Keeyask Generation Project

Terrestrial Effects Monitoring Plan

Provincially Very Rare and Rare Plants Monitoring Report

TEMP-2022-04

KEEYASK

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KEEYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2022-04

PROVINCIALLY VERY RARE AND RARE PLANT MONITORING

Prepared for

Manitoba Hydro

By

ECOSTEM Ltd.

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SUMMARY

Background

Construction of the Keeyask Generation Project (the Project) at Gull Rapids began in July 2014 and the reservoir was impounded from August 31 to September 5, 2020. 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.

Plants perform important functions in land ecosystems. Some plants are particularly important for ecological reasons (e.g., rare species) and/or social reasons (e.g., traditional food and cultural importance to the Keeyask partner First Nations). Provincially rare plant species are important to monitor because it is possible that the loss of a small number of these plants can have a large effect on the species in the Project region.

This report describes the results of the rare plant monitoring conducted during 2020, the seventh summer of Project construction.

Why is the study being done?

The environmental assessment studies carried out for the Project did not find any rare plant species in the areas that may be affected by Project development. However, because these plants could still be present but not yet discovered (as rare plants can be hard to find), the Provincially Very Rare and Rare Plant study is conducting additional searches for these rare species in Project areas. If any rare plants are found, appropriate mitigation (e.g., avoiding those areas or transplanting plants to an area that won't be disturbed) is proposed.

What was done?

Pre-clearing rare plant searches were not conducted in 2021 since new clearing for construction was not anticipated.

Rare plant surveys conducted in 2018, 2019 and 2020 found elegant hawksbeard, a critically imperiled plant in Manitoba. Patches of elegant hawksbeard plants were found at the Start-up Camp and at several sites in Borrow Area B-6. The patches of plants were flagged so that they could be avoided by construction activities.

It was determined in 2019 that some of the plants in Borrow Area B-6 and the large patch of plants at the Start-up Camp were at risk from Project decommissioning activities. In September 2019 a botanist (plant specialist) transplanted three plants from Borrow Area B-6, and 92 plants from the Start-up Camp to other locations in the Project footprint that were at low risk for disturbance.

Elegant hawksbeard plant

In August 2021, a botanist conducted surveys to determine the status of elegant hawksbeard at all of their known locations.

In addition to these surveys, when rare plants are found during any of the habitat or plant monitoring studies, they are documented by taking pictures, taking notes, recording coordinates and flagging the location so the plants can be found again and avoided, where possible.

Also, if rare or uncommon plants of importance to the Keeyask partner First Nations are found while doing any of the terrestrial habitat, ecosystem or plant monitoring studies (e.g., invasive plant monitoring), their locations are recorded.

What was found?

Monitoring determined that several elegant hawksbeard plants that naturally established in Borrow Area B-6 in 2020 were removed by construction activity in 2021. However, new plants were found just outside of the recently disturbed area and a large patch had also established on the north bank of the borrow area.

The 2021 surveys found that 6% of the plants transplanted from the Start-up Camp patch were still alive in two of the transplant sites, all of which flowered and appeared to have dispersed seed.

The large patch at the Start-up Camp that was marked for avoidance remained undisturbed, and the number of plants was continuing to increase there.

No rare to uncommon plants of importance to the Keeyask partner First Nations were seen during any of the terrestrial habitat, ecosystem or plant monitoring surveys in 2021.

What does it mean?

The 2019 transplanting program successfully transferred many elegant hawksbeard plants to three new areas, helping to conserve the local populations. In addition to surviving the transplanting, these plants were able to flower. Future monitoring will determine if the seeds produced by these flowers are able to grow into new plants.

As of September 2021, Project activities successfully avoided plants at the Start-up Camp, but removed several naturally seeded plants at Borrow Area B-6. The plants removed at this site were not a concern for the local population because more plants have appeared naturally outside of the construction area. The total number of plants at Borrow Area B-6 did not decrease between 2020 and 2021.

The large decline in the number of surviving transplanted plants (from 96% to 6%) may be normal as elegant hawksbeard plants have been reported to die after they produce seed.

Because of its natural site preferences, elegant hawksbeard will likely continue to spread in the disturbed Project areas that have exposed coarse mineral material (e.g., borrow areas and work areas). Disturbance near the known elegant hawksbeard sites in the Project footprint should be avoided or minimized, if possible.

What will be done next?

No additional pre-clearing rare plant surveys are planned for 2022 as the construction phase of the Project is nearing completion. Surveys in 2022 will determine if Project activities avoided the known elegant hawksbeard locations. The 2022 surveys will also determine if new plants are establishing at the transplant sites.

ACKNOWLEDGEMENTS

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Chiefs and Councils of Tataskweyak Cree Nation (TCN), War Lake First Nation (WLFN), York Factory First Nation (YFFN) and Fox Lake Cree Nation (FLCN) are gratefully acknowledged for their support of this program.

We would also like to thank North/South Consultants Inc., in particular Ron Bretecher and Shari Fournier, for their guidance, logistical support and other resources that made these studies possible.

STUDY TEAM

Dr. James Ehnes was the project manager and study designer.

Fieldwork was conducted by Brock Epp and Alex Snitowski.

Data analysis and report writing were completed by Brock Epp. James Ehnes reviewed the report. Cartography was completed by Alex Snitowski.

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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. Reservoir impoundment began August 31, 2020 and was completed on September 5, 2020.

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 (KHLP 2012a). 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; KHLP 2012b). The *Keeyask Generation Project Terrestrial Effects Monitoring Plan* (TEMP) was developed as part of the licensing process for the Project (KHLP 2015). Monitoring activities for various components of the terrestrial environment were described, including the focus of this report, rare plants, during the construction and operation phases.

Priority plants are defined as those plants that are particularly important for ecological and/or social reasons. Priority plants are the native plant species that are highly sensitive to Project impacts, make high contributions to ecosystem function and/or are of particular interest to the partner First Nations. A plant species is considered to be highly sensitive to Project impacts if it is globally, nationally, provincially or regionally rare, near a range limit, has low reproductive capacity, depends on rare environmental conditions and/or depends on the natural disturbance regime (wildlife studies monitor plant species that are critical for the survival and/or reproduction of an animal species). The partner First Nations have noted a variety of plants of traditional importance that are present in the Project area, including *wihkis* (sweet flag; *Acorus americanus*) and northern Labrador tea (tea leaves; *Rhododendron tomentosum*).

The Priority Plants and Their Habitats study (see KHLP 2015, Section 3.1.3) verifies actual Project effects on known priority plant locations and priority plant habitats, including those plants that are important to the partner First Nations. This study commences in the final year of construction.

Because it is possible that existing locations of provincially very rare to rare plant species were not found during the environmental assessment studies, the Provincially Very Rare and Rare Plant study (i.e., this study) conducts additional searches and, in the unlikely event any of these species are found, prescribes appropriate mitigation.

The objectives of the Provincially Very Rare and Rare Plant study are to:

- Determine if any provincially very rare or rare plants occur within the Project zone of influence; and,
- In the unlikely event that a provincially very rare or rare plant is discovered:

- Confirm that any identified locations are well marked for avoidance where avoidance is practicable;
- Develop a transplanting plan for provincially very rare plant locations where avoidance is not practicable; and,
- Monitor the survival and vigour of all plants in any identified locations.

Monitoring for this study was conducted from 2014 to 2021. Several previous reports (ECOSTEM 2015; 2016; 2017a; 2018, 2019, 2020 and 2021) provide results for the pre-clearing rare plant surveys and monitoring conducted from 2014 to 2020. This report presents results from the monitoring work conducted during 2021.

2.0 METHODS

2.1 APPROACH

Section 3.1.2 of the Terrestrial Effects Monitoring Plan (TEMP) details the methods for this study. The following summarizes the activities conducted during 2020.

The rare plant species included in this study were generally those which the Manitoba Conservation Data Centre (MBCDC) has classified as being critically imperiled to imperiled[i] in Manitoba. This includes species with conservation status ranks of S1, S1?, S1S2, S2 or S2?. The two initial exceptions were small pondweed (*Potamogeton pusillus* spp. *tenuissimus*) and Robbins pondweed (*P. robbinsii*), since the EIS analysis concluded that these species are actually not imperiled in the Keeyask region. Muskeg lousewort (*Pedicularis macrodonta*) was ranked as S2 (imperiled) by the MBCDC when construction monitoring began. The species was later excluded after it was found at more than 20 locations outside of the potential Project zone of influence on plants (Study Zone 2; Map 2-1). Additionally, the MBCDC has recently changed the species rank to S2S3 (vulnerable, potentially imperiled).

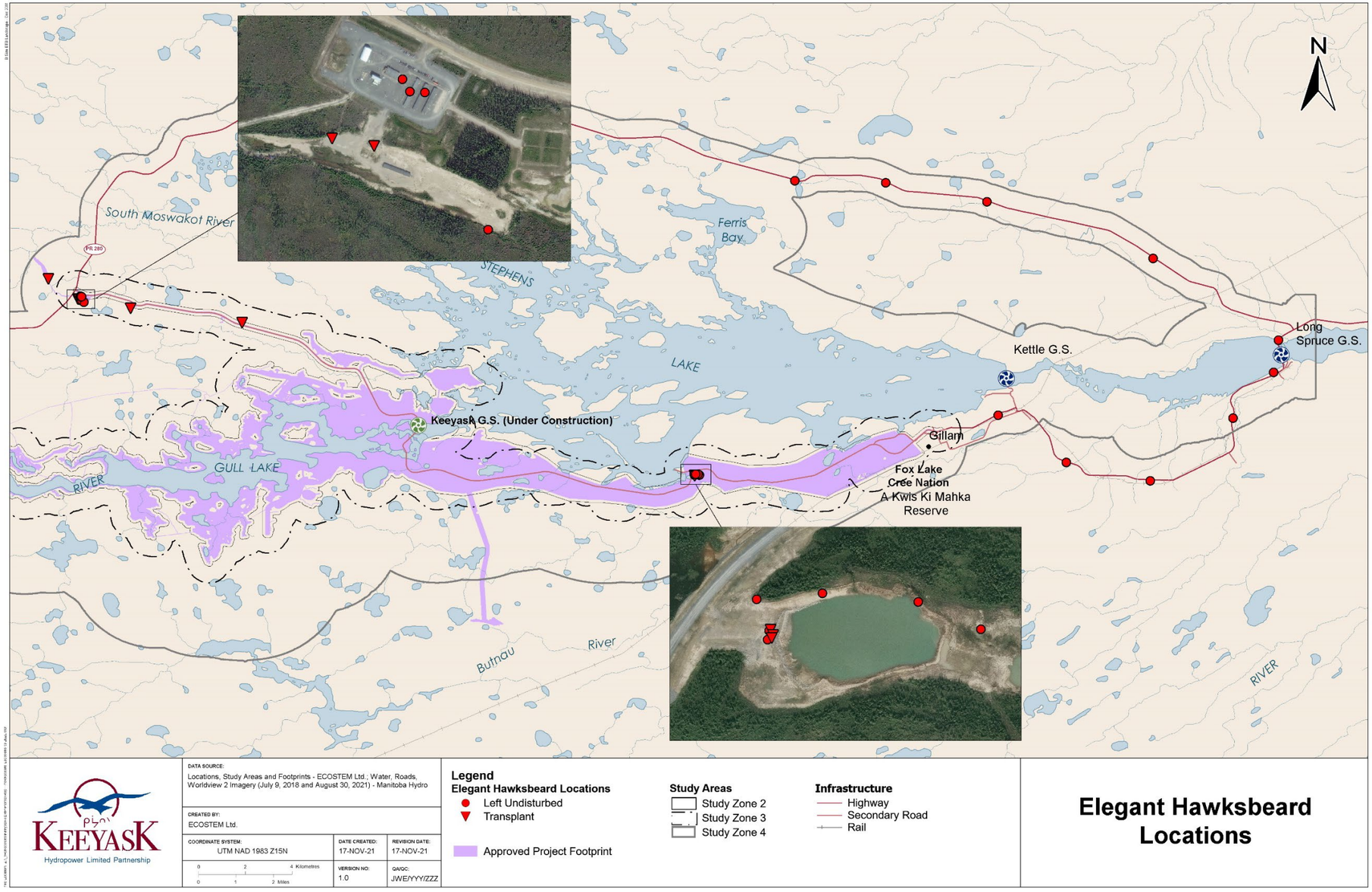
Uncommon plants of importance to the Keeyask partner First Nations recorded during field surveys to date have included northern Labrador tea and *wihkis* (sweet flag).

This monitoring study conducts pre-clearing rare plant surveys in areas that meet all of the following three criteria:

- Had not been previously surveyed for rare plants;
- Could be directly or indirectly affected by the Project (Study Zone 2; Map 2-1); and,
- Had the highest potential for supporting provincially very rare to rare species.

Pre-clearing rare plant surveys were not conducted in 2021 since new Project clearing was not anticipated at the time of the surveys. Monitoring activities in 2021 included surveys to monitor the survival and reproduction of elegant hawksbeard plants that had been transplanted in 2019.

[i] Note that the terminology used by the MBCDC has changed since the 2019-2020 annual report. “Very rare is now critically imperilled and rare is now imperilled.”



Map 2-1: Known elegant hawksbeard sites identified in the Project area up to 2020.

2.2 ELEGANT HAWKSBEARD SURVEYS

Elegant hawksbeard (*Crepis elegans* [also called *Askellia elegans*]; Photo 2-1) has been found at four sites during TEMP construction monitoring (Map 2-1). Elegant hawksbeard is ranked as a provincially critically imperiled (S1 species) by the Manitoba Conservation Data Centre (MBCDC 2018).

Photo 2-1: Elegant hawksbeard basal rosette growing in Borrow Area B-6 in 2021

In 2018 and 2019, elegant hawksbeard plants were found at several sites in Borrow Area B-6, and at the Start-up Camp (Photo 2-2). The plants at the Start-up Camp were located in a large patch (at least 125 plants) in the gravel between Dorm 1 and the kitchen trailer, as well as a single plant at another site between two trailers.

In 2019, it was determined that some of the plants in Borrow Area B-6 were growing in an area scheduled to be revegetated during the Project's habitat rehabilitation program, and the plants at the Start-up Camp were growing in a high-traffic area that was planned for decommissioning the following fall.

Photo 2-2: Site of the large elegant hawksbeard patch beside Dorm 1 in the Start-up Camp in 2019. Plants were too small to be visible in this photo. Inset shows typical size of plants in the patch at the time.

In September 2019, three plants from Borrow Area B-6 and 92 plants from the Start-up Camp were transplanted to other areas and sites because it was unlikely that they could be avoided by construction activities (ECOSTEM 2020). In Borrow Area B-6, three plants were transplanted elsewhere in the borrow area, to sites outside of the planned rehabilitation area (Table 2-1; Map 2-1). A total of 92 plants were transplanted from the large patch in the Start-up Camp to four different areas that were sufficiently separated to serve as independent populations. Two sites were established in an unused portion of the Start-up Camp footprint, and single patches were established in Borrow Areas G-5 and KM-4, and the Cemetery Site (Table 2-1; Map 2-1). The location of all transplant sites were recorded with a GPS, and all sites were marked with blue flagging tape.

In 2020 all the original plant sites, as well as the transplant sites were visited to determine the status of the plants, and determine if any new plants had established.

In 2021, all transplant sites were re-visited, with one exception. The transplant site in Borrow Area G-5 was not re-visited because at the time of the planned visit, the entrance to the borrow area

was gated and it could not be entered. At each transplant site, the surveyor searched the transplant area closely in an effort to locate all of the transplanted individuals. The wider area was also searched for any new plants that may have established from seed.

Table 2-1: Number of elegant hawksbeard plants transplanted from their source areas, and the number of plants at each new site.

Source Location	Number of Plants Observed in 2019	Number of Plants Left at Source Site in 2019	Transplant Area	Number of Plants Transplanted in 2019
B-6 Borrow Area	26	23	Borrow Area B-6	3
Start-up Camp[1]	126	34	Start-up Camp[2]	25
			Borrow Area G-5	24
			Borrow Area KM-4	25
			Cemetery Site	18
All	**152**	**57**		**95**

Notes: [1] The number of plants in the large patch beside Dorm 1 was visually estimated to be approximately 125. [2] Plants distributed between two separate sites.

3.0 RESULTS

3.1 BORROW AREA B-6 PLANTS

In Borrow Area B-6, 26 elegant hawksbeard plants had been marked for avoidance in 2019. This included the three plants that had been transplanted in September, and an additional 23 pre-existing plants that had not been disturbed (Table 3-1).

Table 3-1: Number of elegant hawksbeard plants observed from 2019 to 2021 at transplanted sites and at sites left undisturbed

Area	Status	Number of Plants 2019	Number of Plants 2020	Number of Plants 2021	Percent of 2019 Plants Remaining in 2021
B-6 Borrow Area	Left undisturbed	23	29	23[3]	100[3]
	Transplanted	3	0	0	0
Start-up Camp	Left undisturbed[1]	31	202	250	806
	Transplanted[2]	25	13	0	0
G-5 Borrow Area	Transplanted	24	21	unknown[4]	unknown[4]
KM-4 Borrow Area	Transplanted	25	23	1	4
Cemetery Site	Transplanted	18	13	3	17
Total number of plants		**149**	**301**	**277**	**152[3]**

Notes: [1] The number of plants in the large patch beside Dorm 1 was an estimate. [2] Plants distributed between two separate sites. [3] Likely an underestimate because the location of one large patch was not visited in 2021. [4] Status of plants unknown because site was not accessible in 2021.

In Borrow Area B-6, none of the three transplanted plants were in found in 2021 because they had been removed by a discer used to prepare sites for habitat rehabilitation in 2020.

As of the time of the 2021 surveys, there was no net loss in the number of elegant hawksbeard plants that were left undisturbed in 2019. The seven new seedlings found in and adjacent to the site preparation area during 2020 surveys were covered by material placement related to the decommissioning of construction areas along the South Access Road (Photo 3-1). However, two new seedlings were found just outside of the material placement area. The sites of these plants were marked with blue flagging tape (Photo 3-2).

Photo 3-1: Recently placed material within Borrow Area B-6

Photo 3-2: Flagged site of elegant hawksbeard plants growing just outside of the material placement area in Borrow Area B-6

In 2020, two plants were found growing on the north bank of Borrow Area B-6. In 2021, a patch with at least 21 plants was found growing in this site, which was outside of the recently excavated zone at the time of the surveys (Photo 3-3; Map 3-1).

At one of the undisturbed sites in Borrow Area B6, one plant that was present in 2018 (basal rosette) and 2019 (flowering) was no longer present in 2020. At another site, a patch of 20 plants found in 2019 were still present in 2020 (Map 3-1). These sites were not visited in 2021, but they were well outside the area impacted by recent construction activities.

On a net basis, excluding the potential plants that are still present at the sites that weren't visited in 2021, the total number of known elegant hawksbeard plants at Borrow Area B-6 had not declined between 2019 and 2021 (Table 3-1).

Photo 3-3: Northern bank of Borrow Area B-6

Map 3-1: Elegant hawksbeard status at undisturbed and transplanted sites in Borrow Area B-6

3.2 START-UP CAMP PLANTS

For the Start-up Camp, 92 plants were transplanted to other Project areas in September 2019, leaving at least 31 plants undisturbed in the original area (Table 3-1). Based on the plants found in September 2020, the overall survival rate of the transplanted plants was approximately 76%. By late August 2021, the survival rate had declined to 6% for the transplant sites that were visited, with only four out of 68[ii] originally transplanted plants found. The status of the transplanted plants in Borrow Area G-5 was unknown for 2021 as it was not accessible during the surveys.

All of the transplanted plants found in 2021 had flowered and seeded at the time of the surveys (Photo 3-4). No newly seeded plants were found at any of the transplant sites.

In 2019, a large patch of plants at the Start-up Camp were marked for avoidance. Surveys in 2021 found that the patch remained undisturbed, and the number of individuals there had increased to an estimated minimum of 250 plants (Photo 3-5; Photo 3-6).

Photo 3-4: Transplanted elegant hawksbeard plant in Borrow Area KM-4 that seeded in 2021

[ii] Excluding 24 plants transplanted into Borrow Area G-5, whose status are unknown.

Photo 3-5: Site of the original patch of elegant hawksbeard at Start-up Camp in 2021 (plants too small to be clearly visible in photo)

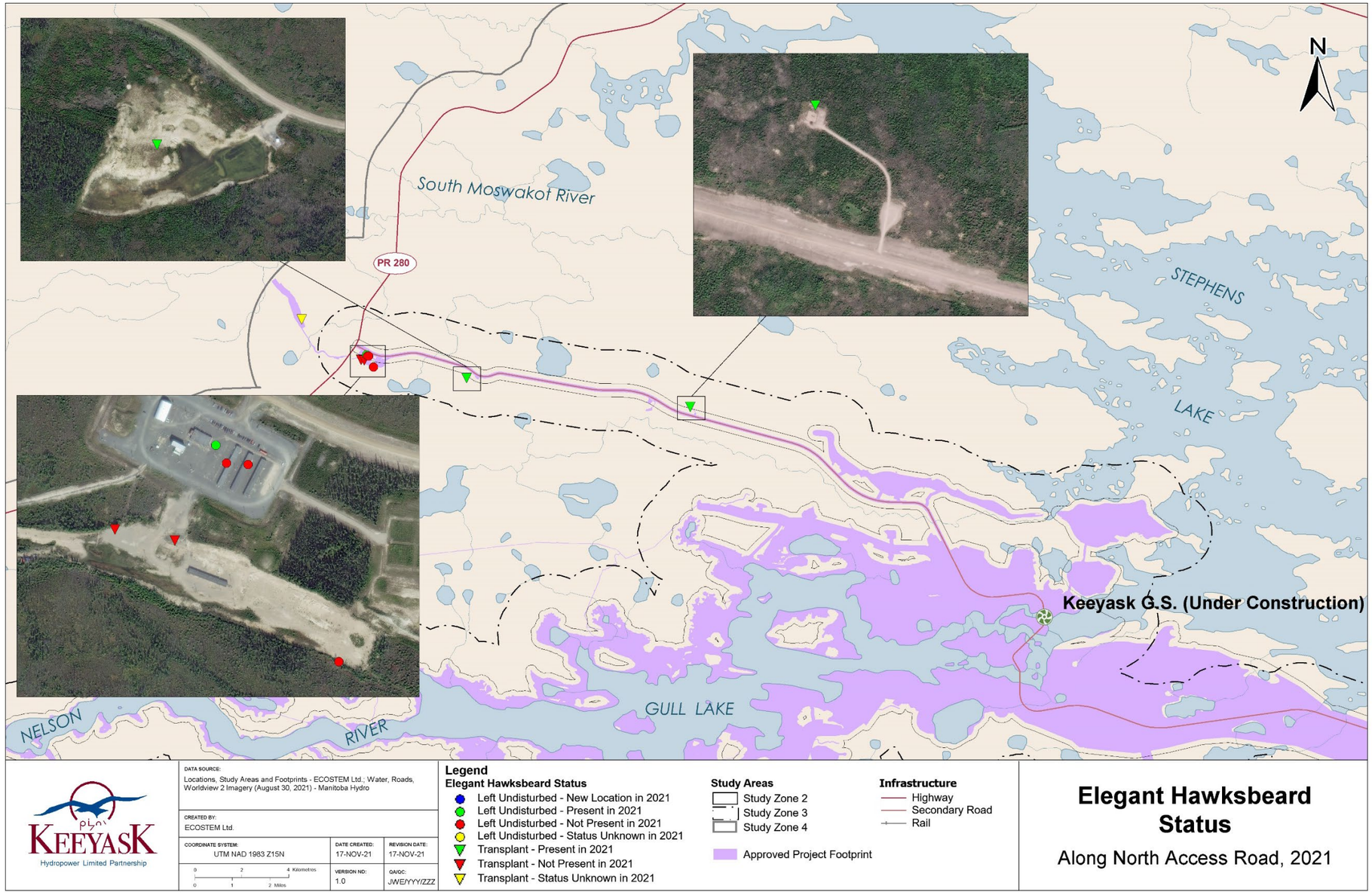
Photo 3-6: Elegant hawksbeard seedlings growing at the original site at Start-up Camp in 2021

In 2021, only four of the 92 originally transplanted elegant hawksbeard plants were found (Table 3-1). These were located in the Borrow Area KM-4 and in the Cemetery sites. All the transplanted plants found had flowered and dispersed seed by the time of the survey, and were senescing.

No newly seeded plants were found at any of the transplant sites away from the original Start-up Camp site. At the Cemetery Site naturally regenerating alder was expanding into the transplant site (Photo 3-7). At one of the transplant sites in the Start-up Camp, non-native plants, including common dandelion (*Taraxacum officinale*) and white sweet-clover (*Melilotus albus*), were increasing in cover at the transplant site (Photo 3-8).

Photo 3-7: Regenerating alder in the elegant hawksbeard transplant site at the Cemetery Site in 2021

Photo 3-8: Common dandelion and white sweet clover cover in an elegant hawksbeard transplant site at the Start-up Camp in 2021



Map 3-2: Elegant hawksbeard status at undisturbed and transplanted sites in 2021 at locations along the North Access Road

4.0 DISCUSSION

4.1 SITE CONDITIONS

Elegant hawksbeard was incidentally found in the Project footprint during plant surveys conducted in 2016, 2018, 2019 and 2020. The number of individuals was increasing while they were being monitored in 2020 and 2021. Surveys in 2020 and 2021 have indicated that elegant hawksbeard is becoming well established in certain areas, and is spreading.

These plants had naturally established on Project-disturbed substrates. All of these plants were found on mineral substrates in highly disturbed sites in Project borrow and camp areas.

Finding elegant hawksbeard in some of the newly developed borrow areas was not surprising. Under natural conditions, this species is typically found growing on recently disturbed, coarse substrates such as stream banks, gravelly flats, sandbars and roadsides (FNA 2020). Additionally, it is known that this species can establish in human-disturbed sites as it was previously found on disturbed bare gravel and mineral sites in the Project region and in the Wuskwatim Generation Project footprint (ECOSTEM 2017b). All of the elegant hawksbeard sites found in the Project region prior to Project construction were along Highways 280 and 290, which are continually disturbed environments. In the Wuskwatim Generation Project footprint, elegant hawksbeard was found on disturbed bare gravel and mineral sites, and was becoming widespread in some areas.

4.2 TRANSPLANTS

The transplanting program conducted in September 2019 moved a total of 95 plants into other portions of the Project footprint that were at low risk for further disturbance. The goal was to conserve the local populations by providing an additional seed source for the nearby seedbank and by facilitating seed dispersal into other areas.

The 2020 surveys found that the transplant survival rate after one year for the plants transplanted from the Start-up Camp was 76%, and that more than half of the transplanted plants were producing seed. However, by the following year, the survival rate of transplanted plants had declined from 76% to 6%.

This trend was not unexpected. Legge (1971) found that transplanted elegant hawksbeard remained in a vegetative state for nine months, followed by two to three flowering cycles, after which the plants died. Most of the elegant hawksbeard plants were transplanted from the Start-up Camp when they were at an early stage in their vegetative cycle. The following year, more than half of the transplanted plants were found in their flowering cycles, yet some remained in the vegetative cycle. The plants observed in 2021 were likely the remaining plants that were still in a vegetative cycle at the end of the 2020 growing season. Also consistent with Legge's (1971)

findings, none of the plants from Borrow Area B-6, which were transplanted during their flowering cycles, were found alive in 2020.

Ultimately, transplanting success will be determined by the ability of new seedlings to establish at the new sites from seeds dispersed by the transplanted individuals, and by factors that limit germination and plant survival. Monitoring from 2020 and 2021 determined that the majority of transplanted plants survived, and appeared to have dispersed seed into the new areas (there were old flower heads that apparently shed their seeds at the time of the surveys both years). While no new elegant hawksbeard plants were found at the transplant sites away from the Start-up camp as of 2021, there are several possible reasons for this. It may be the case that dispersed seeds have not yet experienced the conditions required to break seed dormancy. Also, seedlings may have established from seed, but were too small to detect during the surveys; elegant hawksbeard seedlings are very small and easily overlooked. Furthermore, as seeds are wind-dispersed (Legge 1971; FNA 2020), some may have been transported some distance from the transplant sites.

The substrate and other environmental conditions at the transplant sites may eventually become unsuitable for ongoing seed germination. One concern is that other regenerating vegetation cover may interfere with the ability of seeds to germinate. At least two transplant sites were observed to have increasing native and/or non-native vegetation cover, although open areas still remain near these transplant sites.

Some of the known elegant hawksbeard plants remain at risk because they are in active Project areas as well as in areas planned for rehabilitation. Unanticipated material placement activities in Borrow Area B-6 in 2021 removed several new plants that had established in 2020. Additionally, although the plants at the Start-up Camp location remain undisturbed, decommissioning of that site is still planned.

The findings from monitoring from this study and the Wuskwatim Generation Project provide evidence to indicate that elegant hawksbeard can continue to appear on exposed, coarse mineral substrates that are no longer being used by the Project. The 2021 monitoring indicated that this pattern appears to be continuing in the Keeyask Project areas, at least in areas where the plant naturally established. However, the ultimate success of the transplanting remains uncertain because new seedlings were not found in any of the transplant sites despite some plants apparently dispersing seed during the previous year. Future monitoring will determine if new plants will successfully establish in these areas.

As elegant hawksbeard is an S1 species and it remains uncertain if new plants will establish at the transplant sites, it is recommended that disturbance of all the known sites be avoided or minimized, where possible.

5.0 SUMMARY AND CONCLUSIONS

Elegant hawksbeard (*Crepis elegans*) is a critically imperiled plant in Manitoba. Rare plant surveys conducted in 2018 and 2019 found elegant hawksbeard plants in the Start-up Camp and in Borrow Area B-6. It was determined in 2019 that some of the plants in Borrow Area B-6 as well as the large patch of plants at the Start-up Camp were at risk from ongoing Project construction and rehabilitation activities. In September 2019, 95 elegant hawksbeard plants were transplanted to other sites in the Project footprint that were at low risk for disturbance.

Priority plant monitoring surveys in 2021 focused on the plant survival at the known elegant hawksbeard sites, and on the success of the 2019 transplanting program. Pre-clearing rare plant searches were not conducted in 2021 since new clearing was not anticipated at the time of the surveys.

While several elegant hawksbeard plants that had naturally seeded in Borrow Area B-6 in 2020 were removed by construction activity in 2021, two new plants were found just outside the excavated area. Many new plants continued to establish and spread on the north bank of this borrow area, outside of the material placement area.

The monitoring found that the overall survival rate of the 92 individuals transplanted from the Start-up Camp had dropped from 76% in 2020, to 6% in 2021. The decrease in surviving plants was not surprising because other studies have shown that individual plants naturally die after completing their flowering cycle.

The transplanted elegant hawksbeard plants flowered in 2020 and 2021, and appeared to have dispersed seed into the new areas. However, it remains unknown if more plants will successfully establish. While no new plants were found at or near the transplant sites as of late August, 2021, it may be the case that the conditions required to break seed dormancy have not yet transpired, the required seed stratification conditions have not yet occurred, the small seedlings were simply not detected, or the wind-dispersed seeds germinated far from the transplant sites.

Overall, elegant hawksbeard is doing well in the Project area, particularly at the original site in the Start-up Camp, and outside the recently disturbed areas in Borrow Area B-6. The estimated net number of known plants did not decrease from 2020 to 2021, and increased at locations where they were already established.

It is recommended that disturbance of the known elegant hawksbeard sites be avoided or minimized, where possible. Preserving these plants helps maintain local populations of a species that is critically imperiled in Manitoba by providing a seed source for the local seedbank and for dispersal to other areas.

No other rare to uncommon plants of importance to the Keeyask partner First Nations were recorded during any of the 2021 plant surveys.

No additional pre-clearing rare plant surveys are planned for the remainder of the construction monitoring since new clearing is not anticipated at this time.

Monitoring in summer 2022 will determine if the Project avoided the known elegant hawksbeard plants, and to determine if new plants are establishing at the transplanted sites.

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