

# **WILDLIFE PROTECTION PLAN**

## ***Hood River Gold Project***

**Kitikmeot Region, Nunavut**

**August 2019**



## PLAIN LANGUAGE SUMMARY

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This Plan describes possible effects the Project may have on wildlife and their habitat and describes what Blue Star Gold Corp. will do to minimize the effects from the Hood River Gold Exploration Project, near Kugluktuk, in the Kitikmeot Region, Nunavut.

## REVISION HISTORY

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Revision #	Date	Section	Summary of Changes	Author	Approver
1	April 2019	-	New document	EDI Environmental Dynamics	P. Kuhn
2	August 2019		Updated Document to include NIRB conditions	EDI Environmental Dynamics	S. Hamm

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## 1.0 INTRODUCTION

The Hood River Gold Project (the Project) involves exploration-related activities to assess previously identified gold targets, to conduct prospecting to locate new gold targets and to explore these targets. The Project is located approximately 210 km southeast of Kugluktuk in the Kitikmeot Region of Nunavut (Figure 1). The Project is currently only accessible by air. The Project is located on Inuit-owned land and is immediately adjacent to the Ulu property (Figure 1).

This Wildlife Protection Plan (the Plan, WPP) identifies wildlife typically found in the area, describes effects that Project activities may have on wildlife and their habitat, outlines actions that Blue Star Gold Corp. (Blue Star) will take to mitigate effects to wildlife and their habitat, and considers the guidance provided in Table 1. This Plan also considers input provided by the Kitikmeot Inuit Association (KIA), the Kugluktuk Angoniatit Association, Burnside & Omingmaktok Hunters and Trappers Organizations (HTOs) and the public.

Table 1 Relevant guidance documents including legislation, permits and licences.

Document	Authority
<i>Species at Risk Act</i> (2002)	Environment and Climate Change Canada
<i>Migratory Birds Convention Act</i> (1994)	Environment and Climate Change Canada
<i>Canada Wildlife Act</i> (1985)	Government of Canada
<i>Nunavut Wildlife Act</i> (2003)	Government of Nunavut
Draft Nunavut Land Use Plan (2016)	Nunavut Planning Commission
Draft Bathurst Caribou Range Plan (2018)	Department of Environment and Natural Resources, Government of Northwest Territories (GNWT)
Cape Bathurst, Bluenose-west, Bluenose-east Barren ground Caribou Herds Management Plan (2018)	Advisory Committee for Cooperation on Wildlife Management (ACCWM)
Beverly and Qamanirjuaq Caribou Management Plan 2013 – 2022 (2014)	Beverly Qamanirjuaq Caribou Management Board (BQCMB)
Management Plan for the Dolphin and Union Caribou in Northwest Territories and Nunavut 2018	GNWT and Government of Nunavut
Screening Decision Report (19EA019)	Nunavut Impact Review Board (NIRB)
Water Licence (2BE-HRP1924)	Nunavut Water Board (NWB)
Land Use Licence (KTL213C008)	KIA
Mineral Exploration Agreement HOODRIVER-001	Nunavut Tunngavik Incorporated (NTI)
Environment and Heritage Resources Protection Plan (2019a)	Blue Star
Spill Response Plan (2019b)	Blue Star
Waste Management Plan (2019c)	Blue Star
Emergency Response Plan (2019d)	Blue Star

Current and past authorizations exist for exploration-related activities on the property, including mapping, sampling, geophysics, drilling, prospecting, operating a camp, and conducting archaeology and environmental baseline studies. These authorizations are:

- NIRB screening 07EN067, 14EN033;
- NWB water licence 2BE-HRP1419;
- KIA Land use licence KTL314C010;
- NTI Mineral Exploration Agreement HOODRIVER-001.

For reference, Blue Star Gold Corp. was formerly known as WPC Resources Inc. and owns Inukshuk Exploration Incorporated. Blue Star also has an exclusive option agreement with Mandalay Resources Corporation to acquire the adjacent Ulu property (the relationship with Ulu is only described here to provide some context).

Program activities will occur within the Hood River watershed (Figure 1), with exploration activities such as drilling limited to the area defined under the exploration agreement with NTI. It is reasonable to expect that the boundaries of the exploration area may change over time based on exploration results. This area, as currently defined, is illustrated in Figure 1.

## **1.1 SCOPE**

This Plan applies to all exploration-related activities. The following activities may occur over the life of the Project:

- Staging to occur via the existing Ulu airstrip, a regionally accessible airstrip, and/or sea lift;
- Mobilization, drill support and access via helicopter and fixed wing aircraft;
- Constructing and operating a seasonal temporary camp able to support up to 60 people;
- Staking and prospecting;
- Drilling both on land and on ice;
- Caching of diesel and jet fuel at several locations proximal to drill targets and at the camp, and caching of propane and other materials at the camp site;
- Local overland winter access for camp and drill support;
- Temporary use of regionally available accommodations and support services;
- Archaeological overview and site assessments, where required; and
- Baseline environmental studies.

The exploration activities are expected to be seasonal and are currently scoped to last up to five years. It is expected that the exploration activities will start small and expand based on positive exploration results. The following activity estimations have been made to support planning, permitting and licensing:

- Initial exploration activities will occur in summer and fall 2019, including up to 30 people for a period of up to 3 months, or as weather permits, and will involve up to two drills, ground surveys, staking and establishment of a camp;
- Based on results from 2019, the exploration program could expand in subsequent years in duration and magnitude to include seasonal work extending from March to November utilizing up to six drills and housing up to 60 people in a camp onsite; and
- Based on a currently unknown rate of the exploration activities expansion, typical materials and equipment used and waste generation are estimated based on the maximum exploration activities magnitude and duration;
- Baseline environmental studies may be undertaken in the future throughout the Hood River watershed.



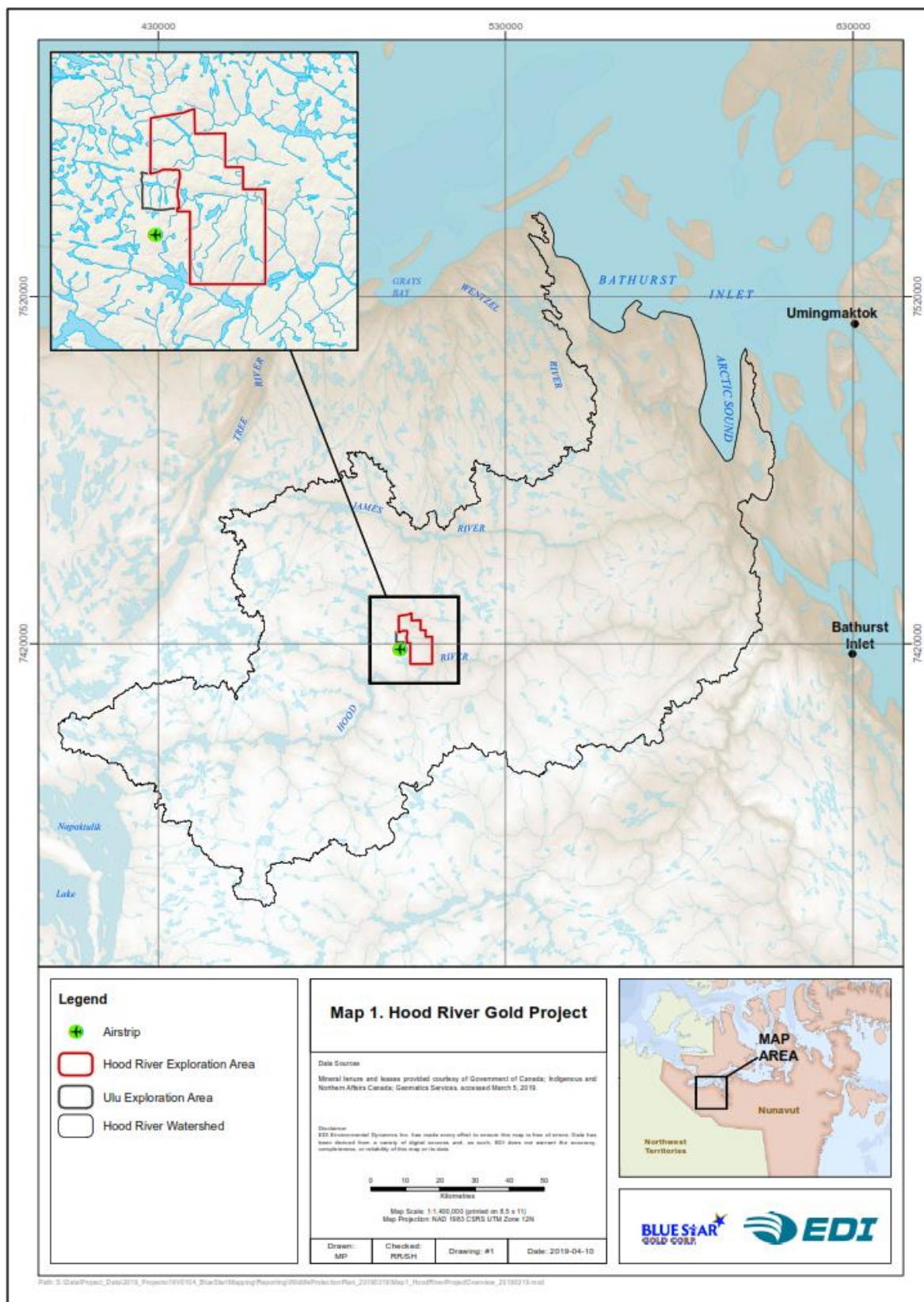


Figure 1 Hood River Gold Project site map



## **1.2 OBJECTIVES**

Blue Star acknowledges that wildlife, including caribou, have the potential to occur within the Project area (Figure 1), and that the Project has the potential to affect wildlife and wildlife habitat. Accordingly, the WPP strives to avoid or minimize potential Project-related effects on caribou and other wildlife. The primary purpose of the WPP is to outline wildlife avoidance strategies and measures to measures to minimize effects.

The objectives of the WPP are to describe measures to:

- Avoid or minimize any Project-related effects on wildlife species and their habitat;
- Avoid adverse effects on species such as caribou and their habitats; and
- Minimize wildlife and Project personnel interactions.

## **1.3 SITE DESCRIPTION**

The Project is located within the Southern Arctic Ecozone and the Takijuk Lake Upland Ecoregion. Much of this region is composed of unvegetated rock outcrops. Vegetative cover is characterized by shrub tundra, consisting of dwarf birch, willow, northern Labrador tea, avens species and blueberry species. Organic Cryosols are the dominant soils in the lowlands and permafrost is deep and continuous (Environment and Climate Change Canada (ECCC) 2019).

Characteristic wildlife includes caribou, muskoxen, grizzly bear, wolverine, Arctic hare, Arctic fox, red fox and wolf. Small mammals (e.g., Arctic ground squirrel, voles, and lemmings) are distributed throughout the region and provide an important food source for predators. Many species of migratory birds are present in the area during the summer season, including waterfowl, raptors, songbirds, and shorebirds, while some bird species are present year round (e.g., ptarmigan, gyrfalcon, and common raven) (ECCC 2019).

Notwithstanding the existing biodiversity in the region, none of the following protected sites were found within the Project area or immediately adjacent:

- Important Bird Areas (IBA) (IBA Canada 2019);
- Key Habitat Sites for migratory birds (Latour et al. 2008);
- Wetlands of International Importance (RAMSAR) (The Ramsar Sites 2019);
- Migratory Bird or Wildlife Sanctuaries (Government of Canada 2019); or
- Heritage Rivers (Canadian Heritage Rivers System 2019).

## **1.4 PLAN MANAGEMENT**

This Plan considers the wildlife species and their habitat that have the potential to occur within or adjacent to the Project area, and the related potential effects arising from Project-related activities. The Plan will be reviewed annually by the Project Manager and may be updated if:

- The Program scope changes to include new activities;
- Changes in conditions that could be biologically meaningful have been observed, such as caribou calving within the Project area;
- Results of ongoing stakeholder engagements indicate a Plan revision is necessary.

## **1.5 PLAN IMPLEMENTATION**

This Plan is effective upon approval and is valid throughout all phases of the Project.

The Project Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained on site in the Office.

## **2.0 ROLES AND RESPONSIBILITIES**

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Blue Star is responsible for activities associated with the Project, including implementation and management of this Plan. Blue Star's contact information is provided below.

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### **2.1 BLUE STAR PERSONNEL, CONTRACTORS, SUPPLIERS AND VISITORS**

All personnel conducting activities onsite, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities onsite. Specifically, these responsibilities include:

- Completing site orientation including wildlife awareness training;
- Reporting all incidental wildlife observations to the Wildlife Monitor or Project Manager; and
- Adhering to all established No Activity Buffers.

### **2.2 MANAGERS AND SUPERVISORS**

Managers and supervisors have a responsibility to ensure that staff, contractors, consultants and visitors have been trained in Blue Star wildlife mitigation expectations and procedures. Additional supervisor and manager responsibilities include:

- Conducting wildlife awareness training;
- Ensuring that all personnel adhere to recommended mitigation measures; and
- Ensuring all personnel adhere to all established No Activity Buffers.

## 2.3 WILDLIFE MONITORS

Designated personnel trained and qualified as Wildlife Monitors are responsible for:

- Confirming wildlife sensitive areas (dens, nests etc.) and establishing appropriate No Activity Buffers;
- Confirming presence/absence of caribou and other wildlife of special concern within the vicinity of Project activities;
- Responding to wildlife sightings and implementing recommended mitigation measures;
- Responding to wildlife interactions; and
- Managing wildlife documentation.

## 2.4 PILOTS

All pilots (helicopter and fixed-wing) are responsible for:

- Avoiding sensory disturbances to wildlife as described in Sections 5.5, 6.2, and 6.5.2 and Table 4 of this Plan; and
- Enforcing flying limits at all times except in emergency circumstances and during take-off and landing.

## 3.0 POTENTIAL EFFECTS

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Exploration activities may include surveys, drilling, surface sampling, test pitting, trenching, mapping, and prospecting. These activities could potentially have the following effects on wildlife and their habitat:

- Loss of habitat
- Displacement from and avoidance of habitat;
- Habituation and attraction to personnel, activities and/or the camp; and
- Unintentional interactions, disturbances and mortalities.

## 4.0 REGULATIONS AND MANAGEMENT PLANS

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The first step in mitigating Project-related effects is compliance with all relevant regulatory instruments such as legislation. Mitigation measures should also align with the goals and objectives of any land use plans for the area and any pertinent wildlife management plans.

### 4.1 FEDERAL LEGISLATION

#### **Migratory Birds Convention Act**

The *Migratory Birds Convention Act* (1994) prohibits killing or taking of migratory birds, their nests and eggs, and the deposition of harmful substances in areas frequented by migratory birds. Moving or disturbing migratory birds, their nests or eggs is a contravention of the Act.

#### **Species at Risk Act**

The *Species at Risk Act* (SARA 2002) was created to protect at risk wildlife on federal lands, as well as to define the critical habitat of listed species. The Committee on the Status of Endangered Wildlife in

Canada (COSEWIC) identifies and categorizes species at risk. The federal government considers these designations and may list species under SARA. Species listed under SARA have legal protection.

According to the Species at Risk Public Registry, the following species at risk could be found within the Project area:

- Barren-ground caribou;
- Grizzly bear;
- Wolverine;
- Peregrine Falcon;
- Short-eared Owl; and
- Red-necked Phalarope.

Different populations or herds of barren-ground caribou range throughout Nunavut. Barren-ground caribou is assessed by COSEWIC as being *threatened*. An increase in mineral exploration and development within barren-ground caribou habitat may cause some changes to caribou populations and available habitat. The Project area occurs within the delineated Bathurst herd range but there is the possibility of individuals from the Bluenose-east, Beverly, Ahlak and the Dolphin and Union herds to wander within the Project area seasonally.

Grizzly bear is listed federally as a species of *special concern*. Human activities such as campsites and industrial development may lead to bear-human conflicts and human-caused mortalities. Grizzly bears are becoming more common in areas of the NWT and Nunavut where they used to be rarely seen (Environment Canada 2014).

Wolverine is listed federally as a species of *special concern*. The potential threat to wolverine in the Territories is associated with human development or activities, disturbances to denning areas and human-caused mortalities due to conflicts (Environment Canada 2014).

Peregrine Falcon is federally listed as a species of *special concern*. While potential threats in the Territories include poaching of eggs for falconry, declining songbird or seabird prey populations, and susceptibility to organochlorine pesticide contamination (Environment Canada 2014), the Project poses none of these threats to Peregrine falcon.

Short-eared Owl is listed federally as a species of *special concern*. The potential threat in the Territories is human disturbance during the nesting period, which often results in the nest being deserted. Nests are found on the ground in grasslands, tundra, bogs, marshes and other open non-forested habitats (Environment Canada 2014).

Red-necked Phalarope is listed federally as a species of *special concern*. This species breeds in low- and sub-Arctic wetlands, near freshwater ponds, lakes, or streams. Climate changes could potentially dry out freshwater ponds and the expansion of shrubs into low- and sub-Arctic wetland habitats is expected to have a significant impact of habitat quality and availability (COSEWIC 2014). The build-up of contaminants in the Arctic environment and increase in industrial activities may also have negative impacts on breeding habitat (COSEWIC 2014).

It should be noted that some of the listed bird species at risk known distribution is not within or immediately adjacent to the Project exploration area but some of the listed bird species could stop over within the site during spring or fall migration.

## 4.2 TERRITORIAL LEGISLATION

### Nunavut Wildlife Act

The purpose of the *Nunavut Wildlife Act* (2003) is to establish a comprehensive program for the management of wildlife and their habitat including the conservation, protection and recovery of species at risk.

## 4.3 LAND USE PLANNING

The purpose of a land use plan is to outline which activities may occur where on a particular landscape. Only one land use plan for the Project area was located: the Draft Nunavut Land Use Plan (DNLUP, Nunavut Planning Commission 2016). While the current DNLUP is in draft only and has not yet been recommended for approval or approved, it is discussed herein and considered as guidance. Should the DNLUP be recommended for approval by the Nunavut Planning Commission (NPC) and approved by each of the Government of Nunavut, Government of Canada and NTL, it will apply to all Projects/Project proposals within the Nunavut Settlement Area (NSA) and Outer Land Fast Ice Zone including surface and subsurface lands, freshwater, marine areas and the beds of these bodies of water (NPC 2016). The DNLUP (2016) outlines guidance intended to direct resource use and development in the NSA and aims to achieve five goals:

1. Strengthening Partnership and Institutions;
2. Protecting and Sustaining the Environment;
3. Encouraging Conservation Planning;
4. Building Healthier Communities; and
5. Encouraging Sustainable Economic Development.

These five goals are intended to provide the foundation to meet the purpose of protecting and promoting the existing and future well-being of the residents and communities including restoring environmental integrity of the NSA (NPC 2016).

As set out in the DNLUP (2016), land use would be managed through a land use designation system wherein one of the following designations will be applied: Protected Area; Special Management Area; Mixed Use. Once in force, project proposals would be required to conform to the applied land use designations and meet the most stringent requirements, in the case of overlapping designations. Some of the proposed draft protected areas and special management areas could potentially be associated the Project area.

## 4.4 CARIBOU MANAGEMENT

In general, the purpose of caribou management and range plans is to provide guidance to manage this keystone species which plays a key ecological and cultural role in northern ecosystems. Four caribou management or range plans are applicable to the caribou populations that may interact with the Project area. The potential relevance of these plans to this WPP are described below. Further, caribou management tools in place elsewhere in Nunavut are discussed herein and are considered guidance.

### **Draft Bathurst Caribou Range Plan**

The Northwest Territories Department of Environment and Natural Resources has drafted a Bathurst Caribou Range Plan (Range Plan) that aims to balance the diverse interests of all governments, communities and stakeholders across the range in Nunavut, Northwest Territories and northern Saskatchewan (Government of Northwest Territories 2018). This range plan primarily has the goal of addressing issues related to cumulative land disturbance but is focused on managing disturbance to caribou and habitat to support recovery of the herd.

The Range Plan includes four specific management objectives:

1. Ensure the integrity of important habitats.
2. Ensure connectivity between seasonal ranges.
3. Ensure the amount of human-caused land disturbance is kept below certain levels.
4. Ensure the development, design and use of roads is managed with consideration to caribou.

Through application of the WPP, Blue Star endeavors to ensure project activities align with these objectives.

### **Cape Bathurst, Bluenose-west, and Bluenose-east Barren-ground Caribou Herds Management Plan**

In 2008, the Advisory Committee for Cooperation on Wildlife Management (ACCWM) was established. The ACCWM is made up of seven co-management boards and agencies with the priority to develop a plan for the Cape Bathurst, Bluenose-west and Bluenose-east caribou herds. The Cape Bathurst, Bluenose-west and Bluenose-east barren-ground herds management plan goals are to:

- Maintain herds within known natural range of variation;
- Conserve and manage caribou habitat; and
- Ensure that harvesting is respectful and sustainable (ACCWM 2014).

The following principles from the management plan are reflected in this WPP:

- Impacts to caribou herds and their habitat will be anticipated; and
- Adequate habitat (quantity and quality) is fundamental to the welfare of the herds (ACCWM 2014).

The WPP includes mitigation measures that align with these goals and principles, where appropriate.

### **Beverly and Qamanirjuaq Caribou Management Plan 2013-2022**

The Beverly and Qamanirjuaq Caribou Management Board (BQCMB) manages these two caribou herds that migrate across Manitoba, Saskatchewan, the Northwest Territories and Nunavut. The BQCMB is made up of hunters, biologists and wildlife managers from Northern Canada. The mission of the BQCMB is to ensure the long-term conservation of the Beverly and Qamanirjuaq caribou herds. This management plan defines and outlines nine key goals:

1. To conserve the Beverly and Qamanirjuaq caribou herds in a cooperative manner;
2. To strengthen support for caribou conservation;
3. To increase knowledge of barren-ground caribou and the caribou-human system;
4. To monitor caribou population status over time;
5. To monitor the harvest of caribou;
6. To conserve the Beverly and Qamanirjuaq caribou herds within their natural range of abundance;
7. To ensure adequate amounts of high quality habitat;
8. To strive for the sustainable [wise] use of caribou; and
9. To influence commercial land use in a way that protects Beverly and Qamanirjuaq caribou and their habitats (BQCMB 2014).

The WPP includes mitigation measures that align with these goals, where appropriate.

#### **Management Plan for the Dolphin and Union Caribou in the Northwest Territories and Nunavut**

This plan describes management goals and objectives for the Dolphin and Union caribou herds and also recommends approaches to achieve those objectives (GNWT and Government of Nunavut. 2018). The goal of the management plan is to provide sustainable harvest opportunities for current and future generations and to maintain the long term persistence of a healthy and viable caribou population that moves freely across its current range.

To achieve this goal, five objectives have been established, combined with twelve recommended approaches:

1. Adaptively co-manage Dolphin and Union caribou using a community-based approach.
2. Communicate and exchange information on an ongoing basis between parties using a collaborative and coordinated approach.
3. Collect information to fill knowledge gaps on Dolphin and Union caribou using *Inuit Qaujimajatuqangit* (IQ) and traditional knowledge (TK), community monitoring and scientific methods.
4. Minimize disturbance to habitat and preserve sea ice crossings to maintain the ability of Dolphin and Union caribou to move freely across their range.
5. Ensure management is based on population level so future generations can benefit from sustainable harvesting opportunities (NWT and NU 2018).

The WPP includes mitigation measures that align with these objectives, where appropriate.

#### **Mobile Caribou Conservation Measures for the Kivalliq Region**

On behalf of the Kivalliq Inuit Association (KIA), Poole and Gunn (2015) developed Mobile Caribou Conservation Measures for the Kivalliq Region, Nunavut to minimize the potential effects of mining and exploration activities to caribou. The suggested measures are a tool to separate exploration activities from caribou, based on rules for conduct of industrial activities that may cause disturbance to caribou.



Implementation of mobile conservation measures may reduce encounters and exposure of caribou to exploration camps, aircraft, and related activities through avoiding and minimizing impacts. The mobile measures do allow some flexibility by allowing activities to occur if caribou are not in the vicinity within a seasonal Conservation Area (e.g., calving, post-calving, and migratory).

The WPP includes mitigation measures that aligns with the concept of mobile caribou conservation measures.

## **5.0 GENERAL MITIGATION MEASURES**

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A variety of mitigation measures will be employed to avoid or minimize potential Project-related effects on wildlife and their habitat. General measures are outlined below, while additional species-specific mitigation measures are presented in subsequent sections. The measures presented are designed to be practicable, effective, relative to the exploration Project scope and responsive to wildlife use of the habitat in the Project area. The Plan incorporates best management practices, the latest available scientific information, as well as input from the landowner and landusers.

### **5.1 PROJECT DESIGN**

Mitigation through Project design involves consideration of potential effects prior to commencing Project activities and factoring mitigation measures in to how the Project will be built and how activities will be undertaken. Mitigation by design includes:

- Selecting camp location to avoid known sensitive habitats or wildlife habitat features (e.g. wildlife trails, den sites, raptor nests, etc.);
- Designing camp layout in a manner that avoids wildlife entrapment and attraction;
- Minimizing camp footprint;
- Planning for camp construction to occur outside times that are sensitive for wildlife (e.g. spring calving, nesting);
- Minimizing the footprint of drill pads by utilizing a small drill where possible, maintaining a consolidated work area, and drilling multiple holes from one set-up;
- Choosing drill pad locations in a manner that considers known sensitive wildlife areas and maximizes the drilling to occur from each pad, thus reducing the number of drill set-ups;
- Utilizing air access only in summer, avoiding the establishment of new roads and trails on the tundra;
- Locating sumps, fuel caches, the camp and equipment at least 31 meters from the high water mark of any waterbody, unless otherwise approved, to avoid effects to aquatic life and habitat.

### **5.2 AWARENESS AND TRAINING**

The purpose of personnel training and awareness is to demonstrate that it is each person's responsibility to minimize Project effects on wildlife, including disruption and disturbance to wildlife, and to ensure the safety of all personnel involved with the exploration Program.

As a part of the Site Orientation, all personnel, including staff and contractors, are engaged in a discussion on local wildlife resources including the following:

- Basic local wildlife ecology and possible Project-related effects on wildlife and wildlife habitat;
- Operating protocols such as incidental observation reporting;
- Awareness of known wildlife-sensitive areas such as breeding areas, den sites, nests and wildlife-sensitive periods;
- Project protocols associated with dealing with aggressive or unusual wildlife behaviour around work areas or camp;
- Wildlife attractant management;
- Wildlife safety including bears and predators, detection and deterrence;
- Wildlife incident reporting and response procedures; and
- Compliance expectations and non-compliance disciplinary actions that may be enforced.

Further, personnel have the following responsibilities:

- Avoid any contact with wildlife including approaching, harassing, disturbing and feeding wildlife;
- Where possible, try to stay out of sight of wildlife or redirect travel away from wildlife where possible;
- If caribou cows and calves, muskoxen groups or other wildlife aggregations are observed foraging or migrating within a work area as crews approach, avoid the work area until the animals have moved on a minimum distance of distance of 300 m from the site;
- Avoid deliberate destruction or disruption of bird nests, eggs, wildlife dens, burrows, and other sensitive habitat features; and
- Record all wildlife sightings in the Wildlife Incidental Observation Log (Appendix A).

Finally, the following restrictions apply to all project personnel:

- Project personnel and contractors are not permitted to hunt or fish while conducting business on behalf of Blue Star within the Project area;
- Registered firearms may be carried and stored by designated, trained personnel only and be used to protect worker safety only;
- All firearms discharges are reported to the Camp Manager.

### **5.3 PROBLEM WILDLIFE REPORTING**

Problematic wildlife situations may arise where an animal acts in an aggressive manner, is a repetitive nuisance, or poses a threat to worker safety. Early detection and reporting of wildlife interactions supports proactive rather than reactive measures to be taken to prevent injury or destruction of a problem animal. If an animal is seen within camp or becomes a nuisance the following measures will be implemented:

- Immediately notify the Camp Manager;
- Remove the attractant, where relevant;
- If persistent or emergent the Camp Manager, or designate, will inform the Government of Nunavut Conservation Officer and seek advice on suitable action to be taken;
- If a person or property is harmed or in imminent danger, activate the Emergency Response Plan (Blue Star 2019d).

All human-bear interactions will be reported immediately to the Camp Manager who will report the incident to the Government of Nunavut Wildlife Biologist and the KIA.

### **5.4 WASTE MANAGEMENT**

Proper waste management minimizes wildlife attraction to work areas. The following waste management measures, as documented in the Waste Management Plan (Blue Star 2019c) will be employed:

- Garbage, including all food wastes, will be temporarily stored in covered, metal containers, and will be removed daily;
- Food waste will be incinerated daily or securely stored for backhaul;
- Sewage will be incinerated on site, whenever possible, or otherwise managed in accordance with authorizations;
- Wastes and materials will be stored in accordance with the Spill Contingency Plan (Blue Star 2019b);
- Open top buckets or similar, containing waste products will not be left unattended; and
- If aggressive wildlife become an issue at camp, installation of an electric fence around camp or at a minimum around any waste management facilities or fuel storage areas may be implemented.

### **5.5 SENSORY DISTURBANCE**

Project-related activities that generate noise have the potential of creating sensory disturbances to wildlife. Sensory disturbance will be minimized by managing noise emitted by aircrafts, drilling activities, generators and any use of heavy equipment. Noise abatement measures include:

- If wildlife are observed, pilots will avoid wildlife by 300 m, except where low-elevation surveys are required, during take-off and landing, and at pilot's safety discretion;
- Pilots will avoid known raptor nests by at least 500 m and report all incidental sightings and nests; and
- All equipment will be maintained and fit with appropriate mufflers.

During camp operation, sensory disturbance to birds includes using directed lighting, rather than broad lighting, wherever possible by directing lighting into the facility and toward the ground, limiting stray lighting.

## 6.0 WILDLIFE-SPECIFIC MITIGATION MEASURES

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### 6.1 WILDLIFE DENS

Grizzly bears maybe present within the Project area and could potential use the area for hibernation. Grizzly bears in general enter dens that are excavated on well drained slopes, typically with a southern aspect, in late October and occupy the den for as long as seven months (timing varies by sex and age) (Species at Risk Committee 2017).

Wolves are present within the Project area, and follow the barren-ground caribou herds. Wolf dens can be located on the tundra. Wolves typically do not burrow to create dens but use caves and rocks that provide shelter. The denning period for wolves usually begins in early May and can last until mid-September when pups are old enough to travel with the pack.

Wolverine maybe present within the Project area, with dens occurring in areas where deep snow persists throughout the denning season such as ravines or drainages where snow accumulates, snow-covered rocky scree or boulder talus or taiga peat bogs with rocky areas. Wolverine denning period can commence as early as February and can last until late May.

Both Arctic fox and red fox may be present within the Project Exploration area. Fox den sites are typically located on the tops or sides of eskers, or the tops of banks of lakes or rivers where the soil is sandy, dry, and stable. Den sites are usually free of snow earlier than the surrounding landscape. Pairs often return to the same area and dens may be up to 300 years old and possess as many as 100 entrances. Arctic fox pairs start to seek den sites beginning in February and March.

Prior to camp construction or drilling activities during the denning season (April to August), the Wildlife Monitor or qualified person will complete the following to minimize disturbance to or destruction of wildlife dens:

- Search the disturbance area for any signs of denning activity at least one week before the disturbance commences during the various denning seasons (Table 2);
- Record known den locations;
- Determine if dens are active, and note the distance from proposed activities;
- If an active den is located, a No Activity Buffer will be implemented around the den, with the buffer distance determined in consultation with the KIA and the GN;
- Suspend activities within the buffer area until the den is no longer being used; and
- Whenever possible avoid disturbing or destroying dens, even when not in use.

Table 2. Denning season.

Wildlife Species	Denning Season
Grizzly bear	Late October – Early May
Wolf	Mid-April – Mid-September
Wolverine	Early February – Late May
Arctic fox	Late April – Mid-August
Red fox	March – Late July

## 6.2 BIRDS AND BIRD NESTS

The following bird groups may occur within the Project area:

- Raptors (Rough-legged Hawk, Bald Eagle, Peregrine Falcon, Gyrfalcon, Short-eared Owl, and Snowy Owl);
- Waterfowl;
- Shorebirds;
- Songbirds; and
- Gamebirds (Willow Ptarmigan, Rock Ptarmigan).

All bird species and their associated habitats can be affected by various factors associated with exploration activities, including removal of habitat, low-flying aircraft and camp activities.

All bird species and their associated habitats can be affected by various factors associated with exploration activities, including removal of habitat, low-flying aircraft and camp activities.

During the breeding bird season (Mid-May to Mid-August), in areas where a camp is constructed or drilling is planned, the Wildlife Monitor or designated qualified person will conduct a pre-disturbance survey a minimum of 48 hrs prior to any planned activity to verify that no nest will be destroyed or nesting bird disturbed during the planned activity.

If active nests are encountered:

- Cease activities in the vicinity immediately to ensure that the nest is not disturbed;
- Establish a No Activity Buffer as outlined in Table 3;
- Ensure the No Activity Buffers is maintained until:
  - Raptor nest: the Wildlife Monitor confirms the nest is no longer in use;
  - All other active nests: until the end of the breeding season or until the young have fledged;
- Record nest coordinates.

Table 3. Bird species groups and recommended No Activity Buffers for active nests (Government of Canada 2018).

Bird Species Group	Recommended No Activity Buffer
Gulls and Terns nests	1 km from drilling 300 m from other activities
Duck nests	50 m
Geese nests	50 m
Loons, Tundra Swan and Sandhill Crane nests	750 m to 1000 m
Raptors nests	500 m
Other bird species nests (songbirds, shorebirds and gamebirds)	Minimum 30 m species and activity dependent

Other bird mitigation measures include:

- Leaving all raptor nests intact, even when deemed non-active.
- The seaward site of seabird colonies and areas used by flocks of migrating waterfowl will be avoided by 3000 m (3 km).
- Where large concentrations of birds are observed, maintaining a flight altitude of 1000 m vertical distance and 1500 m horizontal distance from the birds except during take-off and landing (applies to staging or moulting birds on the ground/water), or in an emergency.
- Ensuring that aircraft do not, unless for emergency, touchdown in areas where concentrations of wildlife are present.
- Avoiding raptor nesting sites with all aircraft.

### 6.3 MUSKOXEN

Muskoxen herds maybe present within the Project area, and may be disturbed by low-flying aircraft or by humans on foot. When disturbed, muskoxen may act defensively, first standing their ground in a defensive ring and, when pressed closely, stampeding away from danger (Hinterland Who's Who 2019).

Aircraft will maintain a minimum 610m altitude above the ground when traveling in the vicinity of muskoxen. Except in an emergency situation, no landings will be allowed in areas where muskoxen are present.

During times when muskoxen are visible from the camp or a drill, all personnel will remain in the camp or drill shack to the greatest extent possible until the muskoxen have moved out of sight.

Should crews conducting land-based surveys on foot encounter muskoxen they will divert their course to stay out of sight of the muskoxen.

### 6.4 GRIZZLY BEAR

In Nunavut, grizzly bears can be found in large portions of the Kitikmeot region and may be present within the Project area. Should a grizzly bear be in the vicinity of the camp or a drill, all personnel will

remain in the camp or drill shack to the greatest extent possible until the grizzly bear has moved a safe distance away.

Should crews conducting land-based surveys on foot encounter a grizzly bear at a safe distance they will divert their course to stay away from the bear. In the event that a human-bear encounter is imminent, a helicopter may be used to assist in deterring bears from entering the camp if necessary, and from the immediate vicinity of field crews. A helicopter may subsequently evacuate field personnel from potential bear encounter situations.

No aerial harassment of any wildlife for any purposes including photographing will be permitted.

## 6.5 CARIBOU

Caribou occur throughout the Kitikmeot Region, with animals from a number of herds occurring within the region annually or seasonally. According to the various available management plans and to the COSEWIC barren ground caribou assessment and status report, members of the following barren-ground caribou subpopulations have the potential to be observed within the Project area: Bathurst, Bluenose East, Beverly, Ahlak and the Dolphin and Union (COSEWIC 2016). The Project exploration area is located primarily within the Bathurst herd range and the Dolphin and Union winter range but individuals from the other herds may wander into the Project area (Figure 2).

Parts of the Project area exist at the northern extent of the Bathurst herd range. Based on telemetry data collected from 1996 to 2014 (GNWT 2018; Figure 3), the Bathurst herd is considered to have an annual range utilization of parts of the Project area that are high to moderate use specifically during spring, calving, post-calving, and summer seasons (April 20 to September 7); calving and post-calving (June 2 to June 25) range is considered to be of moderate use. It should be noted that the Bathurst herd is considered to have no utilization of the Project area during the fall (September 7 to November 30) and winter (December 1 to April 19) (Figure 3).

While the Project area is within the Dolphin and Union herd winter range, it is unlikely that members of the Dolphin and Union herd could interact with the Project activities as there are no activities planned during the time of year that the herd may use the area.

The Project area is beyond the delineated range for the Bluenose-east, the Beverly and the Ahlak caribou herds (Figure 2), including known calving areas; however, it is possible for individuals to wander into the Project area during any season.



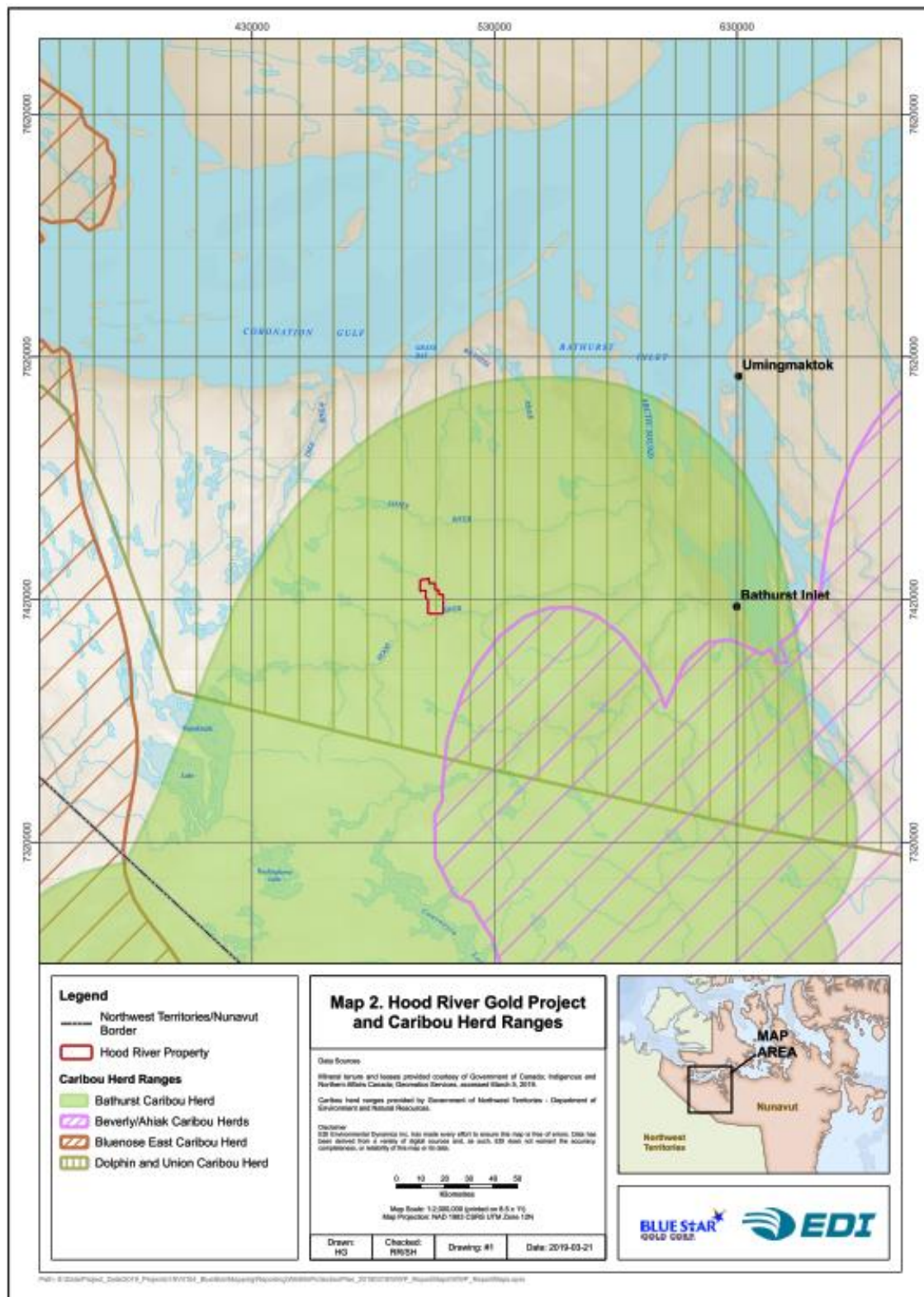


Figure 2. Ranges of the Bathurst, Dolphin and Union, Bluenose-east and Beverly/Ahiak caribou herds relative to the Hood River Gold Project.

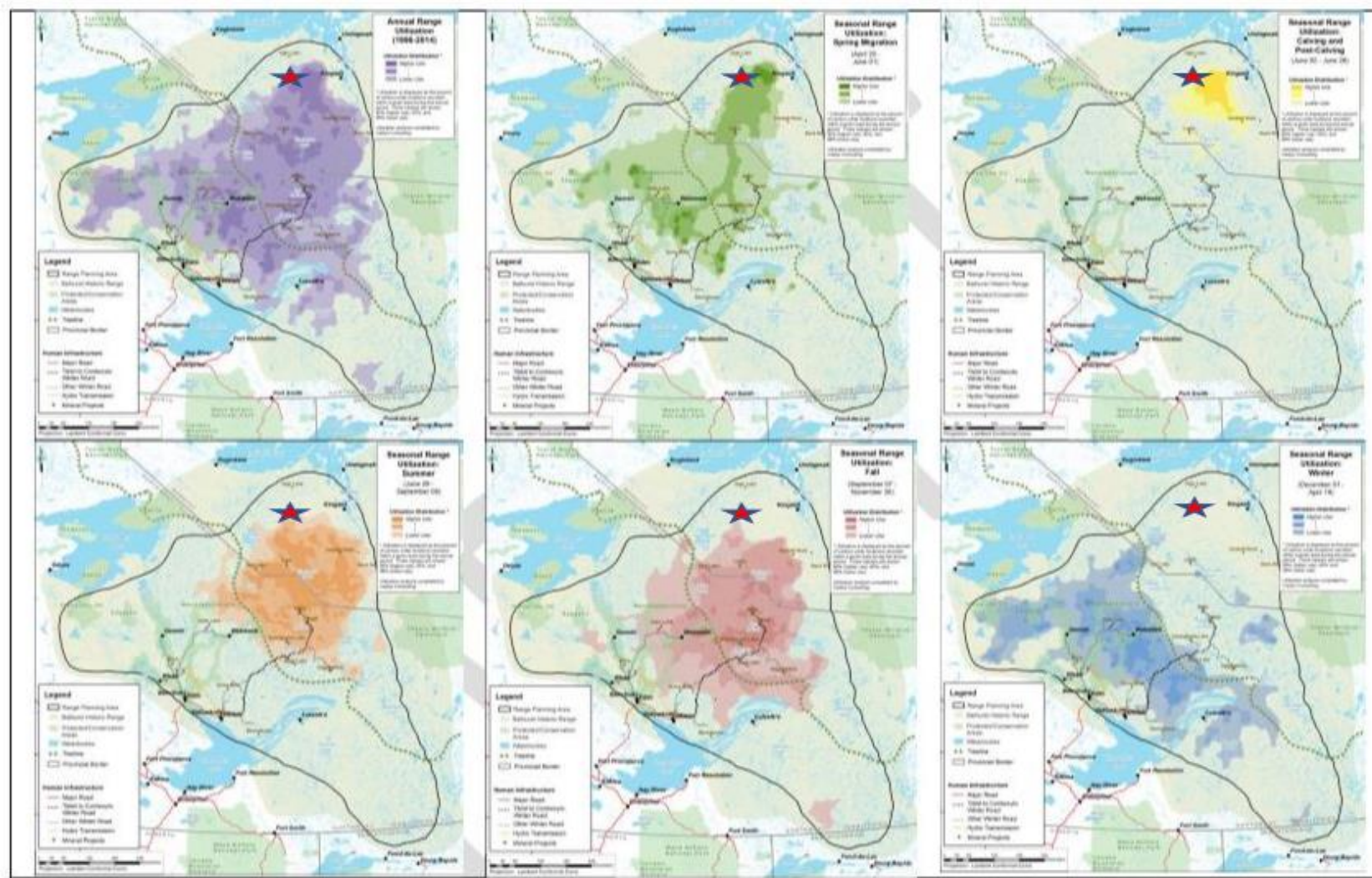


Figure 3. Annual and seasonal ranges of the Bathurst caribou herd as defined by satellite telemetry from 1996 to 2014 (Government of Northwest Territories 2018)<sup>1</sup>.

<sup>1</sup> Project location identified with red star.

### **6.5.1 Potential Project Interactions**

Given the social and ecological importance of caribou to the economy and residents of the Territories, and the specific consideration afforded caribou, it is important to consider caribou-specific Project interactions and understand the relative risk posed by the Project to caribou.

Caribou and their associated habitats can be affected by various factors associated with construction, operation and closure activities, including removal of habitat, disturbance from vehicles and equipment, and camp activities. The Project may interact with caribou via:

- Indirect habitat loss
  - Avoidance or reduced use of areas near a disturbance; and
  - Increased energy expenditure due to a response to sensory disturbance.
- Disruption of movement
  - Delayed crossing or avoidance of Project exploration area.
- Mortality
  - Direct, through collision with vehicle;
  - Indirect, through increased hunter knowledge of caribou in the area that may arise through informal and social communications.

Because of the limited vehicular use (snow machines), the risk of caribou mortality due to vehicle collisions is considered low. Conversations with the HTOs indicate that the Project area is not highly used by harvesters, so indirect mortality associated with an increase access for hunters to the Project exploration area. Further, caribou are typically not attracted to facilities such as camps, so the risk of direct mortality arising from camp interaction is also considered low.

There is a low probability that there will be any Project effects on Dolphin and Union caribou during the winter (December to early March) since no activities are planned during this time.

### **6.5.2 Mitigation and Management Measures**

In addition to the general mitigation measures presented in Sections 5.1, 5.2 and 5.5, and in consideration of input received from the KIA and the HTOs, the following caribou-specific mitigation measures will be considered for the Project. Measures are designed to be responsive to caribou use of the land in the Project area and may be updated as more information on caribou use of the area becomes available through recorded observations and monitoring. Incidental observations by all Project personnel may trigger immediate mitigation measures, such as avoidance. Relevant incidental observations may also trigger additional measures and active monitoring.



All activities will be suspended from May 15<sup>th</sup> to July 15<sup>th</sup>, unless authorized by Land Use Inspector. Should the results of localized monitoring satisfy the Land Use Inspector that project operations may resume without disturbing pregnant caribou cows or cows with young calves, authorization may be given for the period specified. If authorized by Land Use Inspector, following measures will be implemented during the calving season, May 15 to July 15:

- Bathurst caribou collar locations will be obtained from the GNWT, under a data sharing agreement;
- Daily morning observations from the air will be made to judge proximity of caribou to activity sites and, based on caribou proximity and numbers, the Wildlife Monitor will decide on appropriate response;
- If a group of 50+ caribou are observed within 1 km of project operations or camp at any time all activities will be suspended including low-level over flights, drilling, blasting/trenching, and use of snow mobiles and all-terrain vehicle outside the immediate vicinity of the camp, until caribou are no longer in the immediate area;
- If a female caribou or cow and calf are observed within 1 km of an exploration activity area activities will be suspended or relocated until the Wildlife Monitor deems that the observed animal has moved 2 km away from the area;
- If a female caribou or cow and calf are within 1 km of a camp, helicopters will be grounded and personnel will remain in the camp until caribou are no longer in the immediate area; and
- The camp will be constructed outside of the period of May 15 to July 15 in an area outside of high potential habitat for Bathurst caribou calving.

The following measure will be implemented during all seasons:

- Caribou on the airstrip:
  - Prior to departure, if caribou approach the airstrip within 600 m, the flight will be delayed or cancelled until caribou move away.
  - Prior to landing, if caribou are on the airstrip, they will be deterred from the airstrip in such a manner that minimizes stress to the caribou.
  - If caribou become habituated to the site, then caribou may be deterred as per direction from the GN-DoE Conservation Officer to ensure compliance with the Nunavut Wildlife Act (2003).
- If a group of 50+ caribou are observed within 1 km of project operations or camp at any time all activities will be suspended including low-level over flights, drilling, blasting/trenching, and use of snow mobiles and all-terrain vehicle outside the immediate vicinity of the camp, until caribou are no longer in the immediate area;
- Should caribou migration occur in the vicinity of Project activities, caribou will be given the right of way, and activities modified if needed to ensure that migration is neither blocked nor diverted.
- Work planning will be undertaken to reduce the number of helicopter flights when large numbers of caribou are observed within the area; and
- Direct movement of equipment (including ATV, snow machines or helicopters) and people toward caribou will be avoided.

Project-related activities that create noise have the potential of creating sensory disturbances to caribou. Table 4 lists the caribou-specific sensory disturbance mitigation measures that will be implemented by pilots if caribou are observed within the Project area. These mitigation measures apply at the safety discretion of the pilots.

Table 4. List of caribou-specific aircraft avoidance measures.

Season	Number of Caribou	Avoidance Distance
Early Summer (June 5 to July 31)	Group > 250	610 m vertical 4 km horizontal
Early Summer (June 5 to July 31)	Group > 30	610 m vertical 2 km horizontal
All other seasons (August 1 to June 4)	Group > 30	300 m vertical 1 km horizontal

## 7.0 REPORTING AND DOCUMENTATION

All wildlife sightings will be documented, as well as wildlife interactions, observed sensitive habitat occurrences, implementation of No Activity Buffers, and activation of additional caribou mitigation measures. The Wildlife Monitor will maintain these records on site and make them available to a Land Use Inspector upon request.

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**APPENDIX A.**      Wildlife Sighting Form

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**Example of a Wildlife Sighting Form** (Should be created as an Excel spreadsheet and printed to allow enough room to record observations)

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