

DE BEERS GROUP

Gahcho Kué Mine
2023 Annual Wildlife Report

January 2024

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1 INTRODUCTION

De Beers Canada Inc. (De Beers) operates the Gahcho Kué Mine (Mine), located at Kennady Lake about 280 kilometres (km) northeast of Yellowknife, NT. Kennady Lake is north of the East Arm of Great Slave Lake and the small community of Lutsle K'e by approximately 140 km (Map 1-1). Commercial operation of the Mine began in September of 2016. The construction and operation of the Mine are currently under Type A Water Licence (MV2005L2-0015) and Type A Land Use Permit (MV2021D0009), issued by the Mackenzie Valley Land and Water Board (MVLWB). Mine activities and infrastructure include dewatering of Kennady Lake, open pit mining of three kimberlite pipes, construction and operation of Coarse and Fine Processed Kimberlite (PK) Facilities, Mine Rock Piles, accommodation and maintenance facilities, all-season airstrip, site roads and annual Winter access road (Map 1-2).

In August 2019, the Government of the Northwest Territories (GNWT) issued a new guidance document for development of wildlife management plans (GNWT-ECC 2019) to meet requirements of the NWT *Wildlife Act*. The GNWT then issued a directive to De Beers in October 2020 instructing De Beers that a Tier 3 Wildlife Management and Monitoring Plan (WMMP) for the Gahcho Kué Mine would be required to meet compliance with the NWT *Wildlife Act*. This WMMP was developed from the existing Wildlife and Wildlife Habitat Protection Plan (WWHPP) and Wildlife Effects Monitoring Program (WEMP) and updated to align with the Wildlife Management and Monitoring Plan (WMMP) Process and Content Guidelines (GNWT-ECC 2019). In compliance with the *Wildlife Act* and Land Use Permit MV2005C0032 (expired on August 10, 2021), Version 1 of the WMMP was submitted to the GNWT and MVLWB on April 26, 2021, and was subsequently issued for public review. On June 29, 2021, as part of the issuance of the renewed Land Use Permit MV2021D0009 (MVLWB 2021), the MVLWB determined the WMMP is no longer required in the Land Use Permit. Version 1.1 of the WMMP was submitted to the GNWT addressing reviewer comments from the GNWT, Environment and Climate Change Canada (ECCC), Ni Hadi Xa, and MVLWB in January 2022. The Mine's Tier 3 WMMP (Version 1.2, De Beers 2022) was approved by the GNWT-ECC on March 31, 2022 (GNWT-ECC 2022).

The WMMP outlines the policies, practices, designs, and procedures aimed at preventing and reducing Mine-related effects to wildlife and wildlife habitat, and providing Mine managers with information for making environmental management decisions. The WMMP also provides opportunities for regulators and Indigenous groups and communities to participate in the development of protection, mitigation, and monitoring of wildlife at the Mine site.

This WMMP draws together lessons learned from other mine sites in the NT including the De Beers Snap Lake Mine, Ekati and Diavik mines, as well as Traditional Knowledge (TK). In doing so, the WMMP will meet the requirements of the Species at Risk Act, the *Species at Risk (NWT) Act*, the Mackenzie Valley Land Use Regulations, the NWT *Wildlife Act*, and the Migratory Bird Convention Act, 1994 and Migratory Bird Regulations, as well as Review Panel Measures and corporate commitments.

Pursuant to the WMMP (De Beers 2022), this report describes mitigation and monitoring activities at the Mine and in the Regional Study Area (RSA) from January to December of the current reporting year and includes:

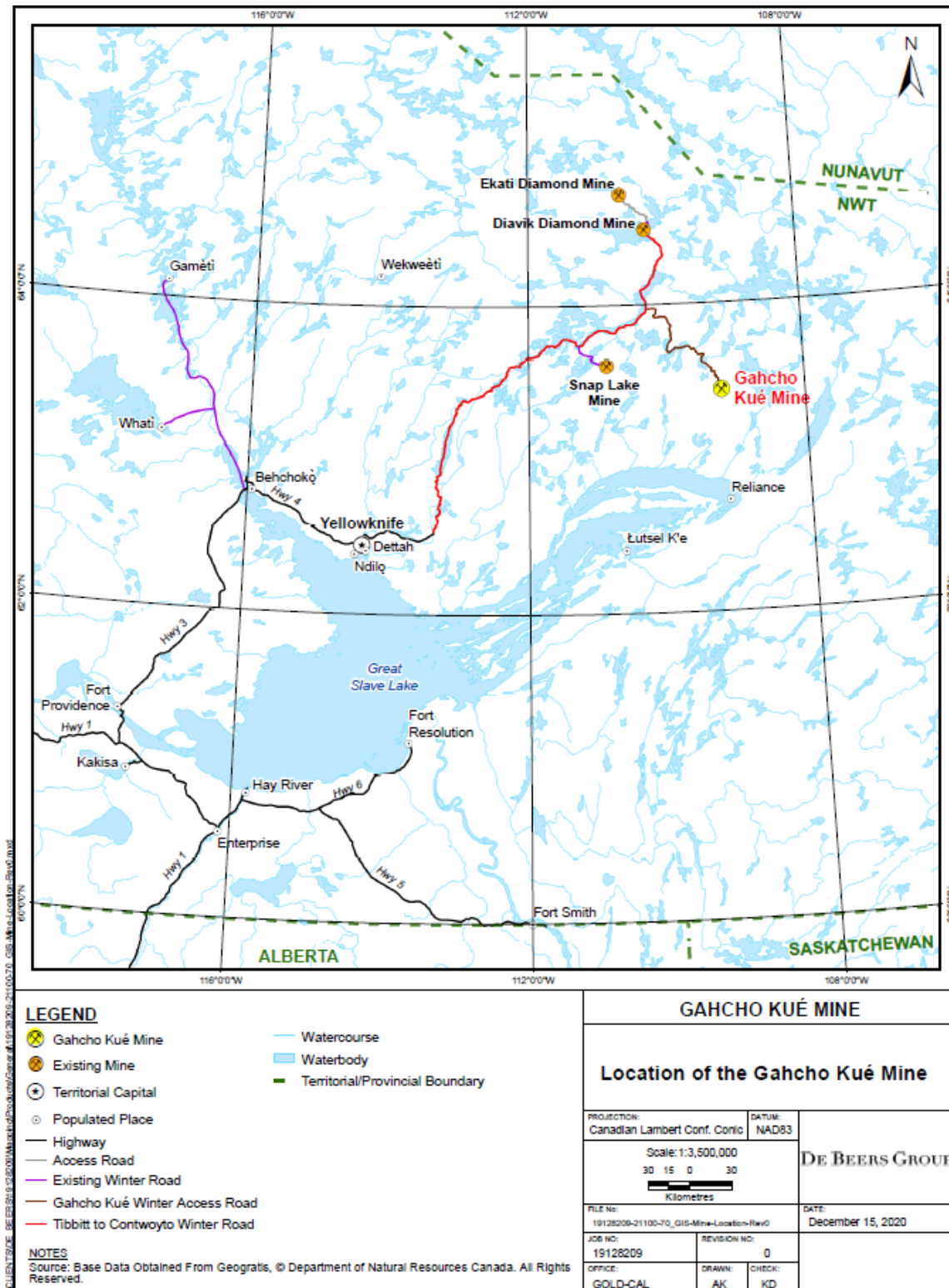
- a summary of all the monitoring programs that occurred at the Mine;
- updates or recommended changes to mitigation, environmental design features, or other actions required to meet the WMMP objectives;

-
- occurrences of human-wildlife interactions, and incidents, accidents, injuries, and mortalities involving wildlife;
 - disturbances to wildlife and wildlife habitat that were not predicted in the Environmental Impact Statement (EIS; De Beers 2010); and
 - observations of recreational, traditional, and non-traditional activities near the Mine, including the Winter access road.

A comprehensive analysis of mitigation and monitoring activities will be undertaken every five years. The first comprehensive analysis was completed in 2019, with the next analysis scheduled for 2024. The comprehensive analysis report investigates Mine-related effects to wildlife, using all the relevant data available. In addition to programs designed for monitoring effects to wildlife from the Mine, monitoring of environmental indicators and contributed programs, such as small mammal monitoring, are completed to characterize natural changes or to contribute to regional monitoring initiatives. This schedule does not preclude focussed data analysis for specific issues or questions as they arise.

Wildlife monitoring for the Mine was developed in consultation with regulators and Indigenous communities. As a participant in wildlife monitoring workshops hosted by the Department of Environment and Climate Change of the GNWT (GNWT-ECC), De Beers updated monitoring programs for the Mine to be consistent with, and to support, regional monitoring for the assessment and management of cumulative effects by the GNWT. These changes included replacing past Mine-specific grizzly bear and wolverine monitoring with regional hair snagging programs for these species, and the addition of the Arctic Program for Regional and International Shorebird Monitoring (PRISM) in 2015. De Beers will continue to participate in GNWT-ECC led monitoring initiatives and will update the wildlife monitoring and mitigation programs accordingly. In February 2021, the GNWT hosted wildlife monitoring workshops where it was determined among program partners that grizzly bear and wolverine hair snagging would be discontinued (GNWT-ECC 2021).

Map 1-1 Location of the Gahcho Kué Mine



Map 1-2 2023 Gahcho Kué Mine Site Infrastructure



1.1 Content

The 2023 Annual Wildlife Report includes WMMP activities. The monitoring tasks may be continuous or seasonal, and on an annual or multi-year cycle. Supporting information is also collected through other monitoring programs (Table 1-1). This report will include descriptions and summaries of all of the wildlife monitoring that occurred during 2023.

Table 1-1 Schedule of Wildlife Monitoring under each Relevant Management Plan

Monitoring	Corresponding Monitoring Plans or Programs	Monitoring Schedule	Completed in 2023	Report Section
Mine Development Area and Direct Habitat Loss	WMMP	Mine development area updates will be provided at the end of construction and updated every year.	Yes	3.2
Noise	WMMP	Noise monitoring is anticipated to take place on a multi-year schedule at the Mine during operation in Years 1 (2017), 5 (2021), and 8 (2024).	No	3.3.1
Dust	WMMP Vegetation and Soils Monitoring Program	Dustfall collectors are monitored at the Mine annually and are measured every 30 days during the growing season (May to October).	Yes	3.3.2
Wildlife Sightings	WMMP	Wildlife sightings are monitored continually and reported annually.	Yes	3.3.3
Site Surveillance	WMMP	Monitoring is completed weekly, and reported annually.	Yes	3.3.4
Public Use of the Winter Access Road	WMMP	Monitoring is conducted daily when the Winter access road is operational (usually February to March).	Yes	3.3.5
Wildlife Incidents	WMMP	Wildlife incident monitoring has been ongoing and will continue to be undertaken as required. Wildlife incidents are reported immediately to GNWT-ECC, in addition to being reported annually.	Yes	3.3.6

Monitoring	Corresponding Monitoring Plans or Programs	Monitoring Schedule	Completed in 2023	Report Section
Caribou	WMMP	Caribou aerial distribution surveys were completed from 1999 to 2005 and 2010 to 2012. As there were likely insufficient caribou in the study area to detect a change in distribution, aerial surveys were not undertaken from 2013 to 2022. De Beers intends to use collared caribou data moving forward to assess for Mine-related effects of indirect habitat loss per the Mine's Tier 3 WMMP.	No	-
		Caribou interactions and mortalities at the Mine are monitored through the wildlife sightings log, site surveillance, wildlife interactions and behaviour monitoring.	Yes	3.3.3, 3.3.4, 3.3.6
		Aerial reconnaissance surveys are completed annually prior to the Winter access road opening. The purpose of these surveys is to determine if caribou are present near the Winter access road in numbers that would trigger caribou behaviour monitoring.	Yes	3.4.1
		Winter access road behaviour monitoring was first completed in 2014 and will occur annually when triggers for group size are met. Behavioural monitoring on the Winter access road or at site was last completed in 2022.	Yes	3.4.2
		Snow berm measurements along the Mine's Winter access road began in 2014 and are recorded annually.	Yes	3.4.3
Grizzly Bear	WMMP	Grizzly bear interactions and mortalities at the Mine are monitored through the wildlife sightings log, site surveillance, and wildlife incidents.	Yes	3.3.3, 3.3.4, 3.3.6
Wolverine	WMMP	Wolverine interactions and mortalities at the Mine are monitored through the wildlife sightings log, site surveillance, and wildlife incidents.	Yes	3.3.3, 3.3.4, 3.3.6
Raptors	WMMP	Raptor interactions and mortalities at the Mine are monitored through the wildlife sightings log, site surveillance, and wildlife incidents, as well as incidents of raptor nesting activity on Mine infrastructure.	Yes	3.3.3, 3.3.4, 3.3.6
		Raptor nest surveys in the RSA were completed in 2015. Results were contributed to GNWT-ECC for their regional nest monitoring database. A RSA survey was conducted by GNWT-ECC in 2020. Regional monitoring is anticipated to continue every five years with the next nest surveys scheduled for 2025.	No	3.6

Monitoring	Corresponding Monitoring Plans or Programs	Monitoring Schedule	Completed in 2023	Report Section
Upland Birds	WMMP	Upland bird interactions and mortalities at the Mine are monitored through the wildlife sightings log, site surveillance, and wildlife incidents.	Yes	3.3.3, 3.3.4, 3.3.6
	Migratory Bird Nest Management Plan	Vegetation removal in areas surrounding Lakes D2/D3 and E1 was completed in 2015, 2016 and 2017 to fulfill commitments made in the Migratory Bird Nest Management Plan. Vegetation removal will continue as needed.	No	3.7
		De Beers will deploy bird deterrent devices, as per the Migratory Bird Nest Management Plan, to mitigate the risk of birds nesting in the remaining low-lying vegetation or on the ground during the Spring in areas anticipated to flood.	Yes	3.7
		Arctic PRISM surveys were completed in 2017, 2019 and in 2022.	No	3.7
Small Mammals	WMMP	Monitoring and reporting of small mammal abundance will be completed annually. All small mammal samples collected are provided to the GNWT-ECC for identification and analysis.	Yes	3.8
Environmental Indicators	WMMP	Annual monitoring and reporting of weather-related variables began in 2015 and has continued since.	Yes	3.9
Measures of Mine Activity	WMMP	Annual monitoring and reporting of staff numbers, fuel consumption, volume of mine rock removed and ore processed, and domestic water consumption began in 2015 and has continued since.	Yes	3.10

PRISM = Arctic Program for Regional and International Shorebird Monitoring; GNWT-ECC = Department of Environment and Climate Change, Government of the Northwest Territories; RSA = regional study area; WMMP = Wildlife Management and Monitoring Plan.

1.2 Engagement

De Beers signed a legally binding environmental stewardship agreement, Ni Hadi Xa Agreement, with five Indigenous parties, including Deninu Kué First Nations (DKFN), Łutsel K'e Dene First Nation (LKDFN), North Slave Métis Alliance (NSMA), Northwest Territory Métis Nation (NWTMN) and the Tłı̨chǫ Government (TG), in 2014. Yellowknives Dene First Nation (YKDFN) became the signatory of the Agreement in February 2019. The purpose of Ni Hadi Xa is to provide a meaningful way for Indigenous communities to participate in the ongoing development and review of monitoring programs and management plans, review data generated from those plans, and to allow for TK to be incorporated into operations. Ni Hadi Xa also creates an opportunity to build on collaborative relationships, increase efficiency in regulatory processes, and provide more opportunity for TK monitoring. Ni Hadi Xa currently employs one full-time environmental monitor stationed at the site and works closely with the De Beers Environment staff. Two TK monitors and one TK administrator are monitoring any potential impacts of the mining operations based in the Ni Hadi Xa Cabin, established approximately 40 km north of the Mine.

De Beers engaged with Indigenous communities in multiple forums throughout 2023 as outlined in the Engagement Plan (De Beers 2015a). In 2023 the fish tasting event was cancelled due to the wildfire events that occurred throughout the NWT.

2 SPECIES OF CONCERN

The intent of the *Species at Risk Act* and the *Species at Risk (NWT) Act* is to protect species at risk from becoming extirpated or extinct as a result of human activity. While the former was enacted by the Government of Canada, the latter was enacted by the GNWT and applies only to wild animals and plants managed by the GNWT. For the purposes of this WMMP, species may be of concern due to their national, territorial, and/or Committee on Status of Endangered Wildlife in Canada (COSEWIC) status. As the *Species at Risk (NWT) Act* is implemented, the NWT Species at Risk Committee (NWT SARC) will make further assessments, and the Conference of Management Authorities will prepare the List of Species at Risk, providing legal protection for these species (NWT SARC 2021), and possibly leading to changes in the species at risk considered for the Mine.

There are twelve wildlife species of concern that may occupy or travel through the area of the Mine during part or all of the year. These species include barren-ground caribou (*Rangifer tarandus groenlandicus*), grizzly bear (*Ursus arctos horribilis*), wolverine (*Gulo gulo*), horned grebe (*Podiceps auritus*), peregrine falcon (*Falco peregrinus anatum-tundrius complex*), rusty blackbird (*Euphagus carolinus*), short-eared owl (*Asio flammeus*), bank swallow (*Riparia riparia*), barn swallow (*Hirundo rustica*), Harris's sparrow (*Zonotrichia querula*), red-necked phalarope (*Phalaropus lobatus*), and lesser yellowlegs (*Tringa flavipes*). Monitoring is proposed for species of concern (Table 2-1). In the WMMP, monitoring for species of concern is primarily focused on detection at the Mine site in order to implement site-specific protection.

As part of the comments regarding the 2021 Annual Wildlife report, the barn swallow was identified as a species of concern (COSEWIC 2023) not listed in this section. In the 2022 Annual Report, barn swallow was added to Section 2. Additional training and surveillance objectives were provided in 2023 to address these recommendations. Barn swallow is not currently listed in the WMMP (Version 1.2, De Beers 2022). Prior studies did not find evidence of the species and the Mine was thought to be outside their habitat range. Components of the WMMP will still be used for potential effects and monitoring. Future revisions of the plan will receive updates to include barn swallow.

Table 2-1 Species of Concern for the Mine, Potential Effects, and Related Monitoring Components in the Wildlife Management and Monitoring Plan

Species	NWT General Status Ranking ^(a)	<i>Species at Risk (NWT) Act</i> ^(b)	COSEWIC Assessment ^(c)	<i>Federal Species at Risk Act</i> ^(d)	Potential Mine Impacts	Components of the WMMP
Barren-ground caribou	At risk	Threatened	Threatened	Under consideration	- May be affected by habitat loss - May be sensitive to disturbance and human activity - Risk of harm or mortality	- habitat loss - surveillance monitoring - zone of Influence monitoring
Grizzly bear (western population)	Sensitive	No status	Special Concern	Schedule-1 - special concern	- May be attracted to developments if food is available - Sensitive to disturbance particularly when accompanied by young or during denning - Long generation time means one individual may be affected by disturbance seasonally over multiple years, resulting in potential regional population effects	- habitat loss - surveillance monitoring
Wolverine	Sensitive	No status	Special Concern	Special Concern	May be attracted to developments if food or shelter are available	- habitat loss - surveillance monitoring
Horned grebe (western population)	Sensitive	No status	Special Concern	Schedule 1 – special concern	- Waterbirds that use mine-altered waters may be harmed - Loss of shoreline habitat for breeding - Staging habitat in Kennady Lake may be affected	- habitat loss - surveillance monitoring - PRISM
Peregrine falcon (<i>anatum-tundrius</i> complex)	Sensitive	No status	Not at risk	Not at risk	Peregrine falcons have been known to nest on mine infrastructure and in open pits, where they may be at risk of harm or may cause delays to operations	- habitat loss - surveillance monitoring - monitoring nest occupancy and productivity in the regional study area
Rusty blackbird	Sensitive	No status	Special Concern	Schedule 1 – special concern	- May nest on Mine infrastructure - Experiencing population declines as a result of changing environmental conditions on breeding and overwintering habitats	- habitat loss - surveillance monitoring - PRISM

Species	NWT General Status Ranking ^(a)	<i>Species at Risk (NWT) Act</i> ^(b)	COSEWIC Assessment ^(c)	Federal <i>Species at Risk Act</i> ^(d)	Potential Mine Impacts	Components of the WMMP
Short-eared owl	At risk	No Status	Threatened	Schedule 1 – special concern	- May be affected by habitat loss - Sensitive to noise and disturbance and human activity during nesting	- habitat loss - surveillance monitoring - PRISM
Bank swallow	At risk	No Status	Threatened	Schedule-1 - threatened	- May nest on sand/ gravel mounds or aggregate quarries associated with the Mine - May be affected by habitat loss	- areas with suitable habitat will be contoured to have slopes <70 degrees for stability - surveillance monitoring
Barn swallow*	Sensitive	No Status	Special Concern	Schedule-1 - threatened	- Barn swallows demonstrate high nest site fidelity and dependence on human-made structures - May nest on Mine infrastructure	- habitat loss* - surveillance monitoring* - PRISM*
Harris's sparrow	Sensitive	No Status	Special Concern	Schedule-1-Special Concern	- May be sensitive to noise and disturbance from human activities - May be affected by loss of breeding habitat	- habitat loss - surveillance monitoring - PRISM
Red-necked phalarope	Sensitive	No Status	Special Concern	Schedule 1 – special concern	- Waterbirds that use mine-altered water may be harmed - May be affected by loss of breeding habitat	- habitat loss - surveillance monitoring - PRISM
Lesser yellowlegs	Sensitive	No Status	Threatened	Under consideration	- Waterbirds that use mine-altered water may be harmed - May be affected by loss of breeding habitat	- habitat loss - surveillance monitoring - PRISM

a) Working Group on General Status of NWT Species (2016). Ranking levels, from highest to lowest conservation concern, is: at risk, may be at risk, sensitive, secure, undetermined.

b) NWT SARC (2023).

c) Government of Canada (2023).

d) *Species at Risk Act* (2002).

* Species not directly listed in the current version of the WMMP.

COSEWIC = Committee on the Status of Endangered Wildlife in Canada; WMMP = Wildlife Management and Monitoring Plan; PRISM = Arctic Program for Regional and International Shorebird Monitoring.

3 MONITORING AND RESULTS

3.1 Local and Regional Study Areas

The wildlife RSA is defined by a rectangle with an area of 5,600 km² (75 km by 75 km), centered on the Mine site (Map 3-1). The wildlife Local Study Area (LSA) (about 200 km²) was selected to assess the immediate direct and indirect effects of the Mine on individual animals and habitat. The wildlife RSA was used to assess Mine-specific and cumulative effects on upland migratory birds and raptor populations. The RSA was also selected to capture the maximum extent of effects beyond the LSA, which can influence groups of individuals from populations with large seasonal and annual ranges (e.g., caribou, grizzly bear, and wolverine).

3.2 Direct Habitat Loss

3.2.1 Mine Development Area

Wildlife habitat loss will occur from the construction of the Mine and from the flooding of areas resulting from dewatering of Kennady Lake and associated water diversions. Monitoring how much area is altered by the Mine is required to confirm that the permitted Mine development area has not been exceeded under Land Use Permit (MV2021D009) and surface leases.

Methods

The Mine development area will be delineated through aerial photographs, satellite imagery, or ground surveys, and calculated using GIS software. The actual area of the Mine footprint will be compared to the permitted area, and monitored over the life of the Mine at key phases of development (e.g., end of construction and periodic points in operations [De Beers 2022]).

Results

The Mine currently has a land footprint of 704.1 hectares (ha), and water (deep and shallow water) footprint of 669.2 ha, for a total footprint of 1,373.3 ha (Table 3-1). This is currently 96% of the total 1,429.0 ha predicted Project footprint in the approved 2020 Updated Project Description as part of the Water Licence Amendment.

The largest amount of disturbance, by area, has been to deep water, which is the dominant Ecological Land Class in the LSA (De Beers 2010). The footprint calculations in 2023 included all of Areas 1-7 of Kennady Lake, which have been disturbed through de-watering or storage of water in the water management pond.

Map 3-1 Wildlife Management and Monitoring Plan Study Areas

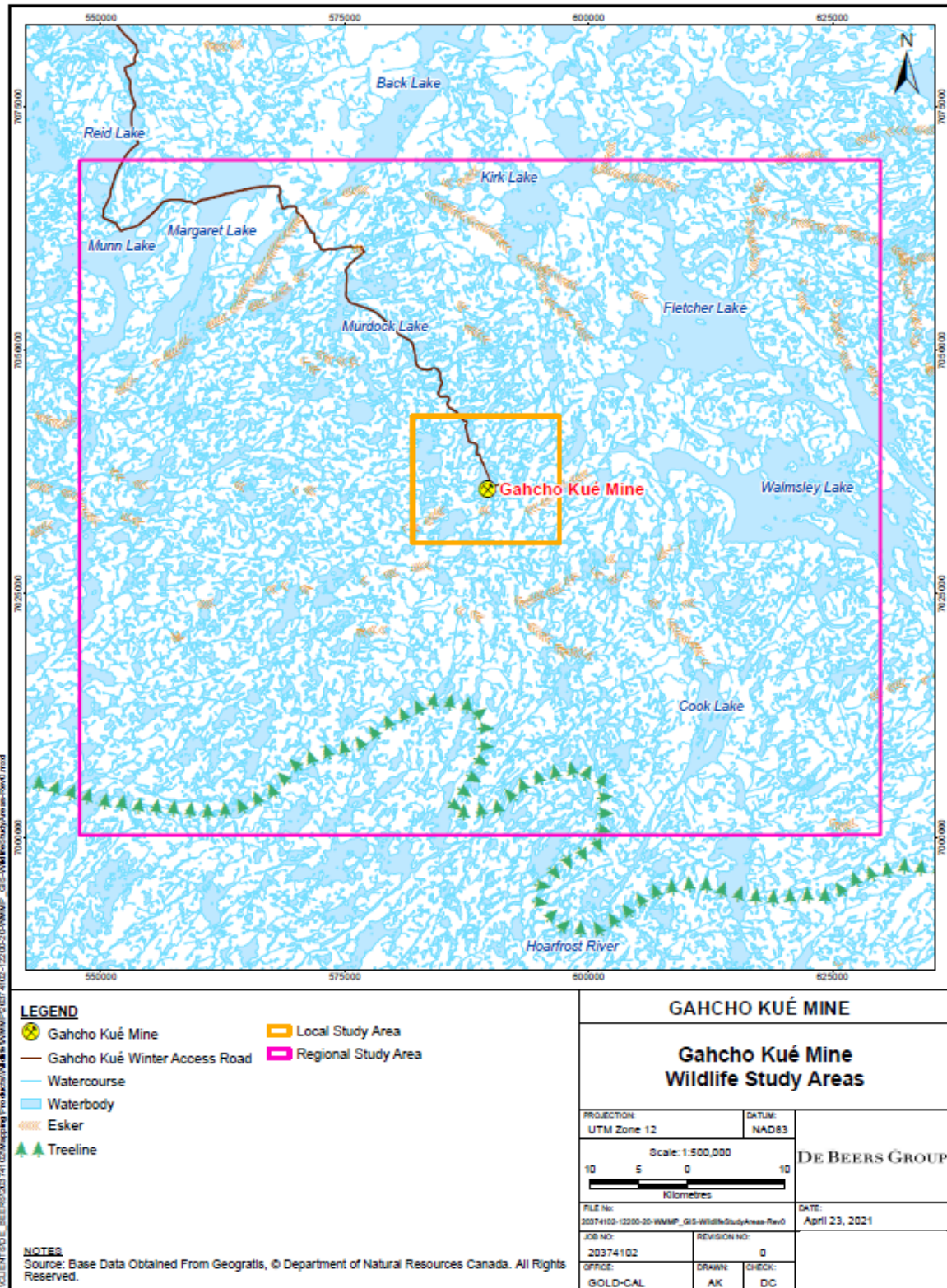


Table 3-1 Expected and Actual Loss of Habitat Types Associated with the Mine Footprint to the end of 2023

Ecological Land Class	Expected Disturbance (ha) ^(a)	Actual Disturbance (ha) ^(b)	Difference between Actual and Expected Disturbance (ha) ^(c)
Bedrock Association	10.0	8.7	1.3
Birch Seep	43.0	39.5	3.5
Boulder Association	8.0	6.9	1.1
Deep Water	494.0	493.4	0.6
Heath Bedrock	68.0	55.5	12.5
Heath Boulder	33.0	29.6	3.4
Heath Tundra	113.0	105.9	7.1
Peat Bog	134.0	127.9	6.1
Sedge Wetland	134.0	127.6	6.4
Shallow Water	176.0	175.7	0.3
Spruce Forest	51.0	48.3	2.7
Tall Shrub	44.0	41.8	2.2
Tussock Hummock	111.0	102.3	8.7
Esker Complex	0.0	0.0	0.0
Unclassified	10.0	10.1	-0.1
Total	1,429	1,373.3	55.7

a) Based on the 2020 Updated Project Description for the Gahcho Kué Project (De Beers 2020)

b) Delineated through ground surveys and calculated using GIS software.

c) ha = hectare.

3.3 Indirect Habitat Loss

3.3.1 Noise

Noise is believed to cause sensory disturbance to some wildlife species, and may result in avoidance or reduction of time spent in otherwise suitable habitat. Although noise was not anticipated to be a primary driver of indirect habitat loss for any of the wildlife valued components at the Mine, it is still a form of potential disturbance that should be minimized. Activities at the Mine that will generate noise include aircraft, vehicles, generators, blasting and the general presence of people.

Baseline noise levels were established by monitoring ambient noise at the Mine site as part of the EIS. A continuous, 24-hour assessment of baseline noise was completed at selected sites in June 2010. Using known sound emissions from anticipated Mine equipment and infrastructure, a model was developed that predicted the maximum distances Mine noise would attenuate to background levels.

The objectives of the noise monitoring are to confirm noise level predictions from the EIS (De Beers 2010) and to use measured data to inform the effectiveness of noise management practices at site. Monitoring of noise was completed in Year 1 (2017) and Year 5 (2021) of Mine operations with future assessments planned for Year 8 (2024) of the operation phase.

Methods

According to Alberta Energy Regulator (AER) Directive 038 (EUB 2007), the relevant parameter for characterizing cumulative noise levels is the energy equivalent sound level (L_{eq}), expressed in A-weighted decibels (dBA). Noise levels are scaled to A-weighting to reflect the frequency sensitivity of the human auditory system. L_{eq} is a single value that represents the average noise level over a given period of time. AER Directive 038 indicates that noise levels should be time-averaged over a daytime period ($L_{eq,day}$) defined as 7 am to 10 pm, and a nighttime period ($L_{eq,night}$) defined as 10 pm to 7 am. Note that the EIS and the Year 1 noise monitoring program adjusted the AER Directive 038 definition of daytime and nighttime for consistency with Health Canada guidance (Health Canada 2005); in the EIS, Year 1, and Year 5 noise monitoring program, daytime is defined as 7 am to 11 pm and nighttime is defined as 11 pm to 7 am.

During the Year 5 noise monitoring program, $L_{eq, day}$ and $L_{eq, night}$ cumulative noise levels were measured at four locations in and around the Mine during mid-June (Table 3-2). These four locations used in the Year 5 monitoring program were selected for consistency with the assessment completed for the EIS (De Beers 2010) and the Year 1 noise monitoring program (Golder 2017).

Table 3-2 Year 5 Noise Monitoring Locations

Year 5 Noise Monitoring Location	Description	Universal Transverse Mercator Coordinates [Zone 12]	
		Easting [m]	Northing [m]
RA	Accommodations complex (west side)	590,632	7,035,849
RB	Accommodations complex (east side)	591,005	7,035,997
RC	Unoccupied location on proposed East Arm National Park boundary	594,248	7,034,625
RD	Unoccupied location 1.5 km from the Mine boundary	591,106	7,033,986

Time-weighted noise averages were measured using daytime and nighttime energy equivalent sound levels over a 24-hour sampling period as per AER Directive 038, both within the Mine footprint and at a designated location 1.5 km from the Mine (location with highest predicted noise level). This schedule may be adjusted to align with other regional monitoring efforts or to accommodate changes in mining activities.

The Year 5 noise monitoring program was conducted in general accordance with methods described in AER Directive 038. Following the conclusion of the noise monitoring program, data were processed to obtain representative estimates of $L_{eq, day}$ and $L_{eq, night}$ noise levels for each monitoring location. The data was filtered to eliminate contaminated, abnormal, or invalid noise sources such as technician activity during deployment. All other noise sources (e.g., mine equipment, helicopters and other aircraft, insects, birds, and other wildlife) were considered valid and representative of normal conditions at the monitoring locations.

Noise monitoring was not conducted in 2023. The last study was conducted in 2021 where it was determined, daytime and nighttime noise levels from the Year 5 monitoring program were less than corresponding Year 5 model predictions from the EIS (De Beers 2010). This indicates that actual noise effects from Year 5 operations were less than predicted in the EIS (De Beers 2010). The Year 5 (2021) noise monitoring program validated and confirmed the conclusions of the EIS (De Beers 2010). The next study will take place for year 8 of operations in 2024.

3.3.2 Dust

The Mine will create dust through various sources including blasting and crushing rock, road construction, and traffic. Through engagement with communities and government, concerns have been expressed about the effects of dust on the environment and wildlife health, particularly caribou.

De Beers is committed to minimizing the amount of dust; however, dust cannot be completely eliminated and is predicted to settle in the area within and near the core Mine site. Fugitive dust will be reduced through the application of water in the area surrounding the Mine. Monitoring is conducted to measure the extent of fugitive dust deposition from emissions.

Methods

As described in the Vegetation and Soils Monitoring Program (VSMP) Version 3 (De Beers 2014), dustfall collectors were deployed in August 2013 and monitoring has continued through 2023.

Dustfall was measured approximately every 25 to 60 days throughout the growing season (May to October). In addition, dustfall was collected over the approximately 250 day Winter period (2015-2023). Dust deposition is measured at nine sampling stations, at distances of 0 m, 50 m, 150 m, 500 m, 1 km, 5 km, 10 km, 15 km, and 20 km from the Mine. Dust deposition results from 2013 to 2014 were used as baseline data for comparing dustfall values collected during construction and operation. Dust deposition data will be used to determine if changes in plant communities and soil chemistry are related to dust from the Mine, and as a potential mechanism of the zone of influence on caribou (Golder 2019).

To examine the spatial and temporal patterns of dust deposition, geometric mean fixed dustfall deposition rates were examined both graphically and statistically. For 2023 data, spatial patterns of the dust deposition results were examined for the entire study area and within sampling areas. Temporal patterns were examined by comparing the geometric mean fixed dustfall deposition rate among sampling seasons across years: 2013 to 2014 as baseline years, 2015 and 2016 to represent mine construction, and 2017 to 2023 for Mine operations. To examine the spatial patterns of dust deposition rates with increasing distance from the Mine, regression analysis was conducted using R (R Core Team 2020). Bayesian linear mixed-effects regression (Chung et al. 2013) was performed with fixed dust deposition rates ($\text{mg}/100 \text{ cm}^2/30 \text{ days}$) and distance from the Mine (km). Fixed dustfall values greater than $130.02 \text{ mg}/100 \text{ cm}^2/30 \text{ days}$ were considered anomalous outliers ($n = 10$) and omitted from analysis, based on the calculated statistical distribution defined by the mean and three standard deviation units.

Results

Dustfall is reported annually as part of the VSMP Annual Report (De Beers 2023). The results provided herein represent a summary of key findings from that report. Dustfall collection jars were deployed and collected six times at all sampling areas (five sampling areas at the Northeast transect and nine sampling areas at the Southwest transect) over the course of the 2022/2023 monitoring year. Collections occurred over six periods beginning:

- 21 September 2022 to 1 May 2023 (Winter);
- 1 May 2023 to 1 June 2023 (Spring);
- 1 June 2023 to 2 July 2023 (Spring);

- 2 July 2023 to 5 August 2023 (Summer);
- 5 August 2023 to 3 September 2023 (Summer); and
- 3 September 2023 to 22 September 2023 (Fall).

A total of 78 samples (including duplicates) were collected and submitted for dustfall analysis (none were damaged in the 2023 sampling program).

In 2023, 44 of 78 (56.4%) measured values of fixed dustfall deposition during Spring, Summer, and Fall were below the detection limit of 3.0 mg/100 cm²/30 days (includes duplicate samples). In 2022, 35 of 78 (44.9%) measured values of fixed dustfall deposition during Spring, Summer, and Fall were below the detection limit of 3.0 mg/100 cm²/30 days (includes duplicate samples). In 2021, 45 of 65 (69.2%) measured values of fixed dustfall deposition during Spring, Summer, and Fall were below the detection limit of 3.0 mg/100 cm²/30 days (includes duplicate samples). In 2020, 16 of 52 (30.8%) measured values of fixed dustfall deposition during Spring, Summer, and Fall were below the detection limit of 3.0 mg/100 cm²/30 days (includes duplicate samples). In 2019, 29 of 50 (58.0%) measured values of fixed dustfall deposition during Spring, Summer, and Fall were below the detection limit. In general, dustfall deposition increased from baseline through construction (2015 to 2016) and into the initial phase of operation (2017 to 2018). Dustfall rates have declined substantially since 2018 and in 2023 are within or below the range of baseline values.

Fixed dustfall deposition values measured in 2023 at the Northeast transect for the AQEMMP included 12 of 30 values below the detection limit (Table 3-3). Mean fixed dustfall deposition rates for sampling locations during baseline, construction, and operational sampling periods are shown in Table 3-4.

Table 3-3 Fixed Dustfall Deposition Rates at the Northeast Transect, 2023

Month	Fixed Dustfall				
	[mg/100 cm ² /30 d] ^(b)				
	NEDF01	NEDF02 ^(a)	NEDF03	NEDF04	NEDF05
Overwinter ^(c)	11.4	<3.0	<3.0	5.1	<3.0
May	33.0	27.6	22.2	6.3	3.9
June	223.8	112.7	90.9	5.4	4.5
July	18.9	5.4	3.6	<3.0	<3.0
August	8.1	6.6	4.2	<3.0	<3.0
September	<4.8	<4.8	<4.8	<4.8	<4.8
Annual^(d)	50.0	26.7	21.5	4.6	3.7

a) Duplicate samples were taken at this station. The average value is presented.

b) Calculated on a 30-day basis.

c) Overwinter sampled from 21 September 2022 to 1 May 2023

d) Values below detection limit were assumed to be the detection limit for annual averages.

mg/100 cm²/30 d = milligrams per 100 square centimetre per 30 days; < = less than, with the value after it representing the detection limit.

Table 3-4 Mean Fixed Dustfall Deposition Rates (mg/100 cm²/30 d) for Southwest Transect Sampling Locations during Baseline (2013-14), Construction (2015-2016) and Operational (2016-2023) Sampling Periods

Sampling Period		Sampling Area									
		Approx Sampling Period (days)	0 km	0.05 km	0.15 km	0.5 km	1 km	5 km	10 km	15 km	20 km
Spring	2013 ^(a)	-	-	-	-	-	-	-	-	-	-
	2014 ^(b)	32	25.5	29.6	26.1	24.4	-	19.3	20.5	21.4	35.4
	2015 ^(c)	44	24.9	18.1	24.0	29.6	23.7	26.6	20.2	19.9	19.2
	2016 ^(d)	36	45.2	25.1	25.4	26.4	44.2	27.2	30.1	26.7	32.8
	2017	35	29.8	34.1	67.8	60.0	37.6	28.4	28.6	28.7	30.8
	2018 ^(f)	28	30.4	47.0	52.8	50.2	75.6	52.3	42.9	73.6	37.1
	2019 ^(g)	-	-	-	-	-	-	-	-	-	-
	2020 ^(h)	-	-	-	-	-	-	-	-	-	-
	2021 ⁽ⁱ⁾	58	38.4	30.6	28.2	<3.0	4.5	3.3	<3.0	<3.0	<3.0
	2022 ^(j)	67	30.6	74.3	111.3	13.8	<3.0	168.9	40.4	120.0	<3.0
	2023 ^(k)	62	137.1	268.35	276.6	70.2	201.3	<3.0	271.05	8.7	34.2
Summer	2013 ^(a)	-	-	-	-	-	-	-	-	-	-
	2014 ^(b)	-	-	-	-	-	-	-	-	-	-
	2015 ^(c)	35	23.9	25.3	22.7	25.6	25.4	19.4	18.8	24.7	26.3
	2016 ^(d)	28	27.1	25.0	17.7	35.7	44.7	37.1	34.6	<5.0	23.7
	2017 ^(e)	26	-	-	-	-	-	-	-	-	-
	2018 ^(f)	34	61.3	145.0	54.7	24.7	49.7	20.9	33.6	28.2	32.4
	2019 ^(g)	40	12.9	26.1	12.3	<3.0	24.9	70.5	<3.0	<3.0	<3.0
	2020 ^(h)	32	15.6	21.6	11.1	21.0	12.6	5.4	<3.0	8.1	12.0
	2021 ⁽ⁱ⁾	38	3.3	14.4	8.7	<3.0	7.2	3.9	<3.0	<3.0	<3.0
	2022 ^(j)	32	10.2	22.7	30.9	<3.0	<3.0	55.5	107.6	72.3	<3.0
	2023 ^(k)	34	5.4	7.2	10.5	3.6	3.6	<3.0	11.7	10.5	<3.0
Early Fall	2013 ^(a)	44	10.3	13.0	22.2	11.6	17.8	13.4	14.6	15.9	12.9
	2014 ^(b)	-	-	-	-	-	-	-	-	-	-
	2015 ^(c)	-	-	-	-	-	-	-	-	-	-
	2016 ^(d)	40	33.5	27.2	29.4	32.7	21.8	17.6	45.9	41.4	20.9
	2017	31	23.5	37.0	33.3	35.0	22.8	27.5	26.4	28.8	25.6
	2018 ^(f)	37	13.3	12.7	26.3	19.0	43.4	19.1	24.6	13.6	19.8
	2019 ^(g)	37	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	2020 ^(h)	24	55.8	9.6	8.1	7.5	9.6	7.2	4.5	<3.0	4.5
	2021 ⁽ⁱ⁾	29	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	2022 ^(j)	28	<3.0	<3.0	3.15	<3.0	<3.0	<3.0	3.45	<3.0	<3.0
	2023 ^(k)	29	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

Sampling Period		Sampling Area									
		Approx Sampling Period (days)	0 km	0.05 km	0.15 km	0.5 km	1 km	5 km	10 km	15 km	20 km
Late Fall	2013 ^(a)	-	-	-	-	-	-	-	-	-	-
	2014 ^(b)	42	<5.0	4.8	<5.0	6.6	6.0	-	<5.0	9.0	11.4
	2015 ^(c)	35	19.9	23.6	38.4	17.4	28.7	24.1	23.6	25.3	21.3
	2016 ^(d)	30	23.4	15.4	24.7	<5.0	24.5	38.15	29.8	31.1	29.5
	2017	28	25.3	40.1	26.0	21.3	35.5	28.6	34.0	32.3	33.1
	2018 ^(f)	21	<3.0	5.7	<3.0	5.4	<3.0	<3.0	<3.0	<3.0	<3.0
	2019 ^(g)	21	<3.0	5.7	<3.0	5.4	<3.0	<3.0	<3.0	<3.0	<3.0
	2020 ^(h)	32	3.6	4.2	7.8	<3.0	3.3	<3.0	<3.0	<3.0	<3.0
	2021 ⁽ⁱ⁾	21	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	2022 ^(j)	23	<3.6	<3.6	<3.6	<3.6	<3.6	4.5	<3.6	<3.6	<3.6
	2023 ^(k)	19	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8
Winter	2013- 14 ^(a)	241	25.5	5.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	2014- 15 ^(b)	256	18.9	29.5	43.6	22.3	25.6	-	-	21.4	23.5
	2015- 16 ^(c)	241	11.2	15.9	13.7	7.9	6.1	<5.0	<5.0	<5.0	-
	2016- 17 ^(d)	234	<5.0	10.0	-	8.0	-	<5.0	-	<5.0	<5.0
	2017- 18 ^(f)	247	6.7	12.2	-	14.5	5.8	5.0	5.6	5.9	<5.0
	2018- 19 ^(g)	252	29.1	19.8	19.2	10.5	8.7	6.9	5.1	4.5	4.5
	2019- 20 ^(h)	260	6.0	21.6	9.0	5.1	6.9	<3.0	<3.0	<3.0	<3.0
	2020- 21 ⁽ⁱ⁾	234	<3.0	3.9	4.8	3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	2022 ^(j)	214	4.5	6.0	3.45	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
	2023 ^(k)	222	4.8	9.0	4.2	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0

Note: Lowest Detection Limit = 5 mg /100 cm²/30d.

- a) Transect not established until August 2013 (Golder 2014); 2013 sampling periods were August to September (Early Fall), October 2013 to May 2014 (Winter 2013-14).
 - b) 2014 sampling periods: May-June (Spring), August to October (Late Fall) and October to May 2015 (Winter).
 - c) 2015 sampling periods: June (Spring), July (Summer), August to October (Late Fall) and October 2015 to May 2016 (Winter).
 - d) 2016 sampling periods: June (Spring), July (Summer), August (Early Fall), September (Late Fall) and October 2016 to May 2017 (Winter).
 - e) Summer 2017 results are anomalous, and included outlier values due to sample contamination and are thus not included.
 - f) 2018 sampling periods: June-July (Spring), July-August (Summer), August-September (Early Fall), September (Late Fall) and September 2017 to June 2018 (Winter).
 - g) 2019 sampling periods: June-July (Spring), July-August (Summer), August-September (Early Fall), and October 2018 to June 2019 (Winter).
 - h) 2020 sampling periods: June-July (Spring), July-August (Summer), August-September (Early Fall), and September 2019 to June 2020 (Winter).
 - i) 2021 sampling periods: April-June (Spring), June-July (Summer), August (Early Fall), August-September (Late Fall), and September 2020 to April 2021 (Winter).
 - j) 2022 sampling periods: April-June (Spring), June-July (Summer), August (Early Fall), August-September (Late Fall), and September 2021 to April 2022 (Winter).
 - k) 2023 sampling periods: May-June (Spring), June-July (Summer), July-August (Early Fall), August-September (Late Fall), and September 2022 to May 2023 (Winter).
- = no data; mg /100 cm²/30 d = milligrams per hundred square centimetres per thirty days.

3.3.3 Wildlife Sightings Log

The wildlife sightings log provides staff working at the Mine an effective means to record and report wildlife observations to the Mine Environment Department. While the information is not collected systematically and likely contains repeated observations of the same animals, it provides an indication of the presence of wildlife and the potential for wildlife incidents or problem wildlife. It also increases staff involvement with the environment programs and fosters awareness of wildlife issues.

Methods

Wildlife sightings logs were maintained at various locations around the Mine site to record observations of wildlife and wildlife sign. Staff were encouraged to add observations to the log, including observations of unusual species and potential problem wildlife. Reporting of sightings of medium to large wildlife (i.e., fox-size and larger) by staff and contractors is mandatory. Observations of species that pose a potential risk to human safety are reported to Environment staff immediately in addition to being documented in the wildlife sightings log.

Results

There were a total of 241 independent wildlife observations in 2023. The number of observations represents the number of independent and incidental observations of wildlife, and is not an indication of the number of individuals of a species observed. The number of people present at the Mine during 2023 is reported in Section 3.10.

Arctic hare was the most commonly observed species in 2023, with 34 observations. Caribou was also a commonly observed species during 2023, with 23 observations recorded. Other frequent species observed were the red fox and muskox (25 and 16 observations respectively). In 2023, 6 wolf observations were recorded, with the first sighting occurring January 4 and last recorded sighting on December 12. A full summary of observations recorded on Wildlife Sightings Logs for 2013-2023 can be found in Table 3-5.

Table 3-5 Wildlife Sightings Log Summary of Observations, 2013 to 2023

Species	Type	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
American pipit	Bird	-	-	-	-	-	-	-	-	-	-	2
American robin	Bird	-	-	1	-	2	-	-	1	-	-	-
Arctic ground squirrel (sik sik)	Mammal	-	4	11	4	23	3	3	2	8	15	16
Arctic hare	Mammal	3	32	45	9	29	5	22	26	37	60	34
Arctic lemming	Mammal	-	-	-	-	-	-	-	-	-	-	1
Bald eagle	Bird	-	-	1	4	1	2	11	5	7	3	3
Barn swallow	Bird	-	-	-	-	-	-	-	-	-	1	-
Bank swallow	Bird	-	-	-	-	-	-	-	-	-	-	2
Beaver	Mammal	-	-	-	-	1	-	1	-	-	1	-
Cackling goose	Bird	-	-	-	-	-	-	-	-	3	-	-
Canada goose	Bird	-	1	2	-	2	-	1	3	5	1	1
Caribou	Mammal	17	37	45	-	2	61	16	6	14	54	23
Cliff swallow	Bird	-	-	-	-	-	-	-	-	-	-	1
Common loon	Bird	-	-	-	-	-	-	-	-	-	2	1
Common merganser	Bird	-	-	-	-	-	-	-	-	2	-	-
Common redpoll	Bird	-	-	-	-	-	-	-	-	1	-	-
Common raven	Bird	-	10	16	13	15	11	27	15	44	11	7
Coyote	Mammal	-	-	-	-	-	-	-	-	-	3	-
Duck spp.	Bird	-	-	-	-	-	-	-	-	2	4	3
Eagle spp.	Bird	-	-	-	-	-	-	-	-	-	-	1
Falcon spp.	Bird	-	-	-	-	-	-	-	-	-	3	1
Fox spp.	Mammal	5	33	155	85	104	91	48	15	33	-	13
Gadwall duck	Bird	-	-	-	-	-	-	-	-	1	-	-
Golden eagle	Bird	-	-	-	-	-	-	-	-	4	2	2
Goose spp.	Bird	-	-	4	6	3	-	7	1	15	3	1
Greater white-fronted goose	Bird	-	1	5	1	-	-	-	3	5	1	2
Grey wolf	Mammal	7	27	22	2	4	4	40	2	-	-	-
Grizzly bear	Mammal	-	-	3	3	2	4	11	4	1	5	-
Grouse	Bird	-	-	-	-	-	-	-	-	1	-	-
Gull spp.	Bird	-	1	3	-	2	-	1	-	2	2	2
Gyrfalcon	Bird	-	-	1	1	-	-	-	-	1	1	1
Hare spp.	Mammal	-	-	-	-	-	5	14	1	12	-	4
Harris' sparrow	Bird	-	-	-	-	-	-	-	-	-	-	1
Hawk spp.	Bird	-	-	-	-	-	-	-	-	-	2	1
Jaeger spp.	Bird	-	-	1	-	-	-	-	1	-	-	-
Lapland longspur	Bird	-	-	-	-	-	-	-	-	-	-	1
Lesser scaup	Bird	-	-	-	-	-	-	-	-	-	-	1
Loon spp.	Bird	-	-	2	-	2	-	1	-	-	-	-

Species	Type	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Mallard	Bird	-	-	-	-	-	-	-	-	-	1	-
Mink	Mammal	1	-	-	-	-	-	-	-	-	-	-
Moose	Mammal	-	-	5	-	4	1	5	2	2	5	1
Mouse spp.	Mammal	-	-	3	2	2	7	2	1	2	1	5
Muskox	Mammal	1	4	14	10	14	20	24	15	30	34	16
Muskrat	Mammal	-	-	-	2	5	-	1	-	-	1	-
Northern harrier	Bird	-	-	-	-	-	-	-	-	1	1	1
Northern pintail	Bird	-	-	-	1	-	-	-	1	2	1	5
Owl spp.	Bird	-	-	2	4	-	-	-	-	-	-	1
Pelican spp.	Bird	-	-	-	-	-	-	-	-	1	-	-
Peregrine falcon	Bird	-	1	12	1	-	2	1	-	4	8	11
Pine siskin	Bird	-	-	-	-	1	-	-	-	-	-	-
Plover spp.	Bird	-	-	-	-	-	-	-	-	1	1	-
Porcupine	Mammal	-	-	-	-	-	1	-	-	-	-	-
Ptarmigan spp.	Bird	3	16	10	10	4	9	4	6	15	15	14
Red fox	Mammal	-	-	-	-	-	-	-	-	127	36	25
Rock ptarmigan	Bird	-	-	-	-	-	-	-	-	7	-	1
Ross's goose	Bird	-	1	-	-	-	-	-	-	-	-	-
Rough-legged hawk	Bird	-	2	-	-	-	-	1	1	5	2	4
Sandhill crane	Bird	-	-	-	1	1	-	-	1	-	-	-
Scoter spp.	Bird	-	-	1	-	-	-	-	-	-	-	-
Short-eared owl	Bird	-	1	1	-	1	-	-	-	-	-	1
Snow bunting	Bird	-	-	-	-	-	-	-	1	2	4	4
Snow goose	Bird	-	-	1	-	-	-	-	2	4	1	1
Snowy owl	Bird	-	-	-	-	1	1	1	2	4	-	-
Sparrow spp.	Bird	-	-	1	-	-	-	-	-	-	-	1
Teal duck	Bird	-	-	-	-	-	-	-	-	2	-	-
Tree Swallow	Bird	-	-	-	-	-	-	-	-	-	-	2
Tundra swan	Bird	-	1	1	-	-	-	1	-	-	1	-
Unidentified duck	Bird	-	-	2	1	1	-	2	-	-	-	-
Unidentified raptor	Bird	-	-	2	1	3	4	-	-	-	-	-
Unidentified shorebird	Bird	-	-	-	-	-	-	-	-	3	-	-
Unidentified songbird	Bird	-	-	2	1	1	2	-	-	3	-	-
White-crowned sparrow	Bird	-	-	-	-	-	-	-	-	-	-	1
Willow ptarmigan	Bird	-	-	-	-	-	-	-	-	1	-	6
Wolf spp.	Mammal	-	-	-	-	-	-	-	-	6	5	6
Wolverine	Mammal	-	-	-	-	8	27	43	4	-	3	5
Yellow warbler	Bird	-	-	-	-	-	-	-	-	1	-	-

a) The number of observations represents the number of independent observations for each species, and is not an indication of the number of individuals present.
- = none observed.

3.3.4 Site Surveillance

Wildlife are expected to be present near the Mine throughout construction, operation, and closure. Site surveillance monitoring, which is a regular scheduled program that occurs once per week, provides information of wildlife activity at the Mine, and direct feedback to Mine operations regarding the effectiveness of waste management and wildlife mitigation practices. Examples of wildlife activities that are documented through site surveillance monitoring include presence of wildlife in areas where food may be available, use of buildings for shelter or nesting, and use of water management ponds by waterfowl.

Through systematically monitoring for the presence of wildlife within and around the Mine site, Environment staff remain apprised of current and emerging issues, and are able to implement management actions to address these issues as required. To use a common example, site surveillance monitoring may detect that wildlife has gained access to a building on site or is taking shelter beneath it. The typical mitigation is to block the access through improved skirting, and follow-up with surveillance monitoring to confirm whether the mitigation was successful, or if further action is required.

Effective waste management practices and staff education are key to decreasing the availability of wildlife attractants at mine sites. Environmental design features, mitigation, and waste management are implemented at the Mine to limit the attraction of wildlife, and the associated increased risks of wildlife interactions and mortality. The effectiveness of the waste stream management system, as it pertains to wildlife attractants, is monitored through regular waste bin inspections, as per the Waste Management Plan (De Beers 2015b), and site waste audits.

Methods

Systematic site surveys of the Mine were conducted weekly to record all wildlife observations, recent wildlife sign (e.g., tracks, scat), and misdirected waste. Surveys were completed on foot and by truck. Staff recorded the area surveyed, with the nature and location of all observations. Surveillance monitoring included regular visits to areas of the Mine where there is risk of wildlife attractants (e.g., waste management areas), risk of wildlife using the Mine for shelter, denning or nesting, and where there were people working outdoors.

De Beers actively monitors for bird nesting activity around the Mine site, and in areas scheduled for clearing or disturbance each year (Section 3.6.1). Bird deterrents are deployed in areas scheduled for clearing during the breeding season to avoid and minimize the disturbance of any active nests of migratory birds, consistent with the *Migratory Birds Convention Act*. Bird deterrents are also deployed in and around pits each Spring. Monitoring is conducted to detect raptors, and actively deter them prior to nest initiation on Mine infrastructure.

In 2017, De Beers initiated systematic surveys of the water management pond and other water collection ponds on site to monitor for the presence and use of these water bodies by water birds. Collecting observations of water bird use of the site provides a better understanding of which species are present at different times of the year at and near the Mine. This program continued in 2023.

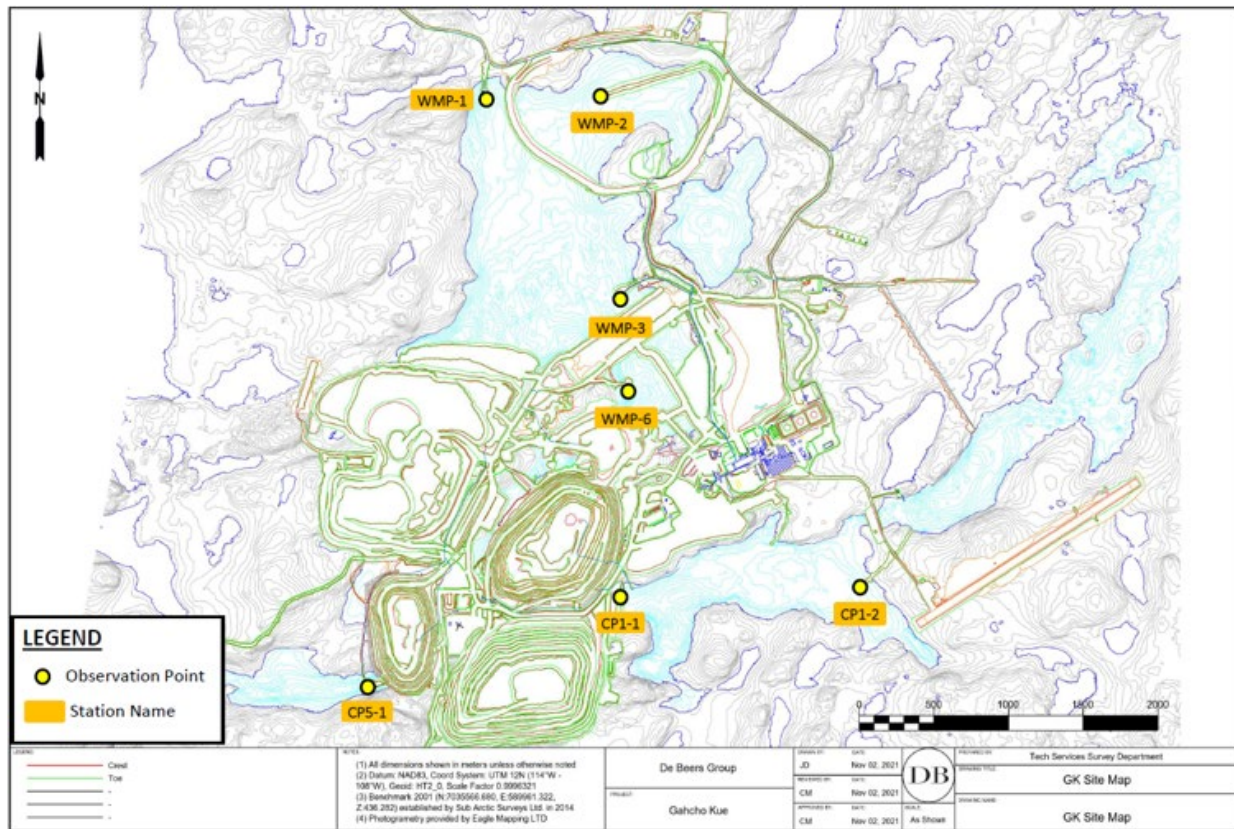
To monitor the use of site water bodies by birds, seven stations were selected as fixed observation points from which the 2023 surveys were conducted. Two of these stations are located at the water management pond, two stations monitoring collection Pond 1 (CP1-1 and CP1-2), one station monitoring the Collection Pond 6 (WMP-6), one station monitoring Collection Pond 5 (CP5-1), and one station monitoring FPK Area 2 (WMP-2). Previous

stations that had been in place during the 2021 season have been removed, as these collection ponds have been removed by mining activity and no longer exist (WMP-7). The location of each of these survey stations is provided in Map 3-2 and the UTM coordinates for each station are provided in Table 3-6. At each station, the observer conducts a 180° sweep using binoculars, focusing on both open-water and shoreline habitats. Surveying at each station generally takes 10-15 minutes to complete. The observer records information including species type, activity (including evidence of nesting behavior), and number of individuals.

Table 3-6 Locations of Collection Pond Stations, 2023

Station Coordinates	Easting	Northing
WMP-1	0588811	7038360
WMP-2	0589694	7038355
WMP-3	0589814	7037102
WMP-6	0590451	7036293
CP1-1	0589803	7035085
CP1-2	0589735	7035163
CP5-1	0588133	7034571

Map 3-2 Collection Pond Survey Locations, 2023



Results

In 2023 a total of 50 weekly site surveillance surveys were completed. Wildlife or signs of wildlife (e.g., tracks) was observed during 50 surveys (100%). Arctic hare were the most commonly observed species in 2023, with 78 individuals and 74 observations. Common raven observations were frequent with 58 observations and 78 individuals observed during weekly surveys. Other commonly observed species were red fox and fox species, ptarmigan species, and caribou. A full summary of wildlife observations from weekly wildlife surveys can be found in Table 3-7.

Table 3-7 Wildlife and Wildlife Signs Observed during Site Surveillance Surveys, 2023

Species	Number of Surveys with Wildlife Observations	Total Number of Individuals Observed	Number of Surveys with Wildlife Sign
American pipit	6	10	-
American robin	6	6	-
American tree sparrow	1	1	-
Arctic fox	1	1	-
Arctic ground squirrel	9	10	-
Arctic hare	74	78	50

Species	Number of Surveys with Wildlife Observations	Total Number of Individuals Observed	Number of Surveys with Wildlife Sign
Bank swallow	1	5	-
Barn swallow	3	7	-
Bird spp.	1	1	-
Cackling goose	3	56	-
Caribou	12	889	2
Cliff swallow	2	7	-
Common loon	1	1	-
Common raven	58	97	5
Duck spp.	6	17	-
Eagle spp.	2	2	-
Fox spp.	33	34	31
Goose spp.	9	439	-
Greater white-fronted goose	2	6	-
Gull spp.	8	14	-
Gyrfalcon	2	2	-
Hawk spp.	1	2	-
Herring gull	1	1	-
Lesser scaup	2	12	-
Long-tailed duck	1	2	-
Mouse spp.	1	1	1
Muskox	9	49	-
Northern harrier	1	1	-
Northern pintail	12	37	-
Peregrine falcon	8	12	1
Ptarmigan spp.	28	117	17
Red fox	30	30	16
Red squirrel	1	1	-
Red throated loon	2	10	-
Rock ptarmigan	1	5	-
Sandpiper spp.	1	5	-
Savannah sparrow	1	1	-
Scaup spp.	3	14	-
Semipalmated plover	2	3	-
Shorebird spp.	1	2	-
Snow Bunting	10	139	-
Sparrow spp.	12	62	-
Surf scoter	2	7	-
Swallow spp.	9	59	-

Species	Number of Surveys with Wildlife Observations	Total Number of Individuals Observed	Number of Surveys with Wildlife Sign
Tree swallow	2	17	-
Unidentified songbird	8	8	-
White-crowned sparrow	1	1	-
Willow ptarmigan	3	31	-
Wolverine	3	3	2
Yellow warbler	1	1	-

Collection Pond Surveys were conducted on a bi-weekly frequency from May 13 to October 24, 2023. A below average snowpack coupled with abnormal above freezing temperatures recorded earlier during the Spring season resulted in a majority of the lakes thawing early outside of the mine site similar to the 2022 season. As a result of the early Spring freshet, waterfowl were likely not utilizing the site as a stopover as more waterbodies were open and available for use. During the 13 separate survey events, a total of 71 bird observations were made, consisting of 304 individuals. A summary of these results is provided in Table 3-8. Observers confirmed 19 different species were identified, with the remaining being placed into 4 broader species identification groups (e.g., Gull spp.). A summary of the results is provided in Table 3-9.

Table 3-8 Bird Observations during Collection Pond Surveys, 2023

Station	Number of Bird Groups Observed	Number of Individuals Observed	Average Number of Individuals per Station per Survey
CP1-1	17	124	7
CP1-2	15	54	4
CP5-1	6	20	3
WMP-1	7	10	1
WMP-2	6	23	4
WMP-3	10	19	2
WMP-6	10	54	5

Table 3-9 Bird Species Observed during Collection Pond Surveys, 2023

Species	Number of Individuals Observed	Number of survey events where species was observed
American pipit	20	9
American robin	4	4
Bank swallow	14	3
Barn swallow	10	2
Cackling goose	24	2
Canada goose	4	1

Species	Number of Individuals Observed	Number of survey events where species was observed
Common loon	2	2
Common raven	1	1
Duck spp.	52	9
Greater white-fronted goose	11	1
Green-winged teal	1	1
Gull spp.	16	6
Herring gull	2	1
Long-tailed duck	60	2
Loon spp.	20	6
Northern pintail	37	7
Savannah sparrow	2	2
Semipalmated plover	1	1
Sparrow spp.	10	5
Surf scoter	2	1
Tree swallow	3	1
Unidentified songbird	7	3
White-crowned sparrow	1	1
Total	304	71

3.3.5 Public Use of the Winter Access Road

De Beers operates a Winter access road from MacKay Lake to the Gahcho Kué Mine site from early February to late March each year (Map 1-1). De Beers conducts surveillance of the Winter access road to document public use and provide safety and support to truck traffic. Public use of the road is typically dominated by hunting parties.

Methods

Each day the Winter access road is open, security personnel drive from the Mine to MacKay Lake, and record wildlife observations and hunting/recreational activity. Observations of public use of the road are documented on a Winter Access Road User Survey Form (De Beers 2022).

Results

In 2023, the Winter access road was operational from February 6 to March 30 (i.e., 52 days). There were 1,719 loads on the Winter road to supply the Mine with fuel, ammonium nitrate and general freight and equipment. During the daily security patrols, wildlife and wildlife sign observed included of wolf, wolverine, fox, ptarmigan, and caribou. Large kill sites were reported on the Winter access road by security personnel on multiple occasions to ECC and no major incidents were reported.

3.3.6 Wildlife Incidents

A wildlife incident is defined in the WMMP as:

- human-wildlife interactions that present a risk to either people or animals;
- wildlife-caused damage to property or delay in operations;
- wildlife deterrent actions; and
- wildlife injury or mortality.

Following the principles of adaptive management, monitoring of wildlife incidents is undertaken to identify all incident types and to prevent future incidents or escalation of problems.

Methods

Wildlife incidents throughout the year are reported, investigated, and have immediate follow-up actions by Environment staff. If wildlife are deterred to reduce the risk of a wildlife-human incident, then an effort is made by Environment staff to start with the least intrusive method available, with all deterrent actions recorded in the wildlife deterrent log. All wildlife mortalities are reported immediately to Environment and Climate Change Canada and/or GNWT-ECC. Documentation of wildlife incidents include photographs, names of people involved, the nature of the incident, and supporting information such as the time, date, location, and the follow-up actions that occurred.

Results

In 2023, four wildlife mortality incidents were reported:

- 1) April 23, 2023: A Rock ptarmigan (*Lagopus muta*) was discovered at the reclaim jetty. The only apparent cause of death was trauma sustained to the neck. As raptor nesting season was approaching, there was a significant presence of Peregrine falcons within the area. The injuries affecting the Rock ptarmigan was believed to be sustained during predation. The Rock ptarmigan was disposed of on site via incineration at the request of the GNWT-ECC.
- 2) July 9, 2023: During maintenance operations in the confined space area underneath the main camp, a deceased Red fox (*Vulpes vulpes*) was discovered. The Red fox did not appear to have suffered any major trauma, and no obvious causes of death was evident. The remains were shipped to GNWT-ECC for a postmortem analysis at the request of GNWT-ECC. The site team continually inspects all access points to the area underneath the main camp, and reminds crews of the importance of ensuring that access points are closed.
- 3) July 16, 2023: During a pre-operation inspection of a light vehicle, a deceased Tree Swallow (*Tchycineta bicolor*) was discovered on the deck of the vehicle. The Tree swallow did not appear to have suffered any major trauma, and no immediate cause of death was evident. The vehicle had been stored outside next to several cranes; it is believed that the cause of death was from a strike to the cranes. The remains were shipped to the GNWT-ECC for a postmortem analysis at the request of the GNWT-ECC.
- 4) December 30 2023: a deceased Red fox (*Vulpes vulpes*) was discovered at the bottom of the West Mine Rock Pile (WMRP). Physical trauma observed on the fox indicates that it was struck in its left rear quarter by a piece of heavy equipment, succumbing to its injuries. The investigation is on-going in consultation with the GNWT-ECC regarding the need for a postmortem analysis and disposal methods. In response to the current wildlife incident, an outreach program was implemented and delivered to all site personnel.

3.4 Caribou

The Bathurst caribou herd is known historically to move through the RSA during the northern migration to the calving grounds near Bathurst Inlet, and to the wintering grounds at or south of the treeline during the post-calving migration (De Beers 2010). Bathurst caribou may also occupy the RSA in Winter. Beverly/Ahiak caribou are also known to occupy the RSA during the Winter months.

Objectives of caribou monitoring for the Mine are:

- to determine if caribou behaviour changes with distance from the Mine;
- to determine the zone of influence extent and whether it changes in relation to Mine activity; and,
- to determine if caribou abundance and distribution changes in the study area over time.

The monitoring objectives are met through:

- participation in the GNWT-ECC led Zone of Influence Technical Task Group;
- aerial reconnaissance surveys of the Winter access road;
- snow berm measurements along the Winter access road; and,
- caribou behaviour monitoring.

3.4.1 Aerial Surveys

De Beers has contributed to the GNWT-ECC monitoring programs supporting the Barren-ground Caribou Management Strategy (GNWT-ECC 2011). De Beers also participates in the GNWT-ECC led Zone of Influence Technical Task Group for development of a standardized set of guidelines to monitor the zone of influence for caribou. De Beers has committed to completing aerial reconnaissance surveys to determine if caribou are present near the Winter access road. The information collected during this survey is used to inform haul truck drivers of the presence and location of any caribou groups near the road, and is used as a trigger for caribou behaviour monitoring (Section 3.4.2).

Methods

In 2023, an aerial reconnaissance survey was completed on January 23, 2023 along the Gahcho Kué Winter access road via Aviat Husky A-1B aircraft at an altitude of approximately 167m and speeds of 80-100 km/h. The aircraft flew east along the north side of the Winter access road to Mackay Lake. The number of wildlife and wildlife sign observations were recorded by Mine Environment contractor staff. An aerial survey is completed each year prior to the Winter access road opening to provide information to the haul truck drivers of the presence and location of caribou near the road, and determine whether caribou behavioural monitoring is triggered. The monitoring trigger is 20 caribou groups or 100 total caribou.

Results

During the reconnaissance, a total of 365 individual caribou were observed in 3 separate groups. The survey also included signs (snow tracks) of muskox but no sightings. Based on the aerial reconnaissance survey, the Winter access road caribou behavioural monitoring (Section 3.4.2) was triggered for the 2023 season.

3.4.2 Behaviour Monitoring

The objective of determining if caribou behaviour changes with distance from the Mine for behaviour monitoring is based on recommendations from the Diamond Mine Wildlife Monitoring Workshop (Marshall 2009; Handley 2010). As noted for monitoring changes in caribou distribution, monitoring caribou behaviour around the Mine could contribute to future environmental assessments and the assessment and management of cumulative effects by government under different development scenarios. Caribou behavioural monitoring from the Winter access road is conducted through the WMMP (De Beers 2022).

Large numbers of observations are required to detect differences in caribou behaviour, which is strongly affected by environmental conditions, such as wind, temperature, and insect (in Summer) and predator abundance (BHPB 2004; Witter et al. 2012). For example, a power analysis based on Ekati and Diavik monitoring results indicated that a minimum of 55 caribou groups are required in each distance strata, assuming power of 0.8 and a type I error rate of 0.1 (Golder 2015). Behaviour monitoring of caribou groups in the RSA may be discontinued in favour of using collared caribou data, which was discussed at the February 2021 Diamond Mine Wildlife Monitoring Meetings (GNWT-ECC 2021). De Beers intends to engage Indigenous communities before making this decision.

The Winter access road is located within the range of the Bathurst caribou herd, and De Beers has committed to implementing a behaviour monitoring program along the Winter access road if sufficient caribou are present. Behaviour monitoring will be triggered when either 100 caribou or 20 caribou groups are observed along the length of the Winter access road during either the aerial reconnaissance survey (Section 3.4.1) or during public use monitoring (Section 3.4.3). Caribou in proximity to the Winter access road is a cause for concern for both the safety of the animals and the drivers. It is also an opportunity to better understand the interactions between caribou and Winter roads in the NWT through behavioural monitoring. Monitoring is anticipated to continue from construction through closure of the Mine.

Methods

Behavioural monitoring methods are consistent with those implemented at other NWT mines. The behaviour monitoring will be conducted by a crew of two observers stationed along the Winter access road or other Mine roads in a truck. Both focal surveys of individuals and scan surveys of caribou groups will be undertaken. Focal surveys provide information on activity budgets (i.e., the amount of time an animal is engaged in different behaviours), the temporal sequence of behaviours relative to stressors or other stimuli, and the length of time it takes the animal to return to a non-stressed state following a stressor event. Scan samples of a group of animals are more useful for quantifying the frequencies of dominant behaviours in a group over a period of time (ERM Rescan 2014).

For focal surveys, an individual is selected from a group for observation. Behaviour and time of behaviour changes are recorded. Focal surveys will be undertaken on both cows and bulls, for a minimum of 20 minutes. For scan surveys, observers will make instantaneous behaviour observations of caribou groups at 8 minute intervals for at least 40 minutes (a minimum of four observations per group).

For both scan and focal surveys, the response of caribou to stressors, such as vehicle or aircraft traffic, will also be recorded. Behavioural observations will be repeated at multiple locations along the road where caribou are present. In addition to behaviour, observers will record the number, group composition, location of each group and total group size. Observers will also record caribou tracks seen and or caribou tracks observed. advise as to any additional factors that seem to stress caribou or alter their behaviour negatively (e.g., vehicle speed and type, and wolves).

Results

Caribou behavioural monitoring was performed by WSP in conjunction with De Beers Environment & Ni Hadi Xa staff from February 7 to March 28, 2023. The crews completed a total of 188 group scans and 192 focal (individual) scan surveys. In 16 group scans and 21 focal surveys, visibility conditions decreased the ability to see the caribou and influenced the number and duration of surveys.

During caribou group scans, the field crew recorded the number of individuals in the group displaying each type of behaviour (feeding, bedded, standing, alert, walking, trotting, or running) at one moment in time at 8-minute intervals. A minimum of four, and a maximum of eight observations are required per group (i.e., 32 minutes and 64 minutes). Crews recorded the group size (i.e., number of individuals), group demographic composition (i.e., sex, age, class, group composition), and location of each group in relation to the Winter road. The goal of this task was to observe and record data on as many groups as possible over the course of the field program.

During focal scans, the field crew monitored a single individual from a group of caribou continuously for a minimum of 20 minutes to measure how long the caribou was exhibiting each behaviour type/reaction to stressor. The behaviour type and time of the behaviour changes were recorded for the focal individual.

The results of the group and focal scans are listed in Appendix A including: stressors, behaviours and characteristics.

3.4.3 Snow Berm Management

Snow berms associated with the Winter access road may act as a partial barrier to caribou movement by deflecting caribou from crossing roads. For example, caribou have been shown to deflect from a road when snow berms are 1.6 m or greater in height (ERM Rescan 2011). Determining the aspects of the Winter access road that influence caribou movements (e.g., snow berm heights) provide information specific to the operation of the Mine and potentially to features of the Winter access road that may be mitigated, such as lowering of snow berm heights.

The objective of this component of the monitoring program is to determine heights of snow berms along the Winter access road.

In 2015, De Beers made the commitment to implement additional mitigation to reduce snow berm heights if any measurements were observed over 1.6 m. This mitigation was implemented from 2016 onwards.

Methods

Snow berm measurements along the Winter access road were recorded during three separate surveys:

- Survey 1 – February 11, 2023
- Survey 2 – March 10, 2023
- Survey 3 – March 30 to March 31, 2023

Snow berm height and slope were measured every 2 km along the Winter road, at both lake and portage locations, to determine factors affecting the permeability of the Winter road to caribou (i.e., whether snow berm heights exceed deflection thresholds for caribou). These data were also used to inform the road maintenance crew of any snow berm heights in excess of 1.6 m.

Results

The total length of the Winter access road occurring on lakes is 100 km (83.0%), whereas 20 km is constructed over portages (17.0%). The percent of snow berm measurements along the Winter access road was 88% at lakes and 12% at portages. Thus, the measurements correspond to availability of snow berm conditions potentially encountered by caribou. In 2023, the average snow berm heights for lake section surveys of the Winter road were 0.80 m, 0.71 m, and 0.32 m, during survey 1, 2 and 3, respectively, with a maximum berm height recorded of 1.71 m during Survey 2. The average snow berm slopes for lakes were 29.41°, 23.79°, and 8.16°, with a maximum recorded slope of 80° during Survey 2. On portage sections, average heights were 0.29 m, 0.42 m, and 0.39 m, with a maximum height of 1.39 m during Survey 2. Average snow berm slopes recorded on portages were 13.00°, 16.36°, and 15.79°, with a maximum slope of 60.00° recorded during Survey 2. A summary of survey data is located in Table 3-10.

Table 3-10 Snow Berm Monitoring Results for the Winter Access Road, 2023

Measurements		Survey 1 (n = 120)		Survey 2 (n = 120)		Survey 3 (n = 120)	
		Lake	Portage	Lake	Portage	Lake	Portage
Height (m)	average	0.80	0.29	0.71	0.42	0.32	0.39
	min	0.00	0.00	0.00	0.00	0.00	0.00
	max	1.69	1.10	1.71	1.39	1.52	1.30
Slope (°)	average	29.41	13.00	23.79	16.36	8.16	15.79
	min	0.00	0.00	0.00	0.00	0.00	0.00
	max	69.00	45.00	80.00	60.00	40.00	41.00

n = number of measurements.

Results from the snow berm monitoring program indicate that 99.2% of the snow berms measured along the Winter access road were at or below 1.6 m during the operational season (Table 3-11). Three measurements of greater than 1.6 m were made at 1.69 (Survey 1), 1.62 (Survey 1), and 1.71m (Survey 2). When Snow berms were observed to be over 1.6 m during the snow berm measurement surveys, De Beers notified the Winter access road maintenance crew so that they could be decreased. Subsequently, wildlife monitoring cameras were set-up in proximity to locations that exceeded snow berm height surveys. Wildlife monitoring cameras did capture any abnormal behavior at the three locations where snow berm height was exceeded. No additional maintenance was required from observations recorded during Winter road berm monitoring.

Table 3-11 Proportion of Snow Berm Height Measurements for the Winter Access Road, 2023

Height (m)	Survey 1	Survey 2	Survey 3	Average
≤1.6	98.33%	99.17%	100.00%	99.17%
>1.6	1.67%	0.83%	0.00%	0.83%

≤ = less than or equal to; > = greater than; % = percent.

3.5 Arctic Program for Regional and International Shorebird Monitoring Surveys

De Beers is contributing to the Environment and Climate Change Canada Program for Regional and International Shorebird Monitoring (PRISM) surveys. These surveys are designed to document population numbers of Arctic

shorebirds and contribute to regional knowledge in an effort to set population targets and assist with management and conservation of shorebird species (EC 2012).

Methods

Monitoring methods adhered to standard techniques for PRISM surveying (CWS 2008). De Beers first partnered with Environment and Climate Change Canada to conduct ground-based rapid assessment surveys of 12 ha plots in 2015. PRISM surveys were conducted in 2017, 2019, and 2022.

Results

PRISM surveys were not conducted in 2023. The next PRISM survey will be conducted in 2024.

3.6 Raptors

Raptor species (i.e., birds of prey) observed nesting within the RSA include peregrine falcon (likely *anatum-tundrius complex*), gyrfalcon, rough-legged hawk (*Buteo lagopus*), and short-eared owl. The short-eared owl is currently listed as special concern by COSEWIC. Both the peregrine falcon and short-eared owl have a general status rank of sensitive in the NWT (NWT SARC 2023). Both species are scheduled for assessment by the Northwest Territories Species at Risk Committee in March 2023 (NWT SAR 2023). Analysis of 13 years of nest site use and productivity monitoring data in the Ekati and Diavik mines study area found no relationship with proximity to mines (Coulton et al. 2013). The nearest active raptor nest site identified in the RSA is 18 km from the Mine site. Considering the distance of the Mine to the nearest known raptor nest, the Mine is not anticipated to affect local raptor populations.

There are two programs for raptors conducted by the Mine. The first is the Regional Raptor Nest Monitoring Program, which is conducted within the RSA and contributed by De Beers to the GNWT-ECC. The second is monitoring and deterrence of raptors from nesting in the pits. Both are conducted as part of the WMMP (De Beers 2022).

3.6.1 Regional Raptor Nest Monitoring Program

The objective of the raptor nest monitoring program is to contribute nest survey data to the GNWT-ECC for inclusion in regional databases (De Beers 2022).

Methods

De Beers conducted regional raptor nest data through collaborative aerial surveys at both the Gahcho Kué and Snap Lake mines. The timing and methods of these surveys are developed in partnership with the GNWT-ECC and other operators in the region.

Visits to known nest sites are conducted by helicopter, using fly-by methods to identify occupying species, and to count eggs and young. Surveys are not carried out in the rain, and visits are kept as short as possible to limit disturbances to the birds. Nests are considered occupied if at least one adult bird was observed. Eggs are counted if visible. Nests are recorded as successful if at least one chick is observed in the nest. The number of chicks are also recorded. Although the monitoring is focused on raptor species, observations of other species (e.g., ravens) are recorded during the surveys and included in the summary statistics.

Results

Regional raptor nest monitoring was initially completed in 2015. The monitoring in the RSA was not conducted in 2021 due to the COVID-19 restrictions. The next regional survey will occur in 2025.

3.6.2 Pit-nest and Raptor Monitoring and Deterrence Program

As described in the WMMP (De Beers 2022), raptor interactions and mortalities at the Mine are also monitored through the wildlife sightings log, site surveillance, and wildlife incidents (Sections 3.3.3, 3.3.4 and 3.3.6), as well as incidents of raptor nesting activity on Mine infrastructure (De Beers 2022). Raptors that are observed in dangerous areas of the Mine, such as open pit areas, will be actively deterred from nesting. Deterrent methods include bear bangers, propane noise cannons, air horns and predatory effigies. The objective of this aspect of the program is to deter raptors from nesting on Mine infrastructure or pit walls.

Methods

De Beers actively deters raptors from nesting in the open pits through the use of visual and auditory deterrents and routine monitoring. The 2023 bird deterrent and surveillance program began on May 5, where initial visual observations commenced for the presence of nesting bird species within the 5034, Hearne, and Tuzo open pits, as well as the surrounding pit areas and active construction zones. The visual monitoring of nesting birds within pit areas was performed by Environment staff during day shift using binoculars or spotting scope. Initial propane scare cannon deployment began on May 5 in areas where nesting could negatively impact operational requirements. Eighteen propane cannons were deployed around all three open pits.

The Airstrip contained six propane cannons placed around the perimeter to deter waterfowl from the area. Following an evaluation of deterrent utility, four of the propane cannons were relocated from the Airstrip as they were deemed unnecessary and subsequently moved to locations surrounding the open pit and Course Processed Kimberlite (CPK) areas. The CPK area contained a total of six propane cannons placed along the North and Northwest walls in order to deter bank swallows from nesting.

In addition to propane cannon deployment, predator decoys were also utilized in the pit areas. Kite decoys were flown continuously throughout the nesting season; these visual deterrents were located above each wall of all open pits. Additional kites were added as the season progressed by securing the poles in rock piles in areas of potential nesting interest. Kites were also placed outside of the open pit areas. Deterrent placements were adjusted throughout the program to accommodate mining and construction activities in addition to extreme weather events. At the end of the season, nine kites were placed around the pit area and seven were placed within the CPK area. A full-time bird monitor was hired to manage deterrents, conduct daily surveillance, and monitor nest sites as required. Throughout the bird season, deterrents were adjusted, maintained, and replaced by the Environmental Department when required. Bird sightings were recorded daily.

Daily bird observations and deterrent maintenance reduced on July 10, 2023 as the risk of new nest development had diminished significantly. The program subsequently shifted from deterrents implementation to continued observation of known nesting sites. Deterrents were fully demobilized on July 13, 2023.

Results

There were a total of 1,816 individual birds observed comprised of 30 different species in or around the 5034, Hearne, and Tuzo pits in 2023 (Table 3-12). Of the birds observed in or near the pits, the most common was the common raven with 31 observations totalling 39 individuals. The most commonly observed with the highest

number of individuals counted was bank swallow (652 individuals counted over 29 occasions). There were 119 nests documented during the nesting season. Of the 119, approximately 98 nests were bank swallow burrows dispersed in four different colonies within the CPK area.

American robins constructed three nests around the Mine site during the nesting season. The first nest containing four eggs was observed on June 3, 2023 by Site Services in an electrical shed on the outer west side of the Waste Management Area. Upon discovery, the area was delineated with barriers and monitored daily. The eggs hatched successfully and the young departed the nest by August 4, 2023. On June 23, 2023 the second nest was discovered near Dyke D containing three eggs. The area was delineated and monitored daily to ensure the safe hatching of the eggs with the young fledging the nest on July 9, 2023. The third nest was discovered on July 1, 2023 by the Light Vehicle Shop. This nest was located in the wheel well of a tire manipulator truck, and was first observed by mechanics operating in the area. Delineation was established upon the discovery, and daily monitoring of the area commenced. The eggs hatched and the young departed the nest on July 27, 2023.

Bank swallows contributed to the majority of nests recorded, with a total of 98 burrows across four colonies. These colonies were located within the CPK. The first two colonies (A & B) were discovered on June 1, 2023 while the remaining two colonies (C & D) were observed on June 6, 2023. Immediately upon discovery, a 50-meter setback was imposed with physical barriers and site-wide communications were established emphasizing the need to maintain appropriate setbacks. Daily monitoring was conducted to ensure all delineation was intact and being followed appropriately. Additionally, the Mine Operations team was consulted to ensure operational plans within the CPK area were altered to mitigate any potential impact during the nesting period. ECCC was consulted at this time to provide comment on the mitigation measures put in place and provide feedback for any potential improvements. The last reported sighting was July 23, 2023. To confirm the burrows were no longer occupied, daily 30-minute observations occurred from August 6 until August 10, 2023. Surveys were conducted at each colony with no activity being reported. The delineators and setbacks were removed on August 11, 2023 after consultation with ECCC.

Cliff swallows nested in the Ammonium Nitrate barn similar to previous years. On May 16, 2023, approximately eight nests were discovered in the AN barn, with the number of nests increasing to 19 over the course of June to July. Workers within the area were notified of the nests presence and work schedules were altered to minimize potential impacts on the nesting cliff swallows. The Ammonium Nitrate barn was monitored regularly to ensure nests were not harmed. The last reported sighting was documented on July 23, 2023. No nesting activity was observed during 30-minute surveys conducted on August 6 and August 7, 2023.

During regular inspections conducted by Environment staff on June 6, 2023, Tree Swallows were discovered to be nesting within the structure of the Waste Water Treatment Plant. The area was subsequently delineated and workers were advised of their presence. As a result of the identified nests, regular monitoring commenced immediately to ensure the safety of the nesting Tree swallows. The last reported sighting was July 30, 2023.

Table 3-12 Recorded Observations of Individual Species Count and Total Number of Observations, 2023

Species	Number of Observations	Total Number Observed
Common raven	31	39
Bank swallow	29	652
American pipit	25	38
Peregrine falcon	24	32
American robin	20	21

Species	Number of Observations	Total Number Observed
Gull spp.	16	24
Northern pintail	14	65
Ptarmigan spp.	7	16
Rough-legged hawk	7	7
Greater white-fronted goose	7	167
Goose spp.	5	586
Unidentified songbird	4	11
Tree swallow	3	14
Goose spp.	3	58
Semipalmated plover	2	2
Cliff swallow	2	24
Northern harrier	2	2
Snow bunting	1	2
Loon spp.	1	1
Golden eagle	1	1
White-crowned sparrow	1	1
Arctic tern	1	1
Yellow-billed loon	1	1
Snow goose	1	35
Common merganser	1	6
Herring gull	1	1
Bald eagle	1	1
Duck spp.	1	6
Eagle spp.	1	1
Barn swallow	1	1

Note: the number of individuals is biased high as the same individuals may be observed during surveys.

3.7 Upland Breeding Birds

In 2015, a Migratory Bird Nest Mitigation Plan was developed and submitted to and approved by Environment and Climate Change Canada (De Beers 2015c). The objective of the nest management program is to avoid destruction of active upland migratory bird nests in areas scheduled for flooding or disturbance by mining. This plan described mitigation actions to limit harm to migratory birds and the disturbance or destruction of nests and eggs and to comply with the *Migratory Birds Convention Act*. Each Fall De Beers pro-actively clears standing vegetation in areas anticipated to flood the subsequent Spring, therefore reducing the attractiveness of these areas to tree and shrub nesters. Each Spring, prior to the 50% snow melt when nesting activity is typically initiated, De Beers deploys bird deterrents to those same areas targeting ground nesting birds. Additionally,

during the nesting season, De Beers re-visits these areas to confirm functionality of the deterrents and observe bird activity.

Upland birds include shorebirds, ptarmigan, and songbirds (excluding raven). The rusty blackbird, bank swallow, barn swallow, harris's sparrow, lesser yellowlegs, horned grebe and the red-necked phalarope are birds of concern that may occur in the RSA. They are also listed by COSEWIC as either threatened or special concern (COSEWIC 2023). From 1998 to 2004, rapid assessment upland bird surveys were completed to provide a comprehensive species list in the RSA. In 2004 and 2005, permanent sample plots were established in the RSA to estimate the variation in upland breeding bird density and richness in the RSA and LSA, and to assess the importance of habitats in the LSA for upland bird nesting. Impacts to upland breeding birds are anticipated to be localized at the Mine site and not to influence regional populations (De Beers 2010). The objective of monitoring for upland birds is to detect changes in regional bird populations over time. This objective is achieved through participation in Environment and Climate Change Canada PRISM surveys (Section 3.5). De Beers contributes PRISM monitoring during the operating life of the Mine to fill existing information gaps in ECCC's N7 Bird Conservation Region (Section 3.5).

3.7.1 Nest Management Program

Development and operation of the Mine has the potential to inadvertently disturb upland breeding birds and their nests through land clearing activities to develop site infrastructure and the raising of Lakes D2 and D3 (Lakes D2/D3) and E1. For the latter, during the operation of the Mine, terrestrial habitat around Lakes D2/D3 and E1 will be flooded through the establishment of diversion dykes in the D and E lakes watersheds (Table 3-13). Water levels in these lakes have increased following freshet each year since the diversion dykes were constructed in 2015. They were predicted to continue to rise until reaching full supply level in Year 2-3 for Lake E1, and Year 4 for Lakes D2/D3, after which water levels will stabilize until the dykes are removed at closure (Table 3-13). The actual extent of flooding in 2023 at Lakes D2/D3 and E1 is reported in Table 3-13. As the water levels will rise most rapidly during freshet, the period of flooding will overlap with the migratory bird nesting season, which tends to occur annually from the middle of May to mid-August.

Table 3-13 Predicted Timing and Extent of Predicted and Actual Flooding at Lakes D2/D3, and E1

Timing of Flooding	Incremental Extent of Flooding							
	Lake D2/D3				Lake E1			
	Predicted		Actual		Predicted		Actual	
	Elevation (masl)	Area (ha)	Elevation (masl)	Area (ha)	Elevation (masl)	Area (ha)	Elevation (masl)	Area (ha)
2015	424.2	0	424.2	0	425.2	0.0	425.2	0.0
Year 1 (June - October 2016)	425.7	19.7	426.1	34.2	426.0	5.1	425.8	4.5
Year 2 (June - October 2017)	426.3	18	426.6	10.2	426.0	1.1	425.9	0.5
Year 3 (June - October 2018)	426.8	9.8	426.7	3.1	426.0	0.0	425.9	0.0
Year 4 (June - October 2019)	427.0	4.6	427.0	4.6	426.0	0.0	425.9	0.2
Year 5 (June - October 2020)	427.0	0.0	427.0	2.4	426.0	0.0	426.1	1.1

Timing of Flooding	Incremental Extent of Flooding							
	Lake D2/D3				Lake E1			
	Predicted		Actual		Predicted		Actual	
	Elevation (masl)	Area (ha)	Elevation (masl)	Area (ha)	Elevation (masl)	Area (ha)	Elevation (masl)	Area (ha)
Year 6 (June – October 2021)	427.0	0.0	426.9	0.0	426.0	0.0	426.1	0.2
Year 7 (May – October 2022)	427.0	0.0	426.9	0.0	426.0	0.0	425.8	0.0
Year 8 (May – October 2023)	427.0	0.0	426.7	0.0	426.0	0.0	425.8	0.0
Total	-	52.1	-	54.5	-	6.2	-	6.5

Note: Lake D2/D3 and E1 reached their spillover elevation in June 2019 and 2018, respectively. Following the spillover, changes to the lake water elevations were due to natural fluctuations.

- = no data available or not applicable; masl = metres above sea level.

Methods

The hydrometric station at Lake D2/D3 was established in 2015 and continuous monitoring of water surface elevations (WSE) have been ongoing annually since 2015. The hydrometric station on Lake E1 was established in 2016 and water level measurements and continuous monitoring of WSE have been conducted annually since 2018. Flooding (WSE) is monitored to verify predictions of water elevations. If water levels are on the rise, a vegetation clearing program will be put in place as mitigation.

Results

There was no vegetation clearing program conducted in 2023. The actual peak elevation in 2023 for Lake D2/D3 was similar to that estimated by the EIS with associated flooding being slightly higher than predicted in total. The peak WSE and actual area for Lake E1 was also similar to the predicted values from the EIS. The timing and extent of flooding predicted in the EIS is compared to actual observations as shown in Table 3-13 for both lakes.

3.8 Small Mammals

The periodic population cycles of small mammals can have strong influences on other species in the Arctic ecosystem such as clutch and litter size of raptors and foxes, respectively. The nearest small mammal monitoring location to the Mine is at the Daring Lake research facility (approximately 200 km northwest of the Mine), operated by the GNWT-ECC. In 2015, De Beers began annual monitoring of small mammals, including lemmings and voles, to provide an additional regional monitoring site to the GNWT-ECC.

The methods for the small mammal survey follow those outlined by Carrière (1999) and Outcrop Communications (2005). The small mammal program in 2023 was conducted from July 31 to August 5 over five nights, with 100 traps set per night. The same two transects established in 2015 northeast of Area 2 of Kennady Lake were used again in 2023. This habitat is considered representative of tundra features typical to the Taiga Shield High Subarctic Ecoregion. Both transects measured 250 m in length and are parallel to each other, roughly 100 m apart. Historically, a mixture of oats and peanut butter were utilized as bait for all museum traps. The 2023 survey also utilized a mixture of chicken and cheese to test the effectiveness of different baits, approximately 1 cm in length & 0.5 cm in width, on transect 1 and 2. On Transect 1 the oats and peanut butter were used on #1 traps and the meat and cheese was used on the #2 traps. On Transect 2 the oats and peanut

butter were used on #2 traps and the meat and cheese was used on the #1 traps. This process was employed to compare the efficacy of bait types. On both transects, bait was replaced as needed.

Results

Catch results are summarized in Table 3-14. A total of 21 small mammals were captured over the five consecutive trap nights. Specimens were identified using the NWT Small Mammal Identification Guide (GNWT-ECC 2005). Three voles and two shrews were unidentifiable by Environment staff. All animals trapped were intact at the time of collection and appeared to be in good physical condition. Transect 1 #1 traps yielded 9 small mammals with the oat and peanut butter mixture and Transect 1 #2 traps yielded 3 small mammals with the chicken and cheese mixture. Transect 2 #1 traps yielded 3 small mammals with chicken and cheese mixture. Transect 2 #2 traps yielded 6 small mammals with the oats and peanut butter mixture. Transect 1 and #2 traps, baited with peanut butter, proved to yield significantly more catch than the traps baited with chicken and cheese. It was noted that Transect 1 ran through wetter areas than Transect 2. The samples were shipped out to GNWT-ECC laboratories in Yellowknife during the fourth quarter of 2023.

Table 3-14 Small Mammal Monitoring Program Catch Summary, 2023

Date	Transect No.	Site No.	Trap No.	Species
1-Aug-23	2	21	1	Southern Red Backed Vole
1-Aug-23	1	19	1	Meadow Vole
1-Aug-23	1	14	2	Unknown Vole
2-Aug-23	2	20	2	Unknown Vole
2-Aug-23	1	1	2	Southern Red Backed Vole
2-Aug-23	1	19	2	Southern Red Backed Vole
2-Aug-23	2	20	1	Meadow Vole
2-Aug-23	2	6	2	Southern Red Backed Vole
3-Aug-23	1	12	1	Southern Red Backed Vole
3-Aug-23	1	10	1	Meadow Vole
4-Aug-23	2	15	1	Southern Red Backed Vole
4-Aug-23	2	7	2	Southern Red Backed Vole
4-Aug-23	1	1	2	Meadow Vole
4-Aug-23	1	13	1	Unknown Shrew
4-Aug-23	1	12	1	Unknown Shrew
4-Aug-23	2	22	1	Southern Red Backed Vole
5-Aug-23	2	2	2	Southern Red Backed Vole
5-Aug-23	2	25	2	Southern Red Backed Vole
5-Aug-23	1	24	1	Southern Red Backed Vole
5-Aug-23	1	14	1	Unknown Vole
5-Aug-23	1	13	1	Meadow Vole

3.9 Environmental Indicators

To provide estimates of the annual changes in local environmental conditions surrounding the Mine, De Beers committed to monitoring basic environmental indicators or covariates (De Beers 2014).

Methods

The indicators recorded by Environment staff included the following:

- snow melt (date of 50% snow cover and 10% snow cover);
- lake thaw (date of 50% ice cover and 10% ice cover on selected lakes);
- lake freeze (date of first ice across selected lakes);
- first snow (date of first snowfall that does not melt); and,
- migratory bird arrival (date of first and second observation of common and easily identified migratory birds, including raptor, waterfowl and upland bird species).

Results

The environmental indicators that were recorded in 2023 are summarized in Table 3-15.

Table 3-15 Gahcho Kué Environmental Indicators, 2023

Environmental Indicator	Date
Snow melt	April 28, 2023 (10% snow cover)
	April 20, 2023 (50% snow cover)
Kennady Lake thaw	May 04, 2023 (10% ice cover)
	April 28, 2023 (50% ice cover)
Lake freeze	October 24, 2023 (100% ice cover on Kennady Lake)
First snow	October 21, 2023 (Date of first snow that did not melt)
Migratory bird arrival	April 15, 2023 (Sighting of snow bunting)
	May 03, 2023 (Sighting of northern pintail)

3.10 Mine Activity

Sensory disturbances, such as noise, smells, dust, or the presence of people resulting from mining activity may alter the behaviour or distribution of wildlife in habitats adjacent to development (Bayne et al. 2008; Boulanger et al. 2012). De Beers committed to record covariates contributing to overall Mine activity to help explain possible changes in wildlife behaviour and distribution (De Beers 2022).

Methods

The indicators recorded monthly by the Mine include the following:

- occupancy (number of site staff);
- fuel consumption;

- mine rock moved;
- ore processed; and
- domestic water consumption.

Results

In 2023, average monthly occupancy ranged from 345 in August to 411 in February (Table 3-16). The total fuel consumption for 2023 was 49,494,656 L of diesel. The total amount of mine rock mined was 37,147,350 tonnes. The total amount of ore processed was 3,249,963 tonnes. The total amount of water consumed for domestic use was 32,607,000 L, which does not include the additional water drawn from the water management pond for site operation activities such as dust suppression within the Controlled Area (15,737,000 L).

Table 3-16 Gahcho Kué Camp Occupancy, 2023

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Occupancy	373	411	406	391	389	389	370	345	379	400	404	389

4 WILDLIFE MITIGATION AND MONITORING PLAN AUDIT

Mitigation measures are described in the WMMP and stem from current practices at existing mines or are derived from suggestions during the environmental assessment process. In order to evaluate mitigation measures an audit is implemented annually. The results of the audit should include site mitigation measures that are regularly implemented by Mine staff and results from any additional special studies undertaken to further understand effectiveness of mitigation actions intended to reduce residual effects.

Section 5.2 of the WMMP states that the mitigation proposed in the WMMP should be evaluated to confirm that mitigations work as intended and new mitigation identified through adaptive management should be documented. The mitigation policies and actions evaluate:

- if all mitigation has been implemented;
- which mitigation was observed or demonstrated to be successful or effective;
- if new mitigation has been implemented in response to new issues; and
- if some mitigation is redundant.

Methods

For the audit, WSP was contracted to work with Mine Environmental staff to review mitigations provided in the WMMP. Mine Environmental staff were asked the following questions:

- 1) Was the mitigation implemented in during the year?
- 2) Was the mitigation observed or demonstrated to be effective?
- 3) Was the mitigation redundant in application with any other mitigation?
- 4) Are there any special studies required to support determining effectiveness of the mitigation?

GNWT-ECC indicated in the conditional approval letter for the WMMP that the effectiveness of snow berm reduction on the Winter access road (113 km) could not be evaluated with the current mitigation management measures outlined in Version 1.1. In response, WSP conducted an evaluation of the Mine's snow berm management and compared the management to caribou observations that occurred in years where behaviour monitoring was triggered. WSP analyzed the snow berm data and caribou behaviour data locations as part of the mitigation audit deliverable to examine how frequently and where snow berm management has been required.

Results

The audit was not conducted in 2023 due to staffing shortages within the department; however, the next audit will occur in 2024.

The audit was last conducted in 2022 based upon 2021 mitigations with a summary of results outlined below.

The results of the WMMP mitigation audit indicates that the 2021 mitigations implemented appear effective according to the observations of Mine staff. Seventy mitigations from the WMMP (97%) were implemented in

2021, all of which were observed by Mine staff to be effective. Two mitigations identified in the WMMP were not applicable. A summary of mitigations is listed in table 4-1.

The detection of bank and cliff swallows during 2021 resulted in new management actions to minimize disturbance to nesting birds from mining activity.

Snow berm monitoring from 2014 to 2022 identified infrequent instances (<5% of all recorded measurements) that equal or exceed the threshold height of 1.6 m. The majority (89%) of snow berms greater than 1.6 m were at lake locations (54 measurements) compared to portage locations (7 measurements). In years where caribou monitoring was triggered and data were available (2014, 2018, 2022), four or fewer locations per year had snow berm measurements greater than 1.6 m, which appears to be a threshold height for deflecting caribou from roads (Rescan 2011). Observations of caribou from behaviour monitoring detected caribou occurrences on both sides of the winter access road before and after snow berm reduction. This suggests it is unlikely that the snow berms established from ploughing the winter access road are hindering movement for caribou. Although snow berms exceeding 1.6m are uncommon, it could not be verified whether caribou are using locations where snow berms have been reduced. As a recommendation for 2023 WSP Golder suggested placing wildlife cameras at locations where snow berms have been reduced.

Table 4-1 Summary of Mitigations Implemented in 2021

Mitigation Implemented?	Count of Mitigations	Proportion (%) of Total Implemented Effective	Mitigation not Implemented	Rationale for no Implementation
Yes	70	100%	N/A	N/A
Not Applicable	2	-	Backfill Mined out Pits. Suspending mining activities in areas where caribou are present at the mine site.	Mined out pits have not been backfilled because it is not applicable at this phase of development of open pits. Caribou were present on-site during winter months, but operations proceeded as per usual, as it is not a requirement to shut down the entire active Mine when caribou are present.

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6 ACRONYMS AND ABBREVIATIONS

COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPK	Coarse Processed Kimberlite
De Beers	De Beers Canada Inc.
DKFN	Deninu Kué First Nations
EC	Environment Canada
ECCC	Environment and Climate Change Canada
EIS	Environmental Impact Statement
GIS	Geographical Information System
GNWT	Government of the Northwest Territories
GNWT-ECC	Department of Environment and Climate Change, Government of the Northwest Territories
Golder	Golder Associates Ltd.
LKDFN	Łutsel K'e Dene First Nation
LSA	Local Study Area
Mine	Gahcho Kué Mine
MVLWB	Mackenzie Valley Land and Water Board
NSMA	North Slave Métis Alliance
NWT	Northwest Territories
NWT SAR	Northwest Territories Species at Risk
NWT SARC	Northwest Territories Species at Risk Committee
NWTMN	Northwest Territories Métis Nation
PK	Processed Kimberlite
PRISM	Arctic Program for Regional and International Shorebird Monitoring
RSA	Regional Study Area
SAR	Species at Risk
sp.	species
spp.	multiple species
TG	Tłı̨chǫ Government
TK	Traditional Knowledge
VSMP	Vegetation and Soil Monitoring Program
WEMP	Wildlife Effects Monitoring Program
WMMP	Wildlife Management and Monitoring Plan
WSE	water surface elevation
WSP	WSP Canada Inc.
WWHPP	Wildlife and Wildlife Habitat Protection Plan
YKDFN	Yellowknives Dene First Nation

7 UNITS OF MEASURE

$\leq$	less than or equal to
$\geq$	greater than or equal to
%	percent
$\pm$	plus or minus
$>$	greater than
$^{\circ}$	degree
$^{\circ}\text{C}$	degrees Celsius
h	hour
ha	hectare
km	kilometre
km/h	kilometres per hour
km ²	square kilometre
L	litre
m	metre
masl	metres above sea level
m ³	cubic metre
mg/100 cm ² /30 d	milligrams per hundred square centimetres per thirty days

8 GLOSSARY

Abundance	The number of individuals
Density	The number of individuals per unit area
Distribution	The pattern of dispersion of an entity within its range
Habitat use	The way and animal uses (or <i>consumes</i> , in a generic sense) a collection of physical and biological entities in a habitat
Population	Classically, a collection of interbreeding individuals
Transect	A method of sampling along a path or fixed line
Upland	Ground elevated above the lowlands along rivers or between hills; highland or elevated land; high and hilly country

APPENDIX A: 2023 CARIBOU BEHAVIOURAL MONITORING RESULTS



GAHCHO KUÉ FIELD SUMMARY REPORT

DATE 2 June 2023

Project No. 22526974/DCN-895

TO Allan Knight and Mason Elwood
De Beers Canada Inc.

CC William Liu (De Beers)

FROM Charity Beres

EMAIL charity.beres@wsp.com

GAHCHO KUÉ MINE – 2023 CARIBOU BEHAVIOUR MONITORING PROGRAM FIELD SUMMARY REPORT

1.0 CREW AND DATES

The Gahcho Kué winter access road caribou behaviour monitoring program took place from 7 February to 28 March 2023. The crew for this field program included Radka Kelblerova, Dylan Cook, Bryce Pippy (WSP Canada Inc. [WSP]) and Savannah Fournier, Grace Osted, Michael Sanderson, Jarrett Vornbrock and Jesse Bowser (De Beers Canada Inc. [De Beers] or De Beers assistants). A schedule of activities and personnel is presented in Table 1.

Table 1: Schedule of Activities

Date	Activity	WSP			De Beers/De Beers Assistants					
		Radka Kelblerova	Dylan Cook	Bryce Pippy	Alex Perrett	Savannah Fournier	Grace Osted	Michael Sanderson	Jarrett Vornbrock	Jesse Bowser
7 February	Travel to site on the winter access road from Yellowknife.	✓			✓					
8 February	On-site training for Radka.	✓								
9 February	Deployment of caribou monitoring cameras and conducted snow berm measurements.	✓			✓					
10 February	Initiation of caribou monitoring on winter access road.	✓			✓					
11 to 21 February	Caribou monitoring.	✓				✓				
21 February	Travel from site to Yellowknife for Radka Kelblerova (Shift 1). Travel to site from Yellowknife for Dylan Cook (Shift 2).	✓	✓							
22 February	On-site training for Dylan; caribou monitoring.		✓				✓			
23 to 28 February	Caribou monitoring.		✓				✓			

Date	Activity	WSP			De Beers/De Beers Assistants					
		Radka Kelblerova	Dylan Cook	Bryce Pippy	Alex Perrett	Savannah Fournier	Grace Osted	Michael Sanderson	Jarrett Vornbrock	Jesse Bowser
1 to 3 March	Winter road closed due to weather – no caribou monitoring. Caribou survey data entry tasks were completed. Winter road reopened but road still not fully clear.		✓							
4 to 7 March	Caribou monitoring.		✓				✓			
7 March	Travel from site to Yellowknife for Dylan Cook (Shift 2). Travel to site from Yellowknife for Radka Kelblerova (Shift 3).	✓	✓							
8 to 17 March	Caribou monitoring.	✓				✓				
18 to 21 March	Caribou monitoring.	✓				✓		✓		
21 March	Travel from site to Yellowknife for Radka Kelblerova (Shift 3). Travel to site from Yellowknife for Bryce Pippy (Shift 4).	✓		✓						
22 to 23 March	Caribou monitoring.			✓			✓	✓		
24 March	Caribou monitoring.			✓				✓	✓	
25 March	Caribou monitoring.			✓				✓		✓
26 to 27 March	Caribou monitoring.			✓			✓	✓		
28 March	Last day of caribou monitoring.			✓			✓	✓		
28 March	Travel from site to Yellowknife for Bryce Pippy (Shift 4).			✓						

✓ = indicates participation in the field program for the specific day.

2.0 SURVEY SUMMARY

Caribou behaviour monitoring was completed along the winter access road, which included two types of surveys: group and focal (individual) scan behavioural surveys. The crews completed a total of 188 group scans and 192 focal surveys over the duration of the program 7 February to 28 March 2023. In 16 group scan and 21 focal surveys, visibility conditions influenced the duration of the surveys; i.e., caribou walked out of the surveyor's line of sight. Focal surveys that reported under 20 minutes of monitoring and group surveys under four 8-minute intervals are under the minimum amount of time for a complete survey. The crew noted incomplete surveys within the reported data. There were no other deviations from the planned work.

The sampling/surveys undertaken in this program included:

- **Caribou Group Scans:** The field crew recorded the number of individuals in the group displaying each type of behaviour (Feeding, Bedded, Standing, Alert, Walking, Trotting, or Running) at one moment in time at 8-

minute intervals. A minimum of four, and a maximum of eight observations are required per group (i.e., a minimum of 32 minutes and a maximum of 64 minutes). Crew recorded the group size (i.e., number of individuals), group demographic composition (i.e., sex, age class, group composition), and location of each group in relation to the winter road. The goal of this task was to observe and record data on as many groups as possible over the course of the field program.

- **Focal Scans:** The field crew monitored a single individual from a group of caribou continuously for a minimum of 20 minutes to measure how long the caribou was exhibiting each behaviour type/ reaction to stressor. The behaviour type and time of behaviour changes were recorded for the focal individual.
- **Data Entry:** The data recorded on the field data sheets were entered into a digital format (attached). An excel spreadsheet has been submitted with this memorandum for De Beers use in drafting the 2023 Annual Wildlife Report.

3.0 RECOMMENDATIONS

The following recommendations were identified during this field program:

- Should the program be on hold due to weather, check that the road has been plowed prior to restarting the program to make sure road conditions are good with limited chances of getting stuck in snow drifts.
- Place higher emphasis on mitigation measures for potential for slip, trip and falls when entering and exiting vehicles.

4.0 CLOSURE

Please do not hesitate to contact the undersigned at 1-306-291-6693 or charity.beres@wsp.com for further details.

Sincerely,

WSP Canada Inc.

ORIGINAL SIGNED

Charity Beres, BSc
Principal, Project Manager

Attachments: Attachment I - 2023 Caribou Behaviour Monitoring Data

https://golderassociates.sharepoint.com/sites/35178g/wildlife/2023_22526974/03_caribou_monitoring_program/02_field_results/04_field_summary/gk_2023_caribou_monitoring_field_summary.docx

ATTACHMENT I

2023 Caribou Behaviour Monitoring
Data

[illegible]

Survey # (Scan Type-Day)	Date	Temperature C	Wind Speed (km/h)	Wind Direction	Observer location Eastings	Observer location Northings	Observer Eastings	Observer Northings	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Passage?	Location Description	Survey Area	Herd Composition	Herd Composition	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (0-3)	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew	
																					B	F	S	A	W	T	R									
Focal 1-3	11-Feb-23	-21	17	SE	550800	7066225	850	-	850	-	49	1	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Focal	3	13:41:57																
Focal 1-3	11-Feb-23	-21	17	SE	550800	7066225	850	-	850	-	49	1	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Focal	3	13:47:03															RK, SF	
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	23	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	14:50:00	23														Yes	RK, SF
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	23	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	14:55:00	21							2 x HT	700	0	n/a			Yes	RK, SF	
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	23	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	14:56:00	21							PUT	700	0	n/a			Yes	RK, SF	
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	21	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	14:58:00	11													Yes	RK, SF	
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	23	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	15:04:00	23													Yes	RK, SF	
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	23	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	15:06:00	22							PUT	700	0	n/a			Yes	RK, SF	
Group 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	23	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Group	4	15:14:00	23													Yes	RK, SF	
Focal 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	1	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Focal	4	15:55:00	1							2 x HT + PUT	700	0	n/a				RK, SF	
Focal 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	1	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Focal	4	15:06:00	1							PUT	700	0	n/a				RK, SF	
Focal 1-4	11-Feb-23	-21	15	SE	553440	7079059	700	-	700	-	23	1	Lake	between P9 & P8	Gahcho Kue Winter Road	F, C	-	Focal	4	15:14:00	1														RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:10:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:18:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:16:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:34:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:38:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:48:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:54:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:56:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:57:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	09:58:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	10:00:00															RK, SF	
Group 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	63	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Group	1	10:01:00															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:10:05															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:18:11															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:23:38															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:23:57															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:28:14															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:29:06															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:30:13															RK, SF	
Focal 2-1	12-Feb-23	-19	27	NW	575442	7054913	900	-	900	-	73	1	Lake	between P22 & P21	Gahcho Kue Winter Road	F, C	-	Focal	1	09:30:28															RK, SF	
Group 3-1	13-Feb-23	-34	15	NE	572789	7060311	50	-	50	-	31	25	Lake	P18	Gahcho Kue Winter Road	F, M, C	-	Group	1	10:05:00															RK, SF	
Group 3-1	13-Feb-23	-34	15	NE	572789	7060311	50	-	50	-	31	25	Lake	P18	Gahcho Kue Winter Road	F, M, C	-	Group	1	10:13:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:35:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:43:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:44:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:46:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:47:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:48:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:51:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	11:59:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	12:07:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	12:11:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	12:12:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	12:15:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	12:17:00															RK, SF	
Group 5-1	15-Feb-23	-35	10	WNW	550219	7064108	160	-	160	-	21	21	Lake	between P10 & P9	Gahcho Kue Winter Road	F, M, C	-	Group	1	12:20:00															RK, SF	
Group 5-1	15-Feb-23	-35																																		

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ^a	Distance to Stressor (m)	Response (0-3) ^b	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew				
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	20	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	09:32:00	15		4			1												DC, GO
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	20	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	09:37:40	14					6			HTx1	1500	0	-	some stand and walk away, most stay			DC, GO		
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	20	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	09:40:00	11					9											DC, GO	
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	21	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	09:45:22						11		10	unknown	?	3	-				DC, GO		
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	25	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	09:48:00																DC, GO		
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	21	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	09:56:00																DC, GO		
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	2000	W	2000	W	128	16	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	10:00:00	2	3				11			HTx1	2000	0	-	All walking to shore to feed			DC, GO		
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	2000	W	2000	W	128	15	Portage	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	10:04:00					6											DC, GO		
Group 14-1	24-Feb-23	-32	15	N	552308	7069964	2000	W	2000	W	128	10	Portage	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Group	1	10:12:00					4	2	1	3									DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:31:00									HTx2	1500	0	-	Male			DC, GO		
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:32:00																DC, GO		
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:33:00																DC, GO		
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:34:00	1																DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:37:40	1									HTx1	1500	2	15+ minutes	Stood up and started walking as haul truck passed. Did not return to previous behaviour, however, returned to unstressed walking.			DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:38:40																DC, GO		
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:41:00																DC, GO		
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:41:11																DC, GO		
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:43:22																	DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:43:40																	DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:48:40																	DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:48:45																	DC, GO	
Focal 14-1	24-Feb-23	-32	15	N	552308	7069964	1500	W	1500	W	128	1	Lake	Reid Lake (south)	Gahcho Kue Winter Road	F, M, J	-	Focal	1	09:53:00																	DC, GO	
Group 14-2	24-Feb	-30	15	N	550816	7065161	100	N	100	N	4	4	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Group	2	11:41:00																	DC, GO	
Group 14-2	24-Feb	-30	15	N	550816	7065161	100	N	100	N	4	4	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Group	2	11:42:00										HTx3	100	3	10:00	Run north	Yes	DC, GO		
Group 14-2	24-Feb	-30	15	N	550816	7065161	900	N	900	N	4	4	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Group	2	11:52:00																	DC, GO	
Group 14-2	24-Feb	-30	15	N	550816	7065161	900	N	900	N	4	4	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Group	2	11:53:00																	DC, GO	
Focal 14-2	24-Feb	-30	15	N	550816	7065161	100	N	100	N	4	1	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Focal	2	11:42:00																	DC, GO	
Focal 14-2	24-Feb	-30	15	N	550816	7065161	100	N	100	N	4	1	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Focal	2	11:43:00																	DC, GO	
Focal 14-2	24-Feb	-30	15	N	550816	7065161	100	N	100	N	4	1	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Focal	2	11:43:10																	DC, GO	
Focal 14-2	24-Feb	-30	15	N	550816	7065161	100	N	100	N	4	1	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:3	Focal	2	11:45:48																	DC, GO	
Focal 14-2	24-Feb	-30	15	N	550816	7065161	150	N	150	N	4	1	Lake	Lake 8-9	Gahcho Kue Winter Road	F, M	1:																					

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Compositio	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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Focal 15-2	25-Feb	-26	10	W	550250	7064657	1200	W	1200	W	3	1	Portage	Reid Lake (south)	Gahcho Kue Winter Road	M	3M	Focal	2	10:25:00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Location	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ^a	Distance to Stressor (m)	Response (0-3) ^b	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew						
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	500	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:27:00					1											DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	500	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:27:40					1											DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	500	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:27:45						1										DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	500	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:29:00					1				HTx1	500	1	00:25				DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:29:25						1										DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:32:50					1				HTx1	600	1	00:10				DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:33:00						1										DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:33:30					1											DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:36:35							1										DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:38:10					1												DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	600	S	600	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:38:27																	DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	1200	SW	1000	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:53:10					1											DC, GO				
Focal 17-2	27-Feb	-18	5	N	555688	7064623	1200	SW	1000	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:53:20						1			HTx1	1000	1	00:40					DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	1200	SW	1000	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:54:50							1										DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	1200	SW	1000	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:56:50							1										DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	1200	SW	1000	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	12:58:07							1		HTx1	1000	0	-					DC, GO			
Focal 17-2	27-Feb	-18	5	N	555688	7064623	1200	SW	1000	S	27	1	Lake	Munn Lake	Gahcho Kue Winter Road	F,M,J	-	Focal	2	13:09:00							1										DC, GO			
Group 17-3	27-Feb	-20	10	N	575157	7058492	550	W	600	NW	15	15	Portage	P21	Gahcho Kue Winter Road	F,M	-	Group	3	14:23:00			1													Tracks observed along the road; group is not within line of sight of the road, had to step out of the truck to observe this group.		DC, GO		
Group 17-3	27-Feb	-20	10	N	575157	7058492	550	W	600	NW	15	9	Portage	P21	Gahcho Kue Winter Road	F,M	-	Group	3	14:31:00					3		6										DC, GO			
Group 17-3	27-Feb	-20	10	N	575157	7058492	550	W	600	NW	15	10	Portage	P21	Gahcho Kue Winter Road	F,M	-	Group	3	14:39:00					7		3											DC, GO		
Group 17-3	27-Feb	-20	10	N	575157	7058492	550	W	600	NW	15	10	Portage	P21	Gahcho Kue Winter Road	F,M	-	Group	3	14:47:00							10										DC, GO			
Group 17-3	27-Feb	-20	10	N	575157	7058492	550	W	600	NW	15	10	Portage	P21	Gahcho Kue Winter Road	F,M	-	Group	3	14:48:00							10		HTx1	600	0	-	End survey, too difficult to see them bedded				DC, GO			
Group 17-4	27-Feb	-23	5	N	574846	7060585	500	SW	300	S	29	15	Portage	Lake 18-19 (hill)	Gahcho Kue Winter Road	unknown	-	Group	4	15:55:00							14	1								All feeding		DC, GO		
Group 17-4	27-Feb	-23	5	N	574846	7060585	500	SW	300	S	29	15	Portage	Lake 18-19 (hill)	Gahcho Kue Winter Road	unknown	-	Group	4	15:57:00							2		13	HTx2	300	3	06:00	Half ran up and over hill, the others ran down to the lake and out of sight			DC, GO			
Group 17-4	27-Feb	-23	5	N	574444	7060504	500	S	500	S	29	7	Lake	Lake 18-19	Gahcho Kue Winter Road	unknown	-	Group	4	16:03:00							7		OT	500	1	02:00	Moved truck. 21 visible on lake, 7 walking away from road				DC, GO			
Group 17-4	27-Feb	-23	5	N	574444	7060504	500	S	500	S	29	7	Lake	Lake 18-19	Gahcho Kue Winter Road	unknown	-	Group	4	16:04:00							5										DC, GO			
Group 17-4	27-Feb	-23	5	N	574444	7060504	500	S	500	S	29	7	Lake	Lake 18-19	Gahcho Kue Winter Road	unknown	-	Group	4	16:05:00								2		HTx2	500	1	01:00					DC, GO		
																																					All walk out of view. The group of 15 on hill spooked by haul trucks and split, 7 moved onto lake where "14 were further down the arm (~1.4km away too far to survey). The 7 then moved back over the hill and out of sight.			DC, GO
Group 17-4	27-Feb	-23	5	N	574444	7060504	500	S	500	S	29	1	Lake	Lake 18-19	Gahcho Kue Winter Road	unknown	-	Group	4	16:09:00								1										DC, GO		
Group 18-1	28-Feb	-33	0	-	575209	7067888	400	W	100	W	63	63	Portage	P21	Gahcho Kue Winter Road	F,M	1:1	Group	1	09:07:00								63	HTx2	100	3	03:00						DC, GO		
Group 18-1	28-Feb	-33	0	-	575209	7067888	400	W	100	W	63	63	Portage	P21	Gahcho Kue Winter Road	F,M	1:1	Group	1	09:08:00																	very bunched up		DC, GO	
Group 18-1</																																								

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ³	Distance to Stressor (m)	Response (0-3) ⁴	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew			
Focal 22-1	04-Mar	-30	15	N	555982	7064986	900	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:46:21						1									DC, GO		
Focal 22-1	04-Mar	-30	15	N	555982	7064986	900	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:46:41								1							DC, GO		
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:48:00					1										DC, GO		
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:48:30						1									DC, GO		
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:48:50							1								DC, GO		
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:49:15							1								DC, GO		
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:50:31							1								DC, GO		
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:51:00								1								DC, GO	
Focal 22-1	04-Mar	-30	15	N	555883	7064513	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:53:25								1								DC, GO	
Focal 22-1	04-Mar	-30	15	N	555883	7064513	800	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:53:40																DC, GO	
Focal 22-1	04-Mar	-30	15	N	555883	7064513	1000	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:57:44																DC, GO	
Focal 22-1	04-Mar	-30	15	N	555883	7064513	1000	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:58:00				1												DC, GO	
Focal 22-1	04-Mar	-30	15	N	555883	7064513	1000	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	09:58:18																DC, GO	
Focal 22-1	04-Mar	-30	15	N	555883	7064513	1200	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:03:00																DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	1200	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:07:00							1			HTx3	100	1	01:00	moved truck back in view wp1116 554622 7063798		DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:08:00									1							DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:09:15							1									DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:09:20																DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:10:00									1							DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:10:15																DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:11:30									1							DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:11:55																DC, GO	
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:15:25									1								DC, GO
Focal 22-1	04-Mar	-30	15	N	554622	7063798	500	SW	100	S	3	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, M	2:1	Focal	1	10:15:43																DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	200	NW	200	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:25:00								30								DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	400	NW	400	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:27:00																DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	700	NW	700	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:29:00																DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	800	NW	800	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:31:00								6								DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	900	NW	900	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:33:00																DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	1000	NW	1000	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:35:00																DC, GO	
Group 22-2	04-Mar	-29	15	N	550234	7064572	1500	NW	1500	NW	30	30	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Group	2	10:36:00																DC, GO	
Focal 22-2	04-Mar	-29	15	N	550234	7064572	200	NW	200	NW	30	1	Lake	-	Gahcho Kue Winter Road	F, M, J	7:7:1	Focal	2	10:28:00																DC, GO	
Focal 22-2	04-Mar																																				

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd Distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew				
																						B	F	S	A	W	T	R											
Group 22-4	04-Mar	-28	15	N	552516	7078724	800	W	600	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:46:00					1	4										DC, GO			
Group 22-4	04-Mar	-28	15	N	552516	7078724	800	W	600	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:46:10								5								DC, GO			
Group 22-4	04-Mar	-28	15	N	552516	7078724	800	W	800	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:46:25									5							DC, GO			
Group 22-4	04-Mar	-28	15	N	552516	7078724	800	W	800	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:48:00										5						DC, GO			
Group 22-4	04-Mar	-28	15	N	552516	7078724	1000	W	1000	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:48:10											5					1km away	DC, GO		
Group 22-4	04-Mar	-28	15	N	552516	7078724	1000	W	1000	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:49:00												5					DC, GO		
Group 22-4	04-Mar	-28	15	N	552516	7078724	1000	W	1000	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:50:00													5				DC, GO		
Group 22-4	04-Mar	-28	15	N	552516	7078724	1000	W	1000	W	5	5	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Group	4	11:51:00													5				DC, GO		
Focal 22-4	04-Mar	-28	15	N	552878	7078019	800	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:31:40													1				Male	DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	800	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:32:20							1										DC, GO		
Focal 22-4	04-Mar	-28	15	N	552878	7078019	800	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:32:25																	DC, GO		
Focal 22-4	04-Mar	-28	15	N	552878	7078019	800	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:32:29							1										DC, GO		
Focal 22-4	04-Mar	-28	15	N	552878	7078019	800	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:32:30																	to catch up	DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:32:51									1								1 km away	DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:33:40																	seem agitated	DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:33:55									1									DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:36:00																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:36:05																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:37:30									1									DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:37:35																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:38:10																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:38:11																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:38:28																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:39:00																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552878	7078019	1000	W	800	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:41:10																		out of sight	DC, GO
Focal 22-4	04-Mar	-28	15	N	552516	7078724	500	W	500	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:41:20																		DC, GO	
Focal 22-4	04-Mar	-28	15	N	552516	7078724	750	W	100	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:41:40																		moved truck	DC, GO
Focal 22-4	04-Mar	-28	15	N	552516	7078724	750	W	100	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:43:06																		100m	DC, GO
Focal 22-4	04-Mar	-28	15	N	552516	7078724	800	W	600	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:44:40																			DC, GO
Focal 22-4	04-Mar	-28	15	N	552516	7078724	800	W	600	W	5	1	Lake	Reid Lake (north)	Gahcho Kue Winter Road	F, M	4:1	Focal	4	11:45:00																			DC, GO
Focal 22-4	04-Mar	-28	15	N	552516	7078724	800	W																															

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Survey # (ScanType-Day)	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer location Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Composition	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to return to previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew			
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	162	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:26:00	152	3	3	4									1 collared individual is visible (red with orange tag)		DC, GO		
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	22	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:29:00	19			3									Security truck left		DC, GO		
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	22	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:31:00	4				15	3		HTx1	600	2	-				DC, GO		
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	22	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:34:00	6				15	1									DC, GO		
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	24	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:35:00	11							PUT (with trailer)	600	2	-	-	approx. half of herd walked N. Truck stopped in front of OT to watch caribou.		DC, GO		
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	46	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:38:00	16													hunter's truck left		DC, GO	
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	162	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:42:00	72	2		3			85							most walking NW along shore, 2 males fighting		DC, GO	
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	36	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:48:00	8	14				14								part of group walking off, group started feeding on shore		DC, GO	
Group 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	30	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Group	1	09:50:00				15	1		10	4						most of group moved off		DC, GO	
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:10:00	1														DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:11:00	1							HTx1	600	0	-				DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:15:00	1														DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:21:00	1							PUTx1	600	0	-		security stopped to chat		DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:23:00	1													security moved but stopped nearby		DC, GO	
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:28:00	1													"massive" antlers		DC, GO	
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:29:00	1															DC, GO	
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:31:00					1			HTx1	600	2	03:00		lost sight		DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:34:00	1															DC, GO	
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:35:00								PUT (with trailer)	600	2	-	-	stopped to talk		DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:38:00								HTx1	600	2	-	-	truck left, does not return to previous		DC, GO		
Focal 25-1	07-Mar	-31	15	E	552743	7070425	600	NW	600	NW	162	1	Lake	Reid Lake (mid)	Gahcho Kue Winter Road	F, M, J	at least 1 cal	Focal	1	09:41:00														lost sight		DC, GO	
Shift 3																																					
Focal 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	1	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Focal	1	09:22:56														Yes	SF, RK		
Focal 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	1	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Focal	1	09:24:54					1										Yes	SF, RK	
Focal 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	1	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Focal	1	09:25:22									pickup	500	0			stopped to observe caribou		Yes	SF, RK
Focal 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	1	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Focal	1	09:28:55															Yes	SF, RK	
Focal 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	1	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Focal	1	09:30:32															Yes	SF, RK	
Focal 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	1	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Focal	1	09:31:40															individual walked out of view behind ridge S bound, end of survey, partial survey due to herd walking out of view	Yes	SF, RK
Group 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	10	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Group	1	09:22:00															when first observed, herd was trotting, when survey started, they were already walking (S)	Yes	SF, RK
Group 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	10	Lake	Lake Murdoch P22	Gahcho Kue Winter Road			Group	1	09:25:00							10		1xPU		3	01:00			Yes	SF, RK	
Group 26-1	08-Mar-23	-26	15	E	575730	7055268	500	W	500	W	16	10	Lake	Lake Murdoch P22	Gahcho Kue Winter Road																						

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer	Location Easting	Location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ³	Distance to Stressor (m)	Response (0-3) ⁴	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew				
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	11:56:40	1												herd may have been seen as part of group 1 but moved out of view, settling on the lake further down		SF, RK			
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	12:11:49	1								HT	350	0	N/A			SF, RK			
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	12:14:20						1									SF, RK			
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	12:17:50				1											SF, RK			
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	12:18:40															SF, RK			
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	12:19:38							1		HT	300	0	N/A			SF, RK			
Focal 27-2	09-Mar-23	-20	4	S	552620	7078355	300	SW	300	SW	127	1	Lake	Reid Lake P10-P09	Gahcho Kue Winter Road	F, M, C			Focal	2	12:19:55							1		Pickup	300	0	N/A	end of survey		SF, RK			
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	12:40:00	20													researchers fom yesterday parked near crew, chatted/continued		RK, SF		
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	12:48:00	20														RK, SF			
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	12:56:00	20															RK, SF		
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	13:04:00	20															RK, SF		
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	13:10:57	20								1xHT	450	0	N/A				RK, SF		
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	13:12:00	19	1													13:15- more caribou coming from SW probably G1&2, possible disturbance by the researchers		RK, SF	
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	13:18:00	18	2							2xPUT	450	0	N/A				researchers trucks		RK, SF
Group 27-3	09-Mar-23	-20	4	S	552487	7079065	430	W	430	W	327	20	Lake	Reid Lake (before P9)	Gahcho Kue Winter Road	F, M, C			Group	3	13:20:00	15	5													end of research		RK, SF	
Focal 27-3	09-Mar-23	-20	4	S	552487	7079065	400	W	400	W	327	1	Lake	Reid Lake - P09 out	Gahcho Kue Winter Road	F, M, C			Focal	3	13:29:10	1														multiple pickups stopped as survey began- caribou did not react to obs. Truck or other pickups		SF, RK	
Focal 27-3	09-Mar-23	-20	4	S	552487	7079065	400	W	400	W	327	1	Lake	Reid Lake - P09 out	Gahcho Kue Winter Road	F, M, C			Focal	3	13:10:57	1								HT	450	0	N/A					SF, RK	
Focal 27-3	09-Mar-23	-20	4	S	552487	7079065	400	W	400	W	327	1	Lake	Reid Lake - P09 out	Gahcho Kue Winter Road	F, M, C			Focal	3	13:19:20	1								2xPickups	450	0	N/A	end of survey		SF, RK			
Focal 27-4	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	34	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	4	13:51:43	1															RK, SF			
Focal 27-4	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	34	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	4	13:58:03	1															RK, SF			
Focal 27-4	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	34	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	4	14:12:32				1													RK, SF		
Focal 27-4	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	34	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	4	14:12:43				1													RK, SF		
Focal 27-4	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	34	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	4	14:27:50											2xHT	450	0	N/A	end of survey		RK, SF		
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:36:17								1									new group walked in from NW, new survey started 37 caribou		RK, SF
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:42:34							1									peeing caribou		RK, SF	
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:44:11							1									caribou heading SE		RK, SF	
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:45:33							1										RK, SF		
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:46:10								1										RK, SF	
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:47:10																		RK, SF	
Focal 27-5	09-Mar-23	-18	5	S	552469	7082328	400	W	400	W	37	1	Lake	(P9 out) next from Reid Lake	Gahcho Kue Winter Road	F	iscern any ps	Focal	5	14:47:40																			

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd Distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a							Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew				
																						B	F	S	A	W	T	R										
Focal 28-5A	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5A	15:10:45							1								Yes	RK, SF		
Focal 28-5A	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	0	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5A	15:13:30															Yes	RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:15:47					1											RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:16:00							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:16:25					1											RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:16:37							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:19:31							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:19:38					1											RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:21:00							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:21:49							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:22:03							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:23:30							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:24:18							1									RK, SF		
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:26:02							1			PUT	400	1	01:00	crew pull up to get better view ind. Was alerted looked towards disturbance			RK, SF	
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:27:15							1										RK, SF	
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:27:20					1												RK, SF	
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:32:36							1			1xHT	400	0	N/A					RK, SF
Focal 28-5B	10-Mar-23	-18	5	SE	553183	7074536	30	E	30	E	17	1	Lake	Reid Lake	Gahcho Kue Winter Road	F, C	discern any	Focal	5B	15:35:31					1												RK, SF	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	16	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:08:35					3												SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	16	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:09:45										PU	50	2					SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	15	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:10:02										PU	50	3	06:00	pickup approached & stopped to observe pickup stopped to observe to further distress herd nearly crossing road, group redirected to NE			SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	16	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:16:18																	SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	16	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:22:02																	SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	11	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:30:50					9	2											SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	14	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:32:36							13										SF, RK	
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	14	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:38:00							14			HT	50	0	N/A					SF, RK
Group 28-5	10-Mar-23	-18	10	SE	553183	7074536	20	E	20	E	17	14	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, C		Group	5	15:38:00							14										SF, RK	
Group 28-6	10-Mar-23	-16	5	SE	553224	7072800	1000	SW	1000	SW	564	15	Portage		Gahcho Kue Winter Road	F, M, C		Group	6	15:50:00							15										RK, SF	
Group 28-6	10-Mar-23	-16	5	SE	553224	7072800	1000	SW	1000	SW	564	15	Portage		Gahcho Kue Winter Road	F, M, C		Group	6	15:53:00							15										RK, SF	
Group 28-6	10-Mar-23	-16	5	SE	553224	7072800	1000	SW	1000	SW	564	15	Portage		Gahcho Kue Winter Road	F, M, C		Group	6	15:55:00							14										RK, SF	
Group 28-6	10-Mar-23	-16	5	SE	553224	7072800	1000	SW	1000	SW	564	15	Portage		Gahcho Kue Winter Road																							

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Composit	Scan Type	Group #	Time	# of individuals doing Behaviour ^a						Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew			
																						B	F	S	A	W	T	R								
Focal 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	1	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	1	08:47:32		1														
Focal 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	1	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	1	09:00:00		1														
Group 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	11	Portage	Murdock Lake P22	Gahcho Kue Winter Road	F, M		Group	1	08:27:00		11														
Group 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	11	Portage	Murdock Lake P22	Gahcho Kue Winter Road	F, M		Group	1	08:35:00		10				1										
Group 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	10	Portage	Murdock Lake P22	Gahcho Kue Winter Road	F, M		Group	1	08:43:00		9				1										
Group 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	14	Portage	Murdock Lake P22	Gahcho Kue Winter Road	F, M		Group	1	08:47:00		10			4				HT	450	0		N/A			
Group 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	11	Portage	Murdock Lake P22	Gahcho Kue Winter Road	F, M		Group	1	08:51:00		10				1										
Group 30-1	12-Mar-23	-28	15	W	582776	7048061	400	W	400	W	47	10	Portage	Murdock Lake P22	Gahcho Kue Winter Road	F, M		Group	1	08:59:00		8	2												end of survey	
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	10:30:00		20														
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	10:38:00		20														
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	10:39:00		20								PUT	1050	0		N/A		
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	10:46:00		20														
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	10:54:00		20														
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	10:57:00		20								PUT	1050	0		N/A		
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	11:02:00		15								5xHT	1050	2		05:00		5 min from disturbance to the undisturbed behaviour
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	11:03:00		20														
Group 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	20	Lake	Reid	Gahcho Kue Winter Road	F, M, C		Group	2	11:07:00															Individuals got mixed with the rest of a group, end of survey	
Focal 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	1	Lake	Reid	Gahcho Kue Winter Road			Focal	2	10:30:12		1														
Focal 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	1	Lake	Reid	Gahcho Kue Winter Road			Focal	2	10:39:35		1								PUT 1x	1050	0		N/A		
Focal 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	1	Lake	Reid	Gahcho Kue Winter Road			Focal	2	10:57:53		1								PUT 1x	1050	0		N/A		
Focal 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	1	Lake	Reid	Gahcho Kue Winter Road			Focal	2	10:02:37										5xHT	1050	0		N/A		
Focal 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	1	Lake	Reid	Gahcho Kue Winter Road			Focal	2	10:03:11																
Focal 30-2	12-Mar-23	-26	15	W	553290	7072485	1000	W	1000	W	574	1	Lake	Reid	Gahcho Kue Winter Road			Focal	2	10:07:25															indiv. Got mixed with the rest of the group that got up and started walking, end of survey	
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	12	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	10:50:00		4	2													
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	11	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	10:56:00		7	2													
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	10	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	10:58:00		7	1	1												
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	9	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	11:02:00		8														
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	9	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	11:03:00		9														
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	9	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	11:06:00		7														
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	9	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	11:08:00		5														
Group 30-3	12-Mar-23	-26	10	W	553290	7072485	1100		1100		574	6	Lake	Reid Lake P09	Gahcho Kue Winter Road	F, M, C		Group	3	11:16:00		5														
Focal 30-3	12-Mar-23</																																			

Survey # (ScanType-Day)	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer location Easting	Observer location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Composito	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (0-3)	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew	
																					B	F	S	A	W	T	R									
Focal 31-4A	13-Mar-23	-23	5	W	552226	7082635	900	SW	900	SW	9	1	Lake	P9 -P08 In	Gahcho Kue Winter Road	F, C		Focal	4A	13:40:41														SF, RK		
Focal 31-4A	13-Mar-23	-23	5	W	552226	7082635	900	SW	900	SW	9	1	Lake	P9 -P08 In	Gahcho Kue Winter Road	F, C		Focal	4A	13:41:03														SF, RK		
Focal 31-4B	13-Mar-23	-23	5	W	552226	7082635	900	SW	900	SW	9	1	Lake	P9 -P08 In	Gahcho Kue Winter Road	F, C		Focal	4B	13:50:24	1													SF, RK		
Focal 31-4B	13-Mar-23	-23	5	W	552226	7082635	900	SW	900	SW	9	1	Lake	P9 -P08 In	Gahcho Kue Winter Road	F, C		Focal	4B	13:51:00	1							PU	900	0				SF, RK		
Focal 31-4B	13-Mar-23	-23	5	W	552226	7082635	900	SW	900	SW	9	1	Lake	P9 -P08 In	Gahcho Kue Winter Road	F, C		Focal	4B	14:04:30					1										SF, RK	
Focal 31-4B	13-Mar-23	-23	5	W	552226	7082635	900	SW	900	SW	9	1	Lake	P9 -P08 In	Gahcho Kue Winter Road	F, C		Focal	4B	14:05:15						1	HT	1500	3						SF, RK	
Group 31-5A	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	10	Portage		Gahcho Kue Winter Road	F, M, C		Group	5A	14:20:00	10														RK, SF	
Group 31-5A	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	10	Portage		Gahcho Kue Winter Road	F, M, C		Group	5A	14:28:00	9			1												RK, SF
Group 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	10	Portage		Gahcho Kue Winter Road	F, M, C		Group	5B	14:30:00																RK, SF
Group 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	10	Portage		Gahcho Kue Winter Road	F, M, C		Group	5B	13:38:00																RK, SF
Focal 31-5A	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5A	14:24:59	1															SF, RK
Focal 31-5A	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5A	14:28:52																SF, RK
Focal 31-5A	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5A	14:29:50																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:35:24																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:37:21																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:37:30																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:38:31																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:38:42																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:40:20																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:40:50																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:44:46																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:46:49																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:49:43																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:50:00																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:51:49																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:51:54																SF, RK
Focal 31-5B	13-Mar-23	-23	5	W	551957	7082950	1500	SW	1500	SW	60	1	Portage	8	Gahcho Kue Winter Road	F, M, C		Focal	5B	14:55:00																SF, RK
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:10:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:12:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:14:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:18:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:22:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:25:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:26:00																RK, SF
Group 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	10	Portage	(P7 out) just outside	Gahcho Kue Winter Road	F, M, C		Group	6	15:34:00																RK, SF
Focal 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	1	Portage	7	Gahcho Kue Winter Road	F, M, C		Focal	6	15:09:22																SF, RK
Focal 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	1	Portage	7	Gahcho Kue Winter Road	F, M, C		Focal	6	15:11:36																SF, RK
Focal 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	1	Portage	7	Gahcho Kue Winter Road	F, M, C		Focal	6	15:22:56																SF, RK
Focal 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	1	Portage	7	Gahcho Kue Winter Road	F, M, C		Focal	6	15:25:45																SF, RK
Focal 31-6	13-Mar-23	-22	5	W	548325	7088138	400	SW	400	SW	25	1	Portage	7	Gahcho Kue Winter Road	F, M, C		Focal	6	15:36:37																SF, RK
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	15:55:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:03:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:11:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:12:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:13:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:15:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:15:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460	7078997	450		450		11	10	Lake	Reid In	Gahcho Kue Winter Road	F, M, C		Group	7	16:19:00																RK, SF
Group 31-7	13-Mar-23	-21	5	W	552460</																															

Survey # (ScanType-Day)	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer location Easting	Observer location Northing	Observer distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composition	Herd Composition	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (R-J)	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew			
B	F	S	A	W	T	R																																
Focal 32-2B	14-Mar-23	-33	2	E	582870	7048042	470	SW	470	SW	130	1	Portage	22	Gahcho Kue Winter Road	F, M, C	Focal	2B	10:00:15			1													SF, RK			
Focal 32-2B	14-Mar-23	-33	2	E	582870	7048042	470	SW	470	SW	130	1	Portage	22	Gahcho Kue Winter Road	F, M, C	Focal	2B	10:05:12			1													SF, RK			
Group 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	20	Portage	7	Gahcho Kue Winter Road	F, M, C	Group	3	12:30:00	far to disc	19					1									RK, SF			
Group 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	19	Portage	7	Gahcho Kue Winter Road	F, M, C	Group	3	12:34:00	far to disc	19						2xHT	1000	0		N/A	1 walked out of view			RK, SF			
Group 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	19	Portage	7	Gahcho Kue Winter Road	F, M, C	Group	3	12:38:00	far to disc	18					1									RK, SF			
Group 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	18	Portage	7	Gahcho Kue Winter Road	F, M, C	Group	3	12:39:00	far to disc	18						1xHT	1000	0		N/A	12:45 another galloped downhill, 12:46 3 more followed, 12:52 4 more now downhill out of view			RK, SF			
Group 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	14	Portage	7	Gahcho Kue Winter Road	F, M, C	Group	3	12:47:00	far to disc	14														RK, SF			
Group 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	10	Portage	7	Gahcho Kue Winter Road	F, M, C	Group	3	12:54:00	far to disc	10															RK, SF		
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:22:01			1													SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:22:51			1					HT	1000	0		N/A				SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:28:35			1					PU	1000	0		N/A				SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:31:27				1												SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:31:38			1													SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:33:29								HTx2	1000	1		00:20				SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:34:41																SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:35:00																SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:35:00			1													SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:39:31				1				HT	1000	0		N/A				SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:43:10																SF, RK			
Focal 32-3	14-Mar-23	-28	2	E	547963	7088167	900	W	900	W	150	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	3	12:43:31			1													SF, RK			
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:26:00			17	3													RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:27:00			14	3					1xHT	1000	0		01:00				RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:28:00			17	3													RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:34:00			16	4													RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:42:00			14	6													RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:50:00			18	2													RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:52:00			18						1xHT	1000	0		00:20	2 ind. Looked up				RK, SF	
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:52:00			20														RK, SF		
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:56:00			16	3					PUT	1000	0		N/A	animal briefly looked up and went back to feeding				RK, SF	
Group 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	20	Portage	7 (in)	Gahcho Kue Winter Road	F, M, C	Group	4	14:58:00			17	3													RK, SF		
Focal 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	4	14:19:44			1														SF, RK		
Focal 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	4	14:27:10			1					HT	1000	1		00:20	looking at obs truck as we parked				SF, RK		
Focal 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	4	14:52:23			1														SF, RK		
Focal 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	4	14:56:30			1						PU	1000	0		N/A				SF, RK		
Focal 32-4	14-Mar-23	-25	5	E	547115	7088284	900	SW	900	SW	47	1	Portage	7	Gahcho Kue Winter Road	F, M, C	Focal	4	14:59:00			1														SF, RK		
Group 32-5A	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	9	Lake	Reid	Gahcho Kue Winter Road	F	to discern ar	Group	5A	15:25:00																yes	RK, SF	
Group 32-5A	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	6	Lake	Reid	Gahcho Kue Winter Road	F	to discern ar	Group	5A	15:30:00																yes	RK, SF	
Group 32-5B	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	6	Lake	Reid	Gahcho Kue Winter Road	F	to discern ar	Group	5B	15:31:00																	yes	RK, SF
Group 32-5B	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	6	Lake	Reid	Gahcho Kue Winter Road	F	to discern ar	Group	5B	15:32:00																	yes	RK, SF
Group 32-5B	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	6	Lake	Reid	Gahcho Kue Winter Road	F	to discern ar	Group	5B	15:33:00																	yes	RK, SF
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	1	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:26:20																	yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	1	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:28:05				1													yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	0	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:28:20																	yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	1	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:29:30																	yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	1	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:29:48																	yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	1	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:30:18																	yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E	28	1	Lake	Reid	Gahcho Kue Winter Road	F, C	Focal	5	15:31:56					1				HT	500	1		00:30				yes	SF, RK	
Focal 32-5	14-Mar-23	-22	5	E	552576	7079154	400	E	400	E																												

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Composit	Scan Type	Group #	Time	B	F	# of individuals doing Behaviour ^a					Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew					
																								S	A	W	C	T	R										
Group 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	4	11:12:00	6	6					3												
Group 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	4	11:20:00	7	8															RK, SF, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:49:30	1																SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:51:05							1										SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:52:11			1														SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:52:40					1												SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:53:36																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:54:23							1										SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:55:18																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:55:28							1										SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:57:00																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:57:14																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:58:02																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:58:19																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:59:00																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	10:59:28																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	11:00:02																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	11:00:32																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	11:00:59																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	11:13:37																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	11:13:50																	SF, RK, TN		
Focal 33-4	15-Mar-23	-30	10	E	582798	7048059	380	S	380	S	135	1	Portage	Murdock Lake/portage23	Gahcho Kue Winter Road	F, M, C		Focal	4	11:21:50																	SF, RK, TN		
Group 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	20	Lake	Munn Lake close to P10	Gahcho Kue Winter Road	F, C		Group	5	12:31:00																	end of survey	SF, RK, TN	
Group 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	20	Lake	Munn Lake close to P10	Gahcho Kue Winter Road	F, C		Group	5	12:38:00																		SF, RK, TN	
Group 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	20	Lake	Munn Lake close to P10	Gahcho Kue Winter Road	F, C		Group	5	12:39:00																		SF, RK, TN	
Group 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	20	Lake	Munn Lake close to P10	Gahcho Kue Winter Road	F, C		Group	5	12:47:00																		SF, RK, TN	
Group 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	0	Lake	Munn Lake close to P10	Gahcho Kue Winter Road	F, C		Group	5	12:54:00																		SF, RK, TN	
Group 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	20	Lake	Munn Lake close to P10	Gahcho Kue Winter Road	F, C		Group	5	13:02:00																		end of survey	RK, SF, TN
Focal 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, C		Focal	5	12:31:16																		SF, RK, TN	
Focal 33-5	15-Mar-23	-24	10	E	552426	7062024	600	S	600	S	57	1	Lake	Munn Lake	Gahcho Kue Winter Road	F, C		Focal	5	12:37:01																		SF, RK, TN	
Focal 33-5	15-Mar-23	-24	10	E	55																																		

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Location Northing	Observer Distance	Observer Bearing	Herd Distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ³	Distance to Stressor (m)	Response (0-3) ⁴	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew						
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	08:47:37				1												SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	08:52:41						1										SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	08:53:26					1											SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	08:53:50						1										SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	08:54:07					1											SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	08:56:28	1															SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	09:00:41	1								HTx3	1200	1		00:30			SF, RK				
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	09:02:51	1													0	N/A		SF, RK			
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	09:03:39	1													0	N/A		SF, RK			
Focal 34-1	16-Mar-23	-20	15	S	584671	7045990	1100	W	1100	W	44	1	Portage	P24	Gahcho Kue Winter Road	F, M, C		Focal	1	09:15:00	1																end of survey		SF, RK	
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:23:00			15														RK, SF			
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:27:00			11	1	3				1xHT	900	0		02:00	3 looked up at semi in the distance & went back as it got closer they looked up again but went back to feeding soon		RK, SF				
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:28:00			13		2													RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:29:00			15															RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:31:00			14			1												RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:39:00			11			4			1xHT	900	0		02:30	as semi approached more got alerted and watched it pass, gradually they went back to feeding		RK, SF				
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:39:00			10		5													RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:40:00			8		7													RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:40:00			14		1													RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:41:00			15															RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:47:00			15															RK, SF		
Group 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	15	Portage		Gahcho Kue Winter Road	F, M		Group	2	09:54:00					13		2											end of survey		RK, SF
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:23:42			1						HT	900	1		01:00				SF, RK			
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:38:48			1						HT	900	1		01:00					SF, RK		
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:46:48					1													SF, RK		
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:46:54																		SF, RK		
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:51:06					1														SF, RK	
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:51:35							1											SF, RK		
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:53:33				1														SF, RK		
Focal 34-2	16-Mar-23	-19	15	S	584716	7047761	850	SW	850	SW	53	1	Portage	23/ Murdock Lake	Gahcho Kue Winter Road	F, M		Focal	2	09:53:53																		SF, RK		
Group 34-3A	16-Mar-23	-19	10	S	584716	7047761	850	SW	850	SW	137	10	Lake		Gah																									

Survey # (ScanType-Day)	Date	Temperature C	Wind Speed (km/h)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composition	Herd Composite	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ^a	Distance to Stressor (m)	Response (0-3)	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew							
Focal 34-5	16-Mar-23	-18	10	S	583559	7047956	500	SW	500	SW	33	1	Portage	22	Gahcho Kue Winter Road	F, M, C		Focal	5	12:26:22	1							PU & HT	500	1	02:00			SF, RK							
Focal 34-5	16-Mar-23	-18	10	S	583559	7047956	500	SW	500	SW	33	1	Portage	22	Gahcho Kue Winter Road	F, M, C		Focal	5	12:42:16	1													SF, RK							
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:08:00	15													RK, SF							
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:16:00	15							4xHT	1300	0	06:00	[the 6 minutes includes all 4 of the trucks]		RK, SF							
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:18:00	13			2										2nd semmi passed, heads lifted & followed the truck		RK, SF					
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:19:00	12			3											3rd semi passed, heads lifted		RK, SF				
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:20:00	11			4												4th semi, looked towards the truck		RK, SF			
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:22:00	15																RK, SF				
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:24:00	15																RK, SF				
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:32:00	15																RK, SF				
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:35:00	8				3				PUT 1x	1300	0	02:00	hunters		RK, SF						
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:36:00	12	1				2											RK, SF				
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	15	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:37:00	14					1											13:38 1 ind. Walked out of view		RK, SF		
Group 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	14	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:40:00	14																	RK, SF			
Focal 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	SW	1200	SW	390	14	Portage	P22 end of Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	6	13:48:00	14																	end of survey		SF, RK	
Focal 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	W	1200	W	390	1	Portage	Murdock Lake/Portage22	Gahcho Kue Winter Road	F, M, C		Focal	6	13:10:41	1																SF, RK				
Focal 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	W	1200	W	390	1	Portage	Murdock Lake/Portage22	Gahcho Kue Winter Road	F, M, C		Focal	6	13:16:38	1								HTx4	1300	0	N/A	HTs passed within the span of 4 min. ind. Never looked up/head was tucked down onto body		SF, RK						
Focal 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	W	1200	W	390	1	Portage	Murdock Lake/Portage22	Gahcho Kue Winter Road	F, M, C		Focal	6	13:35:12	1								PU	1300	0	N/A	pickup stopped on road to observe 1 min		SF, RK						
Focal 34-6	16-Mar-23	-18	7	S	575526	7054844	1200	W	1200	W	390	1	Portage	Murdock Lake/Portage22	Gahcho Kue Winter Road	F, M, C		Focal	6	13:44:11	1																end of survey		SF, RK		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:13:00	15																hunters with snowmobiles 2 guns observed getting ready 500m ahead of crew's truck, 13:17 head on snowmobiles		RK, SF		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:17:00	14				1					HT 1x	1100	0	04:00	[4 minutes had arrow going to the 14:21 row]		RK, SF					
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:19:00	11				4												animals alert		RK, SF		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:20:00	8				7					PUT 1x	1100							animals alert		RK, SF	
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:21:00	15																	RK, SF			
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:27:00	11			2	2					2xHT	1100	0	03:00	[3 min had arrow going to 14:30 row]		RK, SF					
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:29:00	14			1														RK, SF			
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:30:00	15																	RK, SF			
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:37:00	15																	RK, SF			
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:44:00	12	2																	RK, SF		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:45:00	12										PUT	1100	0						looked up		RK, SF
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:47:00	13	1		1	3															RK, SF	
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:47:00	11			1	3					1xHT	1100	0								RK, SF	
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:50:00	12	2					1												RK, SF		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:52:00	12	1																	RK, SF		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	15	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:54:00	11	2				2				PUT	1100	0							few for up & left, few changed behaviour to walking		RK, SF
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	8	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	14:56:00	4																		RK, SF		
Group 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	8	Portage	Murdock Lake	Gahcho Kue Winter Road	F, M, C		Group	7	15:00:00	4																		end of survey		RK, SF
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:13:52		1																	pickup with hunters parked nearby preparing for hunting herd		SF, RK
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:14:53						1														SF, RK	
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:15:19		1																		SF, RK	
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:17:55		1								HT	1100	0	N/A							SF, RK	
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:19:56		1								PU	1100	0	N/A								SF, RK
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:20:40				1																	SF, RK
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21	Gahcho Kue Winter Road	F, M, C		Focal	7	14:21:00		1																			SF, RK
Focal 34-7	16-Mar-23	-17	10	S	575023	7055659	1000	W	1000	W	211	1	Portage	Murdock Lake/Portage21																											

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Survey # (Scan Type-Day)	Date	Temperature C	Wind Speed (km/h)	Wind Direction	Observer Eastings	location Northings	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composition	Herd Composition	Scan Distance	Group #	Time	B	F	S	A	W	T	R	Stressor ^a	Distance to Stressor (m)	Response (0-3)	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew			
Group 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	15	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	2	09:48:00	14		1											1 sparring with another individual (not observed)		RK, SF, MS		
Group 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	15	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	2	09:56:00	8		6			1								end of survey		RK, SF, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:14:43						1								same as group 1		SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:14:59			1													SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:15:14		1														SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:36:32						1										SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:37:11		1														SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:37:26						1										SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:37:54			1													SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:38:28						1										SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:39:25				1												SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:39:37						1										SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:40:01				1											sparring with other male		SF, RK, MS	
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:41:07				1												SF, RK, MS		
Focal 36-2	18-Mar-23	-18	12	E	584598	7045677	680	NW	680	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	2	09:56:42						1									end of survey		SF, RK, MS	
Group 36-3A	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	12	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3A	10:08:00				12											3rd subset		RK, SF, MS	
Group 36-3A	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	12	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3A	10:16:00	2	10													group mixed with others, new subset chosen		RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:24:00	10															RK, SF, MS		
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	0	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:32:00																RK, SF, MS		
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:37:00	9	1								1xHT	500	0		N/A			RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:40:00	9	1															RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:43:00	9				1					1xHT	500	0		00:10	1 looked briefly up towards semi & returned to bedding		RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:43:00	9	1															RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:48:00	9	1															RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	10:56:00	9	1															RK, SF, MS	
Group 36-3B	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	10	Portage	24	Gahcho Kue Winter Road	F, M, C	Group	3B	11:04:00	8	2														end of survey		RK, SF, MS
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:04:35	1															same as group 1 + 2, looking at obs truck for 1 min		SF, RK, MS
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:06:15				1													SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:07:44						1											SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:07:58			1														SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:08:37							1										SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:09:16					1												SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:09:52			1														SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:18:15				1													SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:19:14			1														SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:21:54				1													SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:23:41						1											SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:24:01					1												SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:24:28			1														SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:27:00						1											SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:27:24			1														SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:28:15							1										SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:28:40				1													SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:29:51																	SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:31:00			1														SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:31:50							1										SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:35:07						1											SF, RK, MS	
Focal 36-3	18-Mar-23	-18	12	E	584738	7046153	450	NW	450	NW	1300	1	Portage	24	Gahcho Kue Winter Road	F, M, C	Focal	3	10:35:25				</														

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd Distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ²	Distance to Stressor (m)	Response (0-3) ³	Time to Return to Previous Behaviour (before stressor) (minutes) (rowandel)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew				
Focal 36-6	18-Mar-23	-18	10	E	584798	7047022	600	W	600	W	265	1	Portage	24/lake	Gahcho Kue Winter Road	F, M, C		Focal	6	13:09:01	1								HT	650	0	N/A			SF, RK, MS			
Focal 36-6	18-Mar-23	-18	10	E	584798	7047022	600	W	600	W	265	1	Portage	24/lake	Gahcho Kue Winter Road	F, M, C		Focal	6	13:20:33	1								HT	650	0	N/A		ind was alert prior ro the HT approaching, did not look in direction of road		SF, RK, MS		
Focal 36-6	18-Mar-23	-18	10	E	584798	7047022	600	W	600	W	265	1	Portage	24/lake	Gahcho Kue Winter Road	F, M, C		Focal	6	13:24:57	1													end of survey		SF, RK, MS		
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	13:35:05		5													RK, SF, MS			
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:03:00		5													RK, SF, MS			
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:05:00		5								cat + snowplough	1400	0	N/A	both in then out & in, berm maintenance, both machines going back and forth, group is too far to respond, group is out of view every minute for ~10 sec when machines block the view and blow the snow		RK, SF, MS		
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:11:00		5									1xPUT	1400	0	N/A			RK, SF, MS	
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:16:00		5														RK, SF, MS		
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:19:00		5														RK, SF, MS		
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:21:00		5									1xPUT	1400	0	N/A			RK, SF, MS	
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:27:00		5														RK, SF, MS		
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:35:00	2	3														RK, SF, MS		
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:41:00	2	3									1xPUT	1400	0	N/A			RK, SF, MS	
Group 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	5	Portage	P22	Gahcho Kue Winter Road	F, M, C		Group	7	14:43:00	2	3															RK, SF, MS	
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	1	Portage	22	Gahcho Kue Winter Road	F, M, C	bull 4 calve	Focal	7	14:07:00	1										grader + loader	1300	0	N/A	equipment at work on road, herd not reactive		SF, RK, MS	
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	1	Portage	22	Gahcho Kue Winter Road	F, M, C	bull 4 calve	Focal	7	14:08:38	1															SF, RK, MS		
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	1	Portage	22	Gahcho Kue Winter Road	F, M, C	bull 4 calve	Focal	7	14:16:30	1										PU	1300	0	N/A			SF, RK, MS	
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	1	Portage	22	Gahcho Kue Winter Road	F, M, C	bull 4 calve	Focal	7	14:21:45	1										PU	1300	0	N/A			SF, RK, MS	
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	1	Portage	22	Gahcho Kue Winter Road	F, M, C	bull 4 calve	Focal	7	14:41:54	1										PU	1300	0	N/A	PU circled in area for 5 min with obs. Truck		SF, RK, MS	
Focal 36-7	18-Mar-23	-17	10	E	575047	7055870	1300	W	1300	W	50	1	Portage	22	Gahcho Kue Winter Road	F, M, C	bull 4 calve	Focal	7	14:46:45	1														end of survey		SF, RK, MS	
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:00:00		16														RK, SF, MS		
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:08:00		16														RK, SF, MS		
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:16:00		16														RK, SF, MS		
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:23:00					16		16			1xHT	500	3	03:00		standing alert watching semi		RK, SF, MS	
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:24:00																RK, SF, MS		
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:26:00		16														RK, SF, MS		
Group 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	16	Portage	P19-20 out	Gahcho Kue Winter Road	F, M, C		Group	8	15:32:00						1										ind. Walked out of view, end of survey		RK, SF, MS
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:03:43	1															SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:21:57					1											SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:22:25				1												SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:22:48					1											SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:23:10					1					PU	500	2	02:00	part of group ran from road		SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:24:44						1										SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:25:37																SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:25:47	1															SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:28:35						1										SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:29:00		1														SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:32:41				1												SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:33:21			1													SF, RK, MS		
Focal 36-8	18-Mar-23	-17	10	E	576636	7059784	460	SW	460	SW	320	1	Portage	20	Gahcho Kue Winter Road	F, M, C		Focal	8	15:39:00		1														end of survey		SF, RK, MS
Group 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	5	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Group	9	16:05:00					5										yes	SF, RK, MS		
Group 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	5	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Group	9	16:10:00				3		2				1xHT	800	1	00:15	animals stopped and looked towards semi		SF, RK, MS		
Group 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	5	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Group	9	16:10:00					5										yes	SF, RK, MS		
Group 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	5	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Group	9	16:11:00				5						grader blower	800	1	01:00	stand and watch		SF, RK, MS		
Group 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	5	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Group	9	16:12:00						5									yes	SF, RK, MS		
Focal 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	1	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Focal	9	16:09:33							1								yes	SF, RK, MS		
Focal 36-9	18-Mar-23	-17	10	E	574375	7060464	700		700		200	1	Portage	portage 17/lake	Gahcho Kue Winter Road	F, M, C		Focal	9	16:09:33				1						grader loader	780	1	01:00		yes	SF, RK, MS		
Focal 36-9	18-Mar-23	-17	10	E	574375	7060464	700</																															

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd Distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a						Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew		
																						B	F	S	A	W	T	R							
Group 37-2	19-Mar-23	-30	10	E	584601	7045669	600	W	600	W	125	2	Portage	P24	Gahcho Kue Winter Road	F, M, C		Group	2	11:04:00				2											
Group 37-2	19-Mar-23	-30	10	E	584601	7045669	600	W	600	W	125	2	Portage	P24	Gahcho Kue Winter Road	F, M, C		Group	2	11:04:00						2									
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	09:57:12			1												
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	09:58:13							1								
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	09:59:08									1						
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:00:03										1					
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:00:46										1					
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:01:57											1				
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:02:56											1				
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:03:18												1			
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:03:50											1				
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:04:25												1			
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:04:58												1			
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:05:31													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:06:30													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:07:00													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:09:04													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:09:41															
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:10:04													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:11:34													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:12:10													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:21:20															
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:22:10													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:22:36													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:25:22														1	
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:25:46													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:27:50														1	
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:28:00													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:28:26													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:28:50													1		
Focal 37-2	19-Mar-23	-30	10	E	584601	7045669	500	W	500	W	125	1	Portage	Portage 24 in/lake	Gahcho Kue Winter Road	F, M, C	3 bulls	Focal	2	10:32:18													1		
Focal 37-2	19-Mar-23	-30																																	

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew	
																						B	F	S	A	W	T	R								
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:16:53																
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:17:10					1											
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:17:25							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:19:35							1			PU	200	3	01:00	herd moved further from road		
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:21:30							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:21:51								1								
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:23:33									1							
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:29:31							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:29:58									1							
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:31:05							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:31:20								1								
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:32:30							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:33:53								1			PU	500	1	01:00		
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:37:04							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:37:20									1							
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:41:18							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:41:31								1								
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:49:40								1			HTx2	500	1	01:00		
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:50:41									1							
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:51:19							1									
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:51:28									1							
Focal 37-6	19-Mar-23	-26	12	SE	575023	7055589	200	E	200	E	70	1	Lake		Gahcho Kue Winter Road	F, M, C	11:07:04	Focal	6	14:54:40									1							
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:07:00	12															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:09:00	9															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:09:00	12															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:13:00	11															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:13:00	12															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:15:00	12															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:23:00	12															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:24:00	11															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94	12	Lake		Gahcho Kue Winter Road	F, M, C		Group	7	15:24:00	12															
Group 37-7	19-Mar-23	-24	12	SE	575139	7057280	700	W	700	W	94																									

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer	Location Easting	Location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Compositio	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a						Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew											
																							B	F	S	A	W	C	T	R															
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:52:50				1													SF, RK, MS						
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:53:00	1																	SF, RK, MS					
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:54:54	1																	SF, RK, MS					
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:56:41				1														SF, RK, MS					
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:58:35						1												SF, RK, MS					
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:59:11				1														SF, RK, MS					
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	10:59:53	1																	SF, RK, MS					
Focal 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	1	Lake	lake/portage(24)	Gahcho Kue Winter Road	F, M, C		Focal	3	11:19:10	1																		SF, RK, MS				
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:46:00	11																		SF, RK, MS				
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:47:00	9								2			1xHT	350	0	00:05	new subset from G2 2 briefly looked up				RK, SF, MS			
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:47:00	11																		RK, SF, MS				
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:50:00	6																		RK, SF, MS				
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:51:00	5																			RK, SF, MS			
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:51:00	5								1											RK, SF, MS			
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:52:00	5																				RK, SF, MS		
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:53:00	5								2												RK, SF, MS		
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:53:00	4								3												RK, SF, MS		
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:53:00	5								2												RK, SF, MS		
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:54:00	4																				RK, SF, MS		
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	12	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:55:00	3								2												RK, SF, MS		
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:56:00	4								4													RK, SF, MS	
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	11	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:57:00	4																					RK, SF, MS	
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	10	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	10:58:00	3																					RK, SF, MS	
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	10	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	11:02:00	3																					RK, SF, MS	
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	8	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	11:10:00	3																					RK, SF, MS	
Group 38-3	20-Mar-23	-31	12	E	584772	7046237	380	N	380	N	380	N	500	8	Portage	out of 24	Gahcho Kue Winter Road	F, M, C		Group	3	11:18:00	4																						RK, SF, MS
Group 38-4	20-Mar-23	-28	15	E	584802	7047024	700	W	700	W	700	W	200	15	Portage	close to 23	Gahcho Kue Winter Road	F, M, C		Group	4	11:37:00	12																						RK, SF, MS
Group 38-4	20-Mar-23	-28	15	E																																									

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Survey # (ScanType-Day)	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer location Eastings Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Composito	Scan Type	Group #	Time	# of individuals doing Behaviour ^a								Stressor ^b	Distance to Stressor (m)	Response (0-3)	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew		
																				B	F	S	A	W	T	R										
Focal 40-6	22-Mar-23	-21	5	N	550285 7063581	100		100		55	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	6	12:53:33	1													BP, GO			
Focal 40-6	22-Mar-23	-21	5	N	550285 7063581	100		100		55	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	6	12:54:30	1								Truck	100	0				BP, GO		
Focal 40-6	22-Mar-23	-21	5	N	550285 7063581	100		100		55	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	6	12:56:10	1								Truck x2	100	0				BP, GO		
Focal 40-6	22-Mar-23	-21	5	N	550285 7063581	100		100		55	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	6	13:01:00	1														BP, GO		
Focal 40-6	22-Mar-23	-21	5	N	550285 7063581	100		100		55	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	6	13:07:00	1														BP, GO		
Group 40-7	22-Mar-23	-21	5		553244 7076616	400		400		237	37	Portage	Gahcho Kue Winter Road				Group	7	13:29:00	34		3												BP, GO		
Group 40-7	22-Mar-23	-21	5		553244 7076616	400		400		237	37	Portage	Gahcho Kue Winter Road				Group	7	13:37:00	36		1												BP, GO		
Group 40-7	22-Mar-23	-21	5		553244 7076616	400		400		237	37	Portage	Gahcho Kue Winter Road				Group	7	13:45:00	37														BP, GO		
Group 40-7	22-Mar-23	-21	5		553244 7076616	400		400		237	37	Portage	Gahcho Kue Winter Road				Group	7	13:53:00	37														BP, GO		
Focal 40-7	22-Mar-23	-21	5	N	553244 7076616	400		400		237	1	Portage	Gahcho Kue Winter Road				Focal	7	13:29:00	1														BP, GO		
Focal 40-7	22-Mar-23	-21	5	N	553244 7076616	400		400		237	1	Portage	Gahcho Kue Winter Road				Focal	7	13:37:00	1														BP, GO		
Focal 40-7	22-Mar-23	-21	5	N	553244 7076616	400		400		237	1	Portage	Gahcho Kue Winter Road				Focal	7	13:53:00	1														BP, GO		
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:01:00	20														BP, GO		
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:04:00	20								Truck	850	0				[for herd size] others possibly observed	BP, GO	
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:09:00	20															BP, GO	
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:17:00	20															BP, GO	
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:24:00	20								Truck	850	0					BP, GO	
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:26:00	20															BP, GO	
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:30:00	20								Truck & LV	850	0					BP, GO	
Group 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	20	Lake	Gahcho Kue Winter Road				Group	8	14:34:00	20															BP, GO	
Focal 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	1	Lake	Gahcho Kue Winter Road				Focal	8	14:01:20	1															BP, GO	
Focal 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	1	Lake	Gahcho Kue Winter Road				Focal	8	14:04:22	1								Truck	850	0					BP, GO	
Focal 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	1	Lake	Gahcho Kue Winter Road				Focal	8	14:24:40	1								Truck	850	0					BP, GO	
Focal 40-8	22-Mar-23	-20	5	N	552717 7079183	800		800		127	1	Lake	Gahcho Kue Winter Road				Focal	8	14:30:20	1								Truck & LV	850	0					BP, GO	
Group 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	4	Portage	25		M		Group	1	10:00:00			4													BP, GO	
Group 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	4	Portage	25		M		Group	1	10:00:00																BP, GO	
Group 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	3	Portage	25		M		Group	1	10:08:00			3													BP, GO	
Group 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	2	Portage	25		M		Group	1	10:16:00			2													BP, GO	
Group 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	3	Portage	25		M		Group	1	10:24:00			2	1												BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:00:00			1													BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:00:30									HT	200	1					[maybe?]	BP, GO
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:00:45																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:01:00																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:01:45			1													BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:01:50																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:02:05																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:02:10																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:02:55																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:03:30																BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:03:45			1													BP, GO	
Focal 41-1	23-Mar-23	-25	8	NW	585475 7044449	200		200		4	1	Portage	25		M		Focal	1	10:10:00																BP, GO	
Group 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	18	Portage	24		F, M		Group	2	10:33:00			2	11	3											lost sight behind hill [maybe partial?]	BP, GO
Group 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	18	Portage	24		F, M		Group	2	10:41:00			1	15												BP, GO	
Group 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	16	Portage	24		F, M		Group	2	10:44:00			1	11												BP, GO	
Group 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	18	Portage	24		F, M		Group	2	10:49:00			1	13	2											BP, GO	
Group 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	18	Portage	24		F, M		Group	2	10:57:00																BP, GO	
Group 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	18	Portage	24		F, M		Group	2	11:05:00			1	14	3											BP, GO	
Focal 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	1	Portage	24		F, M		Focal	2	10:35:00																BP, GO	
Focal 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	1	Portage	24		F, M		Focal	2	10:42:00																BP, GO	
Focal 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	1	Portage	24		F, M		Focal	2	10:44:00			1													BP, GO	
Focal 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	1	Portage	24		F, M		Focal	2	10:48:00				1												BP, GO	
Focal 41-2	23-Mar-23	-24	8	NW	584912 7045252	100		100		114	1	Portage	24		F, M		Focal	2	10:48																	

Survey # (ScanType-Day-)	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a						Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew
																						B	F	S	A	W	T	R					
Focal 41-6	23-Mar-23	-21	11	NNE	558359	7065734	200		200		23	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	14:40:00												BP, GO	
Focal 41-6	23-Mar-23	-21	11	NNE	558359	7065734	200		200		23	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	14:40:30		1										BP, GO	
Focal 41-6	23-Mar-23	-21	11	NNE	558359	7065734	200		200		23	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	14:48:00		1										BP, GO	
Group 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	11	Lake	Gahcho Kue Winter Road	F, M, C			Group	7	15:17:00	11											BP, GO	
Group 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	11	Lake	Gahcho Kue Winter Road	F, M, C			Group	7	15:25:00	11											BP, GO	
Group 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	11	Lake	Gahcho Kue Winter Road	F, M, C			Group	7	15:33:00	11											BP, GO	
Group 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	0	Lake	Gahcho Kue Winter Road	F, M, C			Group	7	15:40:00												BP, GO	
Group 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	11	Lake	Gahcho Kue Winter Road	F, M, C			Group	7	15:40:00	11						Pickup	700	0			BP, GO	
Group 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	11	Lake	Gahcho Kue Winter Road	F, M, C			Group	7	15:41:00												BP, GO	
Focal 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	7	15:21:00	1											BP, GO	
Focal 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	7	15:33:00	1											BP, GO	
Focal 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	7	15:40:00	1											BP, GO	
Focal 41-7	23-Mar-23	-21	11	NNE	553130	7077179	700		700		134	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	7	15:41:00	1											BP, GO	
Group 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	15	Portage	Gahcho Kue Winter Road	F, M			Group	1	08:42:00		15											BP, JV
Group 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	15	Portage	Gahcho Kue Winter Road	F, M			Group	1	08:50:00		12	3										BP, JV
Group 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	15	Portage	Gahcho Kue Winter Road	F, M			Group	1	08:52:00		10	1		4			Truck	650	0			BP, JV
Group 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	0	Portage	Gahcho Kue Winter Road	F, M			Group	1	08:54:00								LV with trailer	650	0			BP, JV
Group 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	15	Portage	Gahcho Kue Winter Road	F, M			Group	1	08:58:00		14	1										BP, JV
Group 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	15	Portage	Gahcho Kue Winter Road	F, M			Group	1	09:06:00		12	3										BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:42:30	1											BP, JV	
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:42:40		1	1									BP, JV	
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:43:02		1										BP, JV	
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:43:25					1							BP, JV	
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:43:43		1										BP, JV	
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:45:22				1								BP, JV	
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:45:27		1											BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:49:07					1								BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:49:20					1								BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:49:40					1								BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:49:54		1											BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:51:20					1								BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:52:00		1						Truck	650	0			BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:54:30		1						LV with trailer	650	0			BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:56:30				1									BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:56:50					1								BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:56:52													BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	08:56:52		1											BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	09:03:46					1								BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	09:04:01													BP, JV
Focal 42-1	24-Mar-23	-25	11	NE	584905	7045255	686		686		40	1	Portage	Gahcho Kue Winter Road	F, M			Focal	1	09:06:52		1											BP, JV
Group 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	10	Portage	Gahcho Kue Winter Road	F, M			Group	2	10:36:00						1							BP, JV
Group 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	10	Portage	Gahcho Kue Winter Road	F, M			Group	2	10:44:00													BP, JV
Group 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	10	Portage	Gahcho Kue Winter Road	F, M			Group	2	10:49:00		9	1					semi	940	0			BP, JV
Group 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	10	Portage	Gahcho Kue Winter Road	F, M			Group	2	10:52:00		1	7	1		1							BP, JV
Group 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	10	Portage	Gahcho Kue Winter Road	F, M			Group	2	11:00:00				3	7								BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:36:00		1											BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:39:33					1								BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:39:40						1							BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:39:51		1											BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:40:00						1							BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:40:06		1											BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:41:51					1								BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal			Focal	2	10:41:58		1											BP, JV
Focal 42-2	24-Mar-23	-25	11	NE	559932	7064909	950		950		32	1	Portage	Gahcho Kue Winter Road	Focal																		

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer location Easting	Observer location Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	B	F	S	A	W	T	R	Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew		
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:55:44				1											BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:55:59					1										BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:56:01					1										BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:56:28						1									BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:56:54					1										BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:58:35						1									BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	13:59:40															BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	14:03:30								1							BP, JV	
Focal 42-6	24-Mar-23	-23	11	NE	549949	7087859	800		800		32	1	Portage	Gahcho Kue Winter Road	F, M			Focal	6	14:03:48																BP, JV
Group 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	20	Portage	Gahcho Kue Winter Road	F, M, C			Group	7	14:16:00	1	18													BP, JV	
Group 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	20	Portage	Gahcho Kue Winter Road	F, M, C			Group	7	14:24:00	1	16	2													BP, JV
Group 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	20	Portage	Gahcho Kue Winter Road	F, M, C			Group	7	14:32:00	3	17														BP, JV
Group 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	20	Portage	Gahcho Kue Winter Road	F, M, C			Group	7	14:40:00	3	17														BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:17:42			1													BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:18:20							1									BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:18:44			1													BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:22:22							1									BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:22:36			1													BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:32:59					1											BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:33:09			1													BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:33:30					1											BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:33:50																BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:33:57			1													BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:37:35					1											BP, JV
Focal 42-7	24-Mar-23	-19	11	NE	547212	7088274	800		800		170	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	7	14:38:20				1												BP, JV
Group 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	22	Portage	Gahcho Kue Winter Road	F, M, C			Group	8	16:28:00	20	2														BP, JV
Group 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	22	Portage	Gahcho Kue Winter Road	F, M, C			Group	8	16:36:00	20	2			1											BP, JV
Group 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	22	Portage	Gahcho Kue Winter Road	F, M, C			Group	8	16:44:00	19	2														BP, JV
Group 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	22	Portage	Gahcho Kue Winter Road	F, M, C			Group	8	16:52:00	19	2	1													BP, JV
Focal 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	8	16:28:50			1													BP, JV
Focal 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	8	16:34:20					1											BP, JV
Focal 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal	8	16:34:45			1													BP, JV
Focal 42-8	24-Mar-23	-22	11	NE	557512	7065424	550		550		103	1	Portage	Gahcho Kue Winter Road	F, M, C			Focal																		

ScanType-Day	Date	Temperature C	Wind Speed (km/hr)	Wind Direction	Observer Easting	Observer Northing	Observer Distance	Observer Bearing	Herd distance	Bearing to Herd	Herd Size	Group Size	Lake or Portage?	Location Description	Survey Area	Herd Composit	Herd Compositio	Scan Type	Group #	Time	# of individuals doing Behaviour ^a						Stressor ^b	Distance to Stressor (m)	Response (0-3) ^c	Time to Return to Previous Behaviour (before stressor) (minutes:seconds)	Comments (including if only some or all responded to stressor)	Surveys Under Time	Crew			
																						B	F	S	A	W	T	R								
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:21:58				1												
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:22:21					1					2 semi trucks	1000	1	01:00	2 semi trucks going opposite ways		BP, JB
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:23:52				1												
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:27:26						1										
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:29:25				1												
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:29:54						1										
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:30:27					1											
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:30:50						1										
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:31:36							1									
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:32:08							1									
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:32:39							1									
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:33:18						1										
Focal 43-3	25-Mar-23	-30	10	W	552061	7062179	1000	S	1000	S	9	1	Lake	Gahcho Kue Winter Road				Focal	3	11:34:46							1									
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	11:47:00			7													
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	11:49:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	11:55:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	11:56:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	12:03:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	12:09:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	12:11:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	12:12:00																
Group 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	7	Lake	Gahcho Kue Winter Road	F, M, C			Group	4	12:20:00																
Focal 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	4	11:48:28																
Focal 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	4	11:49:40																
Focal 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	4	11:56:30																
Focal 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	4	12:09:00																
Focal 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	4	12:12:10																
Focal 43-4	25-Mar-23	-29	10	W	550212	7064144	600		600		7	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	4	12:21:10																
Group 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	8	Lake	Gahcho Kue Winter Road	F, M, C			Group	5	12:46:50																
Group 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	8	Lake	Gahcho Kue Winter Road	F, M, C			Group	5	12:50:40																
Group 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	8	Lake	Gahcho Kue Winter Road	F, M, C			Group	5	12:58:12																
Group 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	8	Lake	Gahcho Kue Winter Road	F, M, C			Group	5	13:06:05																
Group 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	8	Lake	Gahcho Kue Winter Road	F, M, C			Group	5	13:14:18																
Focal 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	5	12:46:50																
Focal 43-5	25-Mar-23	-27	10	W	552511	7078791	350	S	350	S	23	1	Lake	Gahcho Kue Winter Road	F, M, C			Focal	5	12:50:40																
Focal 43-5	25-Mar-23	-27</																																		

