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OBJECTIVE

The primary objectives of this work were to liaise with the district weed supervisor to discuss local concerns; conduct roadside invasive species surveys along the final preferred route; and to provide environmentally sensitive site information to Manitoba Hydro to help inform the Birtle Biosecurity Plan.

METHODS

STUDY DESIGN

Information which has been collected as part of the Project Environmental Assessment Report (Manitoba Hydro 2018a and 2018b) and pre-construction surveys (Szwaluk Environmental Consulting et al. 2019) were reviewed to assist with field studies. Applicable regulatory documents were also reviewed to determine environmental monitoring requirements for vegetation (Class 2 Development Licence #3314).

To select survey sites for the project, Manitoba Hydro's Environmental Protection Information Management System (EPIMS) map viewer was used to view proposed project footprint imagery (pre-clearing digital ortho-rectified imagery). Field maps (1:5,000) of the Construction Environmental Protection Plan map series (Manitoba Hydro 2019a) were also used.

District weed supervisors were contacted to discuss local weed concerns. Ms. Tammy Jones (Manitoba Agriculture, Carman) was contacted May 26 and 29, and Mr. Rodney Gardham (Prairie View Weed District, Birtle Rural Municipality) was contacted May 25, June 8 and 29. Several attempts were made to contact Mr. Ron Witty (Municipality of Russell-Binscarth).

DATA COLLECTION

Surveys for invasive and noxious plant species occurred roadside along the final preferred route (FPR) RoW to determine existing species composition and abundance. Invasive species are listed by the Invasive Species Council of Manitoba (2020) and Canadian Food Inspection Agency (2008), while noxious weeds are listed by the Noxious Weeds Regulation (Manitoba Government 2020). These species have the tendency to outcompete native plants, and dominate once introduced.

At selected sites along the FPR (i.e., control access points, and intersections with road crossings), surveys were conducted to establish an updated species baseline. Weed density distribution followed Adams et al. (2009) and involved a description of species abundance, using 13 available codes (see Table 1). Each species was identified or described, and a density code was determined in the field.

At managed access points, surveys consisted of approximately a 20m span, centred where activities will occur. Managed access routes used for the project were also scanned for invasive species problems, with focus on non-gravel roads as a pathway for species movement. At road crossings, surveys occurred near the centreline of the FPR (approximately 20m span), focusing on the upslope of the ditch to the crest, where the RoW begins. The FPR crossing and access road at the Manitoba/Saskatchewan border were also surveyed. At all sites, fields or stands parallel to the FPR were scanned for invasive species problems, determined from the roadside.

Table 1. Weed density distribution codes.

Class	Description of Abundance In Polygon	Distribution
0	None	
1	Rare	.
2	A few sporadically occurring individual plants	. . .
3	A single patch	•••
4	A single patch plus a few sporadically occurring plants	••• . .
5	Several sporadically occurring plants
6	A single patch plus several sporadically occurring plants	. . ••• .
7	A few patches	••• •••
8	A few patches plus several sporadically occurring plants	••• ••• . .
9	Several well-spaced patches	••• ••• •••
10	Continuous uniform occurrences of well-spaced plants
11	Continuous occurrence of plants with a few gaps in the distribution	••••••••••
12	Continuous dense occurrence of plants	••••••••••
13	Continuous occurrence of plants with a distinct linear edge in the polygon	••••••••••

All sites were accessed by truck and surveyed on foot to document species and determine densities. Managed access routes were driven where conditions were suitable. Hand-held tablets were used to navigate to sites. Data was recorded in field books and photographs were captured at each site. The Biosecurity Management Plan of risk locations (Manitoba Hydro 2019b) was followed.

Surveys were conducted between June 26 to 29, along the FPR. Field team members included Kevin Szwaluk and Brad Kennedy.

PRELIMINARY RESULTS

A total of 93 sites were surveyed roadside along the Birtle transmission line RoW for invasive plant species, from Birtle Station to the Manitoba/Saskatchewan border crossing. Data review identified that a total of 45 species were recorded in surveys (invasive, noxious and/or non-native). Non-native species in Manitoba are ranked as conservation status not applicable (SNA) or unrankable (SU) due to lack of information (Manitoba Conservation Data Centre 2020).

Invasive and noxious species recorded are shown in Table 2. Of these, 19 species are considered noxious (The Noxious Weeds Regulation). These included one Tier II (scentless false mayweed, *Tripleurospermum inodorum*), and 18 Tier III species. Although none were encountered, species listed as Tier I are the most threatening species. Scentless false mayweed (Tier II) has a weed density distribution field code of 4 (see Table 1).

Tier III species observed included common ragweed (*Ambrosia artemisiifolia*), common burdock (*Arctium minus*), wormwood (*Artemisia absinthium*), common milkweed (*Asclepias syriaca*), common lamb's-quarters (*Chenopodium album*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), narrow-leaved hawks-beard (*Crepis tectorum*), marsh-elder (*Cyclachaena xanthiifolia*), flixweed (*Descurainia sophia*), foxtail barley (*Hordeum jubatum*), Kochia (*Kochia scoparia*), prickly lettuce (*Lactuca serriola*), hoary cress (*Lepidium appelianum*), field sow-thistle (*Sonchus arvensis*), common sow-thistle (*Sonchus oleraceus*), common dandelion (*Taraxacum officinale*), and field pennycress (*Thlaspi arvense*).

Common invasive species observed in roadside surveys (>25 frequency) included Canada thistle, field sow-thistle, common dandelion, narrow-leaved hawks-beard, smooth brome (*Bromus inermis*), alfalfa (*Medicago sativa*), prostrate knotweed (*Polygonum aviculare*), common plantain (*Plantago major*), yellow sweet clover (*Melilotus officinalis*), quack-grass (*Elymus repens*), bristly stickseed (*Lappula squarrosa*), and common pepper-grass (*Lepidium densiflorum*).

While not the focus of the pre-construction surveys in 2020, one species of conservation concern was recorded. Common milkweed (*Asclepias syriaca*) is listed as vulnerable to apparently secure (S3S4) and was observed at several roadside sites.

Table 2. Invasive, noxious and non-native plant species recorded in 2020 surveys.				
Scientific Name	Common Name	Noxious	Invasive	MBCDC
<i>Agropyron cristatum</i>	Crested Wheat-grass			SNA
<i>Agrostis stolonifera</i>	Creeping Bent Grass			SNA
<i>Amaranthus retroflexus</i>	Redroot Pigweed		CFIA	SNA
<i>Ambrosia artemisiifolia</i>	Common Ragweed	Tier III		S5
<i>Arctium minus</i>	Common Burdock	Tier III	ISCM	SNA
<i>Artemisia absinthium</i>	Wormwood	Tier III	CFIA	SNA
<i>Artemisia biennis</i>	Biennial Wormwood			SNA
<i>Asclepias syriaca</i>	Common Milkweed	Tier III		S3S4
<i>Avena sativa</i>	Cultivated Oats			SNA
<i>Brassica rapa</i>	Bird's Rape			SNA
<i>Bromus inermis</i>	Smooth Brome		CFIA	SNA
<i>Capsella bursa-pastoris</i>	Shepherd's Purse		CFIA	SNA
<i>Chenopodium album</i>	Common Lamb's-quarters	Tier III	CFIA	SNA
<i>Cirsium arvense</i>	Canada Thistle	Tier III	CFIA, ISCM	SNA
<i>Cirsium vulgare</i>	Bull Thistle	Tier III	ISCM	SNA
<i>Convolvulus arvensis</i>	Field Bindweed		ISCM	SNA
<i>Crepis tectorum</i>	Narrow-leaved Hawks-beard	Tier III		SNA
<i>Cyclachaena xanthiifolia</i>	Marsh-elder	Tier III		SNA
<i>Descurainia sophia</i>	Flixweed	Tier III	CFIA	SNA
<i>Echinochloa crus-galli</i>	Barnyard Grass			SNA
<i>Elymus repens</i>	Quack-grass		CFIA	SNA
<i>Fallopia convolvulus</i>	Black Bindweed		CFIA	SNA
<i>Hordeum jubatum</i>	Foxtail Barley	Tier III		S5
<i>Kochia scoparia</i>	Kochia	Tier III		unlisted
<i>Lactuca serriola</i>	Prickly Lettuce	Tier III		SNA
<i>Lappula squarrosa</i>	Bristly Stickseed		CFIA	SNA
<i>Lepidium appelianum</i>	Hoary Cress	Tier III		SNA
<i>Lepidium densiflorum*</i>	Common Pepper-grass			S5
<i>Lotus corniculatus</i>	Bird's-foot Trefoil		CFIA	SNA
<i>Matricaria discoidea</i>	Pineapple Weed			SNA
<i>Medicago lupulina</i>	Black Medick			SNA
<i>Medicago sativa</i>	Alfalfa		CFIA	SNA
<i>Melilotus officinalis</i>	Yellow Sweet Clover		CFIA	SNA
<i>Phleum pratense</i>	Meadow Timothy			SNA
<i>Plantago major</i>	Common Plantain			SNA
<i>Polygonum aviculare*</i>	Prostrate Knotweed			SU
<i>Rumex crispus</i>	Curly Dock			SNA
<i>Sonchus arvensis</i>	Field Sow-thistle	Tier III	CFIA, ISCM	SNA
<i>Sonchus oleraceus</i>	Common Sow-thistle	Tier III		SNA
<i>Taraxacum officinale</i>	Common Dandelion	Tier III		SNA
<i>Thlaspi arvense</i>	Field Pennycress	Tier III	CFIA	SNA
<i>Tragopogon dubius</i>	Goat's-beard			SNA
<i>Trifolium hybridum</i>	Alsike Clover			SNA
<i>Trifolium pratense</i>	Red Clover		CFIA	SNA
<i>Tripleurospermum inodorum</i>	Scentless False Mayweed	Tier II	ISCM	SNA

Note: *Additional weed species listed by Royer and Dickinson (1999). S5 - Very low or no risk of extirpation (Secure).

NOTABLE INFORMATION AND RECOMMENDATIONS

- Field surveys were carried out as planned, with no problems accessing sites. Thunderstorms with heavy rain and wind were encountered June 28.
- Noxious, invasive and non-native species were observed in all surveys. Species have already been established in roadside ditches and control access points in the project area (Photographs 1 and 2).
- Existing roads to access trails frequently support noxious, invasive and non-native species (Photographs 3 and 4).
- One Tier II noxious plant species was observed during roadside surveys. Scentless false mayweed (*Tripleurospermum inodorum*) was observed at field site BTP-INV-045 (Photographs 5 and 6). Site coordinates include UTM Zone 14, 342084 E and 5588231 N. The proposed control access point is located immediately south of Tower #59, on Hwy #568. Nine plants were observed (flowering) in an 7m by 7m area. The area was staked and flagged, and identified as BTP Invasive Plant in the field (Photograph 7). This species should be managed to reduce further species spread, according to responsibilities under the current Regulation. Scentless false mayweed has the ability to quickly spread along the RoW, after construction.
- Mr. Rodney Gardham (Prairie View Weed District) was contacted in the field, as requested from an earlier phone conversation. The location of scentless false mayweed was provided and Mr. Gardham noted that he would manage the plant at the site (BTP-INV-045), along Hwy #586.
- Mr. Rodney Gardham noted that he does not want granular material imported from outside the Rural Municipality. He would like gravel purchased from the Birtle RM. Imported granular material can be a source for noxious weeds. He noted that leafy spurge (*Euphorbia esula*) is a problem in the RM of Miniota, south of Birtle. Mr. Gardham indicated that he would like to be contacted prior to construction activities.
- At the Manitoba/Saskatchewan border, the control access point and FPR crossing along the Spy Hill-Ellice Community Pasture was surveyed (Photograph 8). The east boundary of the Community Pasture was surveyed along the existing gravel road, at the FPR crossing and field access points. The FPR traverses open hardwoods of bur oak/ trembling aspen forest on the upper slopes, and a grassland terrace at the base of the slopes (Photograph 9). Non-native species were observed roadside and into the grassland terrace. The community pasture was not re-entered for surveys at this time.
- In 2019, six non-native species, some with noxious and invasive designations, were recorded during pre-construction surveys and sampling in the Spy Hill-Ellice Community Pasture. Species observed included common dandelion, crested wheat-grass, smooth brome, sweet clover species, prostrate knotweed (*Polygonum aviculare*), and goat's-beard (*Tragopogon dubius*).
- Common milkweed (*Asclepias syriaca*) is listed as vulnerable to apparently secure (S3S4) and was observed at several roadside sites (BTP-INV-001, -005, -006, -024, -035, -078, and -084).

Although common milkweed is an ecologically important species for the monarch butterfly, common milkweed is a native species that may be harmful to livestock if ingested. Common milkweed is also listed as a Tier III noxious weed.

- One black bear was encountered at a control access point, along the east side of the Spy Hill-Ellice Community Pasture, field site BTP-INV-080 (Photograph 10). The bear walked off to the tree line during the survey.
- The soils along the RoW at the Spy Hill-Ellice Community Pasture are sandy and extremely susceptible to disturbance. Specific mitigation outlined for soils and habitat in the CEnvPP should be followed closely for this sensitive habitat to minimize surface damage, rutting and erosion. The ground cover of native vascular and non-vascular vegetation on sandy soils has poor resilience to mechanical disturbance, which increases the prairie's vulnerability to the introduction and spread of invasive species.
- RoW clearing has occurred near Towers 67, 68 and 90.

REFERENCES

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Photograph 1. Field site BTP-INV-010, west of Birtle Station.



Photograph 2. Control access point at field site BTP-INV-024.



Photograph 3. Existing gravel road to control access point (BTP-INV-014) and new trail (BTP-INV-015).



Photograph 4. Existing dirt road to field site BTP-INV-089.



Photograph 5. Scentless false mayweed, Tier II noxious weed observed at field site BTP-INV-045.



Photograph 6. Control access point at field site BTP-INV-045.



Photograph 7. Field site BTP-INV-045 staked and flagged for scentless false mayweed.



Photograph 8. FPR crossing at the Manitoba/Saskatchewan border, field site BTP-INV-082



Photograph 9. Field site BTP-INV-078, east side of the Spy Hill Community Pasture.



Photograph 10. Black bear observed at field site BTP-INV-080.