

# QWB-QIA Joint Caribou Submission to the Nunavut Planning Commission

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## Written Submission 2023-A-02: Winter Habitat

**Proposed designation:** Limited Use

**Prepared By:** Jointly prepared by QWB and QIA, with support from Firelight Research Inc.

**Submitted To:** Nunavut Planning Commission

**Date:** February 10 2023

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### **Introduction**

This written submission summarizes the caribou winter habitat identified by the HTOs of the Qikiqtaaluk Region, which QWB and QIA are requesting that NPC designate as Limited Use. This written submission is part of a joint QWB-QIA caribou submission package that includes a Technical Memorandum and three other joint written submissions identifying caribou calving and post-calving habitat (written submission 2023-A-01), caribou movement corridors (written submissions 2023-A-03), and caribou harvesting areas (written submission 2023-A-04) in the Qikiqtaaluk region of Nunavut. The Technical Memorandum provides critical background information and a summary of methods used to develop this submission, and should be reviewed in tandem with the contents of this submission.<sup>1</sup>

### **Importance of Winter Areas**

*Tuktut* (caribou) are critical to the strength, wellbeing, and sustainability of Inuit culture and heritage; the tundra-dwelling caribou populations of Baffin Island and the high arctic are a key species in the northern ecosystem. Caribou on Baffin Island exhibit long-term cycles in their populations (Ferguson et al., 1998), exacerbating their vulnerability to human disturbances during periods of low abundance, which can last for years or decades. These long-term cycles have been observed in several Arctic caribou populations, and are likely driven by interactions

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<sup>1</sup> Note: Many of the discussions with HTO members focused on barren-ground caribou on Baffin Island, Melville peninsula, and the surrounding islands. Unless otherwise noted, the importance of habitat types and harvesting areas should be considered to equally apply to Peary caribou in the high Arctic. The heightened sensitivity of Peary caribou to climate change, particularly in terms of impacts to sea ice crossings and winter habitat, has been highlighted wherever possible, and seasonal timing windows have been modified to the extent of available knowledge.

between caribou and their habitat: as populations increase, they surpass the carrying capacity of their range, leading to sharp declines until the range conditions improve (GN DOE 2018).

The rut and early winter habitat window for caribou on Baffin Island extends from late October to mid November – early December (Campbell et al. 2015; Ferguson pers comm), with the winter period occurring after December 1st. Based on available telemetry data, winter habitat for caribou on north Baffin Island shows considerable overlap with calving and post-calving habitat, while caribou on south Baffin Island show more distinct movements from post-calving grounds to winter grounds. While calving and post-calving habitat is critical for supporting caribou recruitment, winter habitat may be an important limiting factor for the herds on Baffin Island (Ferguson et al. 2001). Arctic tundra caribou have evolved and adapted to the widespread snow and ice that dominates the landscape during this period, and when the landscape changes due to external pressures from anthropogenic climate change and development, it jeopardizes these animals. Changes to caribou winter habitat, including sea ice, has been observed by communities across the Qikiqtaaluk Region and specific concerns relating to the impacts of climate change were vocalized by HTO members at the public hearing in Pond Inlet.

*“We are starting to see cracks on the ice caps. There is evidence that some caribou have fallen into these cracks and are not able to get out of it. It is becoming dangerous. Our harvesting is bad enough without these natural occurrences adding to the catastrophe. It appears that many of our mammals are starting to die off due to climate change. It is very evident.”* — Pond Inlet Hearing, (October, 2022)

A workshop participant defined caribou wintering grounds as the areas where the animals can find food among the snow and permafrost landscape of the tundra (QIA / QWB Workshop Notes, October 12, 2022). These habitats represent important sources of nutrients and minerals, and protecting these spaces could make the difference between a caribou surviving the winter months or not.

### **Delineation Methods**

Please see the accompanying Technical Memo, section 3, which describes how these areas were delineated, verified, and supported through additional data review.

### **Results**

Table 1 summarizes all of the polygons included as winter habitat in this submission, and includes a further rationale for each area based on a review of available IQ and western science overlapping with each polygon. Sources of IQ and western science are detailed in Section 3.5, Table 1 of the accompanying Technical Memo. The table below also notes where each identified polygon originally overlapped with another habitat or use type (e.g., calving / post-calving habitat, harvesting areas or movement corridors). Polygons (or clusters of polygons in close proximity) are numbered in the table and accompanying map for ease of review. The submission includes new areas identified as winter habitat in the HTO workshops in 2022. In some cases, these areas overlap with polygons identified in QWB’s 2018 submission as multi-value areas—areas of important caribou habitat that were not brought into the 2021 DNLUP. All

overlaps with other designations (either from 2018 or from the 2022 workshops) are noted in Table 1.

Table 1. List of polygons submitted to the NPC as final Caribou Winter Areas for the Nunavut Land Use Plan. Rationales are provided for new submission areas.

Polygon No.	Rationale for Submission
New Winter Area Submissions	
84	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>Overlaps with documented caribou winter IQ.</li> <li>Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
85	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>Overlaps with documented caribou winter IQ.</li> <li>Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
86	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>Overlaps with documented caribou winter IQ.</li> <li>Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
87	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> </ul>
88	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with observed caribou from the Baffin Island Caribou Population Survey (North Melville Peninsula Abundance Survey – March 2014).</li> <li>Overlaps with documented caribou winter IQ.</li> </ul>
89	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994 and 2008-2011).</li> </ul>

Polygon No.	Rationale for Submission
	<ul style="list-style-type: none"> <li>• Overlaps with observed caribou from the Baffin Island Caribou Population Survey (2014).</li> <li>• Overlaps with documented caribou winter IQ.</li> <li>• Overlaps with Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> <li>• Overlaps with Porcupine Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul> <p>Note that portions of this area were also identified as important caribou movement corridor(s). Based on the rules for overlapping designations described in section 3.4 of the technical memo, the polygon is submitted to the NLUP as a winter area.</p>
90	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>• Overlaps with Late Winter Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> </ul>
91	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with 2018 QWB Submission Multiple-Value Area Qikiqtarjuaq - WS40.</li> <li>• Overlaps with Most Important Area and Late Winter Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> </ul> <p>Note that portions of this area were also identified as important caribou movement corridor(s). Based on the rules for overlapping designations described in section 3.4 of the technical memo, the polygon is submitted to the NLUP as a winter area.</p>
92	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>• Overlaps with documented caribou winter IQ.</li> </ul> <p>Note that portions of this area were also identified as important caribou movement corridor(s). Based on the rules for overlapping designations described in section 3.4 of the technical memo, the polygon is submitted to the NLUP as a winter area.</p>
93	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>• Overlaps with documented caribou winter IQ.</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>

Polygon No.	Rationale for Submission
94	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> </ul>
95	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>Overlaps with 2018 QWB Multi-Value Area Submission Meta Incognita – WS 32.</li> </ul>
96	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>Overlaps with survey area from Chowns, 1978 - exact caribou locations unspecified.</li> <li>Overlaps with observed caribou from the Baffin Island Caribou Population Survey (2014).</li> <li>Overlaps with documented caribou winter IQ.</li> <li>Overlaps with 2018 QWB Submission WS-11.</li> <li>Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
97	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>Overlaps with documented caribou winter IQ.</li> <li>Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
98	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>Overlaps with observed caribou from the Baffin Island Caribou Population Survey (2014).</li> <li>Overlaps with documented caribou winter IQ.</li> <li>Overlaps with 2018 QWB Multi-Value Area Submission Meta Incognita – WS 32.</li> <li>Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
99	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>Overlaps with documented caribou winter IQ.</li> </ul>
100	<ul style="list-style-type: none"> <li>Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> </ul>

Polygon No.	Rationale for Submission
	<ul style="list-style-type: none"> <li>• Overlaps with documented caribou winter IQ.</li> </ul>
101	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>• Overlaps with Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
102	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>• Overlaps with Female Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
103	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>• Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
104	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>• Overlaps with observed caribou from the Baffin Island Caribou Population Survey (2014).</li> <li>• Overlaps with documented caribou winter IQ.</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>
105	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994).</li> <li>• Overlaps with observed caribou from caribou composition surveys (2015-2022).</li> <li>• Overlaps with survey area from Chowns, 1978 - exact caribou locations unspecified.</li> <li>• Overlaps with documented caribou winter IQ.</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul>

Polygon No.	Rationale for Submission
106	<ul style="list-style-type: none"> <li>• Area was delineated by knowledge holders during the 2022 joint QIA-QWB review process.</li> <li>• Overlaps with telemetry data from winter (considered here to be Sept 1 - May 29) (1987-1994, 2008 and 2011).</li> <li>• Overlaps with documented caribou winter IQ.</li> <li>• Overlaps with Female Caribou Area identified in the Baffin Island Caribou Consultations (2012).</li> <li>• Overlaps with the rut and early winter range kernel density estimates (Campbell et al., 2015).</li> <li>• Overlaps with the winter range kernel density estimates (Campbell et al., 2015).</li> </ul> <p>Note that portions of this area were also identified as important caribou movement corridor(s). Based on the rules for overlapping designations described in section 3.4 of the technical memo, the polygon is submitted to the NLUP as a winter area.</p>
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**Source of Information:** These areas have been delineated by HTOs who are most familiar with the different subregions of the Qikiqtaaluk, and are primarily based on Inuit Qaujimajatuqangit. As noted in Table 1 of the accompanying Technical Memo, each polygon or cluster of polygons is cross referenced to underlying Inuit Qaujimajatuqangit from other studies, and western scientific information from a variety of different sources. Note that due to the limited spatial (i.e., not all areas of Baffin Island were covered) and temporal (i.e., western science data do not cover all time periods in the population cycle) extents of other data sources in the Qikiqtaaluk region, an absence of overlapping data from other sources should not be used to negate or downgrade the importance of areas identified by HTOs in the 2022 workshops.

**Proposed Designation:** Limited Use

**Proposed Restrictions:** The following uses are prohibited:

- Oil and gas exploration and production;
- Mineral exploration and production;
- Quarries;
- Hydro-electrical and related infrastructure;
- Wind turbines for electrical generation and related infrastructure;
- Linear infrastructure; and
- Related research except non-exploitative scientific research.

**Conditional Restrictions:** In addition to the prohibited uses noted above, the following conditional restrictions are requested for all polygons identified as winter habitat:

- During the winter period for the Qikiqtaaluk region (from December 1st to April 30th for barren-ground caribou; from December 1st to May 24th for Peary caribou), helicopters and airplanes must maintain a vertical distance of at least 300 meters / 1000 feet above ground level (magl) or a horizontal distance of at least 600 meters / 2000 ft from all identified calving and post-calving habitat.
- Wind turbines for electrical generation must be at least 5 km from caribou winter areas, and must be positioned so they are not visible from caribou winter areas.

### **Proposed Boundaries of Winter Habitat Limited Use Designations**

See the attached map and the associated shapefiles. The attached map shows both previously submitted winter areas (outlined in black), as well as newly submitted winter areas (no black outline). The shapefile package includes a) newly proposed winter areas; b) resubmissions of previously submitted winter areas that were accepted into the 2021 DNLUP.

### **References:**

See accompanying Technical Memo QWB-QIA-2023-A-TM for full reference list.

