

Range Management Policy in Support of Woodland Caribou Conservation and Recovery

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1 PREAMBLE AND LEGISLATIVE CONTEXT

Woodland Caribou (*Rangifer tarandus caribou*) (Forest-dwelling boreal population), ('caribou'), is listed as a threatened species on the Species at Risk in Ontario List (O. Reg. 230/08 under the Endangered Species Act). As a threatened species, caribou receive both species and habitat protection (i.e. damage of habitat or harming caribou is prohibited). Section 11 of the Endangered Species Act (ESA) requires recovery strategies and government response statements to be prepared within prescribed timelines for species listed as endangered or threatened. In 2008, the *Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou) (Forest-dwelling, Boreal population) in Ontario* (Ontario Woodland Caribou Recovery Team 2008) was finalized. The recovery strategy provides scientific advice to the Minister of Natural Resources and Forestry (MNRF) on how to protect and recover caribou in Ontario. In response to the recovery strategy, Ontario's Ministry of Natural Resources (MNR) released the government's response statement, known as Ontario's Woodland Caribou Conservation Plan ('CCP') (MNR 2009a) in October 2009. The CCP outlines the government's goal for the recovery of caribou, provides broad policy direction and identifies actions the Ontario government intends to take to conserve and recover caribou in Ontario.

Ontario's caribou conservation goal is, "*To maintain self-sustaining, genetically-connected local populations of Woodland Caribou (forest-dwelling boreal population) where they currently exist, improve security and connections among isolated mainland local populations, and facilitate the return of caribou to strategic areas near their current extent of occurrence*" (MNR 2009a).

The CCP identifies 'local population ranges' ('ranges') as the appropriate biological scale at which to plan and make resource management decisions consistent with caribou conservation, and prescribes adoption of a Range Management Approach. The Range Management Approach acknowledges that caribou rely directly and indirectly on the entire range (comprised of sub-range habitat features including high use areas, seasonal ranges and remaining areas within the range) to carry out their life processes (MNR 2013a). At the broad range scale, caribou require large, undisturbed areas of old or mature conifer upland forest and lowlands dominated by jack pine (*Pinus banksiana*) and/or black spruce (*Picea mariana*) (MNR 2013a). At smaller sub-range scales, caribou seasonally select specific habitat

features and areas that support successful reproduction and calf-rearing, provide summer and winter forage, and/or facilitate movement between discrete areas of use (MNR 2013a). In a healthy, boreal ecosystem, the distribution or connectivity of these features may shift through time. However, caribou persistence within a range is dependent on having enough habitat for caribou to separate themselves out from higher predator densities and other effects associated with anthropogenic and natural disturbances.

The Range Management Approach is an example of implementing a broad landscape approach (MNR 2012a) that considers risk (i.e. the likelihood and severity of an adverse effect) in decision-making within an adaptive management framework. The Range Management Approach will support caribou conservation and recovery through informed planning and decision-making. This involves managing both broad range-level influences and impacts including cumulative disturbance, and habitat amount and arrangement, as well as smaller scale components including the ecological function of sub-range habitat features, which result in a caribou demographic response (i.e. increasing, stable or declining population trend) within the range.

The protection and recovery of species at risk, including caribou, requires new tools, and collaborative and innovative approaches to interpreting and applying a wide array of existing policies and planning mechanisms. Achievement of Ontario's caribou conservation goal is a shared responsibility and requires cooperative adoption of the *Range Management Policy in Support of Woodland Caribou Conservation and Recovery* ('Range Management Policy') by provincial agencies, organizations, individuals and communities. MNRF will work with other land/resource agencies to collaborate on land use and resource management planning and decision-making to identify opportunities to support caribou conservation and recovery.

Ontario's caribou population is a component of the threatened national boreal caribou population (*Species at Risk Act 2002*). Actions taken to conserve and recover caribou in Ontario will contribute to maintaining genetic connectivity of the national population. Implementation of the Range Management Approach, described by this policy will constitute range plans that consider the requirements and direction in the *Recovery Strategy for the Woodland Caribou (Rangifer tarandus caribou), Boreal population, in Canada* (Environment Canada 2012) and the protection of critical habitat under the federal *Species at Risk Act*.

2 KEY CONCEPTS

Range: a broad geographical area used by a caribou population that provides both present and future habitat needs.

Range Condition: refers to the likelihood that a range is able to support a self-sustaining caribou population.

Self-sustaining: a caribou population that demonstrates stable or positive population growth over the short term, and is large enough (number of caribou) to persist over the long term without external intervention or support.

3 PURPOSE

This policy is MNRF's approach to implementing the Range Management Approach to support Ontario's conservation goal for caribou. This policy works within MNRF's mandated legislative frameworks, and provides direction on the integration of range condition into activity review and assessment, and when planning and authorizing activities within caribou ranges. This policy supports the processes through which these decisions are made and recognizes their associated public and Aboriginal consultation requirements. This policy informs other agencies, organizations and individuals of MNRF's approach to range management and establishes a framework within which MNRF will advise, where MNRF contributes expertise to inform decision-making but is not the authorizing agency. The direction in this policy supports the implementation of the protection provisions afforded to caribou under the ESA.

4 AREA OF APPLICATION

This policy applies to the area of continuous distribution of Woodland Caribou (Forest-dwelling boreal population) (*Rangifer tarandus caribou*), in Ontario (Figure 1), excluding the Lake Superior Coast Range.



Figure 1. Area of application for the Range Management Policy in Ontario.

5 POLICY OBJECTIVE AND PRINCIPLES

Population trend (i.e. increasing, stable or decreasing) is an indicator of self-sustainability and current science indicates that the trend is reflective of the state of the habitat within a range (i.e. amount of cumulative disturbance, and habitat amount and arrangement). It is population trend that ultimately influences the classification of range condition. Consequently, caribou conservation is achieved when a population is stable or increasing and range condition is considered sufficient to sustain caribou.

The objective of this policy is, 'To maintain or move towards a sufficient range condition in all caribou ranges in Ontario'

This objective will be achieved through the consideration of range condition in activity review and assessment and the collective implementation of the following principles in planning and decision-making (see section 6.3). It is expected that the application of these principles will result in a desired change in population trend and support achievement of the policy objective.

Principle 1 – Cumulative disturbance:

Ranges will be managed such that the amount of cumulative disturbance remains at or moves towards a level that supports a self-sustaining caribou population.

Rationale:

Caribou have evolved in a landscape affected by varying degrees of natural disturbance (e.g. forest fire, insects, blowdown); however the persistence of a caribou population within a range is influenced by the amount of cumulative disturbance (anthropogenic and natural) within that range (Environment Canada, 2011). As cumulative disturbance increases, the likelihood of the caribou population persisting decreases. The amount of cumulative disturbance is one of the lines of evidence used to determine overall range condition. Environment Canada (2008 and 2011) has produced an empirical model that predicts the likelihood of persistence of a given caribou population relative to the amount of cumulative disturbance within a range. This model or an equivalent (e.g. population viability analysis) should be used when estimating the likelihood of caribou persistence within a range.

Principle 2 – Habitat amount and arrangement:

The amount and arrangement of habitat within a range will be managed consistent with the level that has been estimated to occur in natural landscapes.

Rationale:

Science-based simulation models and historic survey notes have been used to estimate the natural forest condition (pre-European settlement) within each range (Elkie et al. 2012). These estimates and the degree of uncertainty associated with them are known as simulated ranges of natural variation (SRNV). Maintaining or moving towards the estimated amount of habitat that is within the middle fiftieth percentile of the SRNV is assumed to provide a habitat condition that avoids extreme conditions that may increase risk to caribou. In areas where SRNV are not available, such as ranges in the Far North other information and data (e.g. resource selection function models) may be used to support decisions regarding habitat amount.

Science-based simulation models have also been used to estimate the arrangement (i.e. distribution and connectivity) of habitats within each range (Elkie et al. 2012). These estimates are quantified using histograms representing the habitat distribution at two scales: 6,000 ha and 30,000 ha. Maintaining or moving towards these estimates of habitat arrangement is assumed to provide a habitat condition that avoids extreme conditions that may increase risk to caribou. In areas where estimates of natural levels of habitat arrangement are not available, such as ranges in the Far North, other information and data to support these decisions may be used. Managing for habitat arrangement within and across ranges is particularly important to address range recession along the southern edge of woodland caribou continuous distribution.

Principle 3 – Sub-range habitat features:

Within a range, forest composition, pattern and structure will be managed to promote the maintenance of the ecological function of sub-range habitat features for caribou in the context of range condition.

Rationale:

Caribou require large interconnected tracts of old and mature conifer forest and peatlands in order to isolate themselves from predators. Caribou ranges consist of sub-range habitat features (i.e. biophysical attributes), including high use areas, seasonal ranges, and remaining areas within the range (i.e. areas that have the biophysical features and forest composition that in the future may be consistent with seasonal ranges, yet are currently young or disturbed) (MNR 2013a). Activities which impair or eliminate the connectivity of sub-range habitat features are likely to adversely affect the ecological function of sub-range habitat features. Range condition informs the relative significance of these sub-range habitat features in supporting caribou persistence.

6 THE RANGE MANAGEMENT APPROACH

The Range Management Approach involves managing cumulative disturbance, and habitat amount and arrangement, and the ecological function of sub-range habitat features, which collectively influence caribou population trend (i.e. increasing, stable or declining) and ultimately influence classification of range condition.

The Range Management Approach involves an orderly application of the following steps:

1. Range delineation;
2. Integrated range assessment and determination of range condition;
3. Integration of the Range Management Policy into planning and decision-making; and,
4. Monitoring, evaluating and reporting on policy implementation effectiveness.

6.1 Range Delineation and Revision

The area of continuous caribou distribution is sub-divided into ranges (MNRF 2014b) (Figure 2). Ranges serve as the geographic basis for identifying caribou habitat, and evaluating population and habitat states (MNR 2009a).



Figure 2. Caribou ranges in Ontario.

Range boundaries have been delineated following the criteria described in the *Integrated Assessment Protocol for Woodland Caribou Ranges in Ontario* (MNRF 2014a). All range boundaries are mapped and publicly available (LIO, 2014).

Range boundaries may be adjusted to reflect new knowledge derived from the findings of research studies or Integrated Range Assessments or revised delineation criteria.

6.2 Integrated range assessment and determination of range condition

Range condition is based on four lines of evidence for each range – population size, population trend, habitat disturbance and the amount and arrangement of habitat. Range condition is determined for each range through an Integrated Range Assessment conducted following the *Integrated Assessment Protocol for Woodland Caribou Ranges in Ontario* (MNRF 2014a) and documented in an *Integrated Range Assessment Report* (IRAR). Each line of evidence informs a different aspect of range condition; however population trend is the primary line of evidence influencing determination of range condition.

IRARs have been prepared and are publicly available for each range documenting range condition and supporting data, analyses, interpretation and results from the IRA that informed the determination of range condition. The IRARs are a valuable resource for decision-makers involved in implementing the range management approach. The supplemental information contained in IRARs which supported the determination of range condition will be considered in planning and decision-making.

Range condition is expressed along a continuum representing the relative ability of a range to support a self-sustaining caribou population. This continuum references three broad categories of range condition and can generally be described relative to the lines of evidence that inform determination of range condition:

- 1) **Range condition is *sufficient* to sustain caribou** – generally these ranges have a stable or increasing population trend, low amounts of disturbance, and an amount and arrangement of habitat that is consistent with the SRNV.

- 2) **Uncertain if range condition is sufficient to sustain caribou** – generally these ranges have one or more of the following characteristics: an unknown or declining population trend, moderate amounts of disturbance, and an amount and arrangement of habitat that is inconsistent with the SRNV.

- 3) **Range condition is *insufficient* to sustain caribou** – generally these ranges have a declining population trend, high amounts of disturbance, and an amount and arrangement of habitat that is inconsistent with the SRNV.

6.3 Integrating the Range Management Policy into Planning and Decision-making

Planning and resource management decisions are typically made on a case by case basis, potentially influencing the ecological function of one or more sub-range habitat features. These decisions can collectively result in a caribou demographic response and ultimately influence range condition. Effective decision-making requires an awareness and consideration of the population and habitat states within each range that have informed the determination of range condition (see section 6.2).

This section provides direction on the integration of range condition into activity review and assessment ('activity assessment') in the context of species and habitat protection under the ESA, which informs planning and decision-making. It supports the preliminary screening phase and other elements of the *Endangered Species Act Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits* (MNR 2012c).

As necessary, additional guidance which describes the integration of the range management policy into land use and resource management planning processes will be developed and made publicly available. All MNRF-led planning and decision-making will be consistent with meeting the policy objective.

Where MNRF does not have the primary legal responsibility for authorization of activities on Crown Land, or where it is a commenting agency for other Government processes, advice will be consistent with this policy.

6.3.1 Activity Review and Assessment:

As a threatened species, caribou receive species and habitat protection under sections 9 and 10 of the ESA. Activities will be assessed to determine whether an activity would comply with the Act.

In the early stages of planning an activity, the Best Management Practices (BMPs) for Woodland Caribou in Ontario series will be consulted to explore options to comply with the ESA (i.e. no adverse effects on caribou or their habitat). The BMP series describe techniques, methods, or processes that can be applied to avoid, or mitigate adverse effects, and reduce threats to caribou when planning or undertaking activities within a range, and contribute to achieving the objective of the Range Management Policy (MNR 2013c). Where avoidance of adverse effects is not feasible, compliance with the ESA would require an authorization.

Not every activity that occurs near a caribou will have an adverse effect on it. Determining whether a proposed activity is likely to kill, harm, or harass a caribou requires the consideration of the biology and behaviours of the species, the activity details and how the activity may affect caribou's ability to carry out its life processes (MNRF 2014c). For more information on section 9 of the Endangered Species Act, refer to *Policy Guidance on Harm and Harass under the Endangered Species Act* (MNRF 2014c).

Not every activity that occurs within or near caribou habitat will damage or destroy it. The *General Habitat Description for Woodland Caribou (Forest-dwelling boreal population) (Rangifer tarandus caribou) in Ontario* ("general habitat description") describes the entire range as habitat and categorizes the range into sub-range habitat features including high use areas, seasonal ranges and remaining areas within the range (MNR 2013a). Habitat categorization provides a framework for identifying which areas of habitat a species may be able to tolerate more or less alteration to (MNR2012b). It also informs the likelihood to kill, harm or harass a caribou, specifically when activities are proposed near high use areas. Determining whether a proposed activity is likely to damage or destroy habitat requires the consideration of the activity details, which parts of habitat are likely to be altered by the activity, and how the alteration may affect the species' ability to carry out its life processes. For more information on section 10 of the Endangered Species Act and habitat categorization, refer to *Categorizing and Protection Habitat under the Endangered Species Act* (MNR 2012b). For activities affecting caribou, the determination of whether a particular activity is likely to comply with the ESA also includes a consideration of the range condition (Figure 3).

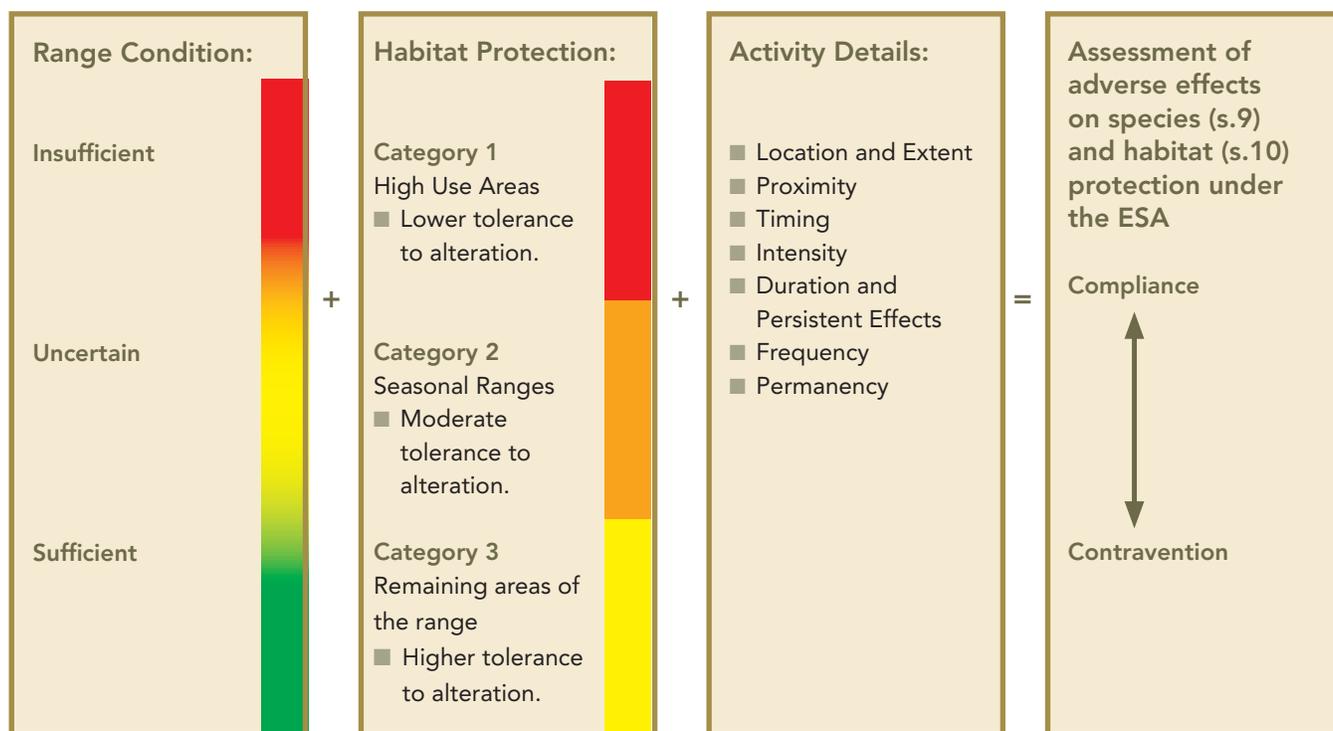


Figure 3. Integration of range condition into the Activity Review and Assessment process for caribou.

Range condition informs the relative tolerance of the range to alteration and the determination of the risk a particular activity would pose for caribou (i.e. the likelihood that an activity may occur in caribou habitat while complying with the ESA) (Figure 4). Range condition also informs the relative significance of sub-range habitat features. Generally, where range condition is sufficient, there will be increased tolerance to alteration in all three habitat categories and an increased likelihood that alteration may occur while complying with the ESA. Conversely, where range condition is insufficient, there will be less tolerance to alteration in all three habitat categories and an increased likelihood of a contravention under the ESA.

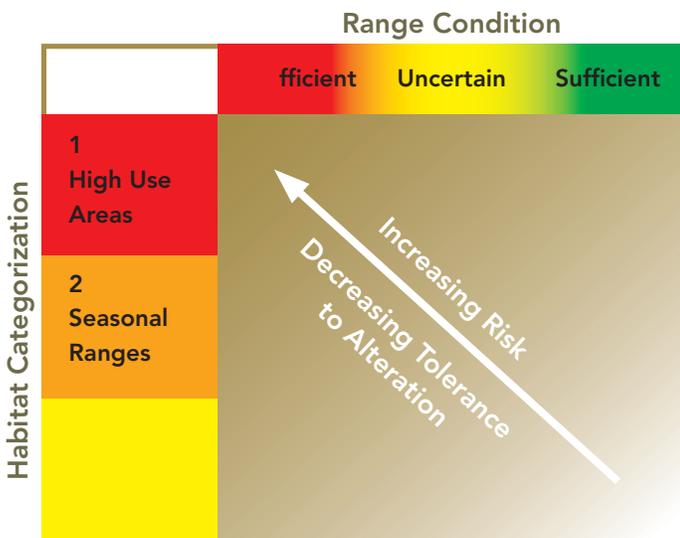


Figure 4. Relative risk to caribou and tolerance to alteration, based on range condition and habitat categorization.

MNRF will use decision support tools (e.g. Ontario’s Caribou Screening Tool (“CST”)) during activity assessment. The CST reports on how an activity affects cumulative disturbance and habitat amounts, and describes the activity location relative to delineated sub-range habitat features. MNRF will maintain current landscape databases for decision support as proposals are planned and implemented in the area of continuous distribution of caribou.

Activities should be evaluated in the context of existing land use direction (e.g. Far North Community Based Land Use Plan) and resource management plans (e.g. Forest Management Plans) for consistency with the direction or planning objectives.

Where caribou range boundaries intersect multiple administrative boundaries (e.g. district, Forest Management Unit), planning and decision-making should be coordinated. As well, where activities are planned near range boundaries, the adjacent range condition and the potential effects of decisions on the functions of adjacent sub-range habitat features should be considered in the activity assessment.

Similarly, where ranges cross provincial boundaries, Quebec and Manitoba, should be engaged to inform planning and decision-making in these areas.

6.3.2 Assessment Outcomes:

Where an activity would be unlikely to comply with the ESA, an authorization or compliance with a provision of Ontario Regulation 242/08 may be required unless it is possible to modify the activity such that there are no adverse effects.

In the case of an overall benefit permit, minimizing adverse effects on caribou will reduce the efforts necessary to achieve an overall benefit for the species. Generally, the relative severity of the adverse effect of an activity on caribou and their habitat is influenced by the range condition. Where range condition is sufficient, the relative severity of an adverse effect will generally be less in all habitat categories and requirements to achieve overall benefit less than where range condition is insufficient.

The BMP series should be considered for minimizing adverse effects, where required.

6.4 Monitoring, Evaluation and Reporting

The Range Management Approach operates within an adaptive management framework. When applied to planning and decision-making, through an informed activity assessment, the policy objective should be met. The objective is to ultimately provide for self-sustaining populations of caribou and contribute to the achievement of Ontario’s caribou conservation goal. It is recognized that this is a long-term goal.

Integrated Range Assessments will be used to evaluate implementation success through the monitoring of caribou population and habitat states following the *Integrated Assessment Protocol for Woodland Caribou Ranges in Ontario* (MNRF 2014a). Prioritizing and scheduling of future Integrated Range Assessments will consider time since the last Integrated Range Assessment was completed, the availability of new knowledge, and range condition.

The Range Management Policy principles are based on a set of management hypotheses, which when applied collectively in planning and decision-making are expected to support achievement of the policy objective. These hypotheses explore the nature of the relationship between cumulative disturbance and caribou recruitment, and managing the amount and arrangement of caribou habitat at multiple scales. The results of these evaluations will be used to inform future policy reviews.

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