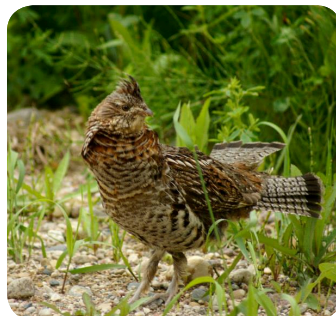




Keeyask Generation Project Terrestrial Effects Monitoring Plan

Ruffed Grouse Habitat Effects Monitoring Report

TEMP-2024-10



KEYYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2024-10

RUFFED GROUSE HABITAT EFFECTS YEAR 2 OPERATION 2023

Prepared for

Manitoba Hydro

By

Wildlife Resource Consulting Services MB Inc.

June 2024

This report should be cited as follows:

Wildlife Resource Consulting Services MB Inc. 2024. Keyyask Generation Project Terrestrial Effects Monitoring Plan Report #TEMP-2024-10: Ruffed Grouse Habitat Effects - Year 2 Operation, 2023. A report prepared for Manitoba Hydro by Wildlife Resource Consulting Services MB Inc., June 2024.

SUMMARY

Background

Construction of the Keeyask Generation Project (the Project) at Gull Rapids began in July 2014 and became fully operational in March 2022. 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 more needs to be done to reduce harmful effects.

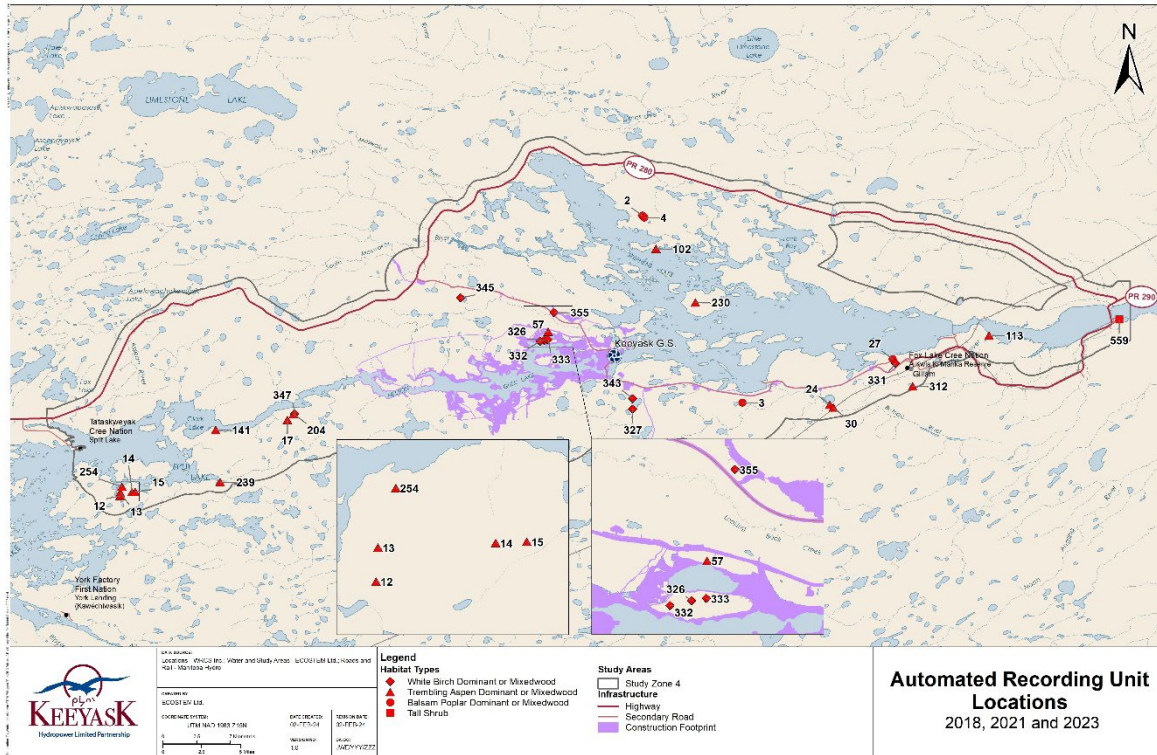
Ruffed grouse are year-round residents in the Keeyask region, which is the edge of their northernmost range. Aspen forest or mixed forest with a large proportion of aspen are preferred areas for breeding, where males drum by standing on a log and beat their wings to attract females. Potential effects on ruffed grouse identified in the Project's environmental assessment were loss and alteration of some breeding and foraging habitat, with a possible increase in mortality due to traffic on the North and South Access roads, and potential increased harvest through increased access to the area. Ruffed grouse were rarely detected in the Keeyask region during environmental assessment studies.

Why is the study being done?

Suitable ruffed grouse breeding habitat was limited in the Keeyask region before Project construction began; much of this habitat was temporarily removed by forest fires in 2013. The objectives of ruffed grouse monitoring were to evaluate whether enough ruffed grouse can be found to verify the predictions of the habitat quality model defined in the Environmental Impact Statement and to assess mortality associated with the Project.

What was done?

Automated recording units (ARUs) were placed in ruffed grouse habitat in the Keeyask region, from the Split Lake area to the Long Spruce Generating Station during the spring to record males drumming. The ARUs were installed in 2018 and 2021, during Project construction, and in 2023 during Project operation. Each year the recordings were reviewed for ruffed grouse drumming and the number of days grouse drummed at each site.



Automated Recording Unit Survey Sites for Ruffed Grouse, in 2018, 2021, and 2023

What was found?

Ruffed grouse drumming was recorded at six of 22 sites surveyed in 2018, six of 26 sites in 2021, and 10 of the 18 sites in 2023. The location of ruffed grouse drumming varied each survey year and was widespread throughout the survey area.

One ruffed grouse mortality and one potential mortality was noted in 2021 during Project construction. No ruffed grouse mortality was noted in 2023. No increase in harvest pressure on ruffed grouse was noted during Project construction or in early operation.

What does it mean?

The presence of breeding ruffed grouse throughout the survey area and in areas where they had been observed during pre-construction surveys in 2012 suggests that the remaining habitat in the area is still suitable for ruffed grouse. Due to the relatively low abundance of ruffed grouse in the survey area, additional refinement of the ruffed grouse habitat quality model will not be conducted.

The relatively low amount of ruffed grouse mortality due to the Project and lack of increase in harvest pressure is not anticipated to affect the ruffed grouse population in the survey area.

What will be done next?

No additional ruffed grouse monitoring is planned during Project operation.

STUDY TEAM

We would like to thank Sherrie Mason and Rachel Boone of Manitoba Hydro for editorial comments, and Ron Bretecher of North/South Consultants Inc. for logistical assistance in the field. We would also like to thank Dr. James Ehnes, ECOSTEM Ltd., for GIS-supported study design and cartography.

Biologists and other personnel who designed or participated in field studies and drafted the results included:

- Robert Berger, Wildlife Resource Consulting Services MB Inc. (WRCS) – Design and reporting
- Alex McIlraith, Independent Contractor – Audio recording processing
- Levi Warkentine, WRCS – Data collection
- Thomas Wood, WRCS – Data collection
- Ellyse Olafson, WRCS – Data collection
- Naomi Hutchinson, WRCS – Data collection

TABLE OF CONTENTS

1.0	INTRODUCTION.....	7
2.0	METHODS.....	8
2.1	REFERENCE TO STUDY ZONES	11
3.0	RESULTS.....	13
4.0	DISCUSSION	18
5.0	SUMMARY AND CONCLUSIONS.....	19
6.0	LITERATURE CITED.....	20

LIST OF TABLES

Table 1: Number of Automated Recording Units in each Habitat Type that Recorded from May 5 to 24..... 8

Table 2: Number of Days between May 5 – 24 Ruffed Grouse were Recorded at Sites during Project Construction in 2018 and 2021 and Operation in 2023 13

Table 3: Total Number of Days Ruffed Grouse Drumming Was Recorded at Automated Recording Unit Sites, 2023 14

Table 1: Automated Recording Unit Locations, in 2018, 2021, and 2023 23

LIST OF FIGURES

Figure 1: Distinct Waveform of Ruffed Grouse Drumming 9

LIST OF MAPS

Map 1: Automated Recording Unit Survey Sites for Ruffed Grouse, in 2018, 2021, and 2023. (Note: Site 230 was not surveyed in 2021)..... 10

Map 2: Actual Construction Footprint and Revised Operation Study Zones..... 12

Map 3: Ruffed Grouse Drumming at Automated Recording Unit Sites, in 2018, 2021, and 2023 16

Map 4: Pre-Construction Ruffed Grouse Observations, in Spring 2012 (Stantec Consulting 2013) 17

LIST OF APPENDICES

Appendix 1: Automated Recording Unit Locations 2018, 2021, and 2023 22

1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt hydroelectric generating station (GS), located at the former Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake. Project construction began in July 2014 and the GS was fully operational in March 2022.

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, ruffed grouse (*Bonasa umbellus*) habitat effects.

Ruffed grouse are year-round residents at the edge of their range in the Keeyask region (Taylor 2018). They have been identified locally as important birds that are harvested by members of the partner First Nations. Aspen forest or mixed forest with a large proportion of aspen is preferred habitat for breeding (Taylor 2018). During the breeding season, males drum by standing on a log and beating their wings (Rusch *et al.* 2000).

Predicted Project-related effects on ruffed grouse were a loss of 70 ha (10%) of breeding habitat in Study Zone 4 (the Bird Regional Study Area; KHLP 2012). Breeding habitat was defined as broadleaf forests with downed woody debris measuring 35-40 cm in diameter and dense, tall shrub understory with 18,000–20,000 stems/acre (KHLP 2012). Additional Project-related effects included a possible increase in mortality due to traffic on the North and South Access roads and potential increased harvest through increased access to the area. Ruffed grouse were rarely detected in the Keeyask region during EIS studies and suitable breeding habitat appeared to be limited. Much of the ruffed grouse habitat identified during EIS studies was temporarily removed by forest fires in 2013.

The objectives of ruffed grouse monitoring were to evaluate whether the species can be detected in sufficient numbers to verify the predictions of the expert information habitat quality model defined in the EIS and to estimate how Project-related mortality (including accidental mortality and increased harvest) affect ruffed grouse abundance. In addition to 2023, ruffed grouse monitoring also occurred during Project construction in 2018 and 2021 (WRCS 2019; WRCS 2022).

2.0 METHODS

Ruffed grouse monitoring that was conducted in 2018 and 2021 during Project construction was continued in 2023 during Project operation. Automated recording units (ARUs) were placed at the same sites in Study Zone 4, located from the Split Lake area to the Long Spruce GS, in hardwood-dominated, mixedwood, and tall shrub habitats thought to be suitable for ruffed grouse breeding (Map 1; Appendix 1). Thirty ARUs were deployed in 2018 and 2023, and 29 were deployed in 2021, with the absence of one ARU on an island in Stephens Lake in 2021 (Map 1; Appendix 1). The ARUs were programmed to record for five minutes every 15 minutes from 4:30 a.m. to 7:00 a.m. Recordings made over a 20-day period from May 5 to 24 were included in the analysis for consistency over survey years (Table 1). All waveforms from recordings were visually reviewed for ruffed grouse drumming (Figure 1). The number of days ruffed grouse drumming was detected at each site was recorded.

Table 1: Number of Automated Recording Units in each Habitat Type that Recorded from May 5 to 24

Habitat	No. Automated Recording Units		
	2018	2021	2023
Balsam poplar dominant or mixedwood	3	3	3
Tall shrub	1	1	1
Trembling aspen dominant or mixedwood	10	13	9
White birch dominant or mixedwood	8	9	5

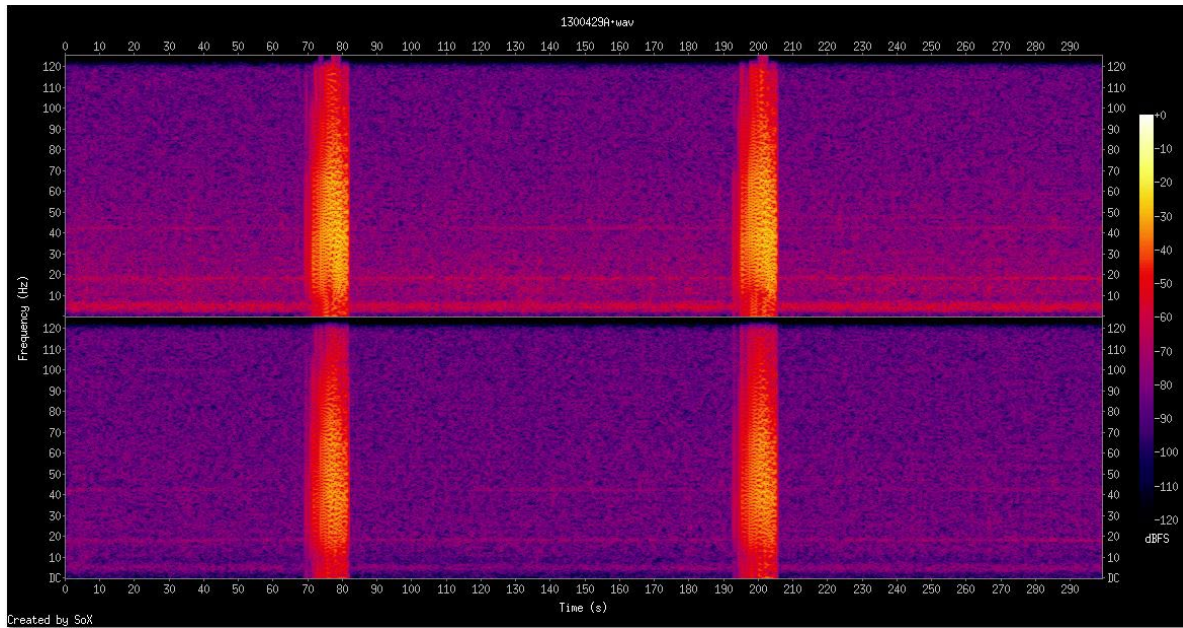
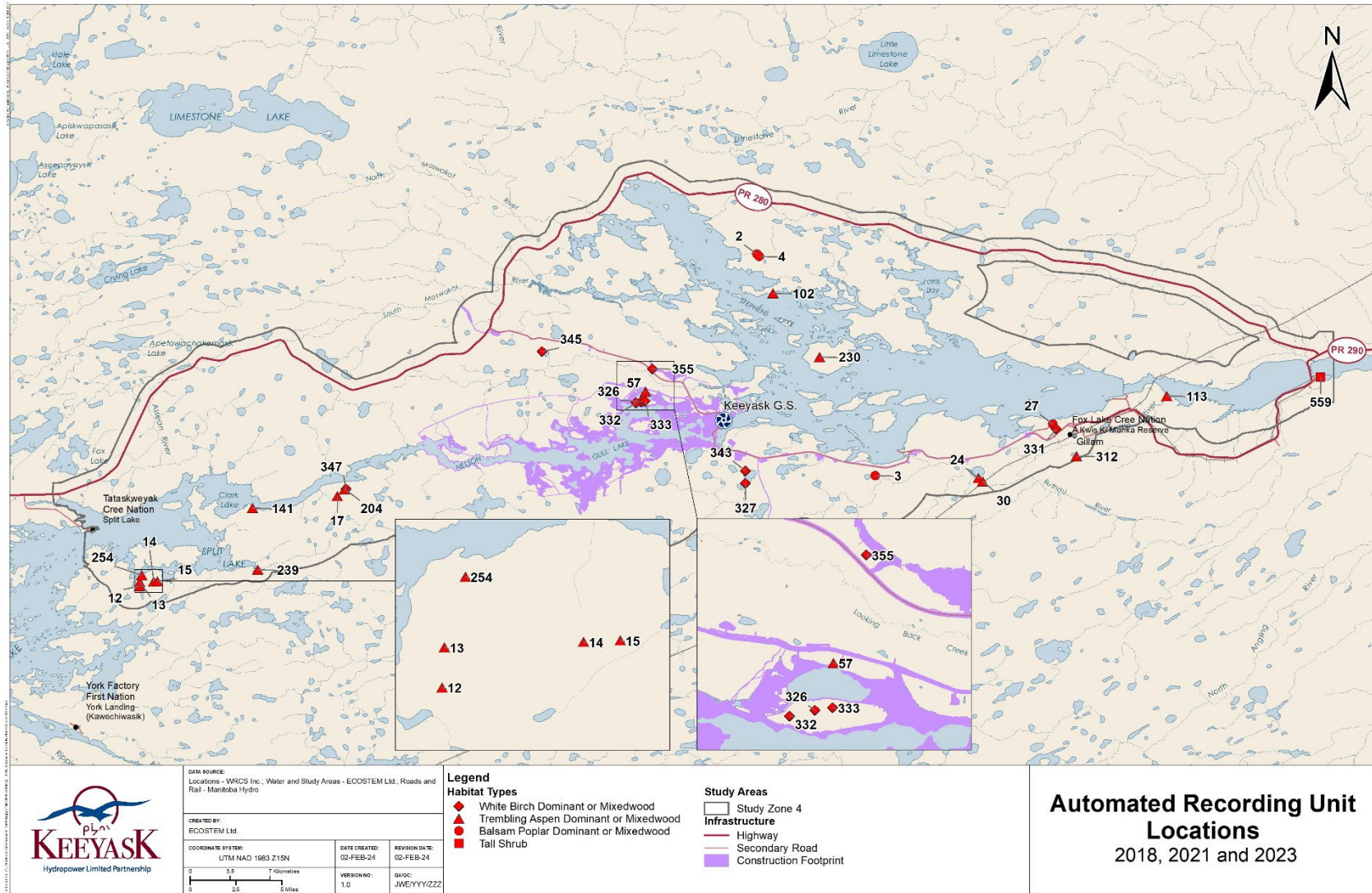


Figure 1: Distinct Waveform of Ruffed Grouse Drumming

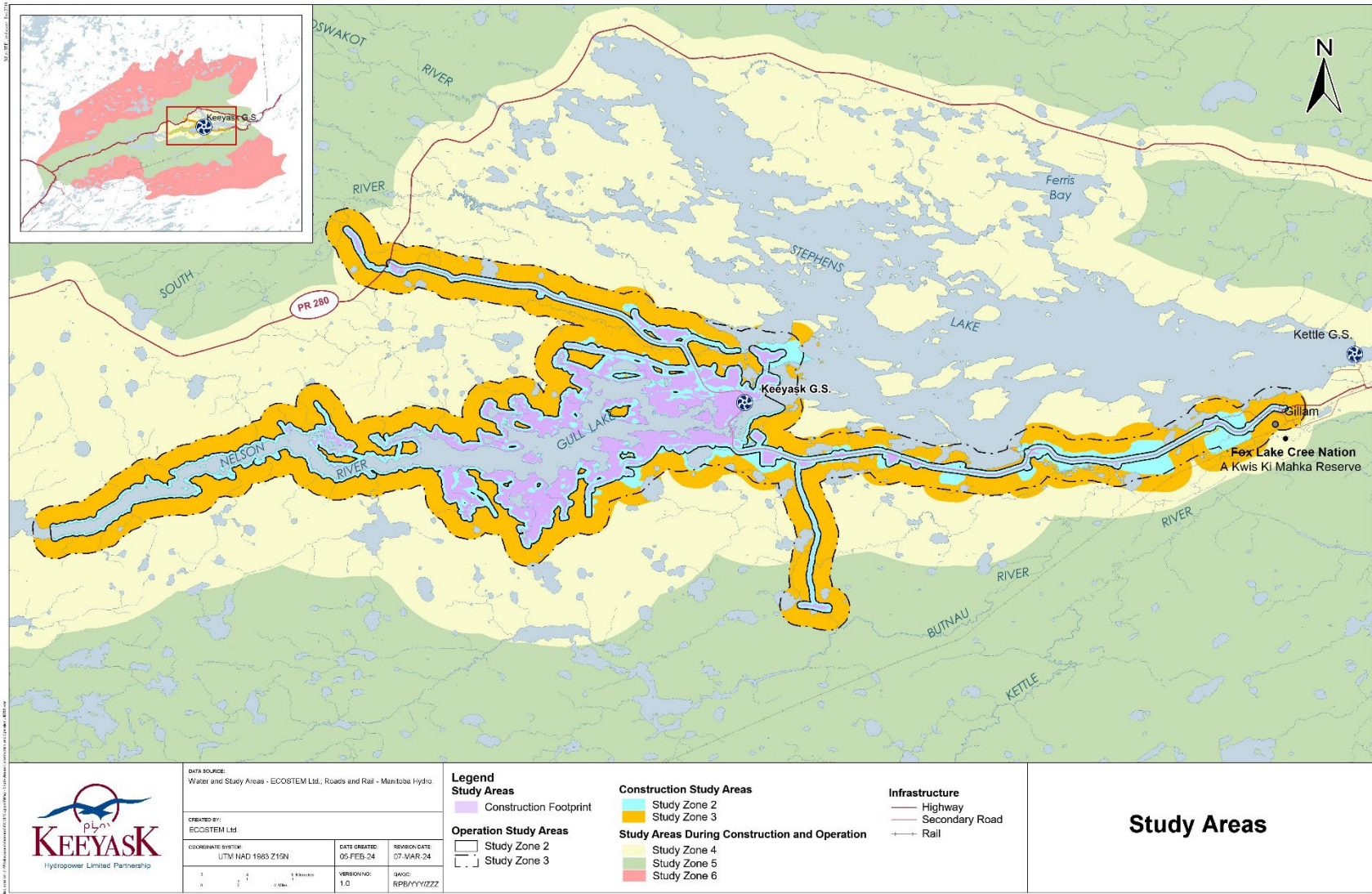


Map 1: Automated Recording Unit Survey Sites for Ruffed Grouse, in 2018, 2021, and 2023. (Note: Site 230 was not surveyed in 2021)

2.1 REFERENCE TO STUDY ZONES

During the creation of the Project's Environmental Impact Statement (EIS) a cautious approach was used to estimate the area of the Project construction footprint (Study Zone 1) and associated local study zones (Study Zones 2 and 3). This cautious approach included all of the possibly disturbed areas and areas that were unlikely to be affected in the licensed Project footprint.

Once the Project was fully operational, the Project footprint and associated local study zones were refined to represent the actual areas affected by the Project during construction, as many areas included for the effects assessment were not disturbed by the Project. Study Zone 1 was remapped to only include areas that were actually cleared or physically disturbed by the Project. Study zones 2 and 3, the indirect Project zones of influence, were delineated using the same buffer distances of Study Zone 1 that were used in the EIS - 150 m and 1,150 m, respectively. (ECOSTEM Ltd 2024). Information provided in this report shows the revised Operations Study Zones (Map 2).



Map 2: Actual Construction Footprint and Revised Operation Study Zones

3.0 RESULTS

From May 5 to 24, 2023, ruffed grouse drumming was recorded at 10 of the 18 sites surveyed (Table 2; Map 3). The number of sites where ruffed grouse were heard drumming in 2023 was higher than the previous surveys done in 2018 or 2021, when drumming was recorded at six and four sites, respectively (Table 2). In 2023, the number of days drumming was recorded at a given site from May 5 to 24 ranged from one to 20, which was in the ranges observed in 2018 and 2021 (Table 2).

In 2023, ruffed grouse drumming was detected in all habitat types except tall shrub, which only had a single ARU site (Table 2). On one ARU, drumming was detected as early as April 25, 2023, and continued until June 6, 2023 when it was removed (Table 3).

Ten of the 30 sites (30%) surveyed in 2018, 2021, and 2023 were surveyed for all three years, 16 of the 30 sites (53%) were surveyed for two years, and four sites (13%) were surveyed for a single year (Table 2). Of the 30 sites surveyed across 2018, 2021, and 2023, ruffed grouse drumming was detected at 15 sites (50% of sites) (Table 2). At three of the 15 sites where ruffed grouse were detected, drumming was infrequent (only heard on a single day in a single survey year; Table 2).

Table 2: Number of Days between May 5 – 24 Ruffed Grouse were Recorded at Sites during Project Construction in 2018 and 2021 and Operation in 2023

Site	Location	Habitat	2018	2021	2023
2	15 V 366867 6261771	Balsam poplar dominant or mixedwood	NA	0	NA
3	15 V 377245 6242354	Balsam poplar dominant or mixedwood	0	0	1
4	15 V 367062 6261575	Balsam poplar dominant or mixedwood	0	0	0
27	15 V 392856 6246862	Balsam poplar dominant or mixedwood	20	NA	0
12	14 V 684853 6232565	Trembling aspen dominant or mixedwood	20	NA	NA
13	14 V 684843 6232918	Trembling aspen dominant or mixedwood	NA	0	NA
14	14 V 686056 6233071	Trembling aspen dominant or mixedwood	NA	4	15
15	15 V 314231 6233086	Trembling aspen dominant or mixedwood	20	5	NA
17	15 V 330042 6240570	Trembling aspen dominant or mixedwood	NA	0	0
24	15 V 386328 6242142	Trembling aspen dominant or mixedwood	NA	0	NA
30	15 V 386697 6241855	Trembling aspen dominant or mixedwood	7	NA	10
57	15 V 357081 6249728	Trembling aspen dominant or mixedwood	0	0	9
102	15 V 368296 6258347	Trembling aspen dominant or mixedwood	0	0	NA
113	15 V 402853 6249336	Trembling aspen dominant or mixedwood	0	NA	0
141	15 V 322580 6239517	Trembling aspen dominant or mixedwood	0	0	NA
204	15 V 330681 6241174	Trembling aspen dominant or mixedwood	0	0	NA
230	15 V 372369 6252762	Trembling aspen dominant or mixedwood	NA	0	0

Site	Location	Habitat	2018	2021	2023
239	15 V 323044 6234103	Trembling aspen dominant or mixedwood	NA	0	4
254	14 V 684972 6233550	Trembling aspen dominant or mixedwood	0	0	1
312	15 V 394942 6244070	Trembling aspen dominant or mixedwood	0	0	0
326	15 V 356739 6248854	White birch dominant or mixedwood	0	0	18
327	15 V 365873 6241693	White birch dominant or mixedwood	0	0	NA
331	15 V 393144 6246450	White birch dominant or mixedwood	16	18	NA
332	15 V 356269 6248747	White birch dominant or mixedwood	0	0	19
333	15 V 357065 6248900	White birch dominant or mixedwood	0	7	20
343	15 V 365871 6242779	White birch dominant or mixedwood	0	0	NA
345	15 V 348009 6253244	White birch dominant or mixedwood	0	0	NA
347	15 V 330793 6241194	White birch dominant or mixedwood	0	0	1
355	15 V 357694 6251728	White birch dominant or mixedwood	NA	0	0
559	15 V 416361 6250975	Tall shrub	6	0	0

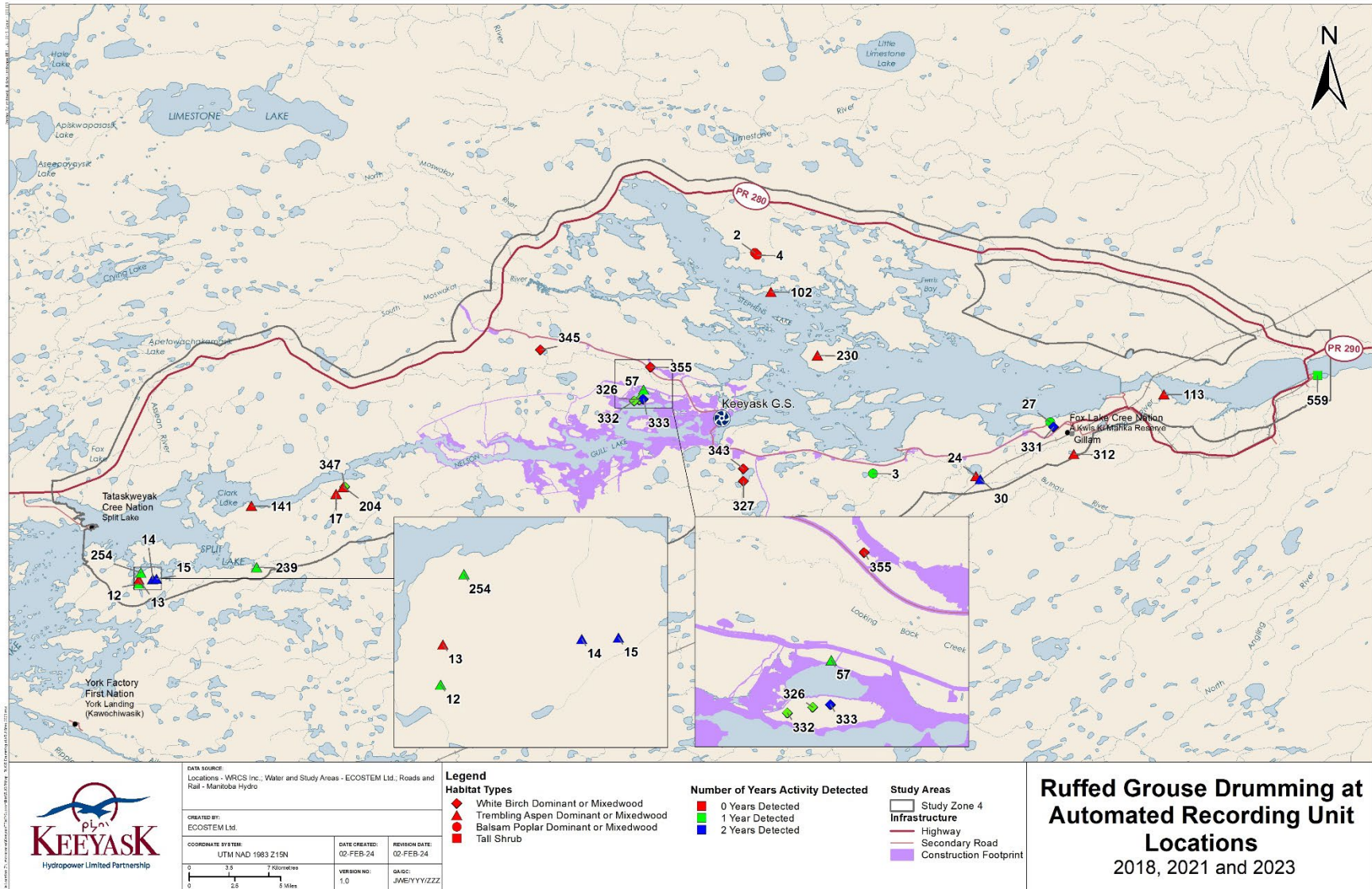
Table 3: Total Number of Days Ruffed Grouse Drumming Was Recorded at Automated Recording Unit Sites, 2023

Site	Habitat	Dates	No. Days
3	Balsam poplar dominant or mixedwood	May 23-27	2
14	Trembling aspen dominant or mixedwood	May 6-24	15
30	Trembling aspen dominant or mixedwood	April 25-May 14	18
57	Trembling aspen dominant or mixedwood	May 8-June 2	14
239	Trembling aspen dominant or mixedwood	May 7-12	4
254	Trembling aspen dominant or mixedwood	May 23-27	1
326	White birch dominant or mixedwood	May 1-June 6	31
332	White birch dominant or mixedwood	May 3-June 2	29
333	White birch dominant or mixedwood	May 4-June 6	34
347	White birch dominant or mixedwood	May 18	1

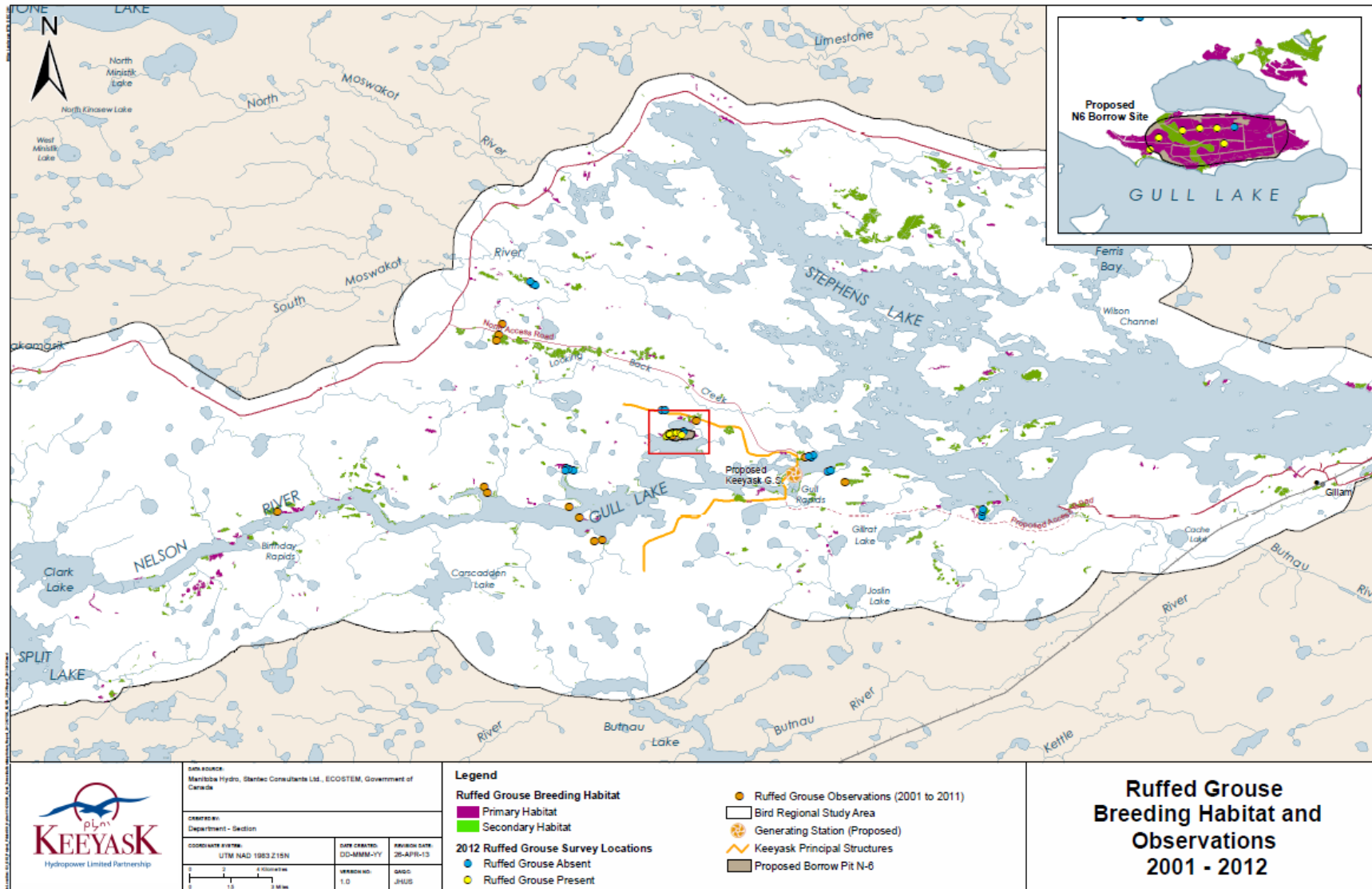
Pre-construction ruffed grouse surveys were conducted near Gull and Stephens lakes in spring 2012 (Stantec Consulting 2013). Ruffed grouse were found at six of the 24 stops surveyed, all immediately north of Gull Lake in trembling aspen or white birch mixedwood habitat (Map 4). Three sites surveyed in 2018, 2021, and 2023 (sites 326, 332, and 333) were in the same area and drumming was detected at site 333 in 2021, and at all three sites in 2023.

One confirmed ruffed grouse mortality and one potential mortality was recorded during Project construction in 2021. No grouse harvest was reported near the Keeyask GS under the Resource

Use monitoring study during Project construction (Eaton 2016; Eaton and Bretecher 2017; Mazur and Eaton 2019; Assuah and Eaton 2020). Ten grouse were harvested by a member of the workforce in 2015, in the Thompson area; but the species was not identified (Eaton 2016).



Map 3: Ruffed Grouse Drumming at Automated Recording Unit Sites, in 2018, 2021, and 2023



Map 4: Pre-Construction Ruffed Grouse Observations, in Spring 2012 (Stantec Consulting 2013)

4.0 DISCUSSION

Ruffed grouse drumming was detected throughout the study area in 2018, 2021, and 2023 in low numbers and only at half of the sites surveyed over three years, reaffirming the findings of surveys done during the pre-construction phase that ruffed grouse are uncommon in the area. The number of ruffed grouse heard drumming in 2023, the second year of Project operation, was the greatest number heard during any of the surveys, suggesting that suitable breeding habitat remains in the area following Project construction. The actual construction footprint only affected 39 ha of ruffed grouse breeding habitat, compared to the 70 ha that was predicted in the EIS (ECOSTEM and WRCS 2024). Due to the relatively low numbers of grouse heard, the data are insufficient to refine the ruffed grouse habitat quality model from the EIS.

Other potential Project effects including increased mortality due to vehicle collisions or increased harvest did not appear to be substantial for ruffed grouse in the area. The relatively small amount of ruffed grouse mortality (one confirmed and one suspected mortality) identified due to the Project, would not be anticipated to affect the overall population. Additionally, no harvest of ruffed grouse was reported in the Keeyask area during the construction period. At the time of the survey in 2023, the North Access Road had yet to be opened to the public. In the future, when the road becomes part of the Provincial highway network, this may result in increased vehicle-caused mortalities or increased harvest; however, due to the relatively low numbers of ruffed grouse in the survey area the likelihood of this occurring is low.

5.0 SUMMARY AND CONCLUSIONS

Breeding ruffed grouse were detected throughout the survey area during pre-construction, construction and operation surveys, suggesting that the remaining habitat in the Project area is still suitable for ruffed grouse. As ruffed grouse were relatively uncommon during all survey years, the data available were not sufficient to allow for additional refinement of the ruffed grouse habitat quality model.

Other potential Project effects including increased mortality due to vehicle collisions or increased harvest did not appear to be substantial for ruffed grouse in the area.

No further ruffed grouse monitoring is planned.

6.0 LITERATURE CITED

- Assuah, A. and Eaton, G.J. 2020. Resource Use Monitoring: Year 6 Construction. Keeyask Generation Project Resource Use Monitoring Report #RUMP-2020-01. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2020. 32 pp.
- Eaton, G.J. 2016. Resource Use Monitoring Report: Year 2 Construction. Keeyask Generation Project Resource Use Monitoring Report #RUMP-2016-01. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2016. 25 pp.
- ECOSTEM Ltd. 2024. Keeyask Generation Project Terrestrial Effects Monitoring Plan Report #TEMP-2024-01: Long-Term Effects on Habitat Monitoring, Year 2 Operation, 2023. A report prepared for Manitoba Hydro by ECOSTEM Ltd., June 2024.
- ECOSTEM and WRCS (ECOSTEM Ltd. and Wildlife Resource Consulting Services MB Inc.) 2024. Keeyask Generation Project Terrestrial Effects Monitoring Plan. Construction Phase Monitoring: Synthesis Report. A report prepared for Manitoba Hydro by ECOSTEM Ltd. and Wildlife Resource Consulting Services MB Inc. June 2024.
- Eaton, G.J. and Bretecher, R. 2017. Keeyask Generation Project Resource Use Monitoring Plan #RUMP-2017-01. Resource Use Monitoring Report: Year 3 Construction. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2017. 28 pp.
- KHLP (Keeyask Hydropower Limited Partnership). 2012. Keeyask Generation Station Project Environmental Impact Statement – Response to EIS Guidelines. Prepared by Keeyask Hydropower Partnership Limited, Winnipeg, Manitoba. June 2012. 1208 pp.
- Mazur, J., and Eaton, G.J. 2019. Resource Use Monitoring: Year 5 Construction. Keeyask Generation Project Resource Use Monitoring Report #RUMP-2019-01. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2019. 31 pp.
- Rusch, D.H., Destefano, S., Reynolds, M.C., and Lauten, D. 2000. Ruffed Grouse (*Bonasa umbellus*). In *The Birds of North America*, edited by A.F. Poole and F.B. Gill. Cornell Lab of Ornithology, Ithaca, NY. 27 pp.
- Stantec Consulting. 2013. Avian 2012 Field Studies Report. Keeyask Project Environmental Studies Program Report #TERR-12-01. Prepared for Manitoba Hydro by Stantec Consulting, Winnipeg, MB. 62 pp.
- Taylor, P. 2018. Ruffed Grouse. In *The Atlas of the Breeding Birds of Manitoba, 2010-2014*. Edited by C. Artuso, A.R. Couturier, K.D. De Smet, R.F. Koes, D. Lepage, J. McCracken, R.D. Mooi, and P. Taylor. Bird Studies Canada, Winnipeg, MB. Available from <https://www.birdatlas.mb.ca/accounts/speciesaccount.jsp?sp=RUGR&lang=en> [accessed March 11, 2019].
- WRCS (Wildlife Resource Consulting Services MB Inc.) 2019. Keeyask Generation Project Terrestrial Effects Monitoring Plan Report #TEMP-2019-11: Ruffed Grouse Habitat Effects

2018. A report prepared for Manitoba Hydro by Wildlife Resource Consulting Services MB Inc., June 2019.

WRCS. 2022. Keyyask Generation Project Terrestrial Effects Monitoring Plan Report #TEMP-2022-17: Ruffed Grouse Habitat Effects 2021. A report prepared for Manitoba Hydro by Wildlife Resource Consulting Services MB Inc., June 2022.

**APPENDIX 1:
AUTOMATED RECORDING UNIT LOCATIONS
2018, 2021, AND 2023**

Table 1: Automated Recording Unit Locations, in 2018, 2021, and 2023

Site	Location	Habitat	Surveyed in 2018	Surveyed in 2021	Surveyed in 2023
2	15 V 366867 6261771	Balsam poplar dominant on uplands		✓	
3	15 V 377245 6242354	Balsam poplar dominant on uplands	✓	✓	✓
4	15 V 367062 6261575	Balsam poplar mixedwood on uplands	✓	✓	✓
12	14 V 684853 6232565	Trembling aspen	✓		
13	14 V 684843 6232918	Trembling aspen		✓	
14	14 V 686056 6233071	Trembling aspen		✓	✓
15	15 V 314231 6233086	Trembling aspen	✓	✓	
17	15 V 330042 6240570	Trembling aspen		✓	✓
24	15 V 386328 6242142	Trembling aspen		✓	
27	15 V 392856 6246862	Balsam poplar	✓		✓
30	15 V 386697 6241855	Trembling aspen dominant on uplands	✓		✓
57	15 V 357081 6249728	Trembling aspen dominant on uplands	✓	✓	✓
102	15 V 368296 6258347	Trembling aspen dominant on uplands	✓	✓	
113	15 V 402853 6249336	Trembling aspen dominant on uplands	✓		✓
141	15 V 322580 6239517	Trembling aspen dominant on uplands	✓	✓	
204	15 V 365582 6246628	Trembling aspen mixedwood on uplands	✓	✓	
230	15 V 372369 6252762	Trembling aspen mixedwood on uplands		✓	✓
239	15 V 323044 6234103	Trembling aspen mixedwood on uplands		✓	✓
254	14 V 684972 6233550	Trembling aspen mixedwood on uplands	✓	✓	✓
312	15 V 394942 6244070	Trembling aspen mixedwood on uplands	✓	✓	✓
326	15 V 356739 6248854	White birch dominant on uplands	✓	✓	✓
327	15 V 365873 6241693	White birch dominant on uplands	✓	✓	
331	15 V 393144 6246450	White birch dominant on uplands	✓	✓	
332	15 V 356269 6248747	White birch dominant on uplands	✓	✓	✓
333	15 V 386347 6242088	White birch dominant on uplands	✓	✓	✓
343	15 V 365871 6242779	White birch dominant on uplands	✓	✓	
345	15 V 348009 6253244	White birch dominant on uplands	✓	✓	
347	15 V 330793 6241194	White birch mixedwood on uplands	✓	✓	✓
355	15 V 357694 6251728	White birch mixedwood on uplands		✓	✓
559	15 V 416361 6250975	Tall shrub on mineral soil	✓	✓	✓