



SENT BY EMAIL

Ms. Heather Bourassa
Sahtu Land Use Planning Board Chair
P.O. BOX 235
FORT GOOD HOPE, NT X0E 0H0

FEB 07 2020

Dear Ms. Bourassa:

**GNWT Comments on the
Sahtu Land Use Plan 5-Year Review Draft Amendment Application**

Thank you for the opportunity to comment on the draft amendment application for the Sahtu Land Use Plan 5-Year Review. Please find the GNWT's comments on the draft amendment application attached.

The attached comments are organized by amendment application document, including comments on the draft amendment application; the series of maps; the GIS Protocols, Methodology and Physical Limits Zone Descriptions, and additional proposed amendments.

The Government of the Northwest Territories (GNWT) continues to support an efficient and effective completion of the first 5-Year Review of the Sahtu Land Use Plan.

Sincerely,

Gina Ridgely
Director
Land Use and Sustainability
Department of Lands

Attachment



Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

Government of the Northwest Territories

Comments on the Sahtu Land Use Plan 5-Year Review

Draft Amendment Application

for

SAHTU LAND USE PLANNING BOARD

Sahtu Land Use Plan 5-Year Review

SUBMITTED TO

Sahtu Land Use Planning Board

P.O. BOX 235

FORT GOOD HOPE, NT X1A 0H0

February 7, 2020

GNWT Comments on the Sahtu Land Use Plan 5-Year Review Draft Amendments

GNWT Comments on Draft Amendment Application		
Amendment Number	Comment(s)	Recommendation(s)
25	The definition of “protected areas” does not match the national and international definition. According to the national and international definition, territorial parks are not protected areas and neither are areas established under the <i>NWT Wildlife Act</i>, as neither has regulations to prohibit activities that could negatively affect biodiversity. The definition of “protected areas” would include areas protected under the <i>Canada National Parks Act</i> or the <i>Historic Sites and Monuments Act</i>, as such areas are established under legislation for the primary purpose of protecting ecological and/or cultural values. However, the Plan does not apply to these areas as per section 34 of the <i>Mackenzie Valley Resource Management Act</i>. This definition is therefore not appropriate in all contexts in which it appears in section 2.2.	Add to the end of the definition that it excludes areas protected under the <i>Canada National Parks Act</i> or the <i>Historic Sites and Monuments Act</i> (or some approach that achieves the same effect). Also, the reference to “sponsoring legislation” should be changed to “legislation”.
112	The second last sentence of the added text describes that the proposed Mackenzie gas pipeline route is identified on Maps 5 and 7-13. We note that the proposed Mackenzie gas pipeline route is also identified on Map 2.	Include Map 2 in the revised text: “However, significant community engagement was carried out to identify a route (identified on Maps 2, 5, and 7-13).”
121	In the Other Protected Areas paragraph, it is unclear what part of land use management is subject to the Plan, if the management plan of the sponsoring	Proposed revised text for clarity: “While lands within Protected Areas are legally subject to the Plan, once established they are zoned in the Plan as Established Protected Areas (EPAs).”

	legislation provides direction and the Plan does not.	In these areas, the legislation and, in many cases, management plans and/or management agreements, provide management direction. To avoid potential for conflict or duplication, the Plan will provide no further management direction to EPAs. The SLUPB may provide applicable expertise and advice if requested by a Protected Area management board or body.”
132	This is not an accurate summary of what is contained in 21.3.1 to 21.3.4 of the SDMLCA with respect to use and occupation of Sahtu lands by the Canadian Armed Forces.	The text needs to accurately summarize what is contained in 21.3.1 to 21.3.4 of the SDMLCA with respect to use and occupation by the Canadian Armed Forces, or be deleted.
169	“<u>Proposed Conservation Initiatives (PCIs)</u> are areas for which formal legislated protection is being sought through the ENR Conservation Planning and Implementation, pursuant to commitments under the SDMLCA, or under Parks Canada’s legislation.” This sentence is not clear and would not capture a federal proposed conservation initiative to be established other than through the <i>Canada National Parks Act</i> or the <i>Historic Sites and Monuments Act</i>.	i) The sentence should be replaced with a sentence that states: “... are areas for which formal protection is being sought through federal or territorial legislation.” ii) The reference to “other legislation” in the third sentence under this heading should be replaced with a reference to “the applicable protected areas legislation”.
175	The amended sentence reads: “CZs and PCIs protect the areas most important to communities for future generations, contribute to ecological representation goals and may provide locations for the establishment of ecological benchmarks for the long-term maintenance and monitoring of ecological integrity.” PCIs do not protect land for future generations, as they are interim until an EPA is established. The term “quarry” is defined in the <i>Commissioner’s Land Act</i>, not in the <i>Commissioner’s Land Regulations</i>. <i>Quarrying Regulations and Territorial Quarrying</i>	Replace PCI with EPA and consider adding a sentence on the intention that PCIs provide interim protection.
211		This section should refer to the <i>Commissioner’s Land Act</i>, RSNWT 1988 c.C-11 not the <i>Commissioner’s Land Regulations</i>. Provide a proper citation for the <i>Quarrying Regulations</i>: NWT Reg 017-2014 (<i>Northwest Territories Lands Act</i> SNWT 2014, c.13).

	<i>Regulations need proper citations.</i>	Provide a proper citation for the <i>Territorial Quarrying Regulations</i> : C.R.C., c. 1527 (<i>Territorial Lands Act</i> , RSC 1985, c T-7).
225 Section 3.3 General Conformity Requirements, CR #3 - Community Benefits	The agreements listed under the first bullet are not the economic benefits themselves, but instead these agreements contain some economic benefits, as well as social and cultural benefits listed in subsequent bullets. For example, training, capacity building, and carrying out TK studies and documenting Elders knowledge for archival purposes. What are some of the economic benefits to residents and communities in these agreements? For example, contracts for local businesses, employment opportunities, etc.	Consider highlighting some specific economic benefits that are embedded in the agreements that are listed in this section. This would differentiate the purely economic benefits from the social and cultural benefits that have been listed in subsequent bullets in this section.
256	“... as set out in the MVRMA” should be deleted as the responsible Minister is not set out in the MVRMA. The responsible Minister is only evident from the MVRMA combined with the delegation instruments from the Minister of CIRNAC to the Minister of Lands and Minister of ENR.	Delete “... as set out in the MVRMA”.
261-263	The new preferential approach taken in CR#14 results in a higher standard of protection to all values outlined in the Zone Descriptions, including values to be respected and taken into account. Furthermore, “unless demonstrably not possible” is a very difficult test to meet.	Recommend removing the preferential approach and reverting to original text.
279	The text under the proposed new ‘Climate Change’ heading (in Section 3.5) reads: “Increasing temperatures, variable precipitation, shorter freeze-up period, <u>melting permafrost</u> and other environmental changes related.” Noting that permafrost does not melt, rather it thaws.	Change “melting permafrost” to “thawing permafrost”.
279	Following Devolution, the Minister of the Department of Environment and Natural Resources (ENR) was granted the authority for water	The GNWT-ENR should be included as water manager to address any potential water withdrawal issues, expert advice, and technical support. Suggested revision:

	management and monitoring in the NWT. ENR is responsible for regulatory decision-making related to water use and management in the NWT, including the development, implementation and interpretation of legislation and policy. The proposed text and Action in CR #19 does not refer to ENR's legislative framework, policies, and strategies.	Action: Water Withdrawal "DFO, <u>GNWT-ENR</u> , and the SLWB will make reasonable efforts to work with communities as requested to discuss community concerns related to water withdrawal, DFO's winter water withdrawal protocol, and alternative solutions to water withdrawal related to specific projects."
Minor Editorial Comments		
Amendment Number/Section	Comment(s)	Recommendation(s)
Definitions	Some defined terms are capitalized and others are uncapitalized.	A consistent approach should be taken.
35	Missing a semi-colon (;) after valley in the line above this amendment.	Revise the text to read: a) An integrated system of land and water management should apply to the Mackenzie Valley; b) The regulation of land and water ...
121	The references to "Protected Areas" in section 2.2 are all capitalized, whereas the definition and elsewhere in the document are uncapitalized.	The references to "protected areas" should all be uncapitalized.
159	Missing a table number (or perhaps this should be plural) in "Different CRs apply to different zone types as shown in <u>Table</u> , and specifically in Table 3."	Include the appropriate reference.
176	Missing a table number "Table provides a summary of zone allocations for the SSA."	Include the appropriate reference.
279	In the proposed new Section 3.5, under the heading 'Water Withdrawals' (p. 100), there is a typographical error: Steward Lake	Change to 'Stewart' Lake.
279	In the proposed new Section 3.5, under the heading 'Water Withdrawals' (p. 100), the footnote appears to be incorrect, i.e., it reads '86' in the text but the corresponding footnote reads '85'.	Ensure that the footnote number is correct in the text and footnote section.
288	The capitalized term "Regulatory Board" remains undefined.	The term must be defined if it remains capitalized or changed to be lowercase and undefined.
726	Typographical error in the paragraph:	Revise "...people, the chased them away..." to: "...people, he chased them away"

911	Inconsistent use of the acronym IBP. The full text is written out in the second paragraph of the "Values to be Respected" section.	Be consistent in the use of the acronym.
1011	The PAS acronym was deleted from the acronym list. This should remain "Protected Areas Strategy"	Do not make this amendment.

GNWT Comments on Series of Maps		
Map Number(s)	Comment(s)	Recommendation(s)
All maps	According to the legend, the grey shading on the map denotes: "Established Protected Area (Within Sahtu)". On the map the grey shading corresponds to Nááts'ihch'oh National Park Reserve and Saoyú-?ehdacho National Historic Site which are no longer defined as EPAs under the Plan.	Change legend text to: "Established National Park Reserve and/or National Heritage Site" and ensure they are not depicted as part of the area of the Plan's application.
Map 1	Spelling of 'Dehcho'. The map titles the region as 'Deh Cho' while in Dehcho Interim Draft Land Use Plan the region is referred to as 'Dehcho'.	To be consistent with the Dehcho Interim Draft Land Use Plan Change 'Deh Cho' to 'Dehcho'.
Map 1	On the map, Nunavut is labeled as 'Nunavut Territory' while Yukon is labeled as 'Yukon'.	For consistency either label as 'Nunavut' and 'Yukon', or 'Nunavut Territory' and 'Yukon Territory'.
Map 3	Mapping Boreal woodland caribou range in slightly transparent green on Map 3 makes it difficult to clearly identify the zoning the range overlaps with. In addition, the first 2 boxes in the legend are caribou ranges, the next 2 are base data, and the last one is caribou range again.	i) For clarity, use a dotted pattern for the Boreal woodland caribou range. ii) To make the map easier to read, organize the legend such that the legend boxes related to the topic of the map (Barren Ground Caribou and Woodland Caribou ranges) are grouped together, and any information not specifically related to the topic of the map (base data) be placed after all the caribou legend boxes.
Map 3 and 4	The color of the district boundary on the map does not match the color in the legend.	Use the same black dashed line for the boundaries on the maps as were used for the legend. Making the district boundary a bit darker would make it more visible.
Maps 5, 6, 7, 9, 13	The scale bar and scale are placed on top of information on the map which reduces the readability of the map.	Move the scale bar to a place on the map where it does not overlap with and obscure information communicated on the map. For example, the scale bar could be placed under the legend that shows the zone names and numbers. Reducing the size of the scale bar would facilitate that.
Maps 7, 8, 9, 10, 11, 12	The legend is missing the district boundaries.	Add district boundary to legend.
Maps 2, 3, 4, 8	It appears that the Tsa Tse borders on Tukut Nogait but Tukut Nogait is actually partially within Tsa Tse.	Map special management zone using a bit of transparency and ensuring that the overlap is visible.
Map 5, 8, 9, 10, 11, 12, 13	Is the double dashed line on the map the proposed gas pipeline corridor? If so, the proposed pipeline corridor is a solid double line in the legend.	Ensure that line symbol in legend matches the line symbol on the map.

Map 7	Is the double dashed line on the map the proposed gas pipeline corridor? If so, the proposed pipeline corridor is one line in the legend.	Ensure that line symbol in legend matches the line symbol on the map.
Map 9, 10, 12, 13	It appears that the district boundary/part of the district boundary is a solid line as compared to dashed lines on all other maps.	Ensure that the district boundary is mapped consistently across all maps.

GNWT Comments on GIS Protocols, Methodology and Physical Limits Zone Descriptions		
Part/Page	Comment(s)	Recommendation(s)
Part 1: GIS Protocols and Methodology; Page 2/145 - Rounding of Decimal Seconds, line 6	The text states: "This is true for the boundaries of all zones except those of Established Protected Areas (Saoyú-ᑭᑦᑲᑦᑲᑦᑲᑦ National Historic Site of Canada and Nááts'ih ch'oh National Park Reserve of Canada)..."	If the definition of protected areas is revised to exclude national parks and national historic sites, this text needs to be revised as these would not be EPAs under the definition.
Throughout	This statement mentions that Saoyú-ᑭᑦᑲᑦᑲᑦ and Nááts'ih ch'oh are Established Protected Areas. There is no "Protected Conservation Initiative" zone	Replace 'Protected Conservation Initiative' with 'Proposed Conservation Initiative'. PCI stands for the latter.
Throughout the document	Capitalization of words	Words such as unnamed stream, tributary, amendment, cabin, cultural sites should not be capitalized.
Detail of metes and bounds	Some zones have very detailed metes and bounds resulting in more than 100 coordinate points and up to more than 300.	Propose that the boundaries for these areas be generalized somewhat to result in less coordinate points.
Use of Level IV ecoregions	Where the use of Level IV ecoregions is mentioned it is unclear how those Level IV ecoregions were used and which ones, and how they were factored into the legal description.	Consider adding details on how the Level IV ecoregions were used and which ones.
Part 1: GIS Protocols and Methodology; Page 2/145 – Datum and Projection; paragraph 2	What are the NWT Lambert Conformal Conic projection parameters?	Add NWT Lambert Conformal Conic projection parameters.
Part 1: GIS Protocols and Methodology; Page 2/145 – Datum and Projection; paragraph 2	What scale of CanVec hydrology data must be used?	Add scale of CanVec hydrology data.
Part 1: GIS Protocols and Methodology; Page 2/145 – Rounding of Decimal Seconds; lines 3 and 4	The text states: "This can cause the vertices of the boundary to be up to ±17 metres off from the metes and bounds written in the zone description." It is unclear what this refers to.	Clarify the statement and to which zone descriptions it refers.
Part 1: GIS Protocols	The text states: "The scale of the data layers is	Propose to revise to: "The scale of the data layers used to create the zone

and Methodology; Page 2/145 – Scale; line 1	1:50,000 , meaning that the zones should not be displayed at larger scales.”	boundaries is 1:50,000, meaning that the zones should not be displayed using base data layers at smaller or larger scales.”
Part 1: GIS Protocols and Methodology; Page 3/145 - Table	Currently in this table, a scale is provided only for hydrology data layers.	Add the scale for all the other data layers.
Part 1: GIS Protocols and Methodology; Page 3/145 – Quality Check, line 1	Line 1 of this paragraph reads: “... completing modifications to spatial data, either through a plan review or an Amendment...” It is our understanding that a Plan review results in amendments, therefore the statement is redundant.	i) The word ‘amendment’ should not be capitalized. ii) Propose revising text to, “After completing modifications to spatial data through an amendment to the Plan, a quality check is required.”
Part 1: GIS Protocols and Methodology; page 4 – Buffers Considering Topography, line 4	The acronym ‘CDEM’ does not have a first mention spelled in full.	Spell out the entire name for CDEM before using the acronym.
Part 1: GIS Protocols and Methodology; Page 4/145 – Buffers Considering Topography, line 7-8	The wording “...difference up to a maximum of 5% of the buffer width, regardless of its area and topography (mountainous vs. flat)” reads as though the difference would be up to 5% for flat areas as well. This would not make sense as it is the topography that causes the difference.	Revise the text for clarity.
Part 1: GIS Protocols and Methodology; Page 4/145 - Other Information, line 1	Line 1 of this paragraph reads: “When projecting the zoning shapefile with the mentioned hydrology data from Natural Resources Canada’s CanVec dataset there may be slight misalignments of certain zones with the ordinary high water mark, such as 15.” It is unclear whether this statement means: ‘When projecting the zoning shapefile to the projection of the mentioned hydrology data from Natural Resources Canada’s CanVec dataset...’ Or: ‘When displaying the zoning shapefile with the projection of the mentioned hydrology data...’	Revise the text for clarity.
Part 1: GIS Protocols and Methodology; Page 4/145 – Shapefile Information -	Lines 2-3 read: “Due to map scale, the boundaries of the shapefile are not to be used at scales larger than 1:50,000, as they will not be accurate at larger scales.”	Propose revising the text to: “Due to the 1:50,000 scale at which the zoning boundaries were created, the boundaries should not be displayed using base data layers or other data layers at larger or smaller scales as they will not line up.”

Disclaimer, line 2-3	The meaning of this sentence is unclear.	
Part 1: GIS Protocols and Methodology; Page 4/145 – Shapefile Information - Disclaimer, lines 5-6	The sentence reads: “In the event of a discrepancy between the SLUP and its zoning shapefile, what is written in the SLUP will take precedence.” The meaning of this statement is unclear as the zone boundaries are not described in the SLUP. The word ‘Amendment’ is inappropriately capitalized.	Revise the text for clarity.
Part 1: GIS Protocols and Methodology; Page 5/145 – Shapefile Information - Shapefile updates, line 7		Do not capitalize ‘amendment’.
Part 1: GIS Protocols and Methodology; Page 5/145 – Shapefile Information - Metadata, line 2	Spelling correction required.	Change ‘being displaying’ to ‘being displayed’.
Part 2: Physical Limits Zone Descriptions; Page 7/145 - Qhdarah Túé (Marion Lakes) SMZ, lines 1-3	It is unclear why the western and southern boundaries are based on the generalized boundaries of Level IV ecoregions. Which Level IV ecoregions are they based on? The metes and bounds do not mention any Level IV ecoregions.	Include which Level IV ecoregions the boundaries are based on.
Part 2: Physical Limits Zone Descriptions; Page 31/145 – Great Bear Lake Watershed SMZ	Does this zone include the entire watershed within the Sahtu Settlement Area? There are various other SMZs and CZs within the GBLW boundary. Does this result in overlapping SMZs or GBLW SMZ overlapping with conservation zones or established protected area zone (Saoyú ?ehdacho)?	Revise text for clarity.
Part 2: Physical Limits Zone Descriptions; Page 56 – Mackenzie Mountains SMZ, paragraph 1	It is not clear how the Level IV ecoregion boundaries were used to include in the metes and bounds description. Was the boundary created first using the selection described in this paragraph and then metes and bounds developed to fit that boundary? How does this differ from the boundary for the 2013 SLUP and how was the boundary in the 2013 LUP delineated?	Revise text for clarity.
Part 2: Physical Limits Zone Descriptions;	Please note that a legal description by NRCan of the boundary of the area of the signed establishment	Any boundaries of the PCI that are the same as the final boundary should line up with the final boundary and the legal description from the final boundary

Page 140/145 - Ts'udé Nijlíné Tuyeta	agreement exists.	should be used for those sections. GNWT can provide shapefile of final boundary.
Part 2: Physical Limits Zone Descriptions; Page 142/145 – Tuktut Nogait, line 2	This sentence reads: “As there never was an initiative to amend the <i>Canada National Parks Act</i> to include this expansion of Tuktut Nogait...”	Revise to: “As the <i>Canada National Parks Act</i> has not yet been amended to include Tuktut Nogait National Park...”
Community Boundaries & General Use Zones; Page 145/145 – Saoyú ʔehdacho	Saoyú ʔehdacho is an established National Heritage Site and Parks Canada likely has a legal description for the area. Furthermore, Parks Canada submits its boundaries for Saoyú ʔehdacho to a national protected areas database. It is not advisable that different versions of the same boundary are created without consulting Parks Canada first.	Consult with Parks Canada.

Additional Proposed Amendments		
Section	Comment(s)	Recommendation(s)
Section 3.3 General Conformity Requirements, CR #3 - Community Benefits	Under paragraph 3, the creation of <i>knowledge</i> may better reflect a benefit to the broader public. It is also unclear what type of revenue is being referred to. To whom is the revenue accruing as a benefit to the broader public?	Consider changing creation of new data/information to “creation of new knowledge”. Consider clarifying the type of revenue and/or who it is accruing to. Is it tax revenues accruing to the territorial and federal government or to the local government? If it is revenues to the communities or community governments then it should be captured under community benefits above.
Section 3.3 General Conformity Requirements: CR #7- Fish and Wildlife	Bullet 2c. “Barren-ground caribou and woodland caribou are especially important to communities and have been shown to be sensitive to disturbance. Map 3 shows important rutting and wintering habitat for barren-ground caribou (Oct 8-Mar31), boreal and northern mountain woodland caribou range, and the summer habitat of the South Nahanni Herd of Northern Mountain Woodland Caribou. All land use activities occurring in these areas <u>during the specified times</u> are required to address impacts to caribou and their habitat.” The Sahtu Land Use Plan does not currently identify the “specified times” for boreal and northern mountain woodland caribou during which proponents would be required to address impacts to caribou and their habitat.	Tables 1 and 2, provided in Appendix I at the end of this document, describe different seasonal activity periods for boreal and mountain woodland caribou along with a description of the relative risk to caribou for operating within those periods and biological rationale for those rankings. The SLUPB could use these as a guide to identify the specified times for boreal and mountain woodland caribou when proponents would be required to address impacts to caribou and their habitat. An alternative and simpler approach might be to explicitly state that proponents of land use activities are required to address impacts to caribou and their habitat: - at all times of year when operating within the ranges of northern mountain woodland caribou, boreal woodland caribou - between May 21 – Sept 24 when operating within the portion the South Nahanni Herd that overlaps with the Sahtu Settlement Area - between Oct 8 – Mar 31 when operating within the portions of the Bluenose West and Bluenose East fall-winter core ranges that overlap with the Sahtu Settlement Area
Section 3.3 General Conformity Requirements: CR #7- Fish and Wildlife, Table 4 (Table 1 in amendment application package)	This table specifies horizontal and vertical setback distances for a variety of wildlife species and habitat types. There are no horizontal or vertical setback distances provided for boreal, mountain or barren-ground caribou.	Add a row to Table 4 for caribou with a minimum of flight altitude of 600 m during the most sensitive times of year (calving, post-calving and rutting), and a minimum altitude of 300 m at other times of year. This is consistent with GNWT-ENR’s “Flying Low? Think Again...” guidelines, and the Government of Yukon’s “Flying in Caribou Country – How to minimize disturbance from aircraft” guidelines.
Acronyms and Section 1.5.2: Goals	When referring to the NWT Cumulative Impact Monitoring Program, it is important to ensure that	As such, three additional amendments to the SLUP are recommended: • Amendments to add to List of Acronyms:

	'NWT' is part of the name or acronym.	○ Remove "CIMP; Cumulative Impact Monitoring Program" ○ Add "NWT CIMP; NWT Cumulative Impact Monitoring Program" ● Amendment to add to Section 1.5.2 Goals: ○ Page 13, paragraph 2, bullet point g), line 3: Replace "Cumulative Impact Monitoring Program (CIMP)" with "NWT Cumulative Impact Monitoring Program (NWT CIMP)".
Section 3.3 General Conformity Requirements: CR #9 – Sensitive Species and Features	There is a single ice patch that lies outside the areas delineated under CR #9. This ice patch is currently recorded in the Sahtu Land Use Plan as an archaeological site.	Correct misclassification of ice patch that been recorded as an archeological site. Ice patch information can be provided by the GNWT.

APPENDIX I

The information in this appendix is provided to support the GNWT's additional proposed amendment to Section 3.3, CR#7 – Fish and Wildlife (page 7 in GNWT Comments).

Table 1. Seasonal activity periods for boreal caribou and the associated level of risk to boreal caribou if conducting development activities during those periods*

Activity period	Timing	Risk Category	Caribou Ecology / Rationale
Early Winter	26 Oct - 12 Jan	Lowest	
Mid Winter	13 Jan - 21 Mar	Medium	
Late Winter	22 Mar - 5 Apr	Highest	Lowest daily movement rates; caribou in largest groups at this time of year; narrow range of habitat types selected; increased energetic costs of moving through deep snow.
Dispersal	6 Apr - 30 Apr	Medium	Females spread out to find suitable calving sites; vulnerability during late gestation, period of higher adult female mortality; wider range of habitat types used during dispersal.
Calving / Post-calving	1 May - 12 Jul	Highest	Calves most susceptible to mortality during this period.
Summer	13 Jul - 8 Sept	Medium	Period of higher susceptibility to mortality for adult females; critical period for females to regain body condition; wider range of habitat types used during summer than winter.
Early Fall	9 Sept - 25 Sept	Lowest	
Peak Rut	26 Sept - 10 Oct	Medium	Disturbance during peak rut could result in lower pregnancy rates. More individuals susceptible to disturbance since they are in larger groups at this time of year.
Late Fall (excluding Peak Rut)	26 Sept - 25 Oct	Lowest	

*Note: Based on seasonal date ranges defined by Nagy (Nagy 2011) and presented in the NWT Species Status Report for Boreal Caribou (*Rangifer tarandus caribou*) in the Northwest Territories (Species at Risk Committee 2012), which were based on changes in movement rates from collared female caribou. These date ranges were further refined as part of a current NWT boreal caribou resource selection function modeling project that includes more recent collar data collected over a broader area of the NWT boreal caribou range (ENR, unpublished data). Caribou ecology/biological rationale comments are based on BC MOE 2009 and ENR (unpublished data).

Table 2. Seasonal activity periods for northern mountain woodland caribou**

Activity period	Redstone Herd	South Nahanni Herd	Risk Category	Caribou Ecology / Rationale
Calving / Post-calving	26 May - 23 June	21 May - 24 Sept	Highest	During calving, adult female caribou are highly dispersed in high elevation mountainous terrain as an anti-predator strategy (Farnell and Russell 1984, Gullickson and Manseau 2000, Weaver 2008, Bergerud et al. 1984). By mid-June, female caribou and calves group up into post-calving aggregations (Collin 1983, Gullickson and Manseau 2000). Calves most susceptible to mortality during this period. Disturbance to pregnant females can impact female body condition and growth/survival of calves. High energetic demands for pregnant and lactating females. Young calves more vulnerable to predation.
Early Summer	24 June - 23 July	NA	Medium	Increased movement rates; start moving towards summer areas that are closer to winter ranges (Creighton 2006, Nagy 2011, Parks Canada 2017a). During summer, caribou move to more open habitats at higher elevations and use snow patches to avoid insects Gill 1978, Kershaw and Kershaw 1982a, 1983, Collin 1983, Ion and Kershaw 1989, Gullickson and Manseau 2000, Creighton 2006; Weaver 2008)
Mid-/late summer	24 July - 11 Sept	NA	Medium	Slower movement rates. By mid-August, snow patches are generally restricted to

Pre-Rut/Rut	12 Set – 25 Oct	25 Sept – 15 Oct	High	higher elevations and occur primarily on north, northeast, or east aspects (Ion and Kershaw 1989). Increased movement rates; movement towards winter ranges (Creighton 2006, Nagy 2011, Parks Canada 2017a). Disturbance during peak rut could result in lower pregnancy rates. More individuals susceptible to disturbance since they are in larger groups at this time of year.
Late fall	26 Oct – 25 Nov	16 Oct – 31 Dec	Low	Increased movement rates; movement towards winter ranges (Creighton 2006, Nagy 2011, Parks Canada 2017a).
Winter	26 Nov – 24 April	1 Jan – 15 April	Medium	Slower movement rates. During winter, northern mountain caribou in the NWT primarily use open spruce forests in valley bottoms where they forage primarily for terrestrial lichens (Simmons 1970a, Lortie 1982, Farnell and Russell 1984, Gullickson and Manseau 2000, Weaver 2006, 2008, O'Donoghue 2013). Slower movement rates; caribou switch from maximizing nutrient intake to minimizing energetic costs associated with movement. Interrupting foraging could prevent caribou achieving daily energy requirements.
Spring migration	25 Apr – 25 May	16 April – 20 May	Low	Movement towards calving areas; during spring migration, caribou generally use low elevation valley bottoms for travelling where snow accumulation is presumably lower than at high elevations (Gullickson and Manseau 2000, Creighton 2006, Weaver 2006, 2008). Diverting or delaying migration to calving areas could be detrimental to calf survival.

** Note: Based on the Redstone herd and South Nahanni herds (source: Nagy 2011, Weaver 2006), and the associated level of risk to mountain caribou if conducting development activities during those periods (adapted from BC MOE 2009 and Government of Yukon 2010, and other references provided in the Table).

References

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