



Keeyask Generation Project Terrestrial Effects Monitoring Plan

Bat Survey Report

TEMP-2018-14



KEEYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2018-14

BAT SURVEY

Prepared for

Manitoba Hydro

By

Wildlife Resource Consulting Services MB Inc.

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SUMMARY

Background

Construction of the Keeyask Generation Project (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.

The objective of this study was to verify whether there is a little brown myotis (bat; *Myotis lucifugus*) population in the Project area. This report describes the results of the second year of bat surveys, conducted in summer 2017. Surveys occurred in Study Zone 3, and focused mainly on areas along roads and trails and within the start-up camp and main camp areas.

Why is the study being done?

Little brown myotis is a migrant bat species in northern Manitoba with limited distribution in Study Zone 3. Its presence appears to be sparse and has limited potential to breed in the area. However, little brown myotis has been listed as Threatened under the federal *Species at Risk Act* and *The Endangered Species and Ecosystems Act* of Manitoba because populations are rapidly declining in eastern North America. Monitoring is being conducted to identify potential little brown myotis populations in the region and to verify the Project's Environmental Impact Statement (EIS) predictions.

What was done?

One hundred and seventy-eight sample locations were surveyed in Study Zone 3 from July 29 to 31, 2017. Surveys were conducted at night, when bats would be foraging. A two-person crew surveyed each sample location with a hand-held Pettersson Elektronik - D240X bat detector.

What was found?

No bats were detected during the July 2017 survey, and no anecdotal bat observations were reported in 2017.



Little Brown Myotis Sample Locations in 2017

What does it mean?

To date, no bat population has been identified in the Project area. Little brown myotis appear to be sparse in Study Zone 3.

What will be done next?

Bat surveys will continue in 2019. Potential sample locations will be surveyed as they become accessible, to increase the chance of locating bats should they inhabit Study Zone 3. If little brown myotis are detected in sufficient numbers, a long-term monitoring program for verifying the EIS predictions will be designed.

STUDY TEAM

We would like to thank Sherrie Mason and Rachel Boone of Manitoba Hydro and Ron Bretecher of North/South Consultants Inc. for logistical assistance in the field. We would also like to thank James Ehnes of ECOSTEM Ltd. for GIS support and mapping. Biologists and other personnel who designed, participated in, and drafted the survey results included:

- Robert Berger (M.N.R.M) – Design and reporting
- Andrea Ambrose (B.Sc.) – Reporting
- James Ehnes (Ph.D.) – Design
- Riley Bartel (B.Env.St., honours) – Survey personnel
- Chad Kirkness (Tataskweyak Cree Nation) – Survey personnel

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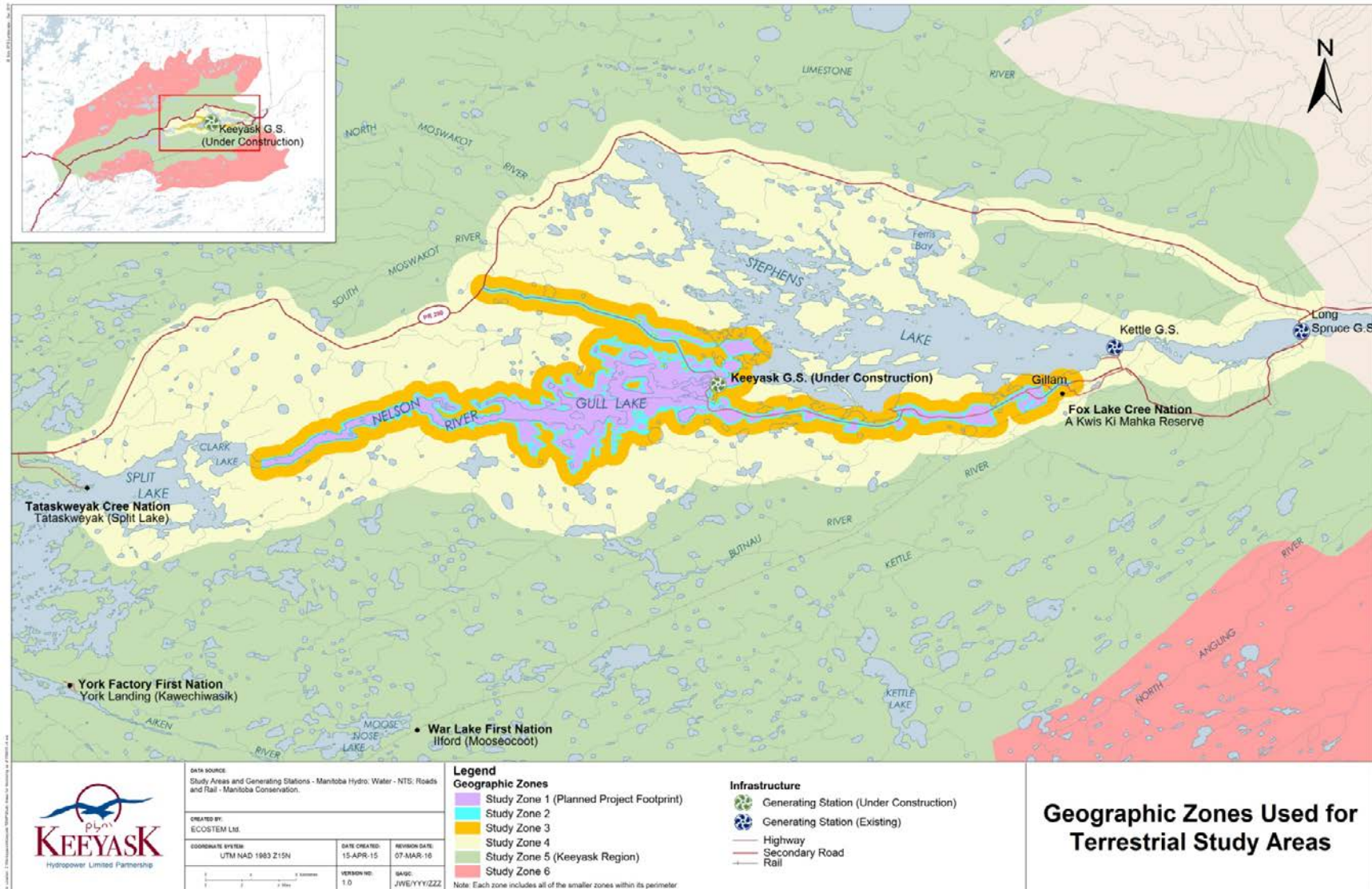
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1.0 INTRODUCTION

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 Supporting Volume* (TE SV). The *Keeyask Generation Project Terrestrial Effects Monitoring Plan* (TEMP) was developed as part of the licensing process for the Project. Monitoring activities for various components of the terrestrial environment were described, including the focus of this report, little brown myotis (*Myotis lucifugus*), during the construction and operation phases.

Little brown myotis, a type of bat, is a migrant species with a limited distribution in Study Zone 3 (Map 1) and beyond. Little brown myotis appear to be sparse and have limited potential to breed in the region. As such, Project effects on this species were anticipated to be limited to none. However, many species of myotis are experiencing rapid population declines in eastern North America because of white-nose syndrome (*Pseudogymnoascus destructans*), a fungus that affects hibernating bats (Cryan *et al.* 2013; Committee on the Status of Endangered Wildlife in Canada [COSEWIC] 2013). The species is now listed as Endangered under the federal *Species at Risk Act* and *The Endangered Species and Ecosystems Act* of Manitoba. Due to their status as a species at risk, a monitoring program, as outlined in Section 6.5.3 of the TEMP, was developed to verify whether there is a population in Study Zone 3 and if so, how it might be affected by the Project. In accordance with the TEMP, if little brown myotis are detected in sufficient numbers, a long-term population monitoring program for verifying the EIS predictions will be designed.



Map 1: Geographic Zones Used for Terrestrial Study Areas

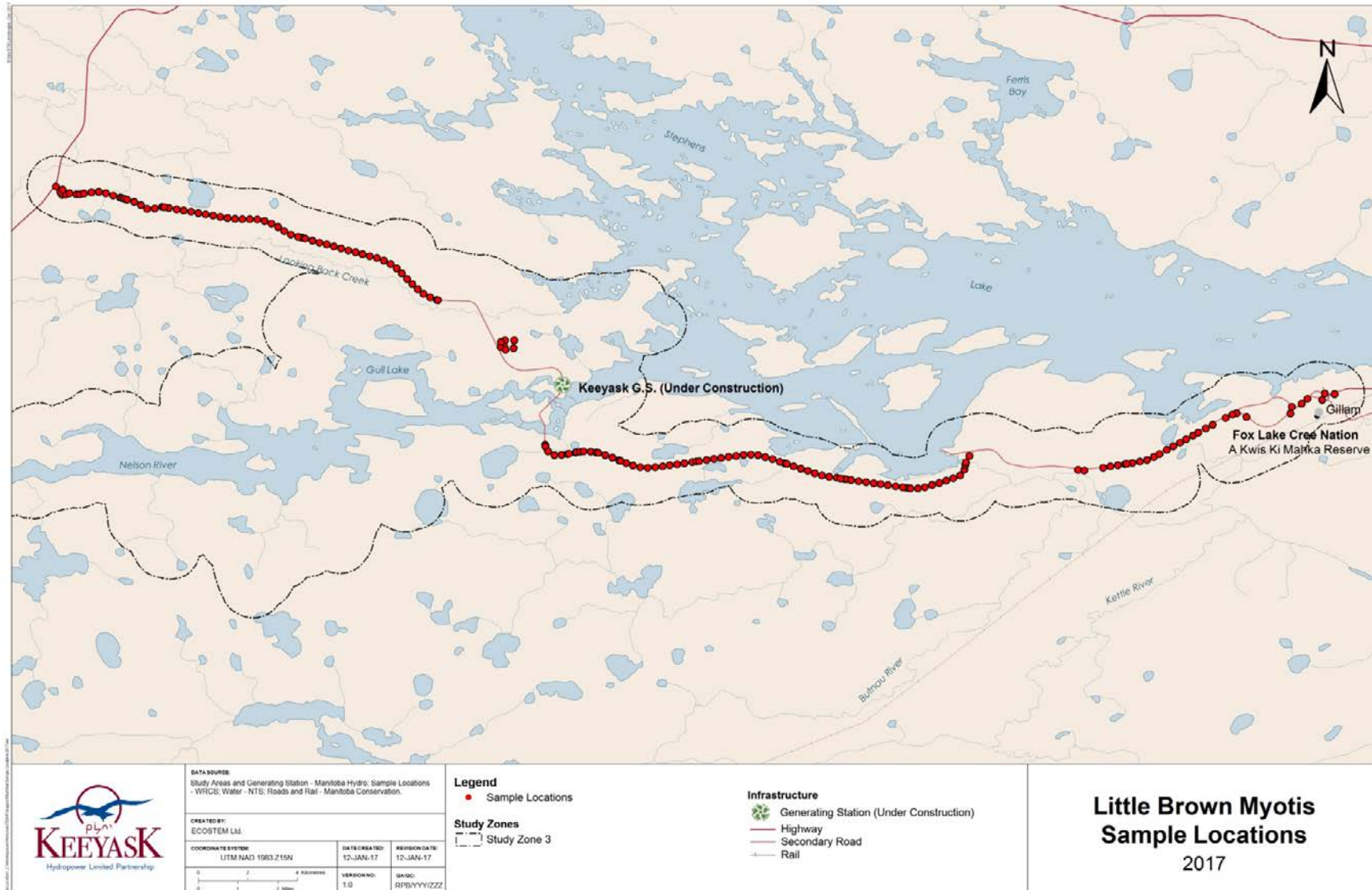
2.0 METHODS

One hundred and seventy-eight sample locations were surveyed in Study Zone 3 in summer 2017 (Map 2). Sample locations consisted of habitat patches that were large enough to support bat foraging, and were generally mixtures of terrestrial habitat and surface water types. Sample locations were 300 metres (m) apart and were situated along roads and trails. Additional sample locations were included where creeks crossed a road or trail (Photo 1) or where two or more trails converged, which were considered good potential areas for bat foraging. Sampling also occurred at the start-up camp and main camp, where infrastructure could provide lighting that attracts insects and improves foraging opportunities, and provides maternity and other roosting habitat. The detection radius was about 50 m at each sample location.

Bat surveys were conducted overnight from July 28/29 to July 30/31, 2017 (Table 1), during favourable weather conditions (Appendix 1) for a total of three survey-nights. Surveys were conducted from sunset to a half hour before sunrise, when bats are typically actively feeding. A two-person crew surveyed each sample location with a hand-held Pettersson Elektronik - D240X bat detector (Photo 2) for five minutes. The Global Positioning System (GPS) coordinate, date, time, and weather conditions were recorded at all sample locations. Any echolocation calls were to be digitally recorded and brought to the lab for analysis, where the species of bat could be identified with sound analysis software (e.g., Sonobat™).

Table 1: Bat Surveys Conducted in July 2017

Night	Number of Sample Locations
28/29	65
29/30	74
30/31	40
Total	179



Map 2: Little Brown Myotis Sample Locations in 2017



Photo 1: Potential Bat Foraging Habitat along a Creek



Photo 2: Pettersson Elektronik - D240X Bat Detector

3.0 RESULTS

Sample locations were surveyed along the North Access Road, the South Access Road, at the main camp, and at the start-up camp. No bats were detected during the July 2017 surveys. No anecdotal observations of bats were reported in 2017.

4.0 SUMMARY AND CONCLUSIONS

Little brown myotis appear to be sparse in Study Zone 3, as described in the EIS. No individual bats were detected near the Project footprints and no population was identified. As described in Section 6.5.3.3.8 of the TEMP, bat surveys are planned to continue in 2019. Additional potential sample locations will be surveyed as they become accessible, to increase the chance of locating bats should they inhabit Study Zone 3.

5.0 LITERATURE CITED

- COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2013. COSEWIC assessment and status report on the little brown myotis *Myotis lucifugus*, northern myotis *Myotis septentrionalis* and tri-colored bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada, Ottawa, ON. 93 pp.
- Cryan, P. M., Meteyer, C. U., Boyles, J. G., and Blehert, D. S. 2013. White-nose syndrome in bats: illuminating the darkness. BMC Biology 11(14): 4 pp.

APPENDIX 1: BAT SURVEY 2017 WEATHER DATA

Night	Time	Temperature (°C)	Wind Speed (km/h)	Wind Direction	Precipitation (mm)	Cloud Cover (%)
July 28/29	10:30 p.m.	26	20	West	< 1	100
	2:30 a.m.	18	10	Southwest	0	100
July 29/30	10:30 p.m.	21	14	Northwest	0	40
	2:30 a.m.	13	10	East	0	30
July 30/31	10:30 p.m.	16	11	West	0	50
	2:30 a.m.	17	9	East	0	70