SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

2.2 Identification of Potential Construction Access Opportunities

Comment:

There are some sections of the ROW that identify numerous proposed access routes, and others sections with few proposed access routes. We are requesting that Hydro provide a key map that identifies and summarizes all the proposed existing opportunities for access in the Project area.

RESPONSE:

Manitoba Hydro has supplied a Key Map attached as "MMTP Construction Access Opportunities" (MCWS_MH-I-122-Map).

Manitoba Hydro

Manitoba-Minnesota Transmission Project

Project Infrastructure

- MMTP Final Preferred Route
- Proposed Access Route
- Proposed Access Point
- Border Crossing

Infrastructure

- Converter Station
- Existing Transmission Line
- Bipole III Transmission Line (Approved)
- St. Vital Transmission Complex - V95L (Planned)
- D602F (Existing 500 kV Transmission Line)

Landbase

- Community
- Trans Canada Highway
- Provincial Trunk Highway
- Provincial Road
- Railway
- City Boundary
- First Nation
- Rural Municipality
- Ecological Reserve
- Wildlife Management Area
- Crown Land
- Provincial Park
- Waterbody
- Watercourse

Coordinate Source: UTM Zone 14 N, NAD 83
Data Source: MBHydro, ProvMB, NRCAN
Date Created: 08 March, 2016

N

0 5 10 Kilometres
0 5 10 Miles

1:140,000

MMTP Construction Access Opportunities

Draft: For Discussion Purposes Only

To Iron Range Station

Canada

United States of America

G:\GIS_Project_Folders\09_Exports\11420269_MMTP_EAS\MEWA\Revised\20160301_CORN\V3_Construction Access Opportunities\MMTP_CONS\V3_ConstructionAccessOpportunities_8_11x34_20160308.mxd

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

4.2 Transmission Line Construction Access Opportunities

Comments

See comments for section 2.2. MCWS's response to this component of the EIA does not imply that all of the proposed access routes on Crown lands willl necessarily be approved.

RESPONSE:

Manitoba Hydro submitted a draft Access Management Plan to receive comments and subsequent approval of the proposed access routes. Manitoba Hydro will defer to EAB as to next steps needed to move forward.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

4.3 Access Mitigation Measures

4.3.1 Environmentally Sensitive Sites

Comment:

MCWS may add some additional sensitive sites as new information becomes available prior to, or during the construction phase.

RESPONSE:

Manitoba Hydro will adjust its plans through an adaptive management approach as information becomes available.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

4.4 Bypass Routes and Trails

Comment:

This section indicates that approval will be sought from MCWS for any new access/by-pass trails greater than 1000 m in length, but that Hydro will proceed without MCWS review/approval if the route/ trail is shorter than 1000 m.

Comment:

All proposals for new access or by-pass routes on Crown lands should be submitted to the IRMT for review and approval, regardless of the length of the proposed route. Once the review is complete, a Work Permits(s) will be issued by the supervising Conservation Officer, subject to conditions similar to those indicated for the LWESI project.

RESPONSE:

Manitoba Hydro will conduct terrain analysis to identify "Potential By-pass Trail Areas" and illustrate those areas in the revised Access Management Plan for approval. New access routes and unidentified by-pass trails on Crown Land will be submitted to the local IRMT for review and approval.

SUBJECT AREA: **Access, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

4.5 Traffic Safety and Access Management Mechanisms Review

And

4.51 Access Allowance

And

4.5.4 Outfitters

These sections indicate that, with the exception of licenced outfitters, all public access to the active construction site will be restricted, and; that outfitters will be required to sign in and unload/lock/case their firearms.

Comment:

With regard to those portions of the active construction site located on Crown lands (i.e. lands not under Hydro or private ownership), including Crown lands under easement:

- We are not aware of any Regulations which will provide Manitoba Hydro with the authority to restrict public access, or to require members of the public to unload, lock and case their firearms.

Safety-related restrictions should apply to all peoples. If Manitoba Hydro successfully identifies appropriate safety – related regulations which will allow them to restrict public access, then the restrictions should be applied to all members of the public. If Manitoba Hydro is prepared to allow some people to traverse the active construction site, then all those requesting to do so should be given similar consideration. As we indicated in previous correspondence, it will be difficult to justify why outfitters with non-Canadian clients would be given access preference over indigenous peoples and other Manitobans.

RESPONSE:

Pursuant to *The Occupier's Liability Act,* an "occupier" of any land (including an occupier that is carrying out construction activities) has certain duties to protect people who may come on to the property and to keep them safe. In order for Manitoba Hydro to do so on property that it may be found to occupy, access restrictions and safety measures must be taken.

Regarding access restrictions, the active construction zone is defined as the immediate area where works are being undertaken for the project and are contained to the right of way and marshalling yards. As noted on page 17 of the Access Management Plan, Manitoba Hydro recognizes that those who access Crown land adjacent to the active construction site via other means have the right to be there. In many instances, there are multiple access routes around the active construction zone. Manitoba Hydro requests that the public and indigenous peoples utilize those routes to access their area of interest. On a case by case basis, Manitoba Hydro has accommodated crossing of the active construction zone by the public, indigenous people, and licensed outfitters on previous and current projects. Any Manitoba Hydro access restrictions are temporary in nature and are for the sole purpose of providing a safe working environment for its employees and contractors while maintaining the safety of the public within the active construction zone.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

Section 4.7 Monitoring and Follow-up

This section indicates that the purpose of access-related monitoring is "to determine whether the measures set out in this AMP are effective", and, "to adapt and improve measures in this AMP in response to actual experience".

Comments:

To improve the ability for determining whether the measures set out in this AMP are effective, and to adapt and improve measures in this AMP in response to actual experience , we recommend that additions (see bold type) be made to the following paragraphs in this section:

Sources of monitoring information may include the following:

- Construction supervisor, senior environmental assessment officer, environmental inspector and contractor personnel, documentation and reports;
- Manitoba Conservation and Water Stewardship Conservation Officers and wildlife biologists and Manitoba Workplace Safety and Health inspectors and RCMP (as applicable);
- Input from resource harvesters, outfitters, Aboriginals, stakeholders, municipal leaders, landowners and the general public.

The following factors are intended for monitoring during construction:

- Issues and concerns raised by resource harvesters/outfitters;
- Issues and concerns raised by MCWS staff;
- Non-construction related traffic on the construction site (type, volume, purpose, date, location, safety issues);
- Incidents or problems with access on the construction site (all traffic); and
- Incidents or problems with non-construction traffic on the construction site (circumstances, timing, and location).

- Incidents of ungulate mortalities on or immediately adjacent to the ROW and associated access routes; *

* This addition is requested as it may be difficult for Hydro to ascertain whether cause of death is due to predation, hunting, or another factor.

Access management monitoring will be undertaken and compliment other biophysical and socio-economic monitoring conducted during the construction phase of the Project. Further details on access monitoring can be found in the Environmental Effects Monitoring Plan. Access related issues and incidents will be summarized by Environmental Inspectors and the Construction Supervisor in their respective monthly reports. Copies of these reports will be made available on an ongoing basis to the supervising Conservation Officer (CO). Incidents involving ungulate mortalities will be reported to the CO as they occur. Monitoring information will be acted upon, as necessary, by the Construction Supervisor, in consultation with the CO, as applicable.

RESPONSE:

Manitoba Hydro will incorporate the proposed changes into the final version of the Construction Access Management Plan.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

4.8 Access Rehabilitation Plan

Comments:

The proposed prescriptions for decommissioning and rehabilitation should include schedules indicating when the work is to be completed.

RESPONSE:

Manitoba Hydro will add the following text to section 4.8:

Manitoba Hydro will engage with landowners and Manitoba Conservation and Water Stewardship on private and crown land respectively to develop and implement access route decommissioning and rehabilitation prescriptions for each of its access routes where applicable. This will be conducted on a seasonal basis during in the spring of 2019 and at the end of construction during the spring of 2020 for access routes not required for operations and maintenance. Those access routes required for operations and maintenance on crown land will be reviewed with the local IRMT and incorporated into an “Operations and Maintenance Access Management Plan”.

SUBJECT AREA: **Access, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 2**

QUESTION:

Appendix 22B Access Management Plan

5.0 Operations and Maintenance Access Management Plan Development

Comments:

This section should be expanded to include, at minimum, Hydro's general approach to managing access during the operations phase

RESPONSE:

Manitoba Hydro will expand Section 5.0 with the following text:

The Operations and Maintenance Access Management Plan (O&M AMP) will be a component of the Operations and Maintenance Environmental Protection Plan. Manitoba Hydro's general approach to managing access during operations is to allow the access route to naturally re-vegetate as access requirements are limited to ATV or snowmobile for annual inspections. As the right-of-way ages, the planned vegetation management activities and maintenance activities with larger equipment may require re-clearing of the access route. Emergency response activities in the event of an outage may also require re-clearing of access routes.

Experience gained during the construction phase of the Project will contribute to a more effective O&M AMP through the process of adaptive management. The plan will consist of an access route mapbook identifying and any specific access restrictions and/or access management mitigation measures.

SUBJECT AREA: **Fish and Fish Habitat, Erosion**

REFERENCE: **MCWS MMTP IR No 2 - Item 3**

QUESTION:

The EIS report indicates that, “at waterway crossings, towers will be located as far back from the water’s edge as possible, to enhance stability and prevent bank erosion.” However, no mention was made of any minimum distance that is necessary in order to prevent erosion from banks and sediment deposition into waterbodies.

Confirm the minimum distance towers will be constructed from a waterway.

RESPONSE:

Manitoba Hydro designs towers to be a minimum of 30m from high water mark where possible. Where this is not possible within a flood plain, towers are placed a minimum of 15m from current water’s edge as defined by the top of the bank profile.

SUBJECT AREA: Fish and Fish Habitat, Erosion

REFERENCE: MCWS MMTP IR No 2 - Item 3

QUESTION:

Re: Chapter 22, Appendix 22

It is noted in Appendix A that the width of the riparian buffer zone changes depending on the slope of the land entering the waterway. This width, as presented in Table 2-1, ranges from a 30m buffer zone (slope of 10%) to an 85m buffer zone (slope of 50%). Within these buffer zones, areas are allocated to either the Management Zone or the Machine Free Zone. The report indicates that the Machine Free Zone is 7 m. Given the differences in slope, and the potential for increased erosion and sediment deposition into waterbodies with increased slope, the machine free zone should change accordingly with the width of the riparian buffer rather than remain a standard 7 m.

Discuss if, and how, the machine free zone distances vary with an increasing riparian buffer zone.

RESPONSE:

Manitoba Hydro typically restricts equipment access to areas with greater than 20% slope for safety reasons. Manitoba Hydro will be modifying Table 2-1 of Appendix 22A to include a variable Machine Free Zone width that changes with slope as per table below.

Table 2-1: Riparian Buffer and Machine Free Zone Distances Based on Slope

Slope of Land Entering Waterway (%)	Width of Machine Free Zone (m)	Width of Riparian Buffer (m)
10	7	30
20	10	40
30	15	55
40	20	70
50	25	85

SUBJECT AREA: **Wildlife and Wildlife Habitat, Vegetation Management**

REFERENCE: **MCWS MMTP IR No 2 - Item 3**

QUESTION:

As noted by the Proponent on page 9-67 of the EIS, the project intersects proposed critical habitat identified in the proposed Recovery Strategy for the Golden-winged Warbler in Canada - 2014 https://www.registrelep-sararegistry.gc.ca/default.asp?lang=En&n =86D89339-1.

On page 9-77 of the EIS, the Proponent states that right-of-way clearing will remove 475 ha of potential golden-winged warbler habitat, but that the loss will be short-term as new shrubs and herbs will regenerate and provide 472 ha of habitat. The Proponent further states that the net loss of habitat is 2 ha and consists of low quality golden-winged warbler habitat.

On page 9-96 of the EIS, the Proponent states that "In sensitive areas of critical golden-winged warbler habitat, right-of-way vegetation will be selectively cleared and managed with the integrated vegetation management program to enhance suitability for golden-winged warbler."

Provide a detailed plan showing how the destruction of critical habitat for golden-winged warbler will be minimized in the near and long terms, including a description of how right-of-way vegetation will be selectively cleared and managed to enhance habitat suitability for golden-winged warbler.

RESPONSE:

Manitoba Hydro carefully considered the effects of the project on wildlife and wildlife habitat. Golden-winged warblers (*Vermivora chrysoptera*) were identified as a species requiring careful consideration due to their designation in the *Species at Risk Act (2002)*, and the identification of critical habitat along a portion of the Project area. As outlined in the environmental

assessment, Manitoba Hydro carried out detailed studies on the breeding locations, habitat preferences, and species biology in preparing the Construction Environmental Protection Plan and Environmental Monitoring Plan.

As part of Manitoba Hydro's Research and Development program, Manitoba Hydro was a major sponsor of Bird Studies Canada - Manitoba Breeding Bird Atlas. This project has helped identify the breeding range of all birds in Manitoba, including the golden-winged warbler. As a result of this seven year citizen science research study, Manitoba Hydro learned that existing transmission line right-of-ways (ROWs) in vicinity of the MMTP, including M602F and R49R, were providing suitable habitat for golden-winged warblers. Manitoba Hydro is committed to developing this project in a way that will carefully consider the habitat requirements and preferences of golden-winged warbler.

Below is a detailed plan outlining a Right-of-Way Habitat Management Plan for Managing Critical Golden-winged Warbler Habitat during Construction and Operation of the Manitoba–Minnesota Transmission Project.

Right-of-Way Habitat Management Plan for Managing Critical Golden-winged Warbler Habitat during Construction and Operation of the Manitoba–Minnesota Transmission Project

Background

Golden-winged warbler is one of eleven Species of Conservation Concern (SOCC) associated with open forest habitat, which is discussed as part of potential environmental effects on wildlife and wildlife habitat (Chapter 9, Section 9.4.2 Manitoba Hydro 2015). It is the only species in the Regional Assessment Area (RAA) to have defined critical habitat.

The golden-winged warbler is a ground-nesting songbird that breeds in shrubby habitats adjacent to mature stands of deciduous and mixedwood forest (Manitoba Hydro 2015). It uses forest edge habitat and openings containing shrubs and grasses. Habitat is often regenerated by natural and human disturbances, including hydroelectric utility corridors, which can be preferred habitat for this species if corridors are maintained in a manner that retains shrubs and herbs along forest edges.

There are records from Bird Studies Canada and the Manitoba Breeding Bird Atlas of golden-winged warbler occurrences throughout the east portion of the RAA. Observations are concentrated in the areas surrounding the communities of Ste-Genevieve, Ross and Richer. In addition, six golden-winged warblers were detected during MMTP environmental assessment breeding bird surveys north and southwest of the community of Marchand, south of the community of Richer, and south of the Watson P. Davidson Wildlife Management Area (WMA) (Manitoba Hydro 2015).

Statement of Intent

The "*Recovery Strategy for the Golden-winged Warbler (Vermivora chrysoptera) in Canada*" was published in 2014 (Environment Canada 2014). Manitoba Hydro recognizes that a portion of the Manitoba-Minnesota Transmission Project intersects an area defined in this strategy as critical golden- winged warbler habitat. By utilizing an integrated vegetation management approach, application of standard operating procedures, best practices and the usage of adaptive

management techniques, Manitoba Hydro will endeavor to maintain or enhance the critical habitat of the golden-winged warbler within the Project right-of-way (ROW).

ROW Habitat Management Area for Golden-winged Warbler

For the purposes of this plan, a golden-winged warbler ROW Habitat Management Area (HMA) was developed. This area is comprised of the portion of the project ROW that intersects the five critical habitat grid squares as outlined in the recovery strategy (approximately 70 spans) (Map 1).

Within the "*Recovery Strategy for the Golden-winged Warbler (Vermivora chrysoptera) in Canada*" focal areas designate critical golden-winged warbler habitat on a broad scale throughout their range. Manitoba contains three focal areas, GL 1 near Dauphin along the western edge of the province, GL 2 in the Interlake, it is within GL 3 located in southeastern part of the province, through which the proposed ROW crosses. These focal areas are subdivided into 10 x 10km grid squares, based on the standardized UTM grid. A total of 177 grid squares occur in Manitoba, 60 of which are located in GL 3. Map 2 illustrates Potential Golden-winged Warbler Habitat and Critical Golden-winged Warbler Habitat Grids in the RAA intersected by the Project's transmission line ROW.

Goal and Objectives

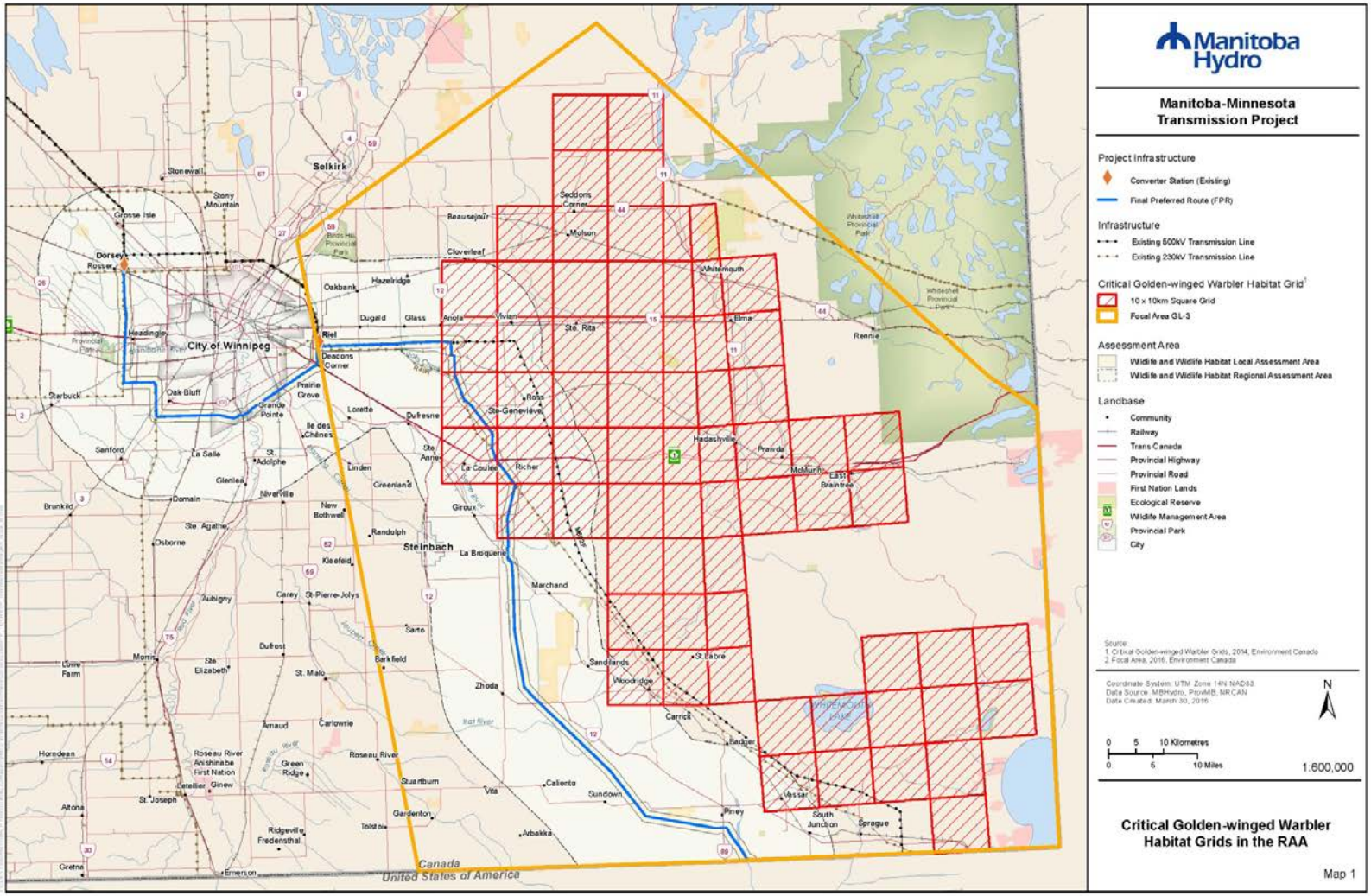
Goal: In sensitive areas of critical golden-winged warbler habitat, ROW vegetation will be selectively cleared and maintained using an integrated vegetation management approach to enhance long-term habitat suitability for golden-winged warbler.

Objective 1: To improve understanding of golden-winged warbler habitat distribution along the Project ROW.

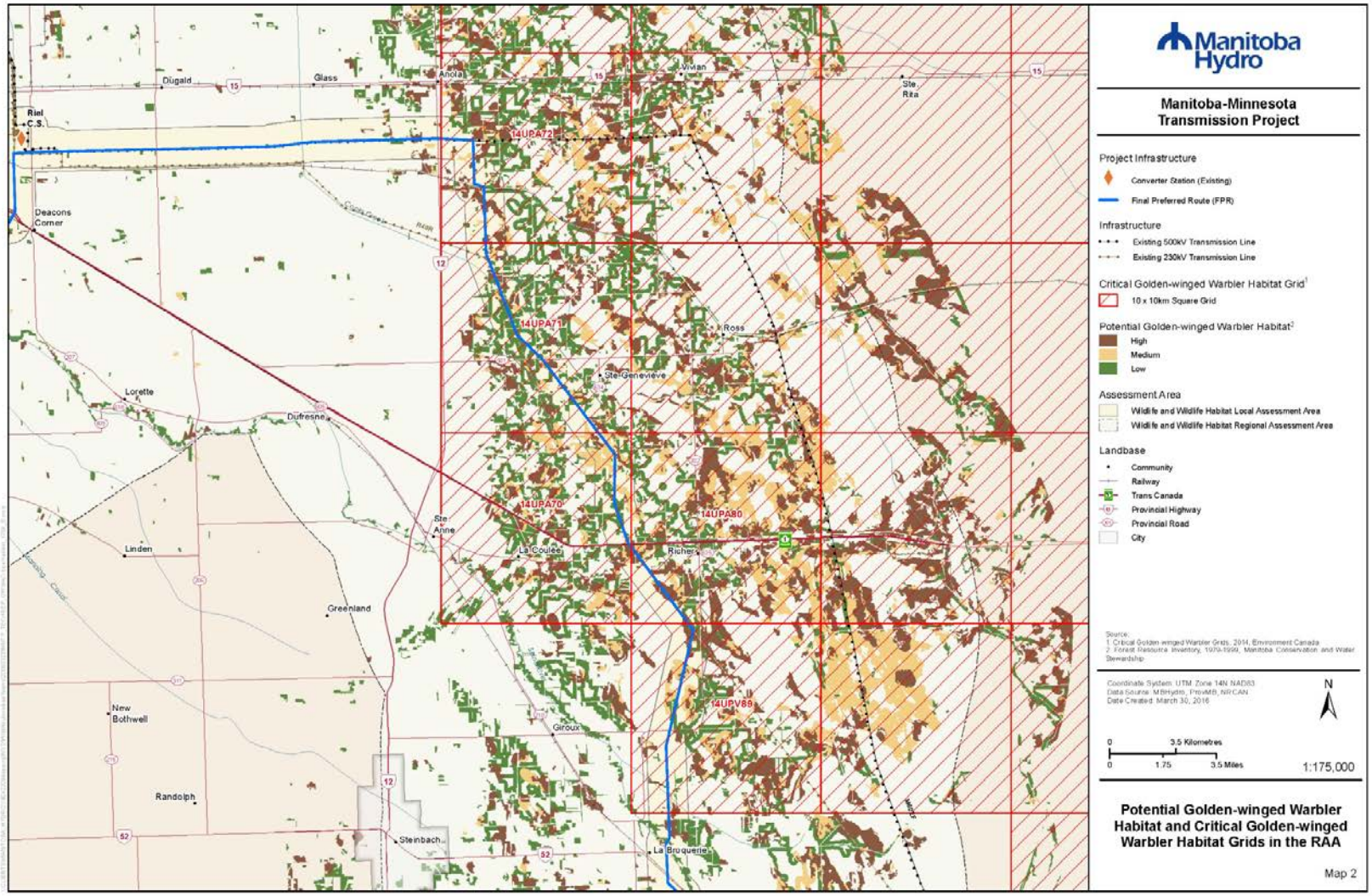
Objective 2: To apply construction clearing prescriptions suitable for the maintenance and development of potential golden-winged warbler habitat while allowing for safety considerations in the construction of the Project.

Objective 3: To apply operational vegetation maintenance prescriptions suitable for the enhancement of potential golden-winged warbler habitat, while abiding by legal requirements for the safe operation and maintenance of the Project.

Objective 4: To monitor the response of the local golden-winged warbler population along the Project ROW.



Map 1. Critical Golden-winged Warbler Habitat Grids in the RAA.



Map 2. Potential Golden-winged Warbler Habitat and Critical Golden-winged Warbler Habitat Grids in the RAA.

Baseline Conditions

Landscape-scale habitat suitability for golden-winged warblers was determined for the five 10 x 10km grid squares that intersect the ROW using Manitoba Conservation and Water Stewardship Forest Resource Inventory Data. The habitat standards presented in Environment Canada Recovery Strategy (50-75% forest cover that is composed of 50% deciduous or mixed forest, with less than 30% coniferous forest) (Environment Canada 2014), were used as a reference to calculate suitable and non-suitable habitat.

At baseline, one of the five grid squares met the Environment Canada standards for being suitable golden-winged warbler habitat, while the remaining four contained an amount slightly below the recommended amount of suitable habitat (Table 1, Map 2). Suitable habitat consisted mainly of broadleaf forest. Mixedwood forest was scarce. The predominant non-suitable habitat at the landscape scale was agriculture. Developed areas and meadow were less abundant than agricultural land, but are still relatively common in each grid square compared to other habitat types (Table 1).

Table 1. Baseline habitat areas (ha) within the 10 x 10km grid squares intersected by the Project ROW based on Environment Canada's landscape-scale habitat definition (Environment Canada 2014).

		10 x 10km Grid Square				
	Habitat Type (ha)	**14PA70**	**14PA71**	**14PA72**	**14PA80**	**14PV89**
Habitat	Broadleaf	3,787	3,914	4,748	5,355	2,978
	Mixedwood	22	2	7	32	102
	Total	3,809	3,915	4,755	5,388	3,081
	Percent of Grid	38	39	48	54	31
Non-Habitat	Coniferous	13	22	67	45	456
	Developed	1,001	907	847	621	279
	Fields (Agriculture)	4,415	4,189	2,792	1,248	2,536
	Willow/Alder	394	365	679	1,277	877
	Marsh Muskeg	23	15	46	394	1,925
	Meadow	257	588	763	977	750
	Shelter Belts	89	0	3	0	0
	Treed Muskeg	0	0	47	1	87
	Water	0	0	0	51	10
	Total	6,192	6,085	5,245	4,612	6,919
	Percent of Grid	62	61	52	46	69

Habitat suitability for golden-winged warblers was also determined for the section of the ROW that intersects the five 10 x 10km grid squares. A more detailed habitat model presented in the EIS (Appendix C) was applied to Forest Resource Inventory data to identify potential nesting and foraging habitat (EIS Map 9-24). The ROW was defined by buffering the Project centreline by 80m for sections that will use self-supporting towers and 100m for sections that will use guyed-towers.

In the ROW that intersects the five 10 x 10km critical habitat grid squares, the Project ROW contains approximate totals of 64ha of high, 40ha of medium, and 57ha of low potential habitat for golden-winged warblers (Table 2). Much of the existing habitat within the proposed ROW is considered non-habitat for golden-winged warblers (Table 2, Map 2).

Table 2. Baseline habitat areas (ha) within the five 10 x 10km critical habitat grid squares within the Project ROW based on EIS habitat models.

	Habitat Type	**Potential Habitat Quality**			**Total (ha)**
		High (ha)	**Medium (ha)**	**Low (ha)**	
Habitat	Grassland	4.7	5.7	0.0	10.4
	Productive Forest	44.8	30.5	57.0	132.3
	Shrub	14.9	3.7	0.0	18.6
	Total	64.4	39.9	57.0	161.3
Non-Habitat	NA	NA	NA	NA	199.3
					360.6

Implementation Phases

Planning Phase

In developing this section the publications "The Best Management Practices for the Golden-winged Warbler Habitat on Utility Rights of way in the Great Lakes" (ND) and "Best Management Practices for Golden-winged Warbler Habitat in the Aspen Parkland Transition Zone of Canada" (ND) provided valuable guidance on how best to plan and maintain vegetation along a ROW for the benefit of golden-winged warblers.

Habitat Management Sites (HMS) will be approximately 10ha in size, which is roughly equivalent to the ROW area between three transmission towers (two spans). There are approximately 90 spans in total within the ROW habitat management area. The size of the HMS is derived from recommendations made by Roth et al. (2012), who suggest that management sites be 2ha in size if located within 300m of existing suitable habitat and 10ha in size when located further than 300m from existing suitable habitat. Potential Golden-winged Warbler Habitat (Map 2) and vegetation surveys as described below will inform the selection of the HMS.

The near and long-term habitat management objective for the golden-winged warbler is to provide a mosaic of different vegetation types that are preferred by this species within each HMS. Habitat preferences for this species have been well documented and are generally described as clumps of shrubs interspersed with herbaceous openings, adjacent to mature forest. Specifically, ideal golden-winged warbler habitat within a HMS is defined as: (GWWAWG 2013)

- Tall shrubs and saplings (1-4m) unevenly distributed as clumps, consisting of up 30-70% of the management site;
- Shrub and sapling clumps interspersed with herbaceous openings that are primarily composed of forbs with a smaller proportion of grasses;

- Low woody vegetation (1m), leaf litter, and bare ground that occupies less than 25% of the opening's space;

- Low density of overstory trees (10-15/ha).

As the Project proceeds, the first objective will be to validate the amount of potential golden-winged warbler habitat present within the proposed ROW using vegetation surveys. Vegetation surveys will use a combination of remotely-sensed data, including LiDAR (light detection and ranging) and high-resolution imagery, as well as data collected from the ground. Remotely-sensed data will be used to improve understanding of where potential golden-winged warbler habitat is located along the ROW. Both spatial and quantitative information of tree and shrub species, their heights and grass-forb habitat patches derived from LiDAR imagery will be mapped. One of the most important factors in developing clearing prescriptions will be to determine the extent of tree growth along the Project ROW. Trees are not compatible with the safe operation and maintenance of a transmission line and must be managed when their height exceeds the vegetation clearance requirements for the safe operation of a transmission line. The derived plant community distributions will be used to develop vegetation management prescriptions for each management site. As additional digital imagery and ground-based vegetation survey data becomes available for the Project development area, Manitoba Hydro will develop specific mapping products to help guide on the ground clearing activities in golden-winged warbler critical habitat.

Construction Phase

Clearing of the ROW for transmission line construction will be considerate and selective in areas designated as golden-winged warbler habitat from the vegetation mapping described above. Within each HMS (two spans), vegetation clearing will occur in two separate zones (Figure 1). Vegetation management in Zone 1 (0-12m on either side of the centreline of the ROW and up to a 100 x 100m cleared area around the tower base) will involve the clearing of all trees and shrubs to provide safe access and work areas at tower footprints and during conductor

stringing. Vegetation management within Zone 1 will likely involve the use of mechanical equipment such as feller-bunchers or mulchers to remove all standing woody vegetation.

Vegetation management within Zone 2 (12-50m on either side of the centreline of the ROW between tower footprints) will involve the selective removal of woody vegetation. In this zone, all trees will be removed, but other vegetation, particularly forbs, some saplings, and most shrubs will be retained to the extent possible. The use of feller-bunchers and hand clearing will likely be used to remove all trees in this zone. On the outer edges of Zone 2, clearing equipment operators will work closely in real-time with Manitoba Hydro environmental inspectors in an effort to develop a feathered edge by selectively clearing vegetation in an uneven pattern to create a mosaic of habitats as described in Petzinger et. al (ND), Artuso et al. (ND) and GWWAWG (2013).

The conceptual vegetation clearing prescription described above applies to forested habitat. Large shrubland, wet areas, and grassland dominated plant communities will not require vegetation clearing beyond Zone 1, and as such will be maintained as close as possible to their existing and naturally occurring state.

Clearing activities will take place during the non-breeding season to minimize the disturbance during this critical period. If any construction activities cannot be achieved during the non-breeding season, pre-clearing nest surveys will be conducted, and a set-back distance of 300m from breeding and nest sites will be used to prevent disturbances to golden-winged warblers (EIS, Ch. 22, Appendix E). In addition, supply and marshalling yards will be located in previously developed areas or in low potential golden-winged warbler habitat.

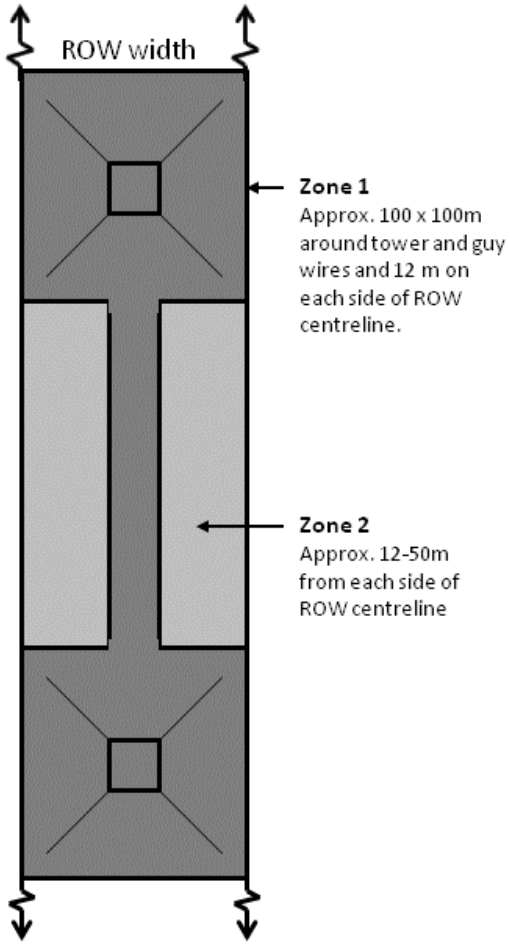


Figure 1. Vegetation clearing and management zones (100m ROW) within the five 10 x 10km critical habitat grid squares within the Project ROW (not too scale).

Operations Phase

161 The goal of long-term habitat management is to provide golden-winged warbler habitat as
162 described above within the HMS. Following construction, within forested areas, shrubs and
163 other vegetation will regenerate naturally through the spread of suckers and new growth from
164 the existing seed bank. During operation and prior to vegetation management activities,
165 Manitoba Hydro will assess vegetation diversity, distribution and height along the ROW. These
166 results will be compared to the habitat preferences of golden-winged warbler (see Planning
167 Section above). Where ROW vegetation characteristics substantially deviate from golden-

winged warbler habitat preferences, as outlined in Petzinger et. al (ND), Artuso et al. (ND) and GWWAWG (2013), Manitoba Hydro will adjust vegetation management prescriptions within HMS accordingly using an adaptive management approach.

Typically, vegetation management along transmission line ROWs occurs every 8-10 years (EIS, Section 2.13.3). Vegetation within Zone 1 will be maintained as a mosaic of grass, forbs and low shrubs to prevent interference with the transmission line and allow access for transmission line inspection and maintenance. Vegetation management in this zone will likely use a combination of mechanical mowing and the selective application of herbicides to prevent tree growth.

Vegetation within Zone 2 will be selectively managed to remove all trees but maintain the presence of a forbs, grasses, saplings, and a low and tall shrub layer. Along the outer edge of this zone, management will likely include the use of selective brush mowing and/or hand-clearing of trees to leave patches of shrubs and taller woody vegetation to create a feathered edge, as shown in Figure 2. Selective herbicide use may also be applied to prevent tree growth. Manitoba Hydro has considered the general vegetation management techniques described by Roth (2012b) to maintain specific habitat conditions for golden-winged warbler.

Figure 2. Example of high quality golden-winged warbler habitat along a transmission line ROW with a feathered edge (Petzinger et al. (ND). Photo credit Tom Langen).

Burning is not considered as a management tool in this plan due to risk of wildfire, the presence of private property, and other logistical constraints. Habitat management within farmland, pasture, or other developed land types is not practicable due to private land considerations and the lack of suitability for golden-winged warblers.

To maximize the diversity and habitat structure in the ROW, vegetation management will be staggered in space and time amongst HMS. An adaptive management approach will be used to determine the timing of vegetation prescriptions in each HMS as habitat development depends on numerous environmental factors. By alternating vegetation management within parts of Zone 2 over a suitable period (dependent on local environmental conditions), different stages of regenerating forest will develop within a single habitat management site and enhance the potential habitat suitability for golden-winged warblers (Figure 3).

Project Monitoring

The Manitoba-Minnesota Transmission Project - Environmental Monitoring Plan (Appendix 22C) outlines monitoring activities for bird species of conservation concern, including golden-winged warblers.

These monitoring objectives include:

- Identify the location of bird species of conservation concern within or in close proximity to the Project footprint with the purpose of establishing a Control-Impact monitoring program for known individuals and/or groups;
- Monitor species of conservation concern in close proximity to the transmission line and compare annual site fidelity and abundance to nearby control sites; and
- Determine the effectiveness of mitigation measures and, if appropriate, propose revisions to the existing plans or develop new mitigation options should unexpected impacts to birds occur as a result of construction or operation activities.

Figure 3. Examples of high quality (top) and poor quality (bottom) golden-winged warbler habitat in a transmission line ROW ((GWWAWG (2013). Photos credits from top and bottom: Sara Barker Swarthout; and Amber Roth)

References:

Artuso, C., Will, T. Friis, W., Moulton, L., Swarthout, S.B. ND. Best management practices for golden-winged warbler habitat in the Aspen Parkland Transition Zone of Canada. Golden-winged Warbler Working Group Publication. 2 pp.

Environment Canada. 2014. Recovery strategy for the golden-winged warbler (*Vermivora chrysoptera*) in Canada. Species at Risk Recovery Strategy Series. Environment Canada, Ottawa, 57 pp.

GWWAWG (Golden-winged Warbler Working Group). 2013. Best management practices for golden-winged warbler habitats in the Great Lakes Region. Golden-winged Warbler Working Group Publication. 8 pp.

Manitoba Hydro. 2015. Manitoba - Minnesota Transmission Project. Environmental Impact Statement. Chapter 9. Assessment of potential effect on wildlife and wildlife habitat.

Petzinger, S., Langen, T.A., Kubel, J.E., Roth, A., and Swarthout, S. ND. Best management practices for golden-winged warbler habitat on utility rights-of-way in the Great Lakes. Golden-winged Warbler Working Group Publication. 2 pp.

Roth, A.M., Rohrbaugh, R.W., Aldinger, K., Bakermans, M.H., Barker Swarthout, S., Buehler, D.A., Confer, J.L., Crawford, D., Friis, C., Fowlds, R.M., Larkin, J.L., Loegering, L.J., Lowe, J.D., Piokowski, M., Rosenberg, K.V., Smalling, C., Terhune, T.M., Vallender, R., Will, T., and Wood, P.B. 2012. Golden-winged warbler breeding season conservation plan. In Roth, A.M. Roohrbaugh, R.W., Will, T., Beuhler, D.A. editors. Golden-winged warbler status review and Conservation Plan. Available from www.gwwa.org/.

Roth, A.M., Rohrbaugh, R.W., Will, T., and Buehler D.A. 2012b. Golden-winged warbler status and review and conservation plan. Golden-winged Warbler Working Group Publication 175 pp. Available from www.gwwa.org/.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Access**

REFERENCE: **MCWS MMTP IR No 2 - Item 3**

QUESTION:

The Proponent states on page 9-120 of the EIS that a 30 m buffer will be applied to the edges of wetlands for the leopard frog. This may be appropriate for construction related activities during the fall winter when the frogs are not active, but does not clarify whether there will be new roads/trails with ongoing traffic. Northern leopard frogs are known to disperse more than 400m from overwintering ponds and are susceptible to traffic mortality.

RESPONSE:

In accordance with the draft Access Management Plan (Appendix 22B) there are no new roads/trails currently planned for this project within wetlands with the exception of the centerline trail used during the winter for construction and maintenance access. As Manitoba Hydro plans to use existing trails and access roads for construction and operations, there is no expectation of an increase in traffic-induced mortality of Northern leopard frogs as a result of the project.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Species At Risk**

REFERENCE: **MCWS MMTP IR No 2 - Item 3**

QUESTION:

The Proponent has observed a number of species at risk. This data can be lost if not put into central repositories that are readily accessible to biologists and environmental consultants. This information is valuable in gaining a better understanding of species, establishing baseline conditions and examining future activities in the project corridor/area.

Clarify whether observations of species at risk will/have been provided to provincial conservation data centres.

RESPONSE:

Observations of species at risk collected to date have been shared with the Manitoba Conservation Data Centre and will continue to be shared annually as monitoring programs gather data.

SUBJECT AREA: **Vegetation and Wetlands, Vegetation and Wetlands**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.2.1 Methods

"grasslands have a target patch size of 50-100 ha... Two-hundred was chosen as a conservative approach."

Based on the recommendation for grasslands provided, how can 200 ha be justified? Given the recommendation all grassland patches 100 ha in size (if not smaller) should have been identified, especially given that the paragraph further states that the value of additional landscape components is "unknown or variable depending on the species and region". Same comment for Chapter 10 section 10.3.2.1.1.

RESPONSE:

A patch size of 200ha was chosen as a conservative approach as forested habitat types of this size or greater are considered critical for protecting biodiversity (Environment Canada 2013). Native grassland habitat types have a target patch size of 50-100ha for protecting biodiversity; however, only four patches of native grassland of this size are intersected by the PDA (Project Development Area), and ten with a size of 50-200ha. Native grassland habitat patches less than 200 ha therefore account for a very small fraction of the patches crossed by the PDA. Effects to native grassland patches of 50-200ha in size also are small, ranging from 0.2 % to 11.3% of the baseline patch area and there is no change in the number of patches in this size category or a 50-100 ha size category. As the effect to native grassland patches equaling 50-100ha is so small and there is no change in the number of patches in this size category, assessment conclusions would not change if a 50-100ha target patch size was used.

Reference:

Environment Canada. 2013. *How Much Habitat is Enough*? Third Edition. Environment Canada, Toronto Ontario.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Species At Risk**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Tables 2-17 and 2-18

The SARA and COSEWIC lists were developed using 2013 data. More recent documents should have been used, as some statutes have changed.

RESPONSE:

Manitoba Hydro has reviewed the Species at Risk Act (SARA) and Committee on the Status of Endangered Wildlife in Canada (COSEWIC) registries, and acknowledges this oversight. The COSEWIC designation of the Small White Lady's-slipper (*Cypripedium candidum)* was reexamined in 2014 and the species status changed from "endangered" to "threatened". Additionally, Western Ironweed (*Vernonia fasciculata*) was assessed by COSEWIC as endangered, but has not yet received a status under SARA. These were the only errors identified in Table 2-17 and 2-18.

These changes do not change the conclusions of the environmental assessment.

SUBJECT AREA: **Vegetation and Wetlands, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.6.4.2 Results

The locations of rare plants identified during assessment surveys should be provided to the Conservation Data Centre to assist with future conservation efforts. Same comment for Chapter 10 Section 10.4.6.

RESPONSE:

Observations of species at risk collected to date have been shared with the Manitoba Conservation Data Center and will continue to be shared annually as monitoring programs gather data.

SUBJECT AREA: **Access, Vegetation and Wetlands**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.6.4.3 Data Gaps

"The following gaps (> 10 km) in the collection of field survey data along the New ROW occurred due to lack of road access..."

Lack of road access should not be used to justify a lack of data collection during the assessment or monitoring phases. Lack of road access is an obstacle that this proponent and others have overcome on a regular basis in much more inaccessible areas of the province. Due to their remoteness and inaccessibility, it is possible that these habitats stand to be the most negatively impacted sites post-new ROW development; therefore they should have been properly assessed.

RESPONSE:

Prior to the 2014 field season, the Final Preferred Route (FPR) had not been established. The field program was set up to better characterize multiple alternative routes, including a broader area than just the FPR. Field survey data contributed to route selection and was designed to characterize conditions related to multiple alternative routes. Additional data will be collected in gap areas of higher concern (e.g., potential candidate protected areas and rare plant locations) in the PDA (Project Development Area) prior to construction. Should any sensitive areas be found, mitigative measures will be applied. Sensitive areas found on the ROW will be flagged for avoidance and if previously unidentified species or ecosystems of concern (e.g., tall-grass prairie) are encountered, they will be noted for potential additional mitigation. A pre-construction survey is planned to capture areas along the FPR that may have been missed in earlier surveys.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.0 Wildlife and Wildlife Habitat

Table 2-1

Moose – the table states that "moose are rare in the region". This is also consistently conveyed throughout the document (e.g. 9.4.3, Section 4.4.7 in Chapter 22 - Appendix 22C). A more appropriate statement would be that moose are uncommon in the region, or were determined to be uncommon based on assessment studies.

RESPONSE:

Manitoba Hydro acknowledges this suggestion. The decision to use the term "rare" to describe moose in this environmental assessment was largely drawn from descriptions of moose provided by participants in Key Person Interviews (Wildlife and Wildlife Habitat TDR 2.19). Whether moose are described as "rare" or "uncommon" would not change the conclusions of the environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.0 Wildlife and Wildlife Habitat

Table 2-1

Wolves are not mentioned in this table, even though they are mentioned throughout the document and are presumably the "predators" referred to in the Ungulates and Predators component of the monitoring plan (although this is unclear, please see comments below). If the intent is to include wolves under the "Other Furbearers", then likewise to the Eastern Region's comments on Black Bear, the gray wolf is classified as a Big Game species under The Wildlife Act, and should not be lumped into the furbearer category.

RESPONSE:

Manitoba Hydro notes and agrees that gray wolf is a Big Game species under *The Wildlife Act.* Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.1.2.1 White-tailed Deer

"Overall, the capability of the land to support ungulates in the RAA is moderate to severely limited (CLI 2002a)"

We do not agree with this statement, or with solely using the CLI classification to make these types of conclusions. We support the Eastern Region's comments regarding this topic addressed in their response to Section 2.3.1.2.3.

RESPONSE:

Manitoba Hydro reviewed and included data from the Canadian Land Inventory (CLI) as one part of a multifaceted review of wildlife habitat within the Project area. Wildlife habitat analysis that also included data modeling, field verification, and remote sensing can be found in Chapter 9.

The CLI is a unique data set as it represents a wildlife habitat classification system that was developed in partnership between Federal and Provincial Wildlife Agencies. The classifications are divided into broad categories that allow for comparisons of wildlife lands across broad regions of Manitoba and Canada. An official description of the CLI can be found on the Government of Canada webpage (http://sis.agr.gc.ca/cansis/nsdb/cli/index.html):

"The Canada Land Inventory is a comprehensive multi-disciplinary land inventory of rural Canada, covering over 2.5 million square kilometers of land and water. Land capability for agriculture, forestry, wildlife, recreation, wildlife (ungulates and waterfowl) was mapped. Over 1000 mapsheets at the 1:250,000 scale were created during the 1960's, 70s, and early 80's. Although the information is old, and better information is available for some areas as part of

more recent soil surveys, the interpretations are still largely valid, and many jurisdictions still use them for land use planning purposes."

Seven classes are used to rate wildlife (ungulate) capability:

- 1-Lands having no significant limitations to the production of ungulates. Capability on these lands is very high. They provide a wide variety and abundance of food plants and other habitat elements.
- 1W-Lands within Class 1 that provide winter habitat on which animals from surrounding areas depend.
- 2-Lands having very slight limitations to the production of ungulates. Capability on these lands is high but less than Class 1. Slight limitations are due to climatic or other factors which have a slight adverse effect on the habitat.
- 2W-Lands within Class 2 that provide winter habitat on which animals from surrounding areas depend.
- 3-Lands having slight limitations to the production of ungulates.
- 3W-Lands within Class 3 that provide winter habitat on which animals from surrounding areas depend.
- 4-Lands having moderate limitations to the production of ungulates
- 5-Lands having moderately severe limitations to the production of ungulates.
- 6-Lands having severe limitations to the production of ungulates.
- 7-Lands having limitations so severe that there is little or no ungulate production.

Manitoba Hydro notes that a large percentage of the RAA has limited suitability for ungulates (88% of the existing corridor and 38% of the new ROW is modified habitat; Wildlife and Wildlife Habitat TDR Table 2-3), and this is reflected in the summary of CLI data. However, Manitoba Hydro acknowledges that there are portions of the RAA with higher ungulate capability.

Manitoba Hydro also notes that according to *Crown Lands ADM Policy Committee Policy and Procedures Manual* (2013), information from the CLI Land Capability for Wildlife-Ungulates are used, as part of a suite of available data, to inform Crown Land use management decisions.

For these reasons, Manitoba Hydro maintains that the use of the CLI spatial data is valid and valuable as one part of a multifaceted review of wildlife habitat in the Project area.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

"There are approximately 150,000 white-tailed deer throughout Manitoba..."

A more appropriate estimate would be 100,000.

RESPONSE:

Manitoba Hydro accepts this information and notes that the figure used in this sentence was derived from the Manitoba Conservation and Water Stewardship website: https://gov.mb.ca/conservation/wildlife/mbsp/fs/wtdeer.html

Updating the approximate number of white-tailed deer in Manitoba does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.1.2.2 Elk

"There are over 7,000 elk in Manitoba, located primarily in..."

This should include Duck Mountain and the Interlake.

Even though the impacts to ungulates in the Glenboro area are considered to be negligible, a background statement describing the GHA 30 elk population should have been included in this section.

RESPONSE:

Manitoba Hydro acknowledges this oversight and agrees that this statement should have included the Duck Mountains and the Interlake. A similar description was included in Section 9.4.3 where Duck Mountain and the Interlake were not erroneously omitted.

The Glenboro South Station portion of the project is described in Section 2.4.2.3 of Chapter 2 and further outlined in Map 2-6. This portion of the project consists of a 130m x 91m (1.18ha) expansion of an existing Manitoba Hydro station facility and the realignment of four (4) transmission towers. These works are proposed to occur on existing intensively cropped agricultural land. This minor change in land use will not have a measurable effect on ungulates including the population of elk that reside north of the project site in GHA 30 and south of the project site in GHA 31A.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.1.2.3 Moose

"Moose in Manitoba occur in small numbers in pockets of habitat..."

This statement should have said "southern Manitoba" given that their distribution extends north of the areas described, and that their densities are relatively high in the RMNP area, which is contradictory to how the current statement reads.

RESPONSE:

1 Manitoba Hydro acknowledges and agrees with the suggested wording.

2 Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Environmental Protection, Follow-up and Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.1.2.4 Black Bear

The descriptions of potential dens sites should have included open ground nests. Going forward, this type of den should be described in any monitoring and environmental protection plans where future conflicts and mitigation may arise.

RESPONSE:

Manitoba Hydro appreciates this input and will add potential bear den identification descriptions including open ground nests as part of a bear den discovery protocol to its Construction Environmental Protection Plan and the Environmental Monitoring Plan.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.1.2.4 Black Bear

"The density of black bears in southern Manitoba is expected to be moderate to high..."

This should have said specifically "southeastern Manitoba".

RESPONSE:

1 Manitoba Hydro acknowledges and agrees with this suggested wording.

2 Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.1.2.5 Furbearers and Other Mammals

While gray fox is a COSEWIC designated species at risk, COSEWIC 2014a also states that a breeding population has never been found in the range which includes southeastern Manitoba and northwestern Ontario. It further states that any gray fox in Manitoba are likely migrants and accidental. This should have been stated. The same comments stand for statements made in Sections 2.3.4.1 & Chapter 6 Section 6.2.6.4.

Also, least weasel is a naturally uncommon species and should have been identified as so.

RESPONSE:

1 Manitoba Hydro acknowledges and agrees with these points.

2 This information does not affect the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.2.1 Methods

"One Manitoba Conservation Natural Resource Officer (NRO) from Piney (D. Cooper)"

"One NRO from Steinbach (T. Kuzenko)"

For your information going forward when referring to these individuals and their locations, they are now to be referred to as Conservation Officers, and D. Cooper is positioned out of the Sprague District, not Piney.

RESPONSE:

1 Manitoba Hydro appreciates this clarification and correction.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.3.3.1

Winter track surveys for furbearers are at best anecdotal; the non-canid furbearer species likely cycle, and these numbers provide little information on their relative abundance; ideally, surveys should be conducted over 4 years to account for any cycles.

RESPONSE:

Manitoba Hydro agrees that in this study design, furbearer data from winter track surveys are largely anecdotal; these were effectively incidental observations from a survey that primarily targeted large mammals and were reported because they provide some data on the range of furbearers in the region.

SUBJECT AREA: **Vegetation and Wetlands, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Table 2-6

From what FRI characteristics within forest types were linear regressions developed?

RESPONSE:

Linear regressions were developed for softwood from FRI codes 01-39, for mixedwood from FRI codes 40-89, and for hardwood from FRI codes 90-99.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.3.4.6 Furbearers and Other Mammals

"Marten are more tolerant of fragmented landscapes, whereas fishers tend to use more contiguous forest blocks. Both were most commonly observed in the southern portions of the LAA where large blocks of intact forest persist."

Were fisher and marten observations made during or outside of aerial surveys (not referenced)?

RESPONSE:

Fisher observations were limited to the aerial surveys. Additional American marten observations were limited to two individual animals detected through the camera trap study (Wildlife and Wildlife Habitat TDR, Section 2.3.3.1.2 and Table B.2).

SUBJECT AREA: **Wildlife and Wildlife Habitat, Socio-economic**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

6.2.6.1 Mammals

Both fisher and lynx are important furbearing species and should have been identified.

RESPONSE:

Manitoba Hydro agrees that these are important furbearing species and notes the list in this section was not intended to be exhaustive but rather to provide examples for the reader of the range of wildlife species that occur in the Project area. Both lynx and fisher were included in the more thorough discussion of furbearers and other mammals in Section 2.3.1.2.5 of the Wildlife and Wildlife Habitat TDR.

Changing this wording would not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Socio-economic**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

6.2.6.4 Wildlife Species of Conservation Concern

"Grey fox... This furbearer has been found..."

Gray fox is not a scheduled Fur Bearing Animal under The Wildlife Act.

RESPONSE:

1 Manitoba Hydro notes and agrees with this information.

2 Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

The Vita herd actually resides on a combination of private and crown lands. Also, the majority of MCWS's observations would have been made during winter aerial surveys; therefore herd range and occupation during other seasons remains unknown.9.1.2.2 Wildlife Mortality "MCWS further indicated that the elk herd resides primarily on private lands…"

RESPONSE:

Manitoba Hydro acknowledges this clarification of wording. However, responses from other participants in Key Person Interviews explained that elk in this region have exhibited a preference for private lands where the landowners prohibit hunting, tolerate crop damage and hay bale depredation, and in some cases provide elk supplemental feed.

MCWS_MH-I-081 provides further information with respect to the potential project effects on elk.

This information is consistent with the information included in the EIS therefore does not change the conclusion of the environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Section 9.1.2.2

"Creating new access in these areas could lead to increased hunting of deer and bear and increased predation of deer by wolves."

We agree with this statement and appreciate its inclusion; however it should also mention elk.

RESPONSE:

Manitoba Hydro acknowledges and agrees with this improvement of wording. Manitoba Hydro did not include elk in the statement as none were found within the Local Assessment Area (LAA). For further information on potential project effects on elk, please see response MCWS_MH-I-081.

These changes in wording do not change the conclusion of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

9.3.1.4 Field Studies

"Field studies addressed three broad wildlife categories:"

Specific sections within the TDR should be referenced in this section.

Field study rationale and methodology is provided in these sections, but why not a summary of results?

RESPONSE:

Rationale, objectives, study design, and methods are reported in Chapter 9, Section 9.3.1.4 to provide an overview of the nature of fieldwork that informed the evaluation of potential environmental effects. Key results are presented as part of Section 9.4 (Existing conditions for wildlife and wildlife habitat).

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

9.3.1.4.1 Mammals

LARGE MAMMAL SURVEY

Study Design

The study design description should have contained more details, which would help MCWS understand exactly how baseline data were collected and how these studies will be carried through to the monitoring phase (the monitoring plan also requires more detail, see comments below). The Wildlife and Fisheries Branch has the following questions:

- How were camera locations determined?
- How were larger distances (up to 12 km) between cameras locations justified?
- Why were cameras not placed on both sides of the transmission line for full coverage at each location?
- How will camera traps be used to estimate abundance of mammals? Can biologists be reasonably certain the same animal is not counted multiple times using camera traps?
- Design 1: Was the camera located 500 – 800 m from the route (in the same habitat type) intended to be used as a "control"? If so, please justify this distance as being an acceptable distance to be out of the zone of influence for large mammals. A suitable "control" should be selected in an area far enough away from the proposed development where there will be no residual effects on the target species, keeping in mind that these assessments should contribute baseline information to the long term Environmental Monitoring Program.
- Design 2: Why were locations off the transmission line not included as in Design 1?
- Were the objectives of the two designs different? Please justify why data collection methods were different, and not consistent between years.

This section should also report on the density of cameras throughout the study area and the

representative area covered by each.

Furthermore, we support the Eastern Region's comments on the camera trap deployment period, mentioned in response to 1.3 Wildlife and Wildlife Habitat TDR - Section 2.3.3.1. The period used during the assessment does not incorporate year round mammal activity, especially during the white-tailed deer rut/general hunting season when it could be hypothesized that the greatest increases in Project related mortality would occur, or during the late-fall winter period when elk are predicted to be in Manitoba (as consistently stated in this document).

RESPONSE:

Currently only 38% of the RAA is considered natural wildlife habitat (*e.g.*, forest, grassland, wetland; Section 2.2.1.3). The remainder of the RAA is used for agriculture (47%) or is developed (15%). Various forms of human development such as roads, highways, rail lines, pipelines, transmission lines and urban and rural residential development have altered the landscape by fragmenting patches of natural wildlife habitat that remain in the eastern portion of the RAA. Although fragmented, these lands continue to serve multiple users, particularly in the eastern portion of the RAA where resource development (e.g., forestry, mining), resource use (e.g., hunting, trapping), recreation and tourism opportunities, and designated lands and protected areas are most prevalent.

The camera trap program was designed to gather information on mammals inhabiting select areas of the proposed ROW (i.e., Design 1) and areas along the existing 500kv transmission line, M602F (i.e., Design 2). Along the proposed ROW, camera locations were determined using a BACI study design to allow for future monitoring. This therefore included camera pairs, with one along the proposed ROW and the other away from it. Locations were further selected by habitat, with an emphasis on vegetation cover types suitable to black bear or elk, which were primary targets for the camera trap study. Preference was given to forest stands large enough to support a pair of cameras within the same vegetation cover type (i.e., one along the proposed ROW and another 500-800m away). Because reliable land access was required,

locations were limited to crown land. Once in the field at target locations, specific deployment sites were refined where possible to be near existing game trails or habitat features likely to attract wildlife.

The objectives of the camera trap study were to document mammal distribution and determine species detection rates (number of individual occurrences or events per unit of time) within broad vegetation cover types. Pairs of cameras were at least 500m apart to maintain sample independence, but no maximum distance was defined. While balanced coverage of the full study area would have been ideal, constraints of habitat availability and land accessibility resulted in some gaps being larger than others. However, some inferences can be made about wildlife occurrence in these areas based on the results from surrounding areas and FRI data for the areas lacking cameras.

The width of the transmission line is quite small relative to the distances traveled by the mammals targeted by the camera trap study. Putting two cameras that close together would result in considerable duplication in results, and minimal additional information compared to an independent site elsewhere.

Manitoba Hydro's Camera Trap Data Classification Guide was used to determine the number of individuals involved in each camera event (Section 2.3.3.1.1). Given that the objectives of the camera trap study were to compare species detection rates among habitat types and locations, there was no need to estimate actual abundance.

For most species it is not possible to be certain that the same animal is not counted multiple times by a given camera. For this reason, analysis was based on detection rate per camera, and a camera event was defined as any number of individuals of a particular species captured on camera within a one-hour time period. Moreover, by leaving the cameras in place for several months (mean 121 days of operation), the overall level of activity recorded was a reflection of the relative suitability of habitat (i.e., a location repeatedly used throughout the season likely represents important habitat for a species, while a site with multiple observations on just one or two days is probably of lesser quality) (Jenks et al. 2011; Rovero et al. 2014).

The cameras located 500-800m from the route are intended to serve as controls for future monitoring. Recent published papers exploring the relationships between collared moose and linear features show that avoidance is generally limited to a few hundred meters, and that crossing power lines was not avoided (Laurien et. al. 2015, Bartze 2015). Admittedly, a distance of 500-800m from the route is not outside the zone of influence of the project for all species. In principle, a distance of 1km or greater would be preferable. However, effective comparison is also dependent on other sampling factors being consistent, most notably habitat type and other sources of disturbance. Given the extent of habitat fragmentation and existing disturbance through much of the RAA and the limitations of land access, it was not feasible to routinely space the control sites >800m from the proposed ROW. Therefore, to achieve a consistent approach and optimize habitat similarity between control and impact sites, the control cameras were placed 500-800m from their matching pairs.

The objective of Design 2 was different, as the intent was specifically to document usage of an existing ROW by mammals and other wildlife. The goal was to use data collected from M602F to help predict future habitat usage along the proposed ROW. During the Clean Environment Commission Hearing on Bipole III, it was noted that Bipole I and II could have been studied as a proxy to understand the longer term effects of similar lines to Bipole III. Manitoba Hydro took that advice and intentionally incorporated into its study designs the existing nearby M602F (500kV) ROW, with similar environmental and engineering characteristics.

The density of cameras in the study area was not reported, as the spacing between cameras is unequal (for reasons discussed above) and a density calculation would therefore not be meaningful; the map of camera trap locations (Figure 2-3) is used instead to show distribution of effort. No estimates of area of coverage were made, as the data were used to describe detection rates in relation to habitat type rather than to generate abundance estimates.

Manitoba Hydro acknowledges that the camera trap study did not document year-round usage of habitat as that was not part of study design. Cameras were removed prior to the hunting season to reduce potential loss of equipment and more importantly the data. Winter track surveys conducted in 2014 and 2015 were designed to document distribution of large mammals

in winter, and contribute to the understanding of year-round usage. Because cameras are an effective way to gather information on wildlife presence and distribution, they were re-deployed along the final preferred route in November 2015.

References:

Bartzke, G.S., R. May, E.J. Solberg, C.M. Rolandsen, and E. Roskaft. 2015. Differential barrier and corridor effects of power lines, roads and rivers on moose (*Alces alces*) movements. *Ecosphere* 6(4): 1-17.

Jenks, K.E., P. Chanteap, K. Damrongchainarong, P. Cutter, T. Redford, A.J. Lynam, J. Howard, and P. Leimgruber. 2011. Using relative abundance indices from camera-trapping to test wildlife conservation hypotheses – an example from Khao Yai National Park, Thailand. Tropical Conservation Science 4 (2):113-131.

Laurian, C., C. Dussault, J.-P. Ouellet, R. Courtois, and M. Poulin. 2012. Interactions between a large herbivore and a road network. *Ecoscience* 19: 69-79.

Rovero, F., E. Martin, M. Rosa, J.A. Ahumada, and D. Spitale. 2014. Estimating Species Richness and Modelling Habitat Preferences of Tropical Forest Mammals from Camera Trap Data. PLoS ONE 9(10).

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

AERIAL WINTER TRACK SURVEY

Rationale

"An aerial survey of mammals and mammal tracks during late winter period (Photo 9-2) is an efficient way of determining large mammal distribution, species composition and movement pattern over a large area."

We disagree with this statement. The described methodology will only determine large mammal winter distribution, and only provides a single snapshot in time, therefore not allowing Manitoba Hydro to determine "movement pattern over a large area".

Also, although multi-species surveys for animals and their tracks are efficient, they are not ideal. It would be challenging to maintain a suitable search image for each species (animal and tracks), particularly when searching for ungulates, furbearers and small mammals. If single-species surveys are not suitably efficient for the collection of pre-disturbance data, consider minimally utilizing different surveys for ungulates, furbearers and small mammals and incorporate methods to allow for calculation of detection probability.

RESPONSE:

The primary objective of the aerial survey was to document distribution of large mammals and species composition in the RAA. The observers conducting the aerial surveys were highly experienced and the number of targets of observation was sufficiently low that maintaining suitable search images was not overwhelming. Manitoba Hydro acknowledges that an individual aerial survey does not yield data on movement patterns, although some inferences can be made from comparing results of such surveys on different dates.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Methods

"For white-tailed deer, only tracks were noted..."

"Again, all tracks (especially ungulate, furbearer, and small mammal tracks) on 200 m of either side of the aircraft were recorded."

Please explain why only tracks were counted for white-tailed deer, and not individuals? Going forward, given that Manitoba Hydro intends on "Expanding the baseline knowledge of occurrence, distribution and abundance of ungulates and predators interacting with the Project" (Chapter 22 – Appendix 22C - Section 4.4.7), this methodology and data collected will have limited applicability in assessing potential changes in white-tailed deer abundance, which is, and should remain a primary objective.

RESPONSE:

The 2014 aerial survey was designed to obtain baseline species composition and distribution data within survey blocks in the RAA. Information gathered in this first year of data collection helped inform the subsequent baseline data surveys conducted in 2015 and 2016.

Manitoba Hydro gathered data on individual deer (and other wildlife) during the 2015 winter baseline aerial surveys. In 2016, baseline knowledge of ungulate and predator occurrence and distribution was expanded upon with a repeated survey of the southern 20 x 20km survey blocks and existing M602F transmission line. Both tracks and individuals were recorded during these surveys.

Additional information on white-tailed deer monitoring can be found in MCWS_MH-I-077.

SUBJECT AREA: **Routing, Species At Risk**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

9.4.2 Species of Conservation Concern

The locations of all SOCC identified during assessment surveys should be provided to the Conservation Data Centre to assist with future conservation efforts.

RESPONSE:

The location of SOCC identified during assessment surveys will be provided to the Conservation Data Centre as requested.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

"Grey fox... is expected to be an occasional resident in the RAA."

There is no known breeding population of gray fox in Manitoba, and therefore this species should not be referred to as a "resident".

RESPONSE:

Manitoba Hydro acknowledges concerns about this wording and suggests that this sentence be changed to "Grey fox … is expected to be occasionally found in the RAA"

Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

9.4.3 Mammals

Elk

"Despite repeated baseline survey efforts in 2014 and 2015, elk and/or elk sign (tracks, antlers, pellets, browse) were not detected in the LAA."

This should have stated how many surveys and what types of surveys were conducted within the LAA that potentially would have detected elk. Differentiation should have also been made between surveys where elk were the target species and surveys where elk/sign would have been incidentally recorded (e.g. during heptile surveys).

RESPONSE:

Field effort for elk and other mammals is detailed in the Wildlife and Wildlife Habitat TDR, Section 2.3.3. The camera trap study and winter track surveys were designed in part to target elk habitat, and the elk breeding survey was exclusively targeted at this species. To clarify, if any elk or elk sign incidental observations had occurred (which they did not) they would have been recorded during wildlife surveys, including surveys for birds or herptiles.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Moose

"moose are rare in southeastern Manitoba due to a combination of factors such as habitat fragmentation, predation by wolves, parasites..."

See above comments on use of "rare". The actual role of wolf predation in the southeastern moose population declines is unknown, and furthermore, anecdotal evidence suggests that it has not been a limiting factor in the study area. Therefore going forward, the historic role of wolf predation should be moved to end of the list of potential factors in all future documents associated this project. The same comment stands for the list of factors in Chapter 22 - Appendix 22C - Section 4.4.7.

RESPONSE:

Manitoba Hydro acknowledges and appreciates this information. Additional information on moose can be found in MCWS_MH-I-022. The factors described in this paragraph were derived from Key Person Interviews, which included Manitoba Conservation and Water Stewardship biologists and were not intended to be listed in order of significance.

Changing this wording would not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Other Furbearers

Lynx is not mentioned in this section and should have been.

RESPONSE:

Manitoba Hydro acknowledges this recommendation and notes the list in this section was not intended to be exhaustive but rather to provide examples for the reader of the range of wildlife species that occur in the project area. Lynx was included in the more thorough discussion of furbearers and other mammals in Section 2.3.1.2.5 of the Wildlife and Wildlife Habitat TDR.

Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Fragmentation**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

9.5.2.1.1

"American marten is sensitive to habitat fragmentation..."

This statement contradicts several others throughout the document that state marten can tolerate fragmentation.

RESPONSE:

Manitoba Hydro acknowledges the error in characterizing the results of Cheveau et al. (2013) in Section 9.4.3; it is correct to say that American marten is sensitive to habitat fragmentation. This will be included in the Errata for the EIS.

Changing this wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Routing, Wildlife and Wildlife Habitat**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

9.7.1 Significance of Environmental Effects from the Project

"Mortality risk to wildlife was considered and reduced through the transmission line routing process. This was achieved by avoiding protected areas, through consideration of candidate protected areas and natural wildlife habitat in the routing process."

This statement should have contained more information on how important wildlife habitat was avoided. Avoiding protected areas is not a mitigation tactic, given that the Use of Wildlife Lands Regulation prohibits hydro electric development in protected Wildlife Management Areas, and the Ecological Reserves Act prohibits any type of development in Ecological Reserves within the study area. If mitigation was achieve through buffering protected areas during the route selection process then it should have been explained as such in this section.

RESPONSE:

Mortality risk to wildlife was considered throughout project planning, including during the initial transmission line routing process and when planning construction activities that may pose risk to wildlife.

Biologists involved in the transmission line routing process determined that there is less likelihood of encountering wildlife on lands considered agricultural or lands within an existing utility corridor when compared to other land cover types, such as intact forest. A route was selected that considered this risk, resulting in a route that extends through an existing utility corridor for over 40% of its length. The final preferred route requires less clearing than many of the other routes considered for the Project, particularly those routes that extended through the eastern portion of the province.

Mortality risk to wildlife was also considered when planning access routes. There are no new major access routes planned for the development of MMTP. One of the risks associated with

the development of new access routes is their use for purposes unrelated to the project during and after project construction. Although traffic will be increased during project construction, Manitoba Hydro has limited the need to develop new access routes resulting in less likelihood for wildlife collisions that could be associated with future uses (unrelated to the project).

Many of the construction activities planned within the new corridor are planned to occur during the winter season and outside the migratory bird window. It is anticipated that there will be fewer wildlife mortalities if activities are planned during a time when many Manitoba wildlife species have migrated, are in a state of hibernation or are protected by frozen ground conditions.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Environmental Protection, Follow-up and Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

"The Vita elk herd is not anticipated to be affected by the Project and ultimately the final preferred route avoids the herd's core area"

We support the Eastern Region's comments on the preferred route only avoiding the known core winter range. Although we too appreciate that the final route avoids this area, many data gaps still exist and future elk monitoring studies that investigate seasonal occupation and movement patterns may dispute this statement.

RESPONSE:

1 Manitoba Hydro has responded to this topic in MCWS_MH-I-081.

SUBJECT AREA: **Vegetation and Wetlands, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

10.2.3 Learnings from Past Assessments

"Effects on wetlands from transmission projects have been shown to be limited (Stantec Consulting Ltd. 2014). As result of these recent findings, regulatory requirements in Alberta for transmission projects that intersect wetlands are being reviewed and will likely be relaxed (A. Fulton. pers. com. 2015)."

We do not agree with the inclusion of this statement. Conclusions in this EIS should be made based on the results of the assessment for this study area, and on construction and monitoring standards previously and currently employed by Manitoba Hydro only. Possible regulatory change in other provinces should not influence how projects like this will be managed in Manitoba going forward, unless determined to be appropriate by the Government of Manitoba. Manitoba Conservation and Water Stewardship has made protecting wetlands in the province a priority, and we believe that more appropriate references would be towards regulatory changes that the Province of Manitoba is currently proposing, and reference to no-net-loss of wetlands initiatives that Manitoba Hydro is currently undertaking (e.g. Bipole III, Point du Bois).

RESPONSE:

Section 10.2.3 of Chapter 10 is titled 'Learnings from Past Assessments' and is intended bring forward understandings and knowledge gained from past experiences within Manitoba and across Canada. The statement provided in Section 10.2.3 is intended to indicate that information on the effects to wetlands from electrical transmission line construction is limited. It is not meant to be a conclusion on the effects. Relevant findings from the Bipole III Transmission Project, Keeyask Generation Project, Riel Reliability Improvement Initiative Project, Wuskwatim Project and North-Montney Mainline Project were also reviewed. EIS conclusions were based on construction and mitigation techniques used by Manitoba Hydro,

conditions in the MMTP study areas, findings of previous assessments and broader scientific literature. Manitoba Hydro will conduct all work in compliance with Manitoba regulations.

SUBJECT AREA: **Vegetation and Wetlands, Species At Risk**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

10.4.3 Native Vegetation Cover Class Abundance, Distribution, and Structure

"In the past, Manitoba listed native vegetation communities that were considered rare in the province. However, the MCWS Wildlife Branch is revising these communities of conservation concerns, so they are no longer listed by the MBCDC."

Although this statement is true, tall grass prairie has now been listed as an Endangered ecosystem under The Endangered Species and Ecosystems Act, and given its occurrence within the RAA, this should have been stated.

RESPONSE:

Manitoba Hydro acknowledges this information and appreciates this clarification. In an earlier portion of the EIS (page 10-4 of Section 10.1.1.3) tall grass prairie and its designation under *The Manitoba Endangered Species and Ecosystem Act* are described.

This comment and clarification does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Vegetation and Wetlands, Environmental Protection, Follow-up and Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

10.5.3.3.1 Construction

"Grassland will be disturbed in 2.9% (91 ha) of the Final Preferred Route PDA... The Project is not routed in or through managed tall grass prairie parcels."

Although it is stated that the ROW is not routed through any managed tall grass prairie parcels, disturbance to any grassland patch that holds the potential to be classed as Endangered tall grass prairie is a concern. Further inspection will be require to determine if these patches are/are not of the tall grass prairie type and if further mitigation will be required. The Wildlife and Fisheries Branch can provide assistance for determination (species composition, known patch occurrences, etc.).

RESPONSE:

Surveys completed along Final Preferred Route PDA indicate grassland areas intersected are generally degraded and dominated by Kentucky bluegrass (*Poa pratensis*). These areas are unlikely to meet the designation of endangered tall grass prairie. However, Manitoba Hydro will consult with Manitoba Wildlife and Fisheries Branch to identify potential tall grass prairie along the Final Preferred Route PDA for potential inspection and further mitigation.

No areas identified by MCWS as 'candidate protected areas' for the purpose of grassland protection were traversed by the Project. It is our understanding that neither the Lone Sand or the Somme ASI were established for the protection of grassland habitat.

Manitoba Hydro is coordinating vegetation surveys prior to construction to further characterize grasslands traversed by the Project.

SUBJECT AREA: **Vegetation and Wetlands, Wildlife and Wildlife Habitat**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

11.5.3.3 Mitigation for Change in Hunting and Trapping

No connection is made as to relationship between wetlands and aquatic furbearers. Any draining or alterations to significant wetlands would have an effect upon species such as beaver, muskrat, mink, etc. that they might support. This would include the spectrum form larger marshes to lakes to rivers.

RESPONSE:

Manitoba Hydro carefully considered project effects on wetland and wetland habitats (Chapter 10). Transmission line routing also considered the location of wetland areas, recognizing them as an important part of the natural environment (Chapter 5). This project proposal has been developed to not require any drainage activities within a wetland. Although the creation of new access roads is not anticipated for this project, should the construction of temporary or permanent culverts associated with temporary construction access or permanent station access roads be required, a licence to Construct Water Control Works (*The Water Right Act*) may be required. A description of "Mitigation for Change in Wetland Cover Class" can be found in Section 10.5.4.2. These mitigation measures, and others described in Chapter 9 and 11, outline how the project will have low magnitude effect on wetlands, aquatic furbearers, and associated hunting and trapping activities.

This response does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Land and Resource Use, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

16.3.2.1.6 Hunting and Trapping

This section should not only focus on impacts to lodges and out camps (non-resident hunting opportunity/activity), but also explicitly mention how the project may impact resident licensed hunters and trappers.

RESPONSE:

Manitoba Hydro acknowledges the importance of considering project effects on hunters and trappers. Section 16.3.2.1.6 does not explicitly distinguish between non-resident and resident licensed hunters, although the intent and execution of this environmental assessment did consider both.

Section 16.5.4 provides a detailed description of how this assessment considered changes in hunting and trapping, including effects to licensed trappers and hunters.

In addition, as part of this environmental assessment, key person interviews were conducted with the presidents of five local Game and Fish Associations. The information gathered was used to inform the route selection process, better understand current conditions for mammals and provide a better understanding of potential effects to resident hunters within the RAA.

The Manitoba Trappers Association, a group who represents licensed trappers, was engaged on multiple occasions for this project, including a meeting on December 13, 2014, and an open house on April 6, 2015 in Steinbach.

This response does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

16.3.2.2 Potential Environmental Effects, Effect Pathways and Measurable Parameters

"Effects from change in land and resource use on other environmental and socio-economic components are:..."

Loss of wildlife and habitat should have been included in this list and in Table 16-1.

RESPONSE:

In the development of the Manitoba-Minnesota Transmission Project Environmental Impact Statement, Land and Resource Use (Chapter 16) was selected as a valued component (VC) because of regulatory considerations and its importance to communities, property owners, resource users (*e.g.,* hunters and trappers, commercial operators and the general public), and other stakeholders.

Project effects on Wildlife and Wildlife Habitat were selected as a separate valued component and assessed in Chapter 9. Although Manitoba Hydro recognizes the potential for overlap between many Valued Components, great care was made in assessing Project effects in an appropriate and effective manner. Table 16-1 of Chapter 16, describes potential environmental effects, effect pathways, and measurable parameters for land and resource use. A similar table in Chapter 9, Table 9-3, describes potential environmental effects, effect pathways and measurable parameters for wildlife and wildlife habitat.

This response does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Land and Resource Use, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

16.4.8.1.2 Hunting

"In 2014, hunters (29,371 tags sold province-wide) were restricted to harvesting..."

This number is incorrect. The number provided and listed in the cited document is the licence (not tag) sales from the 2013/14 fiscal year, one year prior to the bag limit for the general licences being changed to one buck (antlered) deer (2014/15). Please note that antlerless (second and third deer) licences are still available for portions of this study area (GHA 34A). This incorrect statement is also made in 1.3 Wildlife and Wildlife Habitat TDR - Section 2.3.1.2.1.

RESPONSE:

Manitoba Hydro acknowledges this information and notes the use of incorrect wording (*tags* instead of *licence*).

This change in wording does not change the conclusions of this environmental assessment.

SUBJECT AREA: **Land and Resource Use, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

"The following commercial guide-outfitters are known to operate in the RAA:"

This is a list of outfitters (guide-outfitters is not proper terminology for Manitoba) with big game allocations only. Other outfitters that specialize in waterfowl are not listed. These outfitters should have been incorporated, or the statement changed to reflect that only black bear and white-tailed deer outfitters are listed.

RESPONSE:

Manitoba Hydro will correct the statement in the Errata with the following revision:

"*Outfitters tend to cater to non-resident hunters. The following commercial outfitters targeting black bear or white-tailed deer are known to operate in the RAA (Travel Manitoba 2015):"*

SUBJECT AREA: **Land and Resource Use, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

"GHA 25B and 35 were the only areas where moose licenses had been issued from 2000-2007. Six resident moose license were issued in GHA 25B and seven moose licenses were issued in GHA 35 between 2000 and 2007."

This statement contains incorrect information. GHA 25B and 35 did not have a moose season during this time period. Moose hunting in GHA 35 was canceled prior to the 2000 hunting seasons, and there were no moose hunting seasons GHA 25B.

RESPONSE:

Manitoba Hydro will correct this statement in the Errata with the following revision:

"No moose licences have been issued in GHA 25B or 35 since prior to the 2000 hunting season."

SUBJECT AREA: **Wildlife and Wildlife Habitat, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

16.5.4.3.1 Construction Phase

Large numbers of furbearers were caught near hydro lines because linear features can serve as barriers to dispersing furbearers, not because the feature attracts them.

RESPONSE:

The EIS does not infer any underlying causes of the results of the Wuskwatim Trappers Monitoring Program. Attraction to a transmission line right-of-way and a transmission line right-of-way acting as a barrier are both possible, depending on species and setting.

SUBJECT AREA: **Wildlife and Wildlife Habitat, General Assessment**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.4.3 Mammals

"Large-bodied mammals, such as white-tailed deer and elk, are considered sensitive to disturbance."

This statement should include moose, given that they were observed in the RAA during assessment surveys.

RESPONSE:

Manitoba Hydro notes and agrees with this improvement of wording. Manitoba Hydro did not include moose in the statement as none were found within the Local Assessment area.

The recommendation to include moose in the statement does not change the conclusions of the EIS.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Hunting, Trapping and Fishing**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.4.3 Mammals

"The right-of-way and access trails could facilitate movement and increased hunting efficiency for gray wolves and for other predators."

This statement should have explicitly mentioned increased hunting efficiency for humans, as well.

RESPONSE:

Manitoba Hydro notes and acknowledges this improvement of wording. This information does not change the conclusions of the environmental assessment.

SUBJECT AREA: **Wildlife and Wildlife Habitat, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

2.4.2 Reptiles/Amphibians

This plan focuses on riparian areas, and northern leopard frog and snapping turtle habitat. This should include eastern tiger salamanders as well, for reasons explained in our comments on Chapter 22 - Appendix 22C – Section 4.4.1. Eastern tiger salamanders breed in small ponds that do not have fish or snapping turtles. Their biggest threat is dewatering or accidental introduction of fish. Any pond found to have salamander egg masses should be avoided until late summer when the larval salamanders have metamorphosed and left the water. Additional concerns are flooding and ditching that is conducted in such a way that will allow fish to access these sites.

RESPONSE:

Manitoba Hydro does anticipate the need for dewatering of small ponds and is not aware of any mechanism during its normal course of construction or operations by which fish would be accidentally introduced into small ponds. Any work in small ponds would occur under frozen ground conditions with no ditching planned to be conducted during construction or operations. While Manitoba Hydro understands the critical status of the eastern tiger salamander, we believe there is a very low risk of any potential effects during the construction or operation of this Project based on the threats stated above, EIS field studies conducted to date, and the proposed scheduling and timing of construction practices. However, Manitoba Hydro will expand its proposed amphibian monitoring program to include eastern tiger salamander, as outlined in MCWS_MH-I-064. Manitoba Hydro will share any observations of eastern tiger salamander with the Manitoba Conservation Data Centre.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, First Nation and Metis Engagement**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Sections 4.3.1 - 4.3.4, 4.4.1 – 4.4.8, & 4.5.3.1

Manitoba Hydro is committed to:

• Summarize results of key monitoring activities in an annual monitoring report; and

• Share results of key monitoring activities with interested local stakeholder, First Nations and Metis.

These points should explicitly say that monitoring reports, results, and data will be provided to Manitoba Conservation and Water Stewardship.

RESPONSE:

Manitoba Hydro is committed to sharing project information with MCWS. This commitment is outlined in Section 6.0 of Appendix 22C Environmental Monitoring Plan.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Sections 4.3.1 - 4.3.4, 4.4.1 – 4.4.8, & 4.5.3.1

Specialist will:

Going forward in documents like this, these sections should specify that the Specialist is a consultant working for Manitoba Hydro, so that they are not confused with an independent third party.

RESPONSE:

Manitoba Hydro appreciates this recommendation and notes that in Appendix 22C (pg 16), the "Valued Component Monitoring Table Description Key" describes the "Specialist" as being Manitoba Hydro staff member or external consultants.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Sections 4.3.1 - 4.3.4, 4.4.1 – 4.4.8, & 4.5.3.1

Manitoba Conservation and Water Stewardship may be requested to:

These sections should be revised to say that MCWS must approve any "mitigation strategies should unexpected impacts occur as result of the transmission line".

RESPONSE:

Manitoba Hydro will seek approval, where required by legislation, for any revised mitigation strategies should unexpected Project related impacts occur.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

Sections 4.3.1 - 4.3.4, 4.4.1 – 4.4.8, & 4.5.3.1

Decision Trigger(s)/Threshold(s) for Action

Each decision trigger will require an action. These actions should be provided in each section. Once again, MCWS must approve these proposed actions.

RESPONSE:

The Environmental Monitoring Plan will be revised to further outline Manitoba Hydro's adaptive management approach including decision triggers and actions.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.1 Amphibians

This plan only proposes to monitor for northern leopard frogs. The prairie population of this species is listed federally largely because of declines in Alberta and western Saskatchewan. We have not listed them provincially under The Endangered Species and Ecosystems Act because they appear to be abundant and widespread throughout most of Manitoba, with the possible exception of the southwestern corner of the province. A much bigger concern in this study area is the eastern tiger salamander. Southeastern Manitoba is the only place left in Canada where they have not yet been extirpated. Manitoba Conservation and Water Stewardship personnel are currently conducting surveys for this species and it is likely that this species will be listed provincially in the near future. This plan must include an eastern tiger salamanders monitoring component. Please note that this will require a minimum 2 years of baseline survey data to be collected prior to the construction period.

RESPONSE:

Manitoba Hydro is committed to conducting surveys and a monitoring plan for northern leopard frogs to ensure cooperation and compliance with the Federal *Species at Risk Act*. However, in light of recommendations provided here by Manitoba Conservation and Water Stewardship, Manitoba Hydro will expand this northern leopard frog monitoring program to also include eastern tiger salamanders. These surveys will consist of visual encounter surveys at suitable wetland sites. In total, two years of baseline data will be collected prior to construction.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.7 Ungulates and Predators

Outside of the influence of predation on ungulates, there is no specific monitoring of predators proposed in this or Section 7.3.3, therefore we question if these sections are appropriately named.

RESPONSE:

Manitoba Hydro will update Section 4.4.7 of Appendix 22C to further describe the distribution/occurrence mapping survey and camera trap surveys conducted pre/during/post construction. This update will describe not only ungulates but also predators such as wolves and coyotes.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.7 Ungulates and Predators

"Therefore, white-tailed deer are not particularly susceptible to the effects of habitat fragmentation"

We disagree with this statement. White-tailed deer can be sensitive to fragmentation and disturbance to wintering areas. Furthermore, the "Stewart et al. 2011" reference is not provided in the References section, therefore we are left questioning how this statement applies to Manitoba and ROW's.

RESPONSE:

Manitoba Hydro acknowledges and agrees that the effect of habitat fragmentation on white-tailed deer is not equal across all habitats and regions. White-tailed deer are an ungulate species that are known to select early succession deciduous-dominant forest patches and riparian habitat. They are considered well adapted to using habitat edges, including those created by disturbances in forested areas, such as tree harvesting and forest fires. In Manitoba, many high density deer populations are also known to occur in heavily fragmented areas including agricultural and rural residential areas. Therefore, in most areas, they are not particularly susceptible to the effects of habitat fragmentation (Stewart *et al.* 2011). Linear disturbances that retain abundant vegetation and riparian habitats have a large edge:area ratio that can provide preferred habitat for white-tailed deer.

Through Key Person Interviews and field studies, key deer wintering areas (habitats where white-tailed deer congregate in cold weather to access food and avoid wind and deep snow)

were not identified within the Project Development Area. The Environmental Monitoring Plan is written within the specific context of the Project Development Area.

This information provided is consistent with the information included in the EIS and therefore does not change the conclusion of the environmental assessment.

The reference *(Stewart et al. 2011),* was missing from the reference list and has been listed in the errata.

Reference:

Stewart, K.M., TR.T. Bowyer &J. Weisberg. 2011. Spatial use of landscapes. Pp181-217 In D.G. Hewitt (ed) Biology and management of white-tailed deer. CRC Press. New York

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.7 Ungulates and Predators

"... potential project effect of increased mortality risk from hunters and predators as a result of enhanced access of white-tailed habitat in eastern portions of the project, however the effect is expected to be minimal with no measurable effect on abundance anticipated."

The Wildlife and Fisheries Branch does not agree with this statement, therefore our expectation (for monitoring plans like this, as explained above) is that Manitoba Hydro will monitor for changes in white-tailed deer abundance (further comments on methodology provided in review of section 7.3.3.2).

RESPONSE:

1 Manitoba Hydro responded to this issue in MCWS_MH-I-066 and MCWS_MH-I-077.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.7 Ungulates and Predators

"...the Vita elk population in Manitoba (fall/winter range) is shared with Minnesota (summer range)"

"The ROW avoids core areas known to support elk near Vita and Arbakka, with no anticipated significant adverse project effects on the population."

Seasonal occupation by elk in this area is not fully understood, with the core areas near Vita and Arbakka known to support wintering elk. Please note that Chapter 9 - Section 9.4.3 states that "Roseau River Anishinabe First Nation indicated that they hunt elk in the area NW of Caliento and also in the Spur woods WMA... Black River FN elders indicated that elk were hunted south of Watson P. Davison WMA, continuing southeast to Spur Woods WMA and then towards Piney...". Therefore going forward, Manitoba Hydro is expected to monitor elk year round to assess if accommodation and mitigation employed during the route selection process was appropriate and successful in limiting the effects of the Project on elk.

RESPONSE:

Manitoba Hydro has responded to this topic in MCWS_MH-I-081.

Manitoba Hydro is committed to monitoring the effectiveness of the project mitigation measures but is not in a position to comment on commitments the Province may or ought to make to Roseau River Anishinabe First Nation and/or Black River First Nation with respect to elk.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.7 Ungulates and Predators

Table 4-13 Ungulates and Predators

Key Monitoring Activity: Mineral Lick Survey

Timing: Fall

These types of surveys should be conducted in spring/early summer, not fall.

RESPONSE:

Manitoba Hydro will correct this in the final version of the Environmental Monitoring Plan to reflect a spring/early summer survey period for mineral lick surveys.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Traditional Land and Resource Use**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.8 Black Bear

"...but local abundance may be variable depending on annual severity of weather and food availability."

A more appropriate statement would be "fluctuations in weather", given that severe weather events can at times be beneficial to black bears.

"Black bears are an important species to subsistence users (First Nations and Metis) and to the livelihood of local commercial outfitters."

In what capacity is black bear important to subsistence users (food source, fur, symbolic representation, recreation, etc.)? Also, what about importance to resident licensed hunters in the region?

RESPONSE:

Manitoba Hydro understands that black bears are important to resident licensed hunters and subsistence users. The value and importance of black bear and black bear use to subsistence hunters is knowledge held by communities and by individuals. This importance of black bear does change between communities and between individuals, and within an individual over time.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.8 Black Bear

Objective(s):

"a. ...where baseline data permits"

Please provide explanation as to why pre-existing data would limit future monitoring. Methodology must remain consistent to make monitoring appropriate and worthwhile, however there is still time to collect adequate baseline data (generally 2 years) before construction is to begin (see general comments above). Data gaps remaining after this assessment should not prevent suitable future monitoring, given the current timelines that Manitoba Hydro is working with.

RESPONSE:

This information reflected the best available information at the time of the environmental impact statement filing date. Since that time, Manitoba Hydro has continued to expand its baseline data collection efforts, especially with respect to wildlife occurrence and distribution. The original sentence will be edited to remove "…where baseline data permits" in the final Environmental Monitoring Plan.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.8 Black Bear

Key Monitoring Activity: Camera Trap Survey

Timing: Year-round

Are we to assume that these are the same cameras that will be deployed for the Ungulates and Predators monitoring (more detail needed in Section 7.3.3)? Regardless if they will be left out year-round for other species, the black bear component does not need state this, since documenting activity/or lack thereof during the denning period is not required to meet any of the objectives outlined in this section.

RESPONSE:

The same cameras that are deployed for ungulate and predator monitoring are used for black bear monitoring. Key activity timing will be adjusted to spring/summer/fall to reflect reduced activity of bears during the denning period.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

4.4.8 Black Bear

Decision Trigger(s)/Threshold(s) for Action

"Project footprint exceeds predicted area within range"

What does "range" refer to in this statement?

RESPONSE:

This statement will be revised to "Project footprint exceeds predicted area within LAA" in subsequent drafts of the Environmental Monitoring Plan.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.2.2 Sharp-tailed Grouse Lekking Sites

We appreciate the fact that Manitoba Hydro conducted pre-construction surveys for leks and that known lekking sites were avoided during route planning. We are also satisfied with the proposed multi-year post-construction monitoring of known lek sites. However, we'd like to caution the proponent that the exact location of sharp-tailed grouse leks can vary annually, and the immediate area around the lekking site is as important as the dancing ground, as it's generally used for nesting/brood rearing. Surveyors should consider this when searching for and monitoring lekking sites, given that increased predation can influence more than just changes in male abundance on the dancing grounds.

RESPONSE:

Manitoba Hydro notes this information and acknowledges that this is a component of the standard procedures that surveyors follow.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.3 Ungulates and Predators

Black bear is included in this section (7.3.3.3), while Black Bear (4.4.8) is separate from Ungulates and Predators (4.4.7) in Section 4.4. Black bears should not be lumped in with predators.

RESPONSE:

Manitoba Hydro notes this request and will modify the heading for Section 7.3.3.3 to be "Ungulates and Bears" in the final Environmental Monitoring Plan.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.3.1 Elk

"Distribution and occurrence mapping of the Vita elk population will be conducted using a combination of systematic winter aerial surveys, incidental observations (during white-tailed deer surveys, project staff and public), and remote IR camera trap arrays (Kays et al. 2009) situated along the ROW and adjacent suitable habitat where the RAA and the Vita elk range overlap."

The winter aerial survey methodology only provides a single snapshot in time, and thus provides information on elk during the winter only. Changes in year-round elk distribution must be assessed as well, including collection of baseline data. Furthermore, no mention of pre-construction aerial surveys or camera trap studies is made in the Section 4.4 tables; therefore we are left guessing which Designs will be continued through to the post-construction phase.

RESPONSE:

Manitoba Hydro conducted extensive ungulate data collection in development of this environmental assessment and has continued to collect baseline data since the filing date, including pre-construction ungulate aerial surveys and camera trap studies. The Environmental Monitoring Plan will be updated to further outline Manitoba Hydro's approach to monitoring including subsequent baseline data collection.

Additional information regarding Manitoba Hydro's commitment to monitoring ungulates in relation to the proposed project, including elk, can be found in MCWS_MH-I-081.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.3.2 White-tailed Deer

The Wildlife and Fisheries Branch expects (see expectations in General Comments, above) that this project will monitor for changes in white-tailed deer abundance. Potential changes in abundance of deer are best measured using counts of animals, not tracks. Pre-construction data including deer animal counts should be collected during 2016 and 2017.

In order to monitor abundance, the proposed aerial surveys should count individuals, as track counts have limited applicability in assessing potential changes in white-tailed deer abundance. Furthermore, two years of baseline data that include counts of individuals will be required, meaning that additional pre-construction surveys will need to be conducted in 2016 and 2017.

RESPONSE:

Manitoba Hydro has considered potential Project effects on white-tail deer. White-tailed deer are among the best-studied ungulate in North America (Armstrong and Young 2000). Studies suggest that the development of transmission line right-of-ways have little measurable effect on deer abundance in forested areas (Bartze et al. 2014). Many studies show that deer browse along right-of-ways and use them as corridors for movements, as long as nearby cover is available. In areas of contiguous forest, creation of open areas and edges along a power line right-of-way can provide new feeding opportunities. This is reflected by winter ungulate surveys of nearby existing right-of-ways in southeastern Manitoba, which showed that deer did not

appear to avoid right-of-ways (Wildlife and Wildlife Habitat TDR), but seemed to be both browsing and bedding near or on them, presumably to access browse and thermal advantages.

Improvements in habitat availability can potentially be offset by increases in hunting vulnerability but Manitoba Conservation and Water Stewardship regulates hunting seasons to manage population-wide sustainability. Transmission line right-of-ways can also potentially increase the risk of predation but this is likely to be minimal, as this project only creates a minor increase in fragmentation and linear feature density in the RAA, given that the Project is largely in an area that is already heavily fragmented. The Project's contribution to the current level of fragmentation is approximately 0.04km of linear features/km2, which is 1.3% of the total of 2.38km/km2. The Project is anticipated to create 14km of new access due to right-of-way development in previously remote areas of intact lesser quality habitat. Although predator and hunter access may increase in these areas as a result, movement into these areas may be impeded by the surrounding wet, poorly drained terrain. Therefore, it is not necessary to monitor for changes to white-tail deer abundance.

Due to their inherent adaptability and naturally fluctuating population levels, it is not feasible to monitor changes in white-tail deer abundance within a study area and relate it to a single transmission line development project. As outlined in the Key Person Interviews, there are a large number of factors known to contribute to white-tail deer population levels in the region. The most important likely include; winter severity, predator dynamics, hunting pressure, forestry operations, forest fires, residential and commercial development, and vehicle collisions. All these complex characteristics make population monitoring on a regional scale very difficult and best addressed by responsible management agencies who can evaluate trends over ecologically relevant periods of time.

Changes in the distribution and density of white-tailed deer relative to the Project area are important for monitoring project effects and will be measured over multiple years to help understand localized effects of the project on white-tailed deer. This monitoring will be conducted using a before-after study design approach and will utilize both individual animal counts and tracks, with two years of baseline aerial survey data collected in 2015 and 2016. The

Environmental Monitoring Plan will be revised to further illustrate and explain this methodology.

More information about Manitoba Hydro's commitment to monitoring white-tail deer can be found in MCWS_MH-I-066.

Reference:

Armstrong, W. E., & Young, E. L. (2000). White-tailed deer management in the Texas Hill Country. Texas Parks and Wildlife Department, Austin, USA.

Bartzke, G. S., May, R., Bevanger, K., Stokke, S., & Roskaft, E. (2014). The effects of power lines on ungulates and implications for power line routing and rights-of-way management. International Journal of Biodiversity and Conservation, 6(9), 647-662.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.3.2 White-tailed Deer

"Distribution and occurrence mapping of white-tailed deer will involve systematic winter aerial surveys of monitoring blocks along the project ROW to asses change in occurrence and/or season distribution relative to project infrastructure and wolf distribution."

The described methodology only provides a single snapshot in time, which at most, can be used to determine white-tailed deer winter distribution and occupancy. How will changes in year-round distribution and occupancy be assessed? This methodology, including baseline data collection, must be included in this Monitoring Plan.

RESPONSE:

Winter is generally the limiting season for white-tailed deer in Manitoba and many individuals congregate in particularly sheltered areas for the season (Goulden, H. 1981. The White-tailed Deer in Manitoba. Man. Dept. of Natural Resources. 32 pp). As such, changes in winter distribution and occupancy of deer are the most ecologically meaningful (Section 2.3.3.1.2 and Appendix B3 of the Wildlife and Wildlife Habitat Technical Data Report). At other times of year when habitat is not a limiting factor, deer are widespread and highly mobile. Manitoba Hydro is utilizing infrared camera traps to monitor activities year round.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.3.2 White-tailed Deer

"More information on how baseline data was collected can be found in the Wildlife and Wildlife Habitat TDR."

Although the methodology is not clearly stated in this plan and the portions of the plan require substantial revisions, the use of 20 x 20km monitoring blocks will suffice to test current objectives. Going forward with further baseline data collection (as required in the above comment) and through construction and post-construction monitoring, Manitoba Hydro will be required to incorporate some "control" blocks

RESPONSE:

Manitoba Hydro believes the 20 x 20km survey blocks provided a suitable approach for assessing the proposed right-of-way in relation to surrounding habitat and that future monitoring of the two southernmost blocks will allow for comparison with previously collected data. The updated Environmental Monitoring Plan will describe the continued baseline data collection efforts along with analysis methodology illustrating how Manitoba Hydro will incorporate "control" areas.

SUBJECT AREA: **Environmental Protection, Follow-up and Monitoring, Biophysical Monitoring**

REFERENCE: **MCWS MMTP IR No 2 - Item 4**

QUESTION:

7.3.3.3 Black Bear

"Distribution and occurrence mapping of black bears will concentrate on monitoring changes in occurrence and prevalence of black bears to the project ROW and adjacent areas using remote IR camera trap arrays..."

The proposed camera trap study can only assess difference in detection of black bear (or other species) between the ROW and "control" areas, not prevalence which requires a known population size (also, see comments on validity of control areas being located 500 - 800 m from ROW, above).

RESPONSE:

Manitoba Hydro will modify the statement in the Errata with the following revision:

"Distribution and occurrence mapping of black bears will concentrate on monitoring changes in the detection rate of black bears on the project ROW and adjacent areas using IR camera trap arrays…"