



Keeyask Generation Project Terrestrial Effects Monitoring Plan

Bat Survey Report

TEMP-2016-10



KEEYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2016-10

BAT SURVEY REPORT

Prepared for

Manitoba Hydro

By

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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 bat surveys conducted in summer 2015.

WHY IS THE STUDY BEING DONE?

Little brown myotis is a migrant bat species in northern Manitoba with limited distribution in the study area (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 Environmental Impact Statement (EIS) predictions.

WHAT WAS DONE?

Surveys for bats were focused mainly on areas along roads and trails and within the start-up and main camp areas. One hundred and eighty-four sample locations were surveyed in July and August, 2015. 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 or August surveys, and no anecdotal observations were reported in 2015.

WHAT DOES IT MEAN?

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

WHAT WILL BE DONE NEXT?

Bat surveys will continue in 2017. Potential sample locations will be surveyed as they become accessible, to increase the chance of locating bats should they inhabit the study area. If little brown myotis are detected in sufficient numbers, a long-term monitoring program for verifying the EIS predictions will be designed.

STUDY TEAM

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
- Morgan Zaretski (B.Env.t.St.) – Survey personnel
- Kevin Methuen (B.Sc.) – Survey personnel
- Nathaniel Beardy (YFFN) – Survey personnel

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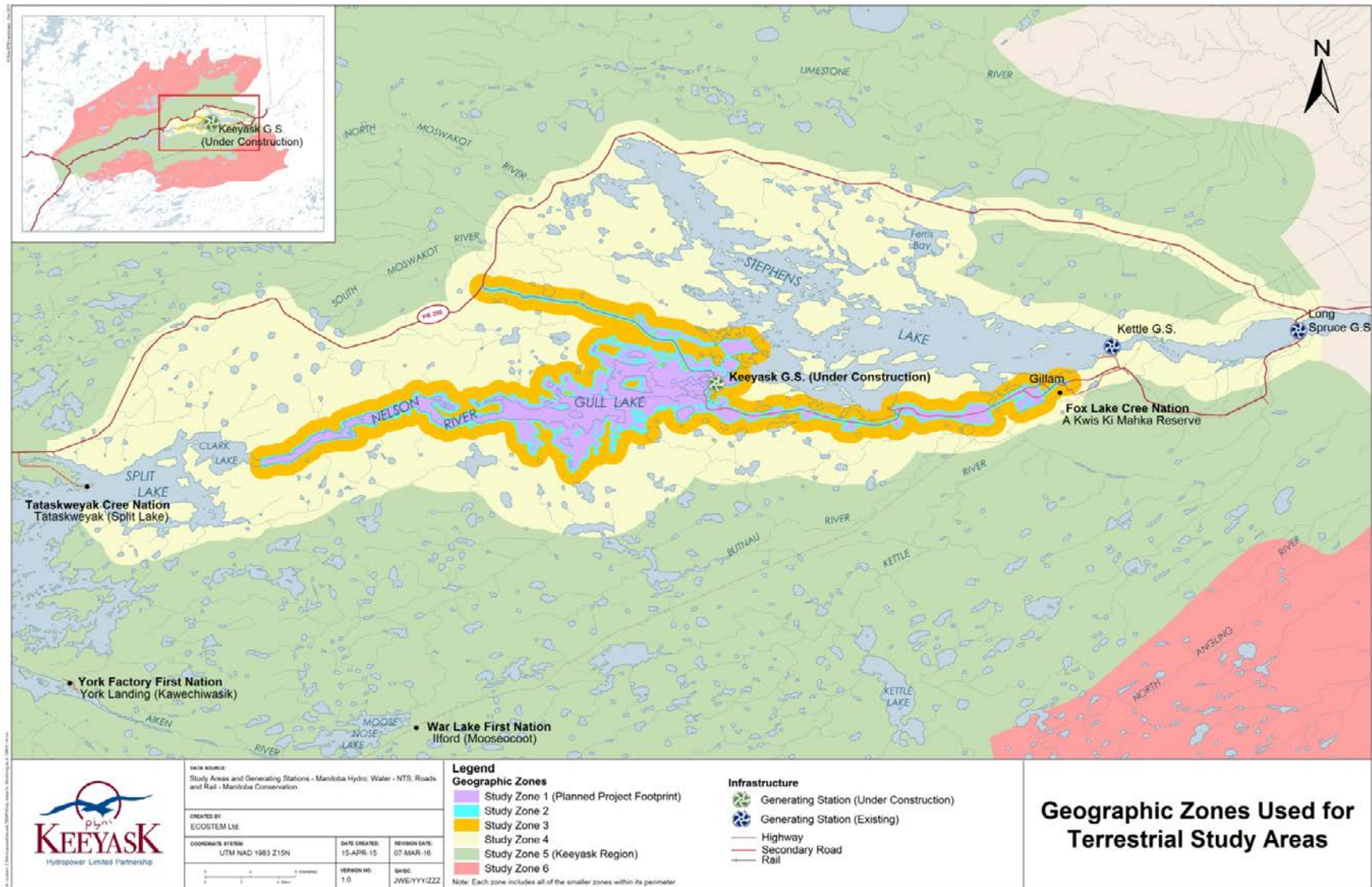
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1.0 INTRODUCTION

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 Hydropower Limited Partnership (KHLPP) was required to prepare a plan to monitor the effects of construction and operation of the generating station on the terrestrial environment. The *Terrestrial Effects Monitoring Plan* (TEMP) was developed 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 study area (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 (*Geomyces 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 might it 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

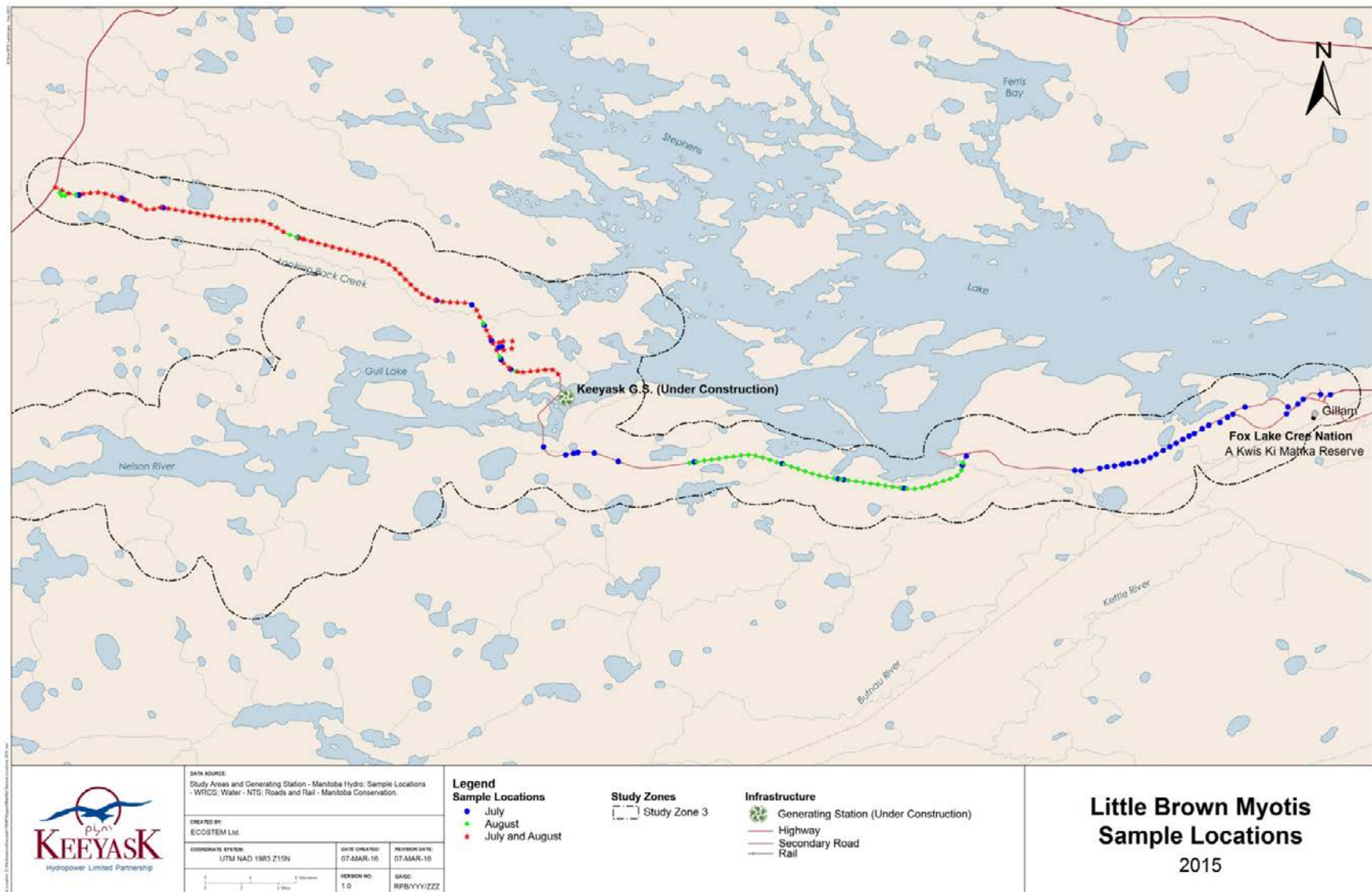
2.0 METHODS

One hundred and eighty-four sample locations were surveyed in Study Zone 3 in summer 2015 (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 twice in 2015, overnight from July 18/19 to July 21/22 and from August 3/4 to August 6/7 (Table 1) during favourable weather conditions (Appendix 1) for a total of eight 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. All 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™). The Global Positioning System (GPS) coordinate, date, time, habitat, and weather conditions were to be taken at sites where bats were recorded. One hundred and thirty-eight sample locations were surveyed in July and 127 were surveyed in August. Eighty-one sample locations were visited both times. One sample location was surveyed three times, twice in July and once in August. Fifty-six potential sample locations were initially identified but were not surveyed because they were inaccessible by truck in 2015.

Table 1: Bat Surveys Conducted in Summer 2015

Month	Night	Number of Sample Locations
July	18/19	35
	19/20	48
	20/21	40
	21/22	16
	Total	138
August	3/4	33
	4/5	46
	5/6	40
	6/7	8
	Total	127



Map 2: Little Brown Myotis Sample Locations 2015



Photo 1: Potential Bat Foraging Habitat along a Creek



Photo 2: Petterson Elektronik - D240X Bat Detector

3.0 RESULTS

Sample locations were surveyed along the North Access Road, the South Access Road route, at the main camp, and at the start-up camp. No bats were detected during the July or August surveys. No anecdotal observations of bats were reported in 2015.

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 and no population was identified. As described in Section 6.5.3.3.8 of the *Keeyask Generation Project Terrestrial Environment Monitoring Program* (KHLP 2015), bat surveys are planned to continue in 2017. 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

- 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.
- KHLP (Keeyask Hydropower Limited Partnership). 2015. Keeyask Generation Project terrestrial effects monitoring plan. Available from <http://keeyask.com/wp-content/uploads/2015/06/KGP-Terrestrial-Effects-Monitoring-Plan-Final.pdf>. Accessed on February 18, 2016.

APPENDIX 1

BAT SURVEY 2015 WEATHER DATA

Night	Temperature (°C)	Wind Speed (km/h)	Wind Direction	Precipitation	Cloud Cover (%)
July 18-19	11	0-5	Northwest	None	90
July 19-20	10	5-10	West	None	40
July 20-21	15	16	North-northwest	None	75
July 21-22	15	5-10	Northwest	None	25
August 3-4	13	14	North	None	90
August 4-5	10	10	North	None	90
August 5-6	13	4	Southeast	None	100
August 6-7	11	11	Northeast	None	70



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