring Programs

Background:

Harvest monitoring and caribou health monitoring are identified in the Plan as important factors for management decisions. Collection of harvest data and condition and health data are means of Inuit involvement at the individual level

Problem Statement:

Currently harvest monitoring is not official or well-organized. Efforts have been made at establishing a general caribou health monitoring program, but this needs to be expanded to Peary caribou.

Objectives:

1. Get commitment from stakeholders to implement a harvest reporting program.
2. Harvest reporting will include sample submission that will be utilized in the health and condition monitoring program.

Methods:

1. NIWS, NTI and GN DOE to assist QWB, KRWB in preparing Management Plan
2. NTI and GN DOE to provide letters of support

Schedule:

Upon acceptance of plan - Determine harvest and sample collection needs and design reporting form

Evaluation: Annually at stakeholder meeting

Lead Role:

QWB/ KRWB / HTOs/ GN DOE / NTI Wildlife

4. NWMB Decision on acceptance of the Plan and Regulatory Changes

Background:

The co management partners are responsible for the protection, conservation, and management of Peary caribou in a sustainable manner. However the NWMB has the mandate to make decisions under the NLCA with regards to changes in TAH and approval of management plans. GN DoE has the responsibility to develop regulations under the *Wildlife Act*. This Plan will serve as the basis for development of Regulations for the management of Peary caribou under the *Wildlife Act*.

Problem Statement:

The NWMB must approve the proposed management plan, action plan and recommended changes to the regulations. The plan is the result of consultation with the co-management partners.

Objectives:

The co management partners have developed the Management Plan and Action Plan in regard to implementing changes in the management of Peary caribou. The objective is to have the plan approved by NWMB so that the plan can be implemented and regulatory changes can be implemented.

Methods:

1. DoE will submit the draft plan to the NWMB for decision.

Schedule:

Upon completion of an acceptable draft plan submit the draft and briefing note to NWMB for first available regular meeting

January 2014 –submit briefing note and supporting documents to NWMB

Lead Role: GN DOE

5. Annual Stakeholder Meeting

Background:

The co-management partners need to ensure that all information gathered annually on Peary caribou, such as harvest and survey results, are shared fully and reviewed

collaboratively for the purposes of taking action when needed. The action plan shall undergo annual review at this meeting and be amended as required.

Problem Statement:

Scheduling and financing meetings in the remote communities of Nunavut is a challenge. Support is needed by all co management partners to ensure that the parties can meet and discuss, by whatever means available, the current information available.

Objectives:

To ensure that participants are adequately supported to effectively participate in the annual stakeholder meeting.

Methods:

1. Co management partners will seek to plan and budget the adequate resources for their respective participants to effectively participate in the annual meeting.
2. Where possible the participants may already be in joint attendance at other meetings (i.e. NWMB) and this should be capitalized upon.

Schedule:

The annual general meeting shall occur at a mutually convenient time that allows for the data collected in the previous year to be analyzed and summarized for use by the co management partners.

Evaluation: Annual stakeholder meeting

Lead Role: QWB/KRWB / GN DOE / NTI Wildlife/ HTOs