



Keeyask Generation Project Terrestrial Effects Monitoring Plan

Bat Survey Report

TEMP-2019-12



KEYYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2019-12

BAT SURVEY 2018

Prepared for

Manitoba Hydro

By

Wildlife Resource Consulting Services MB Inc.

June 2019

This report should be cited as follows:

Wildlife Resource Consulting Services MB Inc. 2019. Keyyask Generation Project Terrestrial Effects Monitoring Plan Report #TEMP-2019-12: Bat Survey 2018. A report prepared for Manitoba Hydro by Wildlife Resource Consulting Services MB Inc., June 2019.

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 third year of bat surveys, conducted in summer 2018. Surveys occurred in Study Zone 3 and focused mainly on areas along roads, trails, and at the start-up camp and main camp areas.

Why is the study being done?

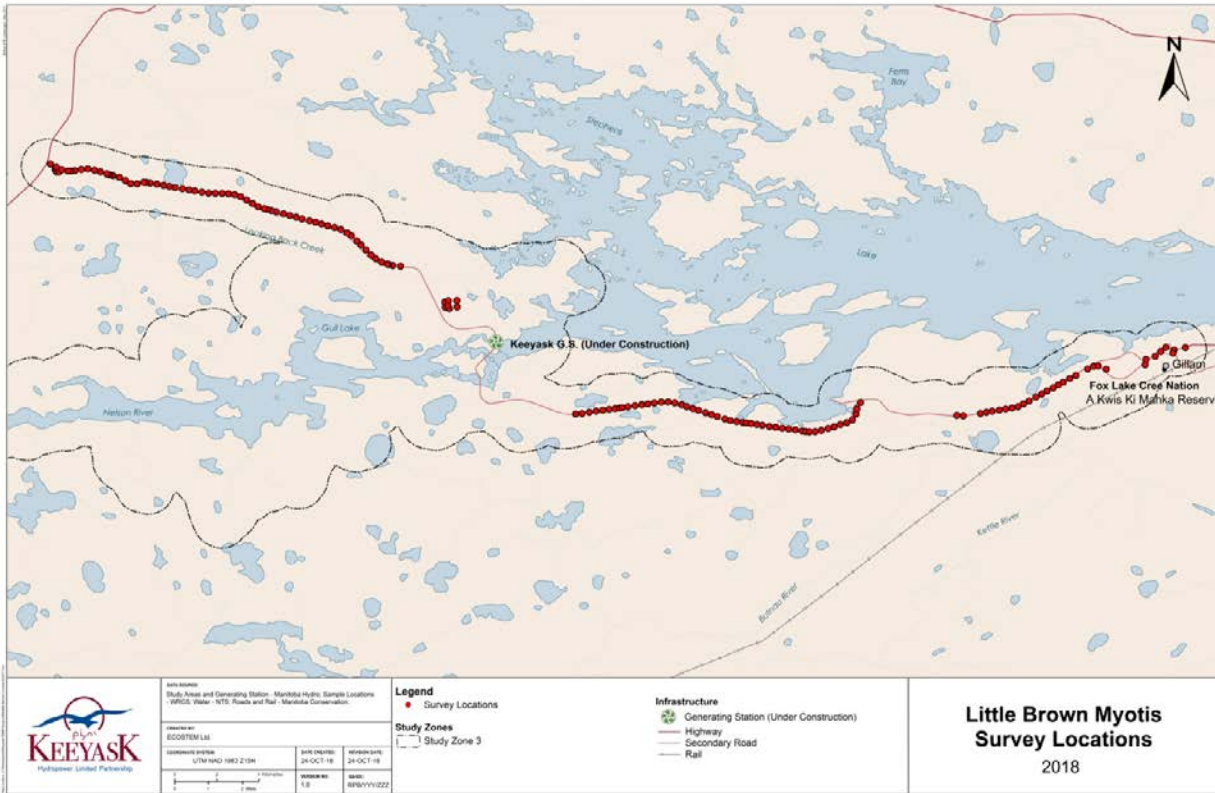
Little brown myotis is a migrant bat species in northern Manitoba with limited distribution in Study Zone 3. Its presence appears to be sparse and it has limited potential to breed in the area. However, little brown myotis has been listed as Threatened under the federal *Species at Risk Act* and *The 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 sixty locations were surveyed in Study Zone 3 from July 29 to August 1, 2018. Surveys were conducted at night, when bats would be foraging. A two-person crew surveyed each location with a hand-held Pettersson Elektronik - D240X bat detector.

What was found?

No bats were detected during the July 2018 survey, and no anecdotal bat observations were reported in 2018.



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?

Surveys were conducted in 2015, 2017, and 2018 and construction monitoring for bats has now concluded. The results will be evaluated in a construction monitoring synthesis report and recommendations will be made for continuing or discontinuing bat monitoring during operation.

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
- Tera Edkins (M.Sc.Biol.) – Survey personnel
- Jared Wastesicoot (York Factory First Nation) – 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 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 the Keeyask region. 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 bat species are experiencing rapid population declines in eastern North America because of white-nose syndrome (*Pseudogymnoascus destructans*), a fungus that affects them during hibernation (Cryan *et al.* 2013; Committee on the Status of Endangered Wildlife in Canada [COSEWIC] 2013). Little brown myotis is now listed as Endangered under the federal *Species at Risk Act* and *The Endangered Species and Ecosystems Act* of Manitoba. Due to its status as a species at risk, a monitoring program, as outlined in Section 6.5.3 of the TEMP, was developed to verify whether a population is present 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.

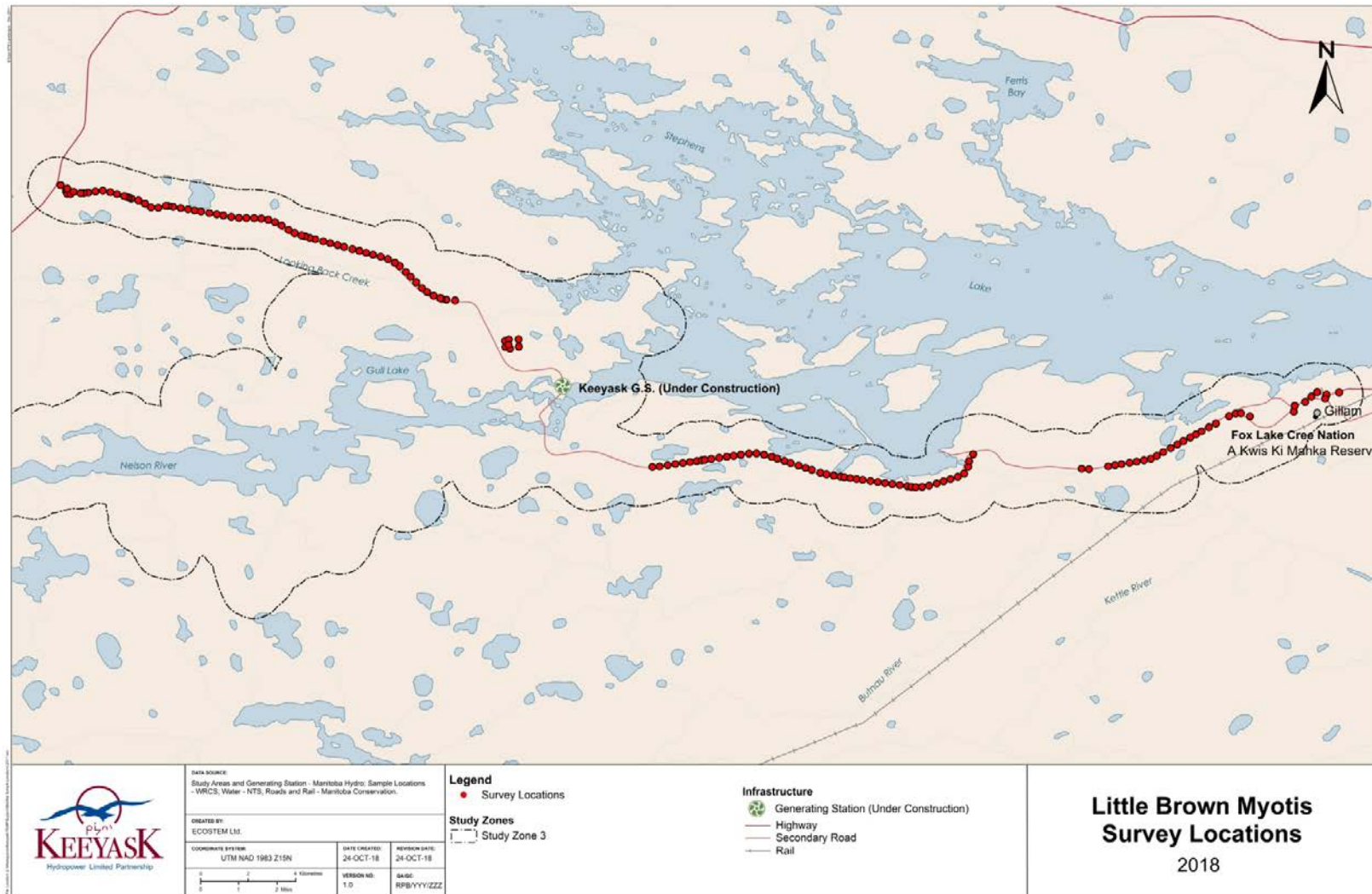
2.0 METHODS

One hundred and sixty locations were surveyed in Study Zone 3 in summer 2018 (Map 1). Survey locations consisted of habitat patches that were large enough to support bat foraging, and were generally mixtures of terrestrial habitat and surface water types. Survey locations were 300 metres (m) apart and were situated along roads and trails. Additional 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. Surveys 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 survey location.

Bat surveys were conducted overnight from July 29/30 to July 31/August 1, 2018 (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 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 survey 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 and August 2018

Night	Number of Locations
July 29/30	44
July 30/31	85
July 31/August 1	31
Total	160



Map 1: Little Brown Myotis Survey Locations, 2018



Photo 1: Potential Bat Foraging Habitat along a Creek



Photo 2: Petterson Elektronik - D240X Bat Detector

3.0 RESULTS

Locations were surveyed along the North Access Road, the South Access Road, at the main camp, and at the start-up camp. As in 2015 and 2017, no bats were detected during the July 2018 surveys. No anecdotal observations of bats were reported in 2018 or in previous study years.

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 footprint and no population was identified. After three years of surveys, construction monitoring for bats is complete. The results will be evaluated in a construction monitoring synthesis report and recommendations will be made for continuing or discontinuing bat monitoring during operation.

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 2018 WEATHER DATA

Night	Time	Temperature (°C)	Wind Speed (km/h)	Wind Direction	Precipitation (mm)	Cloud Cover (%)
July 29/30	10:30 p.m.	12	20	Northeast	<1	100
	2:30 a.m.	12	14	Northeast	0	100
July 30/31	10:30 p.m.	12	5	East	<1	100
	2:30 a.m.	10	12	Northeast	0	100
July	10:30 p.m.	14	5	West	0	0
31/Aug. 1	12:30 a.m.	14	5	West	0	0