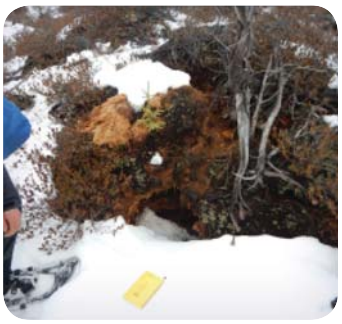
Keeyask Generation Project

Terrestrial Effects Monitoring Plan

Gray Wolf, Black Bear and Other Wildlife: 2016 Den Survey Report

TEMP-2017-11



KEEYASK

Manitoba Sustainable Development Client File 5550.00
Manitoba Environment Act Licence No. 3107

2016 - 2017

KEEYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2017-11

GRAY WOLF, BLACK BEAR, AND OTHER WILDLIFE EFFECTS MONITORING REPORT

2016 DEN SURVEY

Prepared for

Manitoba Hydro

By

Wildlife Resource Consulting Services MB Inc.

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SUMMARY

Background

Construction of the Keeyask Generation Project (KGP or the Project) at Gull Rapids began in July 2014. The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the generating station on the terrestrial environment. Monitoring results will help the KHLP, government regulators, members of local First Nation communities, and the general public understand how construction and operation of the generating station will affect the environment, and whether or not more needs to be done to reduce harmful effects.

This study is described in the KGP Terrestrial Effects Monitoring Plan (KHLP 2015), in Section 6.6.2 Den Surveys, under the Gray Wolf, Black Bear and Other Wildlife effects monitoring. This report describes the results of pre-clearing black bear den surveys conducted during the third year of Project construction, in fall/winter 2016.

Black bear were a common species observed during pre-construction surveys conducted from 2001-2004. Black bear sign was widespread throughout various habitats that were surveyed using tracking transects and trail-camera traps.

Why is the study being done?

Black bear are a common mammal species found in the Keeyask region that require dens for the birthing and rearing of young, as well as for hibernating over winter.

Black bears are sensitive to human disturbance near active den sites. To avoid potential impacts such as abandonment or possible death of animals in dens, the objective of this survey was to identify any black bear dens in the areas of the Project footprint planned for clearing, and to protect any bears in these areas from harm. If any active bear dens are found during pre-clearing surveys, a setback distance of 100 m is established around the den for protection.

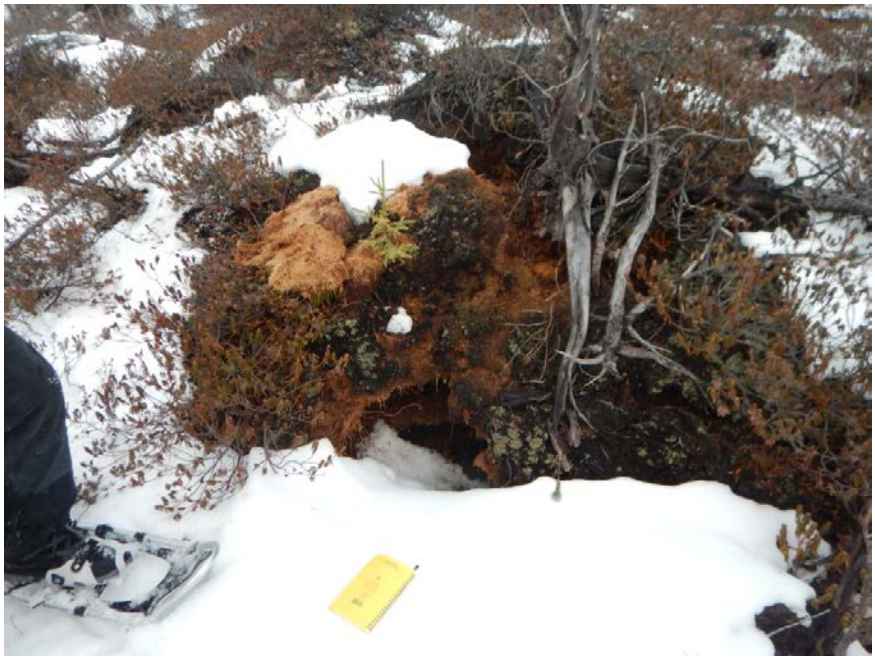
What was done?

Systematic ground surveys were conducted in October 2016 in areas within the Project footprint that were planned for clearing. Fieldwork was focused in habitat types where dens were most likely to occur. Up to 15 surveyors walked along parallel transects within the search area, 10 to 20 metres apart, and looked for black bear signs. Remote trail cameras were placed near any potential black bear dens to monitor use. In October, about 1,157 ha were searched within the reservoir clearing area on the south side of the Nelson River.

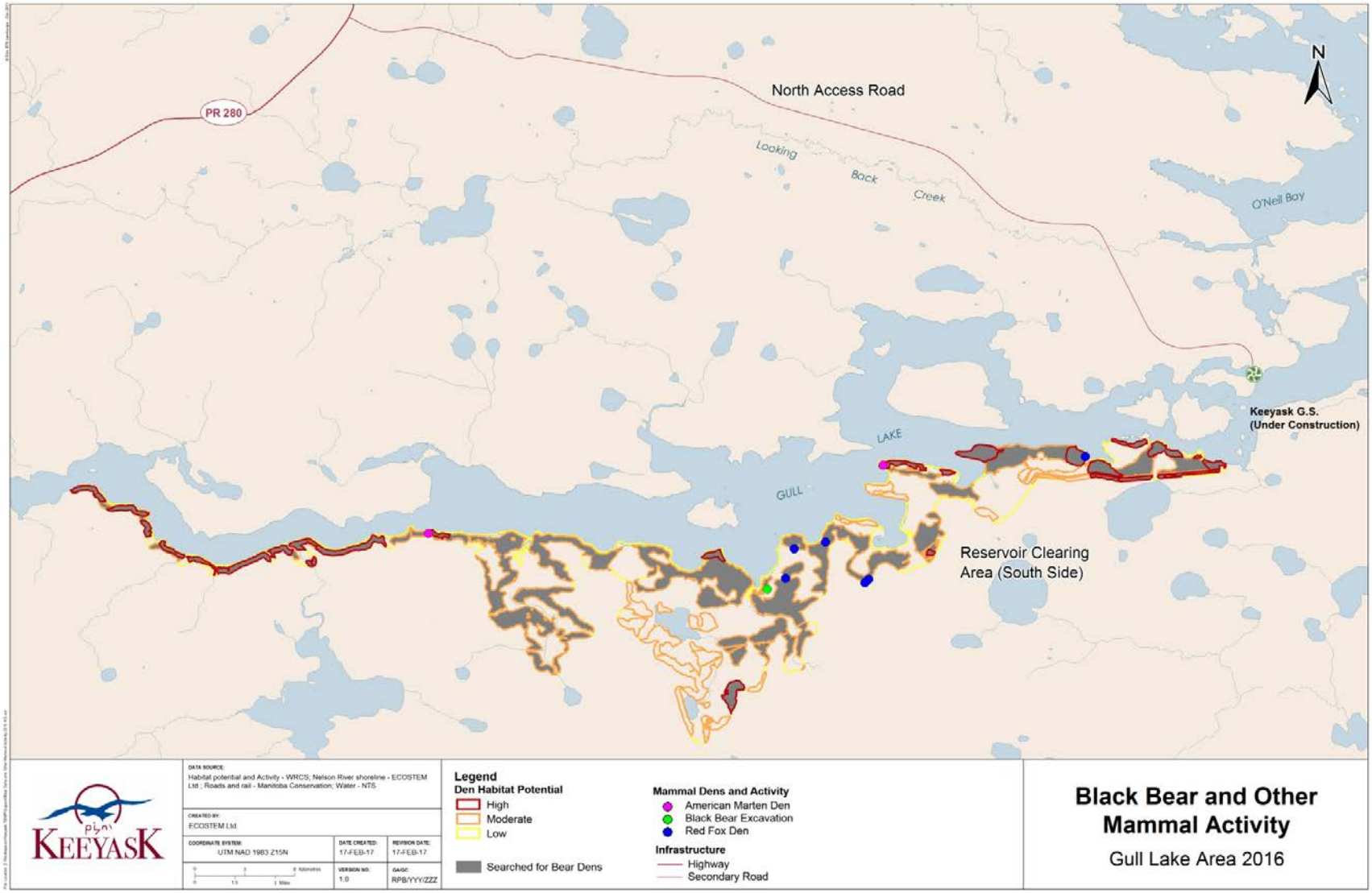
Survey staff searching for bear dens

What was found?

No active black bear dens were found during the 2016 surveys. A single black bear excavation was observed incidentally outside of the planned area to be cleared. Other mammal dens observed included six red fox dens and two American marten dens.



Black bear excavation in peat hummock



Black bear dens and activity in the Project Footprint areas searched in 2016

What does it mean?

As no black bear dens were observed during the 2016 surveys, no setback buffers were required within the south side reservoir clearing area.

What will be done next?

No further pre-clearing bear den surveys are planned at this time. Additional pre-clearing surveys will be conducted if new areas are identified for vegetation clearing in fall/winter 2017.

STUDY TEAM

Biologists and other personnel who designed, participated in, and drafted the survey results included:

- Robert Berger (M.N.R.M) – Design, analysis, and reporting
- Mark Baschuk (M.Sc.) – Design, analysis, and reporting
- Kate McCormick (B.Sc.) – Crew Leader
- Nicholas LaPorte (M.N.R.M) – Survey personnel
- Nicol Kaminski (B.Sc.) – Survey Personnel
- Morgan Zaretski (B.Env.Sc.) – Survey personnel
- Tim Kroeker (B.Sc.) – Survey Personnel
- Kenneth Ouskan (TCN) – Survey Personnel
- Leonard Chornaby (TCN) – Survey Personnel
- Donald Flett (TCN) – Survey Personnel
- Keegan Neckoway (TCN) – Survey Personnel
- Leslie Flett (TCN) – Survey Personnel
- Gary Spence (WLFN) – Survey Personnel
- Delbert Saunders (WLFN) – Survey Personnel
- Jeff Laliberty (WLFN) – Survey Personnel
- Donovan Flett (YFFN) – Survey Personnel
- Jared Wastesicoot (YFFN) – Survey Personnel

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1.0 INTRODUCTION

Construction of the Keeyask Generation Project (the Project), a 695 megawatt hydroelectric generating station (GS) and associated facilities, began in July 2014. The Project is located at Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake, 35 km upstream of the existing Kettle GS.

The *Keeyask Generation Project: Response to EIS Guidelines* (the EIS), completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the terrestrial environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement: Terrestrial Environment Supporting Volume* (TESV). Black bear were a common species observed during pre-construction surveys conducted from 2001-2004 (KHLP 2012). Black bear sign was widespread throughout various habitats that were surveyed using tracking transects and trail-camera traps (KHLP 2012). Within the construction footprint, black bear sign was common and the footprint likely overlapped with the home ranges of one or more individuals (KHLP 2012).

As part of the licencing process for the Project, the *Keeyask Generation Project Terrestrial Effects Monitoring Plan* (TEMP; KHLP 2015) was developed, detailing the monitoring activities of various components of the terrestrial environment including the focus of this report, black bear (*Ursus americanus*) den surveys, for the construction and operation phases of the Project.

This study was conducted to meet the requirements of Environment Act Licence No. 3107 to complete monitoring as described in the TEMP. Planned clearing within the Project construction footprint that was scheduled for the winter of 2016/2017 included the future reservoir area on the south side of the Nelson River. Prior to clearing, areas of high denning probability were searched in an attempt to prevent the disturbance or destruction of black bear dens.

The objective of these surveys was to identify black bear dens in areas of the Project footprint to be cleared, and if found, protect bears from harm. In accordance with the Project's Environmental Protection Plans (KHLP 2014a,b), if an active black bear den is found, a setback distance of 100 m is put in place to prevent disturbance.

2.0 METHODS

2.1 DEN HABITAT SELECTION

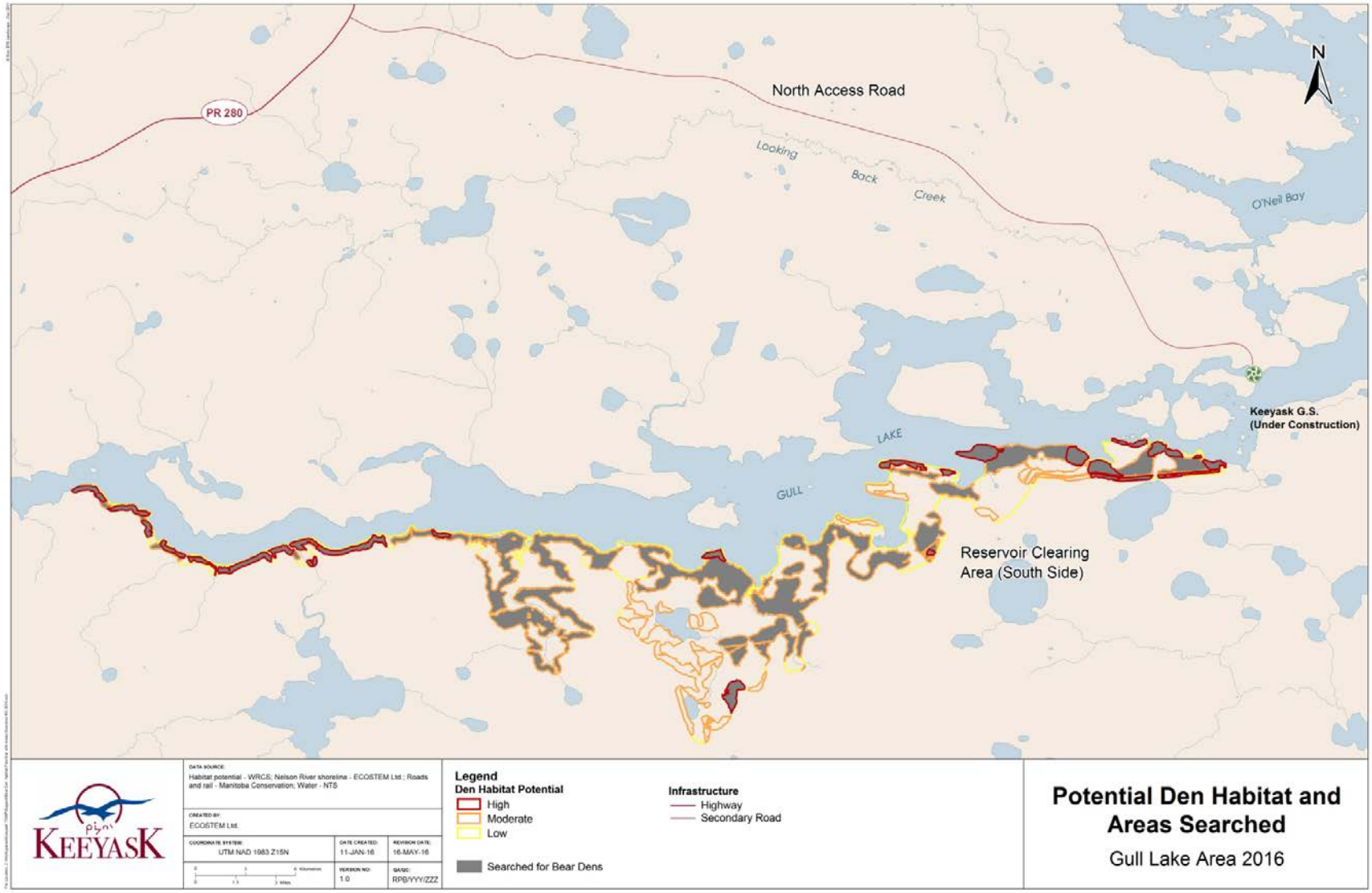
Clearing of the southern portion of the future reservoir area was planned to occur during the fall of 2016 and the winter of 2016/2017. As clearing was to occur when black bears are hibernating, pre-clearing surveys were required to verify whether any active black bear dens were present.

Due to the relatively large size of the proposed clearing area, remotely-sensed data were used to identify areas of habitat with a greater probability of supporting black bear dens to improve the efficiency of ground searches. Using a Geographic Information System (GIS), habitat data from the Project's EIS (provided by ECOSTEM Ltd.) were extracted from the Project footprint area planned for clearing, which had been buffered by 100 m. A predictive model that used soil and vegetation data was applied to the Project footprint areas, which were divided into three classes (high, medium, low) based on their potential to support black bear dens. High potential den habitat was defined as areas with dry mineral soils and dense overstorey vegetation cover. Moderate potential den habitat contained thin peatland and some overstorey vegetation cover. Low potential den habitat was defined by deep peatlands, other wet areas lacking overstorey vegetation cover, and existing disturbed areas located near active construction (Tietje and Ruff 1980; Hodder et al. 2014). High-resolution satellite imagery was used to support selected categories of den habitat by visually inspecting the habitat within the Project footprint areas to be cleared.

2.2 DEN SURVEYS

From October 11-31, 2016, den surveys were conducted in the reservoir clearing area on the south side of the Nelson River. Areas determined to have high potential to support bear dens were searched initially, and the majority of the moderate potential bear den habitat was also searched, as time and conditions allowed (Map 2-1).

Up to 15 survey personnel conducted systematic ground searches. Surveyors walked slowly and intensively searched the ground for dens and other signs of black bear (*i.e.*, tracks, scat, and evidence of digging), paying close attention to features such as hummocks, brush piles, uprooted tree-root mats, and areas with topographic relief. Surveyors followed transect lines spaced approximately 10 m apart, uploaded to handheld Garmin Global Positioning System (GPS) 60Cs and 60Csx receivers. Spacing of transects varied from 10-20 m depending on vegetation density and other topographic features.



Map 2-1: Potential den habitat and areas searched within the reservoir clearing area (south side) in October 2016

Upon observation of a den, survey personnel attempted to determine if it was occupied by searching the immediate area for signs, such as tracks, scat, hair, or claw marks on trees. The potential den was then geo-referenced, photographed, and marked with flagging tape. If the den appeared to be occupied by a black bear, as indicated by the presence of fresh bear sign, personnel returned with a pole-mounted camera. The pole-mounted camera consisted of an Aqua View Micro 5 underwater camera with built-in digital video recording and an infrared light source (Figure 2-1) that was attached to a 4 m (12 foot) extendable, aluminum pole. This apparatus allowed personnel to confirm if the den was occupied and identify the potential species, while remaining at a safe distance from the den entrance. The pole-mounted camera was manoeuvred into the den by one crewmember while the video monitor was observed by another, and the den was searched.

If the den was occupied by a black bear or it appeared to be recently constructed and have the potential to support a black bear, two Reconyx™ PM35C31 trail cameras (remote-cameras) were mounted on nearby trees to monitor bear activity at each potential den site.

Figure 2-1: Aqua View Micro 5 camera with built-in digital video recording and infrared light source, used to confirm den occupation

3.0 RESULTS

3.1 DEN HABITAT SELECTION

Within the areas proposed for clearing during the fall/winter of 2016/17, the remote-sensing exercise of selecting potential den habitat yielded 225 ha of high potential den habitat, 1,163 ha of moderate potential den habitat, and 1,385 ha of low potential den habitat. All 225 ha of high potential den habitat was searched, as well as 932 ha of moderate potential den habitat. No low potential den habitat was searched due to the low probability of dens being located in these areas (Map 3-1).

3.2 DEN SURVEYS

No occupied black bear dens were located during the 2016 survey.

One black bear excavation site was found outside of the planned area to be cleared (Map 3-1). The site consisted of a shallow excavation into the side of a peat hummock (Photo 3-1). The excavation was not fresh, and located in relatively poor denning habitat that lacked tree cover and was located next to a large bog.

Additional observations included six red fox dens, and two American marten dens (Map 3-1; Appendix 1).

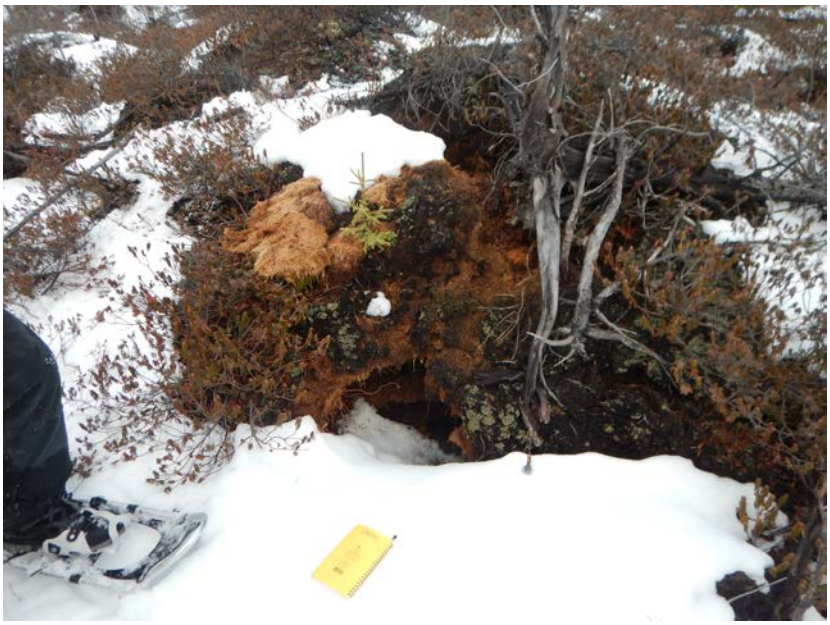
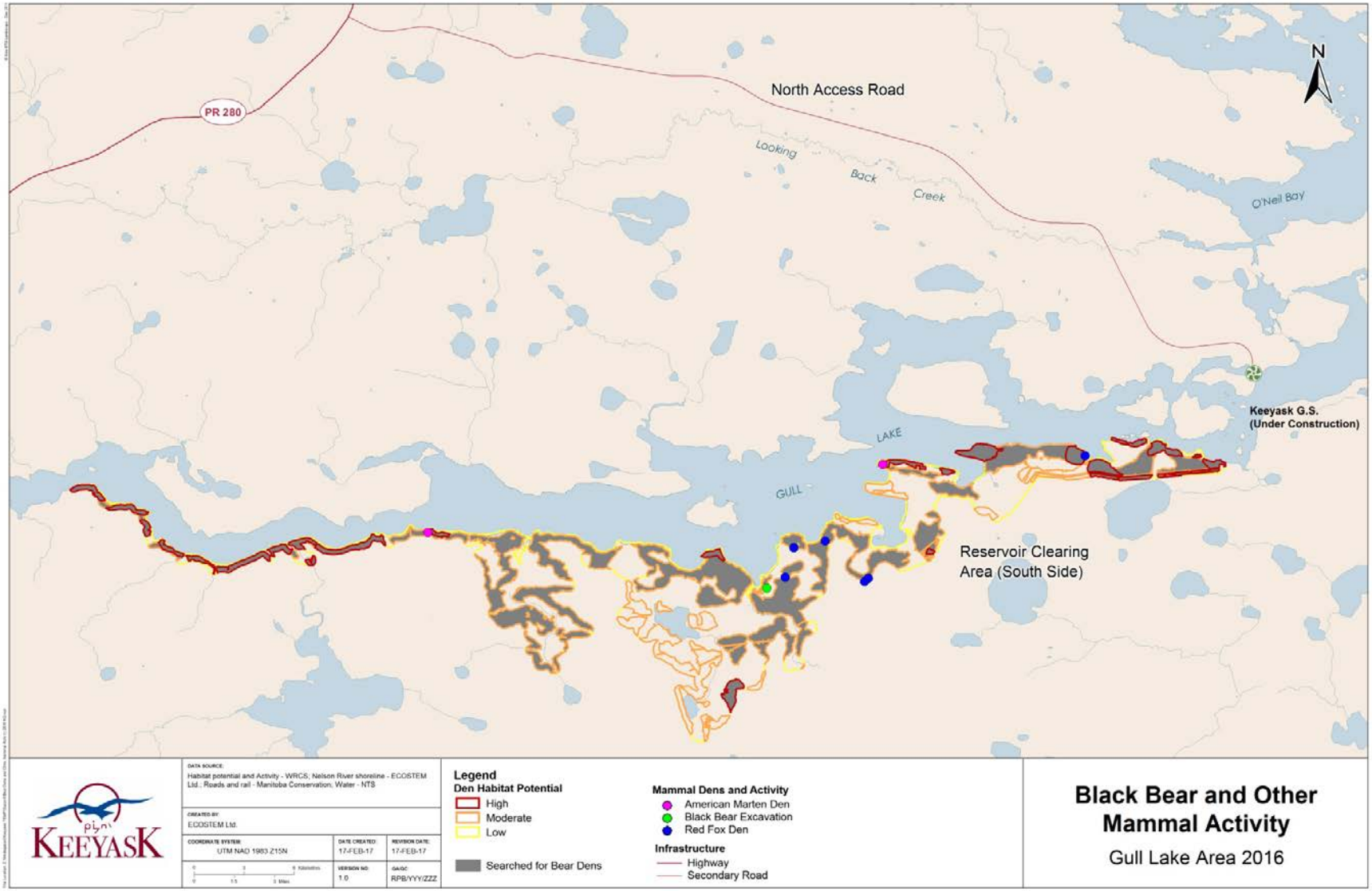


Photo 3-1: Black bear excavation in peat hummock



Map 3-1: Black bear excavation and other mammal dens in the reservoir clearing area (south side) in October 2016

4.0 SUMMARY AND CONCLUSIONS

The approach of using remotely sensed imagery to identify potential bear den habitat was a reliable method for determining areas of potential denning habitat within the Project footprint. The delineation of potential denning habitat prior to performing the ground searches increased the efficiency of search crews over large areas and allowed the highest area of potential den habitat to be searched, while avoiding areas that were unlikely to contain dens (*i.e.,* wet areas).

As no active black bear dens were observed in 2016, no setback buffers were required within the area to be cleared. For the other mammal dens observed (*e.g.,* American marten and red fox), a distance buffer is not applicable at this time of year as these species are active and mobile during the winter and can relocate if disturbed. Buffers for furbearing species may be required if maternity dens are found in late winter or spring.

There is a small possibility that a den could have been missed within a searched area or occurred in a portion of the Project footprint that was not searched. As such, the Keeyask Hydropower Limited Partnership was advised to proceed with caution, and still be on the look-out for possible dens while conducting all reservoir clearing activities.

5.0 LITERATURE CITED

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6.0 APPENDIX 1

Photo 6-1: Red fox den located on the south side of Gull Lake

Photo 6-2: Red fox den and fresh excavation

Photo 6-3: American marten den and scat