Birtle Transmission Project

Environmental Effects Monitoring Report

Prepared by:
Manitoba Hydro
Winnipeg, Manitoba
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Manitoba Hydro

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Environmental Effects Monitoring Report 2022

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Transmission & Distribution Environment and Engagement Department

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List of Revisions

Number	Nature of revision	Section(s)	Revised by	Date

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ACRONYMS

AC	Alternating Current
BFJV	Birdtail Sioux Dakota Nation Forbes Bros Joint Venture
EMP	Environmental Monitoring Plan
CEnvPP	Construction Environmental Protection Plan
EA	Environmental Assessment
EEMP	Environmental Effects Monitoring Program
EPIMS	Environmental Protection Information Management System
EPP	Environmental Protection Program
ESS	Environmentally Sensitive Site
HCR	Heritage and Culture Review Team
kV	Kilovolt
MCC	Manitoba Conservation and Climate
ROW	Right-of-way
VC	Valued Component

1 INTRODUCTION

This report presents the results of the environmental effects monitoring plan for Birtle Transmission Project, hereby known as "the Project". This report is produced in compliance with clause 26 of *The Environment Act* licence No. 3314. Manitoba Hydro presents this information to inform interested parties, communities, stakeholders and the general public on progress made on construction and implementation of mitigation measures that minimize environmental effects.

This is the Project's third annual monitoring report and describes monitoring from January 1, 2022, through December 31, 2022. Map 1 outlines the Birtle Transmission Project area. Anyone interested in further information about this report, or the Project is invited to visit https://www.hydro.mb.ca/projects/expansion/birtle/ or contact Manitoba Hydro at:

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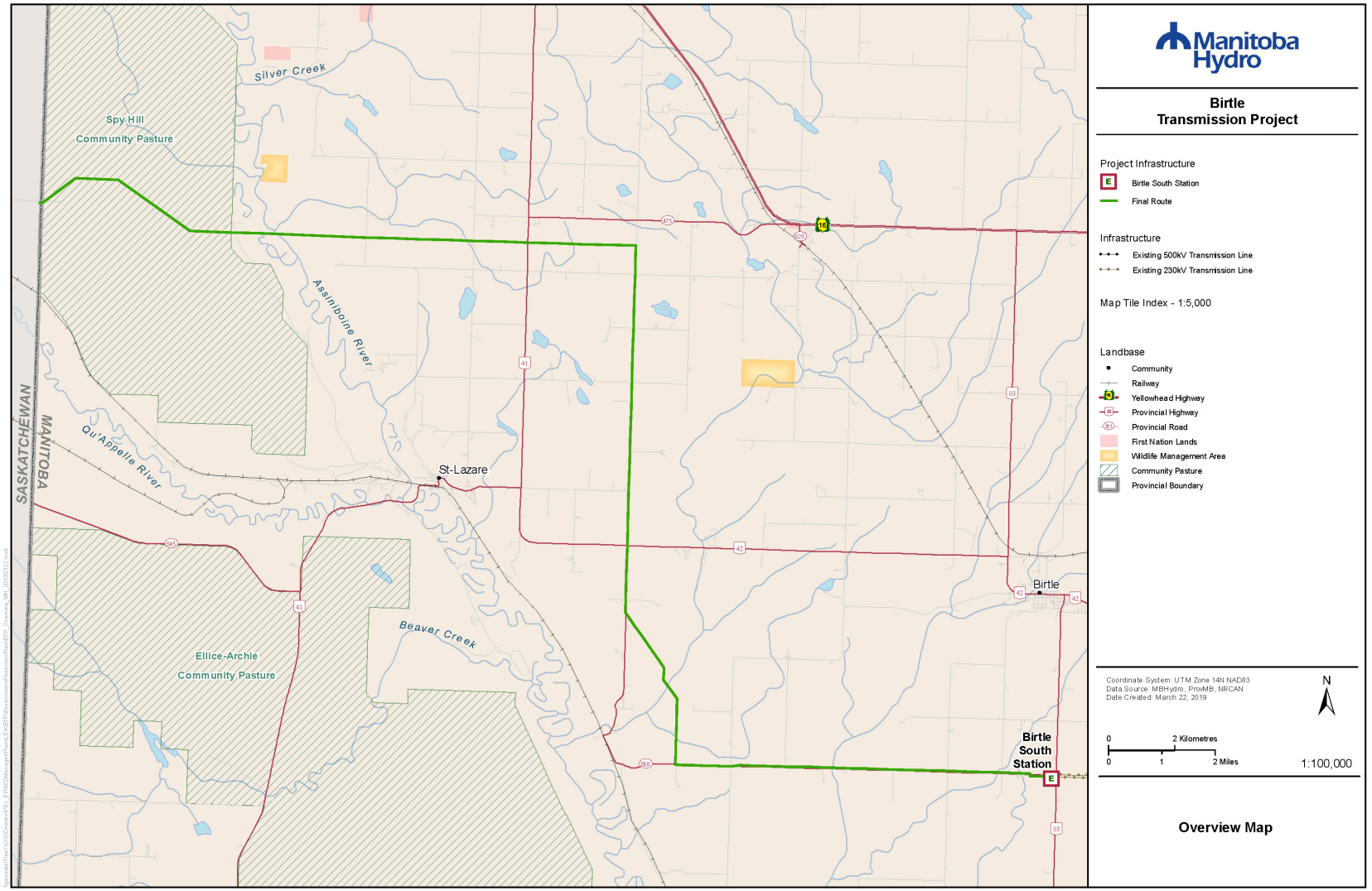
2 PROJECT OVERVIEW

The Birtle Transmission Project involves the construction and operation of a new 230 kV transmission line from the Birtle Station, located south of the community of Birtle, Manitoba to the Manitoba-Saskatchewan border (Map 1). SaskPower was responsible for building the transmission line in Saskatchewan that connects from the Manitoba-Saskatchewan border to a station in Tantallon, Saskatchewan.

3 PROJECT STATUS

The project began with public and Indigenous engagement in fall 2016 to spring 2017. Manitoba Conservation and Climate (MCC) granted a licence for the Project on January 14, 2020. Construction activities began in July 2020. The construction contract was awarded to a joint venture between Birdtail Sioux Dakota Nation and Forbes Bros (BFJV). The project was completed in March 2021 (Photo 1).

Photo 1. The Birtle Transmission Project was completed in March 2021.



Map 1. Birtle Transmission Project Area.

4 ENVIRONMENTAL EFFECTS MONITORING PLAN OVERVIEW

Manitoba Hydro's commitment to environmental protection includes the development of a comprehensive Environmental Protection Program (EPP) for the Project. This includes monitoring and follow-up of biophysical environmental components identified in the environmental assessment. The Environmental Effects Monitoring Plan (EEMP) was approved by MCC on June 11, 2020 and outlines the various monitoring activities that will occur during the different phases of the Project.

The scope of this plan includes physical and biological components of the environment. The purpose of the EEMP is to identify the key activities that will be conducted as part of the monitoring and follow-up component of the EPP that will verify potential effects and effectiveness of mitigation.

The objectives of the EEMP are to:

- Confirm the nature and magnitude of predicted environmental effects as stated in the environmental assessment (EA);
- Assess the effectiveness of mitigation measures implemented;
- Identify unexpected environmental effects of the Project, if they occur;
- Identify mitigation measures to address unanticipated environmental effects, if required;
- Confirm compliance with regulatory requirements; and
- Provide baseline information to evaluate long-term changes or trends.

Environmental components requiring follow-up monitoring are discussed further in this annual EEMP, including:

- Aquatic Habitat
  - Stream Crossings
- Grassland Habitat
  - Bird Species of Conservation Concern
  - Plant Species of Conservation Concern
  - Invasive Plant Species
  - Traditional Use Plant Species
- Forest Habitat
  - Ungulates
  - Plant Species of Conservation Concern
  - Invasive Plant Species
  - Traditional Use Plant Species
  - Predator and Resource User Access

Adaptive Management

Manitoba Hydro has accumulated a wealth of knowledge and lessons learned from previous monitoring programs. The successes of those programs have been useful in developing the EEMP for the Project. This previous experience has been used to improve upon the EEMP's approach, methods, and key environmental monitoring activities.

Going forward, an adaptive management framework will continue to be used through the end of the monitoring program to respond to unexpected outcomes or events based on information gathered. Data will be reviewed as collected to determine if any of the environmental thresholds specified in the EEMP have been exceeded due to shortfalls in impact prediction, ineffective mitigation measures or inadequate monitoring approaches. Actions will be developed in response to these contingencies.

5 IMPLEMENTATION OF MONITORING AND FOLLOW-UP ACTIVITIES

Environmental monitoring helps validate the accuracy of the EA and effectiveness of mitigation measures. Manitoba Hydro utilized internal staff for the implementation of the EEMP, funded participation for Indigenous community representatives, and retained highly qualified specialists in appropriate disciplines. Manitoba Hydro's Environmental Protection Information Management System (EPIMS) will also play a major role in the management of the EEMP implementation, the coordination of field work, and the data collection and communications amongst the monitoring team.

2022 Environmental Effects Monitoring Highlights

Key monitoring highlights during this reporting period include:

- No unexpected environmental effects were observed for any environmental components.
- No vegetation species listed by the federal *Species at Risk Act*, the Manitoba *Endangered Species and Ecosystems Act* or listed by the Committee on the Status of Endangered Wildlife in Canada were observed prior or post construction.
- No Tier 1 or 2 noxious weed species were noted during sampling on the ROW or incidentally. A single Tier 3 species (flixweed) and a non-native species (goat's-beard) were recorded from grassland sites in the pasture. The flixweed plants were manually removed. No further rehabilitation is required.
- Sharp-tailed grouse populations appeared to be lower with fewer lek (breeding) sites than was recorded during baseline surveys in 2017, 2019, 2020. This decline included lek sites throughout the study area, including near and distant to the Project.
- More chestnut-collared longspurs and Sprague's pipits and fewer brown-headed cowbirds were observed in 2022 than before Project construction.
- The new vehicle access point into the Spy Hill Community Pasture was successfully decommissioned.
- Abundant and increased numbers of moose, elk, white-tail deer, and mule deer were observed during the aerial ungulate survey.
- No environmental regulatory warnings or citations were issued.

Table 1: 2022 Monitoring Activities

Valued Component	Environmental Indicator	2022 Monitoring Status
Aquatic Habitat	Stream Crossings	Completed and reported in 2021
Grassland Habitat	Plant Species of Conservation Concern	Completed and reported in 2021
	Traditional Use Plant Species	Completed and reported in 2022
	Bird Species of Conservation Concern	Completed. One more year of monitoring
	Invasive Plant Species	Completed and reported in 2022
Forest Habitat	Ungulates	Completed and reported in 2022
	Plant Species of Conservation Concern	Completed and reported in 2021
	Traditional Use Plant Species	Completed and reported in 2022
	Invasive Plant Species	Completed and reported in 2022
	Predator and Resource User Access	Completed and reported in 2022

6 ENVIRONMENTAL COMPONENT MONITORING

Multiple environmental components were identified for follow-up in the environmental assessment and technical reports. For each environmental component, one or more environmental indicators were selected to focus monitoring and follow-up efforts as indicated in the EEMP (Table 1). Map 2 shows an overview of monitoring site locations.

Vegetation surveys were conducted from July 18 to 23, 2022 and August 3 to 7, 2022 with a technical report included in Appendix A. Bird surveys were conducted for sharp-tailed grouse from May 2 to 5, 2022 and bird species of conservation concern from June 20 to 28, 2022 with technical reports included in Appendices B and C, respectively. An aerial ungulate survey was conducted from February 15-18th, 2022. A technical report is included in Appendix D.

All surveys were conducted by qualified biologists in accordance with land access requirements for the Spy Hill Community Pasture.

7 AQUATIC HABITAT

7.1 Stream Crossings

Completed and reported in 2021.

8 GRASSLAND HABITAT

8.1 Traditional Use Plant Species

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

The EA predicted a decline in traditional use plant species. This result was not identified in the 2022 monitoring program. The composition and abundance of traditional plants were comparable with preconstruction conditions. In 2022, a total of 22 traditional use plant species were observed, comparable to preconstruction surveys (21 species) and 2021 (23 species) (Photo 3).

Assess the effectiveness of mitigation measures implemented:

The implemented mitigation was effective for grassland habitat, according to the minimal disturbance observed from construction activities.

Identify mitigation measures to address unanticipated environmental effects, if required:

None required.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating any long-term changes or trends in vegetation composition along transmission lines in grassland habitats.

Photo 3. Grassland site with higher cover of traditional use plants, adjacent to an existing trail.

8.2 Invasive and Non-Native Plants

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

The EA predicted an increase in invasive and non-native plants in grassland habitats. This result was not identified in the 2022 monitoring program. Surveys showed non-native species were virtually absent from grassland sites on the ROW. Only two non-native species were recorded within the grassland survey plots within the Spy Hill Community Pasture; common dandelion and smooth brome. No Tier 1 or 2 noxious species were observed during the monitoring program (Photo 4).

Assess the effectiveness of mitigation measures implemented:

Through environmental monitoring, it was determined that the mitigation implemented was effective for grassland habitat, according to the minimal disturbance observed from construction activities. In particular, mitigation measures including winter construction and the use of screw-pile tower foundations were successful in reducing or eliminating instances of grassland habitat disturbance.

Identify mitigation measures to address unanticipated environmental effects, if required:

None required.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating any long-term changes or trends in invasive and non-native plant spread due the construction of the project.

Photo 4. Previous forest clearing in the ROW.

8.3 Bird Species of Conservation Concern

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

The EA predicted a decline in bird species of conservation concern and sharp-tailed grouse and as a result of the project. The post construction monitoring results were mixed.

In the second year of monitoring, more chestnut-collared longspurs (73) and Sprague's pipits (126), were observed in 2022 than before Project construction (58 and 107, respectively). In addition, there were fewer observations of brown-headed cowbirds, a parasitic nester, post construction (19 vs 72). Chestnut-collared longspur and Sprague's pipit were distributed throughout the Spy Hill Community Pasture and were the most frequently detected species of conservation concern.

Fewer sharp-tailed grouse leks (breeding sites) were observed in 2022 (6), compared to the number observed in 2017 (28), 2020 (16), or 2021 (9) (Photo 5). However, the average number of grouse attending the leks was greater in 2022 (16) compared to 2021 (13), 2017 (6) or 2020 (9), which may account for some of the difference in the number of leks observed. The total number of grouse observed in 2022 (115) was lower than the number observed in 2017 (182), 2021 (121) and 2020 (128). Grouse numbers declined both near the project (<1,000m) and at a distance (4,000m). The apparent decrease in the total number of grouse may be due to variability in the observability of grouse during the survey or natural population fluctuations.

Assess the effectiveness of mitigation measures implemented:

Mitigation measures included project routing to avoid open grasslands and the installation of bird flight diverters and avian perch deterrents (Photo 6). Project routing and bird diverters appeared to be effective at lowering effects on grassland bird species. Although some breeding bird species declines were observed, they were unlikely directly attributable to the Project.

Again in 2022, perching avian predators were observed in low densities at sites with and without perch deterrents. Perch deterrents did not seem to affect the abundance of perching avian predators during post-construction.

Identify mitigation measures to address unanticipated environmental effects, if required:

None required at this time.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to recording any long-term changes or trends in chestnut collared longspurs, Sprague's pipits, and sharp-tailed grouse population changes and lek characteristics in western Manitoba.

Photo 5. Sharp-tailed grouse on a lek (breeding site) near the Birtle Transmission Project.

Photo 6. Grassland site within the right of way in the Spy Hill Community Pasture.

9 FOREST HABITAT

9.1 Ungulates

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

The EA predicted a possible small decline in ungulates. This result was not identified in the 2022 ungulate monitoring program. The composition and abundance ungulate species did not decline, but rather increased. In 2022, a

total of 311 moose, 109 elk, and 73 mule deer were detected. In 2016, 165 moose, 13 elk, and 1 mule deer were detected.

Assess the effectiveness of mitigation measures implemented:

The implemented mitigation appeared to be effective.

Identify mitigation measures to address unanticipated environmental effects, if required:

None required.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating any long-term changes or trends in ungulate populations in southwestern Manitoba.

9.2 Traditional Use Plant Species

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

The EA predicted a decline in traditional use plant species in forested habitat. In forest habitat, initial clearing and construction activities did reduce traditional vegetation cover. However in 2022, a total of 22 traditional use plant species were observed, comparable to preconstruction surveys in 2017 and 2019 (21 species) and 2021 (23 species). In 2022, the mean cover of all traditional use species increased from 27.8% (2021) to 42.5%.

Assess the effectiveness of mitigation measures implemented:

The implemented mitigation was effective for forested habitat, according to the minimal disturbance observed from construction activities.

Identify mitigation measures to address unanticipated environmental effects, if required:

None required.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating any long-term changes or trends in vegetation composition along transmission lines in forested habitats.

9.3 Invasive and Non-Native Plants

Confirm the nature and magnitude of predicted environmental effects as stated in the EA:

The EA predicted an increase in invasive and non-native plants in forested habitats. This result was not identified in the 2022 monitoring program. Monitoring showed very little soil disturbance was observed on the ROW, with no major outbreaks of noxious, invasive or non-native species. Six non-native species were recorded within the forested survey plots within the Spy Hill Community Pasture; including crested wheat grass and smooth brome. These likely encroached from the main pasture trails.

Assess the effectiveness of mitigation measures implemented:

Through environmental monitoring, it was determined that the recommended mitigation was implemented and effective for forested habitat, according to the minimal disturbance observed from construction activities (Photo 7). In particular, the mitigation techniques used to address soil and vegetation disturbance through surface damage, rutting and erosion, and the mitigation around tower erection and foundations were all successful in reducing or eliminating instances of forested habitat disturbance. Although an approved native seed mix was purchased and on hand, it was not required for use in the Spy Hill Community Pasture. A patch of sweet clover plants was found on the right of way in the pasture and picked by hand and removed.

Identify mitigation measures to address unanticipated environmental effects, if required:

None required.

Provide baseline information to evaluate long-term changes or trends:

Survey information will contribute to evaluating any long-term changes or trends in invasive and non-native plant spread due the construction of the Project.

Photo 7. Grassland habitat under a tower foundation.

9.4 Predator and Resource User Access

Predator and resource user access monitoring was conducted in 2022. The new access trail into Spy Hill Community Pasture has been re vegetating and remains largely inaccessible as the private landowner has fenced and gated their property. A site visit in September and November 2022 showed no evidence of vehicle traffic on the access trail since its decommissioning (Photo 8).

Trail camera monitoring of the decommissioned access trail on the Spy Hill Community Pasture was primarily used by white-tailed deer. (Photo 9). Although the Spy Hill Community Pasture property boundary is fenced and maintained with no defined vehicle trail, two instances of a black bear and coyote movements were captured on a trail camera (Photo 10). Vehicle use included four pick-up trucks and three ATVs travelling near the ROW or along the boundary fence line. All vehicles turned around when they encountered the boundary fence. Two people on foot, who appeared to be hunters, were also detected.

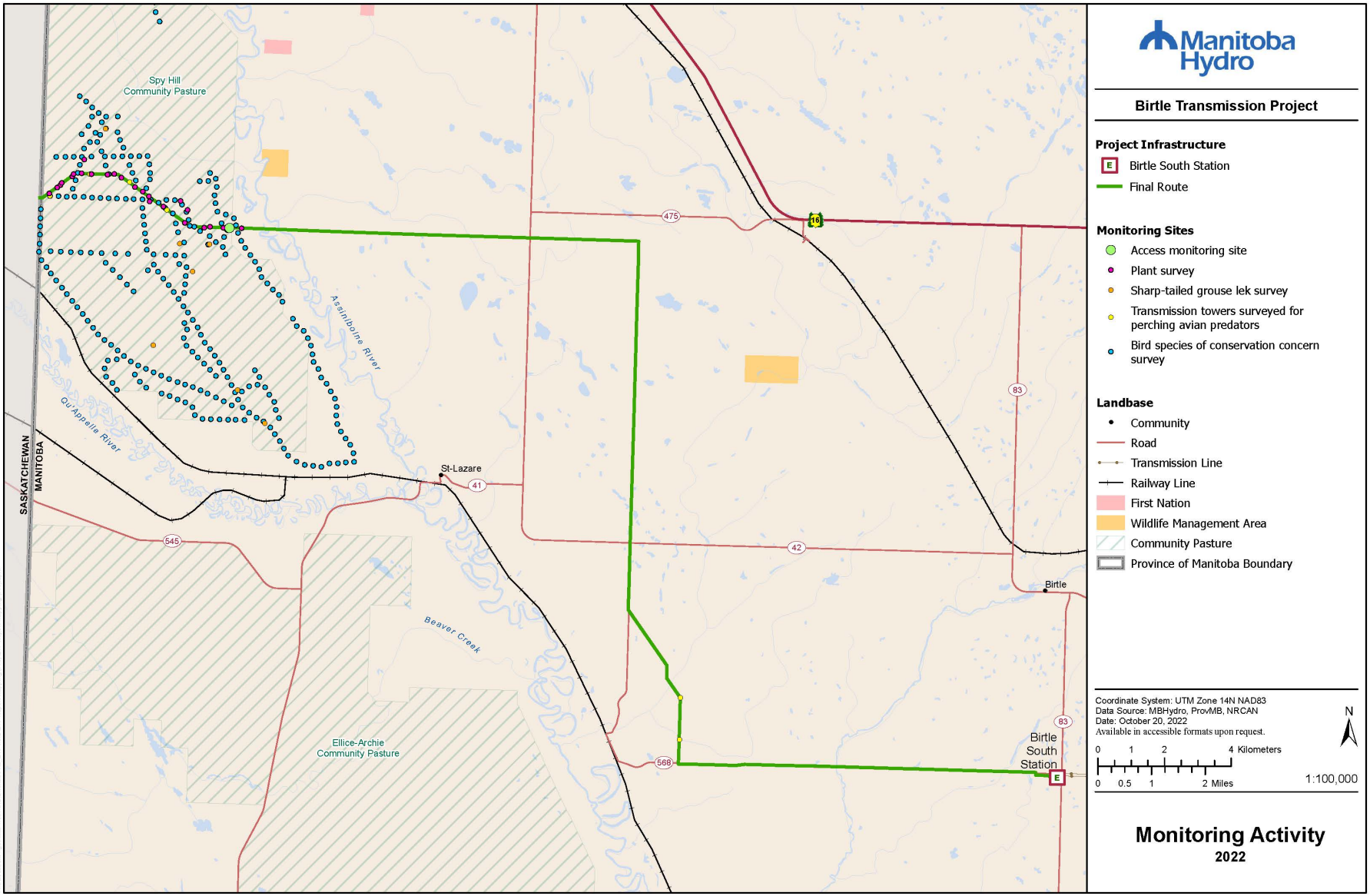
Overall, there was little observed effect of the decommissioned access point on predators and no increase in access by resource users (Photo 11).

Photo 8. The decommisioned access trail into the Spy Hill Community Pasture was fenced and gated by the private landowner after construction.

Photo 9. White-tailed deer on the decommisioned access trail in the Spy Hill Community Pasture in 2022.

Photo 10. A coyote captured on a camera trap shortly after decommissioning.

Photo 11. Vegetation regrowth on the decommissioned access trail in the Spy Hill Community Pasture in 2022.



Map 2. Birtle Transmission Project Monitoring Site Locations.

10 COMPLIANCE MONITORING

Compliance monitoring involves reviewing Project activities for adherence to legislation, licence conditions, permits, and environmental protection plans. No regulatory warnings or citations were issued in 2022.

11 CULTURE AND HERITAGE MONITORING

In September 2020, a Heritage and Culture Review (HCR) Team was formed with representatives from Indigenous communities, Manitoba Hydro and the project archaeologist. The purpose of the HCR Team was to:

- support Indigenous monitoring in the Spy-Hill Community Pasture;
- create a platform for understanding issues of concern to Indigenous participants; and
- share information in a cooperative and transparent manner relating to culture and heritage resources on the Project.

In December 2020, two Indigenous Culture and Heritage Monitors began daily monitoring of historic resources during construction in the Spy Hill Community Pasture and sharing biweekly updates with the HCR Team. No culture and heritage findings or concerns were reported by the monitors within the community pasture, and the project archeologist did not need to be called to the site.

A final report was produced and published by the HCR team. This report can be found here: https://www.hydro.mb.ca/projects/expansion/birtle/pdf/culture_and_heritage_monitoring_report_2021.pdf

No further work was conducted in 2022.

12 FUTURE MONITORING

The following monitoring activities are planned for 2023:

Grassland Habitat

- Bird Species of Conservation Concern

The EEMP contains detailed descriptions of all monitoring activities.

13 APPENDICIES

Appendix A: Birtle Transmission Project - Vegetation Technical Report 2022

Appendix B: Birtle Transmission Project - Sharp-tailed Grouse Lek Technical Report 2022

Appendix C: Birtle Transmission Project - Bird Species of Conservation Concern Technical Report 2022

Appendix D: Birtle Transmission Project - Ungulate Aerial Survey Technical Report 2022