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Reference: Field Survey Report – Lake Winnipeg East System Improvement Project – Mammals Monitoring- Aerial Survey

OBJECTIVE

The objective of this field survey report is to outline the results of an intensive minimum count moose population survey at the Lake Winnipeg East System Improvement Transmission Project. The study design followed the intensive survey technique utilized in Gassaway style moose surveys. This survey was conducted on February 12th to15th while tower construction work was being completed for the project.

METHODS

Manitoba Hydro identified 47 survey blocks ('3 minute grid' – 3.5km x 5.5km) (908 km²) that intersect a five kilometer buffer of the LWESI project. These survey blocks were derived from the spatial grid Manitoba Sustainable Development utilizes in conducting modified Gassaway-style moose population surveys in Game Hunting Area 26.

A Bell 206 Jet Ranger helicopter was used to fly intensive grid survey at 500 meter spacing at a 122 meter altitude with an average air speed of 100km/hr. Pre-loaded GPS flight lines ensured complete coverage on east to west orientation. Two experienced observers recorded observations of moose, white-tailed deer, wolves, and tracks of moose, deer, wolves and snowmobiles. If not immediately identifiable, moose were circled to identify age and sex. Sex was determined using the presence of antlers or the presence of a vulval patch (Mitchell 1970), nose coloration, and bell size and shape. Calves were identified on the basis of size and behavior. In some cases, where very fresh moose tracks were encountered, the immediate area was circled for no more than 30 seconds to identify the age and sex of moose. A Garmin GPS 67x and notepads were used to record survey data.

RESULTS

Data from the surveys are stored in the MH Environmental Protection Information Management System.

Weather conditions on: February 12th : -7.5 C, clear visibility, no precipitation
February 13thth: -2.5 C, clear visibility, no precipitation
February 14th: -8.4 C,. clear visibility, no precipitation
February 15th: -8.4 C,. clear visibility, no precipitation

Snow cover was greater than 25cm in depth. Last appreciable snowfall in the area occurred on February 1st, 4 cm.

A total of 128 moose were detected during the survey with a bull:cow:calf ratio of 30:58:38, plus two unknown. The percentage of cows with twins was 10%. Moose density equated to 14 moose/100 km². One collared cow was detected within the study area. Manitoba Sustainable Development confirmed that this was the only collared cow in the study area at the time of this survey.

Table 1. Comparative moose population data from the 2016 and 2017 LWESI mammal monitoring aerial survey.

	Bull	Cow	Calf	Total	% cows w/twins	Density/100 km²
2016	16	60	24	100	7	11
2017	30	58	38	128	10	14

Moose appeared to have an uneven distribution in the survey area, and were generally found in higher numbers to the east of the project area.

Table 2. Comparative moose distance data from the 2016 and 2017 LWESI mammal monitoring aerial survey.

2016 (n=100)

Distance To (m)	Min	Max	Median	Mean	SD
FPR	294	9207	3817	3915	2219
PTH 304	303	8631	3549	3525	2080
Snowmobile Tracks	237	10782	3216	3703	2466
Wolf Activity	953	33302	18037	17330	8066

2017 (n=128)

Distance To (m)	Min	Max	Median	Mean	SD
FPR	197	11520	3752	3753	2228
PTH 304	138	11834	2684	3093	2169
Snowmobile Tracks	87	7241	2454	2752	1989
Wolf Activity	61	8134	2925	3122	1961

Change 2016 vs 2017

Distance To (m)	Min	Max	Median	Mean	SD
FPR	-97	2312	-66	-162	9
PTH 304	-165	3202	-865	-432	88
Snowmobile Tracks	-150	-3541	-762	-951	-477
Wolf Activity	-892	-25168	-15111	-14208	-6105

Average distance of moose to LWESI ROW was 3753m, a small decrease from 3915m in 2016. Average distance to PTH 304 was 3093m, also a small decrease from 3525 m. One cow moose carcass was detected (presumably a wolf kill). Approximately 25%-30% of moose exhibited moderate hair loss due to winter tick.

A total of nine white-tailed deer and two wolves were detected during the survey. Otter, lynx, fox, and coyote were also detected. No woodland caribou or woodland caribou tracks were detected. Construction workers were assembling towers on the ROW, and snowmobile riders were observed near the community of Pine Falls.

White-tailed deer tracks only appeared in the western portion of the southern study block. No deer or deer tracks were detected in the northern portion of the study area.

INFORMATION AND RECOMMENDATIONS

This survey provided a valuable snapshot of distribution and relative abundance of moose near the project area. Although a higher number of moose were detected in 2017 than 2016, comparison of total moose numbers between years is not appropriate due to differing survey techniques (Alaskan Trackers vs helicopter total count). However, moose detection locations between 2016 and 2017 indicate that moose do not appear to avoiding the project area to a greater degree in 2017 than 2016. The detection of the only collared cow in the study area supports confidence in detection ability.

It appears that whitetail deer are not plentiful in the study area, with the exception of the western portion of the southern block. Snowmobile tracks have been found commonly throughout the study area, in both 2016 and 2017.

Replicates of this survey next year will help in understanding changes in moose distribution and provide some inferences on relative abundance of both moose and white-tailed deer.

APPENDIX – LAKE WINNIPEG EAST SYSTEM IMPROVEMENT PROJECT SURVEY PROTOCOL, WINTER 2017

Helicopter Survey Protocols – Winter 2017
Lake Winnipeg East - Mammal Monitoring Project

Transects:

500 meter transect spacing flying east to west

Flight Conditions:

Altitude should be 122 meters (400 ft) above ground level (AGL).

Delay the survey under the following conditions:

- Less than 25cm of snow
- -30C (not including wind chill)
- Ceiling below 500 feet
- Wind speed 30 km/hr +
- Snowing/blowing snow
- Fog
- Hoar frost

Conduct an intensive population survey for moose and deer using Gassaway technique (intensive)

Record the following GPS waypoint files and track files during the survey:

Flying Conditions:

- Visibility
- Temperature
- Wind Speed and Direction
- Ceiling

Wildlife:

- Moose; (Bull, Cow, Calf)
- White-tailed deer;
- Any incidental wolves or wolf kills.

Humans:

- Access Trails (Snowmobile trails) – Disregard project construction equipment and related access trails.