

## Appendix 27 : 2020 Caribou Trail Camera Study



## Meliadine Project

### Caribou Trail Camera Study, 2020

March 2021

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## Signature Page

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# Meliadine Project

## Caribou Trail Camera Study, 2020



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## EXECUTIVE SUMMARY

The Meliadine Mine (the Project), owned and operated by Agnico Eagle Mines Limited (Agnico Eagle), is located on Inuit Owned Land (IOL) approximately 25 km north of Rankin Inlet, Nunavut. A 34 km all weather access road (AWAR) connects the Project to Rankin Inlet. During July each year, groups of Qamanirjuaq caribou occur in the Project area, regularly crossing through the Project site and the AWAR.

In 2020, a study was conducted using motion-trigger cameras to study caribou interactions with the Project infrastructure during their annual migration, including at the mine site and along the AWAR. The study was designed to identify features of the AWAR (i.e., slope, substrate, height, and surrounding habitat) that may facilitate higher rates of caribou passage. Cameras were also placed at locations identified by community members and Elders from Inuit Qaujimajatuqangit (IQ) where caribou more frequently crossed the road.

This study was completed in accordance with the Project Certificate and commitments by Agnico Eagle to document and assess whether or not caribou movement near the Project Area is affected by Project infrastructure.

Forty-one cameras were placed along the AWAR and surrounding the mine site at the beginning of July 2021, and were removed at the end of that month. Cameras were placed approximately 2-5 m west of the AWAR, facing north; and took both timed and motion-triggered photos. The structure of the AWAR was measured every 100 m along its length, including; height above tundra, width, side-slope, surfacing material (esker vs. quarry rock, and size), and surrounding vegetation type.

Overall, the camera study found the following key points:

- The cameras were successful at capturing many caribou crossing the AWAR, and overall numbers of caribou captured on the AWAR cameras mirrored the number captured at the off-site cameras, where infrastructure was not expected to impact caribou numbers.
- Caribou crossing timing and locations on the AWAR in 2020 were consistent with locations identified by community members and Elders and from collar data from 2012-2019. The hotspots identified by the camera data aligned more closely with the IQ identified hotspots than the collar data.
- Cameras have the potential to capture far more caribou crossings on the AWAR than collars alone. A systematic camera study also has the advantage over collar data that it not only detects where caribou *are*, but also where they *are not*. This, in combination with the fact that camera placement can be controlled for road characteristics, is what make it possible to test for the association between caribou detections and road characteristics.
- Road height and road-side slope at each camera location was not related to the number of caribou observed with each camera, suggesting that differences in the structure of the AWAR road was not influencing the locations where caribou cross the road.
- Alternatively, since the structure of the road is relatively uniform along its length, there may not be enough difference in the shape, profile, or materials used to build the road to influence which sections of the road caribou prefer to cross, or crossing locations may be driven by surrounding features, such as habitat, trails, etc.
- Broadly, more caribou were observed on cameras on the northern half of the road. Esker material is more common as a substrate on the northern half of the road which may suggest caribou prefer crossing on esker material. However, this may be an artifact of a sampling bias in the data.

These results highlight the power of using motion-trigger cameras to draw connections between the many interacting variables that may explain caribou passage through the Project area. As a first year study, the results suggest that caribou are not affected by the structure of the road.

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## Acronyms and Abbreviations

Agnico Eagle	Agnico Eagle Mines Ltd.
ATV	All-terrain vehicle
AWAR	All weather access road
BQCMB	Beverly Qamanirjuaq Caribou Management Board
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
GN	Government of Nunavut
GNWT ENR	Government of Northwest Territories Department of Environment and Natural Resources
IOL	Inuit-owned land
IQ	Inuit Qaujimajatuqangit (Inuit Traditional Knowledge)
m	Metre
NIRB	Nunavut Impact Review Board
NWT	Northwest Territories
TEMMP	Terrestrial Environment Management and Monitoring Plan
The Project	The Meliadine Mine

## 1. PROJECT OVERVIEW

The Meliadine Mine (the Project), 100% owned by Agnico Eagle Mines Limited (Agnico Eagle), is located approximately 25 kilometres (km) north of the hamlet of Rankin Inlet, Nunavut. A 34 km all weather access road (AWAR) connects the Project to Rankin Inlet. A bypass road was constructed to the west and south of Rankin Inlet to allow mine traffic to circumvent the hamlet when traveling from the AWAR to the Project marine laydown (Figure 1-1).

The Meliadine Mine was approved with a life of mine plan that includes production from six ore bodies by the NIRB in 2016 (Project Certificate #006). The mine plan includes open pits, underground mining and associated ore processing, waste management and ancillary infrastructure. Construction of the AWAR, camp, ore processing facilities and ancillary infrastructure began in 2017 and production from the Tiriganiaq deposit began in Q2 2019. The remainder of the orebodies are planned throughout the life of the Meliadine complex.

A caribou motion-trigger camera study was conducted in June and July 2020 at the Meliadine Mine and AWAR in support of existing NIRB monitoring conditions.

### 1.1 Terrestrial Environment Management and Monitoring Plan

The Meliadine Mine 2014 Project Certificate and 2019 Project Certificate Amendment from the Nunavut Impact Review Board (NIRB), Term and Condition 57 requires the Project to report in its annual NIRB report:

(T&C 57, c.) Demonstration and description of how the monitoring results, including the all-weather access road and associated access roads/trails contribute to cumulative effects of the project.

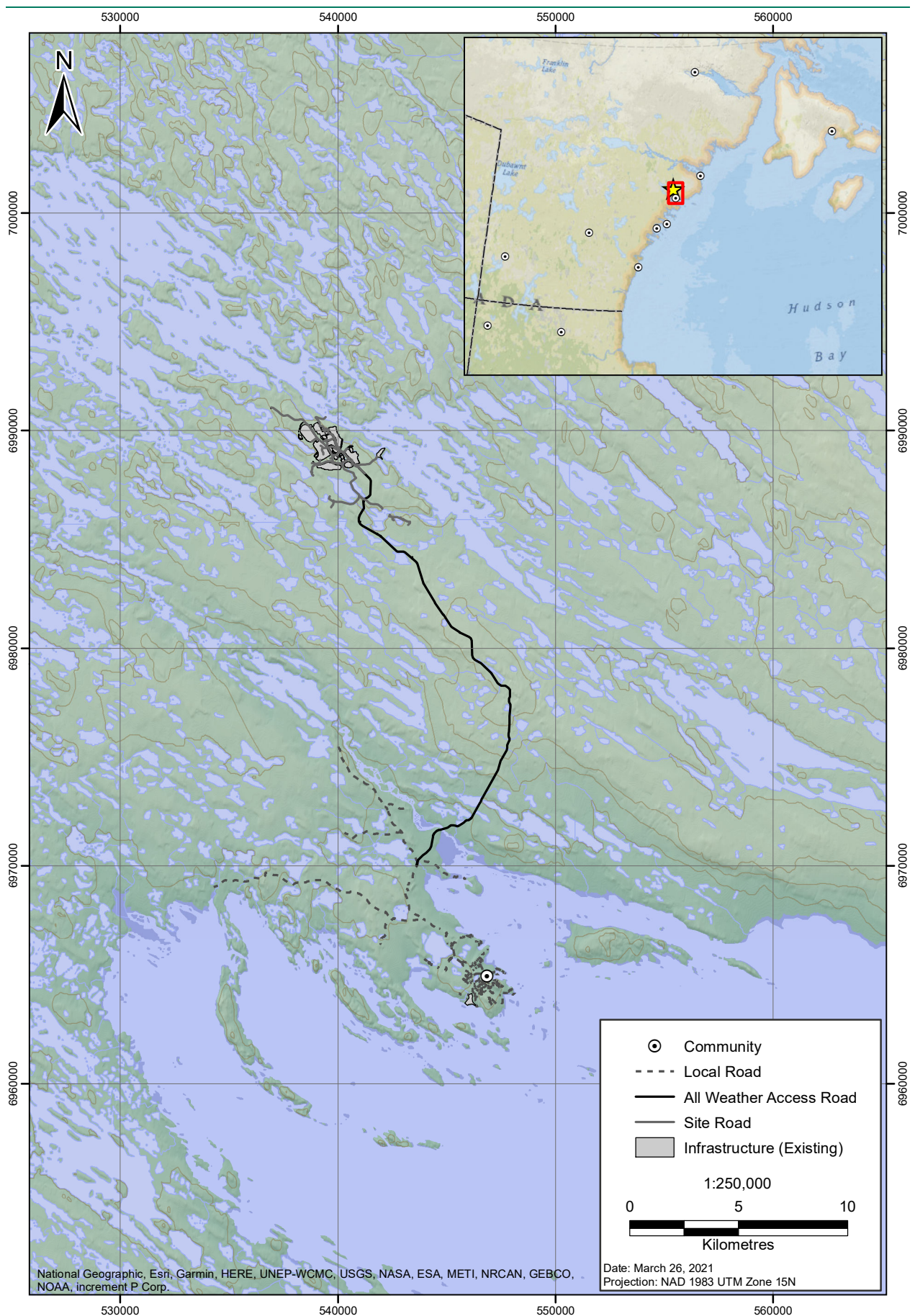
The Meliadine Mine Terrestrial Environment Management and Monitoring Plan (TEMMP; Agnico Eagle 2020) is designed to meet this condition, with a road surveillance monitoring program (Section 4.3) that has the following objective:

To record the presence of wildlife and/or wildlife signs (e.g., tracks, nesting) in relation to the Mine infrastructure. Of particular importance is the frequency of wildlife entering the Mine infrastructure areas and along the AWAR corridor. This information can then be used to determine any areas of attraction to wildlife, document human-wildlife conflicts, areas/timing of wildlife mortality or potential mortality; seasonal trends of wildlife occurrence in the Project area, and effectiveness of mitigation (e.g., waste management and landfill).

The caribou camera program described in this report is designed to be complimentary to the objective of the caribou collaring program (Section 4.7), which is:

- To contribute to the scientific knowledge of caribou activity near mining operations and caribou population dynamics in Nunavut; and
- To assess whether caribou movement near the Project Area is hindered by Project infrastructure (i.e., mine site infrastructure and AWAR).





**Figure 1-1: Overview Map of the Project Site**



## 2. STUDY OBJECTIVES

The objectives of the 2020 study were:

1. To conduct a study using motion-trigger cameras at the Project site to determine whether they are an appropriate tool for estimating how the AWAR and site infrastructure contribute to cumulative effects of the project on caribou.
2. To evaluate if there were specific locations with high numbers of caribou observations along the AWAR in 2020, and compare these locations with those identified by IQ and collar data and IQ.
3. To use the information on road crossings determine what road features are preferred by caribou for crossing, specifically:
  - material of road construction (esker vs. quarry);
  - side slope;
  - road height; and
  - surrounding vegetation type.

## 3. BACKGROUND

### 3.1 Qamanirjuaq Herd

The Qamanirjuaq caribou herd is a large caribou herd numbering approximately over 200,000 animals in 2017, down from over 300,000 animals reported in 2008 (COSEWIC 2016). The herd range is centered in south-eastern Nunavut. The herd range stretches approximately 1,000 km from Chesterfield Inlet in the north to northern Manitoba in the south, and from Hudson Bay on the east to eastern Northwest Territories and north-eastern Saskatchewan in the west (BQCMB 2020a).

The BQCMB has rated the Qamanirjuaq herd as having Medium vulnerability in 2014 due to continued population declines since 2008 (BQCMB 2014) and upgraded this rating to Medium-High in 2016 (BQCMB 2016).

The herd generally winters below the treeline in northern Manitoba, Saskatchewan and the adjoining areas of NWT and Nunavut. Spring migration is north along the coast of Hudson Bay, past the communities of Arviat, Whale Cove and Rankin Inlet to a broad calving ground generally centered on Qamanirjuaq Lake (BQCMB 2020a).

Following calving, the caribou form into large groups and radiate out from the calving grounds, including east towards the coast. During July, large groups of animals from this herd interact with the hamlet of Rankin Inlet, the Meliadine Mine and the AWAR connecting the two.

During summer and fall, the caribou generally move south and inland, gradually returning south towards their wintering areas by early December. Maps of the caribou range and movement are available on the BQCMB website (<https://arctic-caribou.com/resources/#maps>).

## 4. STUDY AREA

The dominant terrain in the Project area comprises glacial landforms such as drumlins (glacial till), eskers (gravel and sand), and lakes. A series of low relief ridges are composed of glacial deposits, oriented in a northwest-southeast direction, which control the regional surface drainage patterns. The property is approximately 60 metres (m) above sea level in low-lying topography with numerous lakes (TEMMP; Agnico Eagle 2020).

The study area for the camera study included the existing Project footprint of the Meliadine Mine site and the AWAR, plus a 5 km buffer surrounding these areas in which reference cameras were installed.

## 5. METHODS

### 5.1 Camera Field Study

During 2020, AEM acquired 41 Bushnell Core HD Low Glow motion-trigger cameras to be installed at the mine site, along the AWAR, and at off-site reference locations. The cameras were programmed and installed in mid-June by a wildlife biologist from ERM and a Meliadine technician, two weeks prior to the predicted arrival of caribou in the area. The ERM wildlife biologist maintained the cameras for the duration of the study and disassembled the cameras and setup in late July when the study ended.

Camera locations were selected to maximize coverage and representation of habitat and road types, and to best detect caribou (Figure 5.1-1).

At the mine site:

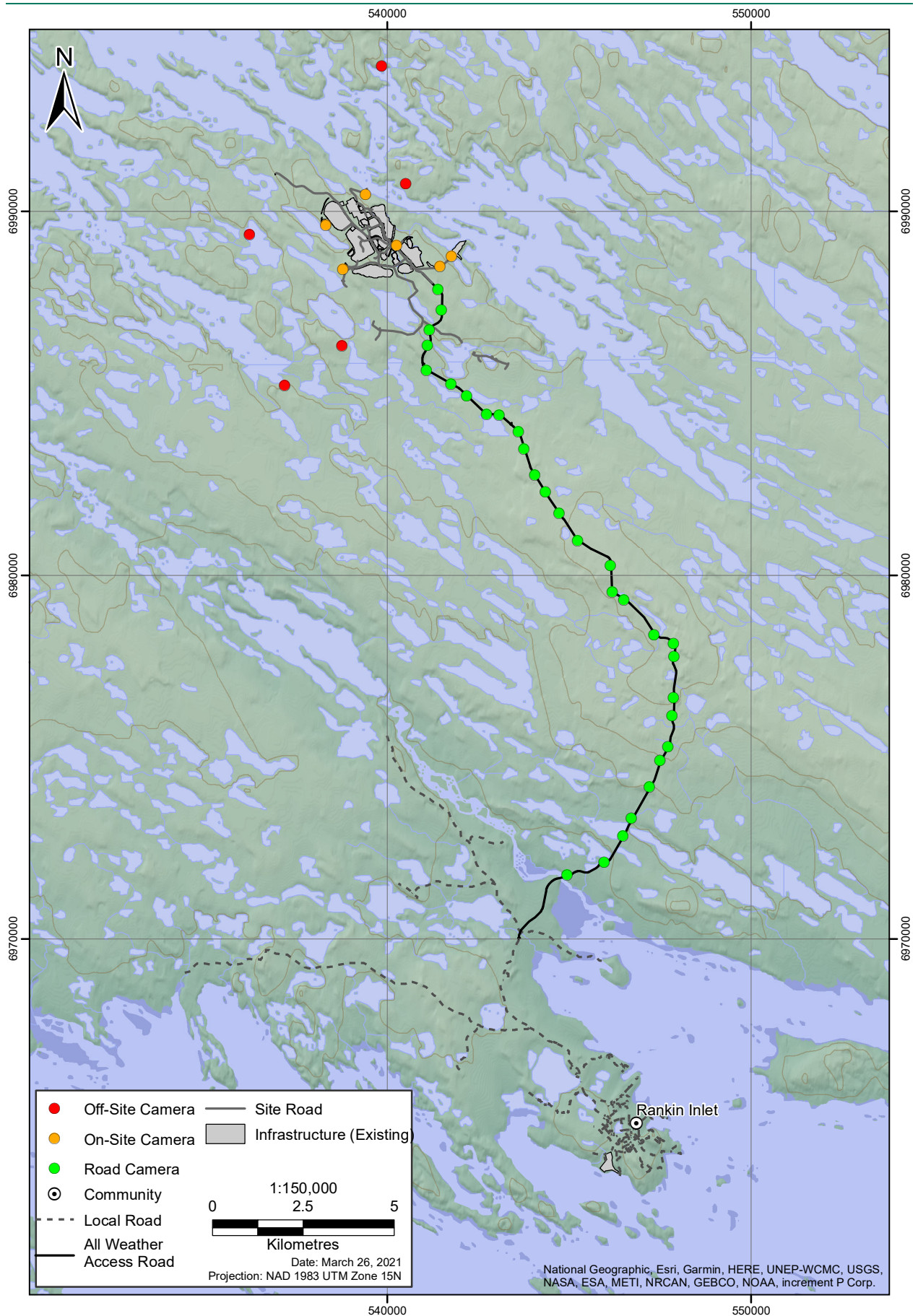
- Six single cameras were set up on obvious caribou trails or in areas likely to support caribou movement based on the prior experience of personnel on site.

On the AWAR:

- Thirty single cameras were installed at a spacing of 500 m to 1,000 m, starting from the gatehouse at KM 8 of the AWAR, and ending at the mine site at KM 30 of the AWAR. Cameras were not installed further south than the gatehouse due to COVID-19 protocols in place in 2020.
- Through consultation and community meetings community members and Inuit Elders identified locations on the road where caribou are known to cross more frequently, including at KM 9, 12, 16, 22, and 27. Cameras were placed at or near these locations.
- The camera locations were stratified by road structure, with approximately half of cameras placed in areas where the road shoulder was esker material and half where the shoulder was quarry rock. Locations were also selected to have equal representation of steep and flat road shoulders.
- All cameras were installed on the west side of the road facing north and no more than 5 m from the side of the road with the road in the camera field of view on the right side of images.

At reference sites:

- Five single cameras were set up in off-site locations on the tundra, along obvious caribou trails identified from helicopter or through examination of previous years' collar data. Camera locations were anywhere from 1 to 5 km from the mine site, both east and west of the mine.



**Figure 5.1-1: Locations of Motion-trigger Cameras in July 2020**



During camera setup, the surrounding habitat type, road structure, and GPS location were recorded. If any ATV trails or caribou trails were detected near the camera site, these were noted. For the cameras placed by the roadway, the coordinates were used to calculate the distance to the mine and to Rankin Inlet along the AWAR.

Cameras were installed at a height of 50 centimetres, which was determined to be the optimal height for detecting movement of a passing caribou (ERM, unpublished data). Cameras on the AWAR were positioned to capture part of the road in the field of view, but were not explicitly set up to capture vehicle traffic. The installation setup was a simple bucket-and-stick design, where the camera was strapped onto a 2" x 4" piece of lumber that was stabilized in a bucket full of quarry rock (Figure 5.1-2). This setup was designed to be temporary and to minimize impact on the ground where it was placed. When the cameras were removed at the end of the study, all setup materials were returned to the Mine Site.



**Figure 5.1-2: Typical Camera Setup from the Meliadine 2020 Study**

All cameras took pictures whenever motion was detected within 40 m of the motion detector, including wildlife, vehicles, and occasionally objects moving in the wind. In addition, all cameras were programmed to take one photo every thirty minutes, day or night. This was done for two reasons: 1) to help capture activity happening beyond the range of the motion detector, and 2) to provide assurance that the cameras were operational during the entire duration of the study. The cameras were checked after one week to ensure battery life, SD card space, and positioning was still adequate. Throughout the duration of the study, field technicians and the ERM field biologist regularly checked the cameras to ensure they were still in place.

## 5.2 Road Structure Field Study

While the camera study was ongoing, additional surveys were conducted on the as-built AWAR to help address the objective of determining whether there are road characteristics that caribou prefer to cross on.

An ERM wildlife biologist and Meliadine technician surveyed the road structure, taking the measurements every 100 m along the road, including:

- GPS location;
- Width of the road (m);
- Height of the road above the tundra (m);
- Road-side slope angle – measured with an inclinometer (east and west side);
- Road-side material (esker or quarry stone);
- Substrate grain size, i.e. the area of the roadside shoulder covered by < 0.75 inch, 0.75 to 6 inch, 6 to 12 inch, and > 12 inch stones; and
- Surrounding habitat features.

## 5.3 Photo Processing

ERM personnel reviewed all photos from the cameras and recorded every detection from wildlife. A detection is an event where an individual or group triggers the camera. There can be one photo or many photos in quick succession, depending on how long the caribou were in front of the camera. Hence, one detection may have many individual caribou.

Data recorded for each detection event included:

- The time of the first photo;
- The species of wildlife;
- The number of individuals in the group; and
- For events where multiple photos were captured, the duration of the motion-trigger event.

## 5.4 Data Analysis

The analysis in this report was designed to quantify trends in the study data and determine whether factors such as road structure, distance to Project infrastructure, or placement of the cameras could be used to explain caribou occurrence and identify “hotspots” where caribou were likely to cross.

An initial exploratory analysis was conducted to visualize the data and determine the appropriate method for analyzing the data. Where data were complete, generalized linear models (GLMs) were used to assess the differences in the number of caribou detection events as a function of various controlling variables, including road structure and the occurrence of vehicle traffic. This regression framework provides a means to control for habitat, environmental variables, repeated measurements, and spatial correlation. For some comparisons in which statistical models were not useful due to a small sample size, summary statistics and correlations were calculated. This included the comparison of collar data to camera data by kilometre of roadway. Analyses were carried out using program R version 3.6.3 (R Core Team 2017).



## 6. RESULTS AND DISCUSSION

### 6.1 Field Work

In total, 41 cameras were deployed on June 21-23, 2020, and were removed on July 19-20, 2020. This amounted to more than 1,189 trap-nights and ~100,000 photos. More than two-thirds of all photos were from timed photos, most of which did not contain wildlife or vehicles. The remainder were from motion-triggered events. Of the 41 cameras deployed, two were unsuccessful: one due to mechanical error and one due to vandalism.

The study concluded on July 19, 2020, when caribou had not been observed for several days at or near the Project and were not expected to return. Cameras were removed and the setup was disassembled. It should be noted that several large groups of caribou were observed crossing the southern portion of the road near Rankin Inlet after July 19, after the cameras had been removed. Collar data indicated that there were likely two to three days of data that were not captured by the cameras as a result of this, but that the majority of the migration had been captured.

### 6.2 Caribou Distribution relative to the AWAR

One of the objectives of this study was to evaluate if there were specific locations with high numbers of caribou observations along the AWAR in 2020, and compare these locations with those identified by collar data and IQ.

Of the 349 independent wildlife detection events from the cameras, nearly half were from caribou (Table 6.2-1). The first observations of caribou occurred on July 1, 2020 on the off-site cameras (northwest of the Mine Site), July 3, 2020 on the road cameras, and July 5, 2020 on the on-site mine cameras, which was consistent with the collar data and observations of caribou from site personnel conducting surveys. Caribou detections peaked from July 5-9 with a maximum of 55 detection events and 1,687 adult caribou counted across all cameras just on July 6 (Table 6.2-2). After the peak, caribou were detected less frequently and smaller groups every day until July 19, when most of the cameras were demobilized. Caribou were detected in 29 of 41 cameras (70%), including 22 of 30 road cameras (73%), two of six on-site cameras (33%), and all five off-site cameras.

**Table 6.2-1: Meliadine Camera Study Data Summary – Wildlife Detections across All Cameras**

Wildlife Type	Number of Camera Detections	Wildlife Type	Number of Camera Detections
Arctic Fox	23	Arctic Ground Squirrel (siksik)	5
Arctic Hare	18	Songbird	23
Caribou	163	Uncategorized Bird	38
Gull	12	Unknown	1
Raven	1	Waterfowl	57
Peregrine Falcon	1	<b>Total</b>	<b>349</b>
Sandhill Crane	7		

*Note:*

*Detections may be from motion-triggered photos or from timed photos.*

**Table 6.2-2: Meliadine Camera Study Data Summary – Caribou Detections across All Cameras by Date**

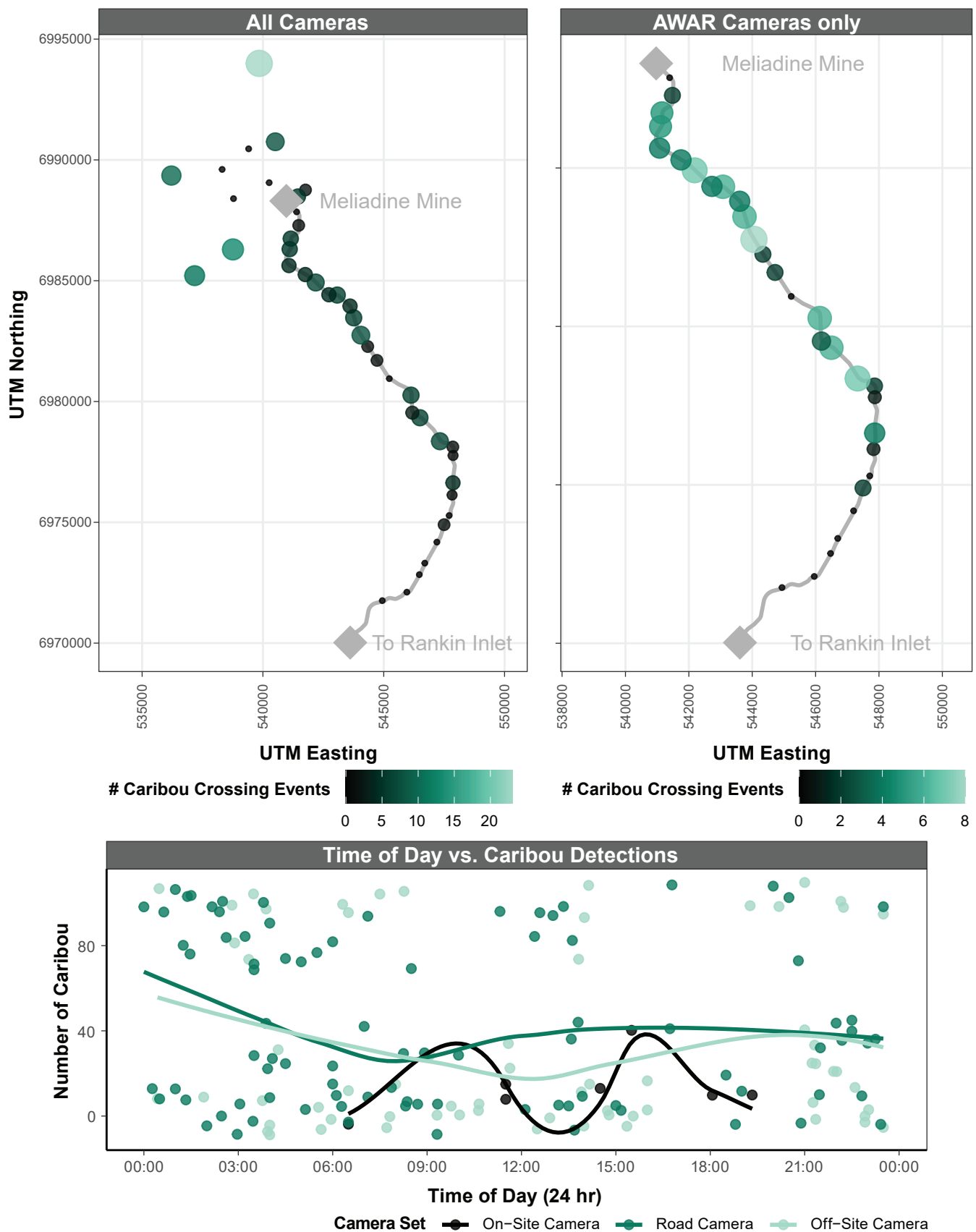
Date	Number of Camera Detections	Total Number of Adult Caribou Counted
01 July, 2020	2	1
02 July, 2020	1	100
03 July, 2020	4	137
04 July, 2020	6	411
05 July, 2020	55	1,687
06 July, 2020	25	1,137
07 July, 2020	14	597
08 July, 2020	11	282
09 July, 2020	12	625
10 July, 2020	3	201
11 July, 2020	1	1
13 July, 2020	7	360
14 July, 2020	9	115
15 July, 2020	3	142
17 July, 2020	8	104
18 July, 2020	1	1
19 July, 2020	1	100
<b>Total</b>	<b>163</b>	<b>6,001</b>

Most caribou observations were concentrated in the off-site cameras and the northern half of the AWAR (Figure 6.2-1), but as noted in Section 6.1, caribou may have been near the southern half of the AWAR after July 19 when the cameras had been removed. Caribou were only detected on-site along the road to the Exploration camp, where two cameras were placed, consistent with anecdotal evidence from site personnel on where caribou have historically been seen.

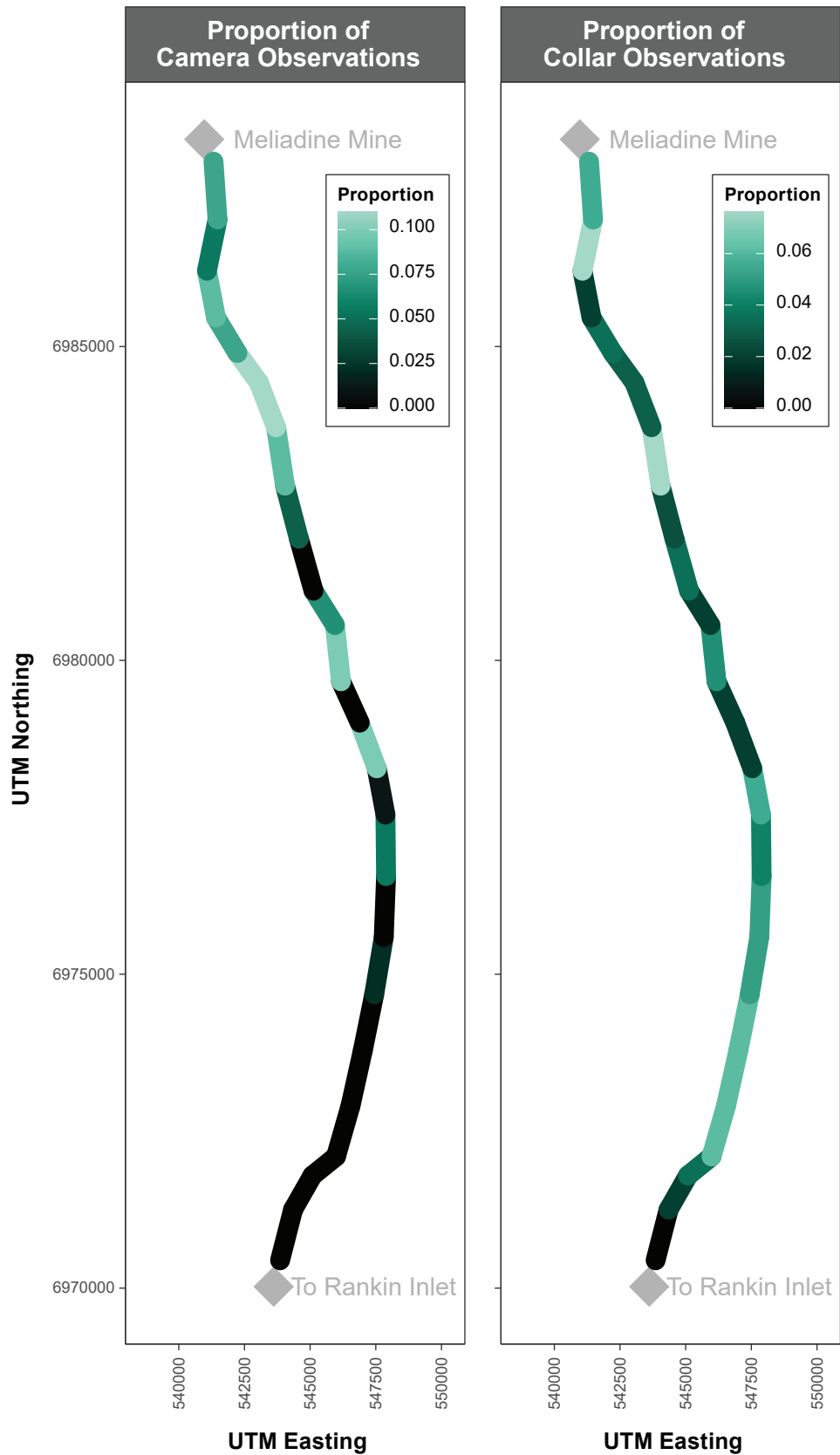
Time of day was not related to the number of caribou detections, although there was some evidence that caribou were detected more often between midnight and 06:00 on both the road cameras and the off-site cameras (Figure 6.2-1).

Overall, the results suggest that KM 28-30, KM 23-26, KM 19-20, and KM 15-16 on the AWAR are potential higher-frequency crossing locations. These “hotspots” of caribou detections on the AWAR are all within 1 km of the caribou crossing locations identified by Elders and community members at KM 16, 22, and 27.

A comparison between the camera data and collar data from previous years (2012-2019) is shown in Figure 6.2-2, where values for each kilometre segment of the road are expressed as the proportion of total crossing events that occurred in that segment. This comparison was done to identify potential hotspots for caribou crossing and test whether there is any consistency across years, and whether the data from these two very different collection methods can even be compared. The extent of agreement between the hotspots identified in the two datasets can be measured by testing the correlation: an index of linear relationship between variables. A correlation value of 100% would indicate that the number of crossings per km in the camera data are identical to the number of crossings per km in the collar data. A correlation value of 0% indicates there is no similarity between the locations identified in the two datasets.



**Figure 6.2-1: Distribution of Caribou Detections on Cameras and Time of Day of Detections**



**Figure 6.2-2: Comparison of Road Crossing Locations from Cameras (2020) and from Collar Data (2012-2019)**

The collar data collected by the GN over 2012-2019 supports the camera data collected in 2020 and suggest that caribou have preferred crossing locations that are generally consistent (within ~1 km). When all cameras on the AWAR are included, the correlation between the two datasets is only 10%. Removing the southernmost 7 km of the AWAR from the analysis increases the correlation to 20%, which aligns with the notion that the camera data from the southernmost section of the AWAR are incomplete due to the cameras being removed before caribou completely left the area. Although the correlation numbers might seem to indicate that there is not much similarity between the caribou locations identified, it is important to note that these data are not from the same year or the same data type. Some inter-annual variation is expected and may explain the differences noted between IQ, camera data, and collar data.

The preliminary camera results suggest that cameras are a more effective way of capturing road crossings than collar data, as the average number of road crossing events in the collar data was only 20 individuals per year, with a maximum of 62 individuals crossing 2018. Assuming that the number of caribou interacting with the AWAR is relatively stable year to year, then the 91 caribou detection events captured on the AWAR cameras in 2020 represent a more than 350% increase from the average collar rate of 20. This is important as it suggests that preferred crossing locations may be only partially detected by collar data. A systematic camera study has the critical advantage that it not only detects where caribou *are*, but also where they *are not*. This, in combination with the fact that camera placement can be controlled for road characteristics, is what make it possible to test for the association between caribou detections and road characteristics. This is simply not possible with collar data. In addition, the hotspots identified by the camera data aligned more closely with the IQ identified hotspots than the collar data.

### 6.3 Road Structure Survey Results and Caribou

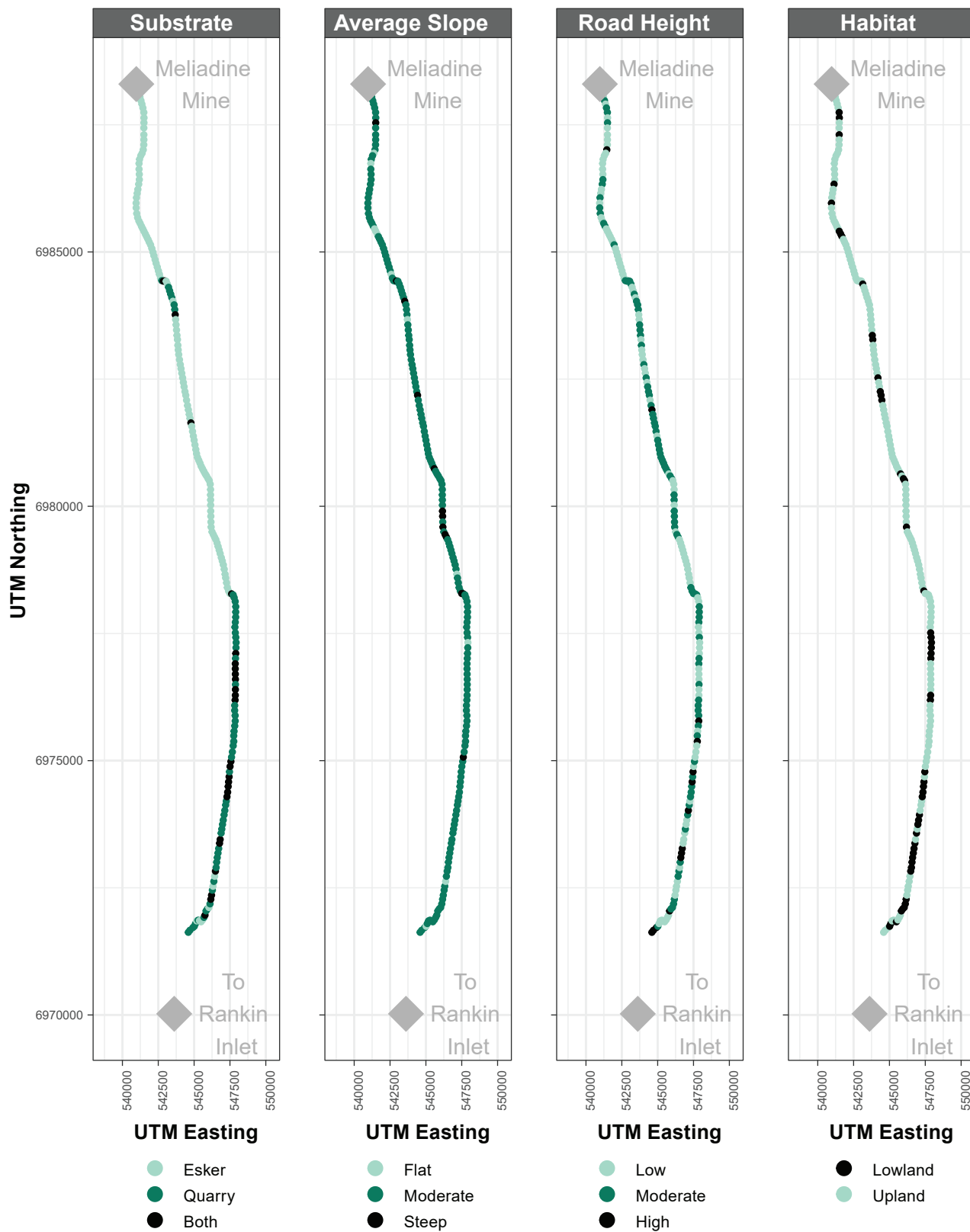
The last objective for this study was to use the information on the number of road crossings at each camera to determine if caribou prefer particular road conditions for crossing, specifically: material of road construction (esker vs. quarry); side slope; road height; and surrounding vegetation type.

Road surveys for structure and substrate type were completed every 100 m along the length of the AWAR from KM 8 (at the gatehouse) to the mine entrance at KM 30, totalling 210 surveys. The results of these surveys are presented in Figure 6.3-1. Road structure was generally consistent, with 88% of the roadside slope measurements falling within the “moderate” category (3.7:1 to 1.7:1 or 15-30 degrees), and only 6% classified as steep (<1.7:1 or 30 degrees). Similarly, 92% of road height measurements were either low (<1 m from the tundra; 48%), or moderate (between 1-2 m from the tundra; 44%). The maximum road height measured was 4.9 m, but this value represented an outlier as it was measured on a bridge ramp.

The surveys indicated there was a higher proportion of road with esker as the substrate material in the northern two-thirds of the AWAR, and a higher proportion of quarry rock as the substrate material in the southern third of the AWAR (Figure 6.3-1). This was likely because there is a large esker at approximately KM 18 that was used to construct the majority of the northern part of the road. There was also a higher proportion of lowland habitat in the southern third of the AWAR.

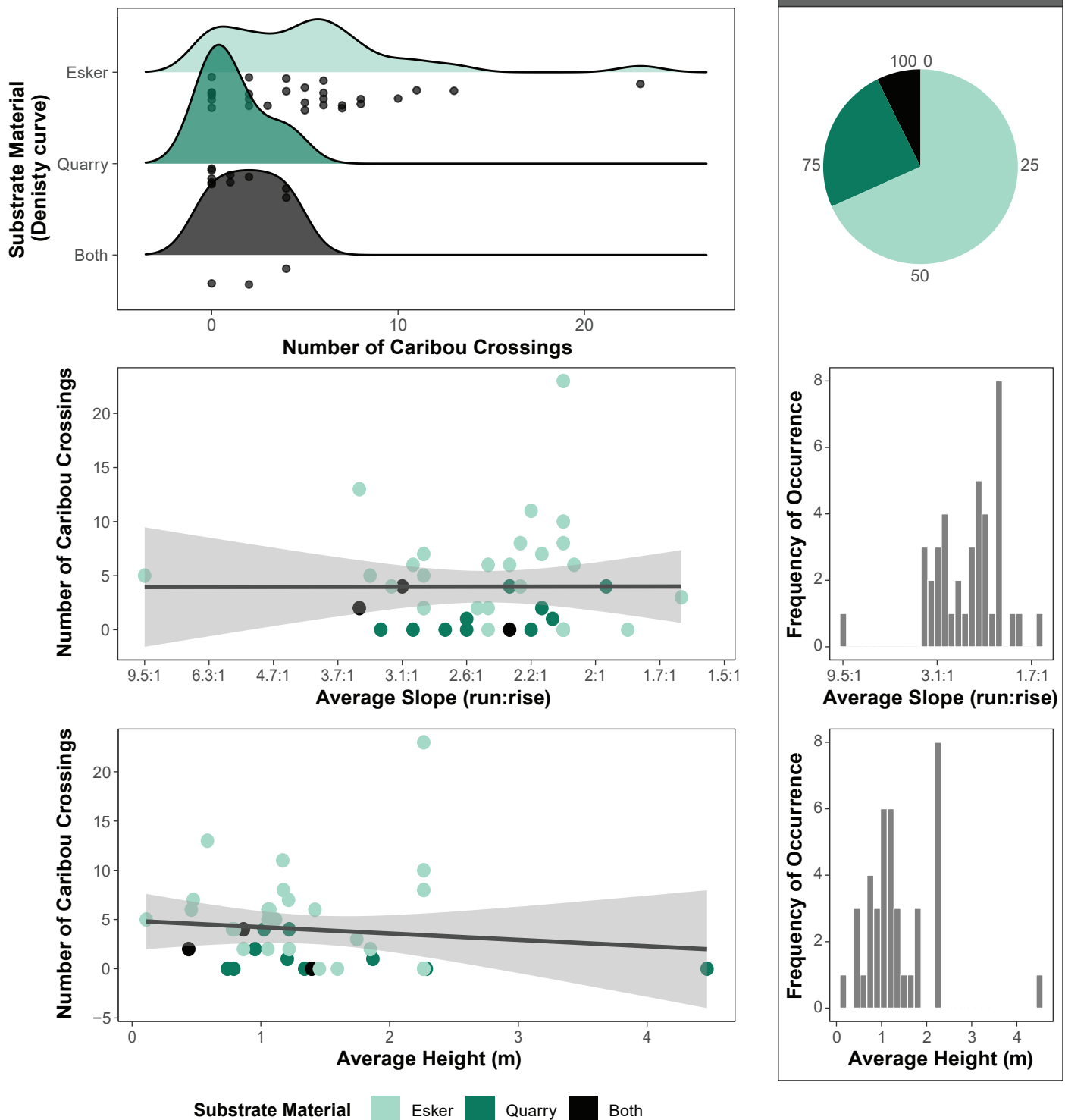
The road structure at the site of each camera was compared with the number of caribou detected in Figure 6.3-2. Neither slope nor road height was correlated with the number of caribou detected crossing the road, as evidenced by the flat GLM line fitted to the data. This may be due to the lack of variability in road height and slope along the length of the AWAR – the majority of the road had moderate side slope and low height.





Note: Flat slope is < 15 degrees or 3.7:1; moderate slope is 15-30 degrees or 3.7:1 - 1.7:1; and steep slope is >30 degrees or 1.7:1  
Low height is < 1 meter; moderate height is 1-2 meters; and high height is >2 meters

**Figure 6.3-1: Road Structure Survey Results**



Notes: The first row of plots compares the substrate type at the camera site with the frequency of caribou crossings. This is displayed as a density curve and a point cloud representing caribou crossings for each substrate type. A pie chart shows the percentage of cameras that occurred on each substrate type as a reference to better understand the distribution of results. Slope and height are compared with caribou crossings in the second and third row of plots. In each of the scatter plots, the results of the GLM regression is plotted as a line with 95% confidence intervals in grey on either side. A flat line indicates no relationship between the variables on the x and y axis. For both slope and height, a histogram is shown to the right of the data as a reference to better understand the distribution of data captured at the camera sites.

**Figure 6.3-2: Comparisons of Road Structure and Caribou Detections**

Caribou did appear to cross the road more readily where esker material was the substrate vs. quarry rock, but as noted previously, quarry rock was concentrated in the southern portion of the road where the camera survey was incomplete because caribou were still in the area after the cameras were removed. This suggests that the apparent preference by caribou of esker over quarry rock may be an artifact of the data, and not a true effect. When only the northern two-thirds of the roadway was included in the analysis, no difference was found between esker and quarry rock and caribou detections. The presence of a higher proportion of lowland habitat in the southern portion of the AWAR, which includes marshes and lakes, may have also reduced the number of locations where caribou are likely to cross.

## 7. SUMMARY

The results of this study suggest the potential for many interacting factors explaining where and when caribou cross the AWAR. The choice of where to cross the road may be mitigated by several factors to varying degrees, including habitat, road traffic, substrate type, and inter-annual route fidelity (i.e., same route chosen every year).

Overall, the camera study found that the cameras were successful at capturing many caribou crossing the AWAR, and overall numbers of caribou captured on the AWAR cameras mirrored the number captured at the off-site cameras, where infrastructure was not expected to impact caribou numbers.

One of the objectives of this study was to evaluate if there were specific locations with high numbers of caribou observations along the AWAR in 2020, and compare these locations with those identified by collar data and IQ.

- The study found that caribou crossing timing and locations on the AWAR in 2020 were consistent with locations identified from collar data from 2012-2019 and IQ from Elders and community members. The hotspots identified by the camera data aligned more closely with the IQ identified hotspots than the collar data.
- Cameras have the potential to capture far more caribou crossings on the AWAR than collars alone. A systematic camera study also has the critical advantage over collar data that it not only detects where caribou *are*, but also where they *are not*. This, in combination with the fact that camera placement can be controlled for road characteristics, is what make it possible to test for the association between caribou detections and road characteristics.

The last objective for this study was to use the information on road crossings determine whether caribou prefer to cross the road at locations with a particular set of road features, specifically: material of road construction (esker vs. quarry); side slope; road height; and surrounding vegetation type.

- Road height and road-side slope did not have an impact on caribou crossing locations.
- Alternatively, there may not be sufficient differences in the structure of the road to influence caribou decisions on where to cross, or their crossings may be influenced by larger scale features such as topography, lakes, trails, etc.
- Caribou appeared to cross the AWAR more readily in the northern portion of the road where esker rock is more common as a substrate, but this may be an artifact of a sampling bias in the data.

The information from this study is preliminary but highlights the power of using motion-trigger cameras to draw connections between the many possible variables explaining caribou movement.

## 8. REFERENCES

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## **APPENDIX A      RAW DATA FROM MOTION-TRIGGER CAMERAS**



Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
41	7/5/2020	11:30:00	11:39:00	T and M	07050294.JPG	07050298.JPG	5	Caribou	10 to 20	1	Walking and Feeding	West	N/A	
41	7/5/2020	14:30:00	14:57:00	T and M	07050304.JPG	07050308.JPG	5	Caribou	6	1	Walking and Feeding	West	N/A	
41	7/5/2020	15:30:00	16:01:00	T and M	07050310.JPG	07050344.JPG	35	Caribou	20-50	5	Walking and Feeding	West	N/A	
41	7/5/2020	18:04:00	18:04:00	M	07050349.JPG	07050349.JPG	1	Caribou	1	1	Walking	East	N/A	
41	7/7/2020	16:30:00	16:30:00	T	07070443.JPG	07070443.JPG	1	Uncategorized Bird	1	0	Standing	South	N/A	
41	7/7/2020	20:30:00	20:30:00	T	07070451.JPG	07070451.JPG	1	Uncategorized Bird	1	0	Standing	West	N/A	
41	7/9/2020	5:45:00	5:45:00	M	07090519.JPG	07090520.JPG	2	Arctic Fox	1	0	Running	East	N/A	
41	7/9/2020	19:20:00	19:22:00	M	07090548.JPG	07090560.JPG	13	Caribou	8	0	Walking	West	N/A	The estimated total number of caribou in the consecutive photos = 8.
40	6/25/2020	20:30:00	20:30:00	T	06250078.JPG	06250078.JPG	1	Waterfowl	2	0	Resting	Unknown	N/A	
40	7/6/2020	8:00:00	8:01:00	T and M	07060604.JPG	07060607.JPG	4	Caribou	6	1	Walking and Feeding	East	N/A	
40	7/6/2020	10:38:00	10:39:00	M	07060614.JPG	07060619.JPG	6	Caribou	1	0	Walking	East	N/A	The animal is only partially seen in the photos with white fur. It should be a caribou.
40	7/6/2020	10:39:00	10:39:00	M	07060621.JPG	07060621.JPG	1	Caribou	1	0	Walking	Unknown	N/A	The animal is only partially seen in the photos with white fur. It should be a caribou.
40	7/6/2020	23:30:00	3:28:00	T and M	07060647.JPG	07070723.JPG	77	Caribou	100+	5	Walking and Feeding	East	N/A	
40	7/6/2020	3:29:00	3:30:00	T and M	07060724.JPG	07070729.JPG	6	Caribou	100+	5	Running	East	N/A	Alarmed? Although they are the same group of caribou as those in the above record, the status of the whole group changed.
40	7/8/2020	5:38:00	5:38:00	M	07080784.JPG	07080784.JPG	1	Caribou	1	0	Walking	West	N/A	
40	7/10/2020	6:19:00	6:20:00	M	07100886.JPG	07100901.JPG	16	Caribou	100+	10 to 20	Walking	West	N/A	
40	7/13/2020	14:30:00	14:30:00	T	07130074.JPG	07130074.JPG	1	Waterfowl	1	0	Standing	North	N/A	
40	7/14/2020	8:13:00	8:13:00	M	07140114.JPG	07140114.JPG	1	Arctic Fox	1	0	Running	East	N/A	
40	7/14/2020	11:38:00	11:46:00	M	07140122.JPG	07140126.JPG	5	Caribou	10 to 20	3	Walking and Feeding	West	N/A	
40	7/14/2020	12:30:00	12:30:00	T	07140128.JPG	07140128.JPG	1	Caribou	1	0	Feeding	East	N/A	
40	7/14/2020	12:54:00	13:07:00	M	07140129.JPG	07140134.JPG	6	Caribou	3	1	Walking and Feeding	West	N/A	
40	7/20/2020	5:06:00	5:06:00	M	07200415.JPG	07200416.JPG	2	Arctic Fox	1	-	Running	East	N/A	
40	7/20/2020	5:37:00	5:37:00	M	07200418.JPG	07200418.JPG	1	Arctic Fox	1	-	Running	East	N/A	
39	7/2/2020	22:14:00	22:20:00	M	07020416.JPG	07020437.JPG	22	Caribou	100+	10 to 20	Walking and Feeding	West	N/A	
39	7/5/2020	5:33:00	5:35:00	M	07050549.JPG	07050555.JPG	7	Caribou	1	0	Walking	East	N/A	
39	7/5/2020	22:36:00	22:58:00	M	07050591.JPG	07050601.JPG	11	Caribou	10 to 20	0	Walking	South	N/A	Too foggy to see how many of them are on the far end.
39	7/5/2020	23:02:00	23:02:00	M	07050603.JPG	07050603.JPG	1	Caribou	1	0	Walking	South	N/A	Should be in the same group as the above row.
39	7/6/2020	0:29:00	0:47:00	T and M	07060606.JPG	07060624.JPG	19	Caribou	100+	10	Walking	South	N/A	
39	7/6/2020	2:53:00	3:30:00	T and M	07060631.JPG	07060635.JPG	5	Caribou	50-100	0	Walking	South	N/A	It's hard to see how many of them are on the far end.
39	7/6/2020	8:16:00	8:16:00	M	07060645.JPG	07060648.JPG	4	Caribou	100+	10 to 20	Walking	South	N/A	
39	7/6/2020	13:30:00	13:30:00	T	07060659.JPG	07060659.JPG	1	Waterfowl	2	0	Resting	Unknown	N/A	

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
39	7/7/2020	6:30:00	10:30:00	T and M	07070693.JPG	07070704.JPG	12	Caribou	100+	10 to 20	Walking	South	N/A	
39	7/8/2020	7:49:00	7:49:00	M	07080748.JPG	07080748.JPG	1	Caribou	2	0	Walking	East	N/A	
39	7/9/2020	21:00:00	21:00:00	T	07090825.JPG	07090825.JPG	1	Caribou	20-50	5	Walking	South	N/A	
39	7/13/2020	22:09:00	23:15:00	T and M	07130021.JPG	07130043.JPG	23	Caribou	100+	10 to 20	Walking	South	N/A	Too dark to see how many of them are on the far end.
38	6/24/2020	17:00:00	17:00:00	T	06240038.JPG	06240038.JPG	1	Sandhill Crane	1	1	Standing	West	N/A	
38	7/5/2020	20:11:00	20:55:00	T and M	07050630.JPG	07050851.JPG	223	Caribou	100+	20-50	Walking and Feeding	West	N/A	
38	7/5/2020	21:16:00	21:18:00	M	07050853.JPG	07050855.JPG	3	Caribou	0	2	Walking	North	N/A	Two babies playing around.
38	7/5/2020	21:55:00	22:06:00	T and M	07050857.JPG	07050870.JPG	14	Caribou	10 to 20	6	Walking	West	N/A	
38	7/5/2020	23:30:00	23:44:00	T and M	07050874.JPG	07050875.JPG	2	Caribou	3	1	Walking	West	N/A	
38	7/6/2020	4:00:00	4:00:00	T	07060886.JPG	07060886.JPG	1	Caribou	1	0	Walking	East	N/A	
38	7/7/2020	16:00:00	16:00:00	T	07070959.JPG	07070959.JPG	1	Caribou	1	0	Feeding	North	N/A	
38	7/10/2020	3:53:00	4:00:00	T and M	07100094.JPG	07100120.JPG	27	Caribou	100+	10 to 20	Walking and Feeding	East	N/A	
38	7/10/2020	6:00:00	6:00:00	T	07100124.JPG	07100124.JPG	1	Waterfowl	1	0	Feeding	South	N/A	
38	7/11/2020	1:54:00	1:54:00	M	07110171.JPG	07110172.JPG	2	Caribou	1	0	Walking	East	N/A	
38	7/13/2020	21:00:00	21:44:00	T and M	07130326.JPG	07130428.JPG	103	Caribou	100+	20-50	Walking and Feeding	West	N/A	
38	7/14/2020	9:19:00	9:19:00	M	07140453.JPG	07140453.JPG	1	Caribou	1	0	Walking	West	N/A	
38	7/15/2020	2:48:00	3:00:00	T and M	07150494.JPG	07150533.JPG	40	Caribou	100+	10 to 20	Walking and Feeding	West	N/A	
38	7/15/2020	3:46:00	3:46:00	M	07150535.JPG	07150535.JPG	1	Caribou	7	2	Walking	West	N/A	
38	7/15/2020	4:16:00	4:16:00	M	07150537.JPG	07150537.JPG	1	Caribou	20-50	5	Walking	West	N/A	
37	6/27/2020	14:37:00	14:37:00	M	06270214.JPG	06270214.JPG	1	Arctic Hare	1	0	Running	West	N/A	
37	6/27/2020	19:12:00	19:12:00	M	06270225.JPG	06270225.JPG	1	Arctic Hare	1	0	Running	North	N/A	The rabbit is sprinting.
37	7/1/2020	10:00:00	10:00:00	T	07010403.JPG	07010403.JPG	1	Arctic Hare	1	0	Feeding	East	N/A	
37	7/3/2020	0:55:00	0:55:00	M	07030484.JPG	07030484.JPG	1	Arctic Hare	1	0	Running	North	N/A	The rabbit is sprinting.
37	7/4/2020	4:54:00	4:54:00	M	07040547.JPG	07040547.JPG	1	Arctic Fox	1	0	Running	West	N/A	
37	7/4/2020	6:35:00	6:35:00	M	07040552.JPG	07040552.JPG	1	Raptor	1	0	Standing	South	N/A	
37	7/4/2020	11:00:00	11:00:00	M	07040564.JPG	07040564.JPG	1	Arctic Fox	1	0	Standing	West	N/A	
37	7/4/2020	19:19:00	19:19:00	M	07040580.JPG	07040580.JPG	1	Arctic Fox	1	0	Walking	West	N/A	
37	7/5/2020	14:00:00	14:00:00	T	07050618.JPG	07050618.JPG	1	Sik Sik	1	0	Feeding	East	N/A	
37	7/7/2020	16:38:00	16:38:00	M	07070724.JPG	07070724.JPG	1	Arctic Fox	1	0	Walking	East	N/A	
37	7/8/2020	0:18:00	0:18:00	M	07080740.JPG	07080740.JPG	1	Arctic Hare	1	0	Resting	East	N/A	
37	7/10/2020	9:00:00	9:00:00	T	07100859.JPG	07100859.JPG	1	Sik Sik	1	0	Standing	North	N/A	
37	7/11/2020	8:00:00	8:00:00	T	07110906.JPG	07110906.JPG	1	Waterfowl	1	0	Feeding	South	N/A	Looks like a common mallard.
36	7/3/2020	19:16:00	19:37:00	T and M	07030478.JPG	07030514.JPG	37	Caribou	100+	10 to 20	Walking and Feeding	East	N/A	
36	7/4/2020	14:08:00	17:30:00	T and M	07040556.JPG	07040670.JPG	115	Caribou	100+	10 to 20	Walking and Feeding	East	N/A	
36	7/13/2020	22:01:00	22:07:00	M	07130128.JPG	07130141.JPG	14	Caribou	10 to 20	0	Walking	East	N/A	

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
36	7/14/2020	0:26:00	0:27:00	M	07140146.JPG	07140148.JPG	3	Caribou	1	1	Walking	East	N/A	
36	7/14/2020	3:20:00	3:24:00	M	07140157.JPG	07140172.JPG	16	Caribou	50-100	10 to 20	Walking	East	N/A	
36	7/14/2020	10:02:00	10:02:00	M	07140187.JPG	07140188.JPG	2	Caribou	1	0	Walking	East	N/A	
36	7/14/2020	21:14:00	21:18:00	M	07140211.JPG	07140226.JPG	16	Caribou	10 to 20	1	Walking	East	N/A	
36	7/19/2020	7:30:00	8:04:00	T and M	07190449.JPG	07190469.JPG	12	Caribou	100+	20-50	Walking	South	N/A	
35	6/25/2020	6:30:00	6:30:00	T	06250051.JPG	06250051.JPG	1	Uncategorized Bird	1	0	Standing	West	N/A	
35	7/1/2020	22:55:00	22:55:00	M	07010339.JPG	07010339.JPG	1	Caribou	1	0	Walking	West	N/A	
35	7/1/2020	22:55:00	22:55:00	M	07010340.JPG	07010340.JPG	2	Caribou	0	1	Walking	West	N/A	
35	7/3/2020	3:56:00	3:57:00	M	07030400.JPG	07030405.JPG	6	Caribou	1	0	Walking and Feeding	South	N/A	
35	7/3/2020	4:00:00	3:57:00	T and M	07030407.JPG	07030410.JPG	4	Caribou	1	0	Walking and Feeding	South	N/A	
35	7/4/2020	11:35:00	14:00:00	T and M	07040475.JPG	07040514.JPG	40	Caribou	20-50	10 to 20	Walking and Feeding	West	N/A	
35	7/6/2020	21:19:00	21:21:00	M	07060629.JPG	07060651.JPG	23	Caribou	20-50	0	Walking and Feeding	West	N/A	
35	7/6/2020	21:21:00	21:21:00	M	07060553.JPG	07060655.JPG	3	Caribou	5	0	Walking	West	N/A	
35	7/6/2020	21:21:00	21:24:00	M	07060657.JPG	07060672.JPG	16	Caribou	10 to 20	2	Walking	West	N/A	
35	7/7/2020	9:46:00	9:46:00	M	07070700.JPG	07070700.JPG	1	Caribou	1	0	Walking	West	N/A	
35	7/13/2020	6:30:00	7:02:00	T and M	07130976.JPG	07130984.JPG	9	Caribou	6	0	Walking and Feeding	South	N/A	
35	7/13/2020	7:43:00	8:30:00	T and M	07130986.JPG	07130991.JPG	6	Caribou	4	0	Walking and Feeding	South	N/A	
35	7/13/2020	9:05:00	9:56:00	T and M	07130993.JPG	07130027.JPG	35	Caribou	20-50	10 to 20	Walking and Feeding	West	N/A	
35	7/13/2020	14:00:00	15:30:00	T and M	07130036.JPG	07130068.JPG	33	Caribou	100+	10 to 20	Walking and Feeding	South	N/A	
35	7/14/2020	13:54:00	14:00:00	T and M	07140106.JPG	07140108.JPG	3	Caribou	3	0	Walking and Feeding	South	N/A	
35	7/17/2020	13:49:00	13:59:00	M	07170249.JPG	07170269.JPG	11	Caribou	50-100	10 to 20	Walking and Feeding	East	N/A	
35	7/17/2020	13:59:00	13:59:00	M	07170271.JPG	07170271.JPG	1	Caribou	0	1	Walking	East	N/A	
35	7/17/2020	14:10:00	14:25:00	M	07170273.JPG	07170280.JPG	8	Caribou	6	2	Walking	East	N/A	
35	7/17/2020	14:44:00	14:44:00	M	07170282.JPG	07170282.JPG	1	Caribou	1	0	Walking	East	N/A	
35	7/17/2020	14:47:00	14:54:00	M	07170284.JPG	07170287.JPG	4	Caribou	3	1	Walking	East	N/A	
35	7/17/2020	15:21:00	15:21:00	M	07170290.JPG	07170290.JPG	1	Caribou	1	1	Walking	East	N/A	
35	7/17/2020	15:33:00	15:44:00	M	07170292.JPG	07170295.JPG	4	Caribou	3	1	Walking	East	N/A	
35	7/17/2020	16:00:00	16:13:00	M	07170298.JPG	07170309.JPG	12	Caribou	10 to 20	8	Walking	East	N/A	
35	7/18/2020	5:57:00	5:57:00	M	07180337.JPG	07180338.JPG	2	Caribou	1	1	Walking	East	N/A	
34	6/30/2020	16:30:00	16:30:00	T	06300372.JPG	06300372.JPG	1	Waterfowl	2	0	Feeding	South	N/A	
34	6/23/2020	23:53:00	23:53:00	M	06230034.JPG	06230034.JPG	1	Arctic Hare	1	0	Running	North	N	Rabbit running on the road.
34	6/30/2020	22:51:00	22:51:00	M	06300385.JPG	06300385.JPG	1	Arctic Hare	1	0	Running	West	N	Rabbit running on the road.
33	6/30/2020	6:53:00	6:53:00	M	06300364.JPG	06300364.JPG	1	Arctic Hare	1	0	Running	East	N	Rabbit running on the road.
33	7/5/2020	3:43:00	3:43:00	M	07050619.JPG	07050619.JPG	1	Arctic Hare	1	0	Running	East	N	Rabbit running on the road.
33	7/10/2020	2:56:00	2:56:00	M	07100872.JPG	07100872.JPG	1	Arctic Hare	1	0	Running	West	N	Rabbit running on the road.

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Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
33	7/11/2020	4:29:00	4:29:00	M	07110924.JPG	07110924.JPG	1	Arctic Hare	1	0	Running	East	N	Rabbit running on the road.
32	7/5/2020	11:30:00	11:30:00	T	07050721.JPG	07050721.JPG	1	Caribou	10 to 20	0	Feeding	North	N/A	
32	7/10/2020	6:30:00	6:30:00	T	07100964.JPG	07100964.JPG	1	Caribou	1	0	Standing	South	N/A	
31	6/23/2020	22:31:00	22:31:00	M	06230054.JPG	06230055.JPG	2	Arctic Fox	1	0	Running	North	N/A	
31	7/10/2020	7:59:00	7:59:00	M	07100861.JPG	07100861.JPG	1	Arctic Hare	1	0	Standing	South	N/A	
31	7/11/2020	6:55:00	6:55:00	M	07110909.JPG	07110910.JPG	2	Arctic Hare	1	0	Running	North	N/A	
31	7/11/2020	20:52:00	20:52:00	M	07110939.JPG	07110939.JPG	1	Arctic Hare	1	0	Running	West	N/A	
31	7/11/2020	23:58:00	23:58:00	M	07110946.JPG	07110946.JPG	1	Arctic Fox	1	0	Standing	North	N/A	
30	6/29/2020	14:30:00	14:30:00	M	06290895.JPG	06290896.JPG	2	Sik Sik	1	0	Feeding	Unknown	N/A	
30	7/2/2020	17:00:00	17:00:00	T	07020409.JPG	07020409.JPG	1	Sik Sik	1	0	Feeding	Unknown	N/A	
29	7/8/2020	1:23:00	1:30:00	T and M	07080383.JPG	07080393.JPG	11	Caribou	100+	10 to 20	Walking and Feeding	South	N/A	
29	7/8/2020	8:55:00	8:56:00	M	07080410.JPG	07080414.JPG	5	Caribou	20-50	5	Walking and Feeding	East	N/A	
28	7/3/2020	8:14:00	8:14:00	M	07030539.JPG	07030539.JPG	1	Arctic Fox	1	0	Running	East	N/A	
28	7/4/2020	2:17:00	2:17:00	M	07040576.JPG	07040576.JPG	1	Arctic Fox	1	0	Running	East	N/A	
28	7/6/2020	2:24:00	4:30:00	T and M	07060682.JPG	07060724.JPG	43	Caribou	100+	10 to 20	Walking and Feeding	East	N/A	
28	7/6/2020	5:08:00	5:12:00	T and M	07060726.JPG	07060733.JPG	8	Caribou	2	2	Walking and Feeding	East	N/A	
28	7/6/2020	6:00:00	6:00:00	T	07060735.JPG	07060735.JPG	1	Caribou	10 to 20	0	Walking	North	N/A	
28	7/9/2020	13:48:00	13:48:00	M	07090898.JPG	07090906.JPG	19	Caribou	20-50	3	Walking and Feeding	East	N/A	
28	7/9/2020	23:00:00	23:08:00	T and M	07090925.JPG	07090929.JPG	5	Caribou	20-50	5	Walking and Feeding	West	N/A	
28	7/11/2020	7:44:00	7:44:00	M	07110998.JPG	07110998.JPG	1	Arctic Hare	1	0	Running	North	N/A	
1	6/28/2020	17:34:00	17:34:00	M	06280379.JPG	06280379.JPG	1	Uncategorized Bird	1	-	Flying	South	N	Extreme close up of wing
2	7/3/2020	20:30:00	20:30:00	T	07030660.JPG	07030660.JPG	1	Sandhill Crane	1	-	Feeding	Still	N	
2	7/6/2020	6:45:00	6:45:00	M	07060784.JPG	07060784.JPG	1	Arctic Fox	1	-	Walking	North	Y	Not sure if North counts as crossing
3	6/22/2020	18:00:00	18:00:00	T	06220130.JPG	06220130.JPG	1	Sandhill Crane	3	-	Feeding	West	No	
3	6/25/2020	12:30:00	12:30:00	T	06250377.JPG	06250377.JPG	1	Sandhill Crane	1	-	Standing	Still	N	
3	6/25/2020	18:06:00	18:06:00	M	06250406.JPG	06250406.JPG	1	Unknown	1	-	-	-	-	Unknown species or object by lake
3	6/25/2020	19:30:00	19:30:00	M	06250414.JPG	06250414.JPG	1	Sandhill Crane	3	-	Flying	West	Y	
3	6/30/2020	14:38:00	14:46:00	M	06300934.JPG	06300935.JPG	2	Sandhill Crane	1	-	Standing	Still	N	
4	6/24/2020	11:00:00	11:00:00	T	06240153.JPG	06240153.JPG	1	Uncategorized Bird	1	-	Flying	Unclear	No	Unable to identify bird species
4	6/26/2020	9:00:00	9:00:00	T	06240255.JPG	06240255.JPG	1	Sandhill Crane	1	-	Standing	South	No	
4	7/2/2020	14:30:00	14:30:00	T	07020581.JPG	07020581.JPG	1	Uncategorized Bird	10-20.	-	Flying	West - East	Yes	Unable to identify bird species
5	6/26/2020	5:39:00	5:39:00	M	06260276.JPG	06260276.JPG	1	Arctic Fox	1	-	Running	South - North	No	
5	7/3/2020	12:00:00	12:00:00	T	07030637.JPG	07030637.JPG	1	Uncategorized Bird	1	-	Standing	Still	No	Species unknown (it's almost not visible). It's on the large, dark rock to the west.

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
5	7/9/2020	4:09:00	4:09:00	M	07090921.JPG	07090822.JPG	2	Arctic Hare	1	-	Jumping	East - West	Yes	
5	7/11/2020	5:28:00	5:28:00	M	07110022.JPG	07110022.JPG	1	Arctic Hare	1	-	Standing	Still	No	
6	6/27/2020	4:30:00	4:30:00	T	06270431.JPG	06270431.JPG	1	Waterfowl	3	-	Feeding	Still	No	
6	7/6/2020	22:30:00	22:30:00	T	07060377.JPG	07060377.JPG	1	Caribou	20-50	-	Walking	East	No	
6	7/9/2020	13:56:00	13:56:00	M	07090561.JPG	07090561.JPG	1	Caribou	1	-	Walking	East	No	
7	6/22/2020	9:30:00	10:00:00	T	06220096.JPG	06220097.JPG	2	Waterfowl	2	-	Grazing	West - East	No	
7	6/23/2020	11:30:00	11:30:00	T	06230099.JPG	06230099.JPG	1	Waterfowl	1	-	Swimming	West - East	No	
7	6/24/2020	8:00:00	8:00:00	T	06240143.JPG	06240143.JPG	1	Waterfowl	1	-	Grazing	Still	No	
7	6/24/2020	20:00:00	20:00:00	T	06240168.JPG	06240168.JPG	1	Waterfowl	1	-	Swimming	West - East	No	
7	6/24/2020	23:00:00	23:00:00	T	06240174.JPG	06240174.JPG	1	Waterfowl	1	-	Swimming	West - East	No	
7	6/26/2020	11:30:00	12:00:00	T	06260252.JPG	06260253.JPG	2	Waterfowl	2	-	Standing	Still	No	
7	6/28/2020	12:00:00	12:00:00	T	06280355.JPG	06280355.JPG	1	Waterfowl	1	-	Swimming	West - East	No	
7	7/5/2020	4:30:00	4:30:00	T	07050702.JPG	07050702.JPG	1	Waterfowl	2	-	Swimming	Still	No	
8	6/30/2020	18:30:00	19:30:00	T	06300469.JPG	06300471.JPG	3	Waterfowl	1	-	Standing	Still	No	
8	6/30/2020	21:30:00	0:00:00	T	06300475.JPG	07010480.JPG	6	Waterfowl	1	-	Walking, Lying down	East - West	No	
8	7/1/2020	20:00:00	20:00:00	T	07010520.JPG	07010520.JPG	1	Waterfowl	1	-	Standing	Still	No	
8	7/5/2020	6:00:00	7:30:00	T	07050687.JPG	07050690.JPG	4	Caribou	10-20.	-	Grazing	West	No	Everywhere
8	7/6/2020	22:00:00	22:00:00	T	07060771.JPG	07060771.JPG	1	Waterfowl	1	-	Lying down	Still	No	
8	7/10/2020	8:30:00	9:00:00	T	07100939.JPG	07100940.JPG	2	Waterfowl	1	-	Walking	West - East	No	
9	6/26/2020	21:02:00	21:02:00	T	06230138.JPG	06230138.JPG	1	Uncategorized Bird	1	-	Standing	Still	-	Species unknown
9	7/5/2020	5:30:00	6:16:00	T and M	07050771.JPG	07050807.JPG	37	Caribou	50-100	-	Grazing	West	Yes	Everywhere
9	7/5/2020	6:17:00	6:18:00	M	07050809.JPG	07050815.JPG	7	Caribou	1	-	Grazing	West	No	Everywhere
9	7/5/2020	7:52:00	7:52:00	M	07050819.JPG	07050820.JPG	2	Caribou	5	-	Walking	East	Yes	
9	7/5/2020	8:30:00	9:00:00	T and M	07050822.JPG	07050829.JPG	8	Caribou	50-100	2	Grazing	East	Yes	Everywhere
10	6/24/2020	16:49:00	16:49:00	M	06240258.JPG	06240258.JPG	1	Waterfowl	2	-	Flying	West	Yes	
10	7/5/2020	5:00:00	9:14:00	T and M	07050595.JPG	07050639.JPG	45	Caribou	50-100	5	Feeding	West	Yes	
10	7/9/2020	15:10:00	15:10:00	M	07090063.JPG	07090063.JPG	1	Caribou	1	-	Running	East	No	
11	6/28/2020	11:38:00	11:38:00	M	06280425.JPG	06280425.JPG	1	Gull	2	-	Flying	East	Yes	
11	7/5/2020	4:30:00	9:00:00	T and M	07050938.JPG	07050950.JPG	13	Caribou	50-100	3	Feeding	West	Yes	Everywhere
12	7/4/2020	20:00:00	20:00:00	T	07040631.JPG	07040631.JPG	1	Caribou	100+	-	Lying down	Still	No	Everywhere
12	7/5/2020	2:28:00	2:29:00	M	07050644.JPG	07050645.JPG	2	Caribou	2	-	Feeding	West	No	
12	7/5/2020	2:58:00	2:59:00	M	07050647.JPG	07050651.JPG	5	Caribou	1	-	Standing	West	No	
12	7/5/2020	3:48:00	5:30:00	T and M	07050654.JPG	07050704.JPG	51	Caribou	100+	13	Feeding	West	Yes	Everywhere
12	7/5/2020	6:07:00	6:15:00	M	07050706.JPG	07050722.JPG	17	Caribou	1	-	Feeding	West	No	
12	7/5/2020	9:19:00	9:19:00	M	07050729.JPG	07050729.JPG	1	Caribou	1	-	Walking	East	No	



Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
12	7/5/2020	13:41:00	13:41:00	M	07050739.JPG	07050740.JPG	2	Caribou	1	1	Walking	East	No	
12	6/27/2020	8:30:00	8:30:00	T	06270250.JPG	06270250.JPG	1	Waterfowl	1	-	Walking	Southeast	No	
13	7/3/2020	23:23:00	23:23:00	M	07030573.JPG	07030573.JPG	1	Arctic Fox	1	-	Running	West	Yes	
13	7/4/2020	20:48:00	21:30:00	M	07040617.JPG	07040648.JPG	31	Caribou	50-100	1	Feeding	West	No	Everywhere
13	7/5/2020	1:15:00	1:33:00	T and M	07050657.JPG	07050688.JPG	31	Caribou	50-100	2	Feeding	West	Yes	Everywhere
13	7/5/2020	3:30:00	4:17:00	T and M	07050692.JPG	07050753.JPG	61	Caribou	50-100	10	Feeding	West	Yes	Everywhere
13	7/5/2020	8:19:00	8:20:00	M	07050762.JPG	07050768.JPG	7	Caribou	1	-	Feeding	East	No	
13	7/5/2020	8:22:00	8:26:00	M	07050770.JPG	07050791.JPG	21	Caribou	3	-	Walking	East	Yes	
13	7/5/2020	8:42:00	8:47:00	T and M	07050793.JPG	07050795.JPG	4	Caribou	4	-	Walking	West	No	
14	7/5/2020	20:53:00	2:59:00	M	07040623.JPG	07040631.JPG	9	Caribou	4	-	Walking	West	No	
14	7/5/2020	1:00:00	3:48:00	T and M	07050642.JPG	07050913.JPG	271	Caribou	100+	20-50	Feeding	South	Yes	Everywhere
14	7/5/2020	3:53:00	4:24:00	M	07050915.JPG	07050934.JPG	19	Caribou	20-50	3	Feeding	North	Yes	Everywhere
15	7/4/2020	21:28:00	21:28:00	M	07040623.JPG	07040623.JPG	1	Caribou	1	-	Running	West	No	
15	7/5/2020	1:20:00	1:20:00	M	07050632.JPG	07050632.JPG	1	Caribou	1	-	Walking	South	No	
15	7/5/2020	1:28:00	2:53:00	M	07050634.JPG	07050742.JPG	108	Caribou	50-100	3	Feeding	West	Yes	Everywhere
15	7/5/2020	3:03:00	3:03:00	M	07050744.JPG	07050746.JPG	3	Caribou	2	-	Walking	East	No	
15	7/5/2020	3:56:00	4:03:00	T and M	07050748.JPG	07050759.JPG	12	Caribou	10-20.	4	Walking	West	Yes	Everywhere
15	7/5/2020	6:30:00	6:30:00	T	07050764.JPG	07050764.JPG	1	Caribou	7	2	walking	West	Yes	
16	6/23/2020	22:44:00	22:45:00	M	06230104.JPG	06230109.JPG	6	Waterfowl	2	-	Walking	West	Yes	
16	6/24/2020	7:23:00	7:23:00	M	06230127.JPG	06230131.JPG	5	Waterfowl	2	-	Walking	East	Yes	
16	6/27/2020	18:00:00	18:03:00	T and M	06270906.JPG	06270907.JPG	2	Waterfowl	1	-	Standing	East	No	
16	6/27/2020	20:00:00	20:00:00	T	06270911.JPG	06270911.JPG	1	Waterfowl	1	-	Standing	South	No	
16	6/28/2020	13:00:00	13:00:00	T	06280981.JPG	06280981.JPG	1	Waterfowl	1	-	Feeding	South	No	
16	6/28/2020	23:56:00	23:56:00	M	06280236.JPG	06280236.JPG	1	Arctic Hare	1	-	Running	Northwest	Yes	
16	6/29/2020	14:48:00	14:48:00	M	06290665.JPG	06290665.JPG	1	Songbird	1	-	Feeding	West	No	
17	6/23/2020	6:47:00	6:47:00	M	06230044.JPG	06230044.JPG	1	Arctic Fox	1	-	Walking	Northeast	Yes	
17	7/5/2020	1:00:00	3:00:00	T	07050620.JPG	07050624.JPG	5	Caribou	10-20.	-	Feeding	East	No	Everywhere
17	7/5/2020	4:00:00	4:00:00	T	07050626.JPG	07050626.JPG	1	Caribou	4	-	Walking	East	No	
18	6/27/2020	13:21:00	13:21:00	M	06270437.JPG	06270437.JPG	1	Waterfowl	9	-	Flying	West	Yes	Too far away to confirm species
18	7/4/2020	2:30:00	9:30:00	T and M	07050284.JPG	07050306.JPG	23	Caribou	100+	4	Feeding	East	Yes	Everywhere
18	7/6/2020	21:30:00	21:30:00	T	07060426.JPG	07060426.JPG	1	Caribou	20-50	-	Walking	East	Yes	
18	7/6/2020	22:00:00	22:00:00	T	07060427.JPG	07060427.JPG	1	Uncategorized Bird	-	-	-	East	Yes	Too far away to ID
18	7/7/2020	4:00:00	12:00:00	T	07070442.JPG	07070461.JPG	20	Gull	10	-	Standing	West	No	
18	7/7/2020	13:00:00	13:50:00	T and M	07070464.JPG	07070475.JPG	12	Gull	2	-	Standing	West	No	
18	7/7/2020	14:30:00	15:03:00	T and M	07070477.JPG	07070479.JPG	3	Gull	3	-	Standing	West	No	

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
18	7/7/2020	19:00:00	19:00:00	T	07070488.JPG	07070488.JPG	1	Gull	1	-	Standing	West	No	
18	7/8/2020	7:58:00	8:34:00	M	07080523.JPG	07080527.JPG	5	Gull	3	-	Standing	West	No	
18	7/8/2020	9:30:00	9:30:00	T	07080530.JPG	07080530.JPG	1	Gull	1	-	Standing	West	No	
18	7/8/2020	20:30:00	20:30:00	T	07080591.JPG	07080591.JPG	1	Gull	3	-	Standing	West	No	
18	7/9/2020	5:00:00	9:00:00	T and M	07090615.JPG	07090633.JPG	19	Gull	6	-	Standing	West	No	
18	7/9/2020	9:44:00	9:44:00	M	07090637.JPG	07090637.JPG	1	Gull	1	-	Standing	West	No	
18	7/9/2020	11:09:00	11:09:00	M	07090642.JPG	07090642.JPG	1	Gull	2	-	Flying	West	Yes	
18	7/9/2020	19:00:00	19:00:00	T	07090683.JPG	07090683.JPG	1	Gull	4	-	Standing	Still	No	
19	6/29/2020	6:30:00	6:30:00	T	06290450.JPG	06290450.JPG	1	Uncategorized Bird	1	-	Feeding	South	No	Far away
19	6/29/2020	19:00:00	19:00:00	T	06290535.JPG	06290535.JPG	1	Songbird	1	-	Standing	East	No	
19	6/30/2020	16:25:00	16:30:00	T and M	06300610.JPG	06300611.JPG	2	Waterfowl	1	-	Walking	East	Yes	
19	7/1/2020	21:30:00	21:30:00	T	07010669.JPG	07010669.JPG	1	Waterfowl	1	-	Feeding	North	No	
19	7/2/2020	7:38:00	7:38:00	M	07020690.JPG	07020690.JPG	1	Waterfowl	1	-	Walking	West	No	
19	7/5/2020	2:10:00	6:32:00	T and M	07050825.JPG	07050995.JPG	170	Caribou	100+	10-20.	Feeding	North	Yes	Everywhere
19	7/5/2020	4:05:00	4:05:00	M	07050904.JPG	07050904.JPG	1	Caribou	20-50	2	Feeding	East	No	Everywhere
19	7/5/2020	7:07:00	7:07:00	M	07050998.JPG	07051000.JPG	3	Caribou	2	-	Feeding	East	No	
19	7/5/2020	7:07:00	9:26:00	T and M	07050001.JPG	07050250.JPG	250	Caribou	100+	20-50	Feeding	East	Yes	Everywhere
19	7/5/2020	13:30:00	13:30:00	T	07050259.JPG	07050259.JPG	1	Caribou	1	-	Walking	West	Yes	
19	7/6/2020	22:30:00	22:48:00	T and M	07060328.JPG	07060356.JPG	28	Caribou	20-50	10-20.	Walking	East	Yes	Everywhere
19	7/8/2020	19:00:00	19:00:00	T	07080447.JPG	07080447.JPG	1	Caribou	2	-	Walking	East	No	
19	7/8/2020	22:00:00	22:00:00	T	07080453.JPG	07080453.JPG	1	Caribou	20-50	-	Walking	West	No	
19	7/9/2020	22:10:00	22:10:00	M	07090502.JPG	07090502.JPG	1	Arctic Fox	1	-	Walking	East	Yes	Nice photo
20	6/23/2020	0:50:00	0:50:00	M	06230046.JPG	06230046.JPG	1	Arctic Fox	1	-	Walking	West	Yes	
20	6/23/2020	22:35:00	22:35:00	M	06230091.JPG	06230091.JPG	1	Arctic Fox	1	-	Walking	West	Yes	
20	6/25/2020	21:30:00	21:30:00	T	06250196.JPG	06250196.JPG	1	Waterfowl	1	-	Feeding	East	No	
20	7/5/2020	4:00:00	7:51:00	T and M	07050650.JPG	07050758.JPG	109	Caribou	100+	50-100	Feeding	West	Yes	Everywhere
20	7/5/2020	8:15:00	9:26:00	T and M	07050760.JPG	07050781.JPG	20-50	Caribou	20-50	1	Feeding	West	Yes	Everywhere
20	7/5/2020	12:25:00	12:50:00	T and M	07050789.JPG	07050834.JPG	45	Caribou	50-100	4	Feeding	East	Yes	Everywhere
20	7/5/2020	15:00:00	15:00:00	T	07050839.JPG	07050839.JPG	1	Caribou	4	-	Walking	South	Yes	
20	7/7/2020	3:30:00	3:30:00	T	07070915.JPG	07070915.JPG	1	Caribou	20-50	-	Walking	East	Yes	
20	7/8/2020	2:00:00	2:00:00	T	07080960.JPG	07080960.JPG	1	Caribou	1	-	Feeding	South	No	
21	7/3/2020	19:00:00	19:00:00	T	07030271.JPG	07030271.JPG	1	Songbird	1	-	Standing	West	No	
21	7/5/2020	4:30:00	5:00:00	T	07050369.JPG	07050370.JPG	2	Caribou	10-20.	-	Feeding	West	No	Everywhere
21	7/5/2020	7:00:00	7:00:00	T	07050374.JPG	07050374.JPG	1	Caribou	20-50	-	Feeding	East	No	
21	7/7/2020	1:30:00	3:43:00	T and M	07070521.JPG	07070569.JPG	48	Caribou	100+	10-20.	Walking	South	Yes	Everywhere

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
21	7/8/2020	20:30:00	21:35:00	T and M	07080703.JPG	07080707.JPG	5	Caribou	100+	-	Running	South	Yes	Everywhere
22	6/22/2020	15:55:00	15:55:00	M	06220033.JPG	06220033.JPG	1	Songbird	1	-	Standing	West	No	
22	6/22/2020	23:05:00	23:05:00	M	06220058.JPG	06220058.JPG	1	Waterfowl	2	-	Standing	West	No	
22	6/23/2020	9:00:00	9:00:00	T	06230078.JPG	06230078.JPG	1	Songbird	1	-	Standing	West	No	
22	6/23/2020	11:13:00	11:13:00	T	06230090.JPG	06230090.JPG	1	Songbird	1	-	Standing	South	No	
22	6/23/2020	12:48:00	12:48:00	M	06230096.JPG	06230097.JPG	2	Songbird	1	-	Standing	East	No	
22	6/24/2020	5:30:00	5:30:00	T	06240162.JPG	06240162.JPG	1	Songbird	1	-	Standing	West	No	
22	6/24/2020	11:44:00	11:44:00	M	06240183.JPG	06240183.JPG	1	Sik Sik	1	-	Sitting	North	No	Unable to identify
22	6/24/2020	15:10:00	15:10:00	M	06240212.JPG	06240212.JPG	1	Songbird	1	-	standing	East	No	
22	6/26/2020	20:30:00	20:30:00	T	06260393.JPG	06260393.JPG	1	Waterfowl	1	-	Walking	West	No	
22	6/27/2020	0:30:00	2:30:00	T	06270401.JPG	06270406.JPG	6	Waterfowl	2	-	Walking	East	No	
22	6/28/2020	5:00:00	5:00:00	T	06280525.JPG	06280525.JPG	1	Waterfowl	2	-	Walking	East	No	
22	6/28/2020	8:00:00	8:00:00	T	06280533.JPG	06280533.JPG	1	Uncategorized Bird	1	-	Sitting	East	No	Unable to identify
22	6/28/2020	13:57:00	13:57:00	M	06280612.JPG	06280612.JPG	1	Songbird	1	-	Standing	East	No	
22	6/28/2020	15:08:00	15:08:00	M	06280631.JPG	06280631.JPG	1	Songbird	1	-	Standing	South	No	
22	7/1/2020	6:40:00	6:41:00	M	07010975.JPG	07010976.JPG	2	Songbird	2	-	Standing	East	No	
22	7/1/2020	7:30:00	7:30:00	T	07010981.JPG	07010981.JPG	1	Uncategorized Bird	1	-	Standing	East	No	
22	7/1/2020	8:29:00	8:29:00	M	07010988.JPG	07010988.JPG	1	Uncategorized Bird	1	-	Standing	South	No	Unable to identify
22	7/1/2020	10:31:00	10:31:00	M	07010013.JPG	07010014.JPG	2	Uncategorized Bird	1	-	Standing	West	No	Unable to identify
22	7/1/2020	12:30:00	12:30:00	T	07010036.JPG	07010036.JPG	1	Uncategorized Bird	1	-	Standing	West	No	Unable to identify
22	7/2/2020	7:38:00	7:38:00	M	07020119.JPG	07020119.JPG	1	Songbird	2	-	Standing	North	No	
22	7/2/2020	10:42:00	10:42:00	M	07020146.JPG	07020147.JPG	2	Songbird	1	-	Standing	South	No	
22	7/2/2020	14:22:00	14:22:00	M	07020180.JPG	07020180.JPG	1	Songbird	1	-	Standing	North	No	
22	7/3/2020	5:00:00	5:00:00	T	07030234.JPG	07030234.JPG	1	Uncategorized Bird	1	-	Standing	Unknown	No	Unable to identify
22	7/3/2020	7:27:00	7:30:00	T and M	07030243.JPG	07030245.JPG	3	Songbird	1	-	Standing	East	No	
22	7/3/2020	8:00:00	8:00:00	T	07030250.JPG	07030250.JPG	1	Songbird	1	-	Standing	East	No	
22	7/3/2020	8:30:00	8:30:00	T	07030252.JPG	07030252.JPG	1	Uncategorized Bird	1	-	Standing	North	No	
22	7/3/2020	8:29:00	8:29:00	M	07030255.JPG	07030255.JPG	1	Uncategorized Bird	1	-	Standing	East	No	
22	7/3/2020	9:30:00	9:30:00	T and M	07030265.JPG	07030266.JPG	2	Uncategorized Bird	1	-	Standing	West	No	
22	7/3/2020	13:26:00	13:26:00	M	07030306.JPG	07030306.JPG	1	Uncategorized Bird	1	-	Standing	North	No	

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
22	7/3/2020	14:13:00	14:13:00	M	07030324.JPG	07030325.JPG	2	Songbird	2	-	Standing	East	No	
22	7/3/2020	15:34:00	15:41:00	M	07030336.JPG	07030337.JPG	2	Songbird	1	-	Standing	West	No	
22	7/3/2020	21:30:00	21:30:00	T	07030362.JPG	07030362.JPG	1	Songbird	1	-	Standing	West	No	
22	7/4/2020	6:30:00	6:30:00	T	07040380.JPG	07040380.JPG	1	Uncategorized Bird	1	-	Standing	East	No	
22	7/4/2020	11:03:00	11:03:00	M	07040392.JPG	07030393.JPG	2	Uncategorized Bird	1	-	Standing	East	No	
22	7/4/2020	11:57:00	11:57:00	M	07040396.JPG	07040396.JPG	1	Uncategorized Bird	1	-	Standing	South	No	
22	7/4/2020	13:30:00	13:30:00	T	07040402.JPG	07040402.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/5/2020	7:30:00	7:30:00	T	07050445.JPG	07050445.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/5/2020	16:30:00	16:30:00	T	07050472.JPG	07050472.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/3/2020	23:15:00	23:17:00	M	07050492.JPG	07050496.JPG	5	Caribou	20-50	8	Running	South	No	
22	7/6/2020	9:30:00	9:30:00	T	07060519.JPG	07060519.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/6/2020	11:12:00	11:12:00	M	07060525.JPG	07060525.JPG	1	Uncategorized Bird	1	-	Standing	South	No	
22	7/6/2020	22:11:00	23:02:00	T and M	07060570.JPG	07060593.JPG	23	Caribou	20-50	4	Feeding	West	Yes	Everywhere
22	7/7/2020	0:38:00	3:30:00	T and M	07070597.JPG	07070660.JPG	63	Caribou	100+	10-20.	Feeding	South	Yes	Everywhere
22	7/7/2020	5:30:00	5:30:00	T	07070664.JPG	07070664.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/7/2020	16:47:00	16:48:00	M	07070700.JPG	07070707.JPG	8	Caribou	100+	10-20.	Running	East	No	
22	7/7/2020	20:00:00	20:00:00	M	07070719.JPG	07070719.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/8/2020	9:20:00	9:21:00	M	07080756.JPG	07080757.JPG	2	Caribou	1	-	Walking	East	No	
22	7/8/2020	11:00:00	11:00:00	T	07080762.JPG	07080762.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/8/2020	11:52:00	11:52:00	M	07080768.JPG	07080768.JPG	1	Uncategorized Bird	1	-	Standing	South	No	
22	7/8/2020	12:07:00	12:08:00	M	07080770.JPG	07080772.JPG	3	Caribou	4	-	Walking	East	No	
22	7/8/2020	12:30:00	12:30:00	T	07080781.JPG	07080781.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/8/2020	14:38:00	14:38:00	M	07080789.JPG	07080789.JPG	1	Songbird	1	-	Standing	North	No	
22	7/8/2020	15:00:00	15:01:00	T and M	07080799.JPG	07080800.JPG	2	Songbird	1	-	Standing	Northwest	No	
22	7/8/2020	15:31:00	15:31:00	M	07080802.JPG	07080802.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
22	7/8/2020	19:00:00	19:00:00	T	07080818.JPG	07080818.JPG	1	Uncategorized Bird	1	-	Standing	West	No	

Appendix A: Raw Data from Motion-trigger Cameras

Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
22	7/9/2020	8:47:00	8:47:00	M	07090864.JPG	07090864.JPG	1	Uncategorized Bird	1	-	Standing	Northwest	No	
22	7/9/2020	11:17:00	11:17:00	M	07090873.JPG	07090874.JPG	2	Uncategorized Bird	1	-	Flying	West	Yes	Also 1 person wearing PPE
22	7/9/2020	17:30:00	17:30:00	T	07090910.JPG	07090910.JPG	1	Uncategorized Bird	1	-	Standing	West	No	
23	6/26/2020	16:30:00	16:30:00	T	06260213.JPG	06260213.JPG	1	Waterfowl	2	-	Standing	West	No	
23	6/27/2020	7:48:00	7:48:00	M	06270244.JPG	06270244.JPG	1	Waterfowl	2	-	Flying	West	Yes	
23	6/27/2020	8:30:00	8:30:00	T	06270246.JPG	06270246.JPG	1	Waterfowl	3	-	Sitting	West	No	
23	6/27/2020	9:32:00	9:49:00	M	06270249.JPG	06270255.JPG	7	Waterfowl	4	-	Walking	East	Yes	
23	6/27/2020	10:02:00	10:02:00	M	06270257.JPG	06270257.JPG	1	Arctic Fox	1	-	Running	East	Yes	
23	7/5/2020	22:49:00	22:50:00	M	07050669.JPG	07050677.JPG	8	Caribou	10-20.	-	Feeding	East	No	Everywhere
23	7/7/2020	1:57:00	1:57:00	M	07070732.JPG	07070733.JPG	2	Caribou	-	1	Running	South	No	
23	7/7/2020	3:28:00	3:30:00	T and M	07070738.JPG	07070744.JPG	7	Caribou	4	-	Feeding	East	No	
23	7/7/2020	16:43:00	16:44:00	M	07070771.JPG	07070779.JPG	9	Caribou	20-50	3	Walking	Southeast	No	
23	7/9/2020	0:23:00	0:23:00	M	07090845.JPG	07090845.JPG	1	Arctic Fox	1	-	Running	West	Yes	
24	6/25/2020	6:00:00	6:00:00	T	06250243.JPG	06250243.JPG	1	Waterfowl	2	-	Feeding	West	No	
24	6/27/2020	6:00:00	6:30:00	T	06270420.JPG	06270421.JPG	2	Waterfowl	2	-	Feeding	East	No	
24	6/27/2020	8:30:00	8:30:00	T	06270430.JPG	06270430.JPG	1	Waterfowl	2	-	Flying	West	Yes	
24	7/6/2020	3:30:00	6:30:00	T and M	07060520.JPG	07060543.JPG	23	Caribou	50-100	5	Grazing	East	Yes	Everywhere
24	7/6/2020	23:25:00	23:30:00	T and M	07060616.JPG	07060617.JPG	2	Caribou	1	-	Grazing	East	Yes	
24	7/7/2020	0:16:00	0:21:00	M	07070619.JPG	07070624.JPG	6	Caribou	7	-	Grazing	West	Yes	
24	7/7/2020	3:13:00	3:20:00	M	07070631.JPG	07070648.JPG	17	Caribou	50-100	3	Walking	Southeast	Yes	Everywhere
24	7/7/2020	18:48:00	18:48:00	M	07070714.JPG	07070716.JPG	3	Caribou	4	2	Running	East	Yes	
24	7/9/2020	11:19:00	11:39:00	M	07090882.JPG	07090964.JPG	82	Caribou	100+	6	Walking	East	Yes	Everywhere
24	7/9/2020	12:35:00	13:00:00	T and M	07090969.JPG	07090987.JPG	18	Caribou	100+	2	Grazing	North	No	Everywhere
25	6/25/2020	11:00:00	11:00:00	T	06250226.JPG	06250226.JPG	1	Waterfowl	2	-	Feeding	West	No	
25	6/26/2020	18:30:00	18:30:00	T	06260344.JPG	06260344.JPG	1	Waterfowl	2	-	Standing	South	No	
25	6/27/2020	3:30:00	4:30:00	T	06270365.JPG	06270367.JPG	3	Waterfowl	2	-	Standing	West	No	
25	7/2/2020	9:36:00	9:36:00	M	07020133.JPG	07020133.JPG	1	Raptor	1	-	Attacking	South	No	Peregrine Falcon attacking a Horned Lark
25	7/5/2020	18:30:00	18:30:00	T	07050501.JPG	07050501.JPG	1	Caribou	20	2	Walking	East	No	
25	7/6/2020	0:30:00	0:49:00	T and M	07060514.JPG	07060517.JPG	4	Caribou	10-20.	-	Feeding	East	No	
25	7/6/2020	2:37:00	3:32:00	M	07060524.JPG	07060527.JPG	4	Caribou	50-100	3	Feeding	South	No	Everywhere
25	7/9/2020	13:00:00	13:02:00	T and M	07090886.JPG	07090891.JPG	6	Caribou	100+	3	Grazing	Northwest	Yes	Everywhere
26	6/23/2020	9:55:00	9:55:00	M	060230046.JPG	06230051.JPG	6	Waterfowl	2	-	Walking	East	Yes	
26	6/23/2020	10:05:00	10:05:00	M	06230053.JPG	06230053.JPG	1	Waterfowl	1	-	Flying	West	Yes	
26	6/23/2020	21:30:00	21:30:00	T	06230077.JPG	06230077.JPG	1	Waterfowl	3	-	Feeding	East	No	

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Camera No.	Date Observed	Time		Photo				Species Name	Number Adults	Number Young	Behaviour (laying, feeding, walking, running)	Direction (E-W)	Did they cross? Y / N	Comment
		Start	End	Type	Start	End	Trigger							
26	6/23/2020	23:00:00	0:00:00	T	06230080.JPG	06240082.JPG	3	Waterfowl	6	-	Sitting	West	No	
26	6/24/2020	8:00:00	8:00:00	T	06240099.JPG	06240099.JPG	1	Waterfowl	2	-	Walking	East	No	
26	6/25/2020	11:41:00	11:41:00	M	06250233.JPG	06250233.JPG	1	Waterfowl	1	-	Walking	West	No	
26	6/27/2020	7:00:00	7:00:00	T	06270324.JPG	06270324.JPG	1	Waterfowl	4	-	Feeding	East	No	
26	7/5/2020	23:42:00	23:42:00	M	07050861.JPG	07050863.JPG	3	Caribou	-	1	Feeding	West	No	
26	7/6/2020	0:00:00	3:07:00	T and M	07060864.JPG	07060985.JPG	120	Caribou	100+	20-50	Walking	West	No	Everywhere
26	7/8/2020	13:11:00	13:11:00	M	07080105.JPG	07080106.JPG	2	Caribou	1	1	Walking	East	No	
26	7/9/2020	13:20:00	13:30:00	T and M	07090158.JPG	07090172.JPG	14	Caribou	100+	5	Walking	West	Yes	Everywhere
27	6/25/2020	11:00:00	11:00:00	T	06250159.JPG	06250159.JPG	1	Songbird	1	-	Standing	West	No	
27	6/27/2020	4:14:00	4:14:00	M	06270249.JPG	06270249.JPG	1	Waterfowl	2	-	Walking	West	No	
27	6/27/2020	5:00:00	5:00:00	M	06270251.JPG	06270251.JPG	1	Waterfowl	1	-	Standing	East	No	
27	6/27/2020	7:10:00	7:10:00	M	06270256.JPG	06270256.JPG	1	Waterfowl	1	-	Walking	West	Yes	
27	6/28/2020	1:13:00	1:13:00	M	06280284.JPG	06280284.JPG	1	Arctic Fox	1	-	Walking	North	Yes	
27	6/30/2020	5:44:00	5:44:00	M	06200403.JPG	06300404.JPG	2	Waterfowl	2	-	Walking	Southwest	Yes	
27	7/5/2020	23:30:00	3:00:00	T and M	07050697.JPG	07060806.JPG	109	Caribou	100+	5	Feeding	East	No	Everywhere
27	7/6/2020	6:00:00	6:00:00	T	07060812.JPG	07060812.JPG	1	Caribou	50-100	-	Walking	Northeast	No	
27	7/7/2020	10:00:00	10:00:00	T	07070868.JPG	07070868.JPG	1	Caribou	20-50	-	Feeding	East	Yes	
27	7/9/2020	0:16:00	0:16:00	M	07090949.JPG	07090949.JPG	1	Arctic Fox	1	-	Walking	North	Yes	
27	7/9/2020	13:35:00	13:37:00	M	07090978.JPG	07091000.JPG	22	Caribou	20-50	3	Feeding	West	No	
27	7/9/2020	13:37:00	13:38:00	M	07090001.JPG	07090008.JPG	9	Caribou	50-100	5	Feeding	North	Yes	Everywhere



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