

REPORT

Wildlife Monitoring Plan

Coffee Gold Mine

Prepared for:

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REVISION TRACKING LOG

Revision Tracking Log			
Version	Date	Section Updated	Description of Update
0	November 2023	-	First submission of the Wildlife Monitoring Plan
1	November 2024	Various	Updated in response to QML IR1 and ongoing engagement with First Nations' and Yukon Governments
2			

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
EDI	EDI Environmental Dynamics Inc.
FMCH	Fortymile Caribou Herd
FNNND	First Nation of Na-cho Nyäk Dun
GPS	Global positioning system
HSI	Habitat Suitability Index
KCH	Klaza Caribou Herd
FC-RAA	Fortymile Caribou Regional Assessment Area
LSA	Local Study Area
MMU	Moose Management Unit
N/A	Not Applicable
NAR	Northern Access Route
Plan	Wildlife Monitoring Plan
Project	Proposed Coffee Gold Mine
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RSA	Regional Study Area
SFN	Selkirk First Nation
SRB	Stratified Random Block
SU	Sample Unit
TH	Tr'ondëk Hwëch'in
ToR	Terms of Reference
TWG	Technical Working Group
VC	Valued Component
WRFN	White River First Nation
YESAB	Yukon Environment and Socio-economic Assessment Board

LIST OF SYMBOLS AND UNITS OF MEASURE

Symbol / Unit of Measure	Definition
km	kilometre
km ²	square kilometre
km/hr	kilometres per hour
m	metre

1.0 INTRODUCTION

Construction, operation, and closure of the Project have the potential to negatively impact the environment which may affect wildlife. This Wildlife Monitoring Plan (the Plan) outlines the predicted Project-related effects to wildlife and subsequent monitoring to verify those predictions and support management actions to control adverse effects. It is intended to work in tandem with the Wildlife Protection Plan, which presents wildlife mitigation measures to reduce or eliminate potential Project effects on wildlife and wildlife habitat. The wildlife protection measures in the Wildlife Protection Plan are supported by the Project effects monitoring framework described in this Plan. This Plan is provided in conjunction with several other plans to meet the requirements for quartz mine applications for a Quartz Mining License and a Water Use Licence under the *Quartz Mining Act* and the *Waters Act*, respectively. Other applicable regulations related to wildlife management and monitoring are detailed in Section 2.0.

Consultation during preparation of the Project Proposal (2017-0211) identified wildlife as a valued component that should have a range of mitigation measures implemented to minimize change (Goldcorp 2017). Specific concerns included potential for increased hunting pressure, increased wildlife mortality related to mine traffic, management of pit lakes, management of mine infrastructure as movement barriers, effects of cyanide, aircrafts, and dust on wildlife, calcium chloride as a wildlife attractant, Northern Access Route (NAR) concerns, interaction of wildlife with Mine Site and NAR, and phased responses for certain wildlife mitigations.

First Nation engagement and consultation is ongoing, and any feedback that is received or concerns that are heard during consultation will be incorporated into this plan, where applicable.

2.0 WILDLIFE MONITORING FRAMEWORK

This monitoring program outlines how wildlife and wildlife habitats will be monitored and how this information will be used to confirm the predictions of the environmental assessment or detect unanticipated effects.

The monitoring framework is based on the following principles:

- Monitor and verify potential effects related to the Project
- Implement monitoring efforts to detect natural and Project-related changes to the environment
- Monitor and evaluate the effectiveness of mitigation measures
- Identify unanticipated effects
- Provide an early warning of undesirable change to wildlife or wildlife habitat
- Inform adaptive management measures.

A Qualified Environmental Professional (QEP) will oversee the monitoring activities and complete the final reporting of results. The QEP will be familiar with wildlife species being monitored and will have a working knowledge of all applicable acts and regulations related to the protection of wildlife and wildlife habitat in Yukon.

2.1 Predicted Project-Related Effects on Wildlife and Wildlife Habitat

Both mammals and birds were identified as Valued Components (VCs) for the assessment of potential Project-related effects provided in *Coffee Gold Mine Project Proposal for Executive Committee Screening* (Goldcorp 2017a, 2017b, 2018). The effects assessment focused on key wildlife species that interact with the Project, are of primary importance to First Nations and/or are considered species at risk. These were included in the assessment as Valued Subcomponents. For mammals, these include: Fortymile caribou, Klaza caribou, moose, thimhorn sheep, grizzly bear, wolverine, American marten and little brown myotis. For birds, these include Sharp-tailed Grouse (*Tympanuchus phasianellus*), cliff-nesting raptors, passerines, upland-associated species at risk, wetland-associated species at risk and bank swallow (*Riparia riparia*).

Potential Project-related effects assessed for the Wildlife and Wildlife Habitat VC, Bird and Bird Habitat VC and their subcomponents include habitat loss, reduced habitat effectiveness, increased mortality risk, alternation to movement, contaminants uptake, and damage or destruction of active nests. Project interactions were assessed without mitigation and then again with mitigation. Project effects that were still apparent after mitigation were further assessed as residual effects:

- **Habitat Loss** — Habitat loss will result from the ground clearing and vegetation removal required for the Project footprint. Habitat loss was considered a likely residual effect for all mammal and bird subcomponents except Sharp-tailed Grouse (no residual adverse effect anticipated). The effects are expected to occur over the life of the Project but are largely reversible following mine closure and site reclamation.
- **Reduced Habitat Effectiveness** — Sensory disturbance due to noise, light, dust and other Project emissions, and human presence, may result in wildlife avoiding areas adjacent to the Project footprint or may increase the risk of stress to animals using these habitats. Reduced habitat effectiveness was considered a likely residual effect for all mammal and bird subcomponents.

The effects are expected to occur over the life of the Project but are fully reversible following mine closure and site reclamation.

- **Increased Mortality Risk** — Mortality risk due to collisions with Project-related vehicles, entrapment in Project facilities (e.g., open pits, events ponds etc.), and/or increased harvest due to improved hunter access was considered a possible Project effect on all mammal and bird subcomponents; however, following the application of Project mitigation, a likely residual effect was identified for only Fortymile caribou and moose. The effect is expected to occur over the life of the Project but is fully reversible following mine closure and site reclamation.
- **Alteration to Movement** — Project infrastructure may present a physical or sensory barrier or filter to natural patterns of animal movement through or to important habitat. The potential effect was assessed for Fortymile caribou, moose, thinhorn sheep, grizzly bear, and wolverine; however, after consideration of Project mitigation, a likely residual effect was identified for only Fortymile caribou and thinhorn sheep. The residual effect is expected to occur over the life of the Project but is fully reversible following closure and reclamation.
- **Contaminants Uptake** — Contaminants uptake and risk of illness or mortality from ingesting dust-covered forage or exposure to events ponds was assessed for all mammal and bird subcomponents. However, following the application of Project mitigation, no residual adverse effects are anticipated.
- **Damage or Destruction of Active Nests** — Damage to or destruction of active nests was considered a potential effect for all bird subcomponents, but with the application of Project mitigation, no residual effects are anticipated.

Valued subcomponents and Project effects that were identified for follow-up monitoring were selected based on effects assessment predictions, practicality of monitoring, and mitigation potential. Monitoring focusses on adverse residual effects predicted to have a high likelihood of probability. While none of the residual effects identified were determined to be significant, monitoring programs will provide data that can determine if such predictions were correct and provide a means for adaptive management if required.

2.2 Key Monitoring Components

The Wildlife Monitoring Plan consists of the following monitoring programs:

- **Wildlife Observation Monitoring** — The Project will include habitat loss, sensory disturbance, and increased mortality risk for wildlife. Many species of wildlife inhabit the Project area and interactions with wildlife are expected throughout the life of the Project. The wildlife observation monitoring program will document wildlife observed near Project Infrastructure and will support the other proposed monitoring programs listed below.
- **Wildlife Mortality Monitoring** — The Project has the potential to increase the risk of wildlife mortality. Mortality monitoring will document any Project-related wildlife mortality within the Local Study Area (LSA) and investigations will be completed on wildlife mortality within the Project footprint.
- **Moose Monitoring** — Indirect habitat loss from Project activities may create sensory disturbances; temporarily reduce the effectiveness of habitats adjacent to the Project footprint; potentially cause alteration to natural wildlife movement; and has the potential for increased mortality risk. Newmont has offered to partner with Environment Yukon (in the form of direct or in-kind funding) to conduct regional ungulate monitoring. However, until the regional monitoring program is implemented,

Newmont will monitor moose through late winter ungulate surveys as proposed in the YESAA assessment.

- **Caribou Monitoring** — Project-related sensory disturbances may result in reduced occurrence of caribou near Project infrastructure or may result in effects to caribou movement through the Project area. It may be difficult to monitor actual Project effects as caribou abundance and distribution depend on many factors. Environment Yukon will document regional distribution of caribou throughout the Project area.
- **Thinhorn Sheep Monitoring** — Project activities may create sensory disturbances and/or temporarily reduce the effectiveness (usefulness) of habitats adjacent to the Project footprint, resulting in changed distribution and use. There is also an increased potential for direct mortality risk for sheep in the Ballarat Creek area from vehicle collisions. Monitoring for thinhorn sheep will focus on suitable habitats within the Thinhorn Sheep Monitoring Area along Ballarat Creek. Monitoring will include an annual survey and use of remote cameras and will be conducted during construction and two additional years; continued monitoring beyond the third year of operations will be subject to review of survey results.
- **Mineral Lick Monitoring** — Indirect habitat loss from Project activities, primarily traffic using the NAR, that may increase sensory disturbance and temporarily reduce the effectiveness of habitat adjacent to the Project footprint, including mineral licks. Monitoring of active mineral licks identified in the Project area will assess changes in mineral lick and use over time.
- **Paired Site Wildlife Road Use Study** — Packed trails/cleared roads give predators easier access in winter to parts of the range that would otherwise be inaccessible to predators. This access may facilitate additional predation on wildlife (particularly caribou and moose). This study will assess how wildlife uses the road, both on the snow-cleared road and on adjacent roads that are not cleared during the winter months.

If warranted based on the results of wildlife monitoring or supporting data collected for the Project, additional indicator monitoring programs may be developed. For example:

- **Trace Metals** — Baseline surveys included a sampling program to examine pre-development levels of trace metals within small mammal tissues. Trace metals sampling of vegetation will be conducted for the Project (refer to the **Vegetation Monitoring Plan**); if vegetation sampling shows a statistically significant increase or exceedance of Project-specific thresholds, small mammal tissue sampling for trace metals may be initiated.

2.3 Monitoring Areas

Several spatial boundaries (Figure 2-1) will be used for the wildlife monitoring programs outlined in this Plan. These monitoring areas are generally described using the following terms:

Project Footprint — The area in which Project-related physical disturbance will occur, plus a 50-m buffer. The Project footprint includes a total of 34 km², which includes the mine site and the new and existing sections of the NAR.

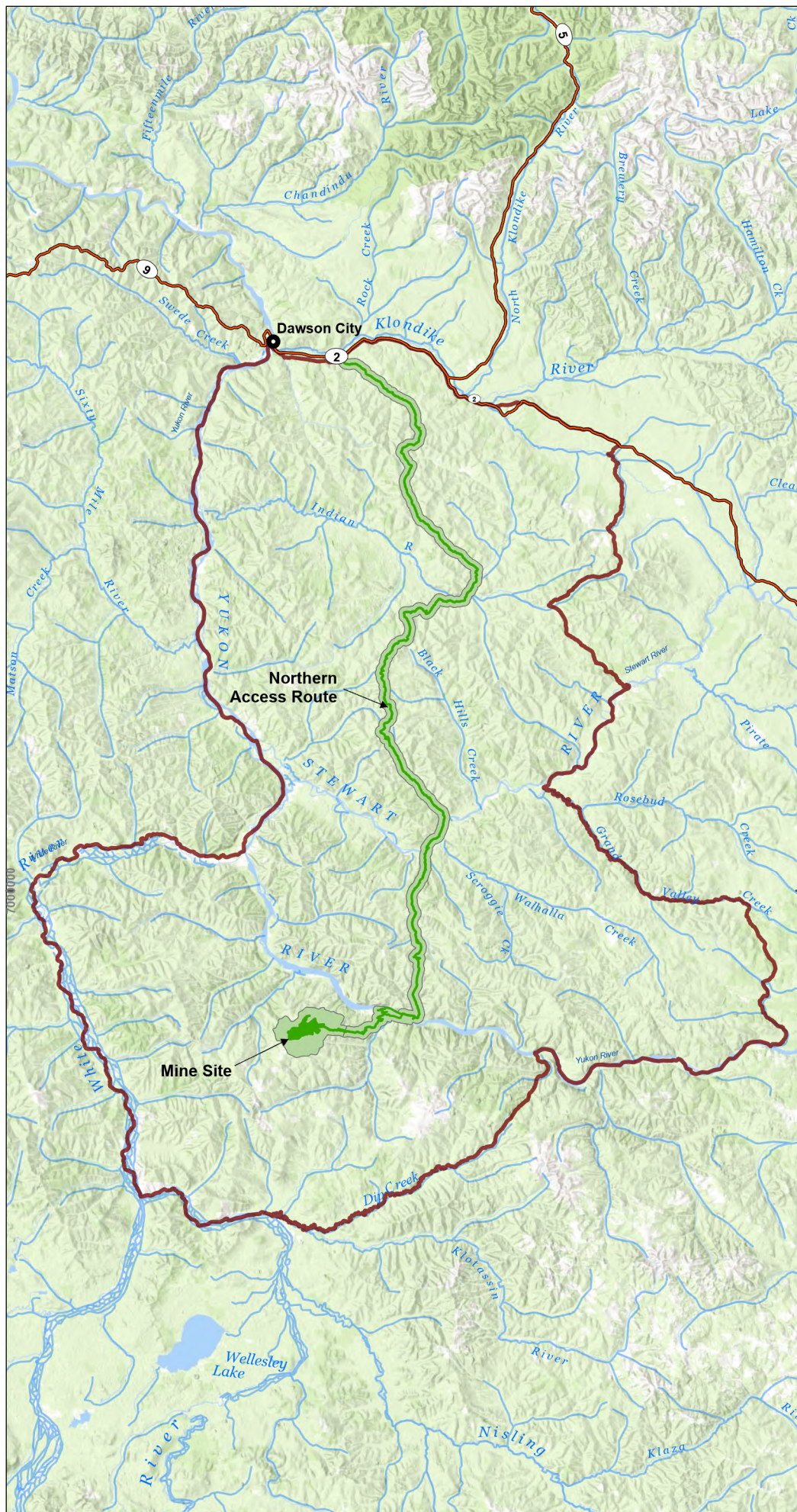
Project Area — The area encompassing the mine site and airstrip, plus a 250-m buffer, as well as the area encompassing the footprint of the access road between the Mine Site and airstrip, and the footprint of the Northern Access Route, plus a 500-m buffer on either side of the centerline. The Project area includes a total of 220 km².

Local Study Area (LSA) — The LSA encompasses the area within which the Project is expected to interact with and potentially result in changes or effects to the component. The Wildlife LSA is approximately 473 km² and includes the proposed mine site area, the road between the existing Coffee Camp and the deposit (i.e., the Java Road), the current airstrip, Coffee Camp, and the proposed NAR to the junction with the Klondike Highway. Around the mine site, the LSA was delineated based on the height of land while encompassing a minimum buffer of 1 km around the proposed development. Along the NAR, the LSA includes a 1 km buffer on either side of the road.

Regional Study Area (RSA) — The RSA provides the regional context for the analysis of potential Project-related changes or effects within the LSA; the RSA generally also encompasses the area where residual Project-related changes to the component or subcomponent are likely to combine with the residual changes of other projects and activities to result in a cumulative change to the component or subcomponent. The Wildlife RSA was designed to include any game management subzone that intersects or is near the Project footprint, including the NAR. The RSA is 13,661 km².

COFFEE GOLD MINE

**Coffee Project
Wildlife Monitoring Areas**



Legend

- City/Town
- Highway
- Project Footprint
- Wildlife Local Study Area (LSA)
- Wildlife Regional Study Area (RSA)

Notes

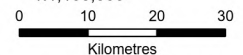
1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

Sources

1. World Topo Base: Sources: Esri, HERE, DeLorme, InCREMENT P Corp., NPS, NRCAN, Ordnance Survey, © OpenStreetMap contributors, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodastyrrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
2. Project access and infrastructure provided by Goldcorp Inc. (2017).



1:1,100,000



NAD 1983 UTM Zone 7N

Page Size: 8 1/2" x 11"

Figure 2-1

Date:
Sep 18, 2024

Drawn by:
MP/OL

Reviewed:
AM/LP



2.4 Links to Other Disciplines

As terrestrial wildlife are directly linked to the quality and quantity of available habitat (i.e., vegetation); monitoring information collected under the **Vegetation Monitoring Plan**, including habitat loss (i.e., mine site footprint), reclamation effectiveness, vegetation health (i.e., trace metals), and invasive plant monitoring, will help inform the identification of effects on wildlife and wildlife habitat. Similarly, monitoring air quality, noise, and surface water quality may aid in identifying and/or explaining effects on wildlife and wildlife habitat. Additionally, the monitoring conducted for wildlife may help inform potential effects on land and resource use, and human health. Figure 2-2 provides a diagram of the relationships to other disciplines, where the direction of the arrow indicates the potential effect of one discipline on another:

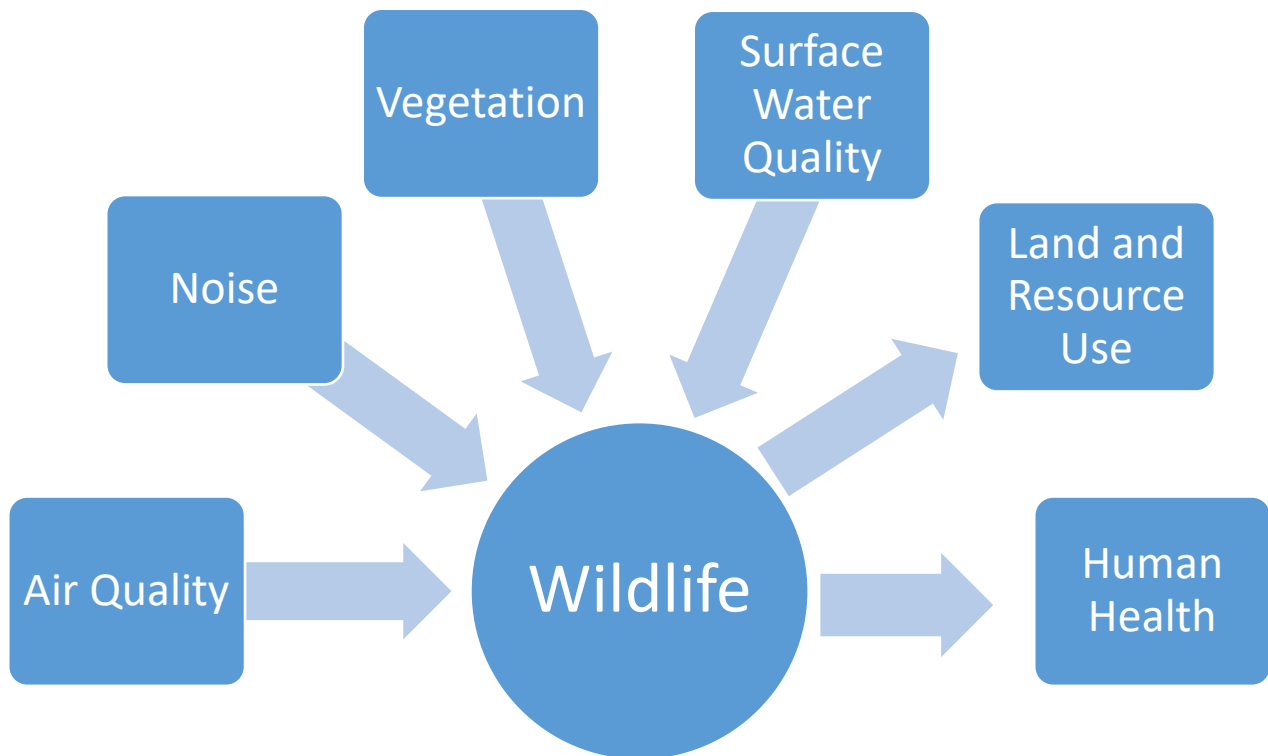


Figure 2-2 Diagram of the Relationship between Wildlife and Other Disciplines

Additionally, supporting information from general Project monitoring and operational management of the site will aid in the management and monitoring of effects to wildlife and may provide additional perspective to help identify why an effect is occurring. These include:

- Project activity monitoring — tracking of Project activity at the mine site, including, construction and operational activities; reported annually as required by Quartz Mining License.
- Traffic monitoring — tracking of Project and non-Project related traffic volumes along the NAR; refer to details in the **Access Route Construction Management Plan**.

- Building assessments — regular inspection, at appropriate times of year, of mine site infrastructure for use by birds or mammals, including use as a nesting structure, or as a haven for potential problem wildlife (e.g., foxes denning under buildings); refer to details in the **Wildlife Protection Plan**.
- Waste management assessments — regular inspections of Project facilities and waste disposal sites to ensure that wildlife are not frequenting these areas, and assessment of the effectiveness of waste management practices; refer to details in the **Waste and Hazardous Materials Management Plan**.
- Site-specific monitoring of wildlife habitat features during Project construction — no-disturbance buffers have been developed for nests, dens, mineral licks, and other wildlife habitat features; if construction activities cannot feasibly avoid the recommended setback, site-specific monitoring may be conducted; refer to details in the **Wildlife Protection Plan**.
- Details on monitoring programs planned for the NAR during the pre-construction, construction, and operation phases are available in the NAR Monitoring Plan appended to the Access Road Construction Management Plan and the Access Road Operational Management Plan.

2.5 Overview of Wildlife Monitoring and Adaptive Management

As described in Section 2, the wildlife monitoring program focusses on adverse residual effects predicted to have a high likelihood of probability. However, not all valued subcomponents and residual effects identified in the Project effects assessment were selected for monitoring. In some instances where residual effects to a valued subcomponent were assessed as low, specific follow-up monitoring was deemed not necessary. However additional monitoring may be triggered through adaptive monitoring and management if related monitoring programs or supporting data indicate that Project effects exceed predicted effects.

Table 2-1 summarizes the relationship between valued subcomponents, predicted residual effects, and Project monitoring. The table also outlines the measurable parameters and supporting monitoring data that will be used to assess potential effects. Measurable parameters are components that can effectively track an effect and upon which adaptive management thresholds can be applied. Supportive data provides additional perspective and may help identify why an effect is occurring but cannot generally be used on their own to make definitive conclusions about wildlife.

Wildlife monitoring programs outlined in this Plan have identified thresholds. Any exceedance of a threshold will result in an investigation into the cause and the implications of the exceedance. Depending on the results of the investigation, corrective actions may be recommended including implementation of additional mitigations, changes to existing mitigations, and/or additional monitoring of potential effects. Investigations, findings and recommendations will be completed in collaboration with the Project's wildlife biologist. The Wildlife Monitoring Plan will be updated as needed based on new information. More information is available in the Environmental Monitoring and Adaptive Management Plan.

Table 2-1 Project Effects, Monitoring Components, Measurable Parameters and Supporting Monitoring Data for Wildlife

Project Effect	Subcomponents Expected to Experience Residual Effects	Monitoring Component	Measurable Parameters	Supporting Data
Habitat Loss & Reduced Habitat Effectiveness	Fortymile caribou Klaza caribou Moose	Habitat Loss Monitoring (i.e., footprint monitoring; see Vegetation Monitoring Plan)	<ul style="list-style-type: none"> Size of footprint (comparison of proposed footprint and actual area disturbed) 	<ul style="list-style-type: none"> Reclamation Effectiveness Monitoring (see Reclamation & Closure Plan)
	Thinhorn sheep Grizzly bear Wolverine	Wildlife Observation Monitoring (Section 3.0)	<ul style="list-style-type: none"> Wildlife use of Project footprint and adjacent habitats 	<ul style="list-style-type: none"> Project activity monitoring (see Mine Operations Plan) Traffic monitoring (see Access Route Construction Management Plan) Dust monitoring (see Air Quality and Greenhouse Gas Monitoring Plan) Noise monitoring (see Noise Monitoring Plan)
	American marten Little brown myotis Cliff-nesting raptors Passerines	Moose Monitoring (Section 5.0)	<ul style="list-style-type: none"> Abundance and distribution of moose 	
	Upland-associated species at risk Wetland-associated species at risk Bank Swallow	Caribou Monitoring (Section 6.0)	<ul style="list-style-type: none"> Distribution of caribou 	
		Thinhorn Sheep Monitoring (Section 7.0)	<ul style="list-style-type: none"> Thinhorn sheep presence in the Ballarat area 	
		Mineral Lick Monitoring (Section 8.0)	<ul style="list-style-type: none"> Ungulate use of the lick 	
Mortality Risk	Fortymile caribou Moose	Wildlife Mortality Monitoring (Section 4.0)	<ul style="list-style-type: none"> Occurrence of Project-related wildlife mortality 	<ul style="list-style-type: none"> Traffic monitoring (see Access Route Construction Management Plan) Waste management assessments (see Waste Management Plan)
		Paired Site Wildlife Road Use Study (Section 9.0)	<ul style="list-style-type: none"> Wolf/predator use of the NAR 	
Alteration of Movement	Fortymile caribou Thinhorn sheep	Caribou Monitoring (Section 6.0)	<ul style="list-style-type: none"> Distribution of Fortymile caribou 	<ul style="list-style-type: none"> Project activity monitoring (see Mine Operations Plan) Traffic monitoring (see Access Route Construction Management Plan)
		Thinhorn Sheep Monitoring (Section 7.0)	<ul style="list-style-type: none"> Thinhorn sheep presence in the Ballarat area 	
Contaminant Uptake	None	Vegetation Trace Metals Monitoring (see Vegetation Monitoring Plan) ¹	<ul style="list-style-type: none"> Increased concentration of trace metals in soil and selected plant species 	<ul style="list-style-type: none"> Dust monitoring (see Air Quality and Greenhouse Gas Monitoring Plan)
Damage or Destruction of Nests	None	None	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Preclearing surveys and site-specific monitoring of active nests (see Wildlife Protection Plan)
¹ If vegetation sampling shows a statistically significant increase or exceedance of Project-specific thresholds, small mammal tissue sampling for trace metals may be initiated				

3.0 WILDLIFE OBSERVATION MONITORING

3.1 Background and Objective

Wildlife Observation Monitoring will occur via the Wildlife Log, which was established at the Coffee Project in 2010 and is ongoing. The purpose of the wildlife log (see Appendix A) is to document wildlife presence in the Project area and record any interactions with Project personnel and activities. Data collected as part of the Wildlife Log between 2010 and 2017 are summarized in EDI 2017b and EDI 2018.

3.2 Study Design Overview

Wildlife observation monitoring is intended to track wildlife observations within and adjacent to the Project footprint; the information collected will provide data to support management of wildlife interactions onsite and inform other monitoring components. Wildlife observations are routinely recorded to ensure wildlife are protected at the site and that mitigations are being followed. Observation data collection by site personnel provides valuable insight into wildlife trends, proactively helps identify potential wildlife-related conflicts, and increases mine personnel engagement in wildlife monitoring and protection. The design of the wildlife observation monitoring program is summarized in Table 3-1.

Table 3-1 Overview of Wildlife Observation Monitoring Program

Monitoring Component	Description
Indicator	Wildlife presence – all species
Monitoring Category	Environmental surveillance
Design	Observational
Measurable Parameter	Occurrence of wildlife use
Key Project Interactions	The Project may result in habitat loss, sensory disturbance and increased mortality risk for wildlife.
Threshold	N/A - Data will be used to support other monitoring programs and inform adaptive management where applicable.
Objective	To document wildlife presence in the Project area, including interactions with personnel and facilities.
Scope of Monitoring Work	All wildlife sightings within the Project LSA will be documented in the Wildlife Log. Monitoring will be ongoing throughout the life of the Project.

3.3 Monitoring Locations and Frequencies

Wildlife observation monitoring will be ongoing throughout the life of the Project. It will be conducted on an opportunistic basis as wildlife are observed by Project personnel, as complimentary monitoring in addition to the other planned programs. The monitoring will be focussed on the Project footprint; however, any wildlife observations made within the LSA will be recorded.

3.4 Methods

This monitoring program is a continuation of current site procedures for Exploration. Site personnel are required to record all wildlife sightings within the Project footprint and report to Newmont's Environment Department who track them using the wildlife observation database. Additionally, personnel will use the log to document any wildlife mitigation measures employed (e.g., "caribou on the road – vehicle stopped to allow it to pass, caribou passed in front and walked into the forest on the other side") and the animal's response to the mitigation.

The wildlife observation reporting process is a key part of the Project's commitment to wildlife protection. Orientation training (see the Wildlife Protection Plan) for site personnel will include the guidelines for reporting wildlife observations.

For each wildlife sighting, the following information will be collected, when possible:

- name of the observer;
- date and time of observation;
- location of the observation, including landmarks or GPS waypoint where possible;
- species involved (identification to the best ability possible);
- number of animals observed and their sex/maturity;
- animal behaviour/activity, whether personnel implemented any mitigation measures, and how the animal(s) responded; and

any additional comments deemed relevant. The Environment Department will review all wildlife observation reports and will investigate observations to ensure that appropriate mitigations have been applied, if required. Any trends in wildlife observations will be investigated. For example, if a bear is reported at KM 4 of the Java Road more than one day in a row, the Environment Department would alert all site personnel to the possibility of a wildlife encounter in or near that location and may investigate any possible reasons for the repeated observations.

A copy of the Wildlife Log is provided in Appendix A.

3.5 Data Analysis, Interpretation and Reporting

All wildlife observations recorded at the Coffee Project will be added to the Environment Department's database. Wildlife observations will be summarized by species and assessed for any trends. Wildlife observations will be summarized in an annual report, including number of animals observed for each species. An example of data reporting is provided in the Coffee Gold Mine: Wildlife Field Program Report (EDI 2017a). The annual report will be shared with First Nations and regulators.

4.0 WILDLIFE MORTALITY MONITORING

4.1 Background and Objective

Mortality risk for wildlife has the potential to increase because of Project-related activities. Potential sources of mortality directly linked to Project activities may include collisions with vehicles or interactions with mine site infrastructure (e.g., entanglement in fencing, entrapment in open pits or ponds). The purpose of wildlife mortality monitoring is to document and track any Project-related wildlife mortality or near-misses within or adjacent to the Project footprint.

4.2 Study Design Overview

The documentation and tracking of any Project-related mortality and near-miss situations is intended to provide information to support Project management and assist in minimizing the potential mortality risk associated with the Project. The design of the wildlife mortality monitoring program is summarized in Table 4-1.

Table 4-1 Overview of Project-Related Wildlife Mortality Monitoring Program

Monitoring Component	Description
Indicator	Wildlife mortality – all species
Monitoring Category	Environmental surveillance
Design	Observational
Measurable Parameter	Occurrence of Project-related wildlife mortality
Key Project Interactions	The Project has the potential to increase mortality risk for wildlife directly through vehicle collisions and interaction with mine site infrastructure.
Threshold	Every Project-related mortality involving an ungulate or large carnivore will be reviewed to determine if further action is needed. Other mortalities will be dealt with on a case-by-case basis.
Objective	To document wildlife mortality and determine cause to reduce the risk of similar wildlife mortality in the future.
Scope of Monitoring Work	All observed Project-related wildlife mortalities within the Project LSA will be documented. Monitoring will be ongoing throughout the life of the Project as mortality occurs. Investigations will generally only be performed on incidents within the Project footprint.

4.3 Monitoring Locations and Frequencies

The documentation and tracking of any Project-related mortality will be ongoing, as required, throughout the life of the Project. The monitoring will be focussed on the Project footprint.

4.4 Methods

Incidents involving wildlife at the Coffee Mine Project will continue to be taken seriously. All site personnel are required to report any wildlife-related incidents, including near misses and observations of all deceased

wildlife within the Project footprint immediately to the Environment Department. This reporting process is a key part of the Project's commitment to wildlife protection. Orientation training (see the Wildlife Protection Plan) for site personnel will include the guidelines for reporting wildlife observations, incidents and near misses. Specifically for the NAR, Newmont will have personnel that are responsible for monitoring conditions of the NAR and advising project-related road users of potential hazards, including wildlife issues along the route; they will also record and report any potential wildlife mortalities to the Environment Department, in the event that other road users (including the public) have not reported or observed these incidents. This approach helps to ensure that both actual and potential risks to wildlife are monitored, documented, and addressed.

For each reported wildlife incident or near miss, the Environment Department will collect and review an initial event description, including the following:

- Name of the observer;
- Date and time of the incident or discovery;
- Precise location of the incident;
- Species involved (identification to the best ability);
- Number of animals involved;
- A description of the incident;
- Photographs; and
- Any additional comments or observations deemed relevant by the observer or Environment Department.

Once received, the Environment Department will review the initial event description, enter the incident into an incident database, and assign an event severity. For wildlife incidents involving wildlife legislated under the Yukon *Wildlife Act*, the Environment Department will notify the Yukon Environment Conservation Officers and affected First Nations. Incidents involving migratory birds should also be reported to Environment and Climate Change Canada (ECCC).

Following the review of the event description, the Environment Department will investigate the incident or near miss which may include the following, depending on the circumstances of the incident or near miss:

- Detailed photographs of the incident;
- Interviews with staff or contractors who were in the area at the time or immediately preceding the incident;
- On-site inspections of infrastructure and areas where wildlife may have come into contact with the Project;
- A review of traffic and activity logs to determine whether human activity contributed to the event;
- Review of mitigation measures that were active during the event;
- Yukon Environment Conservation Officers may request that the Environment Department collect specific information regarding the incident or may visit the site to investigate the incident; and
- Correspondence with Project Biologists.

Deceased wildlife in the Project footprint may be a health and safety hazard. It is important to collect all information using personal protective equipment and as safely as possible. Disposal decisions regarding wildlife under the Yukon *Wildlife Act* will be made in collaboration between the Environment Department and the Yukon Environment Conservation Officers. On-site disposal will follow the Waste and Hazardous Materials Management Plan.

Once the investigation is completed, the Environment Department, working in collaboration with Yukon Environment Conservation Officers and/or Project Biologists as necessary, will determine the root cause of the incident or near miss. If a root cause is determined, an action plan will be developed to identify corrective measures to prevent similar occurrences, if possible. The action plan may be developed with Yukon Environment Conservation Officers, Project Biologists and/or affected First Nations, depending on the specific circumstances.

Once the investigation and the action plan are completed for species under the Yukon *Wildlife Act*, the final report will be shared with Yukon Environment Conservation Officers and affected First Nations. The results of the final investigation and action plan will be stored in the Project's incident database. These data will be used for documentation purposes and for proactive analysis of potential trends or patterns that may indicate the need for adaptive management strategies.

4.5 Data Analysis, Interpretation and Reporting

All wildlife mortality incidents, along with a summary of the associated investigations and any corrective actions, will be included in the Project's annual report. This report will be shared with regulators and First Nations to provide a comprehensive overview of the Project's wildlife protection efforts. Should there be a pattern of recurring mortality events, the Environment Department will initiate more detailed analysis to identify trends and implement more robust preventive measures.

5.0 MOOSE MONITORING

5.1 Background and Objective

During Project consultation, moose were recommended as a priority species for the Project by both government regulators (e.g., Sutor 2015) and First Nations (e.g., N. Becker, Pers. Comm. 2016). This was due to moose being both the dominant ungulate species present in the RSA, as well as a prominent harvest species in the region. Moose were identified as a Valued Environmental and Socio-economic Component in the YESAB review of the Project, which determined that there was a potential for significant cumulative effects to moose, primarily due to the potential for increased harvest resulting from improved road access (YESAB 2021). Due to the potential effects on moose populations, YESAB recommended several monitoring requirements for moose in the Decision Document for the Project (YESAB 2022). In recognition that the concerns largely center around cumulative effects, many of which are already in existence (as demonstrated by the current harvest levels), several of these recommendations are directed towards the Government of Yukon (Table 5-1). The only monitoring requirement directed towards Newmont (S.110 Monitoring Requirement Number C), is to be done “in coordination and consultation with Government of Yukon” (YESAB 2022). In response to these recommendations, Environment Yukon is currently in the process of developing a regional monitoring program in consultation with First Nations. Newmont has offered to collaborate with Environment Yukon for the monitoring program (in the form of either direct support or in-kind funding). However, until the regional monitoring program is implemented, Newmont will continue to monitor moose using methods from developed during baseline late winter moose surveys, conducted for the Project between 2014–2018 (EDI 2017a, 2018, 2019).

The initial late winter surveys for moose (2014–2017) conducted for the Project were carried out using intensive stratification methods similar to those used by Environment Yukon in previous regional surveys for moose; these baseline surveys provided information about moose distribution and habitat use that were required to support the Project application to YESAB (EDI 2017a, 2018). However, review of the baseline study design and survey results in 2018 indicated that the survey methodology needed to be adjusted if the survey was to be used for long-term monitoring of Project effects on moose — specifically, the survey intensity used during the baseline surveys was too low to support the monitoring objectives. Consequently, the study design was modified in 2018 to better address the monitoring objectives (EDI 2019). Following completion of the 2018 survey, the revised study design was analysed to determine the ability of the late winter survey program to detect changes in ungulate abundance and distribution. This power analysis recommended further refinements to the study design (specifically reducing the survey extent to a smaller buffer around the Project footprint and increasing survey intensity within that reduced area) to improve the ability to detect change in moose distribution (EDI 2019).

In addition to late winter surveys, Project effects monitoring for moose will also be conducted through the following programs:

- Wildlife observation monitoring;
- Wildlife mortality monitoring;
- Mineral lick monitoring; and
- Wildlife road use study.

Table 5-1 S.110 Monitoring Requirements for Moose Recommended by YESAB (YESAB 2022)¹

Number	Monitoring Requirement
A	<p>The Government of Yukon shall implement a monitoring program for linear development (i.e., roads) and surface disturbance (i.e., mined areas) in the White Gold area in relation to effects to moose and other wildlife (i.e., caribou). The program shall be scoped with the following considerations:</p> <ol style="list-style-type: none"> 1. Monitoring shall include past developments and disturbances as well as reclamation efforts. 2. Monitoring shall seek to consolidate the quantity and quality of data submitted by Proponents into a consistent format for intended use in this program. 3. The program shall aspire to define significant cumulative linear and surface disturbance thresholds in the White Gold area for moose and caribou prior to issuance of any new Quartz Mining Land Use approvals, or expansion by more than 5% of the disturbance area for existing approvals. 4. The program shall be developed collaboratively with First Nations with traditional territory overlapping the area. First Nation participation in the monitoring program shall be funded by the Government of Yukon. 5. The program shall be guided by a Terms of Reference (ToR), developed by consensus with Government of Yukon and First Nation government representatives. The ToR shall define temporal and spatial scopes, roles and responsibilities, and overall mandate. <p>Monitoring shall reflect and complement priorities identified in and work undertaken for the Dawson Land Use Plan.</p>
B	<p>The Government of Yukon shall implement monitoring of the overall abundance of moose in the Dawson Gold Fields MMU² using a variety of methods that allow for tracking of population abundance and spatial distribution, such as aerial surveys and tracking of licensed harvest data, and which are performed consistently throughout the Project’s lifecycle. Surveys should be conducted in early winter, commencing prior to construction, with subsequent surveys at five-year intervals, where possible, and include involvement of monitors from affected First Nations. The subsequent effects monitoring shall be informed by survey results and annual monitoring of all licensed moose harvest in game management subzones adjacent to and intersecting the Northern Access Route.</p>
C	<p>The Proponent shall, in coordination and consultation with Government of Yukon, undertake effects monitoring of moose populations for areas of direct overlap with mine infrastructure, including the Northern Access Route, and for areas determined to be in the ZOI for moose within the Dawson Gold Fields MMU, Lower Stewart MMU and White Gold MMU.</p>

¹ YESAB 2022 Decision Document — Executive Committee Screening: Coffee Gold Mine

² MMU = moose management unit

5.2 STUDY DESIGN OVERVIEW

Late winter moose monitoring is intended to document changes in late winter moose abundance and distribution within the Project area. Although initially intended to monitor both moose and caribou, given the annual fluctuations in caribou distribution within the FMCH winter range, the late winter study was designed for moose. Information on caribou abundance and distribution will be collected when the FMCH is present. The design of the late winter moose survey program is summarized in Table 5-2.

Table 5-2 Overview of Late Winter Moose Monitoring Program

Monitoring Component	Description
Indicator Species	Moose
Monitoring Category	Surveillance, environmental effects monitoring
Design	Stratified random block
Measurable Parameter	Late winter abundance and distribution of moose (and incidental observations of caribou)
Key Project Interactions	The Project may result in habitat loss, sensory disturbance and increased mortality risk for moose
Objective	Evaluate trends in moose distribution and abundance during the late winter season.
Threshold	Effects on moose distribution or abundance exceeding those identified in the effects assessment.
Scope of Monitoring Work	Late winter moose surveys will consist of an aerial survey, using a stratified random block design, conducted in the 2018 late winter ungulate survey extent.

5.3 MONITORING LOCATIONS AND FREQUENCIES

The late winter moose survey will be conducted annually between mid- February and mid-March during construction and after the first three years of operation. Surveys beyond this period will be determined following analysis of the survey results and discussion with Environment Yukon and First Nations. This survey is dependent on weather and snow conditions; discretion by a qualified wildlife biologist is required.

The survey will be conducted within the Late Winter Moose Monitoring Area (Figure 5-1) which was developed for the 2018 late winter survey. The Monitoring Area consists of an approximate 10 km buffer along the NAR and an approximate 15 km buffer around the proposed mine area, totalling 4,080 km²; it is delineated into a 4 km by 4 km grid and has been stratified into High (20 SUs), Moderate (110 SUs), and Low (125 SUs) sample units (SUs) for moose using baseline survey data (2014–2018). Based on the results of the 2018 power analysis, future monitoring will consider reducing the survey extent within the Monitoring Area to a smaller buffer around the Project footprint (e.g. maintaining the same 4 km by 4 km grid but focussing survey efforts on SUs within approximately 5 km of the Project footprint). This will allow for an increased survey intensity within that reduced area, which is predicted to increase the ability of the monitoring to detect changes in moose distribution (EDI 2019).

5.4 METHODS

The late winter moose survey will be conducted using stratified random block (SRB) survey methods based on Gasaway et al. (1986) which is consistent with the methods used during the 2018 late winter ungulate survey (EDI 2019). Prior to each annual survey, a subset of the 255 SUs will be selected for survey using a stratified random draw using the following weights for each stratum: all High SUs, 30–40% of Moderate SUs, and 15–20% of Low SUs. The desired precision for each survey is a 90% confidence interval with a

maximum range of +/- 20% around the abundance estimate (Ward et al. 2000, Heard et al. 2008) and a target range of +/- 15%. During field surveys, the population estimate will be updated daily using the cumulative survey results (data will be entered into a computer program such as MoosePop to calculate variance in each stratum) and optimal sample sizes of each stratum will be adjusted to achieve the lowest possible confidence intervals for the overall population estimate. Although the survey is designed for moose, incidental caribou observations will also be recorded.

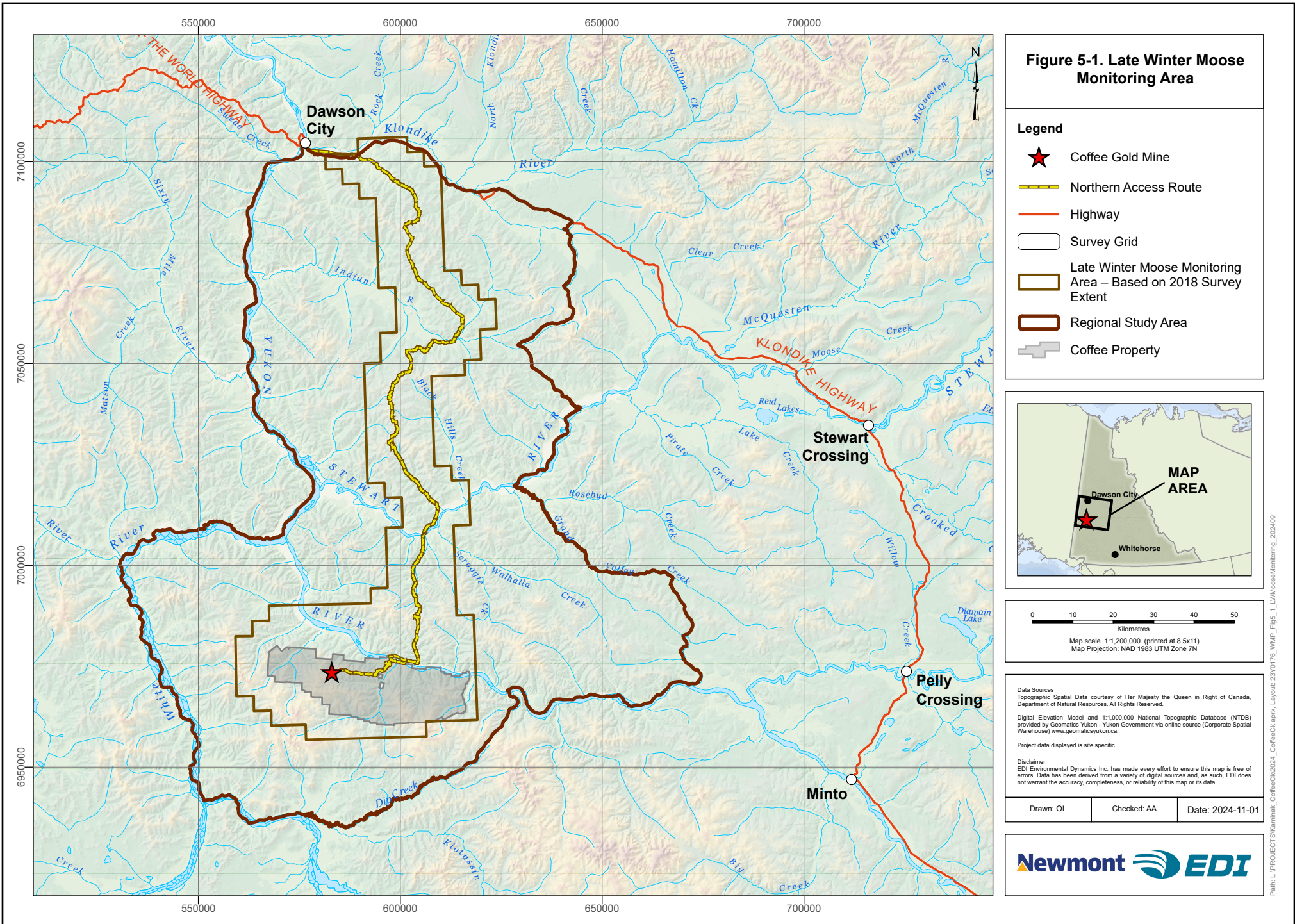
During the aerial survey, each selected SU will be surveyed using transects spaced at 250-300 m, flown at low level (approximately 50–100 m above trees) by helicopter operating at speeds between 70–100 km/h. Survey crews will consist of three observers, plus the pilot. The focus of the survey is on moose, but all wildlife observations will be recorded. When an animal is detected within a SU, the helicopter will deviate from the transect to obtain an accurate location of the animal and to classify the animal by sex and as mature or immature (calves). Once the required information is collected, the crew will return back to the transect and continue the survey from where they deviated.

5.5 DATA ANALYSIS, INTERPRETATION AND REPORTING

Following completion of the survey, survey data will be checked for QA/QC and the final population and density estimates will be calculated. To account for moose not seen, a sightability correction multiplier of 1.09 will be applied to all estimates. This factor is based on previous surveys conducted by Yukon Government and what is accepted as a standard error or “sightability correction factor” for similar surveys in this region (Fontaine et al. 2016). GPS files will be uploaded to a mapping program such as ArcGIS and maps will be generated showing the distribution of moose and caribou observations.

Survey results will be presented in that year’s annual report required by the Quartz Mining License. Annual reporting will include a description of the survey methods, results, and data analysis including:

- The number of SUs surveyed by strata;
- Survey conditions including weather and snow coverage;
- The number of moose and caribou observed, and relevant descriptions of group size and age/gender distribution;
- An estimate of the number of moose within the study area;
- A description of ungulate distribution through the survey area; and
- A summary of any incidental wildlife observations made during the survey.



6.0 CARIBOU MONITORING

6.1 Background and Objective

The Klaza Caribou Herd (KCH) and Fortymile Caribou Herd (FMCH) were selected as focal species for the environmental assessment of the Project by both the proponent (Goldcorp 2017a) and YESAB (YESAB 2021), both of which looked at effects on habitat use, mortality and movement.

The FMCH is a migratory herd of caribou that displays long-distance movements between calving and summer range in the higher elevation habitat of the Yukon-Tanana Upland in east-central Alaska, and a much larger winter range. The herd once numbered in the hundreds of thousands, and historically ranged over large areas of Alaska and the Yukon, including the entire wildlife RSA; however, following a population decline in the 1970s, the herd abandoned nearly all its range in the Yukon. Aided by conservation actions in the Yukon and Alaska in the 1990s, the herd began returning to the Yukon in 2002 but remained largely limited to habitats west of Dawson until 2013 (Kienzler and Sutor 2015). Starting in the winter of 2013/2014, the FMCH expanded its current range in the Yukon to the east, re-inhabiting historic ranges last used in the 1960s, including parts of the wildlife RSA. The herd peaked in size in 2018 with an estimated 84,000 caribou; however, since then it has experienced a notable decline, and the most recent population estimate in July 2022 estimated the herd at approximately 38,000 caribou (Alaska Department of Fish and Game, 2023). Analysis of satellite collar data and Project baseline survey data found that the FMCH are generally using habitats in Yukon during the winter months, between October and April, with a small amount of summer use also detected in the Yukon. FMCH presence within the RSA has been sporadic with large numbers of Fortymile caribou present during the winters of 2013/2014 and 2015/2016, and minimal use of the RSA in other years.

The Klaza caribou herd is a resident herd located in the Dawson Range Mountains in central Yukon and is designated as part of the northern mountain population of woodland caribou. The most recent population estimate for the Klaza caribou (2012) estimated the herd at 1,179 animals. Throughout their range, the KCH are typically concentrated in higher elevation habitats, including Klaza, Apex, Prospector, and Nansen mountains. The Project is located at the northern extent of the annual range for the Klaza caribou herd, and the RSA does not overlap with the Klaza winter range. Baseline studies for the Project noted occasional observations of Klaza caribou within the RSA and LSA between May and September; these were typically single caribou or small groups of caribou, as would be expected on the periphery of the range. Based on observations to date, the Project is expected to interact with members of the KCH during the spring, summer, and/or fall months but the herd is not expected to use the RSA in any considerable numbers.

The effects assessment for the Coffee Gold Mine (Goldcorp 2017a) determined that the Project has the potential to affect caribou through habitat loss (FMCH and KCH), reduced habitat effectiveness (FMCH and KCH), mortality risk (FMCH) and effects on movement (FMCH); while these effects were expected to be low in magnitude, confidence in some of these predictions was only moderate due to uncertainties around future habitat use and distribution. The YESAB review of the Project concluded that the Project could result in significant adverse effects to the Fortymile Caribou Herd due to effects on movement and mortality, but that these Project effects could be reduced and controlled through the application of appropriate mitigation measures; the Project was not expected to result in significant adverse effects to the Klaza Caribou Herd (YESAB 2021). However, like the proponent, YESAB noted uncertainty in effect predictions relating to the future herd sizes, range condition and subsequent distribution of caribou (YESAB 2021). In order to reduce

uncertainty around Project effects on both the Fortymile and Klaza caribou herds, YESAB recommended caribou monitoring requirements in the Decision Document for the Project, directed at Government of Yukon (YESAB 2022; Table 6-1).

Table 6-1 S.110 Monitoring Requirements for Caribou Recommended by YESAB (YESAB 2022)

Number	Monitoring Requirement
D	Within 5 years of commencing operations, Government of Yukon shall conduct regional surveys, focusing on the interactions between the Fortymile and Klaza caribou herds and the Project. These surveys shall be conducted for the purposes of understanding the direct effects of the Project as well as the effects of the Project's induced development on herd movements and populations, establishing adaptive management thresholds and determining if additional measures are required should the evidence indicate there are negative project-related effects on caribou, either directly or indirectly.

6.2 Study Design Overview

At present, caribou are found in the Project area only sporadically and usually in small numbers. Additionally, their presence within the Project area varies dramatically from year to year, often because of regional factors. During the Project baseline phase, Newmont investigated options for monitoring the potential effect of the Project on habitat use by caribou; one example of this was the pellet plot removal study conducted from 2014–2017 (EDI 2017a). However, these investigations concluded that unless/until caribou start inhabiting the Project area in larger numbers and on a more consistent basis, any attempt to monitor caribou response to Project disturbance is likely to be unsuccessful. A power analysis conducted on the proposed pellet plot removal study in 2018 determined that to accurately detect an effect, consistent numbers of caribou would need to occur in the study area. Under the current levels of caribou use, the criteria required for the study could not be met and the program would only be able to detect a very large change in abundance over multiple years, which precluded the opportunity to effectively implement adaptive management strategies (EDI 2019).

Consequently, Newmont's approach to monitoring caribou will be two-fold:

1. Rather than attempt to directly monitor a potential avoidance response by caribou, Newmont will monitor the effect pathways which could potentially result in an avoidance response. This includes monitoring of noise (Noise Monitoring Plan), dust deposition and trace metals levels, vegetation loss (Vegetation Monitoring Plan), traffic levels (Access Road Operational Management Plan) and Project activity (refer to 'Supporting Data' for monitoring Habitat Loss & Reduced Habitat Effectiveness identified in Table 2-1). Details of the monitoring programs for each of these components are described separately in the relevant monitoring plans (Table 2-1).
2. Newmont will make use of the data being collected on caribou in the Project region by Environment Yukon and other parties, to evaluate trends in caribou use of and movement through the Project area in consultation with Environment Yukon. Several studies on the Fortymile Caribou Herd are currently being undertaken by Environment Yukon, Alaska Fish and Game, local First Nations and various other partners to better understand and manage the FMCH (Environment Yukon 2018). Additionally, as recommended by YESAB (Table 6-1), further monitoring of the Klaza Caribou Herd is expected in response to Project development. On an annual basis, Newmont will consult with Environment Yukon to identify any new research or monitoring data relevant to either herd, and

review of that data in relation to the Project activities, Project footprint and, where relevant, baseline data. Additionally, Newmont will conduct an analysis of satellite collar data collected on the FMCH and KCH after i) three years of operation to assess whether caribou use of the Project area has changed since baseline data collection, particularly regarding seasonal use of the RSA and migration patterns through the RSA; and ii) following any major migration event through the RSA to assess for effects on movement (FMCH only). These analyses are dependent on there being a sufficient number of caribou present in the RSA and interacting with the Project to provide a robust analysis. Information from these analyses will be reviewed in relation to the predictions of the effects assessment along with the Project activities and Project footprint to determine whether additional management actions are required to limit Project effects on the FMCH.

An overview of the Caribou Monitoring program is summarized in Table 6-2.

Table 6-2 Overview of Caribou Monitoring

Monitoring Component	Description
Indicator Species	Fortymile and Klaza Caribou
Monitoring Category	Baseline research, surveillance, environmental effects monitoring.
Design	Analysis of available data including ungulate survey data, satellite collar data and other available research/studies.
Measurable Parameter	Caribou distribution and migration patterns.
Key Project Interactions	The Project may result in habitat loss, sensory disturbance, and reduced occurrence of caribou near Project infrastructure. Project infrastructure or Project-related sensory disturbances may also result in effects to caribou movement through the Project area.
Objective	Evaluate trends in caribou use of and movement through the Project area.
Threshold	Effects on caribou distribution or migration exceeding those identified in the effects assessment.
Scope of Monitoring Work	Analysis of FMCH and KCH satellite collar data from government-sponsored satellite collaring program, data from ungulate surveys, and other available information to inform caribou distribution patterns within the RSA and migration movements. A detailed analysis of FMCH and KCH use of the Project area will be conducted after three years of operation to assess for trends and following any major migration event through the RSA to assess for effects on movement. Analysis of other caribou data (e.g., regional surveys for the KCH) will be conducted as this information becomes available.
Agency/Partner Participation	Environment Yukon, Alaska Department of Fish and Game, Alaska Bureau of Land Management.

6.3 Monitoring Locations and Frequencies

Newmont will consult with Environment Yukon on an annual basis to identify any new relevant research or monitoring data on the FMCH and KCH. A detailed analysis of Fortymile and Klaza caribou distribution and migration movements will be conducted in Year 3 of Operations. Additionally, in the event of a major migration event through the RSA, Newmont will request FMCH satellite collar data for the migration period and conduct a detailed analysis on migration movements through the RSA in relation to Project activities and the Project footprint.

The analyses will focus on the wildlife RSA; however, use of the RSA will be assessed within the context of caribou use of the broader Fortymile Caribou Herd Study Area and Klaza Caribou Herd Study Area (Figure 6-1). The Fortymile Caribou Herd Study Area was delineated during baseline studies and is equivalent to the Fortymile Caribou Regional Assessment Area (FC-RAA) used in the assessment of Project effects. It is based on a polygon provided by Environment Yukon (M. Suitor, Pers. Comm., 2015) that outlines the area of the Yukon where the FMCH can reasonably be expected to use within the coming decade. It encompasses all areas that the FMCH used between 2002 and 2016 and additional habitats to the east which caribou may use if the herd continues expanding. Similarly, the Klaza Caribou Herd Study Area was delineated during baseline studies and is based on the annual range of the KCH (polygon provided by Environment Yukon).

6.4 Methods

On an annual basis, Newmont will reach out to Environment Yukon to inquire about any new relevant research or monitoring data on the FMCH and KCH. When new data or research on either herd is identified, Newmont will request the survey data or copies of the research reports and review the results in relation to the Project activities and Project footprint, and where appropriate, compare the new information to baseline data to assess changes in distribution, habitat use and/or movement.

The analysis of FMCH and KCH distribution and migration in Year 3 of Operations will primarily consist of an investigation of updated satellite collar data on the herds but may also include a review of other new information including survey data, habitat modeling, research studies, and/or any changes in management regimes. Updated satellite collar data will be requested from the Alaska Department of Fish and Game (FMCH), and Yukon Environment (FMCH and KCH). Specific analysis may include:

- Analysis of caribou distribution and habitat use (FMCH and KCH)
- Calculation of residency times for the Project footprint, RSA, and the Fortymile Caribou Herd Study Area for the FMCH (as per methods outlined in EDI 2017b)
- Analysis of long-distance movement patterns to identify areas where the FMCH are migrating (as per methods outlined in EDI 2017b).

The results of the collar analysis will be compared with the predictions of the effects assessment to determine whether effects are within the range predicted. If the analysis finds that effects to either the FMCH or KCH are greater than predicted, the results of the collar analysis will be further investigated to determine if additional management actions are needed to limit effects on caribou. This may include review of, or comparison of the collar data analysis with some, or all, of the following supporting data sources (cross-referenced in Table 2-1):

- The annual Project footprint;

- Project activity monitoring and/or traffic monitoring data;
- Dustfall modelling (TetraTech 2019) and/or data from the dust monitoring program; and
- Noise modelling and/or data from the noise monitoring program.

Similarly, in the event of a major migration of Fortymile caribou through the RSA, Newmont will request satellite collar data for the FMCH during the migration period from the Alaska Department of Fish and Game and Yukon Environment. This data will be analysed for long-distance movement patterns to identify areas where the migration was focussed (as per methods outlined in EDI 2017b) and look for any diversion or delay in migration in comparison to the baseline. If effects to the migratory movements are detected beyond what was predicted in the effects assessment, a deeper review of supporting data will be triggered, and Newmont will investigate additional management actions to limit effects on the FMCH.

6.5 Data Analysis, Interpretation and Reporting

The outcome of the detailed analysis of caribou data in Year 3 will be an update to the Project baseline information on the both the FMCH and the KCHF. The resulting report will describe caribou distribution and habitat use in relation to the Project footprint. It will also identify the average length of time that caribou spend in the RSA and Project footprint and, to the extent possible, assess where the caribou are in relation to Project infrastructure. If a migration of the FMCH is observed in the RSA, then the location and timing of that migration will be discussed. Caribou observations by Project personnel and any relevant mitigations that are implemented will also be described.

Any other analysis of caribou monitoring data will be presented in that year's annual report, as required by the Quartz Mining License. Reporting will include a description of methods, results, and data analysis.

If analysis indicates that either Fortymile or Klaza caribou use of the Project area has changed notably since the original baseline data collection (i.e., beyond what was predicted in the effects assessment), Project mitigation will be reviewed to determine whether additional mitigation or monitoring actions are required to minimize Project effects. Where applicable, the report will include a description of any proposed changes to wildlife mitigation or monitoring practices.

7.0 THINHORN SHEEP MONITORING

7.1 Background and Objective

Thinhorn sheep distribution within the RSA is limited to the bluffs along the Yukon River in the Ballarat Creek area. The cliffs on the north side of the Yukon River have been designated by Environment Yukon as a Wildlife Key Area for thinhorn sheep. Sheep are thought to cross the Ballarat Creek valley to move between suitable habitats along the Yukon River.

Although the Project does not directly affect sheep habitats, the NAR follows the Ballarat Creek valley and may interact with sheep moving along the Yukon River cliffs. Project-related activities in the area may result in sensory disturbance and could increase mortality risk, both directly and indirectly. Additionally, sheep are extremely sensitive to aircraft traffic, and fleeing behaviour can lead to direct injury or mortality.

Environmental baseline surveys for thinhorn sheep included multiple aerial surveys, ground-based surveys and remote camera monitoring. Observations to date have documented small groups ranging from one to eight individuals present in the Ballarat Creek area. The maximum of eight sheep observed within the RSA is well below the threshold necessary for a self-sustaining population. However, baseline observations have suggested that these sheep are not members of an isolated population, but that periodic movements of sheep are occurring between the Ballarat Creek area and other sheep populations in the region (e.g., White River occurrence area, and/or Minto occurrence area).

Continued survey efforts in the Ballarat Creek area will focus on monitoring sheep distribution and presence.

7.2 Study Design Overview

Thinhorn Sheep Monitoring will consist of an annual aerial survey of the Ballarat Creek area and remote camera monitoring along the Ballarat Creek bluffs. An overview of the Thinhorn Sheep Monitoring program is provided in Table 7-1.

Table 7-1 Overview of Thinhorn Sheep Monitoring

Monitoring Component	Description
Indicator Species	Thinhorn Sheep
Monitoring Category	Baseline research contribution.
Design	Observational — aerial (aircraft or drone) surveys conducted during the post-lambing period; remote camera monitoring.
Measurable Parameter	Sheep presence in the Ballarat Creek area.
Key Project Interactions	Project activities may create sensory disturbances and/or temporarily reduce the effectiveness (usefulness) of habitats adjacent to the Project footprint, resulting in changed distribution and use.
Objective	To monitor thinhorn sheep distribution in the Ballarat Creek area.
Threshold	Not applicable.
Scope of Monitoring Work	Monitoring for thinhorn sheep will focus on suitable habitats within the Thinhorn Sheep Monitoring Area along Ballarat Creek. Monitoring will include an annual survey and use of remote cameras and will be conducted during construction and two additional years; continued monitoring beyond the third year of operations will be subject to review of survey results.

7.3 Monitoring Locations and Frequencies

Monitoring will be conducted within the Thinhorn Sheep Monitoring Area (Figure 7-1) which is equivalent to the Focal Sheep Survey Extent used for sheep surveys conducted during the baseline period (EDI 2017a). Monitoring will consist of one aerial survey conducted annually during the post-lambing period (June/July) and remote camera monitoring which will be conducted year-round. Monitoring will be conducted during construction and for two additional years. Continued monitoring beyond the third year of monitoring will be subject to review of survey results.

7.4 Methods

Aerial Survey

Thinhorn sheep surveys will follow the methods used in EDI 2017a. The survey will be conducted by helicopter within the Thinhorn Sheep Monitoring Area. Each survey will be conducted by two qualified biologists, both sitting on the left side of the helicopter. The helicopter will start at the west end of the survey area, with the first pass being conducted on the lower slope and will survey along the Yukon River slopes to the eastern edge of the survey area. Each subsequent pass will move vertically up the slope, to reduce disturbance to sheep, and other animals in the area. Two to four passes of each area with suitable habitat will be conducted. All sheep observations will be recorded using a handheld GPS and will include the following details, where possible: observation location, time, number of sheep, sex, and age.

Drone use is being explored as an alternative to helicopter use for monitoring, to reduce program costs and disturbance to sheep and to increase personnel safety.

Remote Camera Monitoring

Remote camera monitoring will continue along established wildlife trails along the Ballarat Creek bluffs and potential movement corridors in the Ballarat Creek valley. This monitoring program is a continuation of baseline studies. Reconyx PC900 Hyperfire cameras, or similar, will be used and cameras will be set to take three picture bursts on motion trigger with high sensitivity.

7.5 Data Analysis, Interpretation and Reporting

Aerial Survey

For the aerial survey, annual reporting will provide information on methods, weather conditions, flight information, survey crew and a summary of sheep observations. Sheep distribution information is considered sensitive data, and at the request of the Environment Yukon, this information will be kept confidential. Sheep locations (i.e., geographic coordinates or maps showing sheep locations) will not be included in the annual report.

Remote Camera Monitoring

Data analysis will include photo review and summarizing wildlife observations by species. The annual report will include a summary of remote camera monitoring details including service dates and any technical issues, summary of wildlife observations, and a discussion of any trends in observations. If Project personnel have observed any sheep in the area, this will also be included.

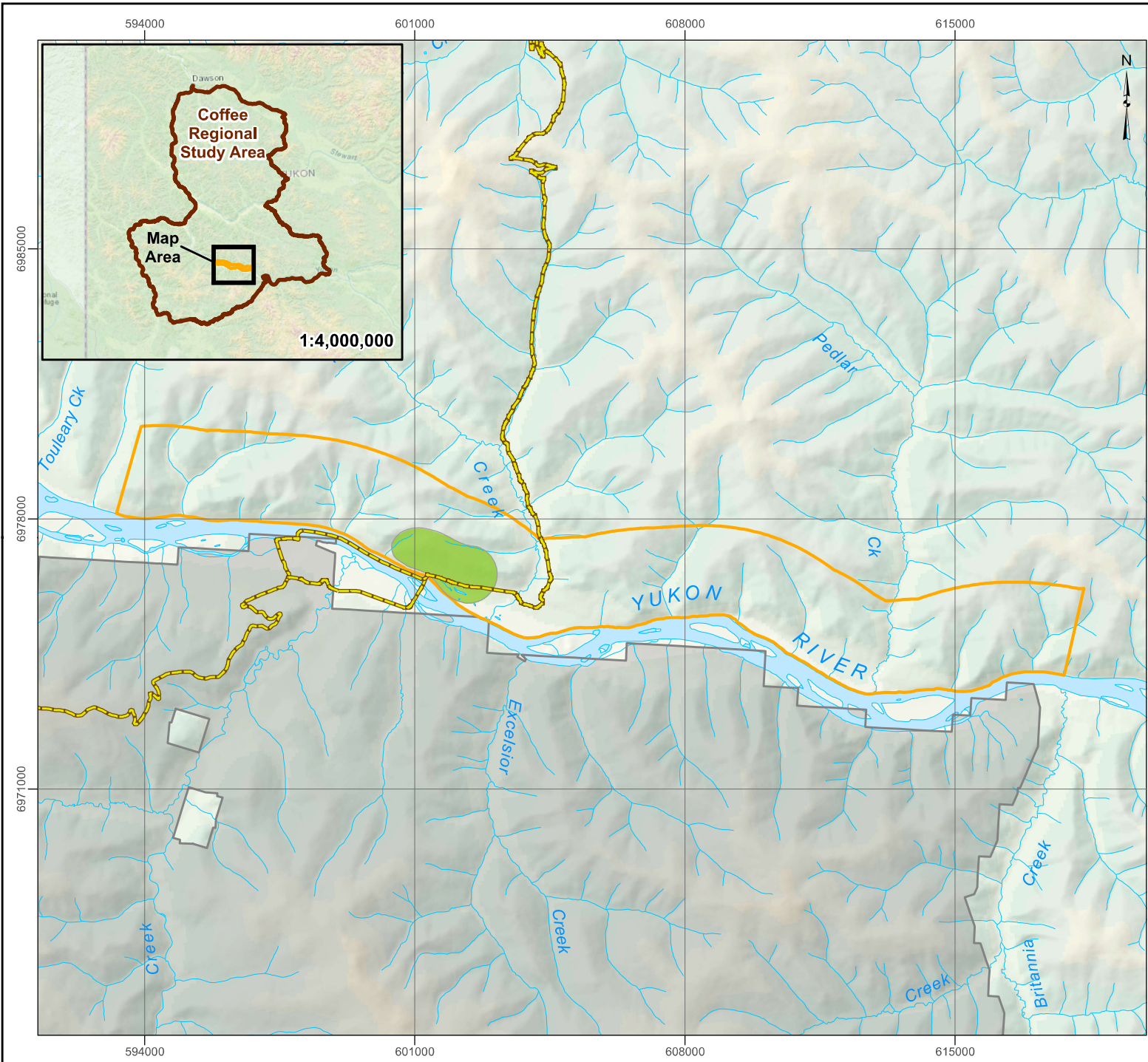




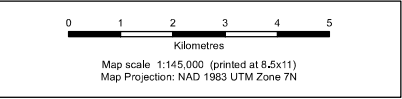
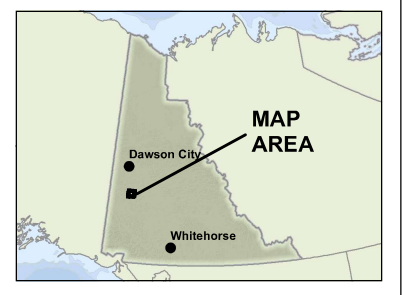


Figure 7-1. Thinhorn Sheep Monitoring Area

- Legend**
-  Northern Access Route
 -  Thinhorn Sheep Wildlife Key Areas
 -  Thinhorn Sheep Focal Area
 -  Coffee Property



Data Sources
 Digital Elevation Model and 1:1,000,000 National Topographic Database (NTDB) provided by Geomatics Yukon - Yukon Government via online source (Corporate Spatial Warehouse) www.geomatics.yukon.ca.

Wildlife Key Areas (WKA) are compiled by the Yukon Department of Environment WKA Inventory Program (2013).

Project data displayed is site specific. Survey data collected by EDI Environmental Dynamics Inc. (2020).

Disclaimer
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8.0 MINERAL LICK MONITORING

8.1 Background and Objective

A mineral lick is a naturally occurring deposit of salt and minerals that provides ungulates with essential nutrients which they may be otherwise lacking (Rea et al. 2004). Mineral licks used by moose are typically located in moist, muddy areas and are often identified by the presence of a worn trail or concentrated tracks in an area (Rea et al. 2004).

During baseline studies, one active mineral lick was identified in the LSA, between the Stewart and Yukon rivers (located on September 8, 2017). The lick is in an area of groundwater upwelling. It is heavily trampled and numerous moose tracks can be observed in the soft soils in and around the lick while several well-established wildlife trails were found leading to and from the lick. No direct effects to the lick are expected from the construction and operation of the NAR; however, wildlife using the lick may experience sensory disturbance from the construction and operation of the NAR.

Following identification of the mineral lick, remote cameras were installed at the lick to document the species using it, the level of use, and any seasonality of the use¹. Remote camera monitoring of the lick will continue through the construction period and the first three years of operation to document any changes in ungulate use of the site.

8.2 Study Design Overview

Mineral lick monitoring is intended to document any changes in ungulate use of the identified lick (Table 8-1). The information collected will help support Project management of the site and assist in minimizing potential Project-related effects. If monitoring indicates that Project activities are having a negative effect on the ungulates using the lick, additional mitigation may be implemented.

Table 8-1 Overview of Mineral Lick Monitoring

Monitoring Component	Description
Indicator	Ungulate use, particularly moose
Monitoring Category	Baseline research contribution; environmental effects monitoring.
Design	Observational — remote camera monitoring.
Measurable Parameter	Level of ungulate use at the lick.
Key Project Interactions	Project activities, primarily traffic using the NAR, may increase sensory disturbance to wildlife using the mineral lick.
Objective	To determine if mineral lick use changes because of Project activities.
Threshold	A statistically significant change in number of ungulate visits to the lick.
Scope of Monitoring Work	Monitor mineral lick using remote cameras, including frequency of use both seasonally and by species.

¹ The results of the first three years of monitoring at the mineral lick (September 2017 through December 2020) are reported in EDI 2021.

8.3 Monitoring Locations and Frequencies

Remote camera monitoring at Mineral Lick 1 will occur year-round. To ensure functionality, cameras will be serviced every month during the summer (May to September) and once every three months during the winter (October to April). One camera will monitor the mineral lick through the construction period and first three years of operations. Data collected will be used to determine future monitoring requirements.

8.4 Methods

Mineral lick monitoring will be conducted using a Reconyx PC900 Hyperfire remote camera, or other appropriate model. Baseline studies established a camera at Mineral Lick 1 in the area of highest use, positioned to provide maximum views of the mineral lick. The camera will be left in that location for the duration of the monitoring program to support long term monitoring. If additional camera monitoring is warranted, or further investigation of wildlife trails to and from the lick are determined necessary, then more cameras may be added. Cameras will be set to take three picture bursts on motion trigger with high sensitivity.

8.5 Data Analysis, Interpretation and Reporting

Following each field visit, SD cards will be downloaded, and photos will be saved to the Project folder. Photo analysis will be conducted annually, at a minimum. For each observation, the following information will be recorded: observation date, start time, end time, species, number of animals, animal activity. Analysis of lick visitation will be conducted by species. Moose observations will be categorized by sex, life stage, any unique identifying characteristics if applicable, and count. Seasonal use patterns will also be assessed.

The data will then be compared to pre-Project conditions (EDI 2021) to determine whether there has been a statistically significant change in ungulate use of the lick (number of moose visiting the lick or the timing of that use). Should the analysis determine that there has been a decrease in use, further investigation will be triggered into potential causes of this change. This may include:

- Consultation with Environment Yukon regarding the status of the regional moose population (i.e., has the moose population decreased).
- A survey of the mineral lick including the size and condition of the lick (compared to baseline), as well as the mineral composition of the lick (i.e., collection and analysis of a water sample from the lick to compare against baseline results).
- Review of traffic data from the relevant section of the NAR.
- Review of mitigation measures being implemented for the lick.

Depending on the outcome of the investigation, additional mitigation or monitoring actions may be implemented to minimize Project effects to wildlife using the mineral lick.

The annual report will include a summary of monitoring results, including: duration of camera monitoring, service dates, any technical issues encountered, dates for when snow was present, a summary of wildlife observations including species present, number of occurrences (defined as a distinct camera trigger which may be an individual or a group) and total count (defined as the number of individuals observed), a discussion of any trends in observations, including seasonal trends, and comparison with baseline conditions. If applicable, the report will also include a description of any investigation and resulting changes to wildlife mitigation or monitoring practices.

9.0 WILDLIFE ROAD USE STUDY

9.1 Background and Objective

During Project consultation, both the Tr'ondëk Hwëch'in Technical Working Group (TH TWG) and Environment Yukon raised concerns regarding the potential use of the NAR during the winter and the potential for year-round maintenance of the road to create new access for the predation of ungulates (TH TWG, Pers. Comm. 2016, Suitor 2015). To address this concern, a paired site wildlife road use study was initiated during baseline studies to assess wolf use along the NAR (EDI 2017a).

9.2 Study Design Overview

Assessing use of the NAR by wolves and other predators is intended as a research-level question to address the possibility that road maintenance activities may facilitate the use of the general area by predators. The design of the wildlife road use study is summarized in Table 9-1.

Table 9-1 Overview of the Wildlife Road Use Study

Monitoring Component	Description
Indicator Species	Wildlife use, particularly wolf
Monitoring Category	Baseline research contribution; environmental surveillance
Design	Observational (remote camera) and opportunistic
Measurable Parameter	Trends in wolf/predator use of Project access roads
Key Project Interactions	Cleared roads give predators easier access in winter to parts of the range that would otherwise be inaccessible to predators. Winter maintenance along the NAR may facilitate additional predation on wildlife (particularly caribou and moose).
Objective	To determine if wolf use of the roads along the NAR increases because of Project Road maintenance.
Threshold	N/A
Scope of Monitoring Work	Remote cameras will be used to document wolf and other wildlife use along the NAR and nearby roads. Monitoring will focus on winter use of the roads and will be conducted during construction and the first three years of mine operation; continued monitoring beyond the third year of operations will be subject to review of survey analysis results.

9.3 Monitoring Locations and Frequencies

The Wildlife Road Use Study was initiated during baseline studies in 2015. Six areas were identified along the proposed NAR alignment between the Indian River and the Yukon River (Figure 9-1) where roads existed but were not maintained throughout the winter period. At each site, two cameras were set up on existing roads or trails — one camera was installed on the NAR alignment and a second camera was installed on a nearby road or trail. Each camera was given an alphanumeric identifier, with each paired site starting with the same letter (i.e., A1 and A2).

The Wildlife Road Use Study will continue through the construction period and the first three years of operation. Continued monitoring beyond the third year of operations will be dependent on survey results.

9.4 Methods

This monitoring program is a continuation of the baseline paired site road use study and as such, the methods used in that study will be continued.

9.5 Data Analysis, Interpretation, and Reporting

Photo data collected from each of the remote cameras will be analyzed and recorded. Data will be summarized, by camera and by season, and will include number of wolf pack observations, total wolves recorded, wolf pack size, and relevant information on other wildlife documented by the cameras. Yearly data will be summarized in an annual report. Following the completion of three years of monitoring the data will be analyzed for any trends in predator use of the NAR.

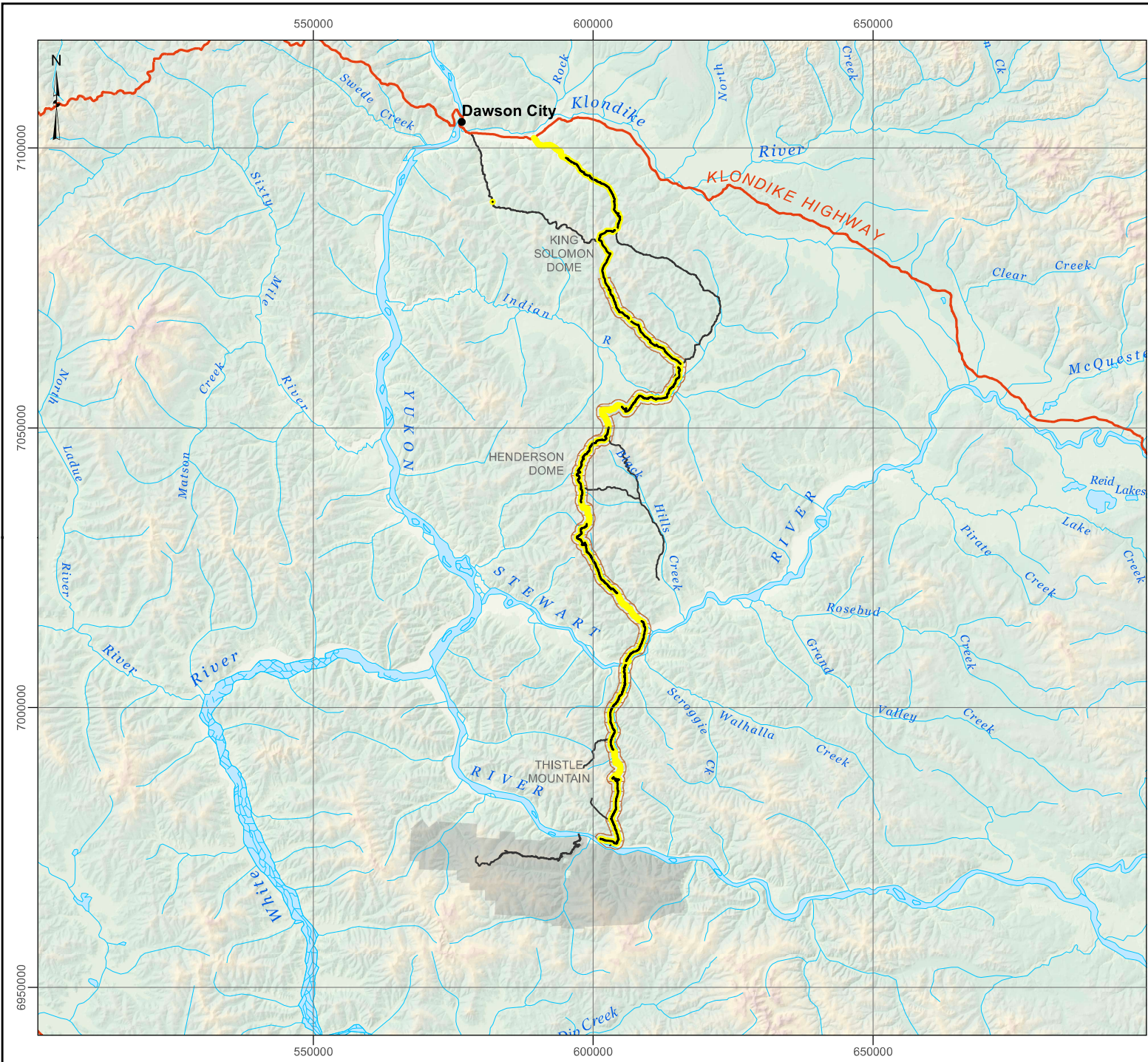
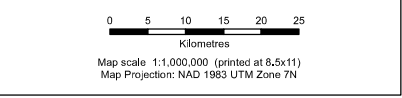
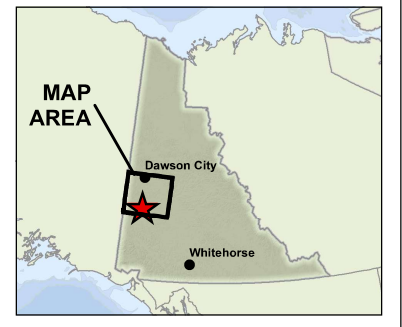


Figure 9-1. Wildlife Road Use Study

Legend

- Northern Access Route
- Existing Access
- Highway
- Coffee Property
- Wildlife Road Use Study Area



Data Sources
 Topographic Spatial Data courtesy of Her Majesty the Queen in Right of Canada, Department of Natural Resources. All Rights Reserved.
 Digital Elevation Model and 1:1,000,000 National Topographic Database (NTDB) provided by Geomatics Yukon - Yukon Government via online source (Corporate Spatial Warehouse) www.geomatics.yukon.ca.

Project data displayed is site specific.

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10.0 COLLABORATION ON REGIONAL AND INDUSTRY RESEARCH

Newmont takes its environmental responsibilities very seriously and is committed to making a positive difference in the areas in which Project teams work. While the effects of the Project on wildlife and wildlife habitats are expected to be managed through the mitigation measures applied and will be monitored to determine effectiveness, Newmont recognizes that there may be knowledge gaps regarding wildlife and wildlife habitat, the effects of industrial disturbance on wildlife, or cumulative effects within the Project region, that are not addressed by the identified Project-specific mitigation and monitoring programs. Newmont is committed to developing strong partnerships to increase regional knowledge and industry management to improve understanding and future decision making.

Since the commencement of Project baseline studies, the Project team has collaborated with local First Nations, government biologists, and academia in several initiatives, including, but not limited to:

- Collaboration with Environment Yukon on habitat modelling for the Fortymile Caribou Herd (2015--2017).
- Support of the Environment Yukon early winter moose survey in the Dawson Goldfields region (November 2015).
- In-kind support for a study on lichen availability within the Fortymile Caribou Herd range conducted by a PhD student from the University of Montana through Environment Yukon in partnership with the Government of Alaska (2018).
- In-kind support for Environment Yukon's early winter moose survey in the Dawson Goldfields region (November 2021).
- In-kind fuel donation for Environment Yukon's grizzly bear population monitoring program (2022).
- In-kind and direct funding support for Environment Yukon camera study program in and around the Project and region (2022-2024).

Newmont will continue a collaborative approach to research into regional or industry-related wildlife management issues. This ongoing work may be conducted in partnership with First Nations, government biologists, and academia. Support of specific program or research opportunities will be determined on a case-by-case basis.

11.0 REPORTING AND ANNUAL REVIEW

Reporting on the monitoring activities described in this Plan will be completed annually. The annual monitoring report will summarize the year's monitoring activities including a description of the methods used, a summary of the information collected, and, where relevant, any mitigation measures or adaptive management practices that were implemented to address effects detected during monitoring. The annual reporting will also:

- Summarize any pertinent findings from supporting monitoring (refer to Table 2-1) that are relevant to the management of wildlife on-site.
- Describe any investigations of Project-related wildlife mortality, wildlife-human conflict or other wildlife-related incidents and any corrective actions taken.
- Summarize any consultation with regulators, First Nations, Project-related working groups, or Project stakeholders regarding on-site wildlife issues.
- Outline any proposed changes to wildlife mitigation or monitoring.

Retrospective analysis of potential effects of the Project will be completed every three years, or as appropriate based on data collection, and will be more comprehensive than the annual monitoring reports. This analysis will include a review of wildlife distribution and abundance relative to baseline conditions and natural variability, as well as identified Project thresholds. Where appropriate, information from supporting data (Table 2-1) may be incorporated to provide additional perspective or help identify why an effect is occurring, and statistical analysis of the monitoring results may be performed.

This Wildlife Monitoring Plan is intended to be a living document and will be revised as new information becomes available, methods of monitoring are developed, or management issues arise that need to be addressed. Newmont will also continue to maintain a dialogue with regulators, governments, and Project stakeholders to further develop the details of this Plan. These parties may include, but will not be limited to: Yukon Environment, First Nations, Renewable Resources Councils, and various other land users.

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APPENDIX A

Wildlife Observation Log

Coffee Camp Wildlife Observation Log

Date	Time (24hr)	Observer	Location	Weather (sky conditions, temperature)	Animal Type	# of Adult Male(s)	# of Adult Female(s)	# of Adult Unknown(s)	# of Adolescent (not born this yr)	# of Young (born this year)	Total # of Animal(s)	Distance from Personnel	Direction of Movement	Description of encounter including, describing animal activity	Mitigation Measures Applied & Animal Response	Behaviour, circle what applies
8/20/2017	9:30	J. Smith	KM 18	Light rain, 5°C	Caribou	1	0	1	0	0	2	200 m	West	Walking along road	Stopped vehicle to allow caribou to cross	Curious Caution Disinterested <u>Calm</u> Aggressive Other
																Curious Caution Disinterested Calm Aggressive Other
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