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January 3, 2020

Sent by email: James.Hallworth@ontario.ca

Re: Stage Two - Review of Proposed Long-Term Management Direction for the 2021-2031 Forest Management Plan for the Trout Lake Forest (ERO 019-0985)

Dear Mr. Hallworth:

Thank you for the opportunity to provide comments on the "Long-term Management Direction (LTMD) for the Trout Lake Forest 2021-2031 Forest Management Plans". We have reviewed the summary documents provided and are submitting this feedback in our capacities as Wildlife Conservation Society (WCS) Canada ecologists with significant and direct experience in the assessment, research, stewardship, and recovery of species at risk in Ontario and Canada.

WCS Canada is a national non-government organization with conservation science programs in Ontario since 2002, with a particular focus on the far north. We have currently or in the past led active research programs on wolverine, caribou and lake sturgeon, and have collaborated closely with the MNRF. One of us (Dr. Justina Ray) was a member of the Far North Science Advisory Panel, the Ontario Provincial Caribou Technical Committee, the Ontario Wolverine Recovery Team, and the Committee on the Status of Species at Risk in Ontario (COSSARO), as well as the co-chair of the terrestrial mammals subcommittee for COSEWIC and a member of the Science Advisory Group for Critical Habitat (federal). Dr. Matthew Scrafford leads our Ontario program, and has led our wolverine research in the province since 2017. Matthew currently leads a wolverine telemetry study in Red Lake, Ontario that is funded in part by SAR. Part of this study occurs on the Trout Lake Forest where our primary aim is to collect information on wolverine movement and habitat selection relative to forestry to better formulate best-management practices for wolverine habitats. We also did field work on wolverines and other large mammals in the area in 2003-5, yielding a number of published papers.

In these comments, we highlight four main topics including: 1) the inadequacy of the Trout Lake Forest LTMD to address the potential effects of new road development on boreal wildlife; 2) the inadequacy of the LTMD to measure and address cumulative effects as they pertain to caribou and wolverine; 3) the lack of a management plan for the "Z-Blocks"; and 4) insufficient consideration of wolverine habitat in the LTMD.

Roads

We recognize the necessity of roads to provide access to timber resources, but we see little evidence of strategic considerations for road building and restoration as this relates to ecological sustainability. While we do not have access to the document "Primary Road Planning Supplementary Documentation", we are sufficiently familiar with provincial forest management planning processes to know that such processes

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do not adequately consider how disturbance related to old, existing or new roads influence ecological sustainability, nor do they recognise cumulative habitat change incurred in forests as a result of other forms of human or natural disturbances coincidental with, or stimulated by, enhanced access through primary forest roads.

Landscape quality for any wildlife species is not a current consideration in roads planning (except for specific AOCs) for forest management plans in Ontario. However, there is abundant evidence that roads create poor habitat for boreal wildlife (see Robinson et al. 2010). For example, wolves (*Canis lupus*) will use roads for increased travel efficiency and such access facilitates higher kill rates of caribou (*Rangifer tarandus*) – one of the primary causes of caribou decline in boreal forests (Newton et al. 2017; Muhly et al. 2019 and references therein). Likewise, there is evidence that wolves will kill wolverines along roads in the boreal forest (Scrafford et al. 2017) and that roads reduce available habitat for wolverines (Scrafford et al. 2018). Moreover, our previous work on the Trout Lake Forest indicated road density is an important predictor of the occurrence of all 5 large mammal species (Bowman et al. 2010).

The LTMD includes building 224 km of new primary roads to access timber. However, there is no mention of the amount of new secondary and tertiary roads that are going to be built. Moreover, there is no mention of a plan to rehabilitate logging roads that are being created or those that are not in use anymore. We suggest that this increased road building without advance consideration of habitat restoration will reduce habitat quality and have population-level effects on both caribou and wolverines which are *Threatened* under Species at Risk Ontario (2008).

Moreover, we suggest that managing road density to be 0.40 km/km^2 at the scale of the Trout Lake FMU (as suggested in the LTMD) is inadequate and that road density should instead be managed continuously across the FMU. This is because managing road density at the scale of the Trout Lake FMU allows clustered road development at high densities (e.g., Snake Falls Road), which ultimately creates poor habitat, or sinks, for boreal wildlife. We also are unsure why the threshold for road density is set at 0.40 km/km^2 and would appreciate clarification on this threshold.

Overall, the LTMD is missing critical information to allow proper evaluation and mitigation of roads impacts, and should include:

1. The length of new secondary and tertiary roads that will be built to access timber (only primary roads are included in the LTMD);
2. Mean, minimum, and maximum road densities throughout the Trout Lake Forest instead of a single mean for the entire forest;
3. A heat map that displays road densities along a continuous surface so we can visualize road densities at a finer scale;
4. A plan for decommissioning and restoring roads that are not in use anymore - especially in areas where road densities are high;
5. An integrated roads strategy with landscape-level habitat considerations for cumulative effects and habitat restoration relative to the caribou ranges (Berens and Churchill) with which this FMU intersects and forest-management planning at the range level (see below); and
6. An ecological justification for the road density threshold of 0.40 km/km^2 on the Trout Lake FMU, including plans for how to adapt this threshold with new evidence (adaptive management).

Cumulative disturbance and caribou range management

Strong evidence for a relationship between cumulative disturbance and population condition in caribou ranges serves as the basis for critical habitat in the federal recovery strategy for boreal caribou, and several Ontario policies and assessments, including Caribou Conservation Plan, the integrated range assessments of boreal caribou ranges published in 2014, and Ontario's "Range Management Policy in Support of Woodland Caribou Conservation and Recovery". The former Ontario Provincial Caribou Technical Committee first alerted MNRF in 2012 that provincial forest management planning addresses neither the requirements of the Caribou Conservation Plan (as obliged under the provincial ESA) nor critical habitat effective protection (as obliged under the federal Species At Risk Act, SARA). While it represents an important step forward in landscape-level management, the insufficiency of the Boreal Landscape Guide by itself to manage caribou habitat can be partly explained by the scale mismatch between the Forest Management Units and the size of area (the ranges) required by caribou populations. Even more fundamentally, however, the landscape guide and this LTMD document provides no consideration of the contribution of forest management activities over time to cumulative disturbances (including roads, railways, mining, hydro, wildfires, etc.) within the two caribou ranges, which is a key documented risk to caribou. The Boreal Landscape Guide, therefore, does not contain the best available science to manage boreal caribou. Rather, management of caribou habitat is based on amount and arrangement of modeled habitat, dispersing blocks of disturbance (including roads) across a broader landscape (the Dynamic Caribou Habitat Schedule) without regard to overall cumulative disturbance at either the FMU scale or that of the relevant caribou ranges (Berens and Churchill) in which the FMU is situated.

An additional issue that handicaps caribou management in this LTMD is the lack of population monitoring. The last surveys were conduced in 2012-2013, with evidence of poor recruitment and population health at that time. This information was well documented in the integrated range assessment for Churchill and Berens ranges, published in 2014. The lack of regular survey attention means that many caribou data used to inform even the DCHS are outdated, and effectiveness of the DCHS cannot be evaluated. We note with concern in this light, that the "Risk assessment" portion of the LTMD summary does not mention risk to achieving provincial goals for boreal caribou conservation (or protection of federal critical habitat).

We recommend that the LTMD:

1. Calculate cumulative disturbance levels (in accordance with Elkie, P. & K. Green. 2018. Cumulative impacts monitoring 2018 estimates: disturbance models and simulated ranges of natural variation. Ontario Ministry of Natural Resources) to allow for consideration of this plan in the context of Ontario's caribou range management policy.
2. Include risk of caribou population decline as a discussion point in the Risk Assessment section, given lack of current information on population health and high levels of disturbance in the Churchill range in particular;

"Z-Blocks" Management

The LTMD does not mention a specific long-term management plan for the "Z-Blocks". In many ways, the "Z-Blocks" appears to be utilized heavily because they are near to Highway 105 and therefore economically efficient to harvest. However, this should not mean that this area is "sacrificial". There are "Z-Blocks" that border or are part of F01's denning area (reproductive female we are monitoring on the Trout Lake Forest) and therefore require careful planning. We suggest that a long-term and transparent management plan be made for "Z-Blocks" or that it be incorporated into the DCHS.

Wolverines as an Indicator Species

We note that in contrast to caribou, wolverines are not included as an indicator species for the LTMD. Both species are *Threatened* under the Ontario Species At Risk Act (2008) and should have special habitat management objectives in the LTMD. We would appreciate working with the MNRF to formulate habitat objectives for wolverine.

Wolverine Reproductive Habitat

We have been leading a wolverine telemetry project in Red Lake since the spring of 2017. A primary goal of this project is to document the habitat needs of reproductive female wolverines. What we have noticed during this study is that there are very few reproductive female wolverines within our study area, which is a 5,700 km^2 area that includes the Trout Lake Forest (Fig. 1). The evidence we have collected suggests that areas with reproductive females occur as isolated clusters throughout the landscape.

One of these clusters is on the Trout Lake Forest where we have been tracking wolverine F01 with GPS collars (first female wolverine captured during the telemetry study). The immediate area where wolverine F01 denned is relatively roadless (within ~ 4km^2 of her den), but the overall road density within her home range is 0.62 km/km^2. Moreover, there are numerous contingency blocks within F01's home range that are available for cutting between 20201 and 2031. We suggest these contingency blocks be removed from the LTMD and that there be limited road building and forestry within the larger home range of wolverine F01. Because wolverines occur at low densities (Dawson et al. 2010) and have low reproductive output (Rauset et al. 2015), we suggest that habitat management in this area is critical for maintaining a self-sustaining population of wolverines in the larger Red Lake area.

Overall, female wolverines are particularly sensitive to human activities relative to male wolverines (Heinemeyer et al. 2018). This includes greater sensitivity by female wolverines to forestry practices (Krebs et al. 2007; Scrafford et al. 2017) with ramifications on both areas where females prefer to establish home ranges and place their dens. In accordance with this, the locations where we have identified female wolverines for our Red Lake wolverine study (besides F01) tend to be in more remote areas with less human development, with highest mortality of females in our previous Red Lake/Ear Falls study occurring in areas with relatively high road densities (Dawson et al. 2010). Our comments above relating to limiting road density and cumulative disturbance would make the larger Red Lake area more suitable for female wolverines.

In the future, we also suggest that there be greater effort to identify where there are reproductive female wolverines on the landscape before forest management plans are developed. This could include monitoring the FMU for female wolverines with bait and cameras. We would like to work with the MNRF to develop a monitoring protocol for female wolverines on the Trout Lake Forest.

We would be happy to discuss any of our suggestions with you either through email or phone.

Sincerely,

Matthew Scrafford, Ph.D.

Justina Ray, Ph.D

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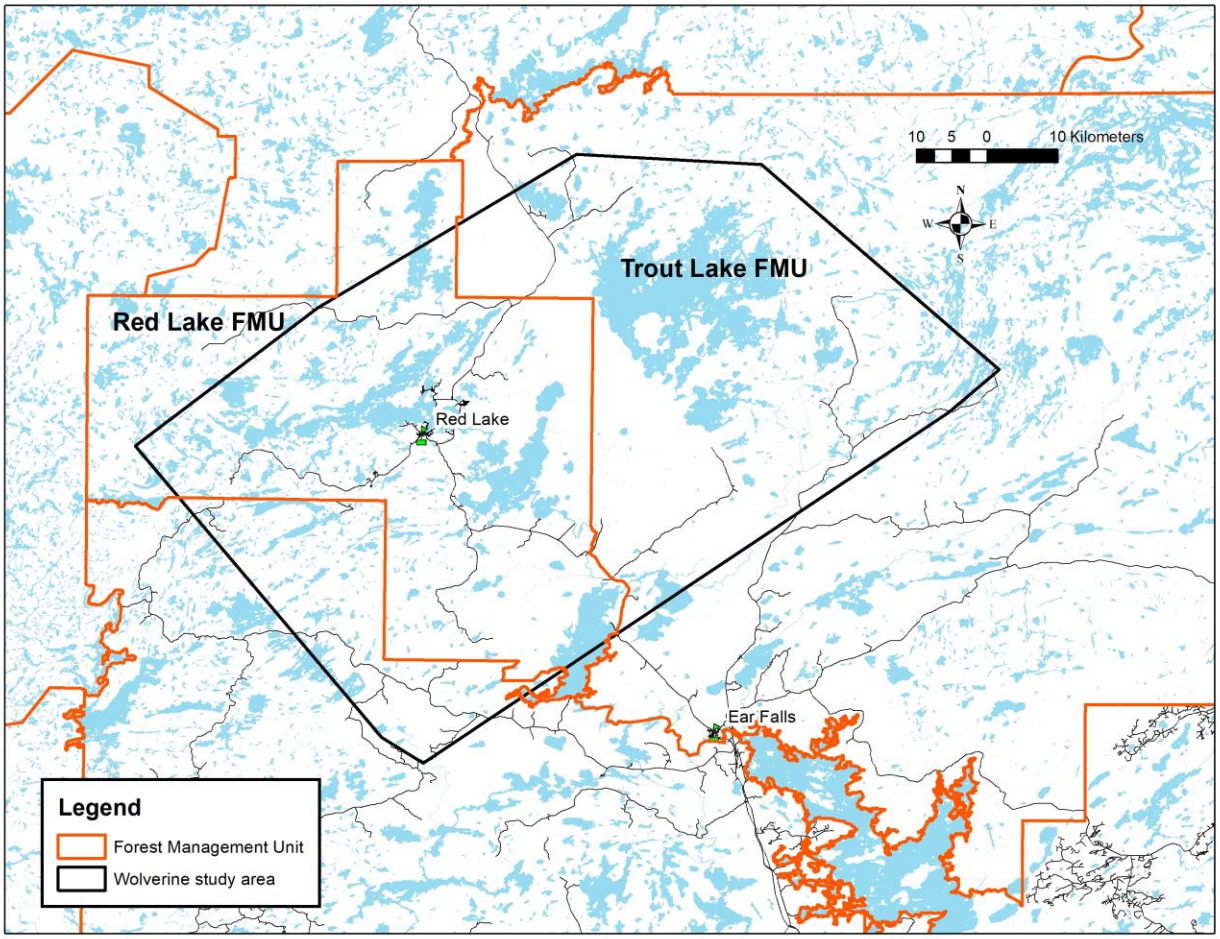

Figure 1. Our wolverine study area relative to forest management units.

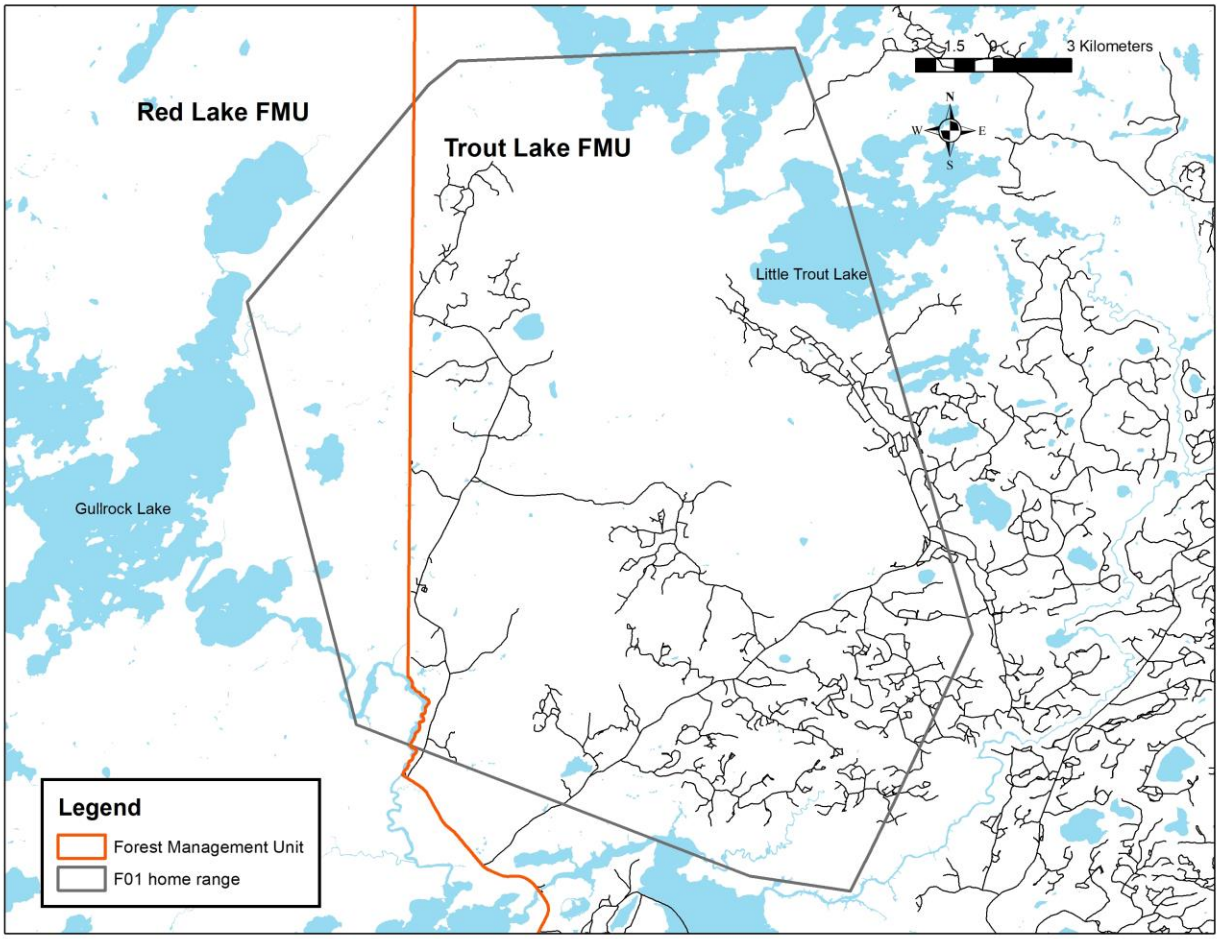

Figure 2. Wolverine F01's home range in Red Lake, Ontario. We calculated her home range by drawing a polygon around her GPS relocations. We calculated the road density within her home range at 0.62 km/km^2.