1 April 2024

To: Distribution List (attached below):

Re: Submission of the Ekati Diamond Mine 2023 Wildlife Effects Monitoring Plan Annual Report

Burgundy Diamond Mines Ltd. (Burgundy) is pleased to provide you with a copy of the 2023 Wildlife Effects Monitoring Plan Annual Report. The Wildlife Effects Monitoring Plan (WEMP) reports on wildlife monitoring activities and documents wildlife effects resulting from mining development and associated activities at the Ekati Diamond Mine. The WEMP also assesses the effectiveness of wildlife mitigation and management efforts. The program focuses on animal species identified as potentially experiencing residual effects from some aspect of the Project, termed Valued Ecosystem Components or VECs (e.g., caribou, grizzly bear, wolf, wolverine, and raptors). This report covers the reporting period from January 1st , 2023, to December 31st , 2023.

Burgundy is requesting reviewers submit their comments on the 2023 WEMP Annual Report by May 31st , 2024. Burgundy will provide responses to comments by July 31st , 2024.

For any questions or concerns regarding the content of the report, please contact the undersigned at 403-910-1933 ext. 2408/ Adam.Scott@burgundydiamonds.com or Kurtis Trefry, Team Leader - Environmental Management and Reporting, at 403-650-1310/ Kurtis.Trefry@burgundydiamonds.com.

Adam Scott
Environment Advisor- Wildlife

Burgundy Diamond Mines Limited
Level 25, South 32 Tower, 108 St Georges Terrace, Perth WA 6000, AUSTRALIA | Ph: +61 8 6313 3945
Suite 900, 606 Fourth Street S.W., Calgary, Alberta, T2P 1T1, CANADA | Ph: +1 403 910 1933
Schupstraat 15, 2018 Antwerp, Belgium

Burgundy is the sole owner and operator of Ekati mine, having purchased the asset from the previous owner, Arctic Canadian Diamond Company Limited, in July 2023. Burgundy is the parent company of Arctic Canadian, which continues to maintain the previous company name as the named Licence/Permit holder however, all business is conducted directly by Burgundy.

Record#: HSE RDC ENV 1971

Document Owner: Environment Department

Date: 1-April-2024

Burgundy Diamond Mines Limited
Level 25, South 32 Tower, 108 St Georges Terrace, Perth WA 6000, AUSTRALIA | Ph: +61 8 6313 3945
Suite 900, 606 Fourth Street S.W., Calgary, Alberta, T2P 1T1, CANADA | Ph: +1 403 910 1933
Schupstraat 15, 2018 Antwerp, Belgium

Distribution List:

Alan Alex - Environmental Officer, North Slave Metis Alliance

Anneli Jokela- Wek'eezhii Land and Water Board

Brett Wheler- Brett Wheler, Department of Culture & Lands Protection Climate Change, Department of Environment and Natural Resources

Emery Paquin- Chairperson, IEMA

James Hodson – Manager, Habitat and Environmental Assessment, Department of Environment and Natural Resources

Johanne Black– Director - Environment Department

Katrina Hatogina – Project Officer, Kitikmeot Inuit Association khatogina@lands.kitia.ca

Laurie McGregor – Environmental Assessment Analyst, Environmental Stewardship and

Marc Casas – Executive Director, Independent Environmental Monitoring Agency

Megan Larose - Environmental Specialist - Crown-Indigenous Relations and Northern Affairs Canada

Michael Roesch - Sr Program Manager - Crown-Indigenous Relations and Northern Affairs Canada

Minnie Whimp – Lands Coordinator- DKFN Lands

Noah Johnson - Lead Regulatory Officer

Orna Phelan– Wildlife Biologist

Ryan Miller – Project Coordinator, Environment Department, Yellowknives Dene First Nation

Shawn McKay – Environment Coordinator- frmcenvironment@northwestel.net

Tas-Tsi Catholique – Manager – Wildlife, Lands and Environment Department

Violet Camsell-Blondin – Manager, Lands Regulatory Department, Tłı̨chǫ Government

Burgundy Diamond Mines Limited
Level 25, South 32 Tower, 108 St Georges Terrace, Perth WA 6000, AUSTRALIA | Ph: +61 8 6313 3945
Suite 900, 606 Fourth Street S.W., Calgary, Alberta, T2P 1T1, CANADA | Ph: +1 403 910 1933
Schupstraat 15, 2018 Antwerp, Belgium

EKATI DIAMOND MINE

2023 Wildlife Effects Monitoring Program

March 2024

BURGUNDY
DIAMOND MINES

SIGNATURE PAGE

Ekati Diamond Mine

2023 Wildlife Effects Monitoring Program

March 2024

Greg Sharam, Ph.D
Technical Consulting Director

Sarah Dando
Project Manager

ERM Consultants Canada Ltd.
Suite 200, 5112 52nd Street
Yellowknife, NWT
Canada X1A 1T6
T: +1 604 689 9460
F: +1 604 687 4277

EXECUTIVE SUMMARY

Burgundy is the sole owner and operator of Ekati mine, having purchased the asset from the previous owner, Arctic Canadian Diamond Company Limited (Arctic Canadian), in July 2023. Based on the transaction terms, Burgundy is the parent company of Arctic Canadian, which continues to maintain the previous company name as the named Licence/Permit holder however, all business is conducted directly by Burgundy.

Burgundy Diamond Mines Ltd. (Burgundy) implements a number of environmental plans and programs, all of which are interrelated (Figure 1). The results of the Wildlife Effects Monitoring Program (WEMP) are driven directly and/or indirectly by the plans in place, each with the overarching goal to protect land, air, water, and wildlife.

The following report presents the results of the 2023 WEMP conducted at the Ekati Diamond Mine to meet the requirements of the Environmental Agreement (Article V1(a) and Article VII) and the *Wildlife Act* (subsection 95(1) [1998]). The WEMP reports on wildlife monitoring activities and documents wildlife effects resulting from mining development and associated activities at the Ekati Diamond Mine. The WEMP also assesses the effectiveness of wildlife mitigation and management efforts. The program focuses on animal species identified as potentially experiencing residual effects from some aspect of the project, termed Valued Ecosystem Components or VECs (e.g., caribou, grizzly bear, wolf, wolverine, and raptors). This report covers the period from January 1, 2023, to December 31, 2023 (hereafter the 2023 reporting period).

Wildlife monitoring around the Ekati Diamond Mine is conducted in a study area of approximately 2,800 km^2 (square kilometres). The predominant vegetation type within the study area is heath tundra.

Habitat Alteration and Loss

Habitat loss reported from January 2023 to December 2023 was the result of expansion of the Sable East Waste Rock Storage Area. Total habitat loss in 2023 was 19.6 ha (hectares) (less than 0.01% of available habitat in study area). The amount of direct habitat loss caused by the project footprint from 1997 to 2023 is 3,947.6 ha (2.5% of the total pre-development habitat in the study area).

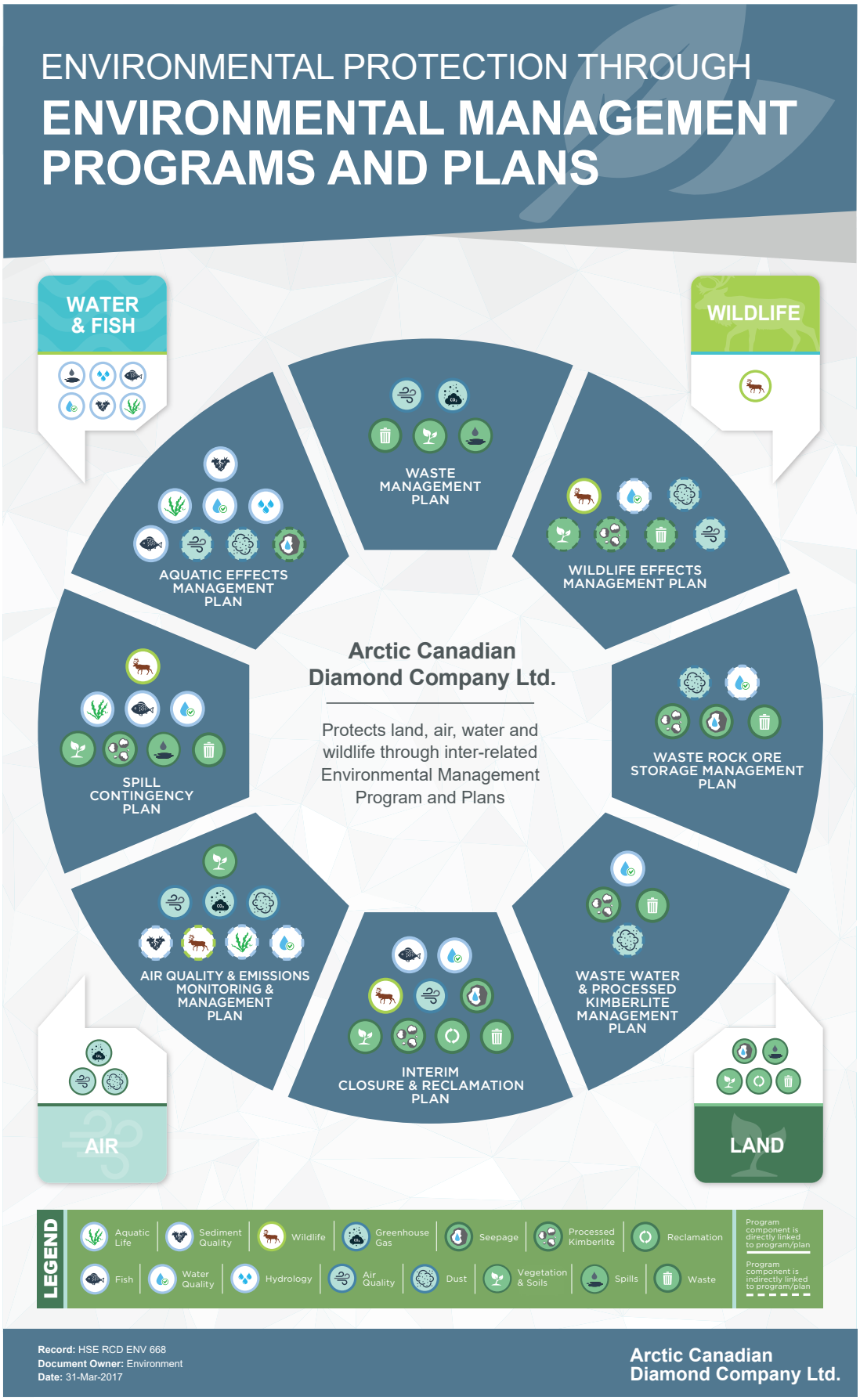
Wildlife Attractants and Waste Management

Waste is managed to minimize the presence of wildlife attractants throughout the Ekati Diamond Mine Site. As part of the WEMP, the landfill and waste bins are surveyed once or twice per week. The percentage of surveys detecting food or food packages at the landfill was 27% in 2023, which was similar to 2022 (28%).

Overall, 4% of waste bins surveyed in 2023 contained items of misdirected waste or wildlife attractants at the Ekati Diamond Mine Main Camp. At Misery Camp and Sable Office, 3% of waste bins surveyed contained misdirected wastes, or wildlife attractants. Results at the Ekati Diamond Mine Main Camp are higher than those recorded in 2020 and 2021 but similar to 2022; misdirected waste percentages in 2023 have remained the same as 2022 at Misery Camp. Wildlife sightings and signs are slightly higher than previous years, but generally remain low in 2023 at both camps (4-6% of all surveys).

Improper disposal of waste is an ongoing challenge that Burgundy considers a management priority and the responsibility of all personnel to address. Strategies employed include regular education efforts that stress the dangers posed to wildlife and personnel from improperly discarded waste; increased communication with the Waste Management Department to isolate the origin of any reported misdirected waste; provision of on the ground training to individual departments; and timely cleanup of improperly discarded waste.

FIGURE 1 ENVIRONMENTAL PROTECTION THROUGH ENVIRONMENTAL MANAGEMENT PROGRAM AND PLANS



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GRAPHICS NUMBER: EKA-24ERM-022

Wildlife Management

During the 2023 reporting period, 491 general wildlife management actions were implemented in response to wildlife activity at the Ekati Diamond Mine, including actions directed at caribou (*Rangifer tarandus;* 153), grizzly bear (*Ursus arctos*; 276), wolf (*Canis lupus*; 19), wolverine (*Gulo gulo*; four), fox (*Vulpes vulpes*; 11), moose (*Alces alces*; two). The remaining wildlife management actions (26) were general to all wildlife, or a combination of species, encountered. Management actions implemented in 2023 followed a successive hierarchy, starting with site-wide notifications, wildlife notice signs, road closures and/or work stoppages. Burgundy continues to explore effective mitigation actions to reduce potential interactions with wildlife.

The Caribou Road Mitigation Plan (CRMP), a three-level hierarchy of management and mitigation above the regular Operational Level response to wildlife interactions with roads at the Ekati Diamond Mine, was applied to Misery Road and Sable Road beginning in mid-2016. The 2023 reporting year represents the seventh full year that the CRMP was implemented. In 2023, the Operational Level (Blue) was in effect for 17 days in January and 15 days December while CRMP alert levels beyond the Operational Level were triggered for the majority of the year due to caribou occurrences near the roads. Level 1 (Yellow – low risk) was triggered on one occasion for a duration of nine days, Level 2 (orange – medium risk) on one occasion for eight days, and Level 3 (Red – high risk) was triggered for a duration of 284 days. Reporting management activities that adhere to the CRMP will continue to be a component of future iterations of the WEMP Report.

Wildlife-Vehicle Interactions

During the 2023 reporting period, there were 23 vehicle-related wildlife mortalities reported at the Ekati Diamond Mine involving arctic hare (*Lepus arcticus*; 10 individuals), rock ptarmigan (*Lagopus muta*; six individuals), willow ptarmigan (*Lagopus lagopus;* one individual), unknown ptarmigan species (*Lagopus* sp.; four individuals) and arctic ground squirrel (*Urocitellus parryii;* two individuals). There were no aircraft-related mortalities or interactions with the airstrip in the 2023 reporting period. Mitigation efforts to reduce wildlife conflicts with aircraft and ground traffic include a variety of measures: always giving wildlife the right-of-way, employee education, reducing speed limits, and site-wide notifications about wildlife observations, road closures, and the use of Inuksuit (traditional rock structures) to discourage wildlife from approaching high traffic areas.

Three interactions between wildlife and vehicles occurred in 2023. One event involved vehicle mitigation, when an adult and juvenile caribou were observed feeding near a haul road, causing a reduction in the haul road speed limit until the individuals safely moved away. Two events involved grizzly bears, an adult and cubs, approaching and inspecting stopped vehicles on the haul roads. All individuals involved in wildlife-vehicle interactions were unharmed and all work continued when the wildlife moved out of the area.

Use of vehicles to deter wildlife were not required for caribou on roads in 2023. To provide additional wildlife safety, visual monitoring, temporary road closures, site-wide notifications, and/or wildlife signs were implemented while caribou and other wildlife were adjacent to or crossing mine roads. Use of Traditional Knowledge (TK) to inform construction of accessible road crossing ramps and implementation of the CRMP are key measures in limiting wildlife-vehicle interactions.

Non-Vehicle Wildlife Mortalities and Incidents

During the 2023 reporting period, there were 13 wildlife mortalities reported at the Ekati Diamond Mine. They included one VEC species: four caribou, and eight non-VEC species; two juvenile rough-legged hawks, one arctic hare, one white-crowned sparrow, one common raven, one lapland longspur (*Calcarius lapponicus*) and three unknown bird species. The cause of death for the four caribou was potential poaching, the event was reported to the Environmental Department, ECC and the Poacher Hotline. The two juvenile rough-legged hawk mortalities were determined to be caused by interaction with infrastructure, potentially due to accidental interaction with the mine powerline. All other mortalities are due to unknown causes.

During the 2023 reporting period, a total of 49 non-vehicle wildlife incidents were reported, including grizzly bear, which accounted for the majority (33) of the incidents. There were 16 other incidents involving caribou, red fox, common raven, American pipet, American robin, unknown lemmings, unknown foxes, unknown small mammals, and unknown songbirds.

Incidents were related to interactions with mine infrastructure (nine), personnel (12), and both mine infrastructure and personnel (five). Burgundy has implemented multiple mitigation practices to minimize attractants and limit the occurrence of wildlife on site, including waste management education and awareness programs. Deterrents were used during wildlife interactions that involved field crews or mine infrastructure; in 2023 deterrents were used on 23 occasions and included bear bangers, scare cartridges, rubber bullets, light vehicles, and a helicopter.

Infrastructure Inspections

During the 2023 reporting period, a total of 126 skirting inspections were completed over 114 sampling days at the Ekati Diamond Mine Camp and Misery Camp. Six reports of damage or holes to skirting were reported to facilities management for repair. Unknown fox tracks were recorded on three occasions.

Areas with fencing were inspected for damage on 60 occasions over 60 sampling dates at Misery Camp. No surveys were conducted at the airport in 2023. Along the Misery Camp fence, damage to fencing was observed during three surveys. No wildlife were observed in 2023 during fencing surveys.

Caribou

Collared Caribou Monitoring

Information from satellite-collared female caribou collected by the Government of the Northwest Territories Department of Environment and Natural Resources (GNWT ENR or ENR) indicates that the Bathurst herd has seasonal ranges that historically have overlapped with the Ekati Diamond Mine wildlife study area. The fixed kernel 50% Utilization Distributions (UDs) representing core ranges, and the broader seasonal range extent (described by the 95% kernel UD) were determined from 2023 telemetry data acquired from satellite-collared caribou. For the seasonal ranges analysed (all except spring migration, when caribou are less sedentary), the 95% UDs indicate that winter, summer, and fall migration seasonal ranges for female Bathurst caribou overlapped with the Ekati Diamond Mine. The winter core range extent, as described by the 50% kernel UD, also overlapped the Ekati Diamond Mine in 2023. A subset of the Bathurst herd 2023 spring migration pathways overlapped with the Ekati Diamond Mine. Information from satellite-collared Beverly/Ahiak cows collected by ENR continues to indicate that the Beverly/Ahiak herd overlaps with the Ekati Diamond Mine during winter (2022/2023 winter 50% UD and 95% UD), although the annual range for collared Beverly/Ahiak caribou during all periods spans a large geographic area mostly to the east of the Ekati Diamond Mine. Incidental caribou observations at the Ekati Diamond Mine in 2023 corroborate the kernel UD maps that indicate caribou were observed most often at the Ekati Diamond Mine during the summer and during the fall migration periods.

Incidental Observations

There were 206 incidental observations of caribou reported during the 2023 reporting period; totaling 11,555 animals (note that incidental observations likely include the same caribou individuals or groups on multiple occasions rather than indicating that 11,555 different individuals were observed). The number of observations in 2023 is higher than those recorded in 2022 (154 incidental observations). The number of caribou observed in 2023 (11,555) is similar to the number of caribou observed in 2010 (11,571).

Consistent with the collar data, the highest percentage of caribou observed incidentally in 2023 were recorded during the fall migration season (September 7 to November 30, 81%). In most reporting years, the migration periods have been when the most animals are observed around the Ekati Diamond Mine.

Caribou Behaviour

During 2023, the focal behavioural observations of six adult male caribou indicated that caribou spend the majority of their time either bedded (26%), feeding (24%), or walking (16%). In addition, 14 behavioural scan surveys were completed for the 2023 reporting period; scan surveys distances ranged from 5 metres (m) to 3,000 m away from mine infrastructure. On average, the most common behaviour was feeding (mixed adult groups 44%, mixed groups with young 96%, female groups with young 55%, male groups 25%). A small percentage of individuals spent their time engaged in alert behaviour, including mixed groups with young (2%), mixed adult groups (2%), and male groups (2%). Alert behaviour was not consistently observed following stressor events. Focal surveys recorded male caribou spent less than 10% of their time in alert behaviour.

Long Lake Containment Facility Monitoring

During the 2023 reporting period, there were 11 caribou observations (51 individuals, 84 surveys) over 10 separate days. In all observations, group size was less than 50 individuals, with the largest group having 20 caribou. Composition of 43% of the caribou observations were of male groups only whereas as only 3% of observations had calves. Most of the behaviour observed were classified by caribou travelling, feeding, and standing. No injuries or signs of distress were recorded for caribou. Other wildlife and their tracks were also observed in the Long Lake Containment Facility (LLCF) including five mammal and 34 bird species suggesting wildlife species are using the LLCF. Bird species recorded during LLCF surveys included one species of conservation concern and one VEC (Peregrine falcon (*Falco peregrinus anatomy/tundrius*) and red-necked phalarope (*Phalaropus lobatus*)) Peregrine falcon is a VEC, but is no longer a listed species of conservation concern federally or in the NWT. Red-necked phalarope is not a VEC species, but is federally designated as a species of Special Concern by COSEWIC (2014a), and on Schedule 1 of SARA (2002). In the NWT, red-necked phalarope is ranked as Sensitive (GNWT 2024).

Breeding was not observed for peregrine falcon or red-necked phalarope but was confirmed for five other bird species, all waterbirds.

Road and Power Line Surveys

In 2023, road surveys and powerline surveys along Sable, Misery, and Lac du Sauvage Road were completed on 295 days. As per ENR request powerline and road surveys along Misery Road are combined for reporting since 2021. Caribou were observed on 430 occasions; a total of 12,193 caribou were reported (note that observations likely include the same caribou individuals or groups on multiple occasions rather than indicating that 12,193 different individuals were observed). The two largest groups estimated at 700 and 1,300 caribou each, were observed along Sable Road in March and along Lac du Savage (LDS) Road in November, respectively.

To date, no caribou injuries or deaths have been attributed to the power line. Observations of caribou near the power line and crossing beneath the power line suggest that the power line does not impede caribou movement or change caribou behaviour.

In 2023, the most common behaviour observed of groups was feeding (63%, n = 124), followed by standing (10%, n = 19). Caribou that were within 500 m of the road/power line represented 86% of observations, with 4% of observations involving distressed caribou (deflection, hesitation, and alert). Observations of caribou near and crossing all roads/power line suggest that the roads do not impede caribou movement at a local scale.

Traffic Monitoring

Two cameras were deployed on the Misery (one camera) and Sable (one camera) Haul roads to monitor vehicle passage. The cameras were programmed to take pictures when triggered by motion infrared sensor (motion triggered photos). From January 3, 2023, to December 31, 2023, these cameras recorded for 248 days and 263 days on Misery and Sable Haul Roads, respectively. The traffic camera methods worked well to identify vehicles. A total of 13,623 vehicles were detected on Misery Road. A total of 32,293 vehicles were detected on Sable Road.

Grizzly Bear

There were 132 incidental grizzly bear sightings during the 2023 reporting period, totaling 203 grizzly bears on 80 separate days near the Ekati Diamond Mine. The earliest sighting in the year was May 3, 2023, and the last sighting prior to winter was recorded on October 18, 2023.

Multiple animals or family groups were observed on 30 occasions in 2023. The most commonly observed family group composition included one adult female with three cubs, which was observed on 16 occasions. Other family group compositions included four sightings of a female with one cub, four sightings of an adult with three cubs, two sighting of two adults of unknown sex, one sighting of two cubs of unknown sex and one sighting of two bears of unknown sex and age. There was also one observation of one male adult, one adult female, and three cubs.

The number of grizzly bear sightings with family groups observed in 2023 increased from 2022 (n = 27), 2023 has the fifth highest amount of family groups observed since monitoring began in 2001. The increased number of observations of family groups with two cubs in 2023 is indicative of a healthy grizzly bear population near the Ekati Diamond Mine. No dens were confirmed in 2023. Grizzly bear sightings tended to be concentrated around areas of work, personnel, and roads due to an increased probability of bears being seen by personnel when present in these areas. The number of incidental observations is not indicative of whether the number of individuals near the mine has remained consistent, as individual bears could have been observed on multiple occasions in previous years. The increase in reports from previous years may be associated with increased awareness and reporting of grizzly bears in the vicinity of the mine site, and with decentralization of mining activity to include new areas that were previously not frequented by mine site personnel. As in past years, grizzly bear site-wide notifications were delivered following the first evidence of grizzly bear activity of the season.

Wolf

During the 2023 reporting period, there were 22 incidental wolf sightings, totaling 41 wolves on 19 separate days near the Ekati Diamond Mine. The majority of wolf observations occurred at sites relatively close to mine infrastructure, in areas with increased human activity, and hence a higher probability of an animal being recorded if present. The 22 observations are the lowest recorded since monitoring began in 2001: the highest being 117 in 2019.

The higher number of observations in recent years may be associated with increased awareness and reporting of wolves in the vicinity of the mine site, and with de-centralization of mining activity to include new areas that were previously not frequented by mine site personnel.

Wolverine

In 2023, there were six incidental observations of wolverines recorded on six separate days near the Ekati Diamond Mine, which is the lowest number of incidental observations since monitoring began in 2003. Burgundy has implemented adaptive mitigation measures to reduce the likelihood of attracting wolverines to site, including a proactive waste management program, increased educational awareness, improvements and regular examination and maintenance to the accommodation structures that inhibit possible access to buildings by wolverines, and proactive management activities that include site-wide notifications about wolverine and other carnivore species near infrastructure.

Fox

During the 2023 reporting period, there were 50 incidental sightings of 73 individual foxes on 43 separate days near the Ekati Diamond Mine. The majority of observations (61 individuals) were red fox, one arctic fox, one cross fox and the remaining observations were unknown species (11 individuals). Fox sightings were distributed among many roads around the Ekati Diamond Mine Site, the Main Camp, the incinerator building, and the landfill area.

Raptors and Corvid

In 2023, there were 21 incidental sightings of 29 individual raptors, representing seven species, over 20 separate days near the Ekati Diamond Mine. Five species of cliff-nesting raptors and two ground-nesting raptor species were observed incidentally including; bald eagle (*Haliaeetus leucocephalus*; five individuals), common raven (11 individuals), gyrfalcon (*Falco rusticolus*; four individuals), peregrine falcon (six individuals), rough-legged hawk (*Buteo lagopus*; one individuals), northern harrier (*Circus cyaneus*; one individual), and snowy owl (*Bubo scandiacus*; one individual).

Two common raven nests were recorded: one active nest in the area of the incinerator in May, and one inactive nest at the Sable fuel farm in June.

Burgundy monitors pits at the Ekati Diamond Mine to identify raptor nesting activity, as a variety of bird species (including common ravens, peregrine falcons, rough-legged hawks, and gyrfalcon) will use pit walls as nesting habitat. There were no confirmed successful nests for any species at the Ekati Diamond mine pits during the 2023 breeding season.

Migratory Birds

During the 2023 reporting period, there were 22 incidental bird sightings, including approximately 209 individuals from 14 species. All species observed incidentally in 2023 had been recorded at the Ekati Diamond Mine in past years. In 2023, two species of conservation concern ranked as Sensitive in the NWT (GNWT 2024) were recorded; long-tailed duck (*Clngula hymealis*) and northern pintail (*Anas acuta)*. Breeding wasn't confirmed for any incidental species sightings in 2023.

Other Wildlife Observations

In 2023, there were five incidental sightings of moose recorded (in groups of one to two animals) over five separate days near the Ekati Diamond Mine. No calves were confirmed in 2023. Observations of moose have become more common in recent years at the Ekati Diamond Mine, with a total of 104 moose individuals recorded between 2013 and 2023.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOS

ACRONYMS AND ABBREVIATIONS

%	Percent
Burgundy	Burgundy Diamond Mines Ltd.
CRMP	Caribou Road Mitigation Plan
DAR	Developer's Assessment Report
Diavik	Diavik Diamond Mines Inc.
ECCC	Environment and Climate Change Canada
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ERM	Environmental Resources Management
GIS	Geographic Information System
GNWT ENR (or ENR)	Government of the Northwest Territories Department of Environment and Natural Resources, now the Department of Environment and Climate Change
GNWT ECC (or ECC)	GNWT Department of Environment and Climate Change
ha	Hectare
km	Kilometre
KM	Kilometre marker
km^2	Square kilometre
km/h	Kilometre per hour
LDS	Lac du Sauvage
LLCF	Long Lake Containment Facility
m	Metre
NABBS	North American Breeding Bird Surveys
NWT	Northwest Territories
PSD	Pigeon Stream Diversion
SARA	*Species at Risk Act* (2002)
The Plan	Wildlife Mitigation and Monitoring Plan
TK	Traditional Knowledge
UD	Utilization Distribution
UTM	Universal Transverse Mercator coordinate system
VEC	Valued Ecosystem Component
WEMP	Wildlife Effects Monitoring Program
WEMP Report	Wildlife Effects Monitoring Program Report (this document)
WMMP	Wildlife Mitigation and Monitoring Plan
ZOI	Zone of Influence

1. INTRODUCTION

1.1 THE EKATI DIAMOND MINE

The Ekati Diamond Mine, constructed in 1997, is located in the Northwest Territories (NWT), approximately 200 kilometres (km) south of the Arctic Circle and 300 km northeast of Yellowknife (Figure 1.1-1). The mine officially opened in October 1998 as the first Diamond mine in Canada and currently has one open pit (at the Sable kimberlites) and one underground mine (Misery Underground) in active mine development and production (Figure 1.1-2). The mine is situated within the Lac de Gras watershed at the headwaters of the Coppermine River drainage basin, which flows north to the Arctic Ocean (Figure 1.1-1). The Ekati Diamond Mine is located 100 km north of the tree line on the Arctic tundra in a semi-arid environment. Infrastructure changes in 2023 were related to the continued development of Sable Open Pit.

Burgundy is the sole owner and operator of Ekati mine, having purchased the asset from the previous owner, Arctic Canadian Diamond Company Limited (Arctic Canadian), in July 2023. Based on the transaction terms, Burgundy is the parent company of Arctic Canadian, which continues to maintain the previous company name as the named Licence/Permit holder however, all business is conducted directly by Burgundy.

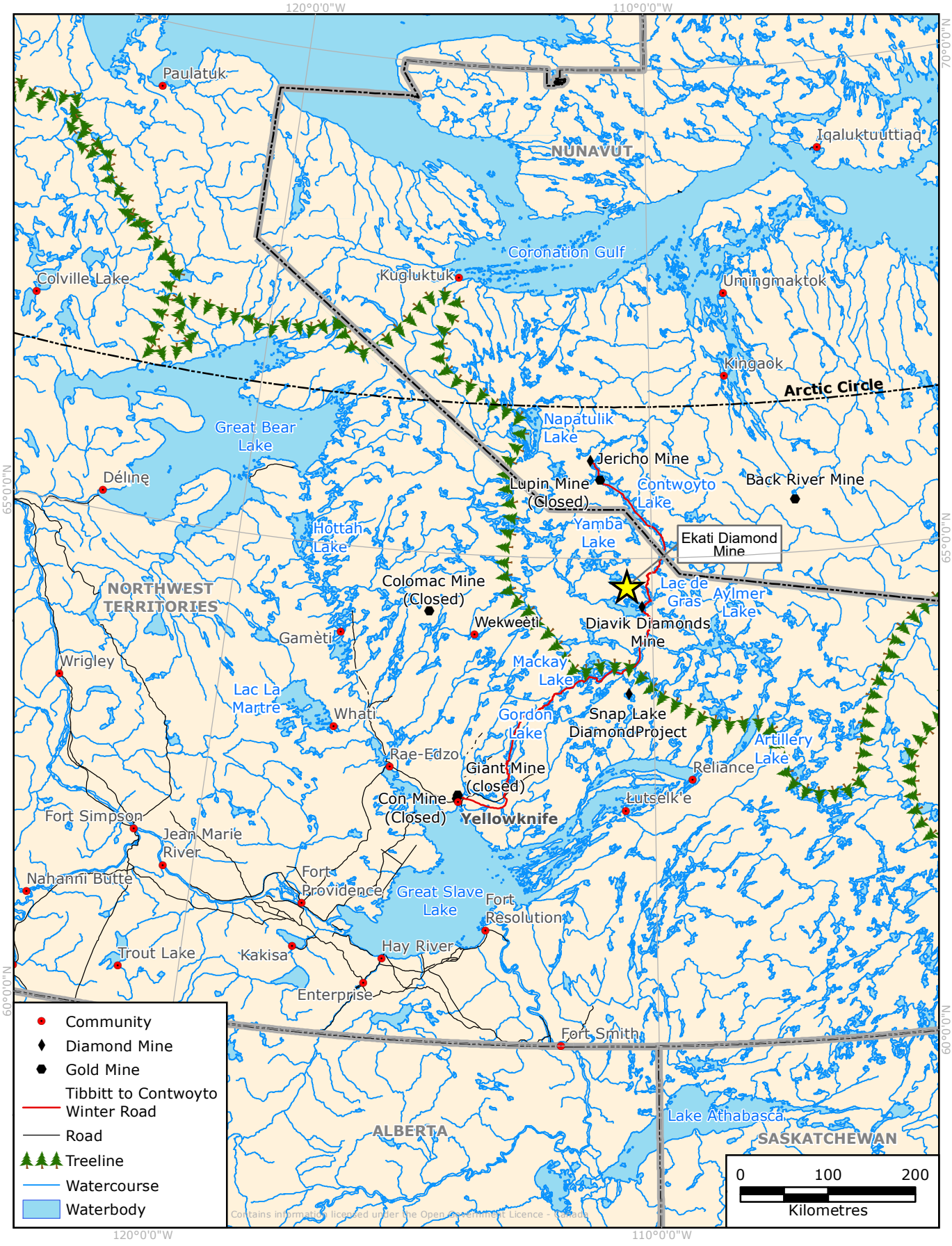
The local terrain is characterized by boulder fields, tundra, wetlands, eskers, and numerous lakes with interconnecting streams. There are more than 6,000 lakes within the 2,139 km^2 mineral lease area. It is an area of continuous permafrost with a shallow active layer (less than 2 metres [m] thick) which thaws during the brief summer. While extreme winter temperatures dominate the majority of the year, there are generally five months of spring, summer and fall weather, but only four of those months (June through September) experience daytime temperatures above freezing.

1.2 THE EKATI DIAMOND MINE WILDLIFE STUDY AREA

Wildlife monitoring at the Ekati Diamond Mine was conducted in a study area of approximately 1,600 km^2 between 1997 and 2005. Beginning in 2006, the study area expanded to an area of 2,800 km^2 (Figure 1.2-1). The predominant vegetation type within the study area is heath tundra.

The study area is characterized by several large eskers that provide travel routes for barren-ground caribou (*Rangifer tarandus groenlandicus*) and denning habitat for wolves (*Canis lupus*) and grizzly bears (*Ursus arctos*). Numerous grass and sedge wetland areas provide food for grizzly bears in the spring and breeding habitat for migratory shorebirds, waterfowl, and some songbird species. Rocky cliffs and outcrops near lakes provide nesting areas for falcons and hawks. Other species known to inhabit the study area throughout the year include wolverine (*Gulo gulo*), arctic ground squirrel (*Spermophilus parryii*), arctic fox (*Alopex lagopus*), red fox (*Vulpes vulpes*), lemmings (numerous species), arctic hare (*Lepus arcticus*), ptarmigan (*Lagopus sp.*), and occasionally muskox (*Ovibos moschatus*) and moose (*Alces alces*).

FIGURE 1.1-1 LOCATION OF THE EKATI DIAMOND MINE, NORTHWEST TERRITORIES



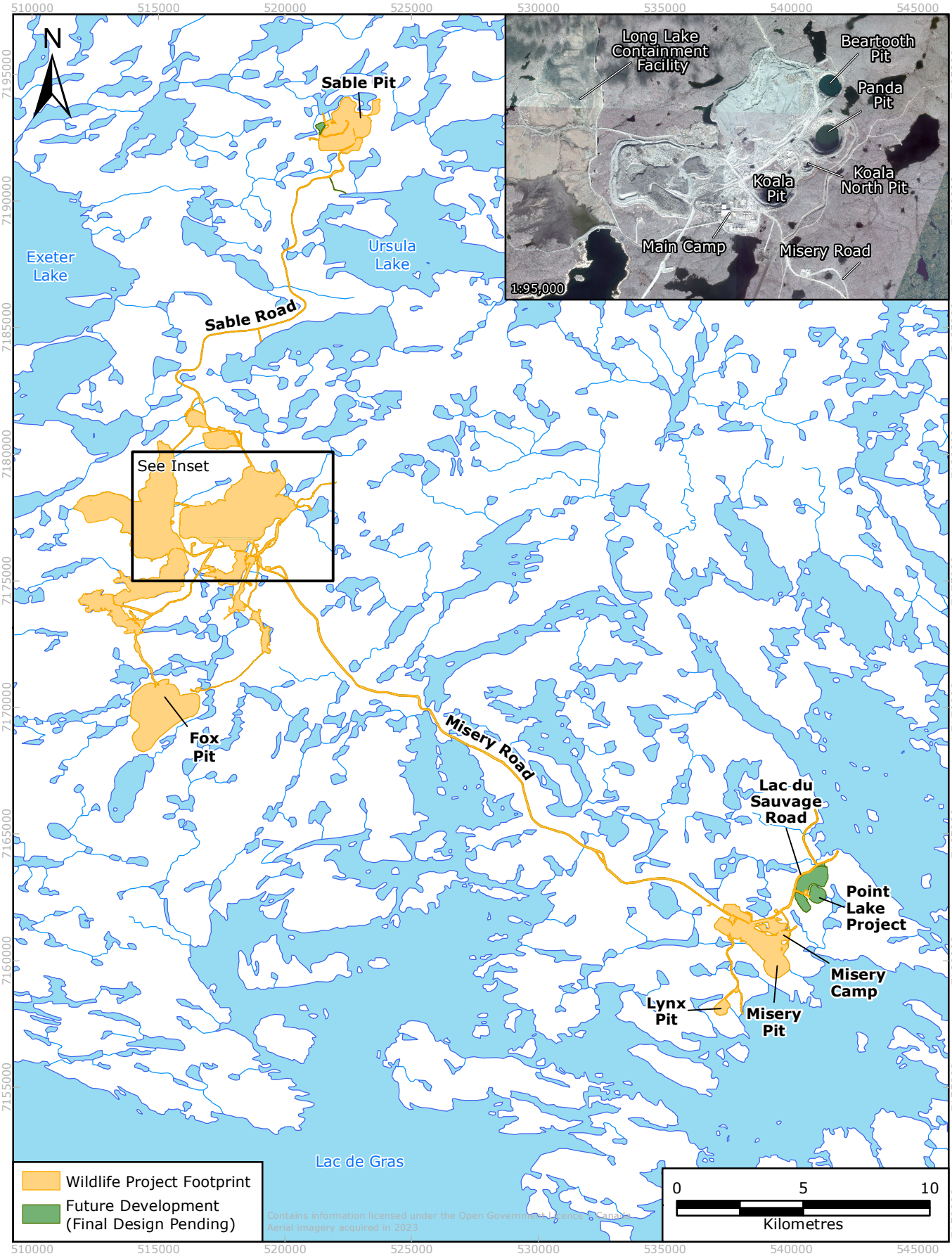
ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432a

DATE: 11 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:6,000,000 when printed at 8.5x11

FIGURE 1.1-2 THE EKATI DIAMOND MINE SITE MAP



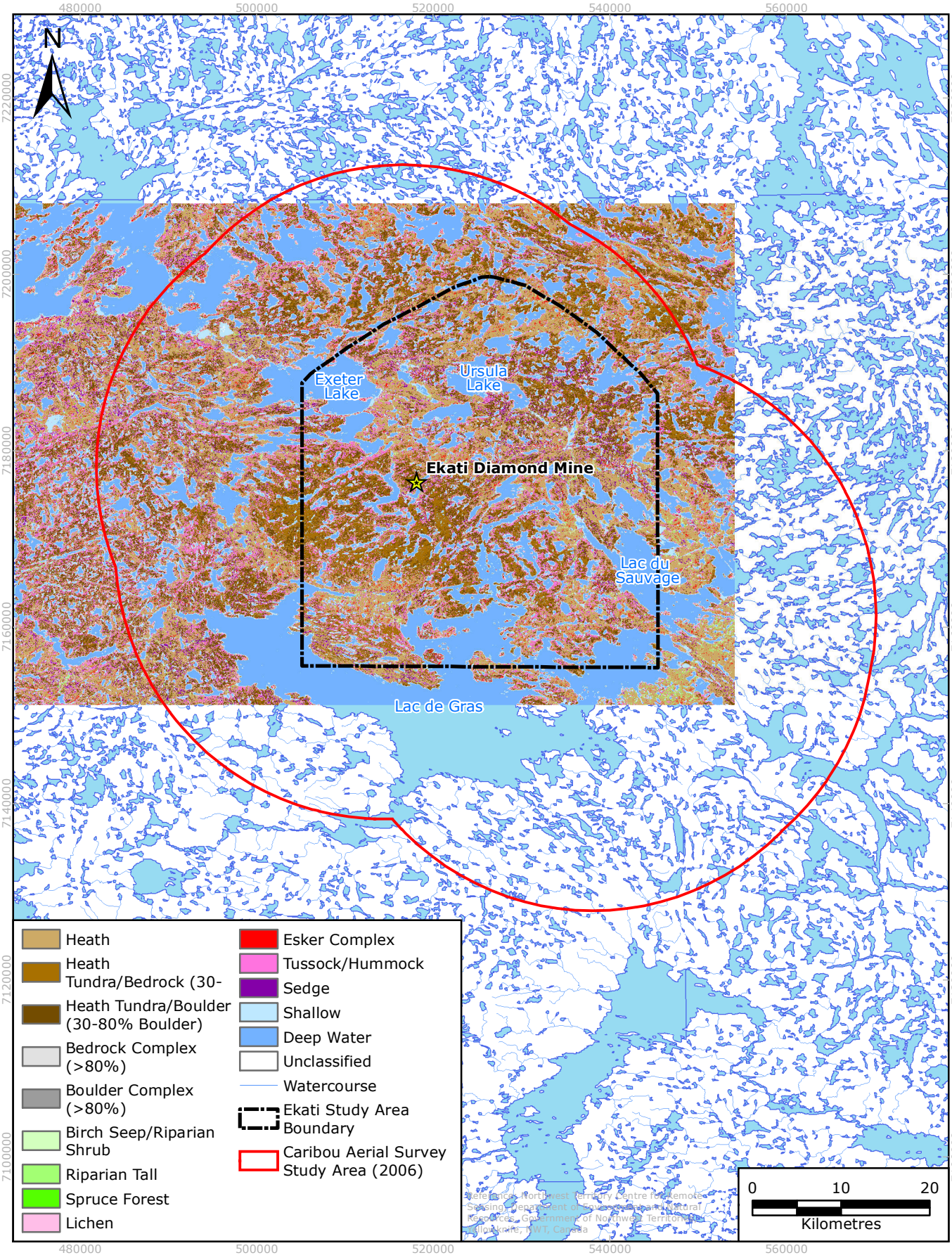
ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432c

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

FIGURE 1.2-1 HABITAT TYPES WITHIN AND ADJACENT TO THE EKATI DIAMOND MINE STUDY AREA



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432b

DATE: 22 February 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:600,000 when printed at 8.5x11

1.3 WILDLIFE EFFECTS MONITORING PROGRAM

The Wildlife Effects Monitoring Program (WEMP) is a requirement of the Environmental Agreement (Articles V and VII) and the *Wildlife Act* (subsection 95 [1998]) for the Ekati Diamond Mine. The WEMP is guided by the Wildlife Effects Monitoring Plan (the Plan; Golder Associates 2017).The Plan was last updated in 2017 (Golder Associates 2017) to incorporate effects identified during the Jay Project Environmental Assessment (EA; DDC 2014) and obligations under various Acts and regulations relevant to wildlife in the Northwest Territories (NWT; see Table 1.5-1 in Golder Associates 2017). On June 1, 2017, Arctic Canadian received conditional approval for the Wildlife Effects Monitoring Plan, including the Caribou Road Mitigation Plan (GNWT 2017). Final approval was received on July 31, 2018. Through a stakeholder workshop in December 2021 and subsequent comment and response cycles, the Point Lake WEMP Addendum (Arctic Canadian 2021a) was finalized in 2022 with post-dewatering monitoring initiatives. Burgundy Diamond Mines Ltd. (Burgundy) is currently in the process of finalizing an updated Wildlife Mitigation and Monitoring Plan (WMMP), which will be implemented upon final approval by the Government of the Northwest Territories Department of Environment and Natural Resources (GNWT ENR or ENR, now the Department of Environment and Climate Change; ECC) expected in 2024.

The Plan is based on the predicted effects to wildlife identified in the Ekati Environmental Impact Statement (EIS; BHP Billiton 1995), the Environmental Assessment Report for the Sable, Pigeon, and Beartooth Kimberlite Pipes (BHP and Dia Met 2000), the Developer's Assessment Report (DAR; DDC 2014) for the Jay Project, and the Point Lake Project Description (Arctic Canadian 2021b). Although the Jay Project has been cancelled, the wildlife monitoring and mitigation initiatives for the area have been adopted and implemented site-wide and will also be applied to the Point Lake Project.

The Plan is a living document that is reviewed every five years and updated as needed. The Plan incorporates revisions based on feedback from extensive consultation with stakeholders, including regulators, scientists, and Indigenous people. The Plan uses scientific methodology and Traditional Knowledge (TK) as sources of information regarding wildlife and local ecology.

The Ekati Diamond Mine employs several full-time Environment Specialists, an Environment Advisor dedicated to the implementation of the Plan, seasonal hires and consultant wildlife biologists to assist with the Plan, as required.

1.4 VALUED ECOSYSTEM COMPONENTS AND SPECIES OF CONCERN

The WMMP identifies five Valued Ecosystem Components (VECs) and two additional species and wildlife groups that are studied and reported in the Wildlife Effects Monitoring Program Report (WEMP Report). Wildlife VEC species and groups include caribou, grizzly bear, wolf, wolverine and raptors. Additional species and groups include foxes and migratory birds because they interact with the Ekati Diamond Mine regularly.

Wildlife VECs represent physical, biological, cultural, social, and economic properties of the environment that are considered by society to be important. VECs also include species of conservation concern. For the purposes of the Plan, wildlife species may be considered of conservation concern based on their federal or territorial status. Federal status includes those listed on Schedule 1 of the *Species at Risk Act* (SARA; 2002) and by COSEWIC (Committee on the Status of the Endangered Wildlife in Canada; Government of Canada 2024). Territorial status includes those listed on the *Species at Risk (NWT) Act* (2009) or ranked in the NWT (GNWT 2024). Wildlife VECs selected for the WEMP and the rationale for their selection are provided in Table 1.4-1.

TABLE 1.4-1: VALUED ECOSYSTEM COMPONENT SPECIES SELECTED FOR THE WILDLIFE EFFECTS MONITORING PLAN

VEC	Rationale
Caribou	Barren-ground caribou are seasonal migrants to the area, are a biologically and culturally important component in the Arctic and are a species of conservation concern, federally designated as Threatened by COSEWIC (2016), and not listed on Schedule 1 of SARA (2002). In the NWT, barren-ground caribou are listed as Threatened (GNWT 2022) and ranked as at Risk (GNWT 2024).
Grizzly Bear	Grizzly bears (western population) are a species of conservation concern, federally designated as Special Concern by COSEWIC (2012) and on Schedule 1 of SARA (2002). In the NWT, Grizzly bear are listed as Special Concern(GNWT 2022) and ranked as Sensitive (GNWT 2024).
Wolf	Wolves are listed as Secure in the NWT (GNWT 2024) and are not federally listed, but are important to Indigenous groups and are an important for the ecology of the area.
Wolverine	Wolverines are a species of conservation concern, federally designated as Special Concern by COSEWIC (2014b) and Schedule 1 of SARA (2002). In the NWT, wolverine are listed as Not at Risk (GNWT 2022) and ranked as Sensitive (GNWT 2024). Burgundy monitors wolverines near infrastructure.
Raptors	The short-eared owl (*Asio flammeus*) is the only raptor species of conservation concern that may occur near the Mine. Short-eared owl is federally listed as Threatened by COSEWIC (2021), as Special Concern on Schedule 1 of SARA (2002). In the NWT, short-eared owl is listed as Vulnerable (GNWT 2022) and ranked as Sensitive (GNWT 2024). Peregrine falcon (*Falco peregrinus anatum/tundrius*) is no longer a listed species of conservation concern and is federally designated as Not at Risk by COSEWIC (2007), not listed on Schedule 1 of SARA (2002). In the NWT, peregrine falcon are listed as Not at Risk (GNWT 2022) and ranked as Sensitive (GNWT 2024). Most raptor species nest on cliffs at the Ekati Diamond Mine, while the short-eared owl nests on the ground.

There are two species of foxes at Ekati, the red or cross fox (*Vulpes vulpes*) and the Arctic fox (*Vulpes lagopus*). Foxes are not a VEC but are monitored because they interact with the Ekati Diamond Mine regularly.

Migratory birds are protected in Canada under the *Migratory Birds Convention Act* (1994) while listed species of migratory birds received additional protection under SARA (2002; discussed in this document as "species of concern"). Migratory birds are not VEC but are monitored because they frequently interact with the Ekati Diamond Mine and this group includes listed species/species of concern. The red-necked phalarope (*Phalaropus lobatus*), rusty blackbird (*Euphagus carolinus*), and Harris's sparrow (*Zonotrichia querula*) are all listed as Special Concern by COSEWIC (2006; 2014a; 2017) and on Schedule 1 of SARA (2002). Lesser yellowlegs (*Tringa flavipes*) is listed as Threatened by COSEWIC (2020) and is under consideration under Schedule 1 of SARA (2002). The red-necked phalarope, rusty blackbird, Harris's sparrow and lesser yellowlegs are not listed under the *Species at Risk (NWT) Act* (2009), but are ranked as Sensitive in the NWT (GNWT 2024). Based on these rankings, these are considered species of concern at the Ekati Diamond Mine for purposes of the WEMP.

1.5 OBJECTIVES OF THE 2023 WEMP REPORT

The 2023 WEMP marks the 26th annual program and report to be completed at the Ekati Diamond Mine. The 2023 reporting period is the calendar year from January 1 to December 31, 2023. For comparison, observations from prior years are also provided in this report.

There are nine main components of the WEMP intended to evaluate the environmental impact predictions and potential effects on VECs, foxes and migratory birds, and to address key residual environmental risks to wildlife as identified in the Environmental Impact Report (EIR); and the pathways identified in the Jay Project DAR:

1. Monitoring caribou;
2. Monitoring carnivores, including grizzly bears, wolves, wolverine, and foxes;
3. Monitoring raptors and migratory birds;
4. Monitoring interactions between wildlife and traffic, and assessing success of mitigation efforts;
5. Monitoring wildlife mortalities and incidents and assessing the effectiveness of mitigation efforts;
6. Monitoring potential wildlife attractants and assessing the effectiveness of waste management efforts;
7. Inspecting buildings (i.e., accommodation skirting) and fencing structures at the Ekati Diamond Mine's Main Camp and Misery Camp for evidence of interaction with or disturbance by wildlife;
8. Monitoring wildlife interactions with the Long Lake Containment Facility; and
9. Monitoring wildlife interactions with the Misery Road power line and additional mine roads.

Results of the 2023 WEMP will be compared against predictions in the 1995 EIS during the next EIR period. The most recent EIR period included monitoring years 2019 to 2021 (Arctic Canadian, 2022).

2 WILDLIFE HABITAT

2.1 HABITAT ALTERATION AND LOSS

2.1.1 INTRODUCTION

Direct loss of terrestrial wildlife habitat may occur through site clearing, industrial structural development, and facility expansion. The cumulative annual amount of direct habitat loss accrued from the Construction and Operation phases of the Ekati Diamond Mine have been monitored annually since 1997. These losses were predicted and approved through the EIR process; i.e., the EIS (BHP Billiton 1995), the Environmental Assessment Report conducted for Sable, Pigeon, and Beartooth (BHP and Dia Met 2000), the amendment processes for the Lynx and Point Lake developments (Water License W2020L2-0004), and the Jay Project DAR (DDC 2014).

2.1.2 OBJECTIVES

The objective for this component of the WEMP is to:

- determine the amount of direct habitat loss due to ongoing development and operations of the Ekati Diamond Mine.

2.1.3 METHODS

The cumulative area of direct habitat loss was determined by superimposing the current footprint of the Ekati Diamond Mine on the pre-development (i.e., baseline) habitat map of the study area using Geographic Information System software (GIS; Figure 1.2-1). Both the mine footprint and the baseline habitat map were developed from LANDSAT Thematic Mapper satellite imagery (BHP Billiton 2004). Fifteen habitat types (Table 2.1-1) were classified from pre-disturbance land cover mapping of associations of vegetation, soil, and moisture characteristics, using the Ecological Land Classification system developed for the Slave Geological Province (Matthews et al. 2001).

Yearly and cumulative direct habitat loss was measured in hectares (ha) by mapping the new areas of mine footprint each year. Disturbed areas that are under reclamation were included in the tabulated results.

Results from 2023 included loss from a small expansion of the Sable East WRSA. Exploration activities were not included in the analysis as all exploration to this point was conducted by helicopter and no roads or material were brought in or excavated around the drill sites (i.e., resulting in only slight temporary disturbance around the drill sites, but no resulting habitat loss).

TABLE 2.1-1: DESCRIPTION OF HABITAT TYPES WITHIN THE EKATI DIAMOND MINE WILDLIFE STUDY AREA

Habitat Type	Description
Bedrock complex (>80% rock)	Exposed bedrock with very little vegetative cover.
Birch seep / riparian shrub	Vegetation in areas of active water seepage through boulder fields and boulder streams. Moist and well drained areas of low shrub with continuous vegetation cover. Birch and willow species dominate these areas.
Boulder complex (>80% rock)	Large areas of boulder fields including boulder outcrops, boulder streams and drainages. This land cover type supports very little plant growth.
Deep water (>2 m)	Deep, clear lakes and major river systems with water depths greater than 2 m.
Esker complex	Linear structures of sand and gravel, formed by glacial rivers that provide significant topographic relief. Eskers support a number of plant communities and are important to wildlife. Esker tops are windswept and accumulate very little snow during winter.
Heath tundra (<30% rock)	Closed mat plant community that grows on moderate to well drained soils, covering most of the upland areas. Plants generally belong to the heath family (*Ericaceae*) and vegetation covers at least 70% of the ground surface.
Heath tundra (30-80% bedrock)	Sparse heath tundra and bedrock outcrops are exposed; vegetation is discontinuous and described as open mat heath tundra.
Heath tundra (30-80% boulder)	Open mat plant community with heath tundra and boulder fields.
Lichen veneer	Flat islands, low peninsulas and esker tops are covered with a continuous mat of lichen that appears as "veneer". Sites are windswept and dry, allowing very little plant growth.
Riparian tall shrub	Linear plant associations of birch, willow, and alder that follow active stream courses, usually with a cobble or boulder substrate. Understory plant species may include dwarf raspberry, dwarf marsh violet, cloudberry, grasses, sedges, club mosses, and common horsetail.
Sedge wetland	Wet sedge meadows and other sedge associations of non-tussock plant species. Sedge species such as *Carex aquatilis* and *C. bigelowii*, and cotton grass (*Eriophorum angustifolium*) are dominant vegetation types within wet, low-lying sites where standing water is present throughout much of the growing season.
Shallow water (<2 m)	Water bodies that contain submerged or emergent vegetation with water depths less than 2 m.
Spruce forest	Spruce-lichen woodland in lowland, sheltered areas such as river valleys. Typically clumped forest in a predominantly tundra landscape.
Tussock / hummock	Plants belonging to the sedge family (*Cyperaceae* spp.) are dominant and tussock cotton grasses such as *Eriophorum vaginatum* and *E. russeolum* are common. These sites are drier and less frequently flooded than sedge wetlands.
Unclassified	Pixels (the smallest sub-division of the mapped area) that could not be successfully assigned to one of the above classes are considered to be unclassified.

Source: Matthews et al. (2001)
Notes:
'>' refers to greater than; '<' refers to less than.
Spp. Refers to multiple species.

2.1.4 RESULTS

Habitat loss reported from January 2023 to December 2023 was the result of an expansion of the Sable East Waste Rock Storage Area . Total habitat loss in 2023 was 19.6 ha (less than 0.01% of available habitat in the study area; Table 2.1-2).

A total of 3,947.6 ha of habitat have been lost due to development of the mine footprint since 1997, or 2.5% of the total pre-development habitat in the study area. The land cover types most affected by development of the mine, relative to their availability within the study area, include: heath tundra bedrock (3.6%), heath tundra boulder (3.2%), tussock/hummock (3.0%), and spruce forest (2.9%).

TABLE 2.1-2: AMOUNT OF HABITAT IN THE EKATI DIAMOND MINE STUDY AREA DURING PRE-DEVELOPMENT AND DIRECT LOSS OF HABITAT (HA) FROM MINE DEVELOPMENT, 1997 TO 2023

Habitat Type	Amount in Study Area during Pre-development (ha)	Loss: October 1997 to December 2022 (ha)	Loss: January 2023 to December 2023 (ha)	Total Loss (ha)	Percentage Loss of Available Habitat in the Study Area
Bedrock complex (> 80% rock)	4,092	79.2	0.4	79.6	1.95%
Birch seep/riparian shrub	2,971	79.6	0.0	79.6	2.68%
Boulder complex (> 80% rock)	2,273	33.8	0.0	33.8	1.48%
Deep water (> 2 m)	31,348	636.3	0.0	636.3	2.03%
Esker complex	3,196	39.5	0.0	39.5	1.24%
Heath tundra (< 30% rock)	28,403	725.4	11.1	736.5	2.55%
Heath tundra (30-80% bedrock)	15,361	552.3	1.7	554.0	3.60%
Heath tundra (30-80% boulder)	22,623	727.5	2.9	730.4	3.22%
Lichen veneer	2,059	6.1	0.0	6.1	0.30%
Riparian tall shrub	5,225	107.3	0.8	108.1	2.05%
Sedge wetland	3,100	27.5	0.0	27.5	0.89%
Shallow water (< 2 m)	21,979	425.4	0.0	425.4	1.94%
Spruce forest	970	28.1	0.0	28.1	2.90%
Tussock/hummock	14,854	451.2	2.7	454.0	3.04%
Unclassified	629	8.8	0.0	8.8	1.40%
Total	**159,083**	3,928.4	19.6	3,947.6	2.47%

Notes:
'>' refers to greater than; '<' refers to less than.

2.1.5 DISCUSSION

Habitat loss due to the Ekati Diamond Mine was 3.6% or less of any single habitat type within the Wildlife Study Area. Direct habitat loss since 1997 corresponds to 2.5% of the Wildlife Study Area (3,947.6 ha of 159,083 ha). Some of the habitat loss will be mitigated through progressive reclamation activities prior to closure and during post-closure reclamation. For example, progressive reclamation efforts are currently underway to reclaim habitat within Cell B in the Long Lake Containment Facility (LLCF) and Old Camp (Dominion Diamond 2018).

3 WASTE MANAGEMENT

Improper waste disposal can attract wildlife to communities and anthropogenic sites, potentially resulting in various challenges such as wildlife injuries, heightened human-wildlife interactions, and disruptions to predator-prey relationships. Managing attractants at the mine, including wastes, is intended to reduce the numbers of scavenging wildlife (such as carnivore and ravens) attracted to the mine. The landfill and waste bins are the locations with historically the highest accessibility of waste to wildlife and are therefore monitored regularly to ensure wastes are properly managed at these sites.

3.1 LANDFILL MONITORING

3.1.1 INTRODUCTION

At the Ekati Diamond Mine, waste is managed to minimize the presence of attractants in the landfill. Unlike a municipal landfill, which can contain batteries, various chemical wastes, and food wastes, the Ekati Diamond Mine landfill is designed and permitted for the disposal of inert waste (such as metal and rubber). Waste is sorted by using specific garbage containers for each type of waste (e.g., oily rags, used absorbent pads, oil and fuel filters, used grease, aerosol cans, incinerator waste, and inert waste; Figure 3.1-1). Hazardous materials, such as oil filters, paint, and batteries, are transported south for recycling. Most wood products are segregated and incinerated, with the remnant ash deposited in the landfill. Since 2011, wooden pallets and heavy cardboard containers have been segregated for recycling.

Composting and off-site removal of waste reduces the amount of material being incinerated or directed to the landfill. Beginning in 2012, the Ekati Diamond Mine's Waste Management Department removed significant amounts of waste off-site for recycling or proper disposal, including all plastic and metal food packaging, and oily rags. In October 2015, the Ekati Diamond Mine's Waste Management Department began hand sorting food contaminated wastes (such as biodegradable lunch bags) and food remains, for compost. Wet and dry compostable items are placed in the Brome Composting System, located in the incinerator building.

Despite these efforts to reduce waste and minimize the presence of attractants in the landfill, attractants and hazardous materials are sometimes misdirected to the landfill, where they may be available to wildlife. Therefore, as part of the WEMP, Burgundy monitors the waste bins and the landfill at minimum once or twice per week.

3.1.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- monitor the misdirection of wildlife attractants and hazardous wastes at the landfill to avoid and minimize possible wildlife incidents at these locations;
- evaluate the effectiveness of waste management protocols for reducing misdirected waste at the landfill;
- identify problem areas where improvements may be required; and
- manage potential wildlife attractants, wildlife activity, and habituation to the landfill.

3.1.3 METHODS

Waste from Misery Camp, and Pigeon and Sable lunchrooms was hauled to the Ekati Diamond Mine landfill, incinerator, and composter. The landfill survey involved visual investigations of the Ekati Diamond Mine landfill on foot two or more times per week (more if concerns are noted by Environment Department staff). The amount and type of animal attractants (i.e., food, food packaging, oil products, and oil-contaminated wastes) and other misdirected wastes (i.e., batteries and aerosol cans) were recorded. The availability of attractants was categorized as none, low (one piece), medium (two to five pieces), high (six to 10 pieces), and very high (>10 pieces). All attractants and other misdirected wastes were safely removed and properly discarded, or immediately buried by the Waste Management Department if attractants could not be safely removed.

The presence of wildlife and wildlife signs (such as tracks and scats) were recorded, photographs were taken where possible, and behaviour of animals was recorded to document potential habituation, illness and/or injury.

FIGURE 3.1-1 WASTE MANAGEMENT SYSTEM AT THE EKATI DIAMOND MINE

Type of Waste	Description	Instructions	Disposal Location
Food Waste	Fruit peels, paper/plastic wrappers and containers, pop cans, food	Place into labelled "Food Waste", "Compost", or "Incinerator Waste" containers.	Main Camp Incinerators
Oily Rags	Used rags and absorbent pads that contain petroleum products	Place in red coloured 45-gallon drum lined with a plastic bag labelled "Oily Rags". Take bags to WMB. Do not overload bags.	Waste Management Building
Office Waste	Paper, newsprint, food waste	Place in garbage containers found in offices.	Main Camp Incinerators
Biohazard Waste	Razors, razor blades, needles, empty medicated glass vials, syringes	Places in yellow plastic bins labelled "Biohazard Waste" found in all common bathrooms and laundry rooms	Main Camp Incinerators
Dry Cell Batteries	Dry cell batteries (I.e. AA, D, C, etc.)	Place in containers labelled "Batteries" or "Dry Cell Batteries".	Waste Management Building
Empty Aerosol Cans	Empty cans containing pressurized gas such as WD40 and spray paint	Place in containers labelled "Aerosol Cans" found at the beginning of each wing and throughout the site.	Waste Management Building
Used Oil and Fuel Filters	Used oil and fuel filter from heavy equipment	Place in drums labelled "oil and Fuel Filters". Waste Mgmt Techs drain, crush and then ship off site for recycling	Waste Management Building
Used Engine and Lube Oil	Used oil from vehicles and heavy equipment	Place in closed lid 45-gallon drum and label as "Waste Oil". Do not mix with any other liquid or product.	Waste Management Building
Used Coolant	Antifreeze and glycol used in equipment and vehicles	Place in closed lid 45-gallon drum and label as "Waste Coolant". Do not mix with any other liquid or product.	Lube Storage Building
Used Flammable Liquids	Waste Flammable liquids such as diesel, gasoline and jet B	Place in closed lid 45-gallon drum and label as "Waste Diesel", "waste gasoline", or "waste Jet-B". Do not mix with and other liquid or product.	Waste Management Building
Vehicle and Equipment Batteries	Light vehicle and heavy equipment batteries	Bring to Truckshop Bay 13 to be drained of Acid. Contact the Team Leaders when dropping the batteries off for further instruction.	Truckshop Bay 13
Used Solvent	Waste solvents generated from maintenance of heavy equipment parts and machinery (i.e.. Degreasers)	Minimize and reuse as much as possible. Place in closed lid 45-gallon drum and label "Waste Solvent - product name". Do not mix the waste solvent with any other liquid or product.	Waste Management Building
5-gallon Product Pails	Empty 5-gallon pails that contained gear oil, grease, etc.	Remove as much residue from the pails DO NOT BRING TO LANDFILL.	Waste Management Building

Type of Waste	Description	Instructions	Disposal Location
Used Floor Dry	Used floor dry that contains petroleum products	Do not mix with other waste. Place in 45-gallon drum and label as "Floor Dry Containing Hydrocarbons".	Waste Management Building
Pop Cans	Empty carbonated beverage bottles, plastic juice bottles or waterbottles	Place in labelled "Recycling" containers	Waste Management Building
Air Filters	Air Filter from heavy equipment	Transport to landfill	Landfill
Waste Grease	Waste Grease generated from operational work	Place in 45-gallon drum and label as "waste Grease" or put in 5-gallon pail and bring to the waste management building.	Waste Management Building
Oil Based Paint Cans	Empty oil based paint cans	Take to the Waste Management Building so it can be drained of residual paint.	Waste Management Building
Water Based Paints	Empty water based paint cans	Take to the Waste Management Building so it can be drained of residual paint and dried out. The empty can gets landfilled.	Waste Management Building
Soot	Soot collected from generator stacks and incinerator stacks	Place in 45-gallon drum and label as "Soot".	Waste Management Building
Incinerator Ash	Ash from the incineration of waste	Allow ash to cool then place in 45-gallon drum and label as "Incineration Ash". Contact Mine Services for disposal.	Landfill
Inert waste	Wood, cardboard, metal, plastic, rubber, glass	Place in containers labelled "Landfill Waste".	Landfill
Hydrocarbon- impacted Soil > 4 cm diameter	Hydrocarbon-impacted soil with diameter size greater than 4.0 cm	Assess the situation. Stop the spill if safe to do so. Contact the Team Leader, Mine Services	Zone S
Hydrocarbon- impacted Soil < 4 cm diameter	Hydrocarbon-impacted soil with diameter size greater than 4.0 cm	Assess the situation. Stop the spill if safe to do so. Contact the Team Leader, Mine Services	Landfarm
Hydrocarbon- impacted snow or ice	Hydrocarbon-impacted snow or ice occurring as a result of operational spills	Assess the situation. Stop the spill if safe to do so. Contact the Team Leader, Mine Services	Contaminated Snow and Ice Containment Facility
Other Wastes	Miscellaneous wastes that are not mentioned in this table	Properly label the waste and get the Material Safety Data Sheets (MSDS) , then contact the waste tech for instruction.	Waste Management Building

ERM

CLIENT: Burgundy Diamond Mines Ltd.
GRAPHICS NUMBER: EKA-24ERM-024

3.1.4 RESULTS

3.1.4.1 ATTRACTANTS

During 2023, the landfill was surveyed approximately twice per week – 119 times from January 1 to December 30. Wildlife attractants or misdirected wastes were observed on 32 occasions (or 27% of surveys; Table 3.1-1). In 2023, food was found on eight occasions (7% of surveys) in low (five), high (one), and very high (two) amounts and food packaging was found on 26 occasions (22% of surveys) in 2023 (Figure 3.1-2). Most food packages (n = 23) were present in medium (11) and low (eight), amounts. Additionally, food packaging was observed at high (five) or very high amounts (two) on seven occasions in 2023. Other wildlife attractants included oil-contaminated waste (four occasions), aerosol cans (two occasions), and plastics (three occasions).

In 2023, attractants classified as "other" were observed on nine surveys (8% of surveys), including window washer fluid containers, cigarette packs, soap, and soap dispensers. Window washer fluid and cigarettes (along with related packaging) were the largest components of misdirected waste in the "other" category from 2016 to 2023. There has been a decrease in attractants categorized as "other" every year since 2015, a year when 61% of surveys detected attractants in this category. Overall, each category of wildlife attractant misdirected to the Ekati Diamond Mine landfill decreased over the years (Figure 3.1-2). 2023 represents the second lowest percentage over 23 years (Table 3.1-1; Figure 3.1-2).

3.1.4.2 WILDLIFE SIGHTINGS

Wildlife were observed at the landfill during 10 of 119 surveys (8%) in 2023. With each wildlife observation, misdirected wastes were also observed, primarily of food and food packaging.

Three species were observed: red fox and unknown fox (five occurrences, seven individuals), common raven (six occurrences, 11 individuals), and caribou (one occurrence of two individuals). Raven and red foxes were observed chewing on food containers on December 21, 2023. Two unknown species of foxes were observed on December 30, 2023 digging near the incinerator area, it was observed that the diggings contained partially burned food wastes.

The percentage of landfill surveys with wildlife sightings (8%) was consistent with 2022 (12%) and 2021 ((9%). (Figure 3.1-3).

TABLE 3.1-1: PERCENTAGE OF SURVEYS THAT FOUND ATTRACTANTS OR MISDIRECTED WASTE AT THE EKATI DIAMOND MINE, AND MISERY LANDFILLS, 2000 TO 2010

	2000 [1]	2001	2002	2003	2004 [2]	2005	2006	2007	2008	2009	2010
Ekati Diamond Mine Landfill											
Percentage of surveys	95%	98%	86%	65%	79%	87%	66%	47%	41%	55%	46%
(Total no. of surveys)	(35)	(45)	(42)	(91)	(47)	(84)	(74)	(85)	(81)	(67)	(52)
Misery Landfill											
Percentage of surveys	n/a	56%	48%	19%	16%	32%	20%	18%	17%	4%	7%
(Total no. of surveys)		(43)	(40)	(21)	(25)	(65)	(56)	(38)	(64)	(27)	(15)

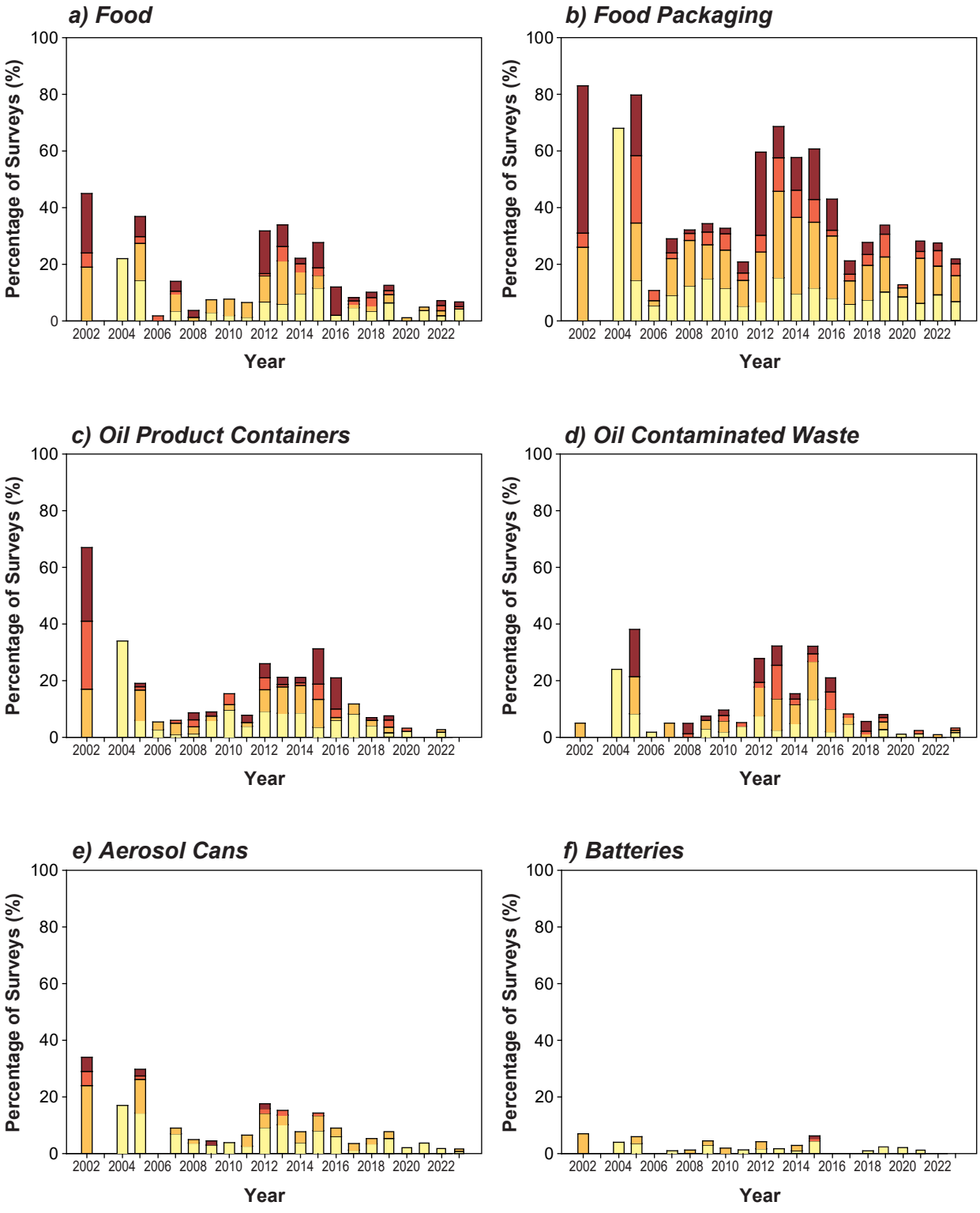
Notes:
n/a = not applicable (i.e., not surveyed).
[1] Includes only food items.
[2] Winter Surveys not included.

TABLE 3.1-1 cont.:PERCENTAGE OF SURVEYS THAT FOUND ATTRACTANTS OR MISDIRECTED WASTE AT THE EKATI DIAMOND MINE, AND MISERY LANDFILLS, 2011 TO 2023

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Ekati Diamond Mine Landfill													
Percentage of surveys	68%	76%	80%	69%	69%	52%	35%	39%	49%	20%	40%	34%	27%
(Total no. of surveys)	(65)	(119)	(118)	(104)	(112)	(100)	(85)	(98)	(115)	(19)	(33)	(37)	(32)
Misery Landfill													
Percentage of surveys	0%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
(Total no. of surveys)	(12)												

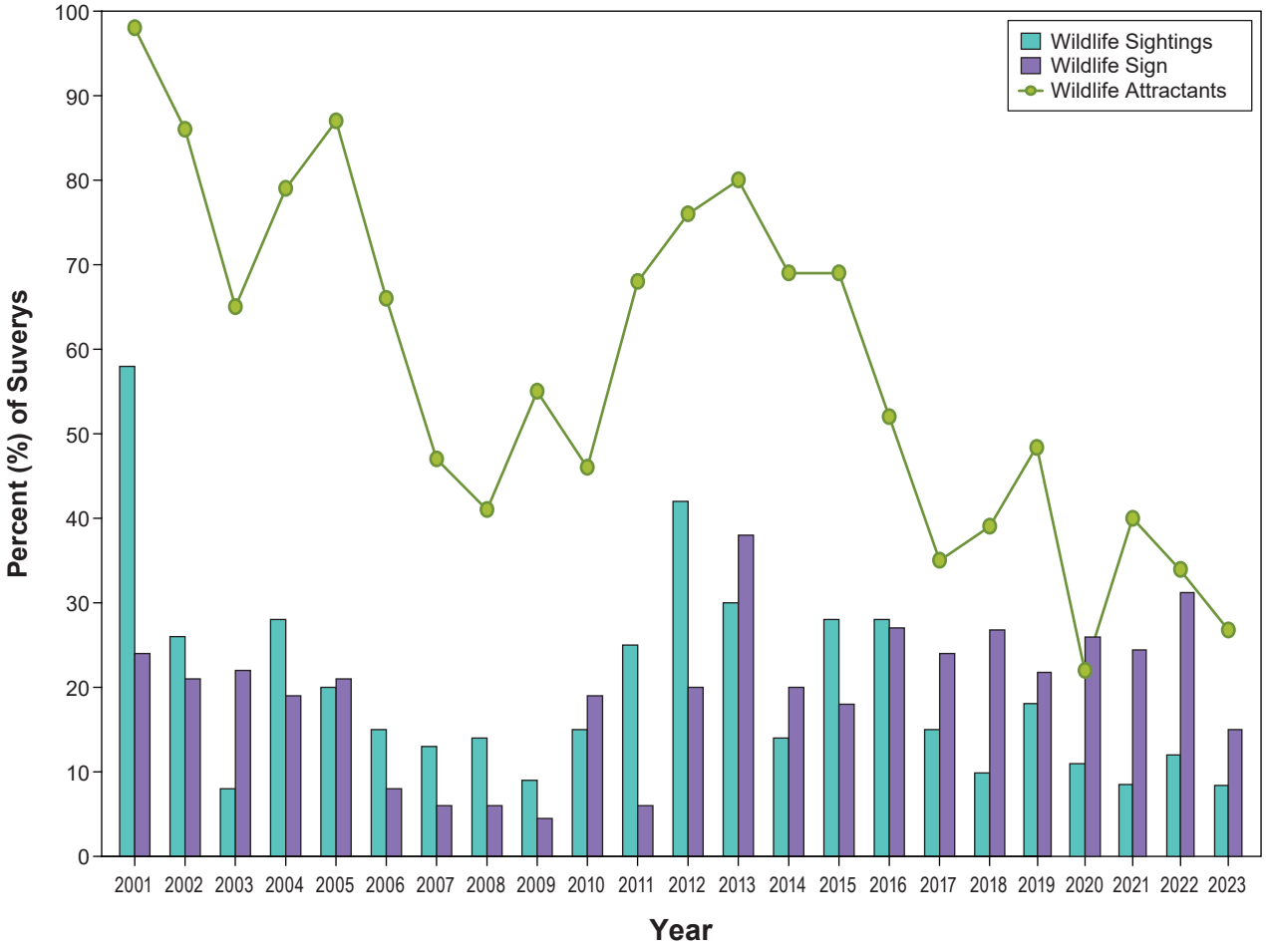
Notes:
n/a = not applicable (i.e., not surveyed).
1 Includes only food items.
2 Winter Surveys not included

FIGURE 3.1-2 SUMMARY OF WILDLIFE ATTRACTANTS OBSERVED AT THE EKATI DIAMOND MINE LANDFILL, 2002 TO 2023



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of Surveys	42	91	47	84	74	85	81	67	65	65	119	118	104	112	100	86	98	115	94	82	109	119

FIGURE 3.1-3 WILDLIFE SIGHTINGS, SIGNS, AND ATTRACTANTS OBSERVED AT THE EKATI DIAMOND MINE LANDFILL, 2001 TO 2023



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of Surveys	42	91	47	84	74	85	81	67	65	65	119	118	104	112	100	86	98	115	94	82	109	119

3.1.4.3 WILDLIFE SIGNS

One or more wildlife signs (scat, tracks, chew marks, and hair) were observed during 18 surveys (15%) in 2023, which was lower than 2022 (31%) and slightly lower than the trend of observations in the past nine years (Figure 3.1-3). Wildlife tracks were observed for two confirmed species (wolverine and grizzly bear). The remaining observations involved unknown species of fox or unknown species. The majority of wildlife signs were tracks from foxes (12 occasions). Misdirected waste was also recorded during seven of the 18 surveys and involved food packaging (low to high amounts), or other attractants such as gasket sealant and windshield washer fluid containers (low to medium amounts). On February 19 and May 22, 2023, chew marks from an unknown fox species and an unknown species were observed on food packaging.

3.1.5 DISCUSSION

The increase in personnel and site activity in recent years at the Ekati Diamond Mine highlighted the importance of ongoing waste management efforts to identify and remove attractants, and continued wildlife attractant awareness programs implemented by Burgundy to increase site-wide awareness of the risks to wildlife associated with improper waste disposal. Results from the last five years highlight the importance and effectiveness of continued education and waste management awareness, particularly on disposal of cigarettes and cigarette packages, food and food packaging, and the management of recyclable waste. This reinforcement will continue to minimize the amount of waste misdirected to the landfill.

There has been a general decrease in the amount of misdirected waste and attractants at the Ekati Diamond Mine landfill since 2013. The lowest number of surveys where misdirected waste were identified occurred in 2020 (20% of surveys) and was likely due to the decrease in on site personnel and mining activities during the majority of the year as the mine switched to the Care and Maintenance phase between March and December 2020. The second lowest number of surveys with misdirected wastes occurred in 2023 (27%).

Wildlife sightings were similar from 2020 to 2022, but dropped in 2023 with half as many observations as previous years.

During every occasion that wildlife was visually observed, there was misdirected waste recorded in the landfill. However, misdirected waste was only observed during 38% of the surveys at the landfill when wildlife sign was recorded. This suggests that wildlife species may visit the landfill in search of food, even when no attractants are present. For example, wolverine tracks were followed by waste management technicians during a survey in 2023, and it was determined that the animal entered the landfill and then wandered out, and no attractants were present.

A general decreasing trend over the years in misdirected waste and attractants has occurred despite an increase in the number of contractors and new employees with the expansion of Misery Camp, development of Misery Underground, and construction of the Sable and Lac du Sauvage (LDS) Road in recent years. In response to this increase in activity and the potential for increased misdirected waste, the Environment Department increased the frequency of surveys to track this issue, focused more on identifying and removing attractants, launched a series of waste management presentations targeting problem areas and departments with large numbers of temporary contractors, and logged incidents of misdirected waste as an event in the corporate tracking system.

3.2 WASTE BIN MONITORING

3.2.1 INTRODUCTION

At the Ekati Diamond Mine, wastes are segregated and disposed of in appropriate category-specific bins, that include: incinerator waste (i.e., food packaging), landfill waste (i.e., all inert, non-reactive solid wastes), recycled waste (i.e., plastic and metal containers, batteries, oil filters, and oil), and hazardous wastes (i.e., dangerous goods).

Following the Waste Management Plan, personnel regularly monitor the waste bins destined for landfills.

3.2.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- monitor the misdirection of wildlife attractants and hazardous wastes in waste bins to avoid and minimize possible wildlife incidents at these locations;
- evaluate the effectiveness of waste management protocols for reducing misdirected waste in waste bins;
- identify problem areas where improvements may be required; and
- manage potential wildlife attractants, wildlife activity, and habituation to the waste bins.

3.2.3 METHODS

The amount and type of animal attractants (e.g., food, food packaging, oil products, and oil-contaminated wastes) and other misdirected wastes (e.g., batteries, bulbs and aerosol cans) within the various waste bins types were counted, recorded, and removed if possible. The availability of attractants was categorized as none, low (one piece), medium (two to five pieces), high (six to 10 pieces), and very high (>10 pieces). Wildlife signs (visual observations, tracks, scat), species, number of individuals, and behaviour was also recorded.

Misdirected waste (wildlife attractants and/or waste placed incorrectly in the specified waste bin category), and wildlife observations detected during surveys were reported to the Environment Department and Waste Management Superintendent, and the supervisor of the area was contacted to arrange for removal of all misdirected wastes from waste bins prior to disposal in landfills. The waste bins at the Ekati Diamond Mine Camp, Misery Camp, and Sable lunchroom were surveyed approximately once every two weeks (more frequently if concerns were noted by surveyors).

3.2.4 RESULTS

The waste bins at the Main Camp were surveyed on 65 days during the 2023 reporting period (January 1, 2023 – December 31, 2023). On each survey day, an average of 25 waste bins were inspected (three to 41 bins per survey), for a total of 1,593 surveys of bins over the year. The number of surveyed bins varied between surveys due to the movement of waste bins, addition of bins, and incomplete surveys.

Wildlife attractants were recorded on 43 occasions in a total of 63 bins (4% of those surveyed). Four occasions involved food attractants in low amounts (n = 3) and medium amounts (n = 1).

Food packaging was found on 27 occasions in low amounts (n = 18), medium amounts (n = 5), and high amounts (n = 4). Other wildlife attractants of misdirected waste included oil contaminated waste (nine occasions), plastics (four occasions), and oil product containers (three occasions). In 2023, attractants classified as "other" were found on 16 occasions during waste bin surveys. "Other" attractants included items such as window washer fluid containers, hazardous waste containers, cigarette butts, clothing, and soap containers.

At Misery Camp, waste bins were surveyed on 69 occasions with an average of seven bins per survey (range one to 10 bins per survey). Misdirected wastes were reported in 3% of bins (n = 12), including: food was observed in low amounts on one occasion, food packaging was observed on one occasion in high amounts, oil impacted waste was observed on three occasions in low, high, and very high amounts each, and other attractant types (four occasions including hazardous waste containers and windshield washer fluid containers in medium and high amounts).

At Sable Office, waste bins were surveyed on 63 occasions with an average of seven waste bins per survey (range five to 10 bins per survey), for a total of 456 surveyed waste bins. Misdirected waste was reported in 3% of bins (n = 14), including: food (two occasions, both in low amounts), food packaging (one occasions, in very high amounts), oil impacted waste (two occasions in low and high amounts), aerosol cans (two occasions, in high amounts), plastics (three occasions, in low amounts), and other types (four occasions including antifreeze containers, windshield washer fluid containers, and dangerous goods containers).

Wildlife signs were recorded on four occasions at Ekati Diamond Mine Main Camp, one occasion at Misery Camp, and one occasion at Sable office. Common ravens were observed once at Misery Camp and on two occasions Ekati Diamond Mine Main Camp. Unknown Fox tracks were recorded at Ekati Diamond Mine Main Camp on two occasions. Arctic Hare tracks were observed once at the Sable office.

3.2.5 DISCUSSION

Overall in 2023, 3 to 4% of waste bins surveyed at Main Camp, Misery Camp and Sable office contained misdirected wastes or wildlife attractants.

During the early years of this monitoring program (2014-2016), waste detections ranged from 5 to 10% of bins Main Camp to 2 to 6% of bins at Misery Camp. Over the past 10 years, the percentage of bins with misdirected wastes has declined to 3 to 4%. Wildlife sightings and signs generally remain low at both camps (4 to 6% of all surveys).

When attractants and misdirected wastes are identified, they are immediately reported to the Waste Management Department to isolate the origin of the misdirected waste, and requesting the non-compliant department be trained on proper waste disposal procedures. For example, in 2023, waste management presentations were provided to Exploration and Misery Underground crews on 19 occasions and additional follow-up occurred by the Waste Management Superintendent. In 2023, one safety alert was distributed to remind onsite personnel of waste disposal and proper use of receptacles.

Reporting the results of waste bin monitoring activities helps identify areas where wastes are being misdirected and documents the types and volumes of waste that are being improperly discarded.

This monitoring program guides adaptive management to potential problem areas and informs updates to education modules for Burgundy staff about proper waste management practices. Current waste management awareness programs (e.g., new employee orientation, presentations, and posters) contribute to reducing the amount of waste misdirected into waste bins. Continued education and waste management awareness, particularly on disposal of cigarettes and cigarette packages (beginning with the orientation tour and reinforced in the "Environmental Awareness" module), will minimize the amount of misdirected waste.

An example of adaptive management implemented as a result of waste bin monitoring in 2023 includes an occasion on October 13 when Environment Department personnel were notified of a grizzly bear in the Waste Management Yard. Upon arrival, the bear was no longer on site; however, personnel observed that a bear had torn into a 1,000 litre tote containing kitchen grease. The tote was disposed of in accordance with the approved Waste Management Plan. Over the next two days, the bear returned to mine infrastructure multiple times and was successfully deterred. On October 15, 2023, the bear returned to the Waste Management Yard and attempted to gain access to another tote containing kitchen grease. The bear left the area, and did not punch or tear into the tote, but did leave bite marks. The tote was moved to a secure sea-can. During all occasions, waste was removed and properly disposed of, and education to staff was provided on the disposal of potential wildlife attractant waste. The grizzly bear did not return again in 2023. This specific grizzly bear was observed on site for the first time in 2022, with a tagged right ear, indicating that the bear was potentially previously habituated, or food conditioned. More information about the ear-tagged grizzly bear is reported in the Non-Vehicle Wildlife Incident Section 4.3.2.

4 WILDLIFE AND INFRASTRUCTURE

Wildlife are monitored both actively and through incidental observations on and surrounding mine infrastructure. This monitoring allows for prompt management to manage traffic, problem animals and reporting wildlife mortalities and incidents.

4.1 WILDLIFE MANAGEMENT

4.1.1 GENERAL WILDLIFE MANAGEMENT

4.1.1.1 INTRODUCTION

General wildlife management actions at the Ekati Diamond Mine are carried out for cases in which actual or potential interactions between wildlife and human(s) may compromise the safety of the animal(s) and/or human(s).

Wildlife management has evolved during the life of the mine, based on engagement, monitoring results, and adaptive management. Management has generally increased since reporting began in 2013. In most cases, the trigger for wildlife management activities is the observation and/or reporting of wildlife to the Environment Department by site personnel (i.e., site wildlife notifications). The procedures, program work instructions, site-wide policies, and the WEMP that Burgundy has in place dictate other management actions. These include short and long-term road closures required as per the Caribou Road Mitigation Plan, work stoppage procedures in work instructions, and training/presentations for onboarding or to meet annual training requirements (i.e., grizzly bear safety training). These controls are in place to ensure the safety of wildlife and site personnel alike.

Burgundy implements several general management actions to reduce potential interactions with wildlife, including:

1. Site-wide notification about the presence of wildlife via:
    a. site-wide emails,
    b. safety meetings at the beginning of each shift,
    c. department-specific radio channels by the Environment Department and/or the Security Department,
    d. all call radio announcement by the Security Department, and
    e. safety alerts issued by the Health and Safety Department.
2. Wildlife awareness presentations to specific departments;
3. Posting road signs about reduced speed limits or to alert drivers that wildlife is in the area;
4. Delayed or postponed blasting activity if wildlife is within a 1 km distance of the planned blasting area; and
5. Temporary road closures and/or work stoppages due to the presence of wildlife.

Since 2013, all wildlife management actions have been documented in the WEMP Report and reviewed as part of ongoing assessment of management measures for reducing wildlife incidents and their associated risks to both wildlife and people.

4.1.1.2 OBJECTIVES

The purpose of managing wildlife incidents is to proactively reduce the potential for wildlife-related safety concerns for employees, and to minimize potential effects of mine activities on wildlife. The objective of this component of the WEMP is to:

- document general wildlife management efforts undertaken to reduce the potential for wildlife-related incidents.

4.1.1.3 METHODS

General wildlife management actions were tracked by the Environment Department, including the type of management action undertaken (i.e., site-wide notification, road signs, short or long term road closure, or temporary work stoppage); the wildlife species involved (e.g., caribou, grizzly bear, or general if it addressed site management practices that benefit all wildlife and staff); why the management action was undertaken (e.g., a wildlife incident); and who requested the management action. Other information, such as location, time, and date, were also recorded.

4.1.1.4 RESULTS

During the 2023 reporting period, 491 general wildlife management actions were implemented in response to wildlife activity at the Ekati Diamond Mine (Table 4.1-1). Most management were directed at caribou and grizzly bear (87%): caribou (153), grizzly bear (276), wolf (19), wolverine (four), fox (11), and moose (two). Management actions were also directed to all wildlife or a combination of species (26 occasions; Table 4.1-1).

TABLE 4.1-1: NUMBER OF GENERAL WILDLIFE MANAGEMENT ACTIONS REPORTED AT THE EKATI DIAMOND MINE, 2013 TO 2023

Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Mammals												
Caribou	4	7	5	38	91	183	385	87	252	197	153	1,402
Grizzly bear	8	31	51	88	155	244	252	88	327	260	276	1,780
Fox (red, arctic, cross, or unknown)	5	4	5	8	1	3	12	1	13	17	11	80
Moose	0	0	2	0	0	0	8	2	3	2	2	19
Wolf	3	4	5	10	28	54	103	27	106	80	19	439
Wolverine	1	6	8	13	13	17	18	16	10	10	4	116

Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Birds												
Common redpoll	0	0	0	1	0	0	0	0	0	0	0	1
Common Raven	0	0	1	0	0	0	0	0	0	0	0	1
Tundra swan	0	0	1	0	0	0	0	0	0	0	0	1
Raptor species	0	0	0	0	0	0	4	0	0	0	0	4
Unknown songbird	0	0	0	0	0	0	0	0	1	0	0	1
General												
General wildlife	7	1	15	14	6	14	22	15	10	7	26	138
Total	**28**	**53**	**93**	**172**	**294**	**515**	**804**	**236**	**722**	**573**	**491**	**3,981**

The types of management actions used for each species are summarized in Table 4.1-2. The majority (82%) involved sending site-wide notifications to on site personnel. In 2023, there were 23 presentations on Wildlife Management and 46 training events for bear spray and/or bear bangers.

TABLE 4.1-2: SUMMARY OF GENERAL MANAGEMENT ACTIONS IMPLEMENTED AT THE EKATI DIAMOND MINE, 2023

Species	Site-Wide Notification	Presentation or Meeting	Signs	Work Stopped / Short-term Road Closures	Safety Alert	Blast Cancelled or Postponed	Training	Total
Caribou	149	0	0	4	0	0	0	153
Grizzly bear	218	0	0	10	2	0	46	276
Wolf	18	0	0	1	0	0	0	19
Fox	10	0	0	1	0	0	0	11
Wolverine	4	0	0	0	0	0	0	4
Moose	2	0	0	0	0	0	0	2
General	0	23	0	2	1	0	0	26
Total	**401**	**23**	**0**	**18**	**3**	**0**	**46**	**491**

Work stoppages or short-term road closures were a required management action on 18 occasions in 2023, described further in Table 4.1-3.

TABLE 4.1-3: SUMMARY OF WORK STOPPAGES AND SHORT-TERM ROAD CLOSURES DUE TO WILDLIFE

Date	Location	Trigger	Duration of Closure	Mitigation Implemented	Outcome
April 21, 2023	Unknown	15-20 caribou with calves in area	1.5 hours	Vehicles stopped and traffic delayed.	Caribou left road unaided.
May 25, 2023	FB1	Grizzly bear between hydrostation and FB1, bear started to approach crew	Stopped work at location	Bear banger, stopped work and left site.	Stopped work at location, did not visit May 26, 2023
May 27, 2023	Plant Process Warehouse	American robin nest with eggs on a pallet in laydown	May 27 to June 18, 2023	Cone placed in front of pallets so area was not disturbed.	No eggs or birds present when nest checked on June 18, 2023. Nest removed
May 27, 2023	FB1	Two grizzly bears in Pigeon Stream at FB1	Stopped work at location	Bear banger, screamer.	Stopped work at location, did not plan to return May 28, 2023
May 31, 2023	Misery Haul Road	Female adult grizzly bear and three cubs approached vehicle stopped for bears	Unknown	No mitigation implemented.	Bears moved off road and vehicle proceeded.
June 27, 2023	Incinerator Building	Red fox inside incinerator building digging into bag of food waste	Unknown	Air horn and tarp	Fox deterred west to LLCF cells.
June 28, 2023	Sable Fuel Farm stairs	Ravens nest at top of stairs	2 months	Ravens nest removed once nest was confirmed empty.	Ravens fledged and nest removed.
July 2, 2023	Sable Crusher	Caribou were bedding in active work area	2 hours	Work stopped.	Caribou were allowed to continue to bed and left area after 2 hours.
July 15, 2023	Intersection of Fox Haul Road and Camp Roads	Grizzly bear near camp roads and buildings	1 hour	Bear banger, scare cartridge, truck horn	Bear moved off and out of site heading east away from Grizzly Road.
July 16, 2023	Grizzly Road and Airstrip	Grizzly bear near bone yard, Misery/Ring road area	2 hours	Voice, horn	Bear left and lost visual out on tundra
July 17, 2023	Sable Road, KM2	Three caribou standing, walking and meandering along/across road	Unknown	Unknown	Traffic moving again at KM2

Date	Location	Trigger	Duration of Closure	Mitigation Implemented	Outcome
July 18, 2023	Pigeon culvert	One caribou was laying on the Pigeon culvert	1 hour 20 minutes	Traffic stopped for 1 hour and 20 minutes. Environmental team leader escorted vehicles safely past caribou at18:00 hours.	The caribou slowly moved off the road, distress free. Vehicles were escorted across Pigeon culvert by environmental team lead to allow for crew change.
July 19, 2023	PSD	Grizzly bear between FB1 and FB2.	Work adjusted to another end of PSD with helicopter	Work adjusted to another end of PSD with helicopter	Work adjusted to another end of PSD with heli
July 20, 2023	PSD	Grizzly bear between FB1 and FB2.	Work adjusted to another end of PSD with helicopter	Work adjusted to another end of PSD with helicopter	Work adjusted to another end of PSD with Heli, on July 21. Discussion with Calgary office. Bear was not observed on July 21.
July 21, 2023	PSD	Grizzly bear passing by work area on Lynx Road south of Misery Lynx intersection and returned twice, once investigating food waste transfer bins at Misery Crusher office	Unknown	No mitigation implemented.	Bear was not observed again after leaving the crusher heading towards Misery Camp.
July 22, 2023	Sable Road	Grizzly bear that was in PSD	2 hours	Helicopter pushed bear	Bear was successfully pushed from PSD to stream between Falcon and Ursula
July 22, 2023	Sable Road KM 11	Wolf was around trucks and in areas of crews.	2 hours	Work stopped.	Wolf could not be located
October 13, 2023	Waste Management Yard	Grizzly bear tore into grease-filled tote in Waste Management Yard.	1 day	Work stopped. 12 bear bangers, four scare cartridges, two rubber bullets, one bean bag, helicopter	Bear continued to return to area between October 13-15. Bear was pushed approximately 29 km WNW on October 15, 2023

4.1.1.5 DISCUSSION

The general management actions in 2023 were proactively implemented in response to wildlife being observed near infrastructure. Six short-term road closures occurred due to observations of three caribou and three grizzly bears by the roadside. Eighteen work stoppages occurred to protect wildlife in 2023.

Traffic delays due to vehicles independently stopping for wildlife on or near roadways, in accordance with the Caribou Road Management Plan (CRMP), are described separately in Section 4.1.2. No negative interactions took place between wildlife and mine site personnel in 2023 (Sections 4.2 and 4.3).

Proactive safety alerts were issued on May 25 and June 5 for bear awareness during the summer, when bear encounters are most common.

In 2023, there were 491 wildlife management actions at the Ekati Diamond Mine, including 401 site-wide notifications (Table 4.1-2). Management measures were largely directed at large mammals such as caribou and grizzly bears, scavengers and birds and were in all cases successful, with none of the identified wildlife being injured or suffering mortality and no injuries reported by personnel.

Wildlife incidents are reported in Sections 4.2.4 and 4.3.2.4, vehicle-related mortalities are reported in Section 4.2.4 and non-vehicle-related mortalities are reported in Section 4.3.1.4.

Waste management procedures, site awareness (e.g., closing doors), wildlife interactions, and wildlife reporting will continue to be a part of the orientation that all new employees receive upon first arrival at site. Documenting wildlife management actions will continue in future years to enable ongoing evaluation of the programs to determine their effectiveness in mitigating wildlife interactions.

4.1.2 CARIBOU ROAD MITIGATION PLAN

4.1.2.1 INTRODUCTION

The Caribou Road Mitigation Plan (CRMP) is a management plan specific to managing risks to caribou (and other wildlife) associated with roads. The CRMP is a hierarchal three level approach to mitigation and monitoring, above the regular Operational Level response to wildlife interactions with roads at the Ekati Diamond Mine (see Section 4.2.1; Figure 4.1-1). Burgundy's strategy for managing risks to caribou (and other wildlife) associated with roads is to increase mitigation and monitoring activities as caribou approach the Ekati Diamond Mine Site (Golder Associates 2017).

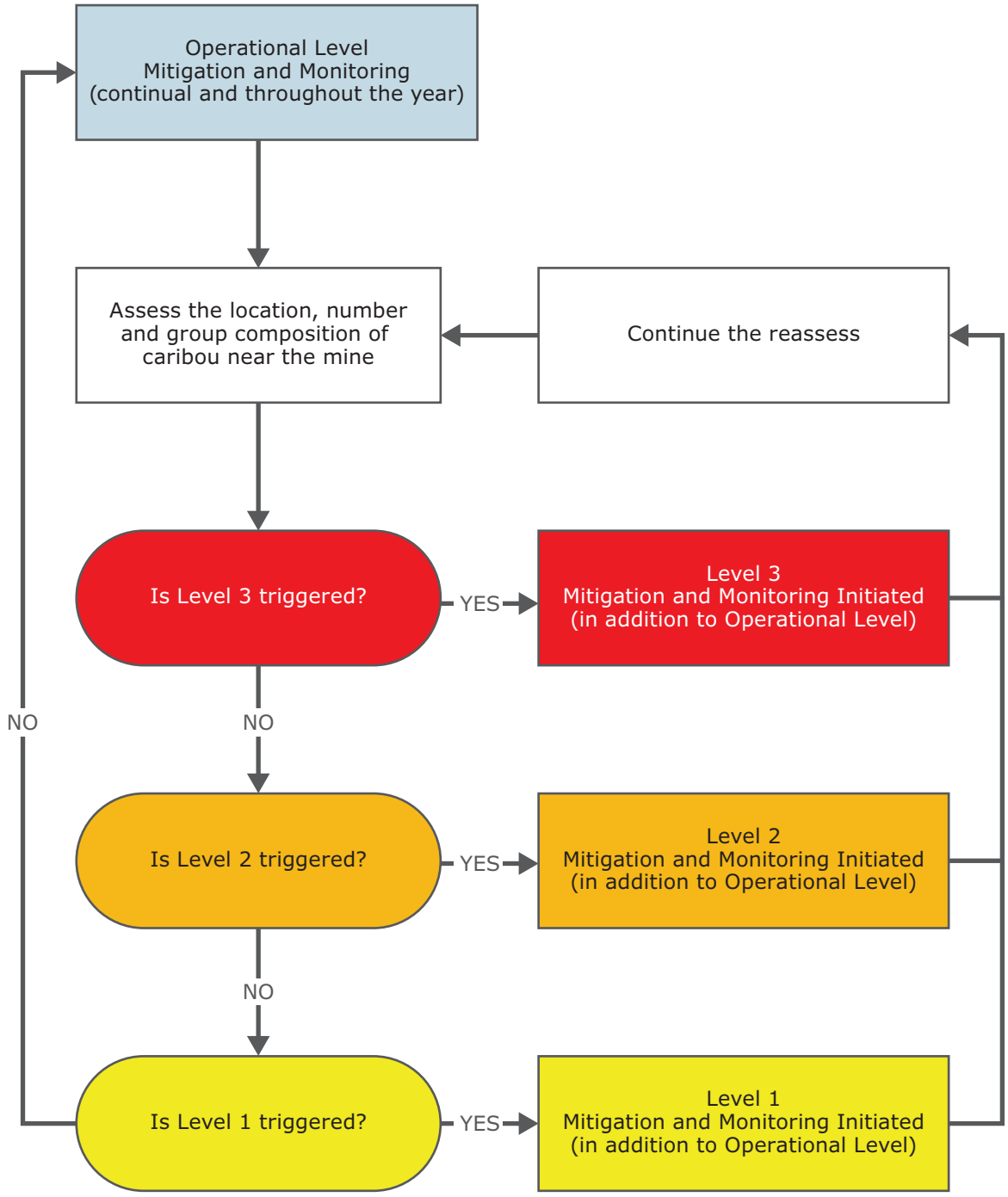
Monitoring is expected to provide early detection of caribou approaching roads and to assist in management of the appropriate levels of mitigation to protect caribou and other wildlife. Monitoring related to the CRMP is documented and reviewed for the purposes of adaptive management and mitigation at the Ekati Diamond Mine.

4.1.2.2 OBJECTIVES

The objectives for the CRMP are to:

- avoid and reduce the risk of caribou and other wildlife mortalities from traffic;
- avoid and reduce potential barrier effects of the Jay and Misery roads (and other Ekati Diamond Mine roads) to caribou movement and migration; and
- limit the effect of sensory disturbance from roads and traffic on caribou behaviour.

FIGURE 4.1-1 DECISION TREE FOR THE CARIBOU ROAD MITIGATION PLAN



4.1.2.3 METHODS

Mitigation and monitoring efforts related to the CRMP are documented in a wildlife management database by the Environment Department. Information about the number and duration of blue, yellow, orange, and red alert levels, and reasons for triggering change in alert levels, were recorded (see Section 4.2.1 for definition of colour alerts). When possible, the following information was recorded for speed limit reductions and road closures related to the CRMP: location (road), frequency, duration, and length of road segments actions applied to and duration of the action. Other information, such as time and date, were also recorded.

4.1.2.4 RESULTS

The 2023 reporting year is the seventh complete year that the CRMP was implemented. In 2023, the Operational Level (Blue) was in effect for 17 days in January and 15 days in December while CRMP alert levels beyond the Operational Level were triggered for the majority of the year due to caribou occurrences near the roads (Table 4.1-4). Level 1 (Yellow – low risk) was triggered on one occasion for a duration of nine days, Level 2 (orange – medium risk) on one occasion for eight days, and Level 3 (Red – high risk) was triggered for a duration of 284 days.

TABLE 4.1-4 SUMMARY OF CARIBOU ROAD AND MITIGATION PLAN ACTIVITIES AT THE EKATI DIAMOND MINE, 2023

Event #	Start Date 2023	End Date 2023	Duration (days)	Previous Level	Alert Level	Alert Trigger and Management Actions
1	1-Jan	18-Jan	17	Blue (from 2022)	Blue	Initiated 2023 at operational level and remained there until February 18 due to caribou presence (collar data and observations)
2	18-Jan	18-Feb	31	Blue	Red	Escalated to Level 3 (Red) from Operational Level (Blue) based on increased observations of caribou on site.
3	18-Feb	26–Oct	250	Red	Orange	Changed from Level 3 (Red) to Level 2 (Orange) based on collar data and observations. A herd of caribou moved into the LLCF.
4	26-Oct	03-Nov	8	Orange	Red	Changed from Level 2 (Orange) to Level 3 (Red) based on collar data and observations.
5	03-Nov	07-Dec	34	Red	Blue	Changed from Level 3 (Red) to Operational Level (Blue) based on collar data and lack of observations.

Event #	Start Date 2023	End Date 2023	Duration (days)	Previous Level	Alert Level	Alert Trigger and Management Actions
6	07-Dec	22-Dec	15	Blue	Yellow	Escalated to Level 1 (Yellow) from Operational Level (Blue) based on one observation of a caribou on Misery Road.
7	22-Dec	31-Dec	9	Yellow	Yellow	Maintained Level 1 (Yellow) until the end of the year and into the new year based on observations of caribou on Misery Road.

Notes:

Blue (Operational): continual and throughout the year.

Yellow (Level 1 – low risk): ≥ 1 collared caribou or caribou sightings within 30 km of the Ekati Diamond Mine (i.e., RSA).

Orange (Level 2 – medium risk): ≥ 1 collared caribou within 14 km of the Ekati Diamond Mine and/or caribou sightings near roads, and/or 0.25% of total cows in the Bathurst herd are between 200 to 500 m of the Jay or Misery roads during any season.

Red (Level 3 – high risk): 0.25% of total cows in Bathurst herd within 200 m of roads, ≥ 1 caribou group sighting within 500 m of roads during northern migration (May) and/or ≥ 1 caribou crossing road.

Following the CRMP, daily road surveys occurred and site-wide notifications were initiated in response to each report of caribou near roads (Level 3; Section 5.6). These included reminders for vehicle operators to watch for caribou, give caribou the right-of-way, keep distances of at least 100 m away from caribou, and slow to 20 km/h when caribou are within 200 m of the road or 40 km/h when caribou are within 500 m of the road. Speed limits were decreased, and road signage at the entrance and exits of active haul roads changed to indicate caribou are highly likely (Red alert; 284 days; Table 4.1-4) to be encountered in the area. Signs were also displayed in multiple locations within Main Camp and Misery Camp to advise personnel on site of changing levels of caribou activity. Notifications were also provided to Operational Departments following alert level changes. When caribou attempted to cross the road (Red alert), or were in very close proximity, Environment Personnel were consulted and ensured proper procedures to protect caribou were implemented.

In addition to the short-term road closure described in Section 4.1.1, traffic was delayed due to wildlife on or near roadways, in accordance with the CRMP, on 401 occasions. The traffic delays occurred at Sable Road (254 occasions), Misery Road (116 occasions), and other roads (31 occasions; Table 4.1-5). Most traffic delays occurred in July (46%). Consequently, loss of equipment operating hours in 2023 due to wildlife totaled 43 hours, resulting in the loss of many more person-hours, while for example several heavy, medium, and light vehicles were stopped because of wildlife being less than 100 m from roads.

TABLE 4.1-5: SUMMARY OF TRAFFIC DELAY DUE TO WILDLIFE

Location	# of Traffic Delay Events	Total Time Delayed (Min)
Misery Haul Road	116	801
Sable Haul Road	254	1,671
Other	31	108
Total	401	2,580

4.1.2.5 DISCUSSION

The CRMP alert level changes were triggered on five occasions due to caribou activity near roads in 2023. Level 3 (Red – high risk) was in place for two periods for a total of 284 days. During 2023, there was four events triggering work stoppage or road closure due to caribou in close proximity to roads (Section 4.1.1.4). Level 2 was in place for one occasion for eight days and Level 1 was in effect on one occasion for nine days. In the last half of December Level 1 was in effect.

In 2023, the Red-level response that occurred for one period totaling 78% of the year (284 days) was primarily due to caribou crossing Sable and Misery roads, multiple sightings of caribou near both roads, and collared caribou satellite mapping that indicated presence of caribou in close proximity to the roads.

In the first five years of CRMP implementation (2017 to 2022) there was an increase in the number of days under the Red-level response (17 to 310). There was a decrease to 284 days in Red-level response in 2023. Documenting the mitigation and monitoring efforts related to CRMP will continue in future years and provide information for adaptive management, as required.

4.2 WILDLIFE-VEHICLE AND -AIRCRAFT INTERACTIONS

4.2.1 INTRODUCTION

Burgundy has implemented a series of design mitigation and management measures to address the potential for wildlife mortality due to collisions. Vehicles and aircraft encountering wildlife can pose a risk for wildlife and human safety. Below is a list of the major mitigation and management measures to manage potential wildlife-vehicle collisions.

4.2.1.1 ROAD DESIGN:

- road designs that incorporate caribou crossings;
- signage indicating caribou are likely to be encountered;
- use of TK to create accessible roads and caribou crossing ramps; surface height and side-slopes of Misery, Sable, and Lynx roads constructed close to surrounding land surface to facilitate easy access for caribou to roadways; and
- construct caribou crossings along the Lac du Sauvage Road that respect the importance of this area for caribou migration and movement, as identified by community engagement and TK; caribou crossings were constructed along 70% of the Lac du Sauvage Road.

4.2.1.2 ROAD MAINTENANCE:

- wildlife carcasses on or near the roads are removed to minimize the attraction of predators and scavengers to roads and road edges where they would be at an increased risk of colliding with vehicles; and
- snow berm height is managed during the winter by pushing out and leveling off accumulated snowbanks to 1 m to reduce the continual drifting of windblown snow along roads, whereby reducing the potential impact that roads with snowbanks may have in presenting visual or physical barriers to caribou movement. Monitoring along Misery Road during spring migration found deflections of caribou when berms were at least 1.6 m high, therefore berms are continuously cleared during spring migration.

4.2.1.3 DRIVING RULES:

- employee education;
- speed limits are posted and enforced; speed limits are 60 km/h along haul roads, 20 km/h around Main Camp, and 40 km/h along other roads unless otherwise indicated; and
- wildlife always has the right-of-way.

4.2.1.4 MONITORING AND FEEDBACK:

- implementation of the CRMP;
- work with communities to monitor caribou movement and effectiveness of mitigation and provide feedback on adaptive management;
- vehicles encountering wildlife on roads are required to stop and communicate the presence of wildlife on the road(s) to the Environment Department and others in the area;
- site-wide notifications of caribou approach to the Ekati Diamond Mine; and
- reduced speed limits, and short and long-term road closures are implemented according to action levels in the CRMP.

4.2.1.5 CAMP MITIGATION:

- a gated chain-link fence is maintained around Misery Camp to prevent wildlife from entering.

Airstrip Mitigation:

- visual airstrip inspections for wildlife are completed prior to take-off and landing of all aircraft;
- a barrier fence is in place around the airstrip to deter wildlife from the area; and
- Inuksuit (traditional rock structures; Photo 4.2-1) are placed at intervals around the airstrip, Pigeon Culvert, Fox Haul Road, Beartooth Pit, and other potentially hazardous Mine structures to deter caribou from these areas.

Photo 4.2-1: Example of an Inuksuit (Traditional Rock Structures) that are placed at intervals Around Infrastructure to Deter Wildlife and Minimize Potential Interactions Between Mine-Related Traffic And Wildlife.

4.2.2 OBJECTIVES

The objectives for this component of the WEMP are to:

- monitor if any wildlife is killed or injured as a result of vehicle and aircraft interactions; and
- evaluate whether preventative measures are sufficient to minimize risks of wildlife injury and mortality.

4.2.3 METHODS

All vehicle and aircraft interactions with VEC (i.e., bear, caribou, wolf, wolverine, and raptors) and non-VEC wildlife species (i.e., foxes, arctic hare, ground squirrel) on roads or the airstrip were reported to the Environment Department. The species, number of individuals, sex and age, location, condition of the animal, type of incident and a description, and deterrent types used were recorded (if any). If there were mortalities, the cause of death and any follow-up notes were also recorded.

Deterrents (bear bangers, trucks, air horns, and helicopters) may be used to remove wildlife from the airstrip and potentially hazardous sites and activities. Wildlife will only be deterred as a last resort, when there is a risk to either humans or wildlife, as determined by the Environment staff.

Caribou are given the rite of–way – vehicles stop and wait for caribou to move out of the way. Caribou will only be deterred away from roads or the airstrip under specific circumstances, such as when there are incoming flights or if there is an emergency. Risks are assessed prior to any use of deterrents for caribou.

Caribou can be deterred by having people dismount a vehicle within ~150 m of caribou at which point caribou typically move off. Stubborn caribou can be convinced by yelling or clapping hands. If possible, the deterrence plan will be discussed with GNWT ECC prior to initiating.

4.2.4 RESULTS

4.2.4.1 WILDLIFE MORTALITIES

No aircraft-related mortalities or interactions occurred in 2023. There were 23 vehicle-related wildlife mortalities at the Ekati Diamond Mine in 2023 (Table 4.2-1), involving Arctic hare (10 individuals), rock ptarmigan (*Lagopus muta*; six individuals), Arctic ground squirrel (two individuals), willow ptarmigan (*Lagopus lagopus*; one individual) and unknown species of ptarmigan (four individuals). All incidents involved light or heavy vehicles hitting individuals on roads. All mortalities were reported to the Environment Department and carcasses were moved far from site on the tundra or were incinerated.

4.2.4.2 WILDLIFE MANAGEMENT

Three interactions with wildlife and vehicles occurred in 2023, on March 10, May 31, and June 21. An adult and juvenile caribou were feeding approximately 200 m from Beartooth pit on March 10, 2023. Speed limits of 20 km/h were imposed on the haul road near the pit until a few hours later when the caribou moved further away from the road.

On May 31, 2023, one female adult grizzly bear and three cubs approached a cube van transporting waste from Misery on the Misery Haul Road at KM18-20. The van had stopped for the sow and cubs, and the bears approached the van and investigated it by standing and touching the van. The bears eventually moved off the road and the driver proceeded to drive away.

On June 21, 2023, one adult female grizzly bear, two male cubs and one female cub were observed walking on and crossing over the Misery Haul Road at KM23. As the vehicle was stopped for the bears, two of the cubs came up to the truck and climbed in and around truck doors, mirrors and wheel wells. The crew inside locked the doors, banged against the doors from the inside to try to deter the cubs, in addition to honking the horn. The bears eventually moved along the haul road, where the crew followed them and fired two bear bangers to move the bears farther away from the haul road.

4.2.5 DISCUSSION

During the life of mine to date, there have been no mortalities of caribou due to collisions.

The number of vehicle-related non-VEC wildlife mortalities reported in 2023 was 23 which is an increase from the 16 reported in 2022. There has been an increase since the five in 2020, likely due to a low number of staff on site in 2020 while the mine was in Care and Maintenance. Reports were highest in 2013 (n = 26), 2014 (n = 19), and 2023 (n = 23). Haul truck traffic has increased in frequency on Misery Road since 2011.

Burgundy has implemented a number of mitigation practices to minimize potential interactions between mine-related traffic and wildlife. The CRMP, a three level approach for implementing mitigation and monitoring in response to caribou proximity to roads at the Ekati Diamond Mine, was first applied in 2016 and will continue to be applied throughout operations. Mitigation measures for roads includes giving wildlife the right-of-way, temporarily closing roads, monitoring wildlife adjacent to roads, and posting wildlife caution signs (Section 4.1). Removing carcasses on roads helps to minimize traffic risks to predator and scavenger species. Finally, education and awareness efforts (i.e., posters, presentations, and site-wide email notifications) for mine personnel has been effective at reducing wildlife-traffic conflicts.

For more detail on specific vehicle, aircraft, and non-vehicle incidents see Detailed Wildlife Incident Reports in Appendix A.

TABLE 4.2-1: VEHICLE-RELATED WILDLIFE MORTALITIES AT THE EKATI DIAMOND MINE, 1997 TO 2023

Species	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Arctic ground squirrel	0	0	0	0	0	1	0	0	0	1	0	2	2	1	1	3	4	2	2	1	0	0	0	0	0	0	2	**22**
Arctic hare	0	0	0	0	0	9	0	3	3	6	5	5	2	2	2	6	11	6	4	4	4	3	7	0	6	12	10	**110**
Muskrat	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	1	0	0	0	0	0	0	**5**
Fox (red, arctic, cross, or unknown)	0	0	0	0	0	1	0	0	1	0	0	1	1	1	1	0	1	3	1	3	1	0	1	1	0	0	0	**17**
Wolf[2]	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	**2**
Birds																												
Canada goose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	**1**
Common raven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	**2**
Greater white-fronted goose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	**5**
Green-winged teal	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Long-tailed duck[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	**3**
Rock ptarmigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	6	**10**
Rough-legged hawk[2]	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Short-eared owl[1]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
Peregrine falcon[1]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	**1**
Unknown ptarmigan sp.	0	0	0	0	0	1	0	2	8	2	5	1	1	2	3	2	5	0	2	2	1	1	0	0	3	4	4	**49**
Unknown waterfowl sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	1	1	0	0	0	0	0	0	**8**
Willow ptarmigan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	**3**
Total	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**5**	**14**	**9**	**10**	**9**	**7**	**6**	**8**	**14**	**26**	**19**	**9**	**11**	**10**	**4**	**11**	**5**	**12**	**16**	**23**	**241**

Notes:

[1] VEC species and species of conservation concern.

[2] VEC species.

[3] Species of conservation concern.

4.3 NON-VEHICLE WILDLIFE MORTALITIES AND INCIDENTS

4.3.1 WILDLIFE MORTALITIES

4.3.1.1 INTRODUCTION

Wildlife mortalities are monitored at the Ekati Diamond Mine to track the number of naturally occurring mortalities near the site and any mortalities that may occur due to interactions with the site. Wildlife mortalities are tracked to look for trends, improve mitigation and determine appropriate adaptive management. Wildlife carcasses can also attract scavengers to the mine site, creating risks for both carnivores (e.g., being drawn to the road by carrion and subsequently being struck by a vehicle) and people who encounter them. Mitigation measures, such as removing carcasses, are in place to avoid any potential negative interactions between wildlife and humans, and to reduce the likelihood of wildlife associating the site with food.

4.3.1.2 OBJECTIVES

The objective of this component of the WEMP is to:

- document and mitigate potential effects of Mine activities on wildlife mortalities at site; and
- reduce risk to both wildlife and people.

4.3.1.3 METHODS

Burgundy records detailed information on wildlife mortality events in a wildlife mortality database. Personnel are required to report wildlife mortalities to the Environment Department, who inspects the mortality to determine the probable cause of death. Obvious injuries, the position of the animal, and anything considered unusual are photographed and recorded. Further information including time, date, location, estimated time of death, and any sightings of other wildlife in the area are also recorded. The Environment Department keeps a separate record of potential conflicts with, or deterrence of wildlife, which require a response from the Environment staff (Section 4.1).

Burgundy is required to report wildlife mortality details to GNWT ECC each time a VEC species, fox, common raven, or raptor is found dead at the Mine. Mortalities of migratory birds are to be reported to Environment and Climate Change Canada (ECCC).

Unless otherwise directed by GNWT ECC or ECCC, carcasses found close to the mine site are incinerated or moved away from any work areas (i.e., further out onto the tundra) to prevent attraction of scavengers to the mine site. Natural wildlife activity and ecological processes are left undisturbed unless there is risk of harm to onsite personnel or wildlife. For example, carcasses found in an area where they do not pose any threat to wildlife or human safety are left on the tundra.

4.3.1.4 RESULTS

During 2023, 13 wildlife mortalities were reported at the Mine that were not attributed to vehicle collisions (reported in Section 4.2). These included four caribou, two juvenile rough-legged hawks (*Buteo lagopus)*, one arctic hare, one white-crowned sparrow (*Zonotrichia leucophrys*), one common raven, Lapland longspur (*Calcarius lapponicus*), and three birds of unknown species (Table 4.3-1).

4.3.1.4.1 Caribou:

On March 10, 2023, four caribou were harvested and observed being loaded on to vehicles. Earlier in the day, four hunting parties were reported travelling and hunting caribou adjacent to Ekati infrastructure with snowmobile tracks crossing multiple site roads. This was reported to Environmental Department, which informed the GNWT ECC via email, in addition to the Poacher Hotline.

4.3.1.4.2 Raptors:

Two rough-legged hawk mortalities were reported on September 23, 2023. The hawks were found beneath a powerline running along the Panda Diversion Channel with evidence that suggested that the shock from the powerline was cause of mortality. The carcasses were bagged, labelled, and placed into the wildlife freezer to preserve the hawks in case further investigation was needed. The Environment Department was contacted, and the mortalities were reported to ECCC.

During nightshift, a deceased common raven was found at the light post beside the Sable Fuel Storage Area on July 8, 2023. The cause of death was unknown and was reported to the Environmental Department the next morning.

4.3.1.4.3 Migratory birds:

On July 4, 2023, a white-crowned sparrow mortality was reported. The carcass was found while sampling Seep 19 and the cause of death was unknown. The carcass was disposed on the tundra and reported to Environmental Department.

On May 9, 2023, one non-breeding/immature Lapland Longspur was found entangled in a silt fence at the Point Lake end-of-pipe discharge into Lac du Sauvage. The carcass was deposited in the garage sea-can cooler and was reported to the Environmental Department, and later incinerated. The silt fencing was removed from this area to eliminate further risk to birds.

On April 29, 2023, an unknown bird was found at the front door of Ekati Main Camp, but the cause of death was not clear. The carcass was moved to the tundra and reported to the Environmental Department.

On September 1, 2023, a second unknown bird mortality was reported in the Building 039 Heatrace A4 –LLCCF, a decommissioned building with no way out. The carcass was in advanced stages of decomposition and was moved to the wildlife mortality freezer. This mortality was reported to Environmental Department.

4.3.1.4.4 Small mammals:

On January 29, 2023, an Arctic hare was found on the ground at KM8 on the Sable HR with a red fox and common raven feeding on the remains. This mortality was reported to the Environmental Department.

4.3.1.5 DISCUSSION

Between 1997 and 2023, wildlife mortalities not related to vehicles have varied between zero and 20 per year, with 2023 results mid-way through this range at 13 reported mortalities. Mitigation measures occur following each observation of an animal carcass, and may include notifying the GNWT ECC and ECCC, sending site-wide notifications of animal activity in the area, wildlife warning signs and road closures for the safety of staff in vehicles and for wildlife. Carcasses found in an area where they do not pose any threat to wildlife or human safety are left where they were found on the tundra. To prevent attracting scavengers, carcasses found close to the Mine are incinerated, relocated away from the Mine, or frozen for later necropsy if requested by GNWT ECC or ECCC.

TABLE 4.3-1: NON-VEHICLE-RELATED WILDLIFE MORTALITIES AT THE EKATI DIAMOND MINE, 1997 TO 2023

Species	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Mammals																												
Arctic hare	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1	5
Caribou[1]	0	0	0	0	7	13	5	7	3	5	2	1	8	7	5	2	1	2	0	1	2	2	8	2	4	4	4	95
Grizzly bear[1]	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Muskrat or unknown rodent	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
Fox (Red, Arctic, Cross, or unknown)	2	0	0	0	0	1	0	0	0	0	8	4	1	4	0	1	1	2	0	0	1	1	0	0	0	0	0	26
Wolverine[1]	0	0	0	0	8	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Wolf[2]	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	6
Birds																												
American green-winged teal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
American robin	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
American tree sparrow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Common loon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Common Raven	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	1	1	2	0	1	0	0	2	0	1	11
Common redpoll	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
Greater white-fronted goose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
Green-winged teal	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Lapland longspur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Long-tailed duck3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Merlin[2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1

Species	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Northern pintail[3]	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2
Northern shoveler	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Peregrine falcon[1]	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Red-throated loon	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rock ptarmigan	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rough-legged hawk[2]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2	4
Savannah sparrow	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Short-eared owl[1]	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Snow goose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Snowy owl	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
White-crowned sparrow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
Willow ptarmigan	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Yellow-billed loon	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Unknown goose species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Unknown merganser species	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Unknown passerine species	0	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	0	0	2	3	15
Unknown plover species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Unknown ptarmigan species	0	0	0	0	0	0	0	0	0	0	1	0	0	4	0	0	2	0	0	1	0	0	1	0	1	0	0	10
Unknown sparrow species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8
Unknown waterfowl species	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	1	0	0	0	0	0	5
Total	2	7	0	0	15	18	7	7	20	9	13	11	9	20	5	4	9	9	3	17	8	6	11	11	8	7	13	2496

Notes:

[1] VEC species and species of conservation concern.

[2] VEC species.

[3] Species of conservation concern.

4.3.2 WILDLIFE INCIDENTS

4.3.2.1 INTRODUCTION

A wildlife "incident" is defined as an interaction between wildlife and human(s) that may compromise the safety of the wildlife and/or human(s). Incidents also include any action where deterrents are deemed necessary. Incidents involving wildlife in close proximity to mine infrastructure, such as roads, open pits, waste rock storage areas, and the LLCF must be managed to minimize risk to wildlife and staff. As part of the WEMP, all wildlife incidents are recorded and reviewed to adaptively manage these incidents.

Burgundy practices progressive levels of deterrence, starting with avoidance (removing crews from the area), visual monitoring, truck deterrence (including horn), bear bangers, rubber bullets, and use of helicopters. Relocating or killing of an animal is only considered after successive levels of deterrents are not successful at moving an animal from site. Whenever possible and safe to do so, all deterrent actions are completed in consultation with GNWT ECC:

4.3.2.2 OBJECTIVES

The objectives of wildlife incident monitoring are to:

- document, minimize, and mitigate potential effects of mine activities and infrastructure on wildlife; and
- reduce risks to both wildlife and people.

4.3.2.3 METHODS

Wildlife incidents were reported to the Environment Department, recorded on an Incident/Accident Form and entered in a database. Incidents included observations of wildlife-infrastructure interactions and wildlife-human interactions where there was a potential risk of harm to people, wildlife, and/or infrastructure. Descriptions of species, number of individuals, sex and age, location, condition of the animal, management responses, wildlife behaviour, type of incident (i.e., interaction with field crew, vehicle, aircraft, mine infrastructure, mortality, or other), type and number of deterrents used, and outcome, were recorded for all incidents.

On occasions when there is an apparent need to use deterrents, GNWT ECC is contacted to inform them of the need to use of deterrents, the use of deterrents, and to seek advice when necessary. Deterrent measures used during an intensive pit wall nest monitoring program are reported separately (Section 10.3).

Where appropriate, the first response to potential wildlife incidents is to remove personnel from an unsafe situation and reschedule work in the area. Only as a last resort (e.g., immediate safety concern) will a helicopter be used to deter grizzly bears from areas where personnel are working. Pilot are instructed to position the helicopter 120 m behind the bear and to travel at a maximum speed of 10 to 15 km/h.

Whenever possible, Environment staff are present in the helicopter to monitor the well-being of the animal during the deterrent efforts and to direct the pilot accordingly. The intent is to guide bears away from personnel and infrastructure without overexerting or overheating them. For example, an animal is allowed to rest and recover when approaching difficult terrain. In addition, the helicopter will maintain a 150 m altitude and back off to 300 m away from the grizzly bear when it is cooperating (i.e., continues travelling in the direction of the movement without further prompting). At all times, the animal's energy, the terrain, and the air temperature are considered during a move.

Detailed inspections of skirting around buildings and fencing are conducted on a weekly basis by walking or driving around buildings with skirting (i.e., the Ekati Diamond Mine Camp and Misery Camp), and around fencing structures (i.e., Misery Camp, and Ekati Diamond Mine Airport). Surveyors recorded any sign of wildlife (e.g., scats, tracks, and digs), as well as evidence of damage (e.g., holes, tears) to the skirting or fencing.

4.3.2.4 RESULTS

During the 2023 reporting period, a total of 45wildlife incidents were reported, involving three VEC species (caribou: one incident; grizzly bear: 31 incidents; wolf: two incidents), four non-VEC species that aren't species of concern (red fox, common raven, American pipet (*Anthus rubescens*), American robin (*Turdus migratorius*), and four species that weren't specified and an unknown species of songbird (Table 4.3-2). Incidents were related to interactions with mine infrastructure (n = 9), personnel (n = 13) or both mine infrastructure and personnel (n =23).

These 45 incidents are excluding the ones previously reported as mortalities (Section 4.3.1) and wildlife interactions with vehicles and aircraft (Section 4.2). The Wildlife Incident Reports are in Appendix A. Caribou and large mammals:

One incident involved caribou, a VEC species, in the 2023 reporting year.

- On July 2, 2023, four caribou were observed bedding in an active work area in Sable Crusher. No deterrents were used and the caribou were not pushed or influenced by workers, which allowed caribou to continue bedding and resting until they left the area, approximately two hours later.

Two wolf incidents both occurred on July 22, 2023.

- The first incident occurred at the communications tower on Sable Haul Road near KM11. It was observed that there were frayed cables where it was suspected that an animal was chewing on the cables. A wolf was observed around the truck and in the areas of the crew. Crews vacated the work area and when environmental staff arrived on site, the wolf was unable to be located.
- Later that day, two vehicles were driving north on the Sable Haul Road when they observed a wolf on the road. The vehicle slowed down, and the wolf approached the first vehicle, then began to bite the tires of the vehicle. The vehicle moved away from the wolf when it was at the side of the vehicle, and the wolf pursued the vehicle for a short

time. The wolf turned and approached the second vehicle and bit at the tires. The vehicle left once the wolf was on the side of the vehicle. Environmental staff were alerted to this incident, however, when they responded to site, the wolf was not able to be found.

4.3.2.4.1 Fox and Small Mammals

Four incidents involving foxes, and one incident involving a weasel or mink, all non-VEC species, occurred between January 18 and December 11, 2023.

- On January 18, 2023, an unknown fox species was reported to be near the burn bin area and looked injured. It had bedded down outside the burn bin and appeared that the animal made its way into a waste bag with burnt items inside. When environmental staff arrived at location, there were fox prints nearby the burn bin, but the animal had left.
- The second incident occurred when food waste was observed under a rock truck during a weekly inspection on February 24, 2023. It was identified that this was from a red fox. In addition, a common raven was observed actively scavenging the food waste.
- On June 27, 2023, it was reported that a red fox got into the incinerator building and was digging into a bag of food waste. The fox was deterred by workers and to prevent re-entry, the wildlife gate and overhead door were both shut. Environment staff arrived at site to help as the fox remained at the gate and would not leave the area. Two individuals holding a tarp and walking towards the animal while simultaneously using an air horn as used. Multiple air horn blasts were required to successfully deter the fox more than 200 m away.
- The last incident regarding an unknown species of fox was on December 11, 2023, where workers noticed a strong, noticeable smell of animal urine when travelling in the vehicle. It was documented that this smell was not there when the bus went out at the start of the shift, later identified as fox urine.
- On February 11, 2023, an unknown small mammal species was captured alive in the Process Plant warehouse. The animal was transported and released onto the Tundra on the Old Camp Road.
- On November 29, 2023, an incinerator operator observed a pile of animal feces in the incinerator building. Environmental staff responded and determined the unknown small mammal to be a weasel or mink based on feces size. A live trap was set inside the incinerator building at the back door; however, the trap did not catch any wildlife.

4.3.2.4.2 Migratory Birds and Raptors:

Five interactions involving migratory birds and raptors occurred in 2023. All Species involved are non-VEC species, and include American robin, American pipet, common raven, and unknown species of birds. All events occurred between May 27 and August 8, 2023.

- A nest with eggs from an American robin was observed on May 27, 2023, on a pallet in the laydown of the Process Plant warehouse. A cone was placed in front of the pallets

with the nest until the birds had fledged. On June 18, 2023, no birds were present in the nest and the nest was removed.

- On June 28, 2023, an active bird nest with two chicks of an American pipet was observed outside the Batch Plant South Doors. Environmental staff partitioned off the area with delineators and flagging tape until the birds had fledged.
- An unknown songbird species was stuck behind a metal mesh in an exhaust fan on Panda CV5 on July 6, 2023. A small hole in the right corner was punched into the mesh using a sample pole to release the bird into the building, the bird was checked on the next day and was not seen again. It was assumed that the bird left the building on its own.
- An empty common raven nest was removed at Sable Fuel farm stairs on June 28, 2023, after it was confirmed no eggs or birds were present. The nest was first observed in April and work was stopped in the area for approximately two months prior to removal of the nest.
- On August 8, 2023, an unknown bird species was reported to have flown into the Process Plant at CV-05. The bird continued to fly in and out of the building and then the bird was no longer spotted. It was assumed that the bird had left the Process Plant on its own.

4.3.2.4.3 Grizzly Bear

There were 31 grizzly bear incidents at the Ekati Diamond Mine during the 2023 reporting period.

Five of the 31 grizzly bear incidents recorded did not require deterrents.

- On June 16, 2023, an observation was reported of three locations where a bear had been digging in the covered landfill. The bear was not on site when the digging locations were found and monitoring continued.
- On June 28, 2023, signs that a grizzly bear had previously been tearing at a mega bag of oily clothing/parts in the Waste Management laydown were observed.
- On July 19, 2023, an adult grizzly bear was observed during a bear scan between Fish Box 1 and Fish Box 2 during the Pigeon Stream Diversion (PSD) monitoring program. Work was altered and these locations were avoided.
- On July 20, 2023, a bear was observed during a bear scan between PSD Fish Box 1 and Fish Box 2, and again work was altered to avoid PSD Fish Box 1, Fish Box 2 and Fish Box 3.
- On July 21, 2023, a grizzly bear was observed by an ICD dewatering crew when the bear passed by their work area. Crusher operators reported that the bear came back into their work area, but then left again. Approximately 10 minutes later, the bear returned, investigated the food waste transfer bins at the Misery Crusher Office, then headed towards Misery Camp. When the Environmental Department arrived, they were not able to find a bear in the area.

TABLE 4.3-2: WILDLIFE INCIDENTS AT THE EKATI DIAMOND MINE, 2010 TO 2023

Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[4]	2020	2021	2022	2023 [4]	Total[4]
Mammals															
Arctic fox	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Caribou[1]	1	1	0	1	0	0	0	0	0	1	0	0	0	1	5
Grizzly bear[1]	18	4	8	1	1	4	9	8	17	35	5	19	27	31	187
Fox (red, arctic, cross, or unknown)	49	0	5	2	4	0	6	0	7	5	1	0	1	4	84
Wolf[2]	0	2	2	0	2	4	0	0	0	3	0	0	0	2	15
Wolverine[1]	1	0	0	0	0	3	0	1	0	1	0	1	0	0	7
Mink	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Muskrat	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Unknown small mammal	0	0	0	0	1	0	0	2	0	0	0	0	0	2	5
Birds															
American pipet	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
American robin	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Canada goose	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Common raven	1	0	0	0	0	0	0	1	0	1	0	1	0	1	6

Species	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019[4]	2020	2021	2022	2023 [4]	Total[4]
Long-tailed duck[3]	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Surf scoter[3]	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Tundra swan	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
White-crowned sparrow	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Unknown duck sp.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Unknown ptarmigan sp.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Unknown songbird sp.	0	0	0	0	0	0	1	0	0	0	0	0	1	2	4
Total[4]	70	7	15	6	8	13	18	12	25	46	6	22	32	**45**	32**7**

Notes:

[1] VEC species and species of conservation concern.

[2] VEC species.

[3] Species of conservation concern.

[4] In 2019, a red fox and common raven were jointly involved in one incident, another incident jointly involved a grizzly bear and a wolverine, and a third incident jointly involved a red fox and a grizzly bear. In 2023, a common raven and red fox were both involved in one incident. The total incidents is not the sum of the individual species incidents.

Seven of the 33 grizzly bear incidents recorded in 2023 were interactions with field crews that required deterrents.

- On May 25, 2023, an adult bear was observed feeding between the hydrostation and PSD Fish Box 1. The crew noticed the bear 150 m away, retreated and notified the Environmental Department. The bear walked slowly towards the crew. The crew then retreated an additional 50 m, and fired off a bear banger, but the bear continued to walk in the direction of the crew. The crew retreated to the safety of the vehicle and advised the Environment Department they had made it to the truck. The crew left the area in the truck and the Fish Box area was not visited for the following two days.
- On May 27, 2023, at the same location as the May 25 incident above, two bears noticed the crew but did not back away. A bear banger and a screamer were deployed, and the bear reacted slightly to the bear banger by moving back a few metres. The bear seemed to return focus on the crew's location and on the stream. The crew noted that the location of the Fish Box panels seemed to have been moved and did not check PSD Fish Box 1 that day. The crew left the area immediately, the fish box area was not visited again until the site had helicopter support to potentially move the bears if needed. The helicopter arrived May 31, 2023.
- On June 5, 2023, a grizzly bear was again observed at the PSD Fish Box 1, the crew received support from a helicopter that moved the bear off into the tundra. Work was resumed in the area, the crew remained vigilant for signs of the bear returning.
- On June 8, 2023, two grizzly bears were observed at PSD Fish Box's, one adult and a juvenile. Crews left the area and did not return until the next day, on June 9, 2023, the same bears were observed in the stream. A helicopter was used to move the bears off into the tundra so that the crews could resume work in the area.
- On July 11, 2023, a bear was trying to enter the Koala Fuel Bay shack. The bear was deterred south onto the tundra near the Koala Pit and Grizzly Lake A/C Road.
- On July 22, 2023, a bear was observed bedded in the willows downstream of PSD Fish Box 2 during the bear scan for the Pigeon Stream Diversion monitoring program. A helicopter was used to push the bear to the northeast, across Sable Road to the east end of Falcon Lake, which was approximately 12.5 km from the PSD. The road was closed temporarily as the bear crossed the haul road. The bear was given several breaks during the push and was frequently in the water to cool down. The bear was left in good condition on the stream between Falcon and Ursula.
- On September 10, 2023, an adult male grizzly bear with a right ear tag was observed walking on Grizzly Road, to Koala Ring Road, and Koala Pit. The bear moved north to Koala North Pit and Panda Pit before heading and being pushed with a vehicle to Beartooth Pit. In addition to being deterred with a truck, two bear bangers were used to successfully push the bear to Sable Haul Road, where the bear continued north onto tundra at Beartooth South sign.

Nineteen additional incidents were recorded with grizzly bears, all were single adult grizzly bears. These incidents occurred on the tundra, or at the landfill, Misery laydown, Misery Camp, Main Camp, Waste Management Yard, and PSD Fish Box 1 with bear bangers, screamers, voice, helicopter, rubber bullets, bean bags, scare cartridge, light vehicles (horn honk or used to push animal), and helicopter used as deterrents.

All grizzly bear incidents were recorded between May 13 and October 13, 2023. A total of 80 deterrents were used for grizzly bear incidents. Bears were always monitored after helicopter use, and it was noted that they all appeared to be in good condition following the push. The Environment Department was notified for each incident.

The grizzly bear with the right ear-tagged has been observed regularly at Ekati. The bear was first observed in 2022, when it was observed a total of 10 times, with deterrents used on 13 occasions to haze the grizzly bear. The ear-tag on the individual grizzly bear suggests that it has been captured and handled before, potentially was involved in a regional study, or the grizzly bear was previously habituated, food conditioned, and relocated. In 2023 the ear-tagged bear accounted for 10 of the total 31 incidents (July 24, 25, August 19, 23, September 3, 10, 14, and October 13, 14, 15). It was initially seen near the incinerator and later observed in the waste management yard digging repeatedly. Voice and trucks were used to move the grizzly bear on five occasions, bear bangers were used on five occasions, helicopter on four occasions, rubber bullets on three occasions, scare cartridges on two occasions, and a bean bag on one occasion.

4.3.2.4.4 Skirting Incidents

During the 2023 reporting period, a total of 126 skirting inspections were completed over 114 sampling days at the Main Camp and Misery Camp.

- Main Camp was inspected on 65 separate days and included four inspection reports of skirting damage, holes or no skirting. Skirting was fixed following the inspections. Unknown fox tracks were recorded on three occasions.
- Misery Camp was inspected on a total of 61 different days and included two inspection reports of skirting damage, holes, or no skirting. No wildlife signs were observed. All skirting damages were reported to facilities management for repair.
- Evidence of an animal digging on the south side of the airport building by the main door was reported on May 24, 2023. Environmental staff visited the location on May 25, 2023 and documented that a large amount of crush was kicked out of the hole. The hole was determined to be too small for a fox and too large of amount of crush for an Arctic ground squirrel. The hole also did not appear to be freshly dug. Environmental staff put a small amount of crush back into hole and airport technicians agreed to monitor for further digging, but it was not conclusive which animal was digging.

4.3.2.4.5 Fencing Incidents

- During the 2023 reporting period, areas with Misery Camp fencing were inspected for damage on 60 occasions over 60 sampling dates with three reports of damage, which were reported to Operations for repairs.

4.3.2.5 DISCUSSION

The number of incidents involving grizzly bears and foxes that required the use of deterrents away from site and/or personnel decreased after 2010. Part of this reduction has resulted from an increase in monitoring, removing all outdoor waste bins to reduce potential sources of attraction, and relocating Burgundy field crews or delaying work before making a decision to actively deter an animal.

Since 2011, there have been fewer than 10 fox incidents per year, including in 2023 when four incidents involved foxes. Following 2016, where six incidents of foxes in landfill bins were reported, the Environment Department increased efforts to raise awareness amongst personnel about the importance of proper waste management. The monitoring of waste bins continues to be an important component of the WEMP for preventing misdirected waste from reaching the landfill, thereby minimizing the number of wildlife incidents.

The 31 grizzly bear incidents in 2023 were the second highest numbers recorded since monitoring began in 2010. Ten observations included notes of a bear with an ear-tag where the bear was observed previously during 2023 and in 2022. Of the 27 incidental sightings, there were eight notes on grizzly bear observations that stated similarities of previous bear observations, suggesting single bears repeatedly being involved in incidents. Apart from the ear-tagged individual it is difficult to confirm that separate sightings of similar coloured or appearing bears are of the same individual, so these have been counted as separate events. The presence of an ear-tag on the individual suggests that it is a known bear, possibly due to previous conflict and may have been relocated before.

The results of the grizzly bear DNA study (ERM 2018) Indicate that the regional grizzly bear population may be increasing, which would be an indication that the mining projects in the region have not prevented grizzly bear population growth.

In recent years, Burgundy has implemented mitigation practices for wildlife attractants on site with the goal of minimizing wildlife activity on site. These practices include waste management education and awareness programs, waste management procedures, site awareness (e.g., closing doors), and wildlife awareness.

For more detail on specific vehicle, aircraft, and non-vehicle incidents see Detailed Wildlife Incident Reports in Appendix A.

5 CARIBOU

The WEMP includes several annual studies to monitor the predicted potential effects of the mining activities on caribou. Burgundy supports collaborative approaches to regional monitoring of caribou. Burgundy monitors annual variation in caribou seasonal ranges and core areas at a regional scale and relative to the Ekati Diamond Mine using collared caribou data from GNWT ECC (Section 5.2).

Studies incorporate ground-based monitoring by local community members, Burgundy staff, and biologists, including incidental caribou sightings (Section 5.3), traffic monitoring using cameras (Section 5.7), and behavioural surveys (Section 5.4).

In response to concerns that caribou may become trapped in the processed kimberlite in the LLCF, potentially leading to injury or death, or ingestion of processed kimberlite within the LLCF, formal surveys are conducted annually around the LLCF as part of the WEMP (Section 5.5).

Road and powerline surveys are also conducted to identify when caribou are near the road and trigger mitigation (Section 5.6).

Elders and holders of TK are regularly invited to site to participate in these programs and to share their knowledge about caribou behaviour, diet, health, body condition, and movement paths while the caribou are migrating through the Ekati Diamond Mine area.

To expand on these caribou monitoring programs in 2019, Burgundy continued its commitment to engagement. Ekati hosted a site tour with the Kitikmeot Inuit Association on October 24, 2019, that was focused on the Sable Road caribou crossings and receiving feedback and recommendations for these crossings. Burgundy also supported the following TK Community Based Projects in 2019: Tłı̨chǫ – Boots on the Ground Caribou Monitoring, Łutselk'e Dene First Nation – Moccasins on the Ground Caribou Monitoring, and Yellowknives Dene First Nation – Dene on-the-land Caribou Monitoring Programs. Discussions with Impact Benefit Agreement communities regarding developing a TK-based research program for studying the drivers of the Zone of Influence (ZOI) and on site sessions with the TK Elders group were deferred in 2019 while the Jay Project continued to undergo an optimization study.

Burgundy supports regional monitoring for caribou, including a study conducted in 2021 of the potential ZOI for caribou avoidance of mining developments and the factors responsible for caribou population declines (ERM 2021).

Members of the Yellowknives Dene First Nation, Kitikmeot Inuit Association, Łutselk'e Dene First Nation, Deninu Kų́ę́ First Nation, Fort Resolution Métis Council, North Slave Métis Alliance and Tłı̨chǫ communities had a site tour of the Point Lake area during the summer of 2022. Information about the Point Lake development was shared including the current status of the project with an emphasis on caribou mitigation and monitoring, and a tour of the Point Lake area to obtain TK and community feedback.

The following sections outline the caribou studies conducted by Burgundy as part of the 2023 WEMP requirements.

5.1 BACKGROUND

Barren-ground caribou are a biologically and culturally important species in the Arctic. Caribou provide a critical resource for human populations living in the North, particularly Indigenous communities. Caribou also sustain predator populations such as wolves, grizzly bear and wolverine. As a result of recent population declines, barren-ground caribou were assessed as Threatened by COSEWIC (2016) but are not currently listed in Schedule 1 of SARA (2002). In the NWT, barren-ground caribou are listed as Threatened (GNWT 2022) and ranked as at Risk (GNWT 2024).

Caribou populations can be affected by numerous factors including, harvest, disease, predation, industrial activities, climate change and environmental variability. Potential effects from industrial activities have been monitored for management of caribou for more than 20 years. To date, the effects of industrial activities on caribou populations have not been conclusively determined.

In 2021, Arctic Canadian produced a technical report that used a ZOI analytical approaches to test the theory that caribou occurrence is strongly determined by the distribution of higher quality habitat (ERM 2021). Overall, the analyses indicated that the occurrence of caribou on the landscape can reasonably be explained by the percent of land cover classes (i.e., habitat quality) alone.

A telemetry report integrating updated telemetry data is currently being drafted and is anticipated to be provided to stakeholders and GNWT ECC for review in mid-2024. Burgundy made a commitment to use the resulting data to examine the effects of the Ekati Diamond Mine on caribou behavior utilizing data from Northwest Territories' radio-collaring program for the Beverly and Bathurst caribou herds. The objective of this report is to analyze caribou responses within 30 km of mine infrastructure, accounting for landscape features and insect abundance, aiming to address concerns regarding the Ekati Diamond Mine's impact on caribou behavior comprehensively. Specifically, this telemetry report is a detailed analysis of radio-collar location data to examine the responses of caribou to mines and mine roads after accounting for the distribution of water bodies, eskers, land cover categories (mostly vegetation types), and insect abundance.

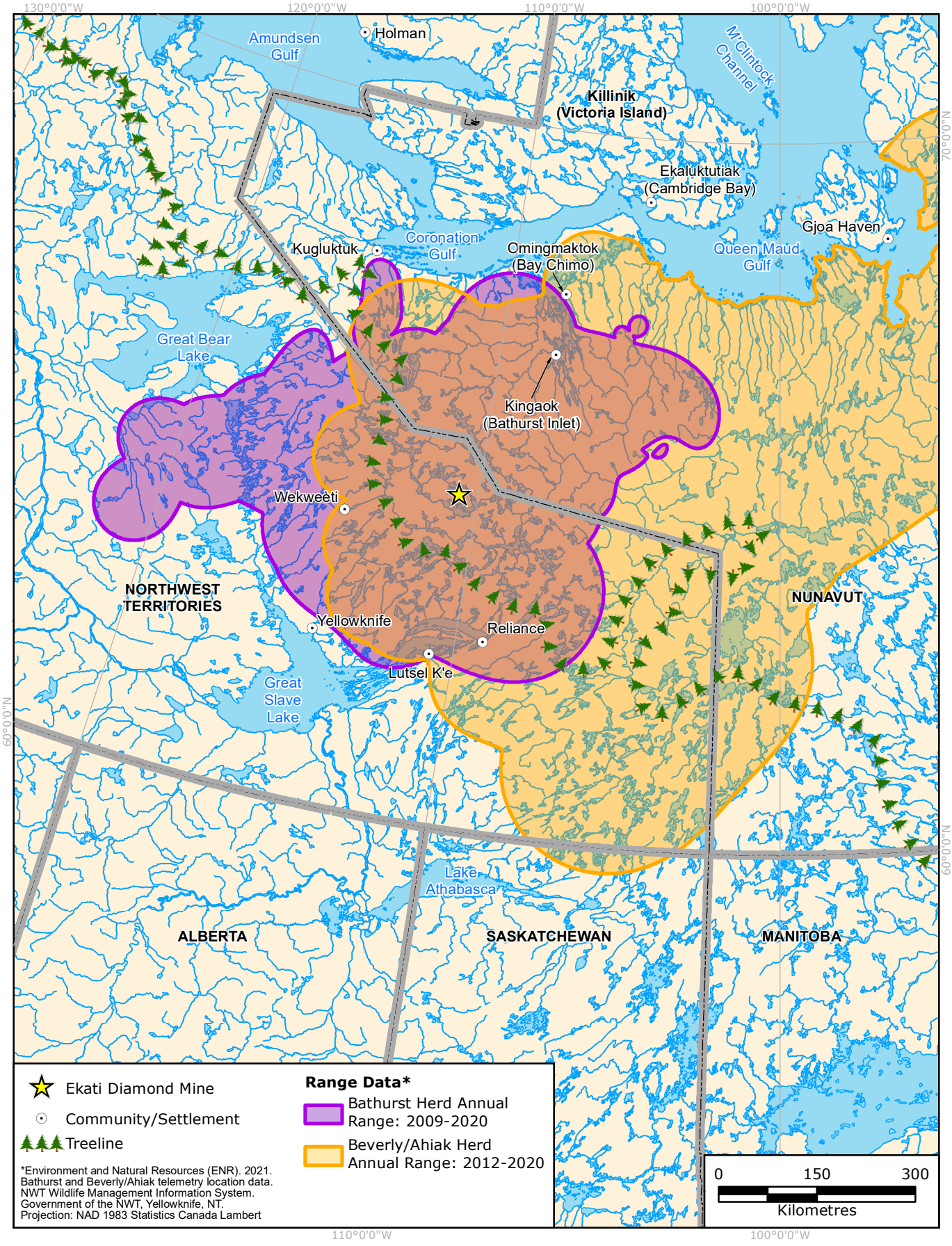
Information from TK and satellite-collared adult female caribou collected by GNWT ECC indicates that two barren-ground caribou herds, the Bathurst herd, and to a lesser extent the Beverly/Ahiak herd, have historically overlapped the area of the Ekati Diamond Mine wildlife study area (Figure 5.1-1). The historical distribution of these herds in Figure 5.1-1 represents the larger ranges occupied when populations were larger. The most southwestern portion of the Beverly/Ahiak herd range overlapped with the Ekati Diamond Mine in recent winters, when Beverly/Ahiak caribou appeared to assume a broader wintering range. Since the Bathurst herd is more likely to overlap the area of the Ekati Diamond mine wildlife study area than the Beverly/Ahiak herd, the Bathurst migration seasonal dates have been used for analysing the data (Table 5.1-1).

Population surveys of the calving ground report that Bathurst herd declined from approximately 472,000 animals in 1986 (GNWT ENR 2012) to 31,982 animals in 2009 (Nishi et al. 2010). The herd appeared to have stabilized between 2009 and 2012 at about 34,690 animals (GNWT ENR 2013) but then declined to 19,769 animals in 2015 individuals (Boulanger et al. 2017) and 8,207 animals in 2019 (Adamczewski et al. 2019). Both TK and scientific studies indicate that caribou herd size cycles relatively regularly with climate patterns (GNWT ENR 2005; GNWT ENR 2006); however, the current Bathurst herd population estimate is low compared to its historical minimum population size.

Bathurst caribou use of the land can be broadly classified into two groups: 1) migrations (spring and fall) when the animals are moving quickly across the landscape, and 2) resident periods (calving, post-calving, summer, and winter) when the daily movement rate of caribou is lower than during migrations and the herd tends to occupy a distinct area of the landscape (Table 5.1-1).

During the winter, Bathurst herd caribou were historically found south of the treeline in the NWT, though the winter range has recently included areas north of the tree line (i.e., in each winter since 2015/2016; Figure 5.1-2). Bathurst caribou remain on the wintering grounds until mid-April when they begin their migration north to the calving grounds. In most years the winter range did not overlap with the Ekati Diamond Mine, but the winter range has overlapped the Ekati Diamond Mine from 2018 to 2023 (Figure 5.1-2). During the spring migration, Bathurst caribou migrate over a large area (275,000 km^2) from their wintering area to the calving grounds west of Bathurst Inlet in a relatively short period of time (Figure 5.1-2 and Figure 5.1-3). Movement corridors varied depending on the distribution of caribou on the wintering grounds. Spring migration tracks of collared caribou have passed through or near the Ekati Diamond Mine, although in most years, migration routes of collared caribou occur to the west of the Ekati Diamond Mine.

FIGURE 5.1-1 ANNUAL RANGES OF THE BATHURST AND BEVERLY/AHIAK CARIBOU HERDS



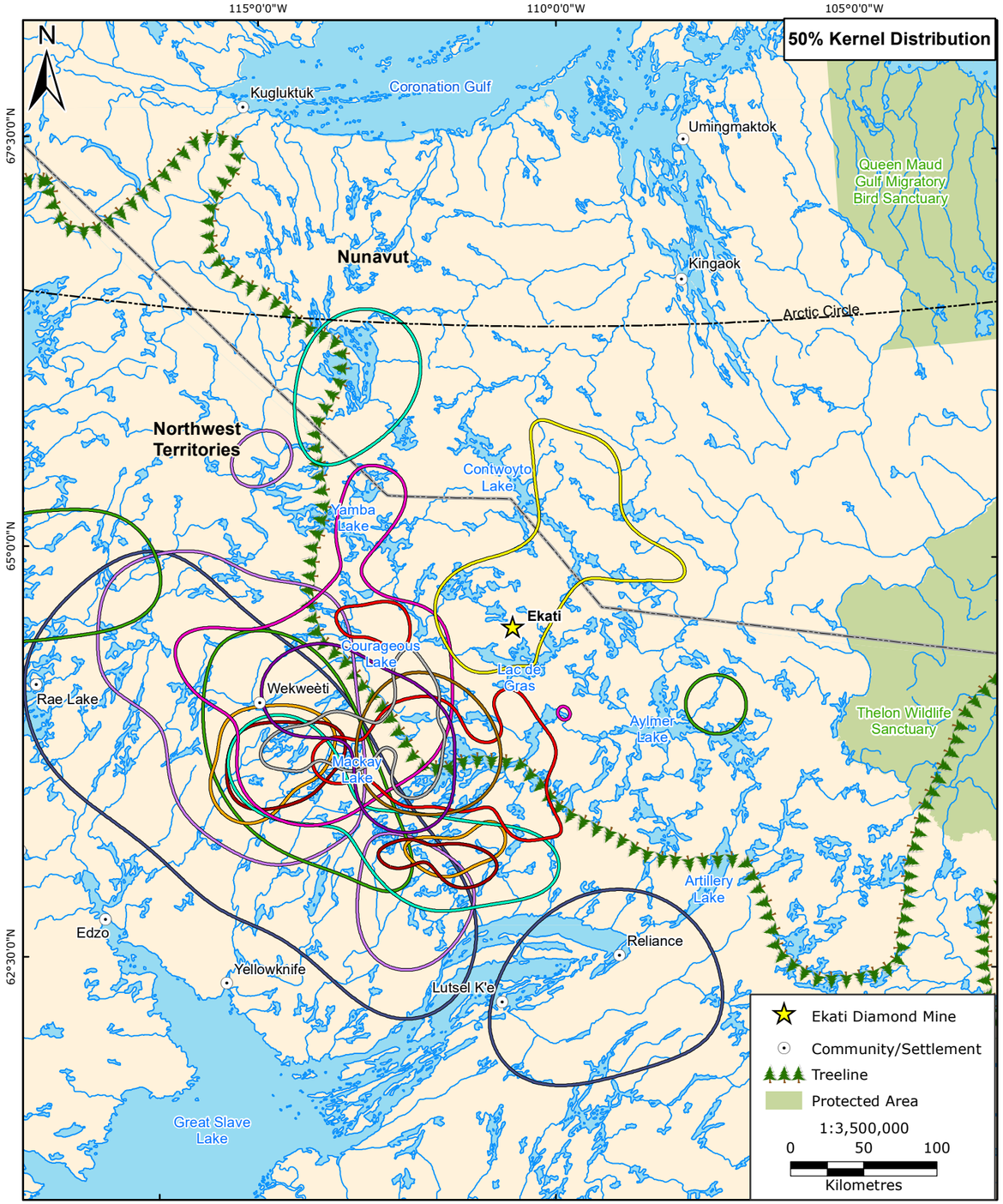
ERM

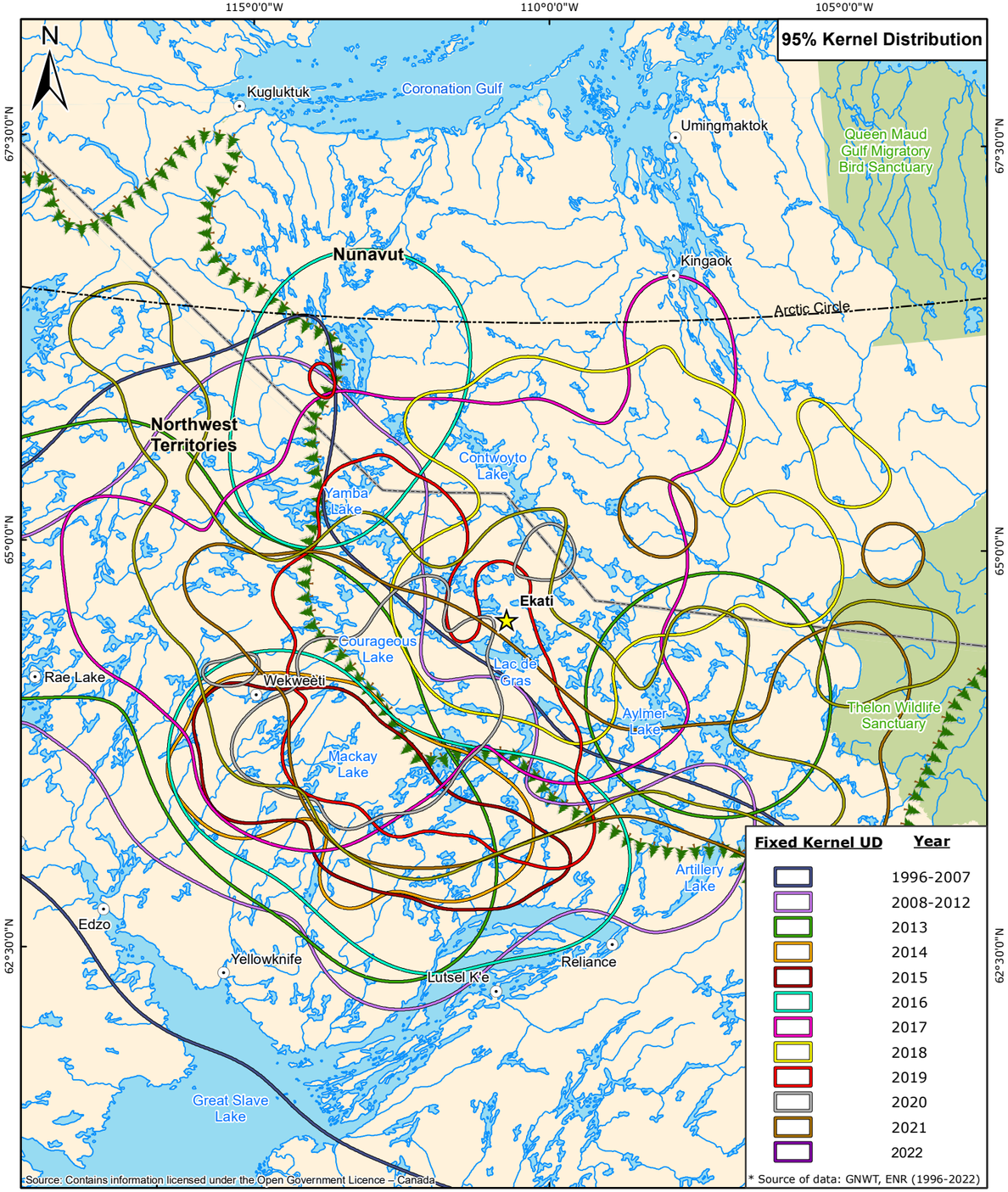
CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-433a

DATE: 08 March 2024

PROJECTION: NAD 1983 Statistics Canada Lambert
SCALE: 1:8,000,000 when printed at 8.5x11

FIGURE 5.1-2 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING WINTER, 1996 TO 2021/2022





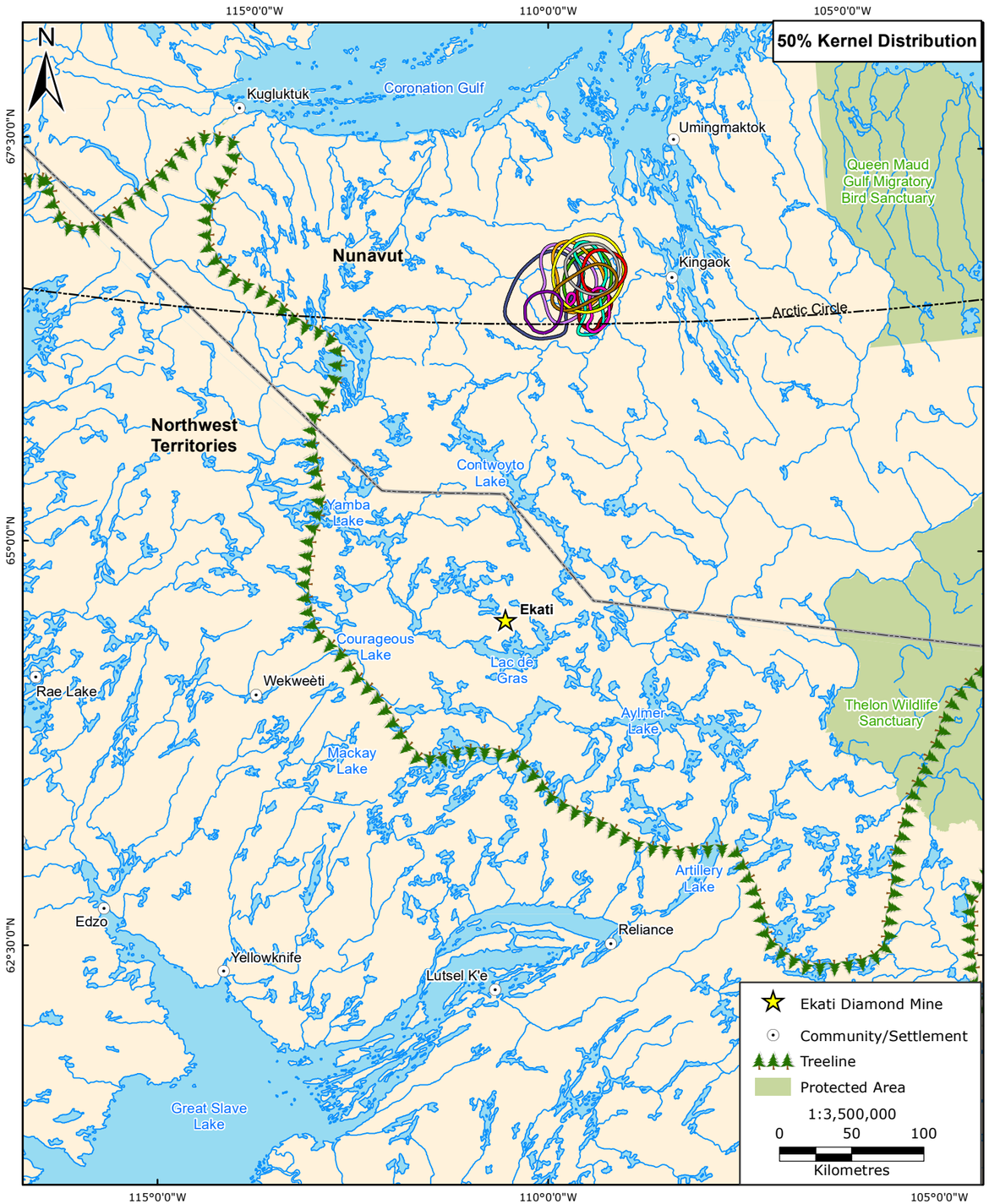
ERM

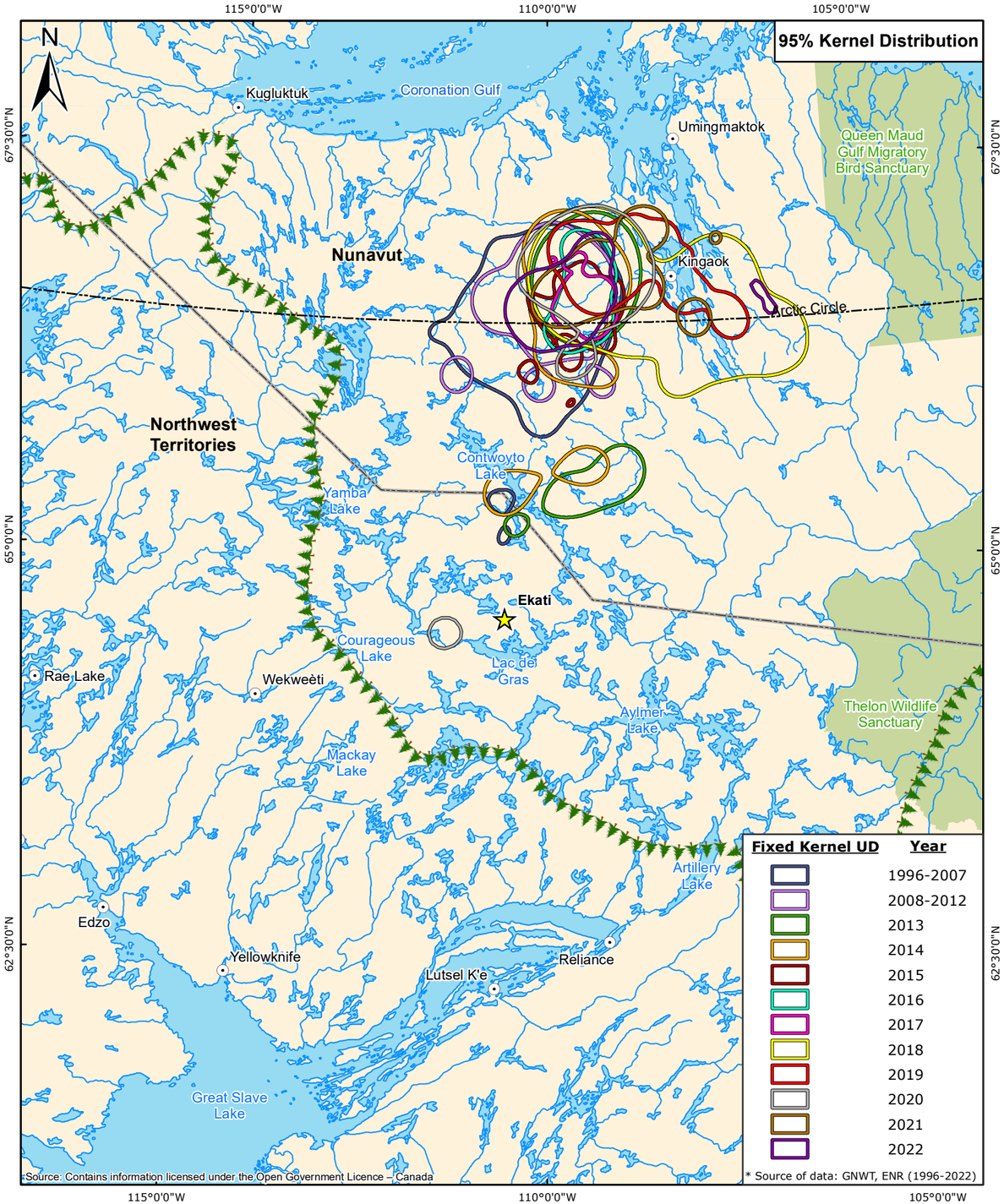
CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433b

DATE: 02/28/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.1-3 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING CALVING, 1996 TO 2022





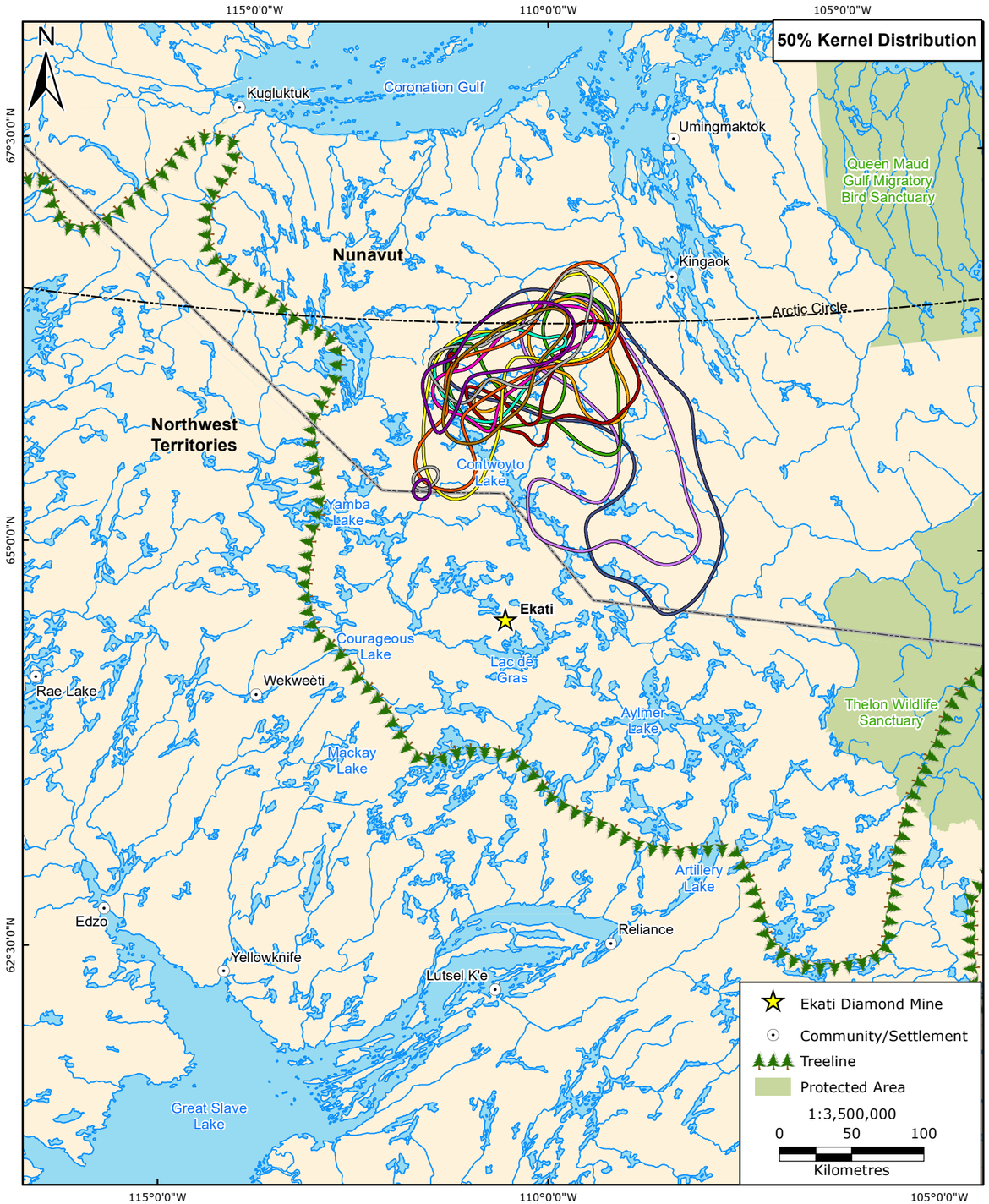
ERM

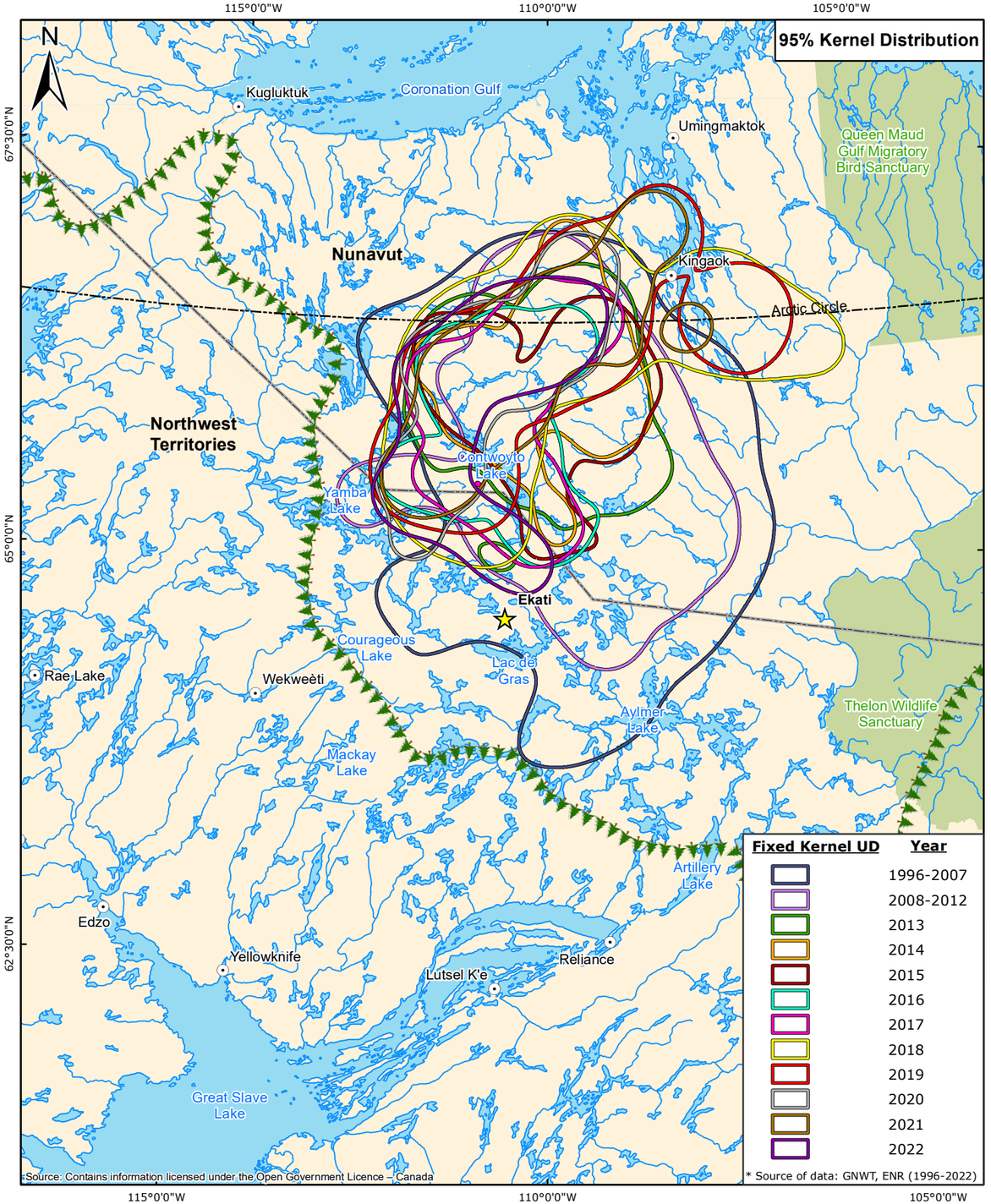
CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433c

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.1-4 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING POST-CALVING, 1996 TO 2022





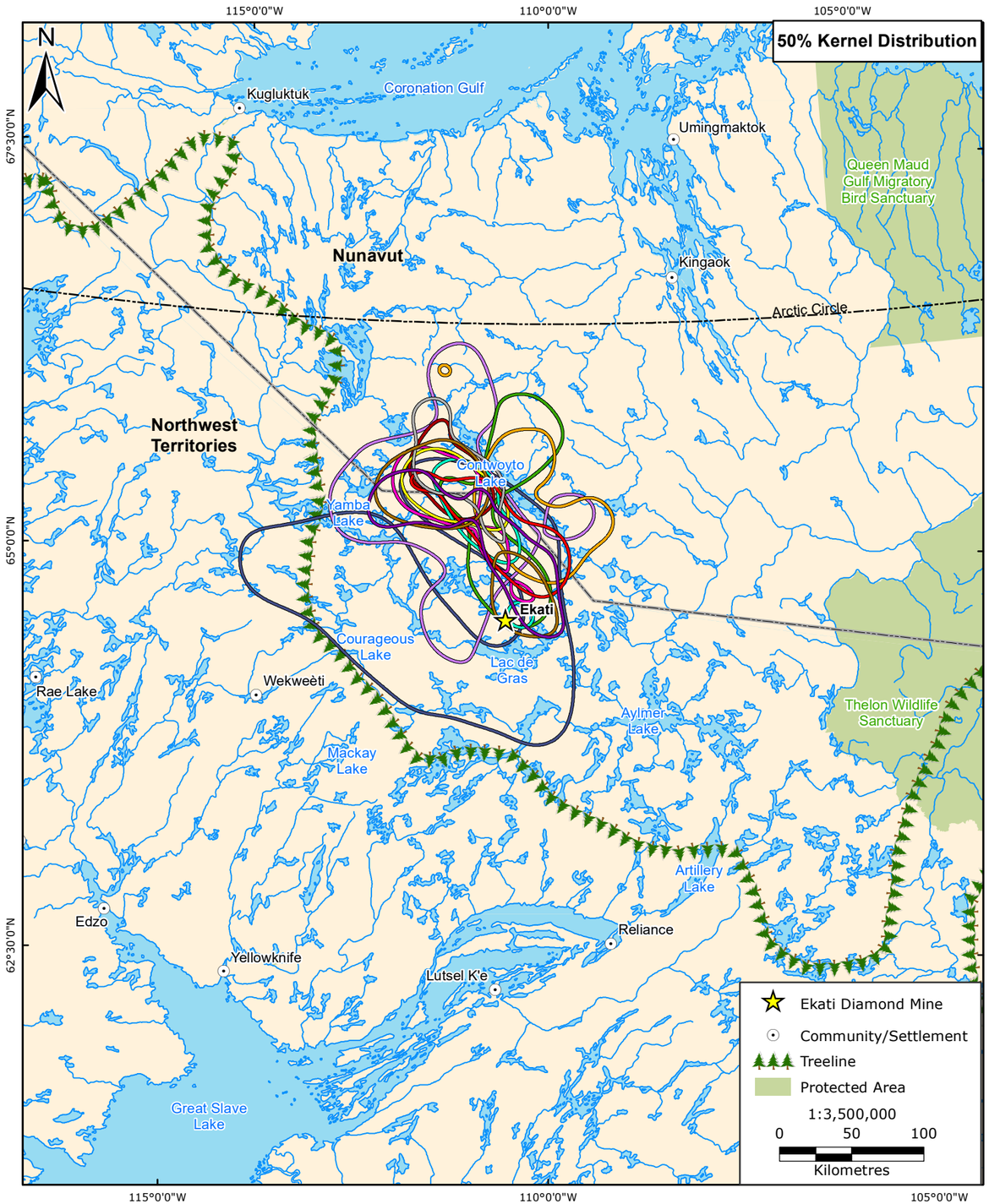
ERM

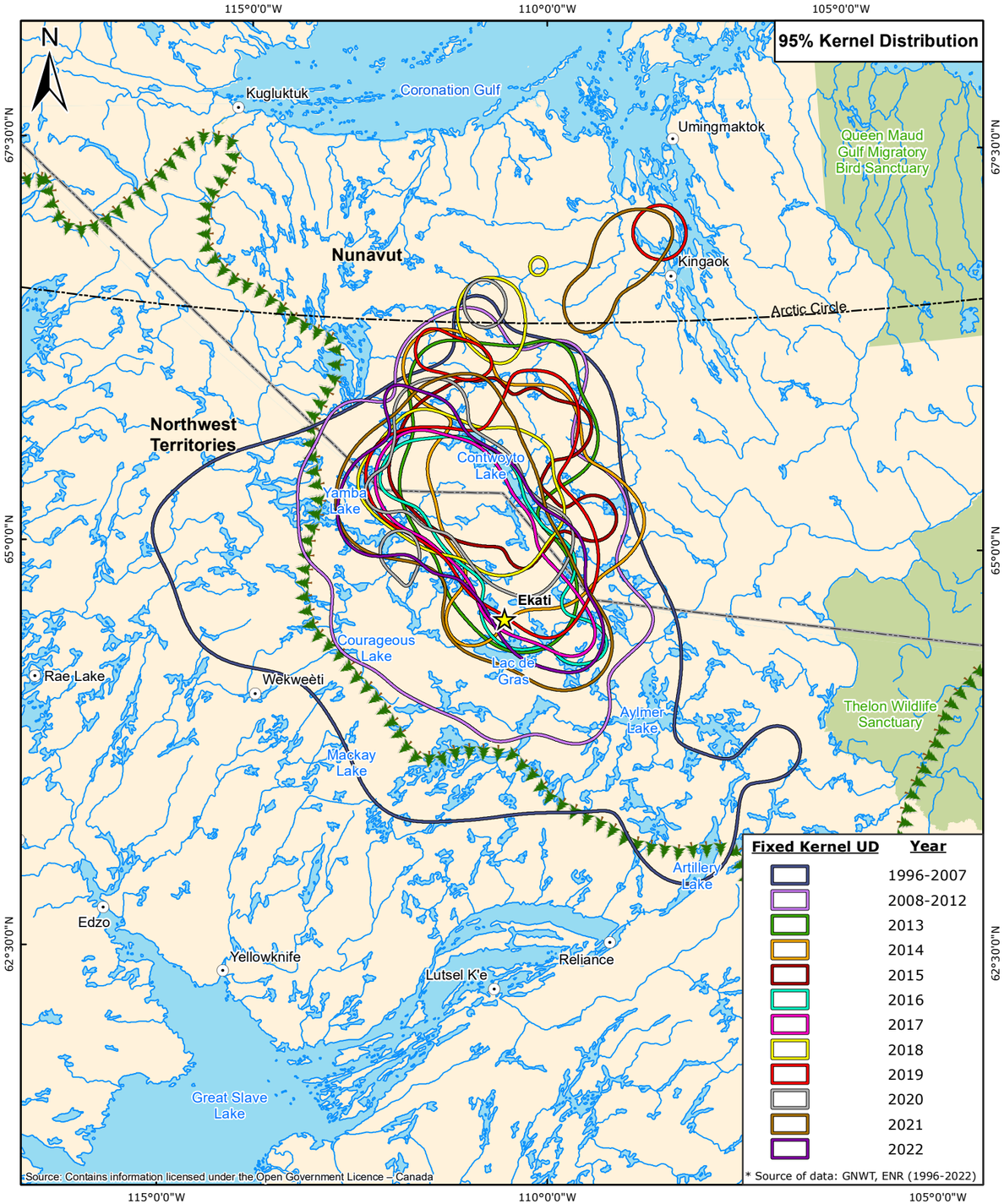
CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433d

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.1-5 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING SUMMER, 1996 TO 2022





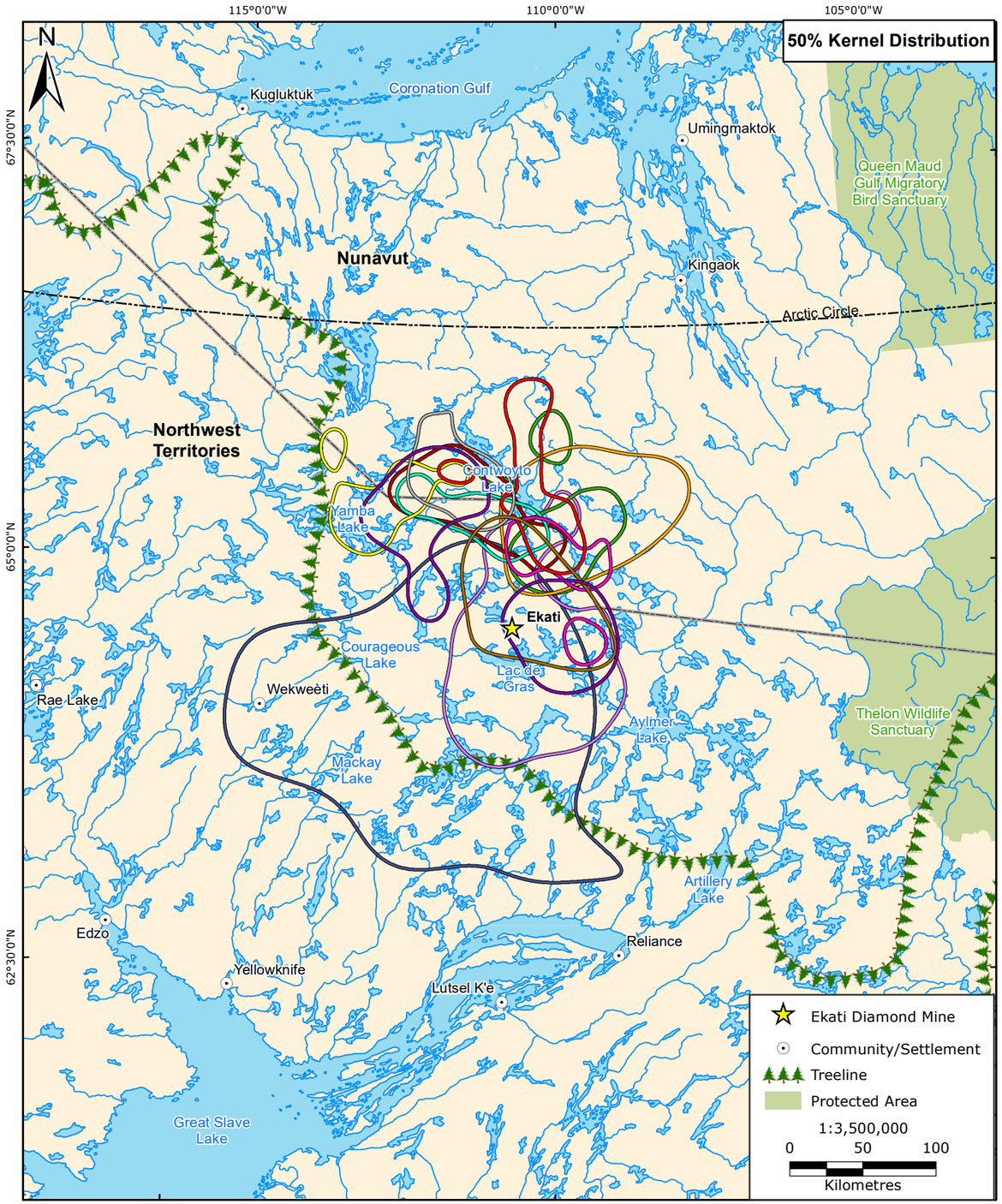
ERM

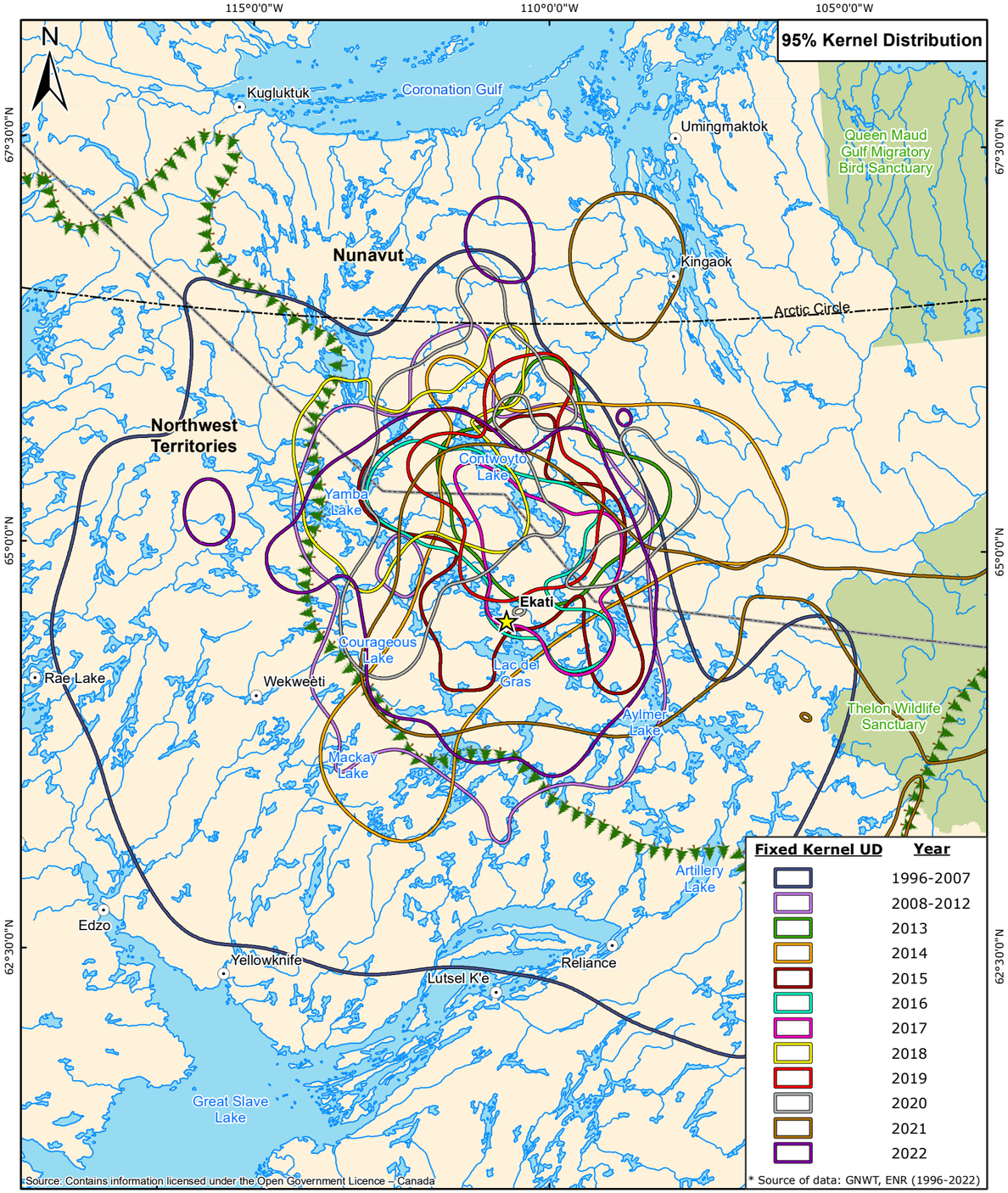
CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433e

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.1-6 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING FALL MIGRATION, 1996 TO 2022





ERM

CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433f

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

TABLE 5.1-1: GENERAL SEASONAL PERIOD DATES FOR BATHURST CARIBOU

Seasonal Period	Dates
Winter*	December 1 to April 19
Spring migration*	April 20 to June 1
Calving*	June 2 to June 16
Post-calving*	June 17 to June 28
Summer*	June 29 to September 6
Fall migration*	September 7 to November 30

Notes:
** Defined by Nagy 2011.*

Bathurst caribou cows usually arrive in late May on their calving grounds, which are currently concentrated between the James and Burnside Rivers, west of Bathurst Inlet (Figure 5.1-3), but sometimes arrive as early as April, and calving begins in early June (Table 5.1-1; KIA 2015). Non-parturient (non-pregnant) cows migrate more slowly than pregnant cows and may or may not reach the calving grounds. Bulls and juvenile caribou (born in the year previous) likely also follow females as some are present during calving, but generally north-bound males and juveniles are thought to meet females with calves in late June and early July on the post-calving and summer ranges, which are more spread out relative to the calving grounds and located south of the calving grounds (Gunn and D'Hont 2002). The post-calving range overlapped with the Ekati Diamond Mine in earlier years (1996 to 2007) but has not overlapped since 2007 (Figure 5.1-4).

During the summer (June 29 to September 6), most of the Bathurst caribou have traditionally used the area surrounding Contwoyto Lake (Gunn et al. 2008a; Gunn et al. 2008b). The summer range has overlapped with the Ekati Diamond Mine in several years (Figure 5.1-5). During the fall (September 7 to November 30), Bathurst caribou migrate south towards the winter range (Figure 5.1-6). A portion of the Bathurst caribou range has frequently overlapped with the Ekati Diamond Mine during the fall period (Figure 5.1-6).

5.2 COLLARED CARIBOU MONITORING

Caribou herds exhibit periodic changes in migration routes and seasonal ranges (Gunn et al. 1997; Gunn et al. 2002; BCMPC 2004; Theoret et al.2022). Seasonal ranges and core use areas can also vary from year to year within a large spatial extent, which can be illustrated by comparing historical collar data to more recent satellite data.

The locations of collared caribou were monitored to determine the proximity of caribou relative to the Ekati Diamond Mine. Weekly maps generated by the GNWT that show the location of satellite-collared individuals are used as tools to inform the required local monitoring and/or change in the mitigation levels defined by the CRMP (see Table 4-1 in the CRMP by Golder Associates 2017). Table 4.1-4 provided action level triggers for the CRMP due to caribou alert levels, and associated monitoring and mitigations.

5.2.1 OBJECTIVES

The objectives for this component of the WEMP are to:

- provide advance detection of caribou approaching the study area;
- document the presence and annual timing of caribou movements relative to the Ekati Diamond Mine; and
- compare temporal trends and spatial variability in migration patterns relative to the Ekati Diamond Mine.

5.2.2 METHODS

Seasonal movements of the Bathurst herd were tracked in 2023 using satellite collars on 49 caribou cows (GNWT ECC unpublished data; Table 5.2-1). Male caribou from the Bathurst herd were first collared in 2015 and added to the database to track movements of male caribou relative to females. As male caribou were not historically included in monitoring of the Bathurst herd, and as they use different ranges than females at some periods within the year, data from male caribou were not included in the analyses for this report.

TABLE 5.2-1: MAXIMUM NUMBER OF SATELLITE-COLLARED BATHURST CARIBOU AND NUMBER OF LOCATIONAL DATA POINTS, 1996 TO 2023

Year	Maximum Number of Collared Caribou	Total Number of Location Data Points
1996	10	577
1997	8	541
1998	22	516
1999	18	947
2000	14	778
2001	12	638
2002	15	837
2003	15	988
2004	17	642
2005	19	1,409
2006	18	1,566

Year	Maximum Number of Collared Caribou	Total Number of Location Data Points
2007	22	2,340
2008	25	2,101
2009	13	3,477
2010	16	3,439
2011	18	4,027
2012	22	3,948
2013	21	3,765
2014	20	4,767
2015*	32	8,388
2016*	25	7,277
2017*	33	7,194
2018*	30	6,260
2019*	31	8,010
2020*	54	13,094
2021*	40	12,166
2022*	49	13,153
2023*	38	8,738

** Excludes data available for males from 2015 onward.*

Throughout the year, satellite collars provide point location data on caribou at fixed time intervals. With these data, linear pathways between consecutive points were created to plot spring migration routes from winter ranges north to the calving grounds. The data were also used to identify movement corridors and river crossings.

For periods other than spring migration, satellite daily collar location data were used to calculate fixed kernel Utilization Distributions (UD) that represent levels of use by caribou. The core range is defined by the 50% kernel UD, an area with a 50% probability that an animal (or group of animals) will be found inside that area. The seasonal range extent is represented by the 95% kernel UD, an area with a 95% probability that an animal (or group of animals) will be found inside that area. Data during fall are sporadic and movements of caribou during this time are slow relative to spring migration; therefore, these data are presented as ranges rather than movement paths.

The fixed kernel UDs were analysed by season/life history stage, which are defined by movement rates in different seasons (Nagy 2011; Table 5.1-1). For this mapping exercise, the calculation of the winter distribution uses data is combined for December 2022 and January-April 2023.

Since the Beverly/Ahiak caribou also overlap the Mine during some years, the fixed kernel 50% and 95% UDs were also calculated for winters for this herd.

5.2.3 RESULTS

Seasonal ranges were calculated for the Bathurst herd in six seasons: winter, spring migration, calving, post-calving, summer, and fall migration. For the Beverly/Ahiak herd, the winter season range was calculated since this is currently the only season when this herd may interact with the site. The results of these analyses, the periods when caribou ranges overlap the Mine and any shifts in distribution are discussed in the following sections.

5.2.3.1 BATHURST WINTER

During the winter of 2022/2023, collared Bathurst caribou occupied a range that was southwest of the Ekati Diamond Mine (Figure 5.2-1). Both the broad winter range (95% kernel UD) and the smaller core use area (50% kernel UD) straddled the treeline to the south (Figure 5.2-1). This was similar to the range used during the winters of 2021/2022 and 2020/2021 (Figure 5.1-2). During the winters of 2016/2017, 2017/2018, and 2018/2019 the Bathurst winter range was on the tundra, considerably north of their typical seasonal range below the tree line. Since 2020, the winter range has moved back south to occur along the tree line.

There were 1,598 caribou counted or estimated from 32 incidental observations at the Ekati Diamond Mine during the 2022/2023 winter period (December 1, 2022, to April 19, 2023); between the winter reported numbers from 2021/2022 (n = 433) and 2020/2021 (n = 2,832). The incidental observations include repeated observations of the same animals on different occasions and the total number of unique individuals is unknown.

5.2.3.2 BATHURST SPRING MIGRATION

During the spring migration in 2023, Bathurst collared female caribou migrated from their winter range southwest of the Ekati Diamond Mine to the calving range in Nunavut (Figure 5.2-2). As with past years, travel was most commonly in a northeast direction with most collared animals passing to the northwest of the Ekati Diamond Mine (Figure 5.2-2).

5.2.3.3 BATHURST CALVING

The calving range of Bathurst caribou in 2023 was located in Nunavut, approximately 300 km north of the Ekati Diamond Mine, with the core use area located just above the Arctic Circle (Figure 5.2-3). The location and size of the 2023 calving range (95% UD) is consistent with the historical calving range (Figure 5.1-3) 1996 to 2023, between Burnside River and James River (Figure 5.2-3 and Figure 5.1-3).

5.2.3.4 BATHURST POST-CALVING

The post-calving range of Bathurst caribou in 2023 was located completely in Nunavut, over 200 km north of, and not overlapping the Ekati Diamond Mine (Figure 5.2-4). This is consistent with the post-calving distribution since 2007 (Figure 5.2-4 and Figure 5.1-4). In 2018 and 2019 the post-calving range extended east beyond Bathurst Inlet matching the eastward extent of the 2018 and 2019 calving ranges (Figures 5.1-3 and 5.1-4), but in 2020 through 2022, the post-calving range was again restricted to the west side of Bathurst Inlet as in the period up until 2017 (Figure 5.1-4).

The 2023 post-calving range was similar to 2020 through 2022 where the range was mostly restricted to the area north of Contwoyto Lake. In 2023 the area identified in both the 50% and 95% UD is much more restricted in size compared to any of the previous years (Figures 5.1-3 and 5.1-4). Incidental observations of caribou in the post-calving season in 2023 were relatively low (n = 46; Section 5.3.3).

5.2.3.5 BATHURST SUMMER

The summer range of Bathurst collared caribou in 2023 was centred around Contwoyto Lake (Figure 5.2-5). The core use area was on the western edge of Contwoyto Lake, approximately 125 km north of the Ekati Diamond Mine (Figure 5.2-5). In some years the summer core use area overlap the Mine, including the early years of the Mine (1996 to 2007), as well as in 2013, 2016, 2021, 2022 and 2023 (Figure 5.1-5). The 95% UD summer range overlapped the mine site every year from 1996 to 2017 (Figure 5.1-5) except for 2015, 2018 and 2020. Prior to 2016, both the Bathurst summer range and core use area were larger in spatial extent (Figure 5.1-5).

5.2.3.6 BATHURST FALL MIGRATION

Contwoyto Lake has been central to the fall migration range in all time periods (Figure 5.1-6). During the 2023 fall migration period, the core use area of Bathurst caribou remained on the southwestern edge of Contwoyto Lake, north of the Ekati Diamond Mine (Figure 5.2-6). The Bathurst caribou fall 95% UD range overlapped the Mine except in 2018-2020.

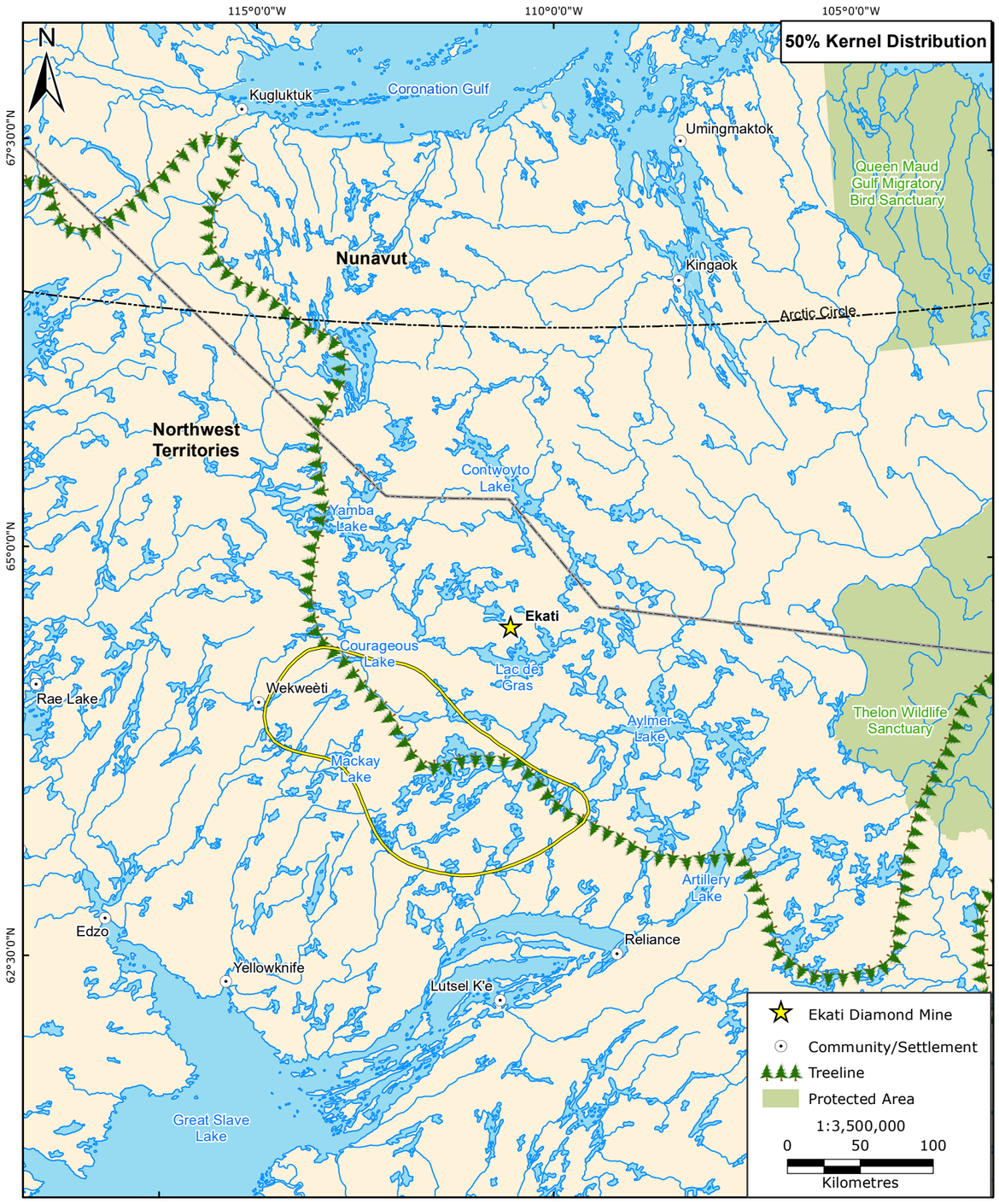
The core use area (50% UD) in 2023 was very similar to that of during the fall of 2022, (Figure 5.1-6; Figure 5.2-6). The fall range of collared Bathurst caribou has overlapped with the mine since 1996 except in 2013, 2018, 2019, and 2020; however, the core area (50% kernel UD) has not overlapped with the mine since 2012 (Figure 5.1-6).

5.2.3.7 BEVERLY/AHIAK WINTER

Mapping of the Beverly/Ahiak herd during the winter of 2022/2023 indicated that the Ekati Diamond Mine was centred in the winter range (Figure 5.2-7). The 95% kernel UD centres appear to have shifted to the southwest to cover the Mine starting in 2018 (Figure 5.2-8).

The 2022/2023 winter ranges of the Bathurst herd (Figure 5.2-1) and the Beverly/Ahiak herd (Figure 5.2-7) had a high degree of overlap which may explain the relatively large numbers of incidental observations of caribou during the winter of 2023 (1,598 caribou from 32 incidental observations).

FIGURE 5.2-1 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING WINTER, 2022/2023



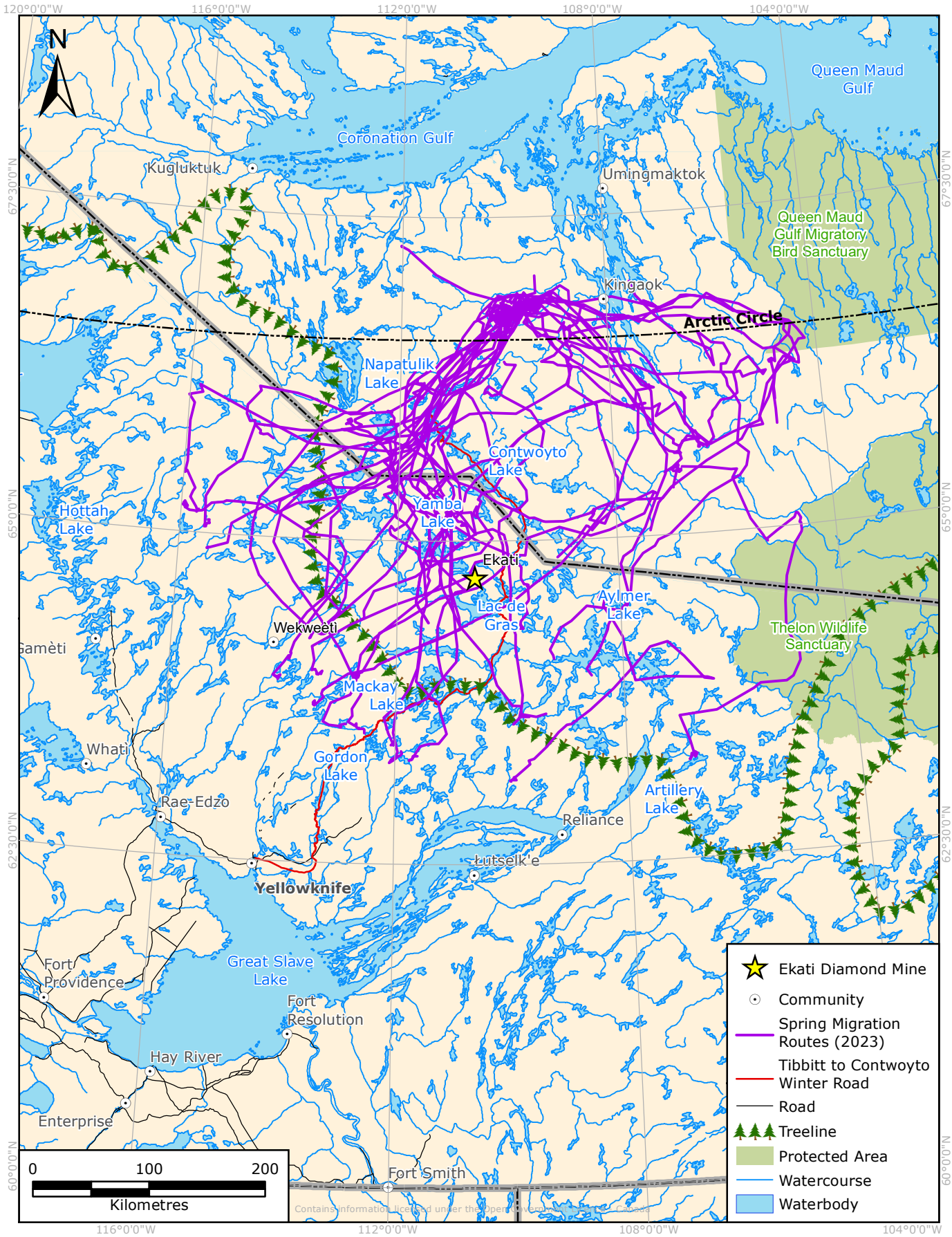
ERM

CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433g

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.2-2 SPRING MIGRATION ROUTES OF SATELLITE-COLLARED BATHURST CARIBOU, 2023



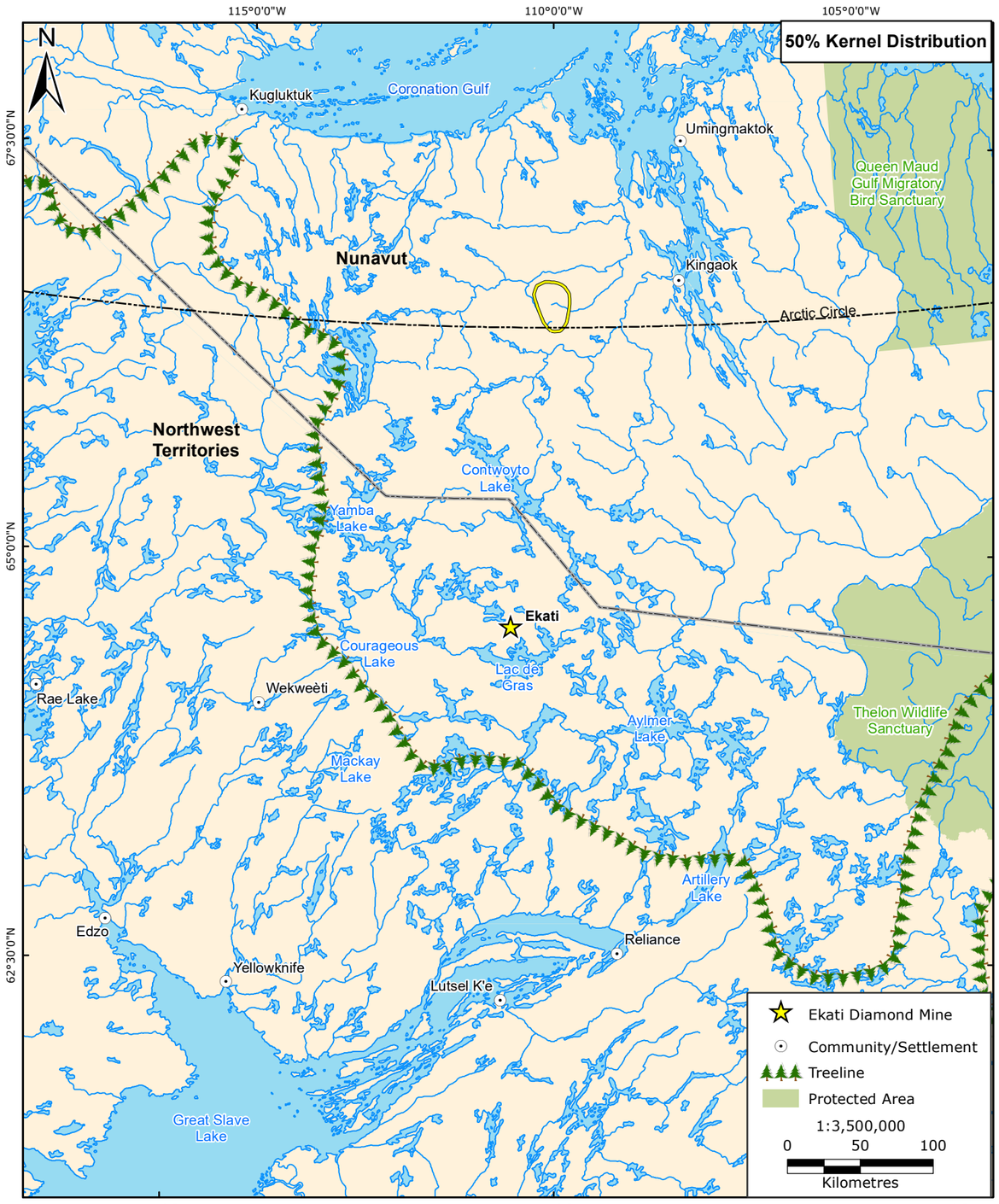
ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-433n

DATE: 01 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:4,500,000 when printed at 8.5x11

FIGURE 5.2-3 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING CALVING, 2023



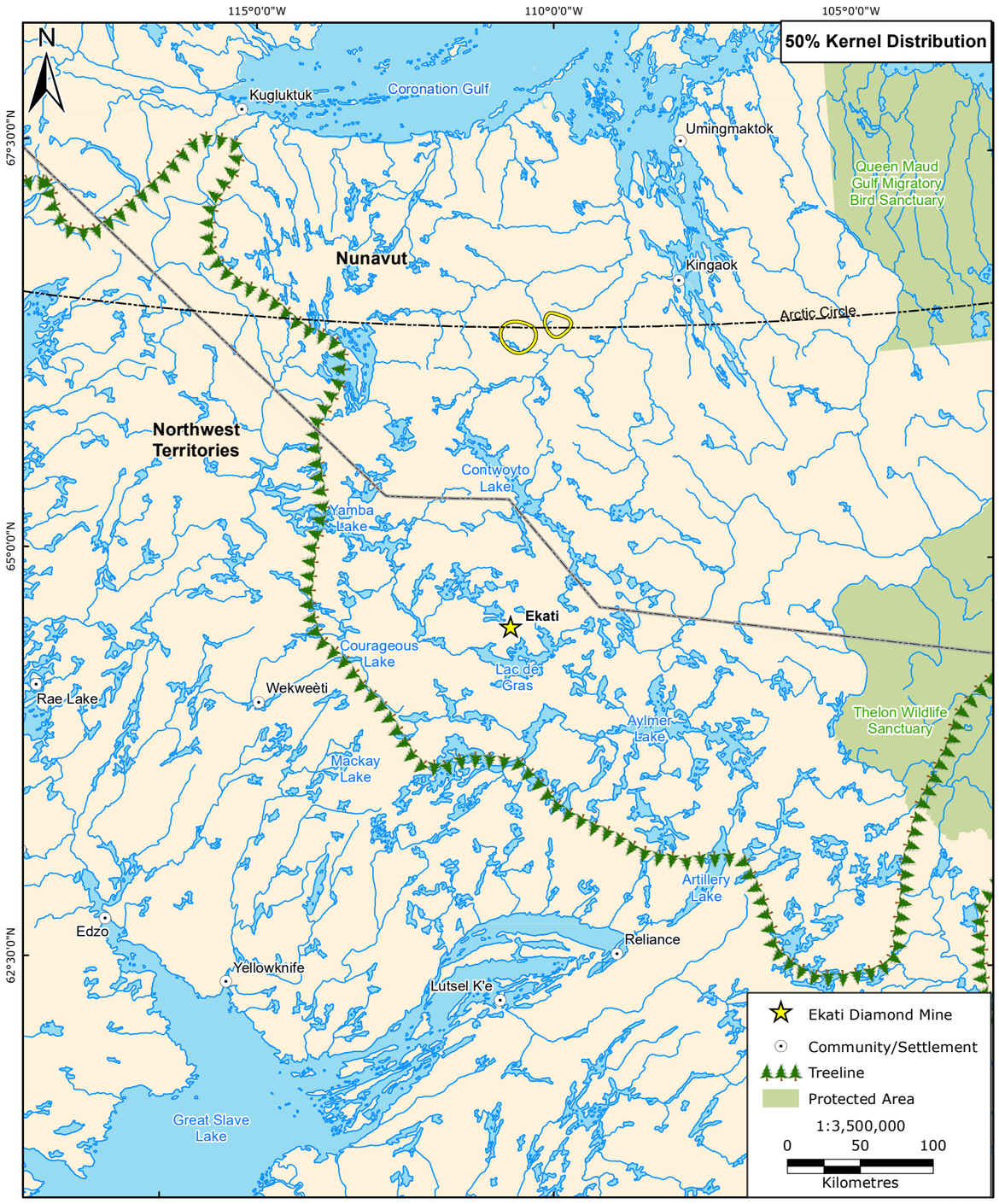
ERM

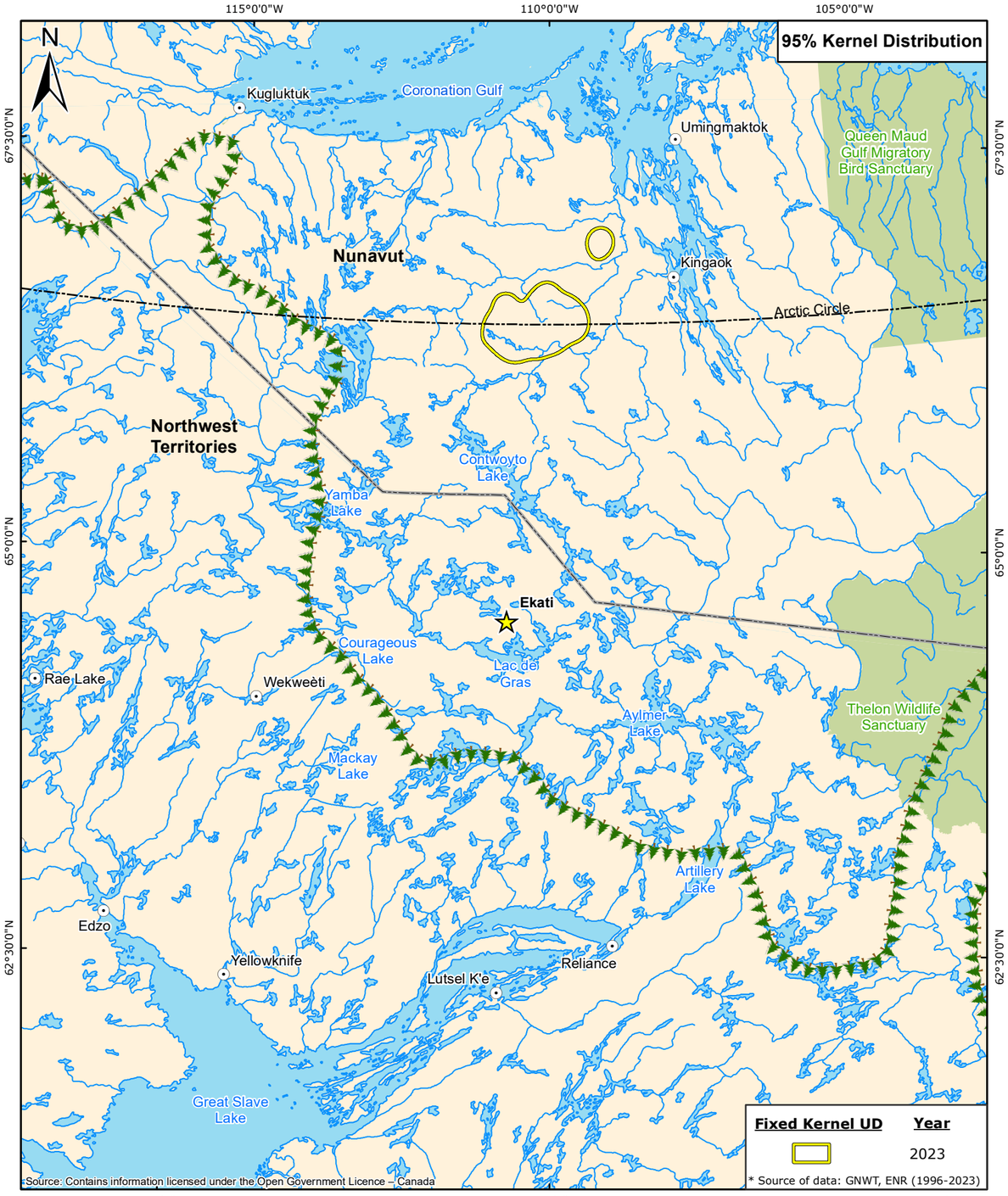
CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433h

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.2-4 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING POST-CALVING, 2023





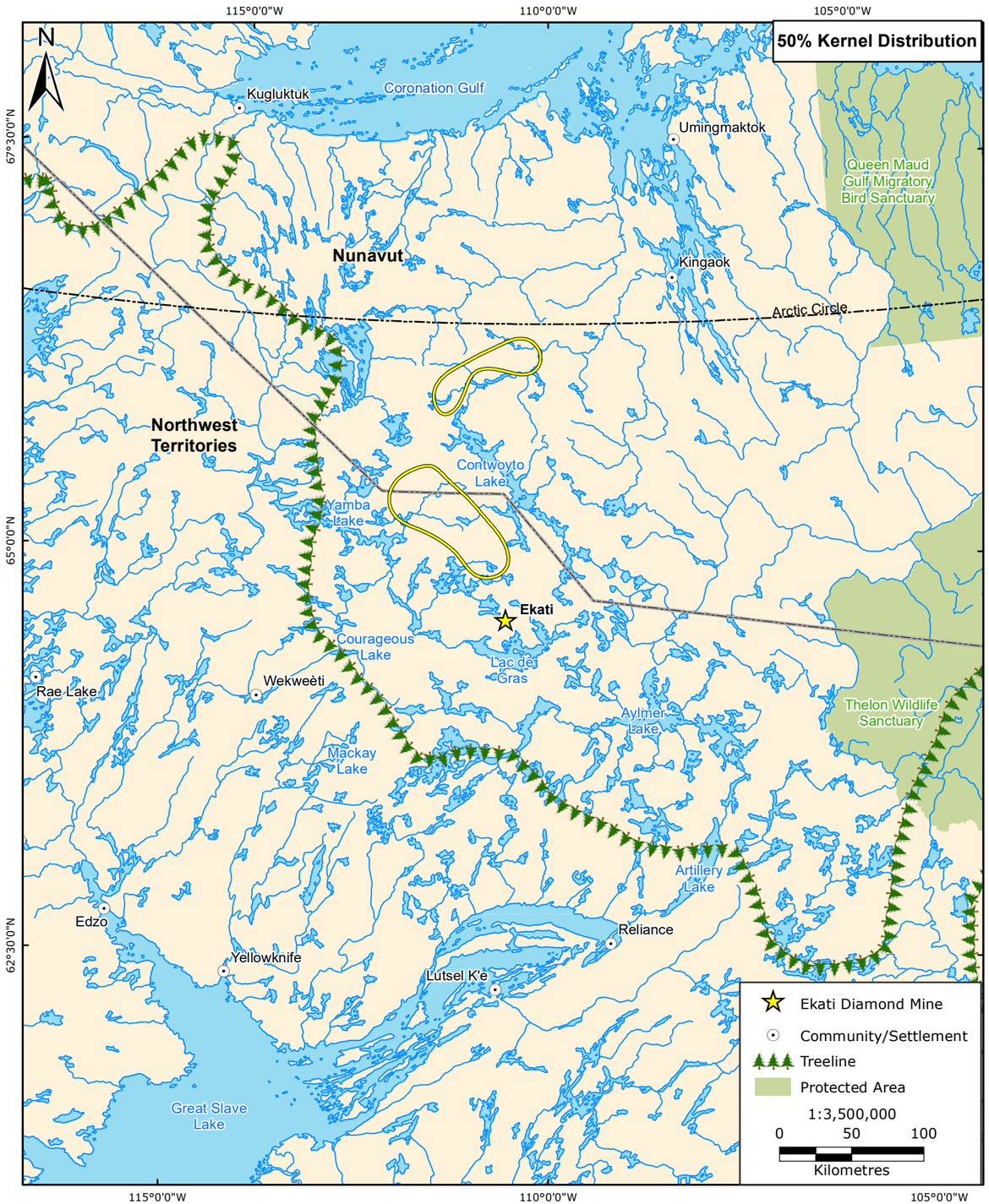
ERM

CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433i

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.2-5 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING SUMMER, 2023



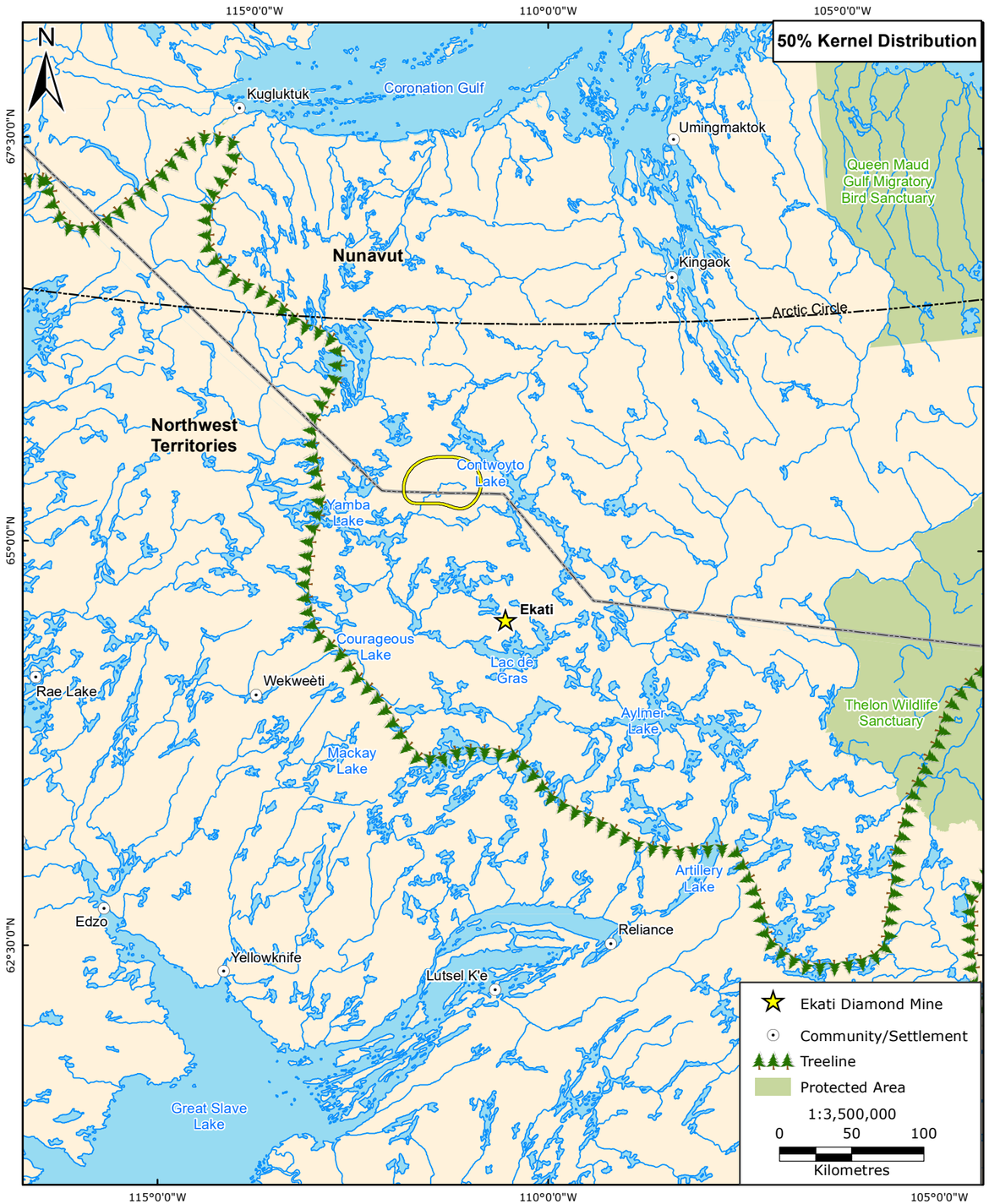
ERM

CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433j

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.2-6 DISTRIBUTION OF SATELLITE-COLLARED BATHURST CARIBOU DURING FALL MIGRATION, 2023



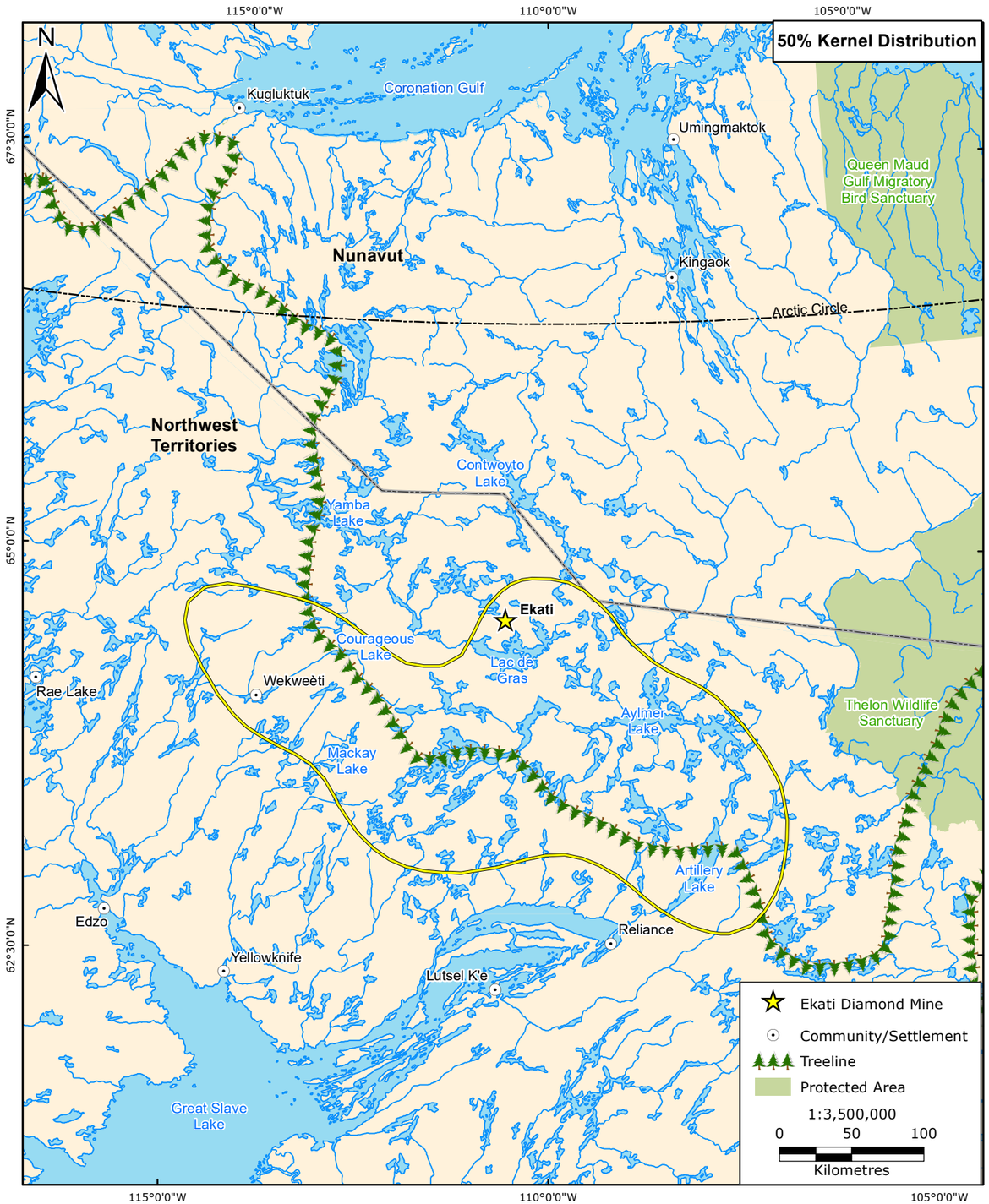
ERM

CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433k

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.2-7 DISTRIBUTION OF SATELLITE-COLLARED BEVERLY/AHIAK CARIBOU DURING WINTER, 2022 / 2023



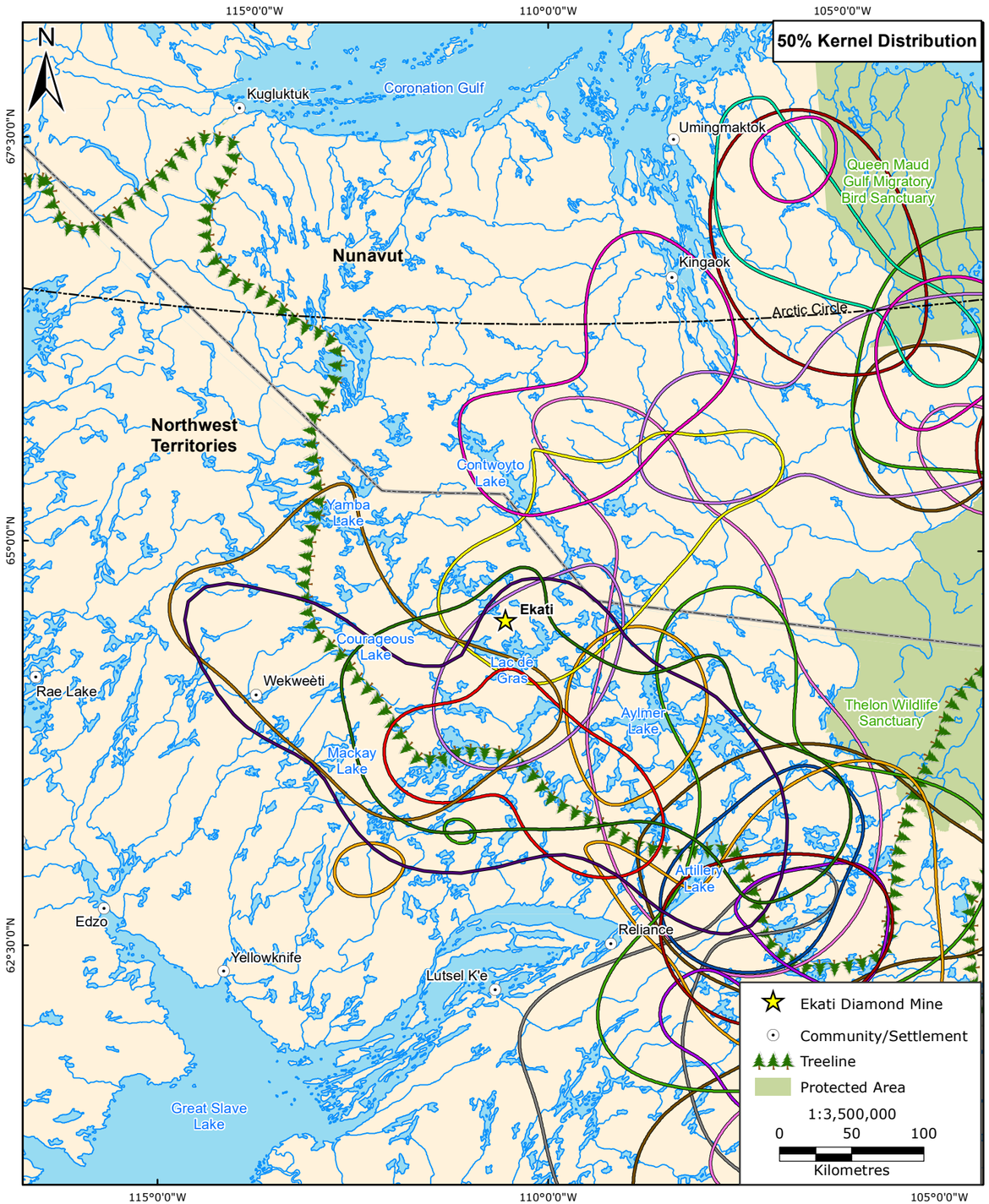
ERM

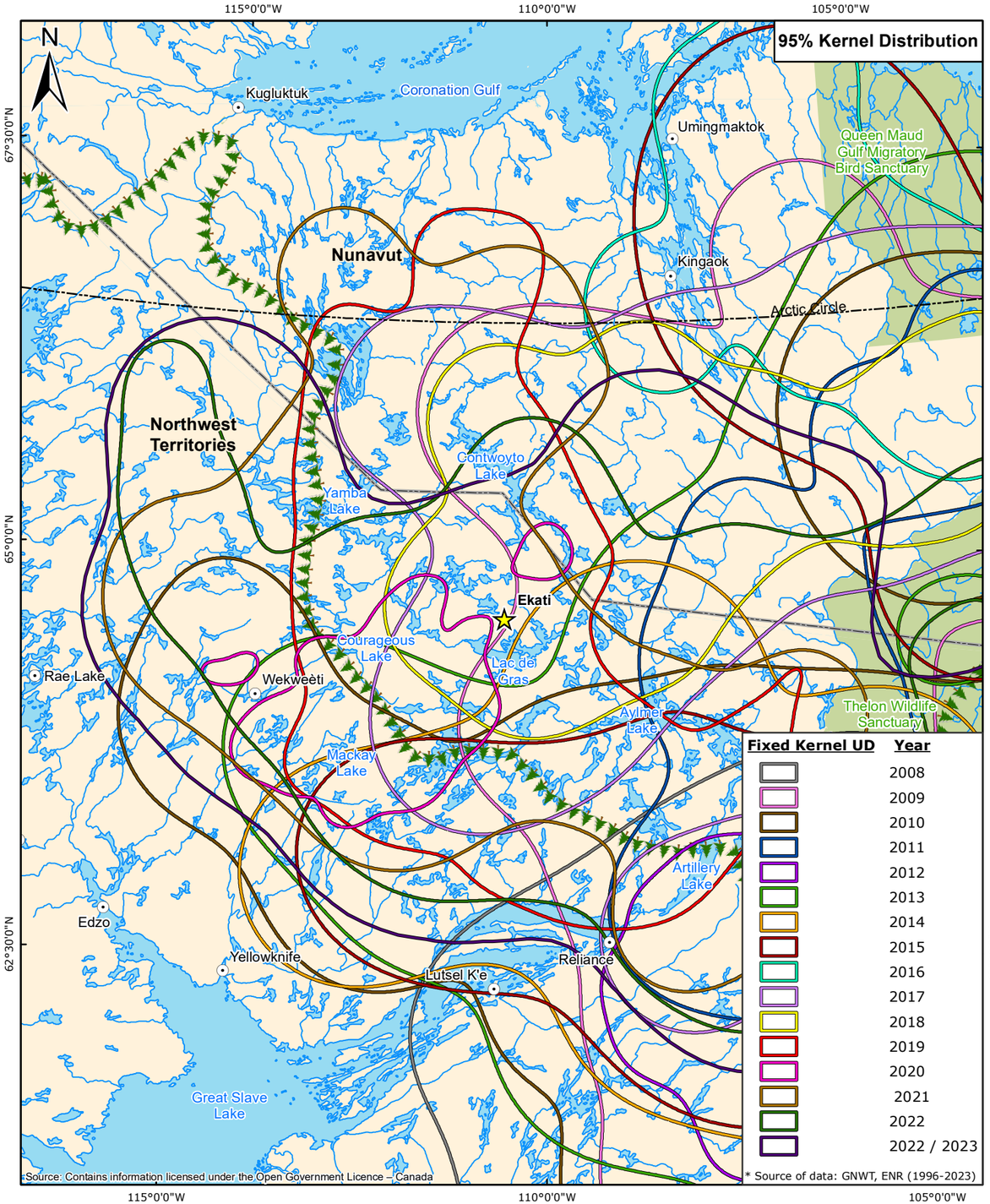
CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433l

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

FIGURE 5.2-8 DISTRIBUTION OF SATELLITE-COLLARED BEVERLY/AHIAK CARIBOU DURING WINTER, 2008 TO 2022 / 2023





ERM

CLIENT: Burgundy Diamond Mines
GIS NUMBER: EKA-23-433m

DATE: 02/29/2024

PROJECTION: NTKP Lambert Conformal Conic
SCALE: 1:3,500,000 when printed at 11x17

5.2.4 DISCUSSION

5.2.4.1 BATHURST

Analysis of collared female caribou indicates that the Bathurst herd has traditionally overlapped the Mine in some seasons – particularly summer and fall. This pattern continued in 2023 with the core summer and fall areas overlapping the Mine.

Some of the spring 2023 migration pathways also intersected the Ekati Diamond Mine. Incidental caribou observations at the Ekati Diamond Mine in 2023 (Section 5.3) corroborate the kernel UD maps and spring migration pathways that indicate the majority of caribou were observed at the Ekati Diamond Mine during the spring and fall migration periods. There appears to be a reduction in the size of the fall migration area based on both the 50% and 95% kernel UDs.

Receiving radio-collared caribou locations in winter months assist the Environment Department in preparing for caribou arrival at the Ekati Diamond Mine and implementation of CRMP levels.

5.2.4.2 BEVERLY/AHIAK

The winter distribution of Beverly/Ahiak cows spans a large geographic area mostly to the east of the Mine and overlaps the Mine during winter. Incidental caribou observations also peaked during the winter at the Mine, although it can't be determined whether these were Bathurst or Beverly/Ahiak cows from ground observations.

5.3 INCIDENTAL OBSERVATIONS

5.3.1 INTRODUCTION

Incidental observations of caribou around the Mine are recorded to evaluate and manage potential risks associated with human and wildlife interactions and to identify mine structures that might be acting as potential barriers to caribou movement. Incidental observations can also be used to supplement and corroborate collar data to understand when caribou seasonal ranges overlap the Mine.

5.3.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- document the annual timing of caribou use of the Ekati Diamond Mine area to compare temporal trends in migration patterns;
- track any trends in the number of caribou moving through the Ekati Diamond Mine area over years; and
- identify the composition of caribou groups moving through the Ekati Diamond Mine area.

5.3.3 METHODS

All Mine personnel are required to report any incidental observations of caribou to the Environment Department, with observations commonly coming from helicopter pilots, ground-based field workers, and other mine site personnel. For each caribou observation, the date, number of individuals, and location (Universal Transverse Mercator [UTM] coordinates when possible) are recorded. Other information such as group composition, dominant behaviour,

distance to mine infrastructure, and presence of a satellite-collared animal are recorded where possible.

Incidental observations of caribou are summarized by broad seasonal periods (discussed in Section 5.1 and outlined in Table 5.1-1), recognizing that these seasonal periods vary annually, particularly dates surrounding the calving and post-calving periods (Sutherland and Gunn 1996; Russell et al. 2002; Gunn et al. 2013).

In cases where the caribou group size was provided as an approximate number (e.g., greater than 70 individuals), group size was conservatively assumed to be the lower value (i.e., 70 individuals), whereas when group size was estimated as a range of values (e.g., 800 to 1,000 individuals), group size was assumed to be the average value (i.e., 900 individuals).

5.3.4 RESULTS

There were 206 incidental observations of caribou reported on 105 separate days during the 2023 reporting period (Table 5.3-1). Visual observations of caribou with sufficient location information were plotted on a map of the study area (Figure 5.3-1).

Across all observations in calendar year 2023, at least 11,555 animals were counted; however, this count does not indicate that 11,555 different individuals were observed, as many of these observations may have been the same caribou recorded on multiple occasions. Observations spanned from February 18 to November 27, 2023 (Table 5.3-1).

In most years of monitoring, caribou have been observed during the winter, spring migration, and fall periods. Caribou have typically been observed most frequently during the winter period, however in 2023 there was a shift to the highest number of observed caribou being made during the fall migration period (Table 5.3-1). In 2023, 81% of the total 11,555 caribou observed was in the fall migration season, mostly due to observations of large herds of caribou (Table 5.3-1). The season with the second highest amount of caribou observations was winter (13%), followed by spring migration (2%), summer (1.8%) and calving and post-calving were both below 1%. Incident reports for caribou are reported separately in Section 4.

- Spring migration: 19 observations totaling 269 caribou (Table 5.3-1). All incidental observations were of groups of 50 caribou or less.
- Summer (June 29 to September 6): there were 103 incidental observations reported over 44 days, including at least 218 caribou (Table 5.3-1). All observations were of 14 or fewer caribou in a group and 59 of the observations being an individual caribou.
- Fall migration (September 7 to November 30): 19 observations totaling 9,414 caribou (Table 5.3-1). Nine of the 19 observations occurred in November. Eleven observations were of groups of fewer than 10 caribou. Groups of more than 50 caribou were reported during fall migration and winter (100%).
- Winter (January 1 to April 19, 2023, and December 1 to December 31, 2023): a total of 32 observations were made over 17 days totaling 1,598 individuals (Table 5.3-1). Most of the caribou counted (84%) during the 2023 winter periods were in groups between 60 to 500.

TABLE 5.3-1: INCIDENTAL CARIBOU OBSERVATIONS AT EKATI DIAMOND MINE BY SEASONAL PERIOD, 2023

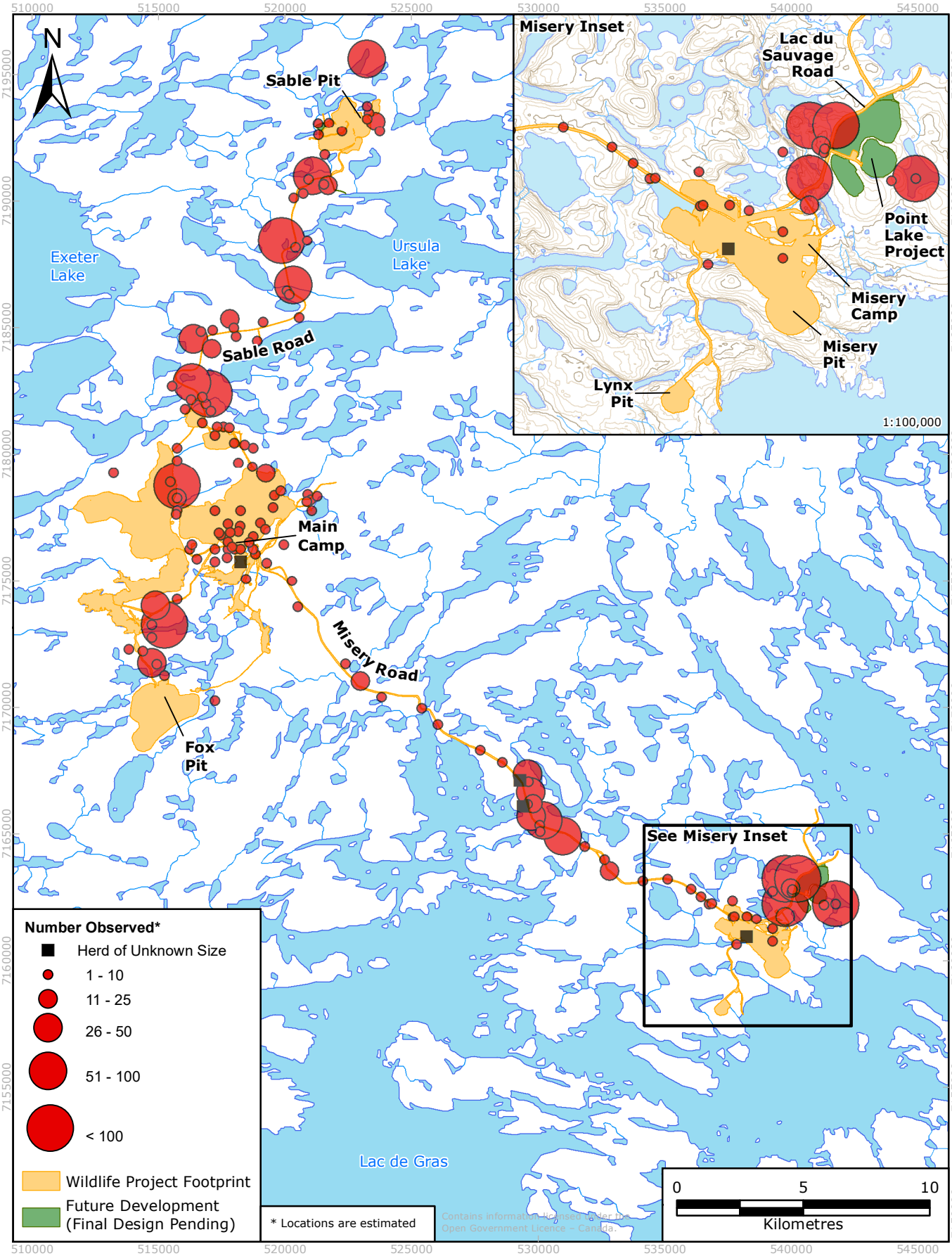
Seasonal Period	Number of:			Total Caribou Observed		Number of:				
	Days in Seasonal Period [1]	Observations	Days with Observations	Number	Percent (%)	Bulls	Cows	Calves	Yearlings	Unknown
Spring migration	43	19	16	269	2.3	4	1	0	0	264
Calving	15	6	4	10	0.1	1	0	0	0	9
Post-calving	12	27	9	46	0.4	10	1	0	1	34
Summer	70	103	44	218	1.9	25	6	1	3	183
Fall migration	85	19	15	9,414	81.5	8	1	1	1	9,403
Winter 2023 [2]	140	32	17	1,598	13.8	5	5	0	0	1,588
Annual Total	365	206	105	11,555	100	53	14	2	5	11,481

Notes:

[1] Periods are as defined in Table 5.1-1.

[2] Includes winter period within calendar year (January 1 to December 31, 2023; see winter period defined in Table 5.1-1).

FIGURE 5.3-1 INCIDENTAL CARIBOU OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432d

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

In 2023, most observations (167, 81%) included caribou in small groups of 10 or fewer animals (Table 5.3-2; Photo 5.3-1). An additional 9% of observations were of groups consisting of 11 to 50 caribou and 2% were of larger groups with more than 50 caribou. Groups greater than 100 caribou accounted for 4% of all observations and 37% of all individuals counted. The highest group number estimated at 5,000 caribou occurred on November 7, 2023.

Groups of more than 1,000 caribou were recorded commonly until 2011 and then intermittently in in 2016, 2017, 2019, 2020, and 2021 (Table 5.3-3). The largest group ever recorded incidentally was an estimated 7,000 caribou in a single group on July 25, 2007 (Table 5.3-3).

TABLE 5.3-2: INCIDENTAL CARIBOU OBSERVATIONS BY GROUP SIZE, 2023

Group Size	Number of Observations
10 ≤	167
11–- 50	18
51–- 100	5
101–- 200	4
201–- 500	2
> 500	3

Photo 5.3-1: Example of a single caribou observed on the tundra in a previous year.

TABLE 5.3-3: SUMMARY OF INCIDENTAL CARIBOU OBSERVATIONS AT THE EKATI DIAMOND MINE, 2006 TO 2023

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of caribou observed[1]	20,403	20,092	876	19,633	11,571	14,766	4,674	2,653	1,508	306	25,225	52,583	3,347	9,507	5,604	5,203	1,362	11,555
Number of observations[2]	57	193	66	106	87	191	199	136	53	74	438	484	205	269	141	285	154	206
Largest group size observed[3]	>5,000	~7,000	~300	~7,500	>3,000	>5,000	~400	~500	>200	30	2,000	2,500	300	>1,000	1,500	2,135	300	5,000

Notes:

[1] Numbers are approximate and likely include observations of the same animals recorded on multiple occasions.

[2] WEMP Reporting Periods from 2006 to 2010 were October to October. The reporting period for the 2011 WEMP included October 2010 to December 2011. Thereafter, WEMP reporting periods were January 1 to December 31.

[3] The exact count of individuals was not determined on a number of occasions through the years, and an approximate number or a range of individuals observed was provided. In the first case, the lower number was used as a conservative estimate of the numbers observed. When a range of numbers was given, the average number of caribou was used.

5.3.5 DISCUSSION

In 2006, it was recognized that information regarding caribou presence and group size should be recorded on an ongoing basis at the Ekati Diamond Mine to better monitor caribou habitat use around the mine site. Incidental observations improve our understanding of caribou occurrence and numbers of individuals moving through the area.

In 2023, caribou were reported by personnel on 206 occasions at the Mine. The number of observations in 2023 increased compared to 2022 (154 incidental observations). Number of observations recorded in 2023 are similar to those recorded in 2010 (Table 5.3-3).

Shifts in the Bathurst and Beverly/Ahiak winter ranges beginning in the winter of 2016 (Section 5.2) may help to explain the changes in observations during winter. The number of incidental observations were higher during 2016-2017 when the Bathurst herd wintered to the north of the tree line on the tundra and their winter range overlapped the Mine. Since then, the Bathurst have wintered further south on the tree line and fewer incidental observations have been recorded in winter.

Recent (2016 to 2023) instruction to mine site personnel has been to report sightings of caribou even if they suspect they were the same individuals, resulting in an increased number of incidental observations of caribou at the Ekati Diamond Mine from 2016 to 2023.

Calving is typically the period when the fewest caribou have been recorded incidentally at the Ekati Diamond Mine and there were six incidental observations of caribou during the calving season 2023. Peak calving is typically during early June, and for the Bathurst herd, occurs north of the Ekati Diamond Mine and west of Bathurst Inlet. It is most likely that the caribou reported during previous calving periods represent males, migrating north to their summer range which is consistent with the collared females (who are on the calving ground) and collared males (who are generally south, lagging behind the females).

In most reporting years, the migration periods have been when the most animals are observed around the Ekati Diamond Mine. A total of 81% of caribou were recorded during the fall migrations in 2023, consistent with the collar data (Section 5.2.3).

5.4 BEHAVIOURAL SURVEYS

5.4.1 INTRODUCTION

Caribou behaviour can be influenced by industrial development (Bradshaw et al. 1997). Adult female caribou with calves are more sensitive to disturbances than other caribou (Miller 2001). Roads and traffic may affect caribou behaviour, as roads can act as visual barriers or breaks in habitat. In response to traffic, caribou may run, move away, and/or increase vigilance behaviour (Wolfe et al. 2000). In some situations, mine infrastructure and mine-related activities can inhibit normal caribou behaviours, such as feeding and resting (Nellemann and Cameron 1996). Caribou behavioural responses tend to increase in proportion to the sound intensity of overhead aircraft, and helicopters induce stronger responses than fixed wing aircraft (Larkin 1996).

To determine what the effects of the Mine are on caribou, behaviour surveys are conducted to evaluate their typical behavioural responses to stressors such as vehicle traffic, aircraft activity, the presence of mine staff, and blasting.

5.4.2 OBJECTIVES

The objective of caribou behavioural studies is to:

- determine if caribou behaviour changes with distance from the mines or in response to various potential stressors.

5.4.3 METHODS

To record behaviours of caribou, two approaches, focal watches and scan surveys (Altmann 1974), were used in the wildlife study area. Focal observations of a single animal are ideal for obtaining information on activity budgets (i.e., the proportion 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 (Martin and Bateson 1993). Scan samples of a group of animals are more useful for quantifying the frequencies of dominant behaviours in a group over time (Altmann 1974), which can be thought of as an activity budget at the group level

In previous years, this program was completed in collaboration with Diavik Diamond Mines Inc. (Diavik). Survey of caribou adjacent to mine infrastructure is prioritized at the Ekati Diamond Mine, whereas surveys away from mine sites are prioritized at Diavik. No caribou behaviour monitoring data were received from Diavik in 2022 or 2023.

Behaviour surveys were conducted by Environment Personnel following a standard operating procedure. For both focal and scan sampling, when first arriving on site, the observers waited 5 minutes before commencing the surveys. During that time, distance from mine infrastructure, information on group location and insect harassment was recorded, and a composition count conducted. If caribou remained on site for sufficient periods of time, or additional personnel were not available, priority was given to focal sampling over scan sampling.

For focal surveys, an individual caribou was randomly selected from a group, and in the case where focal observations were conducted on multiple individuals from a group, the sex of the individual selected for observation would alternate. The location of each group from which an individual was randomly sampled was recorded, and group composition was tallied (bulls, cows, calves, yearlings, unknowns). There was no distinction made between nursery and non-nursery groups for analysis. Observations were conducted on either cow with calves, lone cows, bulls, or juveniles. An attempt was made to monitor the behaviour of individuals for a minimum of 20 minutes; however, survey length was reduced in cases where caribou moved out of the observer's sight line. Depending on the size of the group, observations on several individuals may occur, time permitting. Surveys were recorded as completed if the survey took place for the full 20 minutes or if it was under 20 minutes and stressors were recorded.

For scan surveys, a caribou group was selected for monitoring. For groups of 10 to 30 animals, all animals were included in the scan. For larger groups, a subsample of 20 to 30 animals was observed. Priority was placed on surveying nursery groups (groups with calves). The group composition (bulls, cows, calves, yearlings, unknowns) and group size was recorded for the total group present, or the subsample group surveyed. An attempt was made to monitor groups for a minimum of 32 minutes at 4-minute intervals; however, survey length was reduced in cases where caribou moved out of the observer's sight line, and the duration between surveys differed between surveyors. Surveys were recorded as completed if the survey took place for the full 32 minutes or if it was under this time and stressors were recorded. Incomplete focal and scan surveys were excluded in the analysis.

The following behaviours were recorded: bedding (e.g., sitting with all four legs tucked under body, lying down, sleeping on the ground), feeding (i.e., actively grazing, ruminating, chewing cud), standing, alert (e.g., quickly raising the head and orienting it toward a stimulus, pricking the ears and rotating them towards a stimulus, remaining motionless in an alarm posture), walking, trotting, running, and sparring.

In the event that a stressor occurred during a focal or scan observation, the observers recorded the immediate response in terms of a change in behaviour from one state to another. Estimated distance from the stressor was also recorded. Categories of potential stressors recorded during focal surveys included aircraft (helicopter and airplane), three categories of vehicles (light [e.g., pick-up truck], medium [e.g., water truck], and heavy truck [e.g., haul truck]), blasts from pits, and humans on foot. Observers would, where possible, watch the animal for at least 15 minutes following a stressor event to record the time it took to return to a non-alert behaviour.

5.4.4 RESULTS

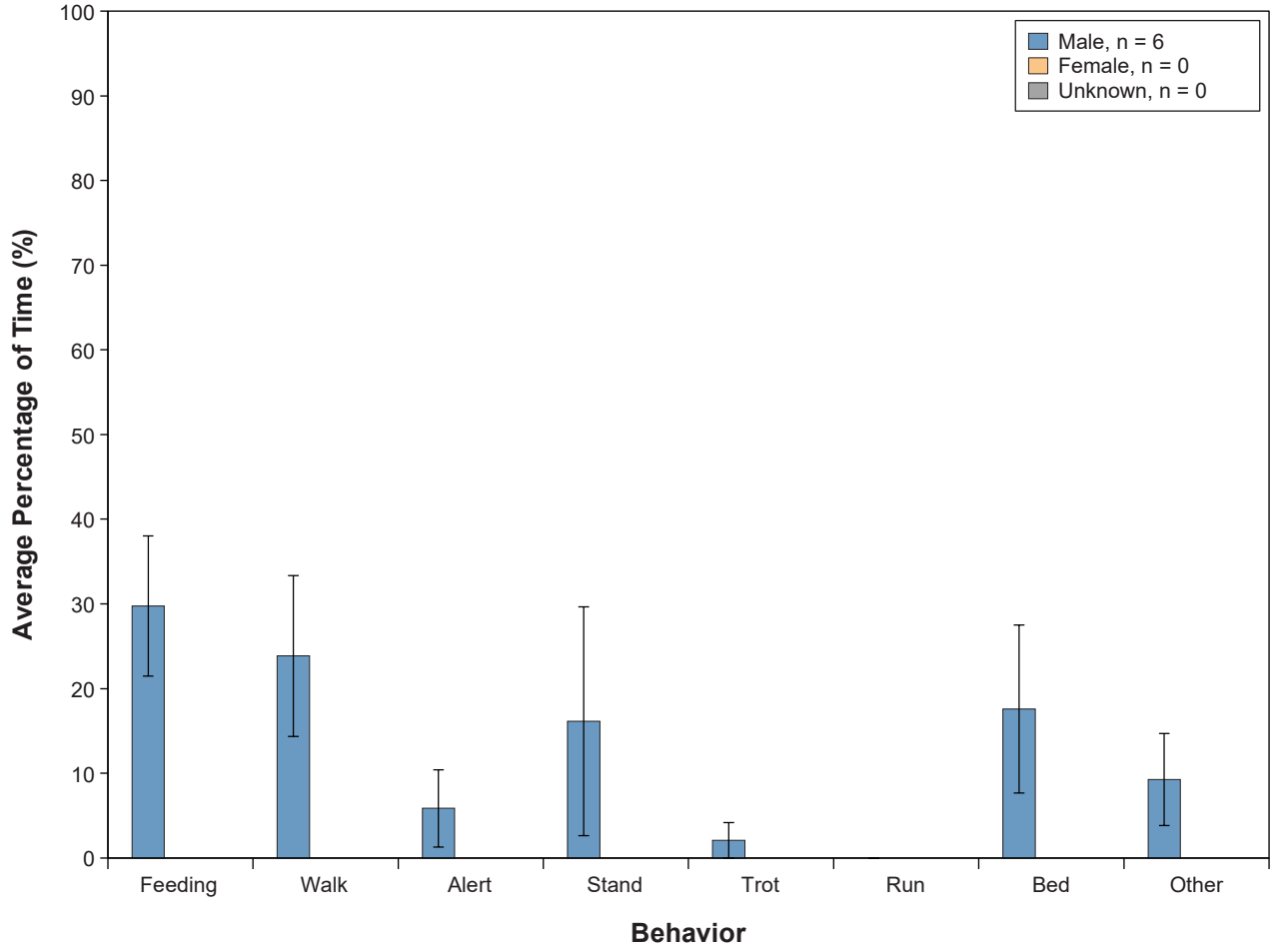
5.4.4.1 FOCAL SURVEYS

In 2023, six focal surveys were conducted on seven adult male caribou between June 22, 2023, and November 8, 2023. Five were solitary and two were together. One focal survey was conducted at Cell B, Pigeon culvert, the LLCF Road, and PL Laydown and two conducted on unspecified roads. Distance to the Mine ranged from zero to 500 m from infrastructure.

In 2023 only males were observed during focal surveys. The adult males were observed for a combined total of two hours and thirty-two minutes, with the average survey time of 25 minutes. On average, caribou spent most of their time bedding (26%), feeding (24%), or walking (16%; Figure 5.4-1). Focal male caribou spent on average less than 10% of their time in alert behaviour (8%). Activity budgets included in the "other" category included scratching, pawing and sparring.

Among the six focal surveys, there were five potential stressor events, including light vehicles (four) and heavy vehicles (one). Stressor events occurred between 20 m and 150 m from caribou. Alert behaviour (head raising) occurred 10 times; however, only one stressor event was recorded and alert behaviour did not coincide with the stressor event. It was generally noted that caribou did not react to stressor events. There was one observation of caribou trotting in response to a stressor event of a water truck. There were no observations of running in response to any stressor event.

FIGURE 5.4-1 PERCENTAGE OF TIME SPENT BY CARIBOU ENGAGED IN OBSERVED BEHAVIOURS DURING FOCAL SURVEYS AT THE EKATI DIAMOND MINE, 2023



Notes: Error bars represent standard error

5.4.4.2 SCAN SURVEYS

During 2023, 14 scan surveys were conducted over four days. The majority of scan surveys were conducted near mine infrastructure, including Misery Haul Road (four), Sable Haul Road (four) and one each on Shack Island in LDS, AN Building, Misery Powerline, LDS Road, Point Lake Road and an unknown road. Survey distances ranged from 5 m to 3,000 m to mine infrastructure.

Scan surveys were summarized by group composition, including female/male mixed groups with young (n = 1), female groups with young (n = 2), and male only (n = 1). The remaining groups were female/male adult mixed groups (n = 6) and unknown sex caribou (n = 3). Survey time interval was 4 minutes; however, in some cases behaviours immediately after a stressor event were recorded prior to the 4-minute interval. On average, the mixed groups with young were observed for a duration of 0:28:00 (h: min: sec), the female group with young for 0:20:30 (h: min: sec), and the male only groups for 00:28:00 (h: min: sec). The mixed female/male adult groups were observed for a duration of 00:32:10 (h: min: sec).

The most common behaviour was feeding (mixed adult groups 44%, mixed groups with young 96%, female groups with young 55%, male groups 25%; Figure 5.4-2). Male groups spent 24% of their time standing, whereas female groups with young and mixed adult groups spent 1.7% and 5%, respectively. Animals were observed walking 6% for mixed adult groups, 2% for mixed groups with young, 34% for female groups with young, and 38% for male groups. Bedded behaviours were reported for the male groups at 22%, mixed adult groups at 42%, and females with young at 1.7%. A small percentage of individuals spent their time engaged in alert behaviour, including mixed groups with young (2%) male groups (2%), and mixed adult groups (2%; Figure 5.4-2). Behaviour classified as “other” included shaking.

Potential stressor events occurred on 38 occasions, at distances ranging from 20 m to 500 m from caribou and included light vehicles (15), medium vehicles (two), and heavy vehicles (eight), RT (two), winter road truck (six), and lube truck (one). Alert behaviour (head raising) coincided with stressor events in 18 of 38 cases, and the response lasted two to 10 seconds before returning to baseline behaviour. It was generally noted that caribou did not react to stressor events. There was one observation of a single caribou trotting in response to a water truck stopping. There were no observations of caribou running in response to any stressor event.

5.4.5 DISCUSSION

Focal surveys are appropriate for examining caribou behaviours in response to mine activity. Overall, in 2023, focal surveys on seven individual adult male caribou indicated that caribou spend much of their time; bedded (26%), feeding (24%), walking (16%). This may suggest some tolerance for areas close to the mine (<1 km from infrastructure).

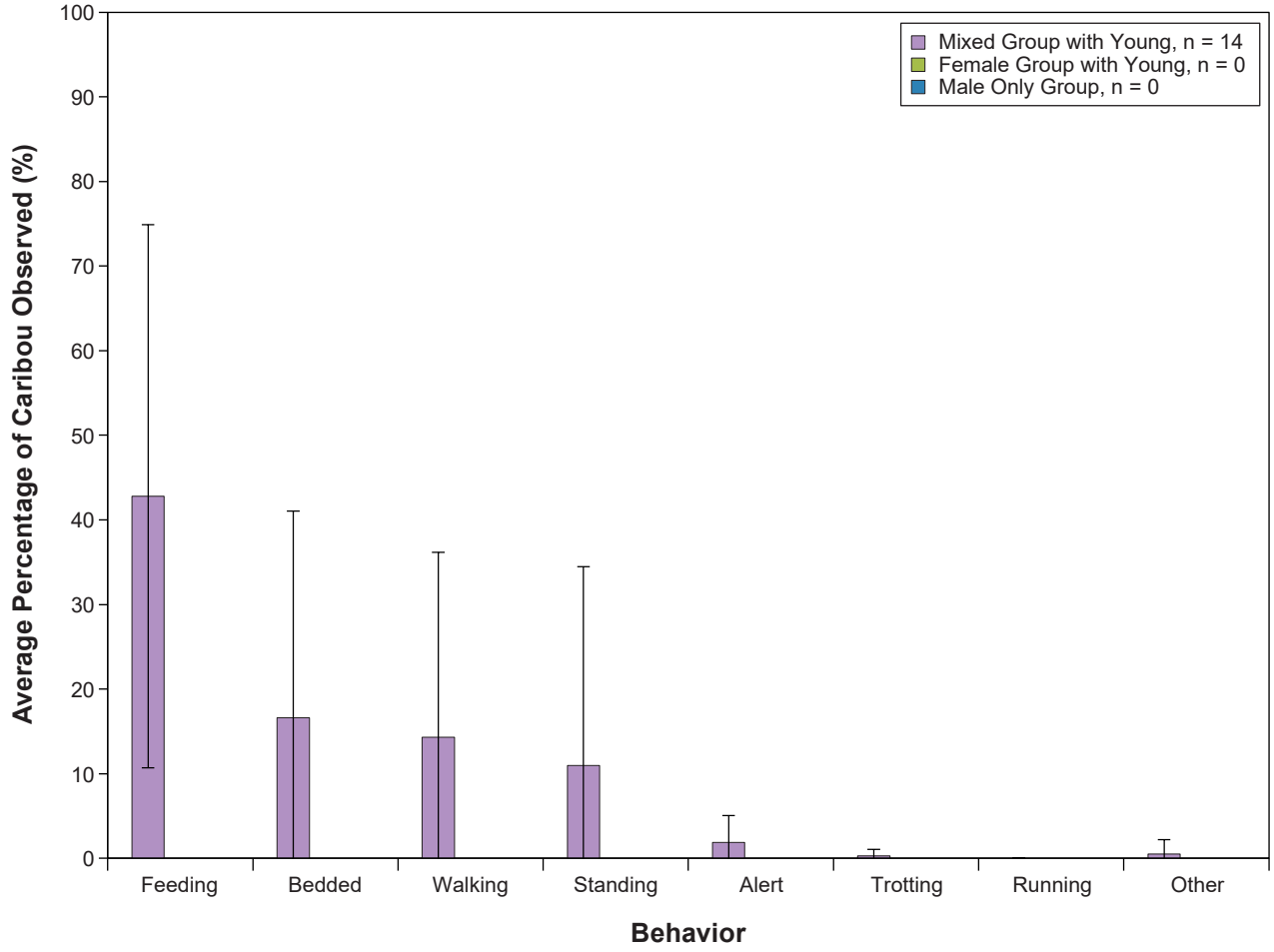
This is similar to compiled results of focal surveys conducted in 2010 to 2013 at the Ekati Diamond Mine that demonstrated the majority of caribou activity budget (on average, 80% for males and 79% for females) was spent bedded, feeding, or standing, and that trotting and running were rarely exhibited by focal adults (ERM Rescan 2014). Similarly, to previous years focal surveys conducted on adult males and females indicated that caribou spend the majority of their time either feeding or bedded.

Among the six focal surveys, Among the 14 scan surveys, alert behaviour (head raising) coincided with stressor events in 18 of 34 cases. In these observations the alert behaviour lasted between 2 and 10 seconds. Stressor events during both surveys occurred at a range of distances from the caribou (between 20 m and 500 m).

This alert response to stressful stimuli has been predicted from other studies (Pruitt 1960; Horejsi 1981: Tyler 1991). An analysis of data collected at the Mine indicated that cows and bulls remained in a stressed state for an average of 16 to 35 seconds following all stressor events, and the occurrence of stressors dropped to very low rates outside of a 2 km zone around mining infrastructure (ERM Rescan 2014).

The relatively short duration of stress responses in both focal and scan samples suggests that caribou are robust to low levels of disturbance at the Mine and suggest that management measures in the CRMP to reduce disturbance by giving caribou the right-of-way are appropriate.

FIGURE 5.4-2 PERCENTAGE OF TIME SPENT BY CARIBOU ENGAGED IN OBSERVED BEHAVIOURS DURING SCAN SURVEYS AT THE EKATI DIAMOND MINE, 2023



Notes: Error bars represent standard error

5.5 LONG LAKE CONTAINMENT FACILITY (LLCF) MONITORING

5.5.1 INTRODUCTION

Wildlife use of the LLCF is monitored as part of the WEMP. The LLCF consists of five cells (A to E) with processed kimberlite currently stored in three of the cells. Cells A and C, receive fine processed kimberlite (sand sized and smaller, <5 mm) from the Process Plant as a slurry (i.e., suspended in water). The fine processed kimberlite settles out and dries, taking on the consistency of hard, fine sand. At Cell B, progressive reclamation and reclamation research is in progress with plantings of grasses along the western edge of the Cell conducted in 2014 and continued re-vegetation work from 2015 to 2021 (Arctic Canadian 2021c). Cells D and E remain open water and there are no plans to deposit processed kimberlite into these two cells.

WEMP Report reviewers requested that monitoring be conducted to determine if caribou are ingesting processed kimberlite and whether there is a potential for injury or entrapment in the LLCF. An important consideration is that the processed kimberlite at the Ekati Diamond Mine does not contain the same metals, nor does it require processing with chemicals typical of gold and other metal mines. Environmental studies have shown that the processed kimberlite is salty and may attract wildlife but the risk to caribou from ingesting processed kimberlite is very low (BHP Billiton 2005; Rescan 2006).

5.5.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- determine if any caribou injuries can be attributed to the LLCF;
- determine the frequency that caribou use the LLCF; and
- determine the group size, group composition, and dominant group behaviours of caribou observed within the LLCF.

5.5.3 METHODS

The surveys involved a visual scan of the LLCF to observe and record caribou presence. Surveys of the LLCF were conducted via vehicle along the Long Lake Road and dykes to monitor all LLCF cells (A, B, C, D, and E; Figure 5.5-1). Cells A, B, and C were the primary focus and surveyed on a weekly schedule during most months. Weekly surveys of Cells D and E were conducted during the open water season. Incidental sightings of caribou in the LLCF outside of the formal survey are reported to the Environment Department and recorded as incidental observations (Section 5.3).

When caribou were observed during surveys, the group size, composition, dominant behaviour, and signs of caribou stress were recorded. Though caribou may exhibit a wide variety of behaviours, for the purposes of the LLCF surveys, behaviour data were grouped into four categories: bedding (including bedded alert), feeding, standing (including standing alert), and travel (included walking, trotting, and running). Observations of wildlife and wildlife signs within the LLCF were also recorded during each survey, particularly the presence, abundance, and nesting activity of waterfowl. Information from surveys may support reclamation research and planning.

5.5.4 RESULTS

5.5.4.1 CARIBOU OBSERVATIONS AT THE LLCF

In 2023 the LLCF was surveyed on 84 occasions between January 1 and December 31. There were 11 caribou observations including 51 individuals over 10 days. Caribou observations occurred between March 5, 2023 and September 16, 2023. Nearly half of caribou individuals (21) and observations (4) occurred in Cell E which contains only water. The other individuals were observed near Cell D (n = 218), Cell B (n = 8), and Cell C (n = 1). One observation of three caribou tracks were recorded on the road at Cell B of the LLCF. Caribou observations at the LLCF are plotted on Figure 5.5-1.

In total, 1,387 surveys of the LLCF have been conducted from 1999 to 2023, with the number of surveys ranging annually from 10 to 190 (Table 5.5-1) with higher numbers of surveys per year in the last 10 years.

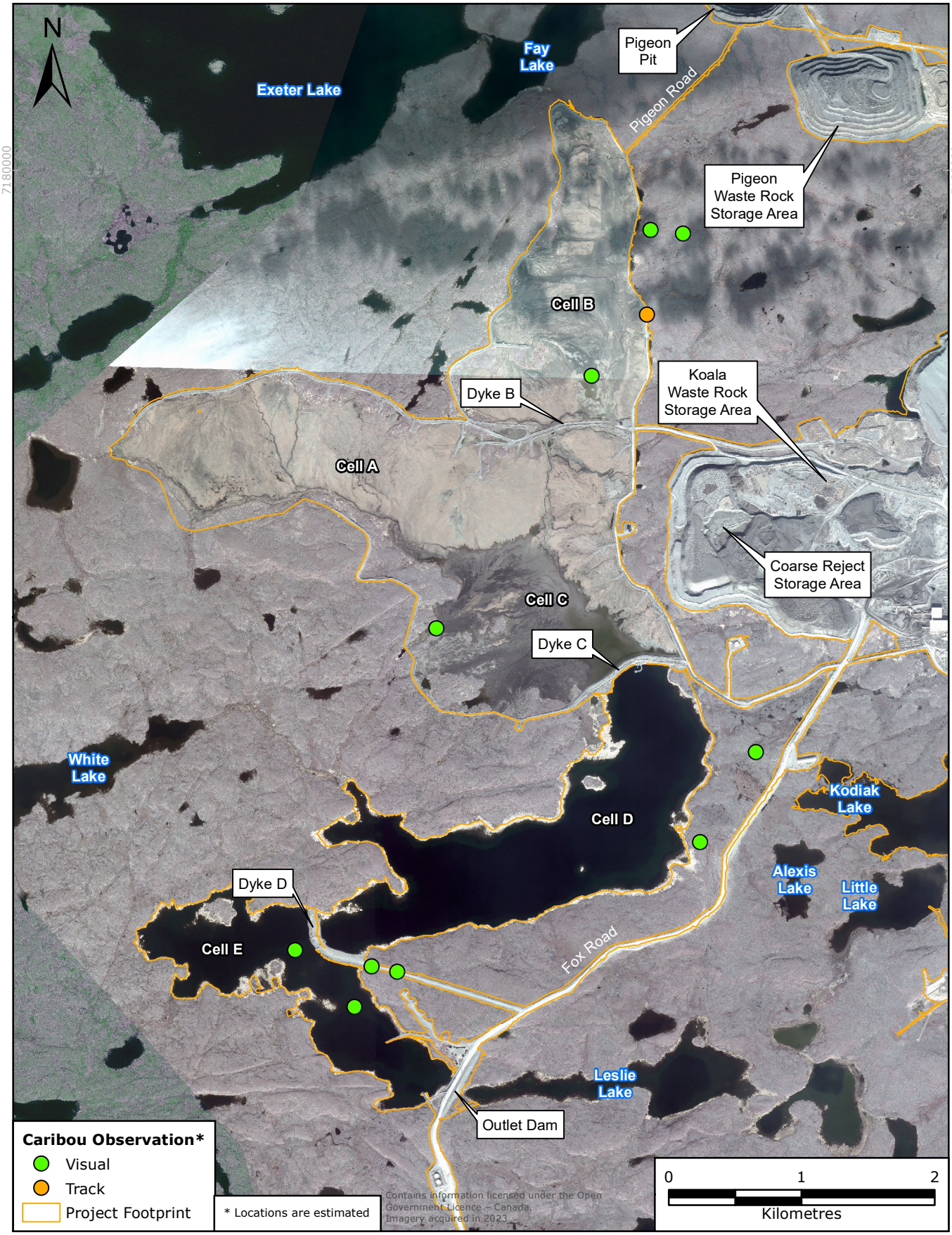
From 1999 to 2023, caribou were observed within the vicinity of the LLCF during 207 (15%) of the surveys and a total of 2,896 caribou individuals were reported during formal surveys (Table 5.5-1). Evidence of caribou, including tracks and scat, were also documented during surveys in a number of years. Occurrences in 2019 involved the largest groups of caribou at the LLCF; four of the eight observations in 2019 included groups of 100 or more caribou. The highest numbers of caribou recorded in or near the LLCF occurred in 2019 (1,721 individuals; 61% of all caribou observed from 1999 to 2023).

In addition to observations during formal surveys, incidental observations of caribou in or near the LLCF are also recorded (Section 5.3). In 2023, an incidental observation of approximately 5,000 caribou was recorded in the LLCF crossing the road in Cell B on November 7, with mixed behaviours including walking, running, and feeding.

5.5.4.2 GROUP SIZE

The 11 observations in 2023 included only groups less than 50 caribou. The largest group of caribou had 20 individuals and occurred on May 4 in Cell D, where they were observed on the road. The second largest group of 12 caribou occurred on March 23 in Cell E in the basin. The remaining observations consisted of one group from six to 50 individuals, two observations of groups of two to five individuals, and six observations of single caribou.

FIGURE 5.5-1 CARIBOU OBSERVATIONS DURING THE LONG LAKE CONTAINMENT FACILITY SURVEYS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432l

DATE: 11 March 2024

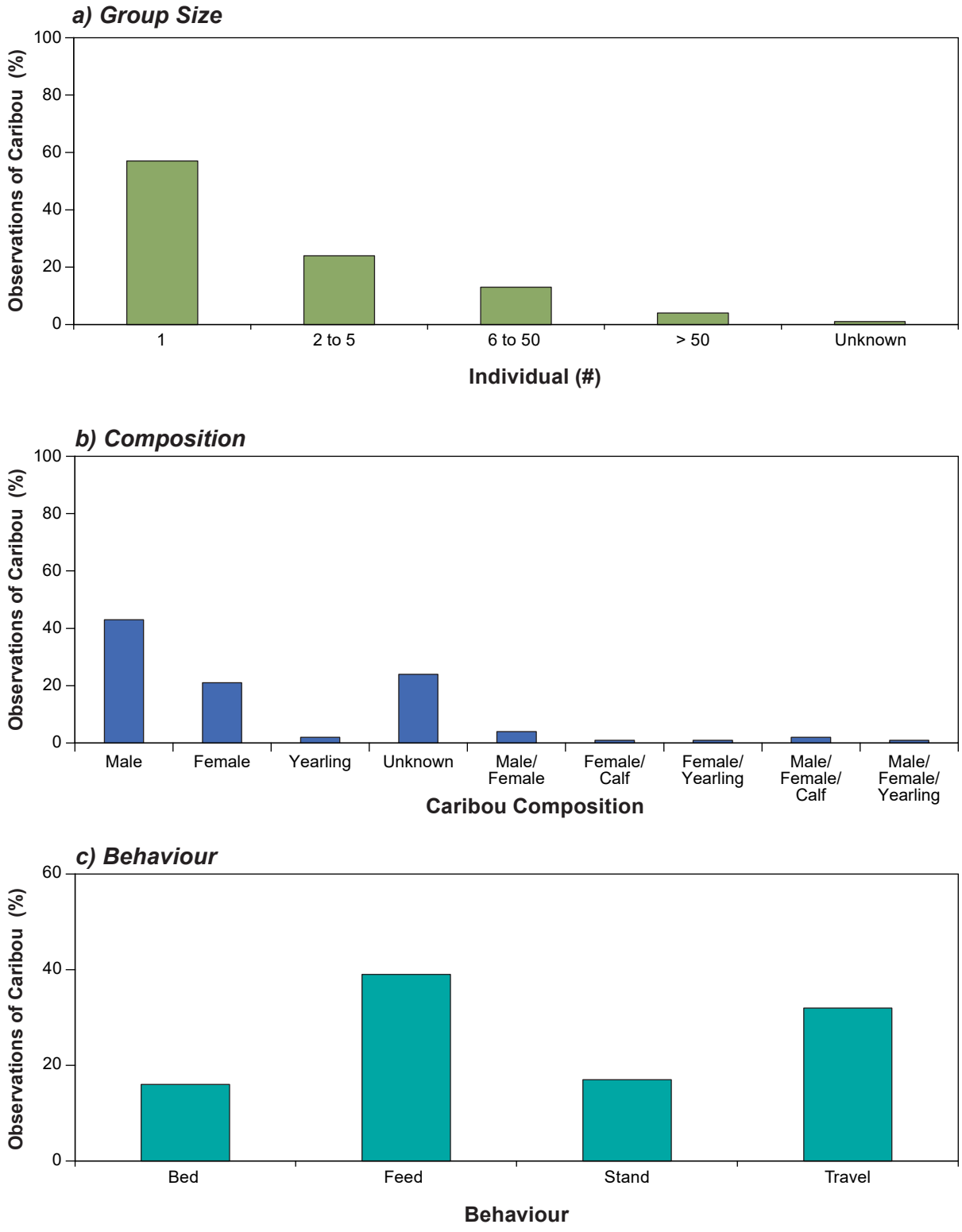
PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:40,000 when printed at 8.5x11

TABLE 5.5-1: SUMMARY OF CARIBOU FREQUENCY WITHIN THE LONG LAKE CONTAINMENT FACILITY, 2000 TO 2023

Caribou	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Surveys (#)	64	27	22	10	60	25	43	17	18	58	22	16	65
# Surveys with caribou occurrences	27	3	15	6	2	8	14	3	0	3	1	4	5
% of Surveys with caribou occurrences	42	27	68	60	3	32	33	18	0	5	5	25	8
Total caribou individuals observed in LLCF (#)	-	3	48	7	3	40	66	402	0	16	2	30	5

Caribou	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total
Surveys (#)	100	91	78	76	62	53	38	38	41	190	94	84	1,387
# Surveys with caribou occurrences	13	12	1	0	1	2	2	8	3	41	22	11	207
% of Surveys with caribou occurrences	13	13	1	0	2	4	5	21	7	22	23	13	15
Total caribou individuals observed in LLCF (#)	23	27	2	0	10	3	7	1,721	4	237	189	51	2,896

FIGURE 5.5-2 SUMMARY OF CARIBOU OBSERVED AT THE LONG LAKE CONTAINMENT FACILITY, 2000 TO 2023



Notes: No caribou were observed during LLCF surveys in 2007 or 2015. Caribou observations can include multiple behaviours. Bed includes bed alert, stand includes stand alert, and travel includes trot, walk, and run.

5.5.4.3 COMPOSITION

The composition of caribou observed in 2023 included a total of four bulls, two cows, two yearlings, no calves, and 43 caribou of unknown sex and age. From 2000 to 2022 when caribou were reported, 43% of caribou observations in or near the LLCF were detections of male only groups and 21% were of female only groups (Figure 5.5-2b). Groups of females and males comprised 4% of observations. Calves were observed during 3% of observations; 2% of females, males, and calves and 1% of a female and a calf. An individual yearling was observed on three occasion (2%). The remaining occurrences with caribou were detections of animals of unknown age and sex (24%).

5.5.4.4 DOMINANT BEHAVIOUR

In 2023, unlike in previous years, observations contained single behaviours, including caribou feeding (18%), travelling (27%), bedded (9%), standing (18%). From 2000 to 2023 the majority of caribou were feeding (41%; Figure 5.5-2c), walking (40%), bedded (16%), or standing (16%).

From 2000 to 2023, caribou were observed feeding in the LLCF basin on 28 occasions, on the dykes on two occasions, on the road on five occasions, and on the tundra adjacent to the LLCF on 34 occasions, with one occasion including feeding on both the basin and the tundra.

5.5.4.5 WILDLIFE OBSERVATIONS

In addition to caribou, here were 32 observations of 52 mammals at the LLCF in 2023, as well as 171 observations of 3,662 birds. These included Arctic hare, grizzly bear, wolf, red fox, and unknown fox species.

Behaviours included animals travelling through the area, primarily in Cells B, A, and D, and on the road or in the basin. One sign of distress was observed in 2023, when an Arctic hare was reported running on the Road in Cell B.

Bird species recorded included seven upland bird species (481 individuals), six raptor species (27 individuals), and 21 waterbird species (2,999 individuals). There were 147 individuals of unknown bird species. One species of conservation concern was recorded, the re-necked phalarope. Red-necked phalarope was observed on three occasions swimming and feeding in June and July, 2023, in cells B and D. The red-necked phalarope is not a VEC species, but it is federally designated as a species of Special Concern by COSEWIC (2014a), and on Schedule 1 of SARA (2002). In the NWT, red-necked phalarope is ranked as Sensitive (GNWT 2024).

Peregrine falcon was recorded flying over the LLCF on four occasions between the 13 to 25 of November, 2023, in Cell D and B. On all occasions the falcons were observed to be flying over the LLCF. This species is a VEC, but is no longer a listed species of conservation concern federally or in the NWT.

The majority of birds were recorded in Cell A, B, or C (82% of observations) and in the basin (89%) compared to the tundra. Breeding activity was recorded on 14 occasions for six waterbird species and two upland bird species, mostly occurring in May.

5.5.5 DISCUSSION

To date, no caribou injuries or deaths have been attributed to the LLCF. In 2023, there were 11 caribou observations including 51 individuals over 10 days during LLCF surveys (excluding the incidental sighting of 5,000 animals in November). No caribou were stuck in the LLCF or reported injured, which suggests that the processed kimberlite does not hinder caribou movement.

Between 2000 and 2023, the observations of caribou in or near the LLCF mostly involved caribou travelling through the area (40%) or feeding (41%). The LLCF may provide refuge habitat from insect harassment during the summer months. The LLCF basin is large and flat, with large non-vegetated areas and wind-exposed habitat not associated with mosquito and botfly activity.

Industrial structures, such as roads and oil fields, have been found to provide insect-relief habitat for caribou (Cronin et al. 1998). However, the majority of caribou groups observed since 2000 were travelling through the LLCF area, which may indicate that it is primarily being used as a travel corridor. In previous years like 2019 where caribou were primarily observed feeding and bedded down, surveys indicated caribou had departed the area within a period of between two days and two weeks.

5.6 ROAD AND POWERLINE SURVEYS

5.6.1 INTRODUCTION

Road surveys are completed by vehicle along the Lac du Sauvage, Misery, Sable, and Lynx roads to determine the location and number of caribou as they approach the Ekati Diamond Mine and to inform the CRMP. Environment Department personnel surveying the roads implement additional mitigation, such as deploying signs to notify personnel to the presence of caribou or the need for road closures. The road surveys proposed as part of the Jay Project represented a new type of monitoring. During the Jay Project EA, stakeholders raised concerns regarding how Burgundy would detect caribou approaching roads at night and in poor visibility. A Forward Looking Infrared T640 thermal imaging camera was used on site in 2017 as a preliminary test for its ability to detect caribou. Initial testing at short range (200 m) produced inconclusive results. Natural insulation of arctic species meant that wildlife was not visible using the thermal imaging technology during winter months. This testing was further complicated as weather severe enough to limit visibility of caribou resulted in roads at the Ekati Diamond Mine being closed to anything except emergency travel. Fortunately, this means that when caribou cannot be easily detected by the human eye there is no traffic to threaten their safety.

5.6.2 OBJECTIVES

The objective of this component of the WEMP is to:

- determine the location, numbers, and proximity of caribou relative to the mine site roads.

5.6.3 METHODS

One to two observers travelled by light vehicle along Sable, Misery, and Lac du Sauvage roads to record the location, number, and proximity of caribou adjacent to roads. When caribou were observed, information on group size, composition, dominant behaviour, and signs of caribou stress were recorded. Though caribou may exhibit a wide variety of behaviours, for the purposes of the road survey, behaviour data were grouped into four categories (see definitions in Section 5.4.3): bedding, feeding, standing and travel (including walking, trotting, and running). Signs of distress (deflection, hesitation, and alert) were also noted (see additional information in Section 5.4.3 regarding stressors). Observations of wildlife and evidence of wildlife activity (i.e., tracks, scat), were also recorded during each survey. In cases where caribou tracks were identified, surveyors noted the direction of movement. In cases where the caribou group size was provided as an approximate number (e.g., greater than 70 individuals), group size was conservatively assumed to be the lower value (i.e., 70 individuals).

In previous years, the Misery power line survey results were reported in this section and also reported separately as results for the Misery power line survey in Section 5.6. As per GNWT ECC's request in 2020, power line and road surveys along Misery Road are combined for reporting in 2022 and will continue to be integrated in future years.

5.6.4 RESULTS

5.6.4.1 CARIBOU FREQUENCY

During the 2023 reporting period, road surveys were completed on 295 days with caribou observations on 105 of them along Misery Road/power line, 289 days with caribou observations on 69 days along Sable Road, and 275 days with caribou observations on 35 days along Lac du Sauvage Road (Table 5.6-2). Caribou observations occurred throughout the year, between February 18 and November 16, 2023. In total along all roads, there were 430 observations of 12,193 caribou (note that observations likely include the same caribou individuals or groups on multiple occasions rather than indicating that 12,193 different individuals were observed). Observations from road/power line surveys with sufficient location information were plotted on a map of the study area (Figure 5.6-1). Observations of caribou along the road and powerline that did not have location recorded are not represented. A total of 430 observations accounting for 12,193 individuals, which includes 2,629 individuals on along Lac du Sauvage Road, 6,676 individuals on Misery Road/powerline, and 2,888 individuals on Sable Road.

TABLE 5.6-2: SUMMARY OF CARIBOU OBSERVATIONS DURING ROAD MONITORING SURVEYS, 2023

	Misery Road and Power Line	Sable Road	Lac du Sauvage Road
Number of Survey Days	295	289	275
Number of Days with Observations	105	69	35
Number of Observations	283	86	61
Number of Caribou Observed	6,676	2,888	2,629
Largest Group Size Observed	300	700	1300

The number of caribou observations, individuals, and largest group size for each road is presented in Table 5.6-2. Misery Road/power line had the largest number of observations (283; 66% of all observations), the highest number of individuals (6,676). Lac du Sauvage Road had the largest single group size (1,300).

5.6.4.2 GROUP SIZE

Of all observations, there were 129 (30%) of observations were of groups of one to three animals. Groups of four to 10 caribou accounted for (n = 107) 25% of observations. There were 143 observations with groups between 11 and 50 (33%), 26 observations with groups between 50 and 100 caribou (6%), 21 observations of between 100 and 500 caribou (5%), and two larger groups estimated at 700 and 1,300 animals (0.5%). Groups with 100 or more caribou, including the two largest groups, were observed between February and May and in November 2023.

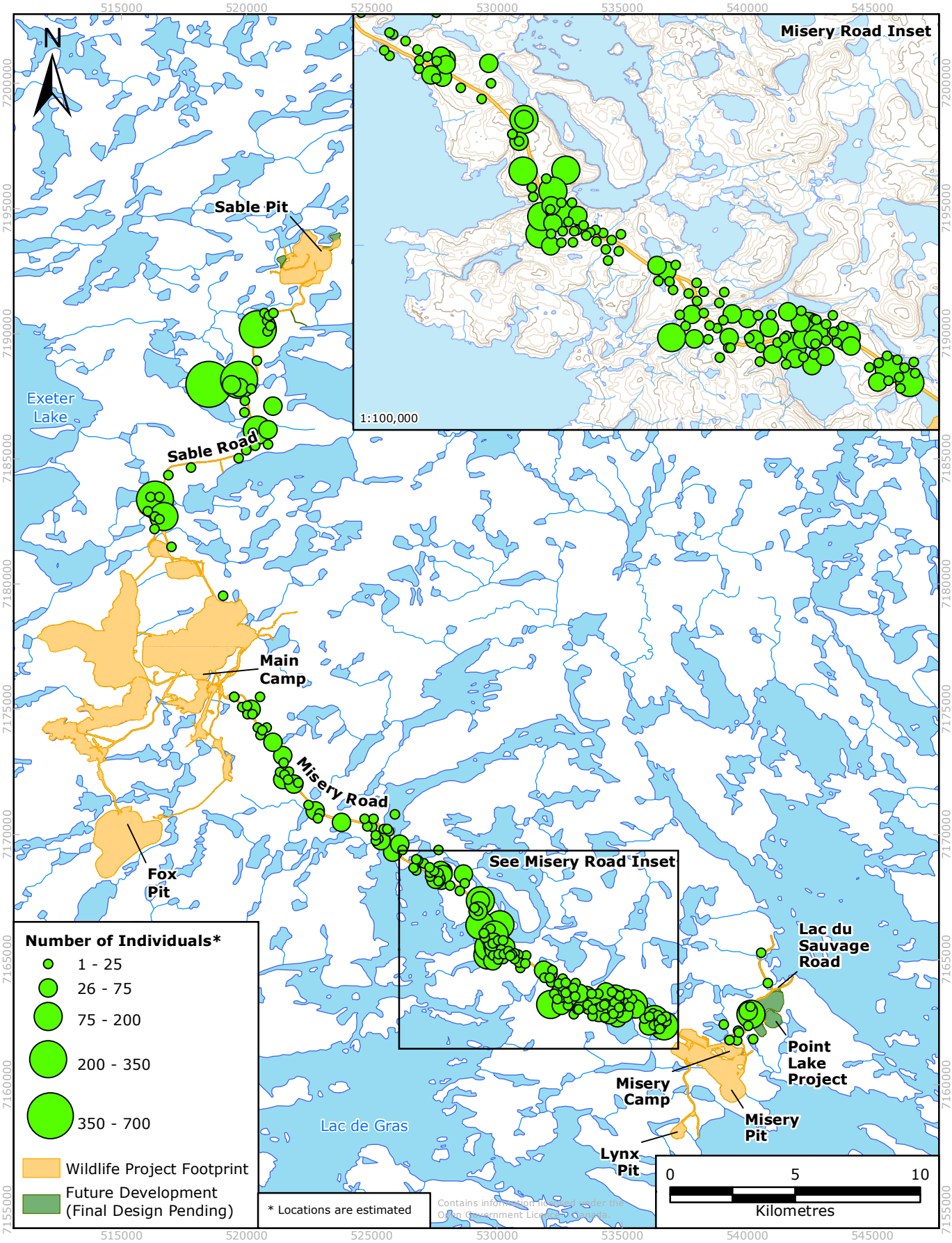
5.6.4.3 COMPOSITION

Sex and age composition was confirmed for 5% of the caribou observed. Of the 198 groups with animals classified, 107 (54%) contained at least one bull, 58 groups (29%) contained at least one cow, 14 groups (7%) contained at least one calf, and 19 groups contained at least one yearling (10%). Forty-four of the 198 groups (22%) were mixed groups including at least one bull and one cow; mixed sex groups were observed from March to October 2023. Of the 636 individuals that were classified, 314 were bulls, 246 were cows, 25 were calves, and 51 were yearlings. Eighty-two groups with 35 or more caribou did not include classified individuals.

5.6.4.4 DOMINANT BEHAVIOUR

Observations of caribou near the four roads and power line included groups with individuals that were feeding (63%, n = 124), standing (10%, n = 19), standing alert (1.5%, n = 3; Photo 5.6-1), travelling through the area (13%, n = 25), bedded (10%, n = 20), bedded alert (2.5%, n = 5). Caribou were observed feeding within 0 to 1200 m from Misery Road/power line, LDS Road, or Sable Road. The bedded individuals were observed within 30 to 400 m from the Misery Road/power line, LDS Road or Sable Road. The bedded alert individuals were 30 to 400 m from Misery Road/power line. Caribou behavioural surveys were completed on 106 occasions when caribou were recorded during the Road or Power Line Monitoring Surveys.

FIGURE 5.6-1 CARIBOU OBSERVATIONS DURING ROAD AND MISERY POWER LINE SURVEYS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432m

DATE: 29 February 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

Photo 5.6-1: Example of a caribou observed feeding east of Sable Road, August 23, 2023.

5.6.4.5 SEMI-PERMEABLE BARRIER EFFECTS

The caribou recorded as travelling through the area (n = 331) were observed walking along or near all three roads and power line. Eighty-six percent of all observations included caribou that were within 500 m of the road or power line. Four percent of observations included caribou that were travelling across the road or standing on Misery, LSD or Sable roads or under the power line. Signs of distress were recorded on 17 occasions (4% of observations), two occasions involved herds larger than 60 with adults of unknown sex, five occasions involved unknown sex herds larger than 20 except for one with six adult males. One event involved 12 caribou of unknown sex, one observation of two adult male and seven unknown sex, one occasion of two female and five unknown sex in the group, two occasions was of four caribou of unknown sex. There was one occasion of two caribou of unknown sex and four occasions of single caribou, three times identified as an adult male caribou and one time unknown.

5.6.5 DISCUSSION

Road/power line surveys were conducted on over 250 days for each road and power line in 2023. In the 2023 reporting year, caribou were observed on 430 occasions on 150 survey days; a total of 12,193 caribou were reported (note that observations likely include the same caribou individuals or groups on multiple occasions rather than indicating that 12,193 different individuals were observed). The largest groups observed in 2023 contained approximately 1,300 caribou and was observed along Lac du Sauvage Road. Misery Road/powerline and Sable Road also had the most recorded observations and most of the total caribou observed. These numbers are similar to the overall numbers observed in 2022 (n = 9,112).

To date, no caribou injuries or deaths have been attributed to the power line. Observations of caribou near the power line and crossing beneath the power line suggest that the power line does not impede caribou movement or change caribou behaviour.

In 2023, the most common behaviour observed feeding (63%; n =124), followed by travelling through the area (13%; n = 25). Signs of distress were recorded on 17 occasions, mostly in groups of caribou larger than 10. Five observations were of groups of caribou of less than 15 and only four events of distressed behaviour occurred with a single individual.

In 2023, 86% of all observations included caribou that were within 500 m of the road with 5% of observations involving distressed caribou. This is a higher percentage of distressed caribou than the 2% observed in 2022; however, it is similar to the 5% of distressed caribou observed in 2021. Observations of caribou near and crossing all roads/power line suggest that the roads and power line do not impede caribou movement at the local scale. Data on the location, number, group composition, and behaviour of caribou on or near the roads/power line provides feedback for mitigation and adaptive management. Caribou proximity to roads/power line, number of caribou, and caribou group composition inform the mitigation and monitoring intensity through the CRMP framework. Documentation of road/power line survey results will continue to be refined in future years to provide ongoing evaluation of the program to determine their effectiveness in mitigating caribou interactions with roads/power line.

5.7 TRAFFIC MONITORING

5.7.1 INTRODUCTION

One of the objectives of the WEMP is to monitor "interactions between wildlife and traffic" and "assess the success of mitigation efforts" (Section 1.4). Burgundy employs several methods for monitoring caribou at site and in proximity to roads including use of systematic road surveys, camera trapping, behaviour monitoring, and collared caribou data. The WEMP contains several detailed mitigations to facilitate passage of caribou across roads and through the site, particularly those outlined in the CRMP (Section 4.1.2).

These monitoring methods have demonstrated that caribou occur on site, occupy areas near the road and cross it; however, as of 2021 these findings had not been linked directly to traffic data. Traffic data were recorded in previous WEMP reports from traffic logs and daily trip summaries and were specific to haul trucks and road trains. It was determined that additional traffic monitoring would be required to monitor the volume of all traffic along Misery and Sable roads, and Lac du Sauvage Road. This would be done to investigate whether there is a relationship between caribou presence and passage through site, with traffic levels and mitigation measures.

Per discussion with ENR on November 12, 2021, Arctic Canadian agreed to explore ENRs recommendation for deploying TRAFx traffic counters at the Misery and Sable Haul Road entries to log vehicular traffic activity. A pilot project using traffic counters was launched in early 2022; however, the project was not completed as traffic counters were not able to reliably capture vehicle passage across the entire span of the wide haul roads. A secondary pilot project with remote cameras was launched in July 2022 with greater success. Due to success of the 2022 pilot projects, remote cameras were deployed in January through to December 2023 to count traffic on mine roads.

5.7.2 METHODS

Beginning January 3, 2023, two Reconyx Hyperfire 2 Covert IR remote cameras were deployed on the Misery (one camera) and Sable (one camera) Haul roads to monitor vehicle passage. The cameras were programmed to take pictures when triggered by motion infrared sensor (motion triggered photos). The date and time of each digital image was recorded.

Cameras were checked monthly for battery levels, available memory on the SD memory card, and whether the camera was still operating as programmed and had not been disturbed by wildlife or weather. Memory cards and batteries were exchanged when necessary to prevent data loss. Data from memory cards were retrieved for processing and analysis at regular intervals throughout the year.

A detailed report to address traffic effects on caribou passage through the Ekati site during the 2023 season will be presented in the "Ekati Diamond Mine: 2023 Wildlife Camera Monitoring Summary Report" which will be submitted as a separate report in 2024.

5.7.3 RESULTS

From January 3 to December 31, 2023, the traffic camera on Misery Haul Road recorded for 248 days and the camera on Sable Haul Road recorded for 263. For the Misery Haul Road, notable gaps in data collection occurred January 19 to 29, February 11 to 20, November 11 to 19, and December 1 to 6 and 19 to 22. Notable gaps in data collection for Sable Haul Road occurred between February 4 to 20, August 9 to September 8, November 12 to December 5 and December 7 to December 31. There is no recorded traffic data available for these periods.

Traffic on Misery Road included 13,623 vehicles (Table 5.7-1 and Figure 5.7-1), including vehicles in both directions. Average daily counts were highest in March (82.6 vehicles per day) and October (70.9 vehicles per day) and lowest in February (3.1 vehicles per day; Table 5.7-1).

Traffic on Sable Road included 32,293 vehicles (Table 5.7-2 and Figure 5.7-2). Average daily counts were highest in July (166.7 vehicles per day) and May (157.4 vehicles per day) and lowest in December (seven vehicles per day; Table 5.7-2). The hourly breakdown of traffic volume indicates that traffic occurs primarily during the day (Figures 5.7-1 and 5.7-2).

TABLE 5.7-1: NUMBER OF VEHICLES COUNTED ON MISERY HAUL ROAD, JANUARY 3, 2023, TO DECEMBER 31, 2023

Month	Average Daily Count	Days Recording	Total Count
January	45.38	13	590
February[1]	3.08	12	37
March	82.59	27	2,230
April[1]	9.50	16	152
May	55.37	30	1,661
June	44.54	24	1,069

Month	Average Daily Count	Days Recording	Total Count
July	52.28	30	1,517
August	31.62	29	917
September	67.17	30	2,015
October	70.87	31	2,197
November	38.67	18	696
December	30.11	18	542
Average (All months other than February and April)	51.86	25.0	-
Total count	-	248	13,623

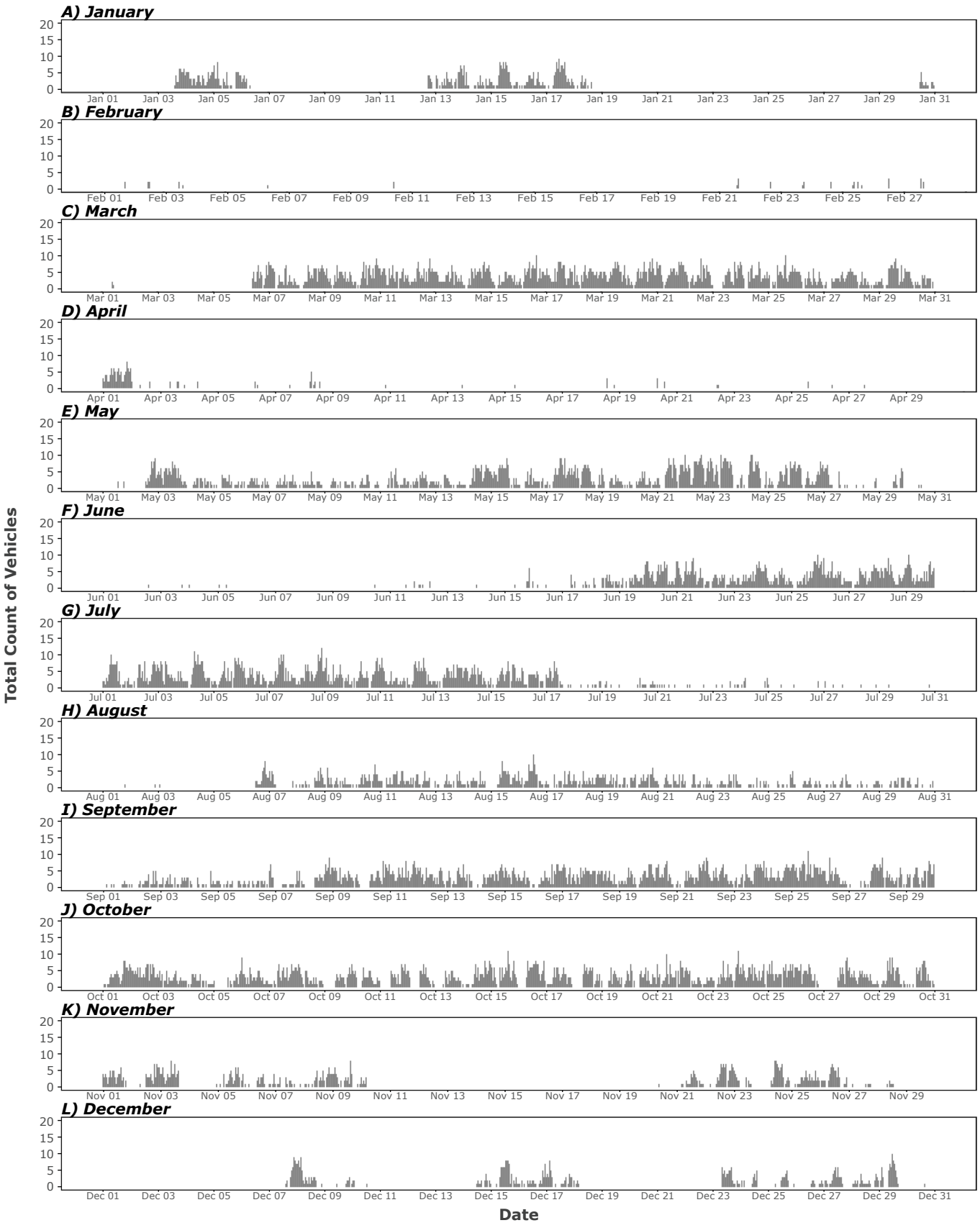
[1] *Camera data was limited in February and April due to camera mount failure, and these months are excluded from the total monthly average.*

TABLE 5.7-2: NUMBER OF VEHICLES COUNTED ON SABLE HAUL ROAD, JANUARY 3, 2023, TO DECEMBER 6, 2023

Month	Average Daily Count	Days Recording	Total Count
January	86.36	28	2,418
February[1]	60.44	9	544
March	31.68	31	982
April	121.55	29	3,525
May	157.39	31	4,879
June	148.60	30	4,458
July	166.71	31	5,168
August	152.11	9	1,369
September	152.83	23	3,515
October	133.97	29	4,019
November	117.42	12	1,409
December[1]	7.00	1	7
Average (All months other than February and December)	126.86	25.3	-
Total count	-	263	32,293

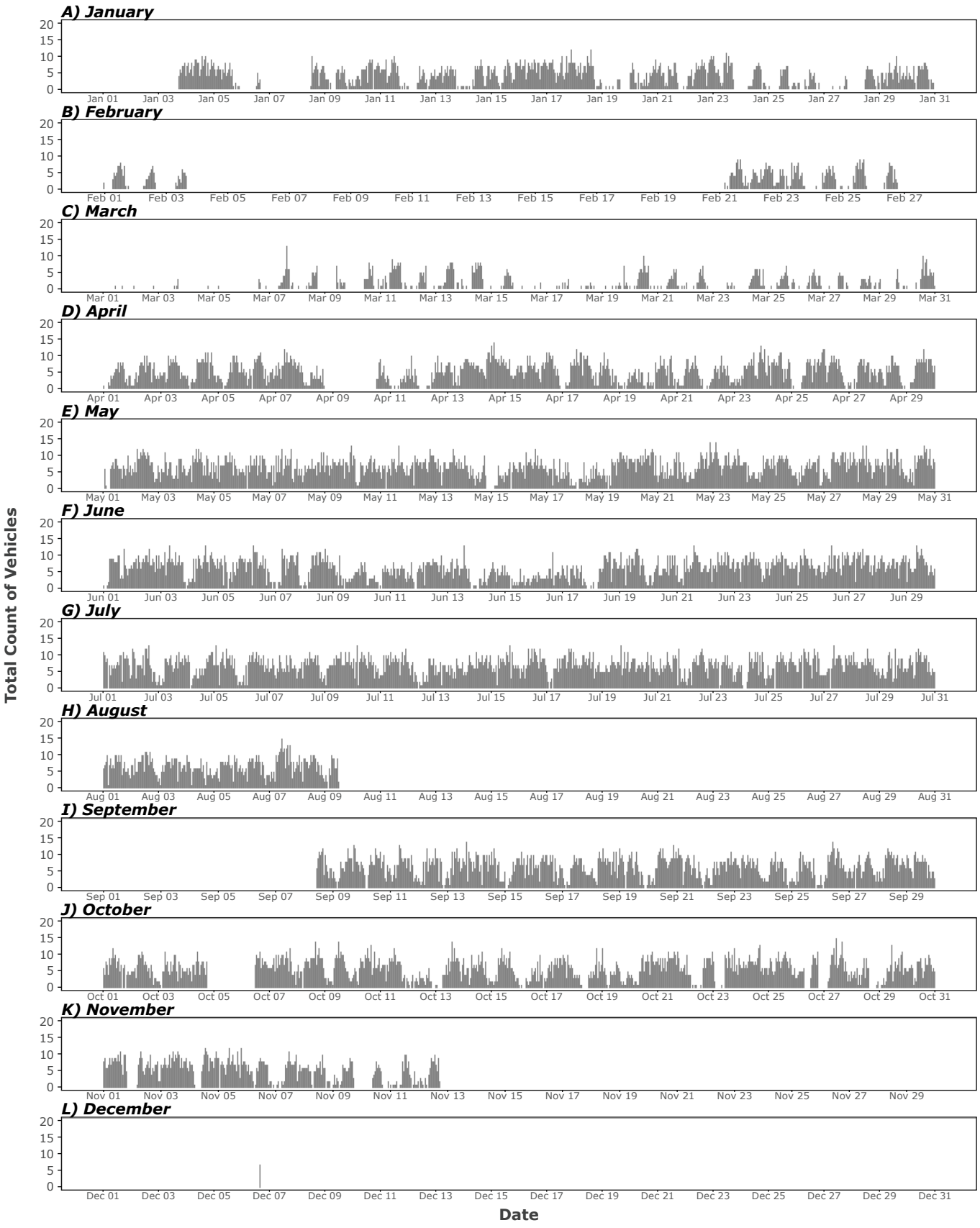
[1] *Camera data was limited due to snow cover in February and due to battery failure in December, and these months are excluded from the total monthly average.*

FIGURE 5.7-1 TOTAL NUMBER VEHICLES DETECTED PER HOUR, MISERY HAUL ROAD, 2023



CLIENT: Burgundy Diamond Mines Ltd.
GRAPHICS NUMBER: EKA-24ERM-027:1

FIGURE 5.7-2 TOTAL NUMBER VEHICLES DETECTED PER HOUR, SABLE HAUL ROAD, 2023



CLIENT: Burgundy Diamond Mines Ltd.
GRAPHICS NUMBER: EKA-24ERM-027:2

5.7.4 DISCUSSION

The traffic monitoring methods in 2022 were successful to identify vehicles travelling on the Misery and Sable Haul Roads. Improved methods from the end of 2022 for traffic detection along the roads have carried over into a full year of monitoring in 2023. Despite momentary gaps in camera recordings, a total of 45,916 vehicles were detected. Over a total of 248 days of recording on Misery Road, 13,623 vehicles were detected. Over a total of 263 days of recording on Sable Haul Road, 32,293 vehicles were detected.

A detailed report to address traffic effects on caribou passage through the Ekati site during the 2023 season will be presented in the "*Ekati Diamond Mine: 2023 Wildlife Camera Monitoring Summary Report*" which will be submitted as a separate report in 2024.

6 GRIZZLY BEAR

6.1 BACKGROUND

Barren-ground grizzly bears are a wildlife VEC for the Mine. The grizzly bear was assessed as Special Concern by COSEWIC (2012) and Schedule 1 of SARA (2002). In the NWT, grizzly bear is listed as Special Consern (GNWT 2022) and ranked as Sensitive (GNWT 2024).

At a regional scale, from 2012 to 2017, Ekati Diamond Mine and Diavik Diamond Mine collaborated on a Regional Grizzly Bear DNA study as part of their wildlife monitoring programs (ERM 2018). This regional study suggested that the central barrens of the NWT are relatively productive for grizzly bears, with the Lac de Gras region supporting a large number of grizzly bears, potentially because of the prevalence of esker habitats for secure denning, seasonal access to caribou, fish resources in the abundant lakes and streams in the area, productive forage in riparian zones, and the relatively low level of hunting in this area. In the regional DNA study, grizzly bear densities ranged from 2.0 to 3.0/1,000 km2 for males and 3.6 to 4.7/1,000 km2 for females. The density of barren-ground grizzly bears was estimated to be 3.5 grizzly bears per 1,000 km2 for the central barrens of mainland Nunavut and the NWT (McLoughlin and Messier 2001), and up to seven bears per 1,000 km^2 in the Kitikmeot region of western Nunavut (Dumond et al. 2015).

The results of this regional study over the period of 2012 to 2017 suggest that grizzly bear numbers appear to be stable to increasing since estimates for the Slave Geological Province were last obtained in the late 1990s (3.5/1,000 km2; McLoughlin at el. 2002). These results provide evidence in support of the conclusion that the Ekati and Diavik Diamond Mines, which have been constructed since the last grizzly bear survey in the late 1990s, have not had a negative impact on the regional population of grizzly bears in the Slave Geological Province.

At a local scale, grizzly bears can be attracted to industrial sites for food, shelter or out of curiosity and result in habituated bears, damage and risk to Mine personnel. As such, it is important to manage Mine buildings to exclude bears, manage wastes to limit attractions and monitor and manage bears to deter them when they approach the site. Grizzly bears are monitored annually through incidental observations to track their number over time, trigger incident response (e.g., stopping work and/or deterring bears) and trigger adaptive management of the site (e.g., waste management).

6.2 INCIDENTAL OBSERVATIONS

6.2.1 INTRODUCTION

Incidental observations of grizzly bears provides information on grizzly bear activity, which can help minimize human/bear interactions and locate and eliminate bear attractants. Once a bear is observed in or near the mine site, Burgundy personnel are notified, and work activities are adjusted to avoid encounters.

As a follow-up to any wildlife incident, the areas are scanned for any possible wildlife attractants. Incidental observations can also be used to monitor changes in bear activity near the mine over time, and to assess incidents by mine location or by differences in activity by population demographic (e.g., age, sex groups). Camp monitoring for attractants and wildlife ingress is described in Section 4.1.

6.2.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- avoid and minimize bear-human interactions;
- identify the presence and composition of incidental bear observations in the study area; and
- document and determine the cause of direct Mine-related mortality of bears should they occur.

6.2.3 METHODS

Incidental observations of grizzly bears near the Mine are reported by Mine personnel to the Environment Department. This includes personnel such as helicopter pilots, field workers, and by other staff on all working shifts. For each bear observation, the date, number of individuals, sex and age, when possible, condition, behaviour, presence of a collar or ear tag, and UTM coordinates (when possible) or a description of the location were recorded.

Any observations of grizzly bears reported in close proximity to roads, personnel, and mine structures at the Ekati Diamond Mine were investigated, as these are of particular concern with regards to human and wildlife safety. Where necessary, grizzly bears were deterred from these areas using vehicles, air horns, screamers, bear bangers, and/or bean bags (Section 4.3.2.4).

6.2.4 RESULTS

During the 2023 reporting period, there were 132 incidental observations of grizzly, totaling 203 grizzly bears on 80 days near the Mine (Table 6.2-1; Photo 6.2-1). Observations spanned the period from May 3 to October 18, 2023. Grizzly bear observations with sufficient location information were plotted on a map of the study area (Figure 6.2-1). Multiple animals were observed on 30 occasions in 2023. A family group of one adult female with three cubs was commonly observed on 16 occasions. Other family groups included four sightings of a female with one cub, four sightings of an adult with three cubs, two sighting of two adults of unknown sex, one sighting of two cubs of unknown sex, and one sighting of two bears of unknown sex and age. There was also one observation of one male adult, one adult female, and three cubs.

The remaining 102 grizzly bear observations in 2023 were of solitary animals, the majority were of unknown age (n = 75), the one cub observed and the rest being adults (n = 26). Most observations were of undetermined sex (two confirmed male adult, one male with unknown age and one female adult). Many of these observations were likely the same bears on multiple occasions. Grizzly bear observations that resulted in incidents are discussed in Section 4.3.2.

TABLE 6.2-1: SUMMARY OF INCIDENTAL GRIZZLY BEAR OBSERVATIONS AT THE EKATI DIAMOND MINE, 2001 TO 2023

Grizzly Bear	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Incidental observations (over separate days)	36 (18)	37 (30)	42 (n/a)	60 (43)	76 (54)	63 (48)	47 (35)	62 (45)	69 (48)	46 (36)	70 (45)	72 (53)
Family group observations	11	13	15	9	9	4	8	10	24	13	32	26

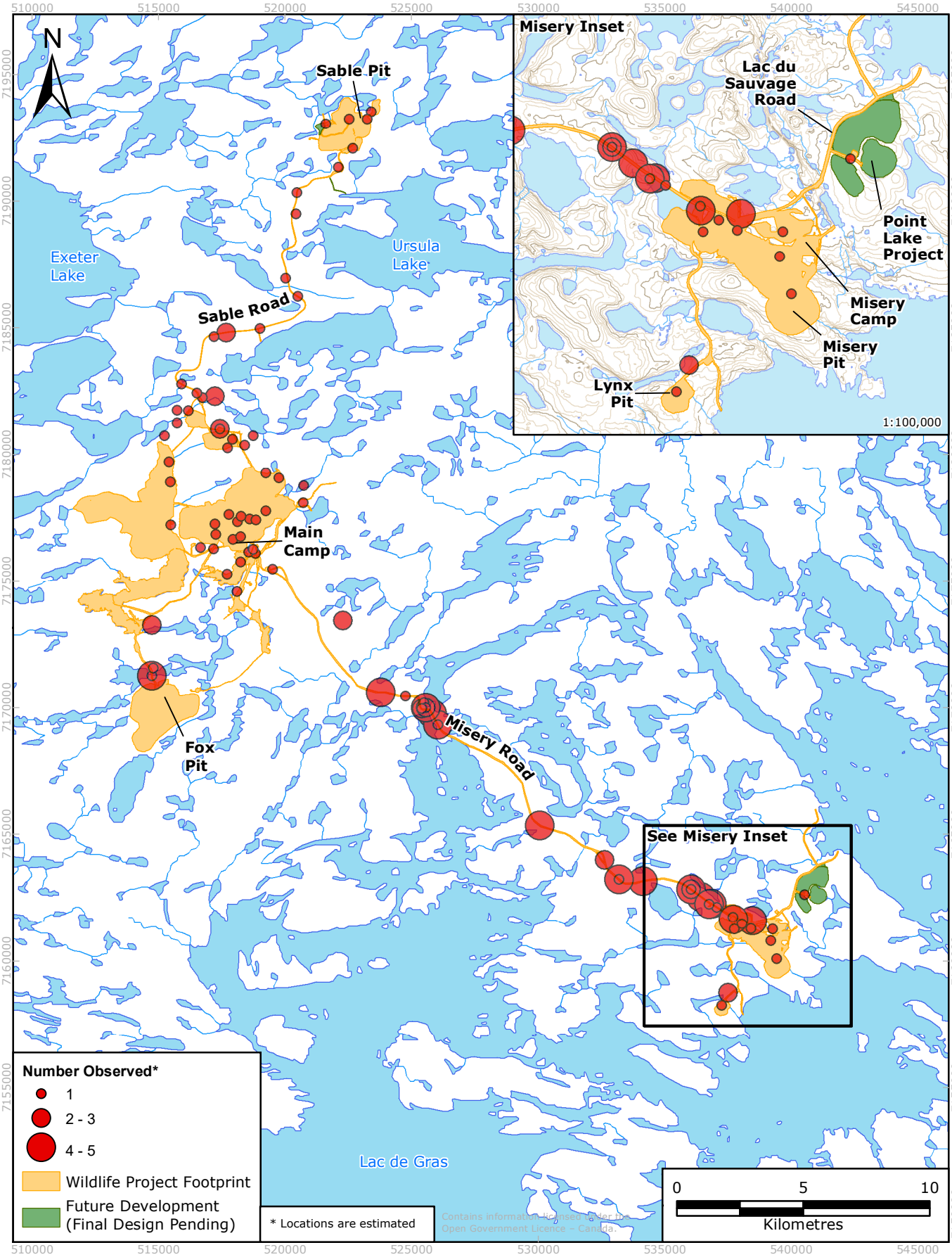
Grizzly Bear	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Incidental observations (over separate days)	52 (44)	60 (52)	60 (60)	147 (94)	128 (84)	145 (80)	161 (74)	68 (51)	170 (80)	109 (54)	132 (80)	
Family group observations	4	11	33	54	16	37	48	14	16	27	30	

Notes:

Family groups include all sightings of multiple bears.

n/a = not reported.

FIGURE 6.2-1 INCIDENTAL GRIZZLY BEAR OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432e

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

Photo 6.2-1: Grizzly Bear with ear tag observed on September 20, 2022, and was observed again in 2023.

6.2.5 DISCUSSION

The number of grizzly bear sightings in 2023 (132) is within the range recorded at the Mine, from 36 in 2001 to 170 in 2021 but above the average of 83 per year. The number of family groups observed in 2023 (30) is also within the range of observations at the mine and suggests a healthy population near the mine.

The number of incidental observations is likely a product of the observation rate (how many people are looking), the number of bears, and the proportion of those bears that are resident/tolerant of the Mine. The increase in reports since 2015 may be linked to increased awareness and reporting of grizzly bears by Mine personnel and the de-centralization of mining activity spreading the observers across a wider area. In contrast, observations were very low in 2020 due to the mine being in care and maintenance with few personnel on site.

Continued improvements in wildlife management in recent years had been reflected in a departure from aggressive pre-emptive measures to an emphasis on monitoring behaviour and assessing risk. Burgundy's ongoing effort toward on-site bear awareness education, reporting bear sightings, and monitoring bears within the mine site vicinity continually minimizes the risk of major human/bear interactions. Site-wide notifications that alert staff about grizzly bear presence and annual Bear Aware training sessions have also increased communication and awareness of grizzly bears.

7 WOLF

7.1 BACKGROUND

Grey wolves are considered a wildlife VEC for the Mine. Wolves are listed as Secure in the NWT (GNWT 2024) and are considered Not at Risk by COSEWIC and are not listed on Schedule 1 of SARA (2002). Populations are stable or increasing within their Canadian range, except in northern Alberta and some parts of the NWT (Frame et al. 2008).

Wolves in this area depend on barren ground caribou as their main source of prey (Kuyt 1972; Walton et al. 2001). During the spring, wolves follow the caribou north of the treeline and choose den sites on the post-calving and summer ranges to the south of the calving grounds. This strategy likely optimizes the availability of food resources for rearing pups (Heard and Williams 1992).

Wolf pups usually leave the natal den in early August, but do not leave the caribou summer range until October. As predators of migratory caribou, wolves in the central barrens have larger home ranges and exhibit less territorial behaviour than wolves in other parts of North America (Walton et al. 2001). Food availability for wolves has been reduced by barren-ground caribou population declines. As a result, resource availability may decrease adult fitness and pup survival, both of which could have implications for population growth (Klaczek et al. 2015).

Human development can result in wolves avoiding certain areas (Johnson et al. 2005). Conversely, certain features of human developments (such as landfills and infrastructure) can act as wildlife attractants, increasing the likelihood of wildlife attraction and habituation.

At a regional scale, Burgundy supports regional wolf monitoring initiatives coordinated by GNWT ECC. At a local scale, wolves have been monitored at the Ekati Diamond Mine through incidental observations. The following section describes the methods and results of incidental monitoring for wolves at the Mine.

7.2 INCIDENTAL OBSERVATIONS

7.2.1 INTRODUCTION

Incidental wolf sightings are reported at the Ekati Diamond Mine as part of the wildlife monitoring program conducted by Burgundy. Potential risks associated with human and wildlife interactions may be avoided by monitoring incidental wolf observations in the study area. Once a wolf is observed within the mine site, Burgundy personnel at risk of encountering the wolf are notified and work actions are adjusted accordingly. In addition, incidental wolf observations help determine the timing and family composition of wolf packs moving through the study area.

7.2.2 OBJECTIVES

The objectives of this component of the wolf monitoring are to:

- avoid and minimize wolf-human interactions;
- identify the presence and composition of incidental wolf observations in the study area; and
- document and determine the cause of direct Mine-related mortality of wolves should they occur.

7.2.3 METHODS

Incidental observations of wolves near the Mine are reported to the Environment Department with the majority of observations reported by helicopter pilots, ground-based field work, drivers and other staff. For each observation data are recorded, including the date, location, number of individuals sighted, the sex and age of individuals (when possible), dominant behaviour, condition of the animal, and the presence or absence of a radio collar.

7.2.4 RESULTS

During the 2023 reporting period, there were 22 incidental wolf sightings, totaling 41 wolves on 19 separate days near the Ekati Diamond Mine (Table 7.2-1; Photo 7.2-1). This does not indicate that 41 different individual wolves were observed, because the same wolf or wolf family group were potentially recorded on multiple occasions. Observations with sufficient location information were plotted on a map of the study area (Figure 7.2-1). Most observations occurred at Sable and Misery Haul Roads.

TABLE 7.2-1: SUMMARY OF INCIDENTAL WOLF OBSERVATIONS NEAR THE EKATI DIAMOND MINE, 2001 TO 2023

Wolf	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Incidental observations (over separate days)	38 (-)	59 (42)	54 (27)	58 (46)	58 (40)	47 (43)	34 (30)	55 (45)	58 (45)	25 (23)	38 (-)	80 (55)
Family group observations	n/a	n/a	n/a	22	20	13	21	16	20	10	n/a	20

Wolf	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Incidental observations (over separate days)	55 (47)	82 (66)	69 (52)	95 (68)	93 (78)	79 (59)	117 (77)	23 (21)	93 (63)	53 (42)	22 (41)	
Family group observations	13	23	19	32	41	20	38	12	36	13	5	

Notes:
Family groups include all sightings of multiple wolves.
n/a = not reported.

Five of the 22 incidental wolf observations were of multiple wolves (Table 7.2-1). Groups including more than one adult wolf were mainly observed along the roads (Figure 7.2-1). Groups of wolves observed in 2023 included:

- Three observations of two wolves;
- One observation of three wolves; and
- One observation of fifteen wolves.

The remaining incidental wolf observations included 17 observations of solitary individuals (eight adults of unknown sex, and nine wolves of unknown sex and age). For wolf observations that resulted in incidents, see Section 4.3.2.

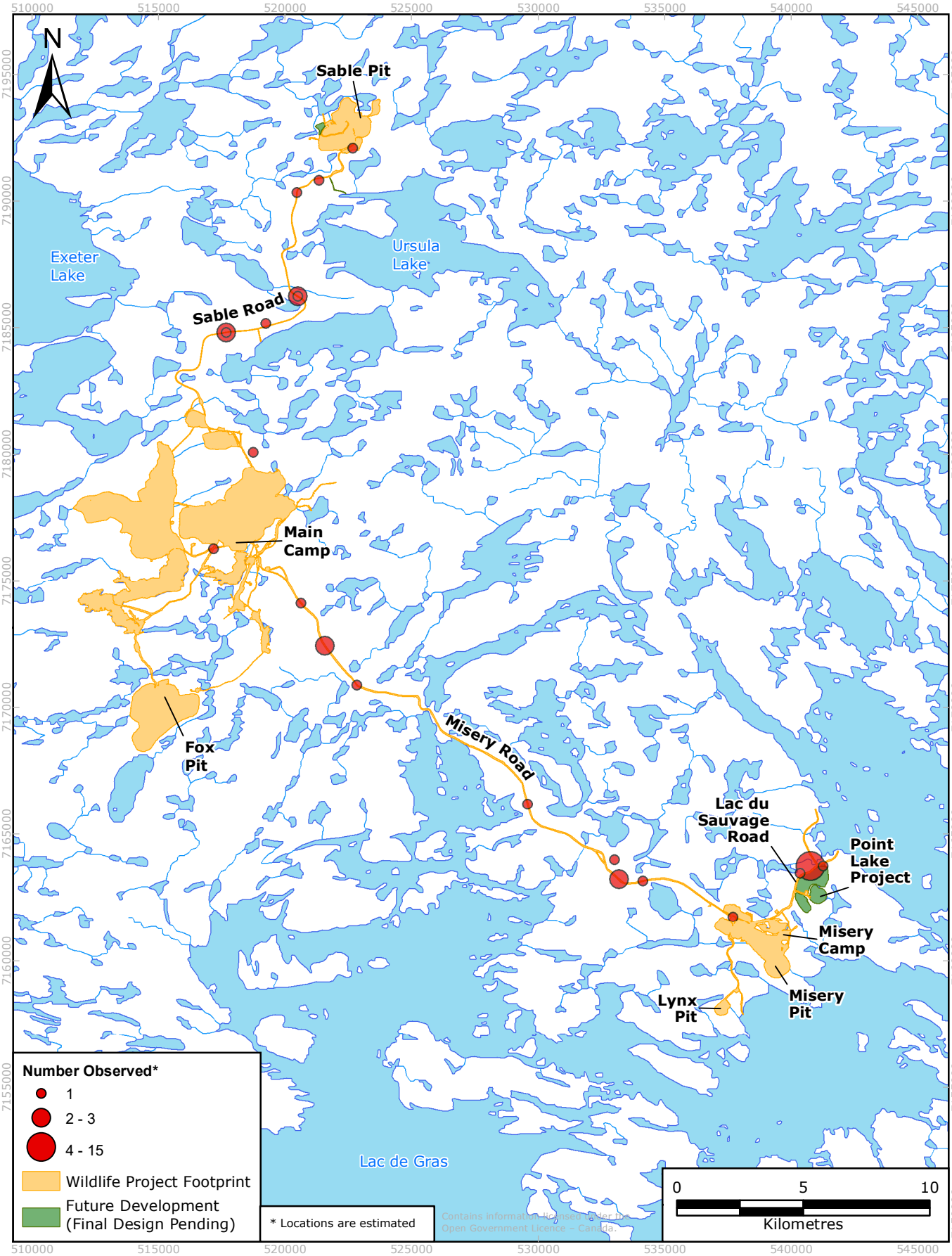
Photo 7.2-1: Wolf observed east of Sable Road, August 23, 2023.

7.2.5 DISCUSSION

Overall, wolf occurrences near the Mine have remained relatively consistent across years, from a low of 23 observations in 2009 to a high of 77 observations in 2019. In 2023, wolf observations (22), the lowest number observed since surveying began.

Family groups of two or more adult wolves were observed on five occasions in 2023 in several locations including near Misery and Sable roads; However, no pups were recorded in 2023. Pups have been observed each year since 2014, except for 2016 and 2023. Most wolf observations were made by drivers near haul roads.

FIGURE 7.2-1 INCIDENTAL WOLF OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432f

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

8 WOLVERINE

8.1 BACKGROUND

Wolverine is a wildlife VEC for the Mine. Wolverines, the largest member of the weasel family, has a circumpolar distribution in the tundra, taiga plains, and boreal forests of North America (Weir 2004). Wolverine (eastern and western population designations) was assessed as a species of Special Concern with COSEWIC (2014b) and Schedule 1 of SARA (2002). In the NWT, wolverine in listed as Not at Risk (GNWT 2022) and ranked as Sensitive (GNWT 2024).

Wolverines are curious animals and will investigate human-made structures and food caches when humans are not present (COSEWIC 2014b). They prefer undisturbed areas, but home ranges may overlap with human-caused disturbances such as trap lines and logging roads. They opportunistically travel on snowmobile trails, and scavenge along trap lines and at hunter kills. Wolverine home ranges are typically 400 km^2 for females and 1,580 km^2 for males (Rowland et al. 2003; COSEWIC 2014b). Human activity, including mining, hunting, trapping, and major transportation routes, may displace or alter wolverine travel routes and lead to increased human-caused mortalities.

Wolverines moving through human occupied areas are a potential cause for concern with regards to wildlife and human safety. Food and food waste may potentially act as wildlife attractants, increasing the possibility of wildlife habituation. In response to these concerns, Burgundy monitors for wolverine interactions on an annual basis and adaptively manages based on results (i.e., stopping work in an area with a wolverine or repairing wildlife gates at the incinerator). The following section describes the methods and results of monitoring activities on wolverines in the Ekati Diamond Mine study area.

8.2 INCIDENTAL OBSERVATIONS

8.2.1 INTRODUCTION

Monitoring incidental wolverine observations near the mine site helps to avoid the potential risks associated with human – wolverine interactions. Once a wolverine is sighted within the mine site area, Burgundy personnel that are at risk of encountering the wolverine are notified and work activities are adjusted accordingly.

8.2.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- avoid and minimize wolverine-human interactions;
- identify the presence and composition of incidental wolverine observations in the study area; and
- document and determine the cause of direct Mine-related mortality of wolverines should they occur.

8.2.3 METHODS

Incidental observations of wolverines are reported to the Environment Department. This includes all wolverine observations made by helicopter operators, field workers, and other staff. Each wolverine observation includes the date, number of individuals, sex, age, location, behaviour, and condition of the animal.

8.2.4 RESULTS

During the 2023 reporting period, there were six incidental observations of wolverines recorded on six days near the Ekati Diamond Mine (Table 8.2-1). Observations with sufficient location information were plotted on a map of the study area (Figure 8.2-1).

The majority of wolverine observations occurred on roads at the Mine. All of the incidental observations recorded in 2023 were of solitary individuals of unknown sex and age, with the exception of one individual classified as an adult. No confirmed young were recorded in 2023. For wolverine observations that resulted in incidents, please see Section 4.3.2.

TABLE 8.2-1: SUMMARY OF INCIDENTAL WOLVERINE OBSERVATIONS NEAR THE EKATI DIAMOND MINE, 2003 TO 2023

Wolverine	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Incidental observations (over separate days)	14 (12)	32 (25)	128 (86)	23 (23)	9 (8)	40 (35)	12 (11)	18 (18)	12 (11)	29 (25)	18 (17)

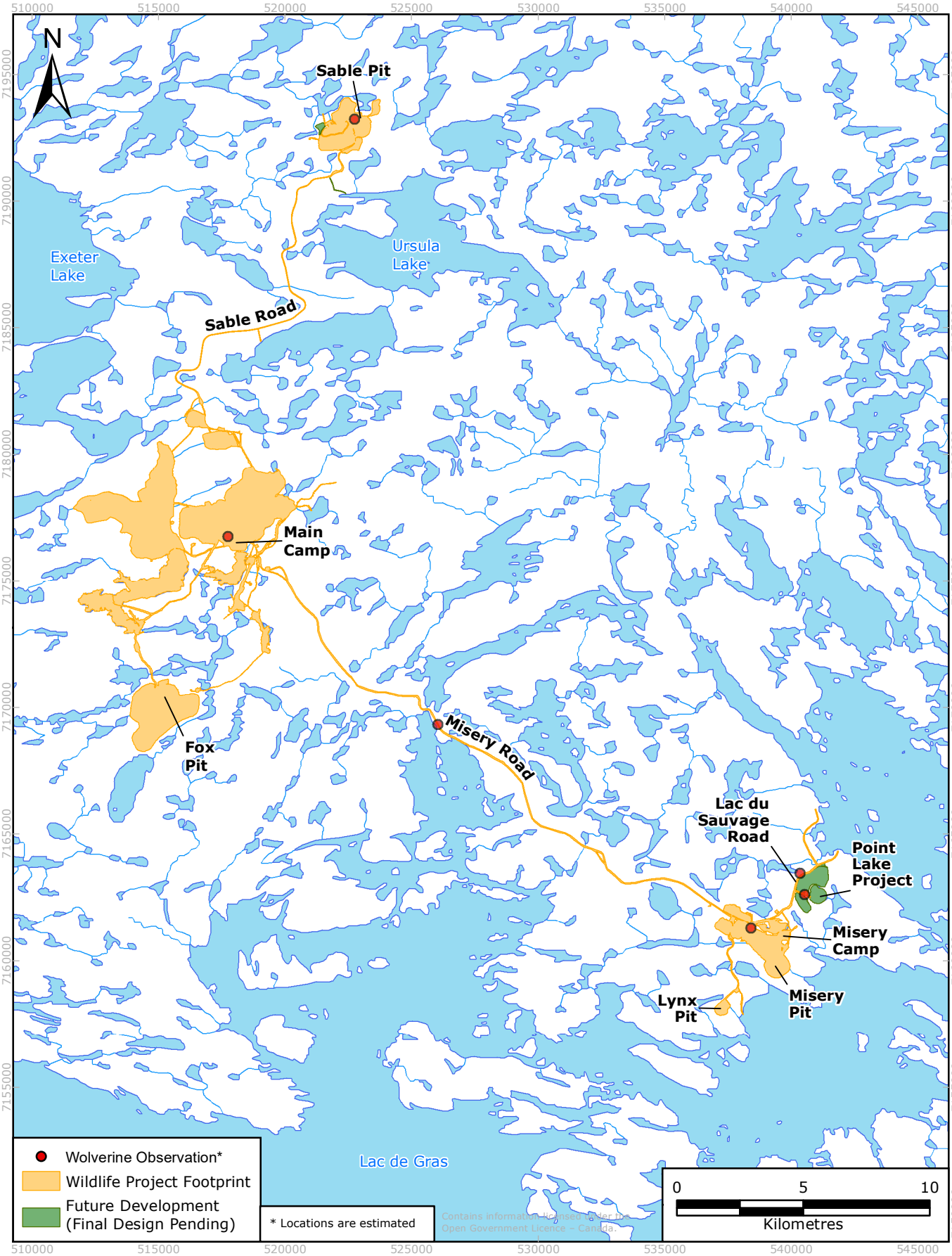
Wolverine	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	
Incidental observations (over separate days)	21 (20)	26 (22)	39 (36)	33 (29)	23 (22)	23 (18)	13 (13)	14 (12)	9 (9)	6 (6)	

8.2.5 DISCUSSION

In 2023, there were six incidental observations of wolverines recorded on six separate days near the Ekati Diamond Mine, which is the lowest recorded observations of wolverines since 2003 when recording started. The number of incidental wolverine observations reported has varied among years, ranging from a high of 128 wolverines observed in 2005, to a low of six wolverines observed in 2023. However, the number of wolverine observations has been decreasing consistently since 2016, with 2023 being the lowest number of observations. No confirmed young or dens were recorded in 2023.

Five wolverines were removed (one mortality and four were relocated 200 km away) from the area in 2005. Burgundy has since implemented adaptive mitigation measures to reduce wolverine occurrences on site and as such the reduction in observations likely indicates that mitigation is working. These measures include a proactive waste management program, increased educational awareness, improvements and regular examination and maintenance to the accommodation structures that inhibit possible access to buildings by wolverines, and proactive management activities that include site-wide notifications about wolverine and other wildlife sightings near infrastructure.

FIGURE 8.2-1 INCIDENTAL WOLVERINE OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432g

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

9 FOX

9.1 BACKGROUND

Two species of fox inhabit the Slave Geological Province of the Northwest Territories: the red (or "coloured" or "cross") fox and the Arctic fox. Population estimates based on surveys from 2007 are >10,000 for both species combined in the NWT (GNWT ENR 2016). Both species are considered Secure in the NWT and are not federally listed in Canada (GNWT 2024). Arctic fox and red fox were not identified as a VEC during the Environmental Assessment Review Process; however, foxes (especially Arctic fox) are considered important furbearers in the north for fur trade and so are included in the WEMP.

Foxes are opportunistic foragers and they are attracted to communities, industrial sites, landfills and other artificial food sources. Foxes are the primary animal vector of rabies in the NWT (Walker and Elkin 2005) and can transmit this disease to people. In response to these concerns, Burgundy monitors incidental fox occurrences at the Ekati Diamond Mine. The following section describes the methods and results of monitoring activities on fox in the Ekati Diamond Mine study area.

9.2 INCIDENTAL OBSERVATIONS

9.2.1 INTRODUCTION

Monitoring incidental fox observations near the mine site may help to avoid and minimize potential risks associated with human and wildlife interactions. Once a fox is observed within the mine site area, personnel that are at risk of encountering the fox are notified, and work activities are adjusted accordingly.

9.2.2 OBJECTIVES

The objectives for this component of the WEMP are to:

- avoid and minimize fox-human interactions;
- identify the presence and composition of incidental fox observations in the study area;
- document and determine the cause of direct Mine-related mortality of foxes should they occur; and
- document abnormal behaviour in foxes to identify possible cases of rabies.

9.2.3 METHODS

Incidental observations of foxes are reported to the Environment Department. These observations included those made by helicopter operators or by field workers and other Burgundy staff. Each fox observation included the number of animals, sex, age, location, dominant behaviour, and condition of the animal.

All observations of persistent foxes reported near roads, personnel, and buildings and potential sources of attractants were investigated, as these are of particular concern with regards to human and wildlife safety. Where necessary, foxes were deterred from these areas by using vehicles, air horns, screamers, and bear bangers.

9.2.4 RESULTS

During the 2023 reporting period, there were 50 incidental sightings of 73 foxes over 43 days near the Mine (Table 9.2-1). This does not indicate that 73 different individual foxes were observed, because many of these observations could have been the same fox recorded on multiple occasions.

The majority of observations (61 individuals) were red fox, one arctic fox one cross fox and unknown fox (11 individuals) species. Observations with sufficient location information were plotted on a map of the study area (Figure 9.2-1).

Fox sightings were distributed mainly along roads, and potential sources of attractants such as the Main Camp, the incinerator building, and the landfill area (Figure 9.2-1). Most sightings occurred relatively close to mine infrastructure (<500 m; Figure 9.2-1), which is also where personnel are located and thus recording incidental sightings.

TABLE 9.2-1: SUMMARY OF INCIDENTAL FOX OBSERVATIONS NEAR THE EKATI DIAMOND MINE, 2023

	Red Fox[1]	Arctic Fox	Unknown Fox	Total
By Sex				
Male	1	0	0	1
Female	1	0	1	2
Unknown	59	1	10	70
Total	61	1	11	73
By age				
Adult	29	0	2	31
Kit	15	0	3	18
Unknown age	17	1	6	24
Total	61	1	11	73

Notes:
[1] Red fox includes fox classified as "silver fox" and "cross fox".

The majority of observations were of solitary foxes (40 observations), however, there were 10 observations of multiple foxes (Table 9.2-1). Groups of foxes observed in 2023 included:

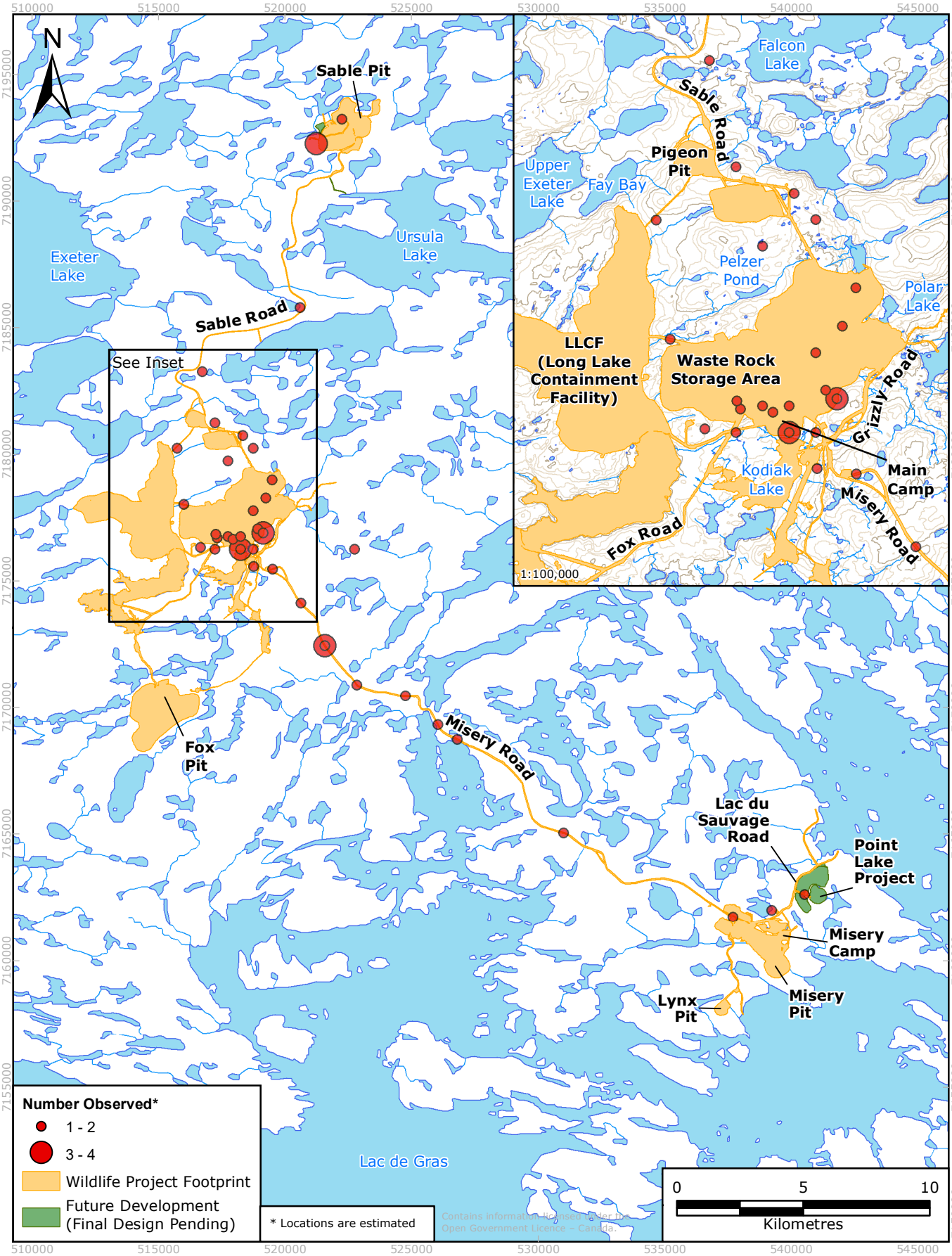
- Three red fox, one female adult and two kits;
- Two observations of two adult red fox;
- Two observations of four red fox kits;
- Six red fox, two adults and four kits;
- Two observations of two red fox;
- Four unknown fox, one female and three kits; and
- Four unknown fox.

Unless specified, the age and sex of the foxes was unknown.

Two active fox dens were reported in 2023: one by Sable 1st magazine and one by the main accommodations. One female and two kit red fox were observed inhabiting the den by Sable 1st magazine. The two observations of four red fox kit and observation of two adults and four kits were all associated with the den located by the main accommodations.

For fox observations that resulted in incidents, see Section 4.3.2. There were no suspected cases of rabies in 2023 and no tests were conducted.

FIGURE 9.2-1 INCIDENTAL FOX OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432h

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

TABLE 9.2-2: SUMMARY OF INCIDENTAL FOX OBSERVATIONS NEAR THE EKATI DIAMOND MINE, 2007 TO 2023

Fox	2007	2008	2009	2010	2011	2012	2013	2014	2015
Incidental observations (over separate days)	162 (n/a)	174 (124)	126 (90)	174 (120)	61 (55)	170 (124)	189 (114)	135 (99)	182 (132)
Sightings of multiple animals	n/a	14%	11%	7%	5%	6%	6%	12%	5%

Fox	2016	2017	2018	2019	2020	2021	2022	2023	
Incidental observations (over separate days)	255 (153)	147 (102)	138 (99)	113 (80)	69 (51)	52 (40)	44 (40)	50 (43)	
Sightings of multiple animals	7%	5%	4%	23%	12%	12%	0%	18%	

Note:
n/a = not reported.

9.2.5 DISCUSSION

Arctic fox and red fox were not identified as VECs during the initial Environmental Impact Statement. However, fox occurrence at the Ekati Diamond Mine is an ongoing concern and a decision was made to monitor foxes in 2007. Continued monitoring of fox observations near the site provides information on potential changes in occurrence, frequency, or composition on an annual basis.

The number of incidental reports have been relatively low in recent years (2021 to 2023); below the average of 132 per year for the period 2007-2023.

Fox observations are typically close to Mine infrastructure, where their relatively small size is easier to observe and where they are likely to be attracted.

Active dens were established adjacent to the Ekati Diamond Mine airstrip annually between 1994 and 2011, but have not been observed there since 2012. In past years, fox dens have been observed near (<500 m) of Misery Road. In 2015 there were two active dens observed at 5 KM and 17 of Misery Road; however, these dens were not confirmed to be active from 2016 to 2019. One active fox den was confirmed at the Ekati Diamond Mine in 2018 and 2019 at Lynx Road. A second active den was confirmed in 2019 near G wing of the Main Accommodation Building at the Ekati Diamond Mine. No active dens were recorded in 2020, 2021, or 2022. Two active fox dens were reported in 2023: one by Sable 1st magazine and one by the main accommodations.

9.2.5.1 ARCTIC AND RED FOX TRENDS

During baseline studies at the Ekati Diamond Mine, Arctic foxes were more commonly reported than red foxes in the study area (BHP and Dia Met 1995). In 1994, nine fox dens were identified in the study area, seven of which were Arctic fox dens, and the remaining two were red fox dens. However, from 2009 to 2023, the red fox has become more common near the Ekati Diamond Mine. A single Arctic fox was observed in 2023, and previously had not been reported since 2021.

This apparent increase in red fox may be due to the difficulty in separating the two species during spring and summer. Arctic fox are predominantly reported in the winter when their white coat makes them easy to tell apart from red foxes. However, during summer, most reports are of red foxes.

Alternatively, the northern extent of the red fox range is limited by cold weather (Bartoń and Zalewski 2007) and may be moving north with climate change (Hersteinsson and MacDonald 1992), displacing the Arctic fox (Tannerfeldt et al. 2002).

9.2.5.2 RABIES IN FOXES

In NWT, the most prevalent rabies strain is the Arctic strain, named after the Arctic fox, accounting for 83% of reported cases of the disease 1998 to 2004 (Walker and Elkin 2005). Rabies has also been documented in other wildlife in NWT, such as wolf, caribou, and polar bear but is less common (Ursus maritimus; Walker and Elkin 2005).

Concerns about potentially rabid foxes have been reported at the Ekati Diamond Mine since 2002. In 2007, there were six confirmed cases of rabid foxes at the Mine, five cases of rabies in red foxes and one in an unknown fox species. In 2014, there were two suspected cases of rabies that resulted in the potentially infected animals being dispatched, as directed by GNWT ECC. Results of two red fox necropsies suspected of rabies in 2014 were provided to Ekati and rabies was confirmed in both cases. There was one unconfirmed case in 2015 but this fox was not located for dispatching. There were no suspected cases of rabies observed in foxes during the 2016 to 2023 reporting periods.

10 RAPTORS AND CORVIDS

10.1 BACKGROUND

Raptors (i.e., eagles, falcons, hawks, and owls) and corvids (i.e., ravens and crows) are a wildlife VEC for the Ekati Diamond Mine. Raptors can serve as indicators ecosystem health because they are predators in the upper levels of the food chain and have large home range sizes. These life requisite characteristics render them more sensitive to environmental alterations and disturbances (Steenhof et al. 1999). Legislation for the protection of raptor species prevents destruction and/or disturbance to the individuals and their nests (eggs and nestlings) under the *Northwest Territories Wildlife Act*, Section 38 (1998). At the Mine, there are cliff-nesting and ground-nesting raptors.

Five species of cliff-nesting raptors are observed frequently nesting in the mine study area include peregrine falcon (*Falco peregrinus*), gyrfalcon (*Falco rusticolus*), and rough-legged hawk (*Buteo lagopus*). Common ravens (*Corvus corax*) are considered to be functional raptors as they use similar food and breeding resources as cliff-nesting raptors, and construct stick nests that are used by falcon species for nesting (Poole 2011; Poole and Bromley 1988). The peregrine falcon is no longer a listed species of conservation concern and is federally designated as Not at Risk by COSEWIC and Schedule 1 of SARA (2002). In the NWT, the peregrine falcon is listed as Not at Risk (GNWT 2022) and ranked as Sensitive (GNWT 2024).

Three species of ground-nesting raptors have been observed in the study area: snowy owl (*Bubo scandiacus*), short-eared owl (*Asio flammeus*), and northern harrier (*Circus cyaneus*). The snowy owl is ranked as Secure in NWT (GNWT 2024) and was assessed by COSEWIC as Not at Risk (Government of Canada 2024). The short-eared owl is listed by COSEWIC as Threatened (2021) and Special Concern on Schedule 1 of SARA (2002). In NWT, the short-eared owl is listed as Vulnerable (GNWT 2022) and ranked as Sensitive (GNWT 2024).

All other cliff-nesting and ground-nesting raptor species likely to be found at the Ekati Diamond Mine are listed as Secure or Apparently Secure in the NWT and were assessed by COSEWIC (Government of Canada 2024) as Not at Risk or were not assessed (e.g., common raven).

The monitoring of raptors is a priority at the Ekati Diamond Mine, particularly for birds that have a conservation status based on federal listings on Schedule 1 of SARA (2002) and COSEWIC assessments (Government of Canada 2024). Burgundy monitors raptors near mine infrastructure and supports regional falcon monitoring initiatives coordinated by GNWT ECC. Between regional raptor monitoring study periods, raptors have been monitored at the Ekati Diamond Mine through incidental observations and pit wall nest monitoring surveys.

The following section describes the methods and results of monitoring activities on raptors In the Ekati Diamond Mine study area.

10.2 INCIDENTAL RAPTOR OBSERVATIONS

10.2.1 INTRODUCTION

Incidental raptor observations at the Mine are recorded to understand where raptors may interact with the Mine and manage potential risks associated with human and wildlife interactions, identify mine structures that are used by raptors as nesting locations, and identify any species of conservation concern in mine site area.

10.2.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- avoid and minimize raptor-human interactions;
- document the presence of breeding raptors at the Ekati Diamond Mine;
- document sightings of uncommon raptors or species of conservation concern in the area; and
- document and determine the cause of direct Mine-related mortality of raptors should they occur.

10.2.3 METHODS

Helicopter operators, ground-based field workers, and other mine site personnel report incidental raptor observations of cliff-nesting and ground-nesting raptors in the Ekati Diamond Mine study area to the Environment Department. Each raptor observation includes the date, the species, the number of individuals, the location and habitat type, the behaviour, and any breeding evidence.

10.2.4 RESULTS

During the 2023 reporting period, there were 21 incidental sightings of 29 raptors over 20 days near the Ekati Diamond Mine (Table 10.2-1). Five species of cliff-nesting raptors and two ground-nesting raptor species were observed.

Observations with sufficient location information were plotted on a map of the study area (Figure 10.2-1). Raptor sightings were mainly located near pits and roads. The majority of sightings occurred relatively close to mine infrastructure (<500 m; Figure 10.2-1).

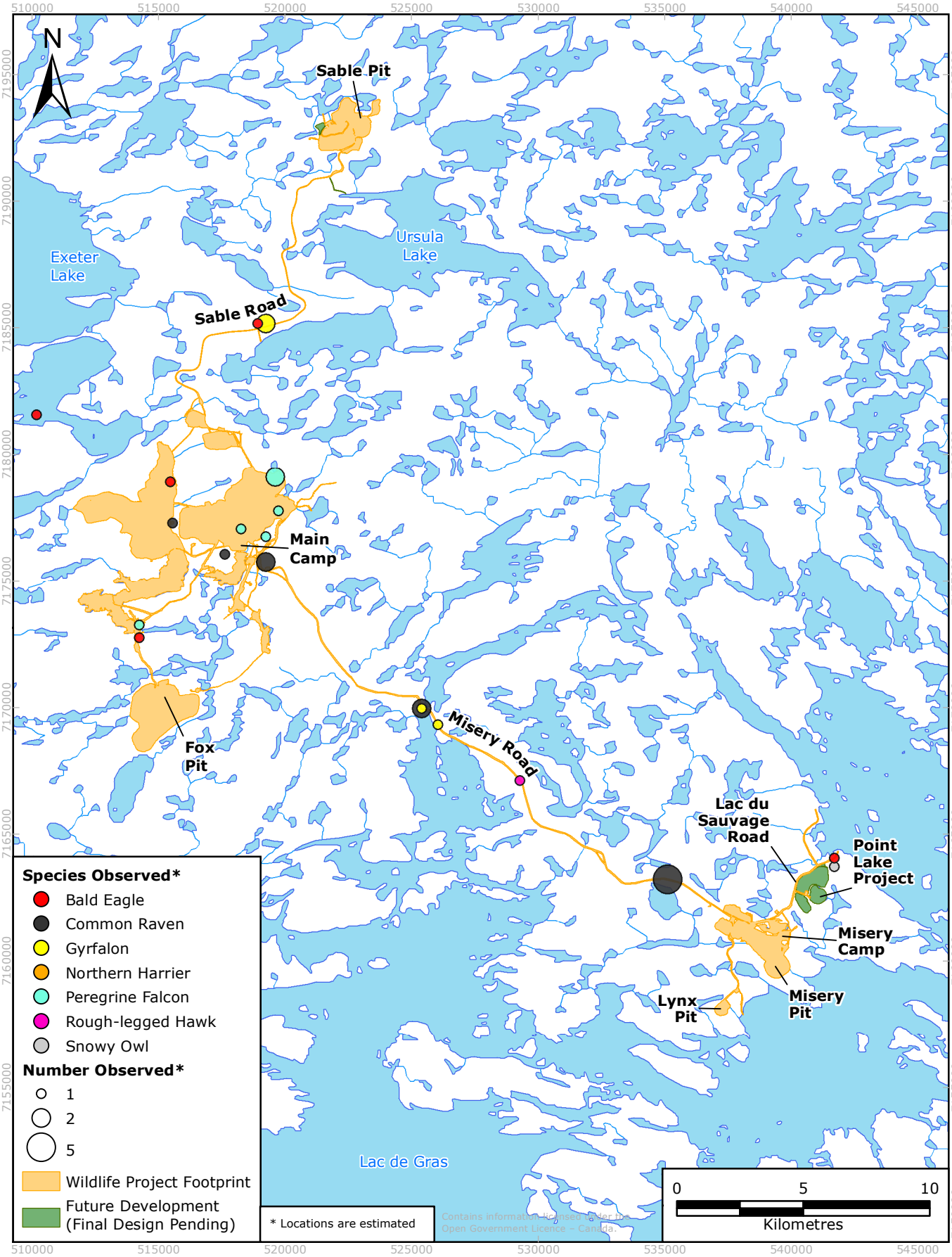
TABLE 10.2-1: SUMMARY OF INCIDENTAL RAPTOR OBSERVATIONS, 2023

Raptor Species	Scientific Name	# of individuals
Cliff-nesting		
Bald eagle	*Haliaeetus leucocephalus*	5
Common raven	*Corvus corax*	11
Gyrfalcon	*Falco rusticolus*	4
Peregrine falcon	*Falco peregrinus*	6
Rough-legged hawk	*Buteo lagopus*	1

Raptor Species	Scientific Name	# of individuals
Ground-nesting		
Northern harrier	*Circus hudsonius*	1
Snowy owl	*Bubo scandiacus*	1
Total		29

In 2023, 31% of observations occurred during the breeding season for raptors (May to August). The other 69% of observations occurred during the non-breeding seasons for raptors (September to April). Breeding was confirmed for one species: a common raven nest with an adult incubating eggs was reported near the incinerator building in May, 2023. An unoccupied potential common raven nest was also observed at the Sable Fuel Farm; however, no breeding activity was confirmed. Further information regarding the unoccupied nest is described in section 4.3.2.4.2. Incidents and mortalities for raptor species and corvids are described in Sections 4.2, 4.3.1, and 4.3.2.

FIGURE 10.2-1 INCIDENTAL RAPTOR OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432i

DATE: 22 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

10.2.5 DISCUSSION

In 2023, there were 21 incidental sightings of 29 individual raptors, representing seven species, over 20 separate days near the Ekati Diamond Mine. No species of conservation concern were observed in 2023. The majority of raptor observations were of cliff-nesting raptor species. Breeding was confirmed for one species in 2023; common raven. Breeding was confirmed for two species in 2021, common raven and rough-legged hawk. Breeding was confirmed for one species, common raven, in 2023.

Overall, similar raptor species are observed within the mine site each year. Species observed in 2023 are similar to the previous three years.

10.3 PIT WALL NEST MONITORING

10.3.1 INTRODUCTION

In northern environments, cliff-nesting raptors such as peregrine falcons (Photo 10.3-1), rough-legged hawks, gyrfalcons and common ravens' will nest on human-made structures cairns, buildings, towers, mining dredges, and bridges (Kessel 1989). Open pit walls at the Ekati Diamond Mine resemble steep-sided ledges and offer attractive nesting locations for falcons and other cliff-nesting birds.

The monitoring of cliff-nesting birds on pit walls is a priority at the Ekati Diamond Mine, particularly for birds that have a conservation status based on federal listings on Schedule 1 of SARA (2002), COSEWIC (Government of Canada 2024), and the listings under the Northwest Territories General Status Ranking Program (GNWT 2022). The eggs, nests, and individuals of gyrfalcon, peregrine falcon, and other raptor species (e.g., rough-legged hawk, golden eagle (*Aquila chrysaetos*)) are legally protected under the Northwest Territories Wildlife Act, Section 38 (1998).

The use of active pits for nesting could pose a risk to raptors and their young. Raptor deterrence methods are used to minimize the number of raptors that are impacted by mining operations and prevent raptors from nesting and raising young in high-risk areas. Intensive monitoring and a bird deterrent program at active pits ensure that nests are not established in potentially unsafe areas for the raptors and to also prevent temporary cessation of mining activities, which would be required for the duration of the nesting period in cases where nests are located close to blasting areas.

Photo 10.3-1: Example peregrine falcon at Sable Pit in 2021.

10.3.2 OBJECTIVES

The monitoring objectives for this component of the WEMP are to:

- determine if pit walls or other mine infrastructure are utilized as nesting sites for raptors;
- determine nest success (occupancy and productivity) of raptor nests; and
- document effectiveness of nest deterrent efforts that may be employed.

10.3.3 METHODS, RESULTS, AND DISCUSSION

Burgundy performed bird deterrent and nest monitoring program summary occurred between March 31, 2023 and June 17, 2023, a total of 134 pit wall nest surveys over 57 days were conducted at Sable Pit. Three species were observed, including common raven, rough-legged hawk and peregrine falcon. There were 24 observations of active nests. Nesting activity was successfully deterred for common raven on 12 occasions, rough-legged hawk on 17 occasions and peregrine falcon on six occasions. Deterrents used included bear bangers, screamers, mesh netting and nest removal and were used on 54 occasions. For full details on methods and results from the video and pit wall nest monitoring program in 2023, see the Summary of the 2023 Ekati Diamond Mine Bird Deterrent Program (Appendix B).

10.4 REGIONAL FALCON SURVEYS

Gyrfalcon and peregrine falcon breeding activity is monitored as part of the WEMP because they are considered valuable indicators of environmental change (Holroyd and Banasch 2003). Because falcons are top predators, their population dynamics coincide with changes in prey populations. The population trends and breeding success of peregrine falcon have also been used as indicators of the effects of human activities on ecosystem health because of the recognized effects of pesticides and contaminants on eggshell thinning in falcons (White et al. 2002; Wegner et al. 2005).

Regional GNWT ECC falcon surveys (last conducted by GNWT ECC in 2010 on an annual cycle) were not conducted between 2012 and 2014, as per recommendations received from technical and community workshops held on June 28, 2010, and October 5 – 6, 2010, respectively. The surveys were repeated in 2015 and results were presented in the 2015 WEMP Report (ERM 2016). No regional ENR/GNWT ECC falcon surveys were conducted from 2016 to 2023.

Burgundy is currently in the process of finalizing an updated WMMP Plan, which will be implemented upon final approval expected in 2024. The updated WMMP Plan does not include regional falcon surveys as active monitoring component, and as such this section will be removed once the updated WMMP Plan is approved.

11 MIGRATORY BIRDS

11.1 BACKGROUND

The period in which upland birds lay eggs in the Ekati Diamond Mine study area typically begins the first week of June and extends until the end of July (ECCC 2023; BHP Billiton 1998). Small perching birds and shorebirds are the most common breeders in the Ekati Diamond Mine study area, including the American tree sparrow (*Spizella arborea*), Harris's sparrow (assessed as species of Special Concern by COSEWIC [2017] and Schedule 1 of SARA [2002]; ranked Sensitive in the NWT [GNWT 2024]), lapland longspur (*Calcarius lapponicus*), least sandpiper (*Calidris minutilla*), and Savannah sparrow (*Passerculus sandwichensis*; see Section 11.3). Some other species that are present but less common in the study area include lesser yellowlegs (listed as Threatened by COSEWIC [2020] and under consideration under Schedule 1 of SARA [2002]; ranked Sensitive in the NWT [GNWT 2024]), pectoral sandpiper (Calidris melanotos), and yellow-rumped warbler (*Setophaga coronate*). The rusty blackbird (*Euphagus carolinus*) and red-necked phalarope (*Phalaropus lobatus*) have also been observed in the Ekati Diamond Mine study area and are assessed as species of Special Concern by COSEWIC (2006; 2014a) and Schedule 1 of SARA (2002), and are ranked as Sensitive in the NWT (GNWT 2024).

Natural and human-induced disturbances that occur during the breeding period can correlate with changes in breeding bird density, species richness, and diversity (Rottenborn 1999; Debinski and Holt 2000; Hennings and Edge 2003; Jokimaki and Kaisanlahti-Jokimaki 2003; Thorington and Bowman 2003). Consequently, upland migratory birds within the Ekati Diamond Mine study area have been monitored annually since 1996. Avian species are often selected for use in monitoring programs because they represent an abundant and diverse group that can be surveyed with relative ease.

Formal breeding bird survey was terminated in 2009 in consultation with ENR and other stakeholders. The decision was made following a review of 13 years of bird monitoring data that indicated no long-term consistent trends for overall species density near the Ekati Diamond Mine. Burgundy monitored upland breeding birds through the North American Breeding Bird Surveys (NABBS) from 2003 to 2019 (Section 11.3) and through incidental observations. Incidental observations of breeding birds in the study area are monitored and recorded to document any signs of breeding activity and to identify mine structures that provide potential nesting platforms. Bird species of conservation concern or uncommon species in the region are also documented when observed. The following section describes the methods and results of monitoring activities on migratory birds in the Ekati Diamond Mine study area.

11.2 INCIDENTAL BIRD OBSERVATIONS

11.2.1 INTRODUCTION

Recording incidental bird sightings at the Ekati Diamond Mine is one component of the migratory bird monitoring program conducted by Burgundy. The information has been reported in the WEMP since 2013. Incidental bird observations around the mine site are monitored and recorded to minimize potential risks associated with human and wildlife interactions, to identify mine structures that are used by migratory birds as nesting locations, and to identify any species of conservation concern in mine site area.

11.2.2 OBJECTIVES

The objectives of this component of the WEMP are to:

- document the presence of breeding birds at the Ekati Diamond Mine;
- document sightings of uncommon birds or species of conservation concern in the area; and
- document and determine the cause of direct Mine-related mortality of migratory birds should they occur.

11.2.3 METHODS

Incidental migratory bird observations around the Ekati Diamond Mine were recorded by the Environment Department staff. For each bird observation, the species, number of individuals, date, location (UTM coordinates, where possible), habitat, breeding evidence, and behaviour were recorded.

11.2.4 RESULTS

During the 2023 reporting period, there were 22 incidental bird sightings, including approximately 209 individuals from 14 species (Table 11.2-1). Two species are ranked as Sensitive in the NWT (GNWT 2024); northern pintail (*Anas acuta*), and long-tailed duck (*Clangula hyemalis*). All of the incidental observations were recorded near the mine infrastructure. Breeding behaviour (displays, nest found, material carries, pairs, ducking, and territorial behaviour) was recorded on eight occasions for six species including long-tailed duck and northern pintail. No nests were found in 2023. Greater white-fronted goose (*Answer albifrons*), tundra swan (*Cygnus columbianus)*, snow goose (*Answer caerulescens*), and sandhill crane *(Antigone canadensis*) accounted for 63% of all individuals (n = 139).

TABLE 11.2-1: SUMMARY OF INCIDENTAL MIGRATORY BIRD OBSERVATIONS, 2023

Common Name	Scientific Name	# of individuals
American pipit	Anthus rubescens	1
American tree sparrow	Spizelloides arborea	6
Greater white-fronted goose	Answer albifrons	68
Green-winged teal	Anas crecca	2

Common Name	Scientific Name	# of individuals
Long-tailed duck*	Clangula hyemalis	2
Northern pintail*	Anas acuta	16
Northern Shoveler	Spatula clypeata	2
Rock ptarmigan	Lagopus muta	5
Sandhill crane	Antigone canadensis	23
Snow goose	Answer caerulescens	14
Tundra swan	Cygnus columbianus	34
Unknown duck species	-	9
Unknown ptarmigan species	-	25
Willow ptarmigan	Lagopus lagopus	2
Total		209

**Species of Conservation Concern.*

All migratory bird species recorded incidentally in 2023 have been previously recorded in the study area, either during bird surveys conducted between 1996 and 2008 (Rescan 2010), incidentally, or during the NABBS from 2003 to 2019 (see Section 11.3).

11.2.5 DISCUSSION

During the 2023 reporting period, there were 42 incidental bird sightings, including approximately 209 individuals from 14 species. All species observed incidentally in 2023 had been recorded at the Ekati Diamond Mine in past years. In 2023, two species of conservation concern ranked as Sensitive in the NWT (GNWT 2024) were recorded; northern pintail, and long-tailed duck. Breeding wasn't confirmed for any incidental species in 2023. The ability to adapt and habituate to disturbance is likely species-specific (Scott et al. 1996; Conomy et al. 1998; Fitzpatrick and Bouchez 1998). Studies suggest upland migratory bird species that prefer open-disturbed habitat may be attracted to mine infrastructure, while other species may avoid developments.

11.3 NORTH AMERICAN BREEDING BIRD SURVEY

The NABBS is designed to collect long-term data on the population status and trends of breeding birds throughout North America. Previous operators of the Ekati Diamond Mine also monitored migratory birds through the NABBS from 2003 to 2019. However, due to evidence that effects to migratory birds are localized (Smith et al. 2005) these regional studies are no longer conducted. Currently, incidental observations of migratory birds in the study area are recorded to document any signs of breeding activity and to identify mine structures that provide potential nesting platforms. Bird species of conservation concern or uncommon species in the region are also documented when observed (Section 11.2)

12 OTHER WILDLIFE OBSERVATIONS

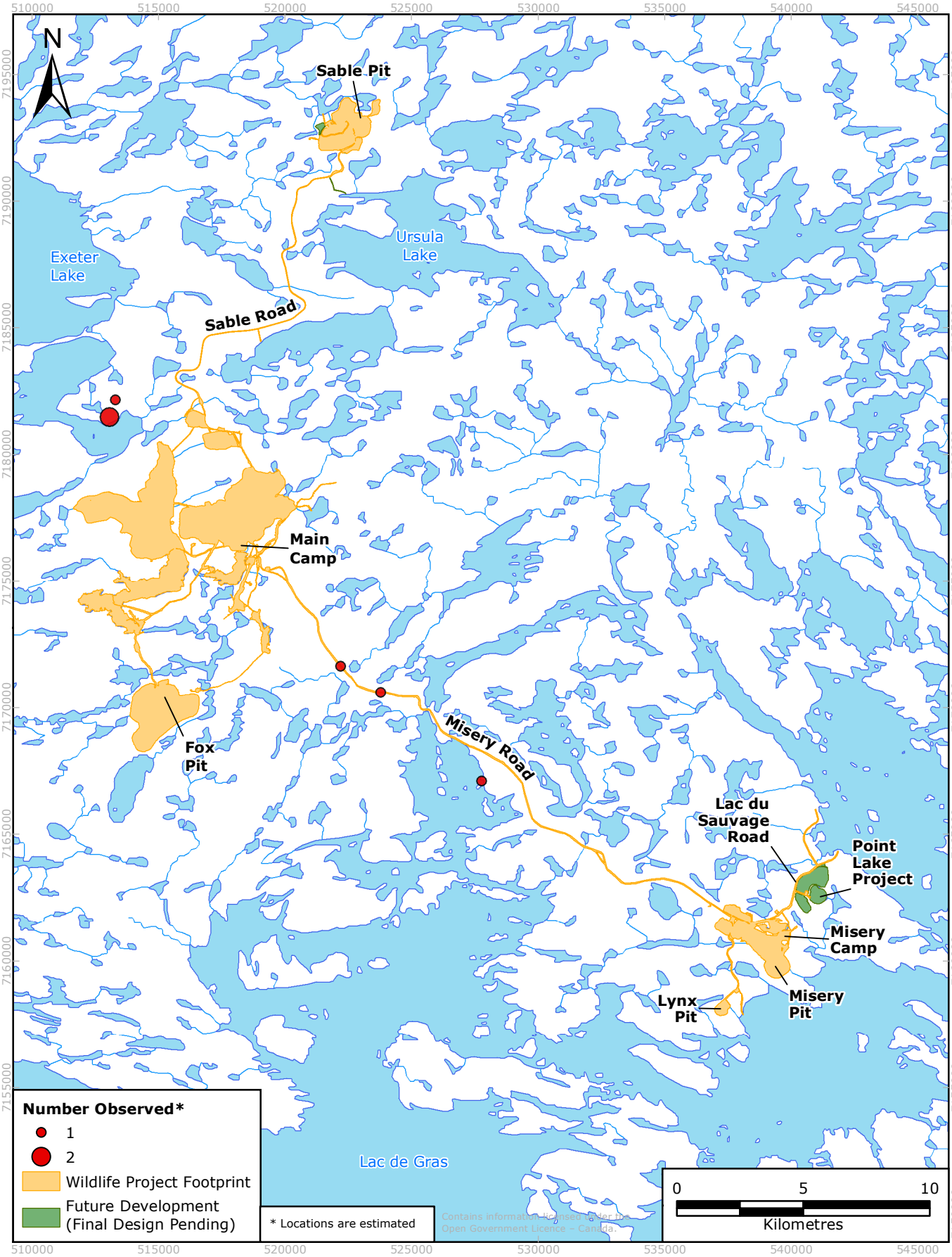
During the 2023 reporting period, there were five incidental sightings of moose, in groups of one to two individuals. There was a total of six animals across the five observations (though as with all incidental observations, individual animals may be recorded multiple times) over five separate days near the Ekati Diamond Mine (Table 12-1). One observation involved two adult male moose on the Lower Exeter river. Four observations included single individual moose together, two observations were of a male adult, and two observations of unknown sex and age. Observations of moose have become more common in recent years at the Ekati Diamond Mine, with a total of 104 individual moose sightings recorded from 2013 to 2023 (Table 12-1). Moose observations in 2023 are comparable to 2016 observations. Moose is considered Secure in the NWT (GNWT 2024).

Observations with sufficient location information were plotted on a map of the study area (Figure 12-1). The majority of observations occurred on Misery Road and Lower Exeter. No incident reports were filed for incidental moose observations in 2023. For additional wildlife incidents, see Sections 4.2 and 4.3.

TABLE 12-1: SUMMARY OF INCIDENTAL MOOSE OBSERVATIONS NEAR THE EKATI DIAMOND MINE, 2013 TO 2022

Moose	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Incidental observations (over separate days)	1 (1)	2 (2)	23 (9)	6 (5)	5 (4)	8 (6)	23 (18)	8 (8)	9 (9)	13 (12)	6 (5)

FIGURE 12-1 INCIDENTAL MOOSE OBSERVATIONS AT THE EKATI DIAMOND MINE, 2023



ERM

CLIENT: Burgundy Diamond Mines Ltd.
GIS NUMBER: EKA-23-432j

DATE: 23 March 2024

PROJECTION: NAD 1983 UTM Zone 12N
SCALE: 1:210,000 when printed at 8.5x11

13 REFERENCES

1988. *Wildlife Act*, RSNWT. C. W-4.

1994. *Migratory Birds Convention Act*, SC. C. 22.

2002. *Species at Risk Act*, SC. C. 29.

2009. *Species at Risk (NWT) Act*, SNWT. C. 16.

Adamczewski, J., J. Boulanger, H. Sayine-Crawford, J. Nishi, D. Cluff, J. Williams, and L.-M. LeClerc. 2019. Estimates of breeding females & adult herd size and analyses of demographics for the Bathurst herd of barren-ground caribou: 2018 calving ground photographic survey. Department of Environment and Natural Resources, Government of the Northwest Territories. Manuscript Report No. 279.

Altmann, J. 1974. Observational study of behavior: Sampling methods. *Behaviour*, 49: 227-67.

Arctic Canadian (Arctic Canadian Diamond Company Ltd.). 2021a. *Ekati Diamond Mine: Wildlife Effects Monitoring Plan Point Lake Addendum*. Calgary, AB. 13 pages.

Arctic Canadian. 2021b. *Proposed Development of the Point Lake Project: Project Description.*

Arctic Canadian. 2021c. *2021 Annual Closure and Reclamation Progress Report.* Prepared by ERM Consultants Ltd., Calgary, AB: 279pp. WLWB file # W2020L2-0004.

Bartoń, K. A. and A. Zalewski. 2007. Winter severity limits red fox populations in Eurasia. *Global Ecology and Biogeography*, 16: 281–89.

Bathurst Caribou Management Planning Committee (BCMPC). 2004. *A Management Plan for the Bathurst Caribou Herd*. Prepared by the Bathurst Caribou Management Planning Committee: n.p.

BHP and Dia Met. 1995. *NWT Diamonds Project: Environmental Impact Statement*. BHP Diamonds Inc., Vancouver, BC and Dia Met Minerals Ltd, Kelowna BC.

BHP and Dia Met. 2000. *Environmental Assessment Report for Sable, Pigeon and Beartooth Kimberlite Pipes*. Prepared by BHP Diamonds Inc., Vancouver, BC, and Dia Met Minerals Ltd., Kelowna, BC.:

BHP Billiton. 1995. *NWT Diamonds Project, Environmental Impact Statement*. Prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd.: np.

BHP Billiton. 1998. *1997 Wildlife Effects Monitoring Program*. Prepared for BHP Billiton Diamonds Inc. by Golder Associates Ltd.: n.p.

BHP Billiton. 2004. *EKATI Diamond Mine: 2003 Wildlife Effects Monitoring Program*. Prepared for BHP Billiton Diamonds Inc. by Golder Associates Ltd.: n.p.

BHP Billiton. 2005. *EKATI Diamond Mine: 2004 Wildlife Effects Monitoring Program*. Prepared for BHP Billiton Diamonds Inc. by Rescan Environmental Services Ltd.: n.p.

Boulanger, J., B. Croft, J. Adamczewski, D. Cluff, M. Campbell, D. Lee, and N. Larter. 2017. *An estimate of breeding females and analyses of demographics for the Bathurst herd of barrenground caribou: 2015 calving ground photographic survey*. Environment and Natural Resources, Government of Northwest Territories, Yellowknife, Northwest Territories, Canada.

Bradshaw, C. J. A., S. Boutin, and D. M. Hebert. 1997. Effects of petroleum exploration on woodland caribou in northeastern Alberta. *Journal of Wildlife Management*, 61 (4): 1127-33.

Conomy, J. T., J. A. Dubovsky, J. A. Collazo, and W. J. Fleming. 1998. Do black ducks and wood ducks habituate to aircraft disturbance? *Journal of Wildlife Management*, 62 (3): 1135-42.

COSEWIC. 2006. *COSEWIC Assessment and Status Report on the Rusty Blackbird (Euphagus carolinus) in Canada.* Committee on the Status of Endangered Wildlife in Canada. (Rusty Blackbird (Euphagus carolinus) (sararegistry.gc.ca))

COSEWIC. 2012. *COSEWIC assessment and update status report on the Grizzly Bear Ursus arctos in Canada.* Ottawa, ON, Committee on the Status of Endangered Wildlife in Canada.

COSEWIC. 2014a. *COSEWIC assessment and status report on the Red-necked Phalarope Phalaropus lobatus in Canada.* Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 52 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm)

COSEWIC. 2014b. *COSEWIC assessment and status report on the wolverine Gulo gulo in Canada*. Committee on the Status of Endangered Wildlife in Canada: Ottawa, ON.

COSEWIC. 2016. *COSEWIC assessment and status report on the Caribou Rangifer tarandus, Barren-ground population, in Canada.* Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 123 pp. (http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1).

COSEWIC. 2017. *COSEWIC assessment and status report on the Harris's Sparrow Zonotrichia querula in Canada.* Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 36 pp. (http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1).

COSEWIC. 2020. *COSEWIC assessment and status report on the Lesser Yellowlegs Tringa flavipes in Canada. Committee on the Status of Endangered Wildlife in Canada.* Ottawa. x + 64 pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).

COSEWIC. 2021. *COSEWIC assessment and status report on the Short-eared Owl Asio flammeus in Canada. Committee on the Status of Endangered Wildlife in Canada.* Ottawa. xiii + 69 pp. (https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html).

Cronin, M. A., S. C. Amstrup, G. M. Durner, L. E. Noel, T. L. McDonald, and W. B. Ballard. 1998. Caribou distribution during the post-calving period in relation to infrastructure in the Prudhoe Bay oil field, Alaska. *Arctic*, 51 (2): 85-93.

Dominion Diamond Ekati Corporation (DDC). 2014. *Developer's Assessment Report for the Jay Project*. Prepared by Golder Associates Ltd. October 2014: Yellowknife, NWT, Canada.

Debinski, D. M. and R. D. Holt. 2000. A survey and overview of habitat fragmentation experiments. *Conservation Biology*, 14: 342-55.

Dominion Diamond. 2018. *Ekati Diamond Mine 2017 Closure and Reclamation Progress Report*. Calgary, AB.

Dumond, M., Boulanger, J., and Paetkau, D. 2015. The estimation of grizzly bear density through hair - snagging techniques above the tree line. *The Wildlife Society*, 39 (2): 390-402.

Environment and Climate Change Canada (ECCC). 2023. *Nesting periods*. Online. Government of Canada. Accessed February 26, 2024. Retrieved from: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html

ERM. 2016. *Ekati Diamond Mine: 2015 Wildlife Effects Monitoring Program*. Prepared for Dominion Diamond Ekati Corporation by ERM Consultants Canada Ltd.: Yellowknife, Northwest Territories.

ERM. 2018. *Ekati Diamond Mine and Diavik Diamond Mine: 2018 Final Lac de Gras Regional Grizzly Bear DNA Report*. Prepared for Dominion Diamond Ekati ULC and Diavik Diamond Mine (2012) Inc. by ERM Consultants Canada Ltd.: Vancouver, British Columbia.

ERM. 2021. Ekati Diamond Mine and Diavik Diamond Mine. Evaluating the Role of Habitat in Caribou Distribution Relative to a Potential Zone of Influence around Mines. Prepared for Arctic Canadian Diamond Company Ltd. by ERM Consultants Canada Ltd Yellowknife, Northwest Territories.

ERM Rescan. 2014. *Ekati Diamond Mine: 2013 Wildlife Effects Monitoring Program* Dominion Diamond Ekati Corporation: Yellowknife, Northwest Territories.

Fitzpatrick, S. and B. Bouchez. 1998. Effects of recreational disturbance on the foraging behaviour of waders on a rocky beach. *Bird Study*, 45 (2): 157-71.

Frame, P. F., H. D. Cluff, and D. S. Hik. 2008. Wolf reproduction in response to caribou migration and industrial development on the central barrens of mainland Canada. *Arctic*, 61 (2): 134-42.

Government of Canada (GOC). 2024 . Species at Risk Public Registry. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

Government of the Northwest Territories (GNWT). 2017. *RE: Dominion Diamond Ekati Corporation (DDEC) – Approval of Wildlife Effects Monitoring Plan (WEMP), including Caribou Road Mitigation Plan (CRMP).* June 2017. Letter to DDEC from Government of Northwest Territories-Environment and Natural Resources.

GNWT. 2022. *Species at Risk in the Northwest Territories, 2022*. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT.

GNWT. 2024. *NWT Species Search*. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT. NWT Species Search (gov.nt.ca)

Government of Northwest Territories Department of Environment and Natural Resources (GNWT ENR). 2005. *Caribou on the Tuktoyaktuk Peninsula. Government of the Northwest Territories*. 14 p. Unpublished Report. Government of Northwest Territories Department of Environment and Natural Resources

GNWT ENR. 2006. *Caribou Forever – Our Heritage, Our Responsibility: A Barren-ground Caribou Management Strategy for the Northwest Territories 2006 – 2010.* Department of Environment and Natural Resources, Government of Nortwest Territories: Yellowknife, NT.

GNWT ENR. 2012. *Update on NWT barren-ground caribou*. Presented at Government of Northwest Territories.

GNWT ENR. 2013. *NWT Barren-ground Caribou (Rangifer taradus groenlandicus). Government of the Northwest Territories Department of Environment and Natural Resources*. http://www.enr.gov.nt.ca/_live/pages/wpPages/caribou_information.aspx.

GNWT ENR. 2016. *NWT Species Monitoring Infobase*. http://nwtspeciesatrisk.ca (accessed February 2016).

Golder Associates. 2017. *Wildlife Effects Monitoring Plan for the Ekati Diamond Mine, including Caribou Road Mitigation Plan*. Prepared for Dominion Diamond Ekati Corporation by Golder and Associates.

Government of Canada. 2024. Species at Risk Public Registry. 2024 (February): https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html.

Gunn, A. and A. D'Hont. 2002. *Extent of Calving for the Bathurst and Ahiak Caribou Herds June 2002*. Department of Resources, Wildlife and Economic Development. Manuscript Report No. 149: Yellowknife, NT.

Gunn, A., A. D'Hont, J. Williams, and J. Boulanger. 2008a. *Satellite Collaring in the Bathurst Herd of Barren-ground Caribou 1996-2005*. Department of Environment and Natural Resources, Government of the Northwest Territories. Unpublished Manuscript Report: Yellowknife, NT.

Gunn, A., K. G. Poole, and J. Wierzchowski. 2008b. *A geostatistical analysis for the patterns of caribou occupancy on the Bathurst calving grounds 1966-2007*. Indian and Northern Affairs Canada: Yellowknife, NT.

Gunn, A., A. D'Hont, J. Williams, and J. Boulanger. 2013. *Satellite Collaring in the Bathurst Herd of Barren-ground Caribou. 1996 to 2005*. Manuscript Report No. 225. Government of the Northwest Territories, Environment and Natural Resources: Yellowknife, NT.

Gunn, A., J. Dragon, and J. Boulanger. 2002. *Seasonal Movements of Satellite-Collared Caribou from the Bathurst Herd*. Final report prepared for the West Kitikmeot Slave Study Society: Yellowknife, NT.

Gunn, A., J. Dragon, and J. Nishi. 1997. *Bathurst calving ground survey, 1996*. Department of Environment and Resources, Wildlife and Economic Development, Government of the Northwest Territories. File Report No. 119: Yellowknife, NT.

Heard, D. C. and T. M. Williams. 1992. Distribution of Wolf Dens on Migratory Caribou Ranges in the Northwest Territories, Canada. *Canadian Journal of Zoology*, 70 (8): 1504-10.

Hennings, L. A. and D. W. Edge. 2003. Riparian bird community structure in Portland Oregon: Habitat, urbanization, and spatial scale patterns. *Condor*, 105 (2): 288-302.

Hersteinsson, P. and D. W. MacDonald. 1992. Interspecific competition and the geographical distribution of red and arctic foxes Vulpes vulpes and Alopex lagopus. *Oikos*, 64: 505-15.

Holroyd G.L. and Banasch U. 2003. The 2000 Canadian Peregrine Falcon survey. *Journal of Raptor Research*, 37: 98-116.

Horejsi, B. L. 1981. Behavioral-response of barren-ground caribou to a moving vehicle. *Arctic*, 34 (2): 180-85.

Johnson, C. J., Boyce M.S., Case R.L., Cluff H.D., Gau R.J., Gunn A., and Mulders R. 2005. Cumulative effects of human developments on arctic wildlife. *Wildlife Monographs*, 160: 1-36.

Jokimaki, J. and M. Kaisanlahti-Jokimaki. 2003. Spatial similarity of urban bird communities: A multiscale approach. *Journal of Biogeography*, 30: 1183-93.

Kessel, B. 1989. *Birds of Seward Peninsula, Alaska: Their Biogeography, Seasonality, and Natural History*. Fairbanks, AL: University of Alaska Press.

Kitikmeot Inuit Association (KIA). 2015. *Inuit Traditional Knowledge for TMAC Resources Inc. Proposed Hope Bay Project Naonaiyaotit Traditional Knowledge Project (NTKP). DRAFT*. Prepared for TMAC Resources Inc. by Kitikmeot Inuit Association: Kugluktuk, NU.

Klaczek, M. R., C. J. Johnson, and Cluff H. D. 2015. Den site selection of wolves (Canis lupus) in response to declining caribou (Rangifer tarandus groenlandicus) density in the central Canadian Arctic. *Polar Biology*, 38: 2007-19.

Kuyt, E. 1972. *Food Habits and Ecology of Wolves on Barren-Ground Caribou Range in the Northwest Territories*. Report Series Number 21. Canadian Wildlife Service: Ottawa, ON.

Larkin, R. P. 1996. *Effects of military noise on wildlife*. US Army Corps of Engineers Construction Engineering Research Lab: Champaign, IL.

Martin, P. and P. Bateson. 1993. *Measuring Behaviour: An Introductory Guide*. 2 ed. Cambridge, UK: Cambridge University Press.

Matthews, S., H. Epp, and G. Smith. 2001. *Vegetation classification for the West Kitikmeot / Slave study region. Final report.* Prepared for the West Kitikmeot / Slave Study: Yellowknife, NT.

McLoughlin, P.D. and F. Messier. 2001. The Demography of Barren-ground Grizzly Bears (*Ursus arctos*) in Nunavut and the Northwest Territories. Prepared for the Government of the Northwest Territories Department of Resources, Wildlife, and Economic Development by the University of Saskatchewan, Department of Biology: Saskatoon, SK.

McLoughlin, P. D., R. L. Case, R. J. Gau, H. D. Cluff, R. Mulders, and F. Messier. 2002. Hierarchical habitat selection by barren-ground grizzly bears in the central Canadian Arctic. *Oecologia*, 132: 102-08.

Miller, F. L. 2001. *Peary Caribou - A case for a national park on northern Bathurst Island*. Report Prepared for the Canadian Nature Federation by the Canadian Wildlife Service: np.

Nagy, J.A.S. 2011. "Use of Space by Caribou in Northern Canada." PhD diss., University of Alberta.

Nellemann, C. and R. D. Cameron. 1996. Effects of petroleum development on terrain preferences of calving Caribou. *Arctic*, 49 (1): 23-28.

Nishi, J., B. Croft, J. Boulanger, and J. Adamczewsk. 2010. *An estimate of breeding females in the Bathurst herd of barren-ground caribou, June 2009*. Draft File Report. Northwest Territories Department of Environment and Natural Resources: Yellowknife, NT.

Poole, K. G. 2011. *Update on the Northwest Territories/Nunavut raptor database, January 2011*. Department of Environment Government of Nunavut and Department of Environment and Natural Resources Government of the Northwest Territories.

Poole, K. G. and R. G. Bromley. 1988. Interrelationships within a raptor guild in the central Canadian Arctic. *Canadian Jounal of Zoology*, 66: 2275 - 82.

Pruitt, W. O., Jr. 1960. *Behaviour of the barren-ground caribou*. Biological Papers of the University of Alaska. 3: 1-44.

Rescan. 2006. *Ekati Wildlife and Human Health Risk Assessment*. Prepared for BHP Billiton Diamonds Mines Inc. by Rescan Environmental Services Ltd.: Yellowknife, NT.

Rescan. 2010. *EKATI Diamond Mine: 2009 Wildlife Effects Monitoring Program*. Report Prepared for BHP Billiton Canada Inc. by Rescan Environmental Services Ltd.: Yellowknife, NT.

Rottenborn, S. C. 1999. Predicting the impacts of urbanization on riparian bird communities. *Biological Conservation*, 88: 289-99.

Rowland, M. M., M. J. Wisdom, D. H. Johnson, B. C. Wales, J. P. Copeland, and F. B. Edelmann. 2003. Evaluation of landscape models for wolverines in the interior northwest, United States of America. *Journal of Mammology*, 84 (1): 92-105.

Russell, D. E., G. E. Kofinas, and B. Griffith. 2002. *Barren-ground caribou calving workshop: report of proceedings*. Technical Report Series No. 390. Canadian Wildlife Service: Ottawa, ON.

Scott, G. W., A. R. Niggebrugge, and B. Sweeney. 1996. Avian habituation to recreational disturbance on the North Yorkshire coast. *Naturalist*, 121 (1016): 11-15.

Smith, A. C., J. A. Virgl, D. Panayi, and A. R. Armstrong. 2005. Effects of a diamond mine on tundra-breeding birds. *Arctic*, 58 (3): 295-304.

Steenhof, K., M. N. Kochert, L. B. Carpenter, and R. N. Lehman. 1999. Long-term Prairie Falcon population changes in relation to prey abundance, weather, land uses and habitat conditions. p28-41. On file with BC Geological Survey, Ministry of Energy, Mines, and Petroleum Resources.

Sutherland, M. and A. Gunn. 1996. *Bathurst calving ground surveys, 1965-1996*. Department of Environment and Resources, Wildlife and Economic Development, Government of the Northwest Territories. File Report No. 118.: Yellowknife, NT.

Tannerfeldt, M., B. Elmhagen, and A. Angerbjörn. 2002. Exclusion by interference competition? The relationship between red and arctic foxes. *Oecologia*, 132: 213-20.

Theoret, J., M. Cavedon, T.Hegel, D. Hervieux, H. Schwantje, R. Steenweg, M. Watters and M. Musiani. 2022. Seasonal movements in caribou ecotypes of Western Canada. *Movement Ecology*, 10 (12): https://doi.org/10.1186/s40462-022-00312-x

Thorington, K. K. and R. Bowman. 2003. Predation on artificial nests increases with human housing density in suburban habitats. *Ecography*, 26: 188-96.

Tyler, N. J. C. 1991. Short-term behavioural responses of Svalbard reindeer *Rangifer tarandus platyrhynchus* to direct provocation by a snowmobile. *Biological Conservation*, 56: 179-94.

Walker, J. and B. Elkin. 2005. Rabies in the Northwest Territories Part 1: A Historical Overview of Rabies in NWT. *EPI, The Northwest Territories Epidemiology Newsletter* 17 (1): 1-20.

Walton, L. R., H. D. Cluff, P. C. Paquet, and M. A. Ramsay. 2001. Movement patterns of barren-ground wolves in the Central Canadian Arctic. *Journal of Mammalogy*, 82 (3): 867-76.

Wegner, P., G. Kleinstauber, F. Baum, and F. Schilling. 2005. Long-term investigation of the degree of exposure of German peregrine falcons (Falco peregrinus) to damaging chemicals from the environment. *Journal of Ornithology*, 146 (1): 34-54.

Weir, R. D. 2004. Wolverine: Gulo gulo. In *Accounts and Measures for Managing Identified Wildlife: Northern Interior Forest Region*. Ed. BC MWLAP. Victoria, BC: BC Ministry of Water, Land and Air Protection. http://www.env.gov.bc.ca/wld/frpa/iwms/documents/Mammals/m_wolverine.pdf (accessed July 2012).

White, C. M., N. J. Clum, T. J. Cade, and W. Grainger Hunt. 2002. Peregrine Falcon (*Falco peregrinus*). In *The Birds of North America Online*. Ed. A. Poole. Ithaca, NY: Cornell Lab of Ornithology. http://bna.birds.cornell.edu/bna/species/660doi:10.2173/bna.660 (accessed July 2013).

Wolfe, S., B. Griffith, and C. A. Gray Wolfe. 2000. Response of reindeer and caribou to human activities. *Polar Research*, 19 (1): 63-73.

APPENDIX A EKATI DETAILED WILDLIFE INCIDENTS 2023

Date (MM-DD-YYYY)	**Species**	**No. of Individuals**	**Age**	**Condition** (H=healthy; P=poor condition; W=wounded; U=Unknown, X= No Data)	**Sex** (M=male, F=female, MF=male and female, FF=female and female, U=unknown, UUU = 3 unknown, etc., X=no data	**Dominant Behavior** B=bed, BA=bedded alert, f=feed, S=stand, SA=stand alert, W=walk, T=trot, R=run, U=unkown, H=hunting, SC=Scavenging, NA=No data	**Type of Incident** (**INT**=interaction with field crew; **V**=vehicle; **A**= aircraft; **MIF**=mine infrastructure; **M**=Wildlife Mortality, **X**=No Incident)	**Type of Deterrent V=Voice, BB= Bear Banger, SC=Screamer, F=Flare, S=Sound, H=Helicopter, T=Light Truck, RB=Rubber Bullet, X=no deterrent used**	**Location** (name of location or grid cell)	**Potential Reason for Attraction to Site**	**Arctic Canadian Personnel Involved**	**Wildlife Enforcement Officer Contacted? Y = yes, N=No, U= Unknown**	**Permit Number Issued**
18/01/2023	Unspecified fox	1	U	U	U	BA	INT / MIF	N/A	Landfill Burn Bin	Human Attractants	Waste Management Technicians	N	N/A
11/02/2023	Other	1	U	H	U	U	INT/MIF	Relocated	PP warehouse	Human Infrastructure	Warehouse Workers	N	N/A
24/02/2023	Red fox	1	A	U	U	SC	MIF	X	Misery Truck shop Down line (V30)	Human Attractants	Waste Management Technicians	N	N/A
10/03/2023	Caribou	2	AJ	H	FU	F	V	X	Beartooth pit	Natural Environment	Heavy Operator	N	N/A
13/05/2023	Grizzly bear	1	A	H	H	SC	MIF	BB	Ekati Landfill	Landfill	Waste Management Technicians	N	N/A
24/05/2023	Unknown	1	U	U	U	U	MIF	X	Airport south side by man door	Human Infrastructure	Dump Truck Operator	N	N/A
25/05/2023	Grizzly bear	1	A	H	U	F	INT	BB	H5	Human Infrastructure	Field Crew	N	N/A
27/05/2023	Grizzly bear	2	A	H	U	F	INT	BB + SC	H5	Human Infrastructure	Field Crew	N	N/A
27/05/2023	American robin	1	A	H	F	B	MIF	X	M15	Fish Box/ Natural Environment	Field Crew	N	N/A
31/05/2023	Grizzly bear	4	ACCC	H	FUUU	W	V	X	Km 15-20 Misery Road	Human Attractants	Truck Driver	N	N/A
5/06/2023	Grizzly bear	1	A	H	U	W	MIF	H	PSD FB 1	Fish Box/ Natural Environment	Field Crew	N	N/A
9/06/2023	Grizzly bear	2	AC	H	FU	F	MIF	H	PSD FB 1	Fish Box/ Natural Environment	Field Crew	N	N/A
11/06/2023	Grizzly bear	1	A	H	U	W	MIF	BB + SC + T	O13	Human Attractants	Environmental Staff	N	N/A
12/06/2023	Grizzly bear	2	AC	H	FU	F	MIF	H	PSD FB 1	Fish Box/ Natural Environment	Field Crew	N	N/A
13/06/2023	Grizzly bear	1	A	H	U	B	MIF	BB + T	U31	Landfill	Waste Management Technicians	N	N/A
16/06/2023	Grizzly bear	1	U	U	U	SC	MIF	X	L13	Waste Management Yard	Waste Management Technicians	N	N/A
17/06/2023	Grizzly bear	1	A	H	U	W	MIF	BB	N/A	Human Infrastructure	Environmental Staff	N	N/A
18/06/2023	Grizzly bear	1	A	H	U	W	MIF	BB	U31	Human Infrastructure	Environmental Staff	N	N/A
20/06/2023	Grizzly bear	1	A	H	U	SC	MIF	RB + SC	N14 to O13	Human Infrastructure	Security	N	N/A
20/06/2023	Grizzly bear	1	A	H	U	W	MIF	H	N15 to V16	Waste Management Yard	Waste Management Technicians	N	N/A
21/06/2023	Grizzly bear	1	A	H	U	W	MIF	BB + RB	N15 to O15	Vehicle	Environmental Staff	N	N/A
21/06/2023	Grizzly bear	4	ACCC	H	FMMF	W	V	BB	P28	Human Attractants	Security/Environmental Staff	N	N/A
27/06/2023	Red fox	1	A	H	U	F/W	INT/ MIF	Air Horn/Tarp	K16	Incinerator Building	Waste Management Technicians	N	N/A
28/06/2023	American pipet	3	3	H	F	Brood/ Incubating	INT	X	N14	Human Infrastructure	Environmental Staff	N	N/A
28/06/2023	Common raven	N/A	N/A	N/A	N/A	N/A	INT/ MIF	X	Z8	Human Infrastructure	Hydrocarbon Technician	N	N/A
28/06/2023	Grizzly bear	UNK	UNK	UNK	UNK	SC	INT/ MIF	X	N14	Waste Management Yard	Waste Management Technicians	N	N/A
2/07/2023	Caribou	4	U	H	U	BA	INT	X	Sable Crusher	Human Infrastructure	Sable Crusher Operator	N	N/A
6/07/2023	Unspecified bird	1	U	H	U	Flying	INT	X	Panda CV5 exhaust fan	Human Infrastructure	Environmental Staff	N	N/A
11/07/2023	Grizzly bear	1	Sub-adult	H	U	Trying to enter Koala Fuel Bay shack	INT	X	Koala Fuel Bay shack	Human Attractants	Site Services	N	N/A
15/07/2023	Grizzly bear	1	A	H	U	F/W	MIF	BB + SC + T	L15 to M15, M15 to L12, N13 to Q14	Human Attractants	Truck Driver/Environmental Staff	N	N/A
16/07/2023	Grizzly bear	1	A	H	U	W	MIF	V + T	Grizzly Road and Airstrip	Human Attractants	Security	N	N/A
19/07/2023	Grizzly bear	1	A	H	U	W	INT	X	PSD	Fish Box/ Natural Environment	Field Crew	N	N/A
20/07/2023	Grizzly bear	1	A	H	U	W	INT	X	PSD	Fish Box/ Natural Environment	Field Crew	N	N/A
21/07/2023	Grizzly bear	1	U	H	U	W	INT	X	R29	Human Attractants	Crusher Operator	N	N/A
22/07/2023	Grizzly bear	1	U	H	U	BA	INT	H	PSD	Fish Box/ Natural Environment	Field Crew	N	N/A
22/07/2023	Wolf	1	U	U	U	W	INT	X	Km 13 Sable Road	Unknown	Security/Truck Driver	Y	N/A
22/07/2023	Wolf	1	U	U	U	W	MIF	X	KM 11 Sable comms tower	Vehicles	Security/Truck Driver	N	N/A
24/07/2023	Grizzly bear	1	A	H	M (right ear tagged)	Trying to enter incinerator	MIF	T + BB + H	I13	Incinerator Building	Waste Management Technicians	N	N/A
25/07/2023	Grizzly bear	1	A	H	M (right ear tagged)	Around incinerator	MIF	H	J13	Incinerator Building	Waste Management Technicians	Y	N/A
8/08/2023	Unspecified bird	1	U	U	U	Flying	MIF	X	Process Plant CV05	Human Infrastructure	Security	N	N/A
19/08/2023	Grizzly bear	1	A	H	M (right ear tagged)	Around waste management laydown	MIF	T + BB + H	N14	Waste Management Yard	Waste Management Technicians	N	N/A
23/08/2023	Grizzly bear	1	A	H	M (right ear tagged)	Around waste management laydown	MIF	T + BB	N14	Waste Management Yard	Waste Management Technicians	N	N/A
29/08/2023	Grizzly bear	1	A	H	U	F	MIF	T	N14	Waste Management Yard	Waste Management Technicians	N	N/A
3/09/2023	Grizzly bear	1	A	H	U	Digging	MIF	T + BB + H	Waste Management Yard	Waste Management Yard	Waste Management Technicians	N	N/A
10/09/2023	Grizzly bear	1	A	H	M (right ear tagged)	W	INT	T + BB	O8	Unknown	Truck Drivers	N	N/A
14/09/2023	Grizzly bear	1	A	H	U	SC	MIF	RB + SC	N14	Waste Management Yard	Waste Management Technicians	N	N/A
13/10/2023	Grizzly bear	1	A	H	M (right ear tagged)	SC	MIF	BB + SC + RB + Bean Bag	N14	Waste Management Yard	Waste Management Technicians	Y	N/A
11/12/2023	Unspecified fox	1	U	U	U	N/A	MIF	X	X	Human Infrastructure	Crew Bus Operator	N	N/A

APPENDIX B EKATI DIAMOND MINE BIRD DETERRENT AND NEST MONITORING PROGRAM 2023

October 10, 2023

Lee Mandeville, Wildlife & Environment

Department of Environment and Natural Resources

North Slave Region

Government of the Northwest Territories

Box 2668, 3803 Bretzlaff Drive

Yellowknife, X1A 2P7

RE: Ekati Diamond Mine Bird Deterrent and Nest Monitoring Program 2023 (GW501173)

Dear Mr. Mandeville,

Please find below the 2023 bird deterrent and nest monitoring program summary for Burgundy Diamond Mines Ltd. (Burgundy Diamond Mines) Ekati mine.

The Sable Pit was actively mined open pit during the 2023 breeding season and was monitored daily from March 31 to June 17, 2023. During this time, bird monitoring staff were actively scanning the pit for bird presence and signs of nesting activity. In the event nesting activity was observed, deterrent activity was initiated, which included firing bear bangers, removal of any partially completed nest structures, or deploying mesh netting and/or ribbon streamers at the potential nesting location. Additionally, eagle decoys were deployed in the pit from late-April and regularly moved to different locations within the pit; however, similar to previous years, despite triggering a strong initial response from birds often involving dive-bombing the decoys, a lasting deterrent effect was not noticeable.

Table 1 details the dates and species for which nesting activity was observed and successfully deterred in either pit. Due to persistent deterrent efforts no nests were successfully established in the active pit at the Ekati mine during the 2023 breeding season.

Burgundy Diamond Mines Limited
Level 25, South 32 Tower, 108 St Georges Terrace, Perth WA 6000, AUSTRALIA | Ph: +61 8 6313 3945
Suite 900, 606 Fourth Street S.W., Calgary, Alberta, T2P 1T1, CANADA | Ph: +1 403 910 1933
Schupstraat 15, 2018 Antwerp, Belgium

Table 1: Observations of Nesting Activity Successfully Deterred in Sable Pit in 2023

Species Common Name	Species Scientific Name	Sable Pit
Common Raven	*Corvus corax*	April 3,4,5,9,16,20,23,27,28,30 May 1,2,19,20
Rough-legged Hawk	*Buteo lagopus*	May 6,8,15,17,19,20,24,25,27,28,30
Peregrine Falcon	*Falco peregrinus*	April 29,30 May 9,15,17,20

Burgundy trusts that you will find this information to be clear and informative. Please contact the undersigned Adam Scott at Adam.Scott@burgundydiamonds.com or Kurtis Trefry at Kurtis.Trefry@burgundydiamonds.com if you have any concerns or would like to request more information.

Sincerely,

Adam Scott

Wildlife Advisor

Record #: HSE RCD ENV 1922

Date: 10-October-2023

cc. Adam Scott

Burgundy Diamond Mines Limited
Level 25, South 32 Tower, 108 St Georges Terrace, Perth WA 6000, AUSTRALIA | Ph: +61 8 6313 3945
Suite 900, 606 Fourth Street S.W., Calgary, Alberta, T2P 1T1, CANADA | Ph: +1 403 910 1933
Schupstraat 15, 2018 Antwerp, Belgium