



RESORTS OF THE CANADIAN ROCKIES INC.

KIMBERLEY ALPINE RESORT



DRAFT MASTER PLAN

February 2024

Executive Summary

Introduction

Kimberley Alpine Resort (KAR) is a popular ski area located within the City of Kimberley, in the East Kootenay region of BC. KAR's operation serves the Kimberley visitors as well as out of city visitors. It is considered a Regional or Destination Mountain Resort – Type II as per the All-Seasons Resort Policy.

KAR is wholly owned and operated by Resorts of the Canadian Rockies Inc. (RCR). The Resorts of the Canadian Rockies Inc. has operated KAR since 2003, although, skiing on the Northstar Mountain began in the 1940s.

This Master Plan is focused on continued improvement of the resort operation within its current extent.

KAR & RCR would like to acknowledge the traditional territory of Indigenous Nations, in particular, Ktunaxa Nation Council, including ʔakisq̓nuk First Nation (Akisq̓nuk First Nation), Yaq̓it ʔa·knuq̓i 'it First Nation (Tobacco Plains Indian Band), ʔaq̓am (St. Mary's), and yaq̓an nuʔkiy (Lower Kootenay Band).



Skier below the Easter Chairlift

Project Vision, Goals, and Objectives

KAR is a cornerstone business within the City of Kimberley and the region. The ongoing success of the resort is key to the local and regional economy and to the quality of life and the lifestyles of many local residents.

The following objectives will act to complement KAR's primary goal:

- a. Establish maximized sustained economic prosperity for the resort, thus acting as an ongoing key contributor to the economic well-being of the City of Kimberley.
- b. Continue to develop a well-integrated year-round resort that caters to the needs and desires of the Cranbrook/Kimberley centered regional visitor as well as the destination tourist market.
- c. Respect the environmental attributes of the study area and potential impact areas, recognizing that the natural setting and attributes of the Kimberley area are one of the primary reasons that tourists will be attracted to the resort on an ongoing basis.
- d. Complement the tourism aspirations of the City of Kimberley as defined by the City of Kimberley Official Community Plan.

This Master Plan is a forward-looking document that will serve to outline KAR's operations within the Resort Development Area and Controlled Recreation Area. No expansion of the resort is envisioned.

General Overview of Business

The KAR is located on Northstar Mountain in the Purcell Mountain range, four hours southwest of Calgary, and 20 minutes from Canadian Rockies International Airport in Cranbrook.

The focus of KAR's current operation is winter downhill skiing and snowboarding, with additional winter activities including cross-country skiing, snowshoeing, fat biking, and skating. KAR also hosts all-season events, such as, mountaintop weddings, sport events, conferences, and concerts. Summer lift rides and hiking, and mountain biking within the base area and low elevation trails are also part of KAR's operation.

KAR plays an important role in the community by offering ski school and clubs, as well as employing community members. There is a significant amount of housing and condo development at the base of KAR. The base also has its own services including hotels, restaurants, bars, retail, equipment rental, repair shop, and a conference center.

Key Areas of Focus

This Master Plan addresses the balance of sustainable operations with environmental, terrain, land use, public, and First Nations interests. At this point in time, there are no plans to expand KAR. KAR anticipates that visitor growth over time may call for additional lifts and infrastructure upgrades within the resort area. KAR is committed to environmental stewardship through avoiding and minimizing environmental impacts, restoring on-site environmental values, and offsetting environmental impacts.



View of the KAR base area from the Northstar Express chairlift

Table of Contents

Executive Summary.....	ii
Introduction	ii
Project Vision, Goals, and Objectives	iii
General Overview of Business	iii
Key Areas of Focus	iii
1 History and General Description	1
1.1 Location and Regional Context.....	1
1.2 Master Plan and Operating Agreement	2
1.3 Access	2
1.4 Description of Experience and Activities Offered	2
1.4.1 Skiing and Snowboarding	2
1.4.2 Other Winter Experiences	4
1.5 Base Operation and Infrastructure.....	5
1.6 Mountain Operation and Infrastructure	6
1.6.1 Existing Ski lifts and trails	6
1.6.2 Existing Comfortable Carrying Capacity and Skier Visits.....	7
1.7 Servicing	8
2 Economic Benefits	8
3 Site Analyses and Existing Conditions	9
3.1 Terrain Analyses (Slope, Aspect, Elevation, and Fall Lines).....	9
3.2 Existing Environmental Conditions and Climate Analysis	10
3.3 Avalanche Hazard and Control	10
3.4 Geotechnical Considerations.....	10
3.5 Wildfire Risk Reduction	10
4 Overview of Future Development.....	11
4.1 Description of Proposed Experiences/Activities	11
4.2 Mountain Improvements	11
4.2.1 Mountain Structure Improvements	12
4.2.2 Lift Infrastructure	12
5 First Nation and Cultural Values.....	13

6	Environmental Values	13
6.1	Forest and Vegetation Values	13
6.1.1	Rare and Listed Species	14
6.1.2	Invasive Plant Species.....	15
6.1.3	Vegetation Mitigation Measures.....	15
6.2	Water Values	16
6.2.1	Water Mitigation Measures	17
6.3	Fish Values.....	17
6.3.1	Fish Mitigation Measures	17
6.4	Wildlife Values.....	17
6.4.1	Ungulate Winter Range	17
6.4.2	Critical Caribou Habitat	18
6.4.3	American Badger Habitat	18
6.4.4	Wildlife Mitigation Measures.....	18
7	Overlap with Existing Use.....	19
7.1	Mineral Tenure.....	19
7.2	Timber Tenure & Range Use	19
7.2.1	Old Growth Management Areas and Old Growth Deferral Areas	20
7.3	Land Use Planning, Local, and Regional Zoning Requirements.....	20
7.3.1	Kootenay Boundary Land Use Plan	20
7.3.2	Cranbrook West Recreation Management Strategy	21
7.3.3	City of Kimberley Zoning	21
7.3.4	Regional District of East Kootenay	21
7.4	Commercial Recreation Tenure & Guide Outfitter Territories.....	22
7.5	Public Recreational Use	22
	References	23
	Appendix A. Maps.....	25
	Appendix B. Health and Safety Plan.....	44

1 History and General Description

1.1 Location and Regional Context

The City of Kimberley is located in the East Kootenay region of BC (Figure 1). With a growing population of 8,025 people, Kimberley is the second largest city in the region. Cranbrook, the largest city in the region, is 31 kilometers to the south, with the Canadian Rockies International Airport partway between the two cities. Large urban centers such as Calgary, Alberta (407 km away) and Spokane, Washington (331 km away) are relatively close.

The base of KAR is located in the City of Kimberley, a city founded over 100 years ago on the site of the Sullivan Mine, which drove the growth of the community and the local economy until 2001 when it was shut down. Local leaders had the foresight to see this change coming and worked to diversify the economy, focusing mostly on tourism and recreation opportunities, including building a destination ski resort.



Figure 1 Location of Kimberley Alpine Resort, in British Columbia

Skiing began on Northstar Mountain in the late 1940's, with a notable increase in popularity when the Maverick T-Bar was installed in 1959. At that time, the ski resort was owned and operated by the local ski club. The resort expanded on an ad hoc basis during the 1960s and 1970s with the installation of

additional lifts. Following the economic recession in the early 1980's, skier visits declined and forced the ski club into receivership at the end of the 1985/1986 season. The City of Kimberley purchased the resort and operations resumed in 1986. In 1998 the city entered into a sales agreement with the Resorts of the Canadian Rockies for a phased acquisition of the recreation amenities and development lands. In 2003, the company was re-acquired and renamed Resorts of the Canadian Rockies Inc. (RCR Inc.), which has been operating KAR until the current day. Other RCR Inc. operated resorts include Fernie, Kicking Horse, Nakiska, Mont-Ste-Anne, and Stoneham.

1.2 Master Plan and Operating Agreement

This Master Plan outlines KAR's plans for future operation of the resort. Some of the information within this document has been carried forward from the 1997 'Kimberley Ski and Summer Resort Ski Area Master Plan' prepared by Brent Harley and Associates Inc. The 1997 report remains on record at the Mountain Resorts Branch within Ministry of Tourism, Arts, Culture and Sport (TACS).

KAR currently holds a Licence of Occupation, which was issued under the Commercial Alpine Skiing Policy (CASP). CASP was replaced by the All-Season Resort Policy (ASRP) and under this policy the tenure will be converted to an Operating Agreement (OA).

KAR operates on both crown land and private land, with much of the recreational infrastructure being wholly on private land in the base area. The OA defines a resort Development Area and a Controlled Recreation Area (CRA). The Development Area is comprised of the Crown and private land together and outlines the outermost boundary of the resort area (Appendix A, Figure 2; Figure 3). The Crown land parcels of KAR make up the CRA. The extent of the resort will remain unchanged, however, minor additions and adjustments to the CRA are proposed through this process (Appendix A, Figure 3).

1.3 Access

Kimberley is located on highway 95A, just off highway 95/93 and less than an hour's drive from highway 3 south of Cranbrook. From the north, Kimberley is a 2-hour drive south of Golden and highway 1. The Canadian Rockies International Airport, 15 km south of Kimberley, provides easy access by air. Additionally, KAR is a key stop on BC's 'powder highway' that connects eight unique ski resorts in the Kootenay Rocky Mountains.

KAR is located within the City of Kimberley, only 3 km from downtown. A city bus offers easy access to residents. For those visitors that are driving to KAR, the resort has three main parking lots, which provide a total vehicle capacity of 555 vehicles. The first, second, and third parking lots have capacity for 335, 150, and 70 vehicles, respectively.

1.4 Description of Experience and Activities Offered

1.4.1 Skiing and Snowboarding

The ski season at KAR generally begins the second week of December, and runs through to the first week of April, for a season length of approximately 120 operating days. During this period, the ski area operates seven days a week from 9:00 am to 4:00 pm, and three nights a week (Thursday through

Saturday) from 5:00 pm to 8:30 pm. Night skiing is offered every night during the holiday period from December 26th until January 2nd.

KAR has 68 runs, plus another 12 in tree glades (Appendix, Figure 4). The runs include 20% beginner, 42% intermediate, and 38% advanced trails for varying levels of skiers and snowboarders. The average snowfall is 3.9 metres and the average winter temperature is -5 C.

KAR is a family-friendly resort that is popular with both skiers and snowboarders. Further, KAR offers a variety of ski and snowboard programs, some of which include:

- Ski and snowboard lessons for both skiers and snowboarders at six different ability levels (never-ever to expert).
- Private ski and snowboard lessons.
- Guided mountain tours, hosted by a KAR pro skier, take guests on an excursion all around KAR.
- First tracks guided tours, hosted by a KAR pro skier, allow guests early morning access and private excursions around KAR.
- College nights, offered on Friday nights, typically, from the beginning of January-March, allow college students to ski or snowboard for a reduced price.

Additionally, Kimberley Alpine Team which is a not-for-profit organization, managed by volunteers and parents, aims to develop ski racers and all-mountain skiers and is based at KAR. Kimberley Alpine Team provides fall and winter programs, which offer fun and challenging opportunities for personal excellence through participation and competition in alpine ski racing and all mountain skiing.

KAR is the destination for disabled training and racing, the only North American destination where disabled athletes can train in all four winter disciplines: Nordic skiing, wheelchair curling, sledge hockey, and alpine skiing. KAR has a history of working with the Canadian Association for Disabled Skiing (CADS). In 1997, the Canadian Disabled Ski Festival and Championship was held at KAR and hosted competitors from, Australia, New Zealand, Britain, South Africa, Japan, USA, and Canada. Furthermore, in 2005, the concept of a centre of excellence for paralympic training began to take shape with the creation of the dedicated training run at Kimberley Alpine Resort. That winter also brought the TELUS-IPC World Cup for the disabled to KAR. The event featured 80 athletes from 11 countries and was the only Canadian stop on the international disabled Alpine World Cup circuit.

The upper base of KAR is also the location of the Kimberley Nordic Club. The trail system, which is located outside of the CRA, offers 25 km of groomed double track trails, 6 km of single-track trails, and a 3.3 km lit loop for night skiing.

Boulder Hut Adventure, a helicopter tour company, has partnered with Kimberley Alpine Resort and Trickle Creek Lodge for its guest meeting location and helicopter staging.

KAR is also known for its many well-attended and long-standing community events, including international level ski racing and annual festivals, such as Spring Splash and Northstar Retro Days.

1.4.2 Other Winter Experiences

KAR offers additional winter experiences, such as up-tracking, skating and cross-country skiing. Many of the KAR winter experiences occur outside of the resort ski area on the adjacent Trickle Creek Golf Course property.

Up-tracking

The up-tracking zone, or up-hill skiing is currently open from 6am-8pm, for those that want to get some fresh air and earn their turns. KAR designated a zone for up-tracking, for those with an up-tracking ticket.

Skating

An outdoor Skating Rink is located behind the Alpine Sport's Boutique and is open daily during the winter season (weather permitted).

Cross Country Skiing, Snowshoeing, and Fat Biking

Located outside of the ski resort area, on The Trickle Creek Golf Course, KAR also offers 20km of groomed multi-use trails for cross country skiing, snow shoeing, and fat biking. Trickle Creek smores tours for cross country, snowshoe, and fat bikes involve a KAR guided tour and a fire and smores along the way.

1.4.3 All-Seasons Activities

KAR also offers summer activities including mountain top weddings and events. Events have included ultra-marathons such as the Spartan race, as well as concerts and live music, such as the Symphony on the Mountain. The resort base area of KAR also provides connectivity of trails for nearby biking and hiking.



The Northstar Quad Chairlift

1.5 Base Operation and Infrastructure

KAR resort facilities are located around a central plaza area, adjacent to the quad chairlift (Appendix A, Figure 5). Guest services and administration offices are situated together in a building next to the main visitor parking lot, with rental/repair shops and a cafeteria next door. The Winter Sports School, retail boutique, locker room and Kimberley Alpine Team clubhouse are separate small buildings located side by side and form the back of the plaza. There are two hotels on-site, the Trickle Creek Lodge and Polaris Lodge, as well as a number of food services (two restaurants, a cafeteria, and an outdoor BBQ). A child-care center is located in Trickle Creek Lodge. The KAR maintenance buildings, a snow making pump house, a First Aid building, Ski Patrol dispatch, and mountain operations offices are located above the quad chairlift (in the old base area, accessed by city roads).

The central plaza is a gathering spot for après-ski entertainment, with frequent outdoor barbecues and live music. The 24,000 square foot Kimberley Conference Centre, the largest meeting facility in the East Kootenay region, is located adjacent to the KAR plaza area. It is owned by the City of Kimberley but is managed by KAR. All of the base facilities are located on KAR private land.



View of fireworks over the Northstar Express, from the base area

1.6 Mountain Operation and Infrastructure

1.6.1 Existing Ski lifts and trails

KAR has a total of five lifts (a magic carpet, a T-bar, and three chairlifts) which range in length, vertical rise, and lift capacity (Table 1). These lifts carry skiers and snowboarders to a number of runs and glades.

Table 1 Description of lift statistics at KAR.

Lift Name	Initial Year of Operation	Length	Vertical	Ride Time	Capacity/hour
Owlette Magic carpet	2006	180ft / 55m	30ft / 9.1m	4 minutes	600
Owl T-bar	1999	886ft / 270m	176ft / 54m	2.5 minutes	1,200

Tamarack double chair	1998	3,600ft / 1097m	1,181ft / 360m	8.5 minutes	1,052
Easter triple chair	1975	3,365ft / 1062m	1,164ft / 355m	7 minutes	1,200
NorthStar Express HS quad	1999	7,787ft / 2373m	2,100ft / 640m	7 minutes	2,400
					Lift capacity: 6452/hour

Currently, there are 68 runs and 12 glades for skiers to choose from. Of those runs, 20% are beginner, 42% are intermediate, and 38% are advanced. KAR has 729 skiable hectares and 750 metres of vertical drop to create runs (Table 2).

Table 2 Description of skiable terrain at KAR

Skiable Hectares	729
Number of Ski Trails	68+
Longest Run (km)	6.4
Top Elevation (metres)	1,982
Base Elevation (metres)	1,230
Vertical Drop (metres)	751
Night Skiing Vertical (metres)	460

1.6.2 Existing Comfortable Carrying Capacity and Skier Visits

Average skier visits were well below the lift capacity of KAR’s lift infrastructure between 2015 and 2020 (Table 3). During the 2015-2020 ski seasons, KAR was open an average of 112 days, and had an average of 127,651 skier visits per season.

Table 3 KAR skier visits and days open, based on 2015-2020 ski season.

Annual ski season	Skier Visits	Days Open	Average skier visits per Day
2019-2020	105,764	89	1,188
2018-2019	135,600	114	1,189
2017-2018	148,248	121	1,225

2016-2017	125,209	121	1,035
2015-2016	123,435	116	1,064

*The number of skier visits during the 2019-2020 season were impacted by the COVID-19 pandemic

Based on the capacity of the operating lifts, KAR has the capacity to service 6452 skiers per hour. Comfortable Carrying Capacity, based on the NorthStar, Easter, and Tamarack lifts, is estimated to be between 3500 and 4000 skiers per day.

1.7 Servicing

KAR is located within the City of Kimberley boundaries; therefore, several services are provided by the city, including water and sewer services. The City of Kimberley’s water system is primary sourced from Mark Creek. Additionally, solid waste is collected by the City.

Natural gas at KAR is serviced through a Fortis BC gas line. Triple phase electricity is provided by BC Hydro, via a transformer in Marysville that feeds power to the Kimberley area. Telephone and communication services are provided by Telus. Publicly accessible internet is provided by Telus and Shaw.

2 Economic Benefits

KAR plays an important role in the Kimberley community by partnering with other local organizations such as Boulder Hut Adventure and the Nordic Ski Club. KAR also contributes direct economic benefits to the region through employment. Currently, KAR employs 350 people in the winter and 150 people in the summer. Employees work in a variety of fields including customer service, trades, activity instruction, and management. KAR also draws tourists to Kimberley and the surrounding area, indirectly contributing economic benefits to local businesses.



Easter Chairlift

3 Site Analyses and Existing Conditions

3.1 Terrain Analyses (Slope, Aspect, Elevation, and Fall Lines)

Elevation, slope, aspect, and fall line analyses were prepared for KAR, by Brent Harley and Associates Inc. (BHA) in 1997 as part of a Kimberley Ski and Summer Resort Ski Area Master Plan, using five meter contour mapping from Delta Area Surveys Limited. The analysis below is based upon this report, which remains on record at the Mountain Resorts Branch.

BHA characterized The North Star Mountain slope into one of five categories: base area (0-8%), beginner (8-25%), intermediate (25-45%), expert (48-80%), and too steep for development (over 80%).

The aspect analysis determined that KAR was generally east and northeast oriented. These exposures, specifically northeast, receive reduced direct afternoon sunlight, preserving the snowpack.

The elevation analysis illustrated that Northstar Mountain ranges from 1909 metres at the peak to 1308 metres at the base. BHA noted that the snowpack is unreliable below 1525 metres.

Fall lines are the natural path an object moves down a hill, when pulled by gravity. The Northstar Mountain fall line paths allow for a variety of infrastructure/lift locations and ski trail opportunities.

3.2 Existing Environmental Conditions and Climate Analysis

Snowpack data collected for three years prior to BHA's report, showed that Northstar Mountain received an average of 550 cm of snow annually. It was determined that these snow conditions were suitable for ski runs.

Over the last four ski seasons, KAR identified that the average maximum temperature is approximately -4.4 °C and the average minimum temperature is approximately -9.9 °C. Further, over the last four ski seasons KAR measured an average snowfall of approximately 312.6 cm and a snowpack of approximately 90.7 cm.

3.3 Avalanche Hazard and Control

KAR has developed an Avalanche Safety Plan (2020) which outlines program roles, responsibilities, procedures, as well as forecasts avalanche hazard, risk, and magnitude. The Safety Plan indicates that the majority of the resort is east facing with the key avalanche terrain facing both South East and North East. All operations are in what is considered the below tree line elevation band and all terrain falls within either the Simple or Challenging Avalanche Terrain Exposure Scale. There are 3 avalanche areas affecting operations within this tenure. The Easter chair zone, Rosa Cliffs and Blueberry Hill. There is minimal evidence of historical avalanches within KAR.

3.4 Geotechnical Considerations

Two debris slides into Mark Creek occurred in May 2011. A Mark Creek-Kimberley Ski Hill drainage mapping and assessment within and adjacent to the 2011 Mark Creek landslide was conducted in September 2011. Recommendations derived from the landslide report, subsequent field reviews by a qualified registered professional (P.Eng), and correspondence from the Resort Development Branch were completed. The recommendations included planning, implementing, monitoring, and reporting on remediation works. Drainage and ditch works were completed and a yearly monitoring program to assess road drainage structures and drainage patterns was established. KAR has committed to spring monitoring of runoff and flow.

3.5 Wildfire Risk Reduction

In recent years, BC has been subject to growing wildfire seasons. As such, KAR is taking measures to reduce wildfire risk. Currently, KAR's wildfire risk reduction measures are precautionary and focused on preparedness, such as storing a 300 US Gallon tank of water on a flat deck truck for quick access in emergencies. Additionally, each vehicle has a fire extinguisher and a water can. Maintenance activities,

such as welding, are postponed when there is high or extreme fire risk. Further, because KAR falls within the Kimberley City limits, it is serviced by the city's emergency fire department. Public education measures are used to create public awareness, including, no smoking outside of designated smoking areas, signage and verbally educating guests on fire hazards.

KAR is designated as schedule C in the City of Kimberley's OCP, which is subject to wildfire guidelines, such as generating fire hazard plans prior to obtaining a developing permit as well as ensuring ongoing maintenance consistent with FireSmart guidelines (City of Kimberley, 2017). In some years, KAR has maintained the operation of their snowmaking systems to provide the fire department with more water. Additionally, RDEK has outlined objectives to mitigate risk and encourage FireSmart, supported by policy and mapping in regard to interface fire hazard (RDEK, 2017). MRB's All-Seasons Resort Policy also encourages FireSmart principles.

4 Overview of Future Development

4.1 Description of Proposed Experiences/Activities

KAR's focus is to continue to offer a high-quality experience consistent with their current offerings and within current resort boundaries.

Winter activities will continue to focus on lift accessed downhill skiing and snowboarding, and snowshoeing and fat tire biking within the base area and adjacent golf course property. KAR anticipates that infrastructure upgrades and re-alignment may be required in the future.

All-seasons activities are anticipated to expand in scope, with additional offerings for weddings, events and hiking and biking. Over time, KAR anticipates more frequent hosting of events such as marathon-type races and music concerts. These events may require minor updates or improvements to infrastructure, such as increased washroom facilities.

In the near term, KAR anticipates an increase in hiking and biking through the base area. KAR has recently partnered with local non-profits on a project called Electrify the Mountains. The Electrify the Mountains project aims to develop a network of accessible e-bike trails throughout the Kootenays, including through KAR.

4.2 Mountain Improvements

Maintaining the existing facilities is the primary focus regarding mountain improvements. However, visitor growth over time and the need for redundancy may call for additional lifts within the existing ski boundary, plus replacement of existing lifts due to age may be required. Balanced resort capacity, the number of visitors and their experience relative to the capacity of the land, will be given thought prior to any potential future expansion. Additionally, the construction of small structures may be anticipated in the future.

4.2.1 Mountain Structure Improvements

KAR anticipates the development of additional warming huts. Additional washroom facilities may also be added, as well as small maintenance building structures.

In the future, KAR may consider additional infrastructure to service an expanded ski learning area and children's play area (such as small tube park or play structures). These changes would occur within the base area.

4.2.2 Lift Infrastructure

KAR anticipates improvements or upgrades to lift infrastructure over the mid and long term. Investment in infrastructure will be prioritized by RCR based on skier demand and other economic considerations. Infrastructure changes are anticipated to include increased lift capacity from the base area to the top of Taramack Ridge, extension and re-alignment of the current Taramack Double Chair, and extension and re-alignment of the current Easter Triple Chair. An additional lift to access the northernmost portion of the CRA may also occur in the longer term.



Northstar Quad Chairlift

5 First Nation and Cultural Values

KAR overlaps with the traditional territories of several First Nation communities. KAR is committed to engaging with First Nation communities to better understand their interests in the area and possible synergies with the operation of the resort.

The Province's Consultative Areas Database indicates that the following First Nations have consultative areas overlapping KAR.

Ktunaxa Nation Council

- ʔAkisq̓nuk First Nation (Akisq̓nuk)
- yaqan nuʔkiy (Lower Kootenay Band)
- ʔaqam (St Mary's Indian Band)
- Yaq̓it ʔa-knuq̓i ʔit First Nation (Tobacco Plains Indian Band)

Shuswap Band

KAR welcomes participation by all First Nations with an interest in the area in the Master Plan review process.

KAR would like to continue to develop strong partnerships and collaboration with local First Nations communities, and is supportive of the following:

- School ski programs
- Youth programs
- Interpretive signage and/or displays that reflect rich cultural history of the area
- Establishing community access
- Utilizing Indigenous knowledge

Such efforts could include further cultural heritage, employment, training, and potential to work in unison on various research projects or studies.

6 Environmental Values

6.1 Forest and Vegetation Values

KAR falls within two biogeoclimatic zones, the Engelmann spruce-subalpine fir dry cool (ESSFdk1) zone at its upper elevations and the montane spruce dry warm (MSdw) zone at lower elevations (see Appendix A, Figure 6). The MSdw extends from the valley bottom to approximately 1,350 m elevation and contains common native vegetation such as Douglas fir (*Pseudotsuga menziesii*) and lodgepole pine

(*Pinus contorta*), and a variety of shrub species, such as soopolallie (*Shepherdia canadensis*), birch-leaved spirea (*Spirea betulifolia*), saskatoon (*Amelanchier alnifolia*) as well as herbss such as, arnica, and pinegrass (*Calamagrostis rubescens*) (MacKillop, Ehman, Iverson & McKenzie, 2018). The ESSFdk1 occurs immediately above the MSdw at elevations ranging from 1,600 to 2,000 m. The native forested ecosystem in this zone consists predominantly of subalpine fir (*Abies lasiocarpa*), hybrid spruce (*Picea engelmanni x glauca*) and lodgepole pine. The shrub and herbaceous layers are most commonly composed of false azalea (*Menziesia ferruginea*), black huckleberry (*Vaccinium membranaceum*), and arnicas (MacKillop et al., 2018). Both the MSdw and ESSFdk1 provide diverse terrestrial wildlife habitat.

The following sections summarize the overlaps of fish, wildlife, vegetation and water values with KAR.

6.1.1 Rare and Listed Species

Whitebark pine (*Pinus albicaulis*), is an endangered species, as noted by The Committee on the Status of Endangered Wildlife in Canada. Whitebark pine occurs in subalpine regions of BC and is a long-lived subalpine tree characterized by its five-needle bundles and egg-shaped cones (COSEWIC, 2010; Parish, 1948). The needles of the whitebark pine are bluish green in colour, slightly curved and generally clustered around the ends of its branches (Parish, 1948). The whitebark pine is typically 5-20 metres tall and often displays an irregular crown with curved and twisted stems as competition levels are generally high and the whitebark pine is shade-intolerant (COSEWIC, 2010; Ogilvie, 1990 as cited in Alberta Whitebark and Limber Pine Recovery Team, 2014) and often grows in open forest stands alongside Engelmann Spruce and Subalpine Fir (COSEWIC, 2010). Whitebark pine occurs in dry environments at or close to tree line in high-elevation (1,900 m, or greater) forests locally (COSEWIC, 2010). In these cold and dry conditions, the trees often assume krummholz form; however, where growing conditions are more productive, the stems can be tall and straight (Ogilvie, 1990 as cited in Alberta Whitebark and Limber Pine Recovery Team, 2014). A few occurrences are mapped within at least 5 km of KAR (straight line distance), within the Purcell mountains to the west and north of KAR, with a few occurrences identified within the KAR (Appendix A, Figure 7).

There are numerous other listed vascular plant species whose potential range overlaps with the KAR boundary including prairie golden bean (*Thermopsis rhombifolia*), scarlet gaura (*Oenothera suffrutescens*), scarlet globe mallow (*Sphaeralcea coccinea*), and spurless touch me not (*Impatiens ecornuta*) as shown in Appendix A, Figure 8.



Snowboarding after new snowfall

6.1.2 Invasive Plant Species

Numerous invasive plant species are known to occur within the KAR including blueweed, Japanese knotweed, leafy spurge, and knapweed species which are provincial priority invasive species. Each of these species falls within regional containment/control management procedures in which the management objective is to prevent further expansion into new areas within the region through establishment and monitoring of containment. Other invasive plant species known to occur include dalmatian toadflax (provincially noxious), hound's tongue (provincially noxious) curled dock, and Canada thistle (provincially noxious). Invasive plant species data was obtained through the BC Invasive and Alien Plant Program (IAPP) database in lieu of field verification (Appendix A, Figure 9). To address this, KAR undertakes an annual invasive species control program.

6.1.3 Vegetation Mitigation Measures

As operations at KAR are expected to remain as is, impacts to vegetation are expected to be minimal. KAR will follow best practices and secure required authorizations prior to proceeding with any changes or upgrades to infrastructure or structures. Prior to any clearing or timber harvest activities, KAR must apply to Mountain Resorts Branch for an Occupant Licence to Cut (OLTC) or Forest Licence to Cut (FLTC).

The proposed area is to be assessed by a qualified forest professional. Further, KAR plans to schedule field verification for the presence (and permanent identification) and health of whitebark pine trees that may occur within its boundaries as well as for the presence of other rare or listed species, before vegetation disturbance. Such protections will ensure that future timber salvage or clearing activities avoid impacts to rare and listed species (e.g., through direct loss) wherever practicable.

Further, KAR will follow the best management practices for whitebark pine in alpine ski areas. The best management practices outline mechanisms to avoid and minimize impacts to whitebark pine as well as outline measures to restore whitebark pine and facilitate additional recovery efforts (Moody et al., 2021).

KAR has provided access to local biologists to collect genetic material from the whitebark pine trees that exist within their boundary as part of a greater provincial effort to screen the trees for disease resistance and propagate the screened seedlings.

Appropriately trained KAR staff are actively undertaking annual invasive plant species control within the KAR boundaries, predominantly through the use of approved chemical control mechanisms during the growing season. Mechanical methods such as mowing and hand-pulling may also be effective in controlling the established invasive plant species. Wildlife and wind are the most common natural vectors, while vehicles and people are the most common anthropogenic vectors likely influencing invasive species spread within the KAR boundaries. Controlling the anthropogenic vectors can be accomplished through the implementation of other best management practices (BMPs), such as:

- Posting signage to alert summer recreational users (e.g., hikers, bikers) of the risks associated with invasive plant species and how they can contribute to eliminating this vector (e.g., checking shoes/boots before and after a hike, staying on designated trails/roads).
- Training staff on the risks associated with invasive plant species and how they can contribute to eliminating this vector (e.g., driving and parking on designated surfaces, ensuring the exterior and undercarriage of vehicles are clean).

6.2 Water Values

As shown in Appendix A, Figure 10, KAR overlaps a number of surface water features. Of these surface water features, all are designated as stream order 1 channels, which normally flow only during periods of wet weather (Caslys Consulting, 2010). All surface water features drain northeast through forested slopes into Mark Creek, downslope of the KAR boundary. Mark Creek is within the Mark Creek Community Watershed which supplies drinking water to the City of Kimberley. Licenses for consumptive water use from Mark Creek are held by the City of Kimberley and Cominco Ltd (Apex Geoscience Consultants Ltd., 2001).

Water for domestic use, snow making, and wastewater, produced by KAR, is managed through the City of Kimberley's infrastructure.

6.2.1 Water Mitigation Measures

No expansion or development is planned in the near term, including any disturbances to ground surfaces which may increase erosion and sedimentation or otherwise degrade these and downstream water values. All surface water features that intersect the KAR boundary are away from popular spring, summer or fall activities (e.g., hiking, biking) when the ground surface is bare and water may flow through these channels.

Where existing disturbances (e.g., ski runs, maintenance areas) have the potential to impact water values, BMPs are implemented by KAR, including:

- Erosion and sediment control features, in particular where highly erodible surfaces are exposed and where access roads cross surface water features.
- Dust control measures in times of drought or heavy traffic.
- Spill response, containment and reporting for contaminated sites.

6.3 Fish Values

Mark Creek is a fish-bearing surface water feature that is downslope of the KAR boundary. Publicly available fish points in Mark Creek include rainbow trout, westslope cutthroat trout (species at risk, special concern), and brook trout (see Appendix A, Figure 11). The BC population of westslope cutthroat trout is primarily restricted to the upper Kootenay and upper Columbia River drainages (COSEWIC, 2006). Westslope cutthroat trout have strict habitat requirements and as a result, can be an indicator of ecosystem health. The species is protected both provincially and federally (COSEWIC, 2006).

6.3.1 Fish Mitigation Measures

The mitigation measures intended to protect water values will also ensure the avoidance or minimization of impacts to fish values that are downstream of KAR.

6.4 Wildlife Values

Many native wildlife species frequent the KAR area, such as birds and mammals including ungulates. As operations at KAR are expected to remain as is, impacts to wildlife are expected to be minimal. For any future changes to infrastructure or new structures, KAR will follow BMPs and obtain required authorizations prior to proceeding.

6.4.1 Ungulate Winter Range

As shown in Appendix A, Figure 12, KAR overlaps ungulate winter range (UWR) U-4-006, as established in 2005 under the Government Action Regulation (BC Reg. 582/2004) of the *Forest and Range Practices Act* (2002), for moose (*Alces alces shirasi*), white-tailed deer (*Odocoileus virginianus ochrourus*), mule deer (*Odocoileus hemionus hemionus*), elk (*Cervus elaphus nelsoni*), bighorn sheep (*Ovis canadensis*

canadensis) and mountain goat (*Oreamnous americanus*). Areas of KAR which overlap UWR polygons include cleared ski runs and built infrastructure (e.g., base area).

6.4.2 Critical Caribou Habitat

As shown in Appendix A, Figure 13, the lower elevation areas of KAR overlap with critical low-elevation matrix range for southern mountain caribou (*Rangifer tarandus*) which is a species at risk (threatened). The federal recovery strategy recognizes two types of matrix ranges, which can include seasonal migration areas, areas used less frequently than seasonal (e.g., summer, winter), and areas outside of seasonal ranges where predator/prey dynamics influence the predator/prey dynamics inside seasonal ranges. For the southern local population unit, both types of critical matrix habitat (not core caribou habitat areas) are determined by predator/prey dynamics (Government of Canada, 2017).

6.4.3 American Badger Habitat

As shown in Appendix A, Figure 14, KAR overlaps habitat for American badger (*Taxidea taxus jeffersonii*) which is a species at risk (endangered) known to inhabit the Rocky Mountain Trench, particularly non-forested grassland and shrub-dominated habitats (COSEWIC, 2012). American badger can also be found adjacent to built infrastructure and along roadsides where suitable soils and abundant prey species are often found (COSEWIC, 2012). The provincial American badger habitat polygon overlaps the lowest elevations of the KAR boundary, including portions of the base area and associated parking.

6.4.4 Wildlife Mitigation Measures

With no expansion or development planned in the near future, including the removal of timber from within the KAR boundaries, impacts to the UWR are expected to be minimal. Although no impacts are anticipated, general wildlife measures in the UWR are applied predominantly to the forestry industry and include targets for stand stocking and retention of forest cover. Immediately adjacent the northeast KAR boundary, in the Mark Creek drainage, there is a wildlife habitat area (WHA 4-045; Appendix A, Figure 15) and associated no harvest zone and condition harvest buffer area for a species of special concern. While it is unlikely that activities originating within the KAR boundary will impact this area, it is important to note and ensure continued protection.

The southern part of the Purcell mountains has been identified as the Southeast Kootenay planning unit for mountain caribou recovery (Sylvan Consulting Ltd., 2010). Within it, caribou are only known to remain in the Purcell-South herd which occurs south and west of KAR (DeGroot, 2011; Sylvan Consulting Ltd., 2010). There are no known census or radiotelemetry data points that overlap the KAR boundary (as of 2009; Sylvan Consulting Ltd., 2010). Activities conducted through all seasons at KAR are not anticipated to impact caribou and should not impede goals to restore their habitat.

Impacts to American badger are also unlikely given the preferred habitat of the species and lack thereof within the KAR boundaries. However, KAR can ensure protection of the species should they be identified within its operational boundaries through signage and education, implementing reduced speed zones and protecting identified badger burrows. The protection of a badger burrow is generally enforced

through a Government Actions Regulation Order (GAR; BC Reg. 582/2004) under the *Forest and Range Practices Act* (2002). Similar protections can be implemented for other wildlife species that use sensitive features on the landscape, including the protection of nests (birds), dens (bears), mineral licks and wallows (ungulates), and any other localized wildlife habitat feature.

Other general BMPs that KAR can implement include:

- Pre-clearing surveys immediately prior to timber salvage or other clearing activities to identify sensitive wildlife habitat features, rare or listed species.
- Planning development activities around sensitive timing windows for wildlife.
- Implementing a policy which gives wildlife the right of way on all access roads or within other infrastructure areas where human disturbance is scheduled (e.g., clearing, maintenance).
- Enforcing an effective waste management program for all employees and guests that reduces attractants and minimizes the risk of habituated wildlife.
- Education through staff training.
- Public education through the use of signage outlining the risks of wildlife encounters and habituation.
- Identifying sensitive habitat features.

7 Overlap with Existing Use

The following sections summarize the overlaps between KAR and other existing tenures.

7.1 Mineral Tenure

There are no active mineral claims or mining leases that intersect the KAR boundary, although numerous historically active mineral titles (abandoned or forfeit) and Crown granted mineral claims underlie KAR as of the date of this report (Appendix A, Figure 16). As the primary subsurface rights holder in the Kimberley area, Teck was contacted to inquire about their ownership of the Crown granted mineral claims. Teck responded indicating that all but four Crown granted mineral claims were held by Teck. Ownership of the four other Crown granted mineral claims is currently unknown. Should any of these claims become active in the future, KAR acknowledges that they may have to coordinate access and activities with the tenure holders. Further, a conditional reserve overlays the KAR CRA. This reserve designates an area for alpine skiing use.

7.2 Timber Tenure & Range Use

KAR is designated under the Resort Timber Administration Act (RTAA). The RTAA authorizes MRB to administer timber within the KAR CRA. Further, KAR, through Resorts of the Canadian Rockies, previously held an Occupant License to Cut, forest harvest authorization for the Crown land portion of KAR's CRA, which expired in 2022.

KAR falls within the greater BC Timber Sales Kootenay Timber Sales Business Area, within which numerous forest harvest authorizations exist, some of which are adjacent to the KAR boundary along its southern edge (Appendix A, Figure 17).

KAR also overlaps a large range unit (administrative boundary) established to assist in the management of the provincial range programs. There is currently no active grazing or pasture within or immediately adjacent to the KAR boundaries and suitable ecosystems (e.g., grass and shrublands) are not prevalent (Appendix A, Figure 18).

7.2.1 Old Growth Management Areas and Old Growth Deferral Areas

The province of BC uses Old Growth Management Areas (OGMAs) established under the *Forest and Range Practices Act* (2002) as mechanisms for protecting or retaining old-growth forests. There are numerous OGMAs that exist on the west-facing slopes of North Star Mountain (opposite KAR infrastructure), including three that border the KAR boundary along the Vimy Ridge trail south of the Easter Chair upper terminus (Appendix A, Figure 19). There are no plans for any recreational activities under this master plan within established OGMAs.

Old Growth Deferral Areas (OGDAs) are areas of BC's at-risk old growth forests where logging is deferred in order to protect and support them. The OGDAs are established through a partnership between the Province of BC and Indigenous Nations. Potential OGDA units may occur within the KAR boundaries.

7.3 Land Use Planning, Local, and Regional Zoning Requirements

7.3.1 Kootenay Boundary Land Use Plan

KAR falls within the boundaries of the Kootenay Boundary Land Use Plan (1997), which aims to protect and preserve the various values with the following intents:

- Grizzly Bear Priority Area – provide the amount of distribution of habitat required to maintain suitable population levels and distributions of grizzly bears.
- Maintained Ecosystem Restoration Area – improve productivity and health of fire-maintained forests and rangelands by restoring stand structure and species composition.
- Regionally Significant Visual Area – design timber harvesting, forest management and mineral exploration should reflect the importance of front country landscapes to communities, recreation and tourism.
- Connectivity Corridor – maintain genetic exchange between populations and for gradual shifts in the distribution of whole ecosystems, manage rare habitats, red/blue listed and other regionally significant species, and under-represented ecosystems.
- Biodiversity Emphasis Options – managed forests, connectivity, distribution of ecosystems and species.

The Kootenay Boundary Land Use Plan also identifies Mark Creek as a significant (critical, high value) fish stream. The activities offered by KAR are well aligned with the objectives of the Kootenay Boundary Land Use Plan Implementation Strategy.

7.3.2 Cranbrook West Recreation Management Strategy

KAR also falls within the boundaries of the Cranbrook West Recreation Management Strategy (2005, which only applies to provincial Crown land). The activities KAR offers are also well aligned with the goals of the Strategy, including:

- Promote environmental stewardship.
- Provide a balance and range of recreation activities throughout the Plan area (both public and commercial use).
- Respect all land users and the land base that supports them.
- Provide a framework to identify and address recreation conflicts on provincial Crown land.

7.3.3 City of Kimberley Zoning

KAR's base area and a portion of KAR's skiable terrain are located within the City of Kimberley boundary. KAR's skiable terrain is zoned RC-1, Ski Hill Recreation zone, under the City of Kimberley zoning bylaw (1994; section 7.18). This zone allows for outdoor recreation uses, entertainment facilities, sports equipment, retail sales/repair/rental, and public utility use.

KAR's base area is primarily zoned as LP-1, Leisure Park zone, under the City of Kimberley Alpine Resort zoning bylaw (2016). LP-1 zoned areas are intended to function as recreational use and enjoyment areas within KAR.

7.3.4 Regional District of East Kootenay

Despite KAR being primarily located within city limits, a portion of the CRA is located within the Regional District of East Kootenays. Kimberley Rural Official Community Plan (RDEK, 2017) notes that the area where KAR overlaps with the RDEK community plan, is intended for continued use as alpine skiing.



Riding the Northstar Express Chairlift

7.4 Commercial Recreation Tenure & Guide Outfitter Territories

Three trapline areas overlap the KAR boundary and one guide outfitter territory abuts the KAR western boundary (at the height of land on North Star Mountain; Appendix A, Figure 20). Other recreational uses of the Crown land within and adjacent to the KAR boundary include an active commercial recreation license of occupation for trail riding (predominantly on Crown land within and adjacent the KAR boundary) and a trapline cabin located in the north of the KAR boundary adjacent Mark Creek.

7.5 Public Recreational Use

The City of Kimberley, KAR and the surrounding area are known for recreational values and high recreational use. KAR supports public recreational use and often partners with community groups and organizations for recreation-based events.

A hiking trail, known as “Round the Mountain” overlaps with KAR. The Round the Mountain trail is 25.4 km. This trail provides connectivity to trails in Horsebarn Valley Interpretive Forest recreation site and the Kimberley Nature Park.

References

- Alberta Whitebark and Limber Pine Recovery Team. (2014). Alberta Whitebark Pine Recovery Plan 2013-2018. Alberta Environment and Sustainable Resource Development, Alberta Species at Risk Recovery Plan No. 34. Edmonton, AB. 63pp.
- Apex Geoscience Consultants Ltd. (2001). Mark Creek Watershed Assessment (IWAP). 94pp.
- Caslys Consulting Ltd. (2010). Freshwater Atlas User Guide. 75pp.
- City of Kimberley. (1994). City of Kimberley Zoning Bylaw No. 1850, 1994. Section 7.18 Ski Hill Recreation – RC-1. 103pp.
- City of Kimberley. (2016). City of Kimberley Alpine Resort Zoning Bylaw No. 2016, 1999. Section 7.25 Leisure Park One Zone: LP-1. 76pp.
- City of Kimberley. (2017). Kimberley Official Community Plan – Schedule A to Bylaw 2600. Section 6.4 Development Permit Area #4 – Natural Hazards.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). (2006). Assessment and Status Report on the westslope cutthroat trout *Oncorhynchus clarkia lewisi* (British Columbia and Alberta populations) in Canada. Ottawa, ON. 74pp.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). (2010). Assessment and Status Report on the Whitebark Pine *Pinus albicaulis* in Canada. Ottawa, ON. 44pp.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). (2012). Assessment and Status Report on the American Badger *Taxidea taxus* in Canada. Ottawa, ON. 81pp.
- DeGroot, L. (2011). Mountain Caribou Census South Purcell Mountains. Prepared for BC Ministry for Forests, Lands and Natural Resource Operations. 10pp.
- Government of Canada. (2017). Southern mountain caribou (*Rangifer tarandus caribou*) protection study 2017: chapter 2. Retrieved from <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/publications/southern-mountain-caribou-protection-study-2017/chapter-2.html>
- Ministry of Environment (2014). Policy For Mitigating Impacts on Environmental Values (Environmental Mitigation Policy). Section 6 Mitigation Hierarchy. 4 pp.
- Ministry of Sustainable Resource Management. (2005). Cranbrook West Recreation Management Strategy (RMS) Landscape Units C1-13, C27-37. 64pp.
- Moody, R., Pigott, D., Species at Risk Recovery Branch. Best Management Practices for Whitebark Pine (*Pinus albicaulis*).

Kootenay Inter-Agency Management Committee. (1997). Kootenay/Boundary Land Use Plan Implementation Strategy. 375pp.

MacKillop, D.J., Ehman, A.J., Iverson, K.E., and E.B. McKenzie. (2018). A field guide to site classification and identification for southeast British Columbia: the East Kootenay. Province of BC, Victoria, BC. Land Management Handbook 71.

Parish, R. (1948). Tree Book: Learning to Recognize Trees of British Columbia. Partnership Agreement on Forest Resource Development. Victoria, BC. 183pp.

Regional District of East Kootenays. (2017). Kimberley Rural Official Community Plan Bylaw No. 2760.

Sylvan Consulting Ltd. (2010). Augmentation Plan for the Purcells-South Mountain Caribou Population. Prepared for BC Ministry of Environment. 51pp.

Appendix A. Maps

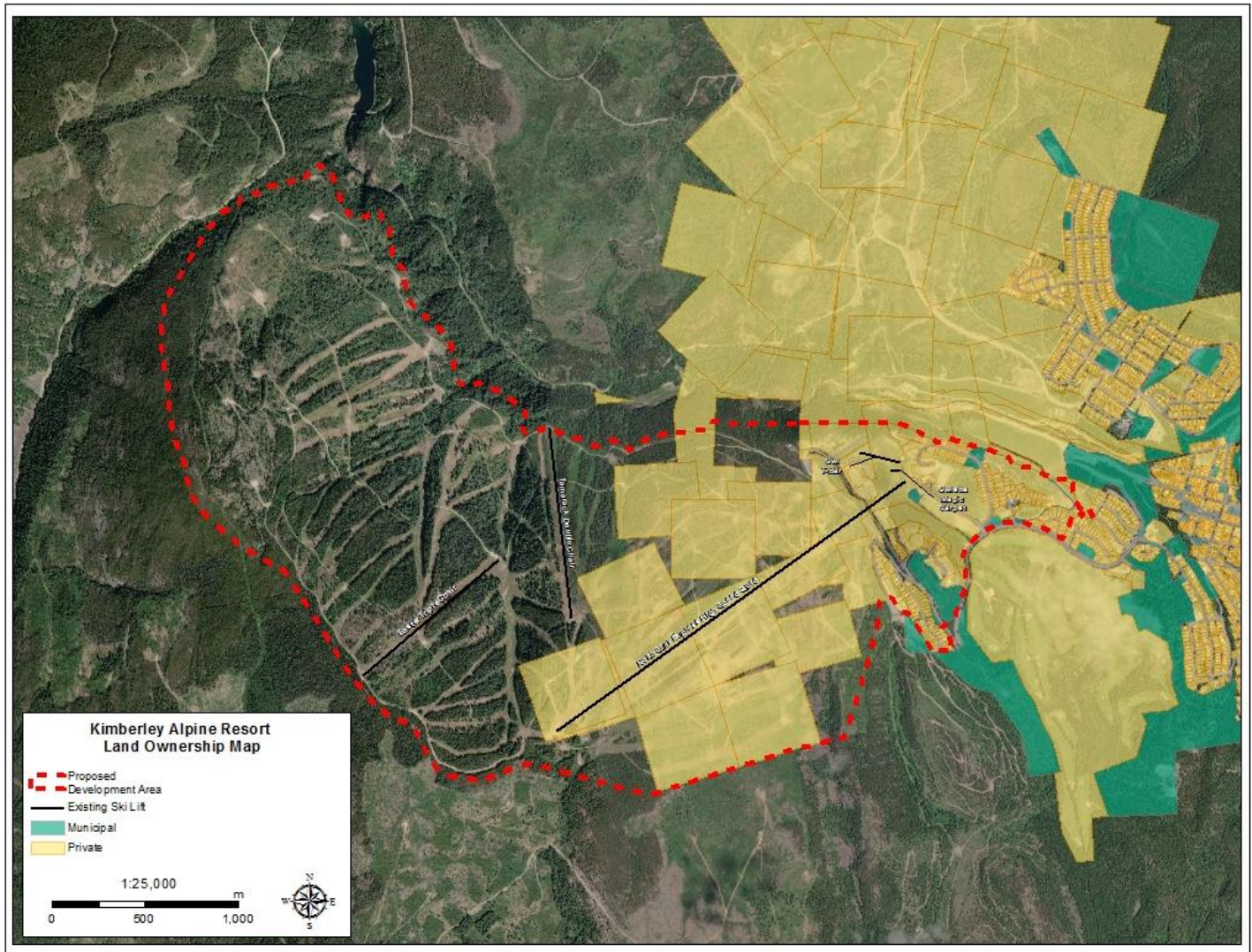


Figure 2 Land ownership within and surrounding Kimberley Alpine Resort.

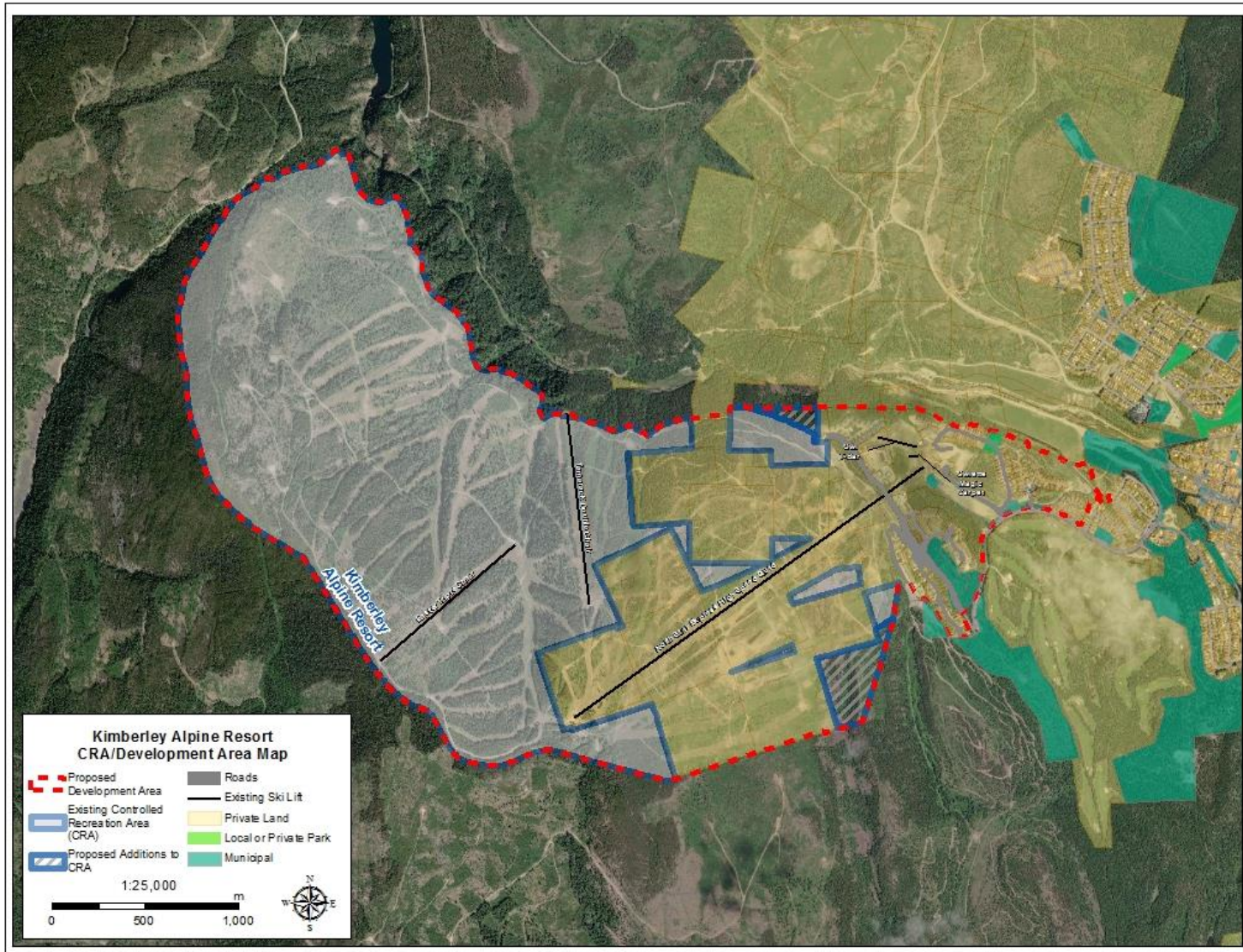


Figure 3 KAR Controlled Recreation Area and Development Area Map

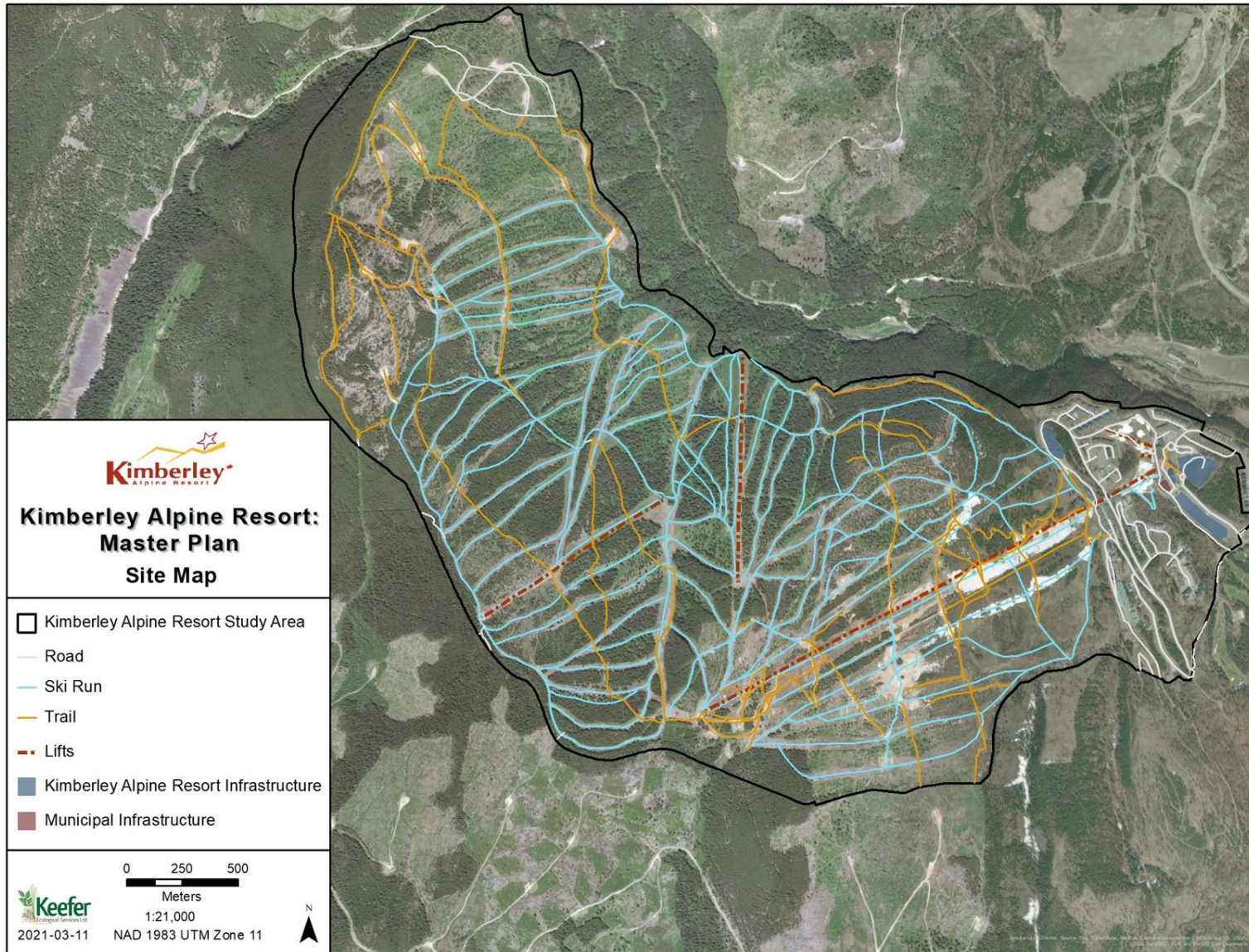


Figure 4 The Kimberley Alpine Resort site overview.

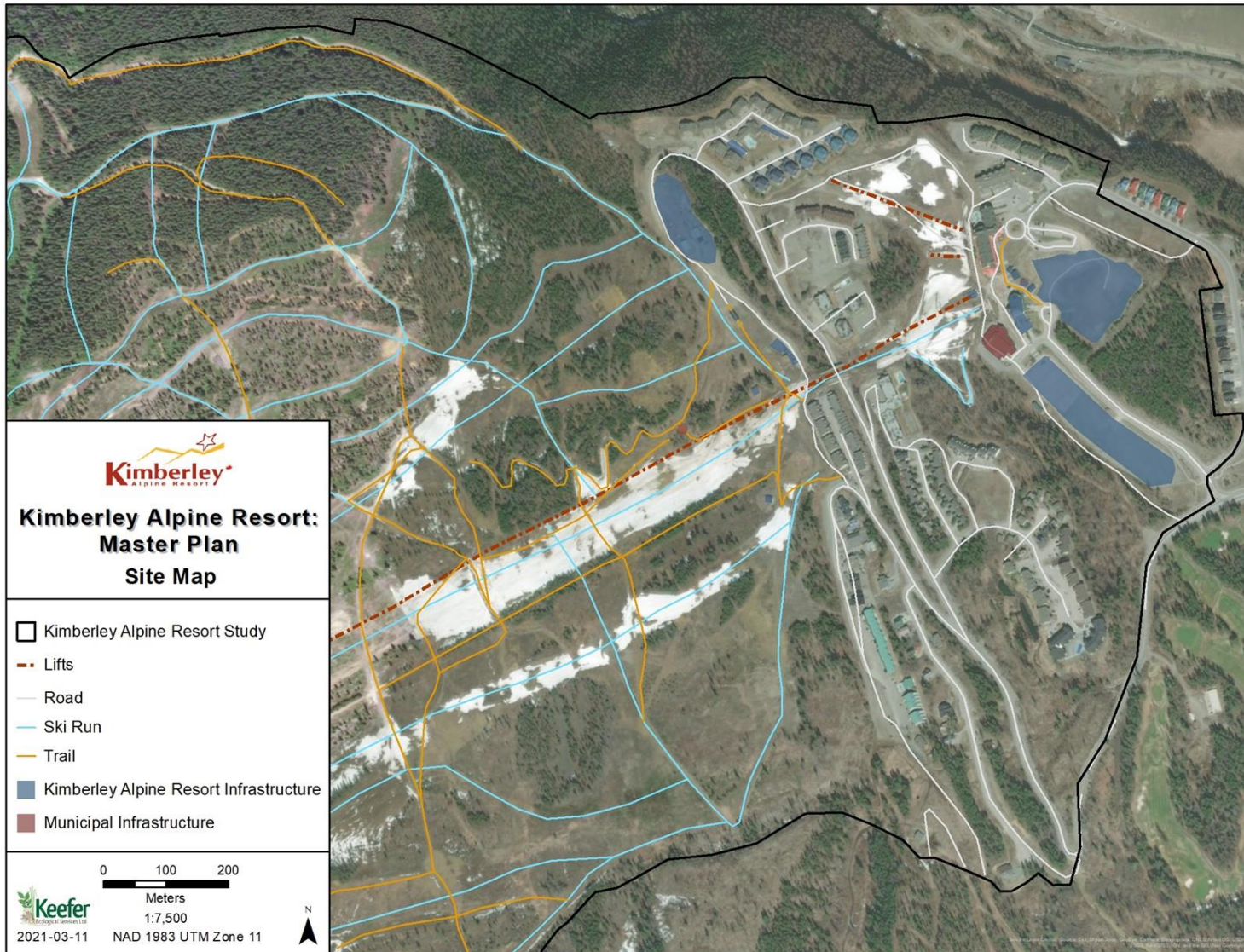


Figure 5 The Kimberley Alpine Resort base area overview.

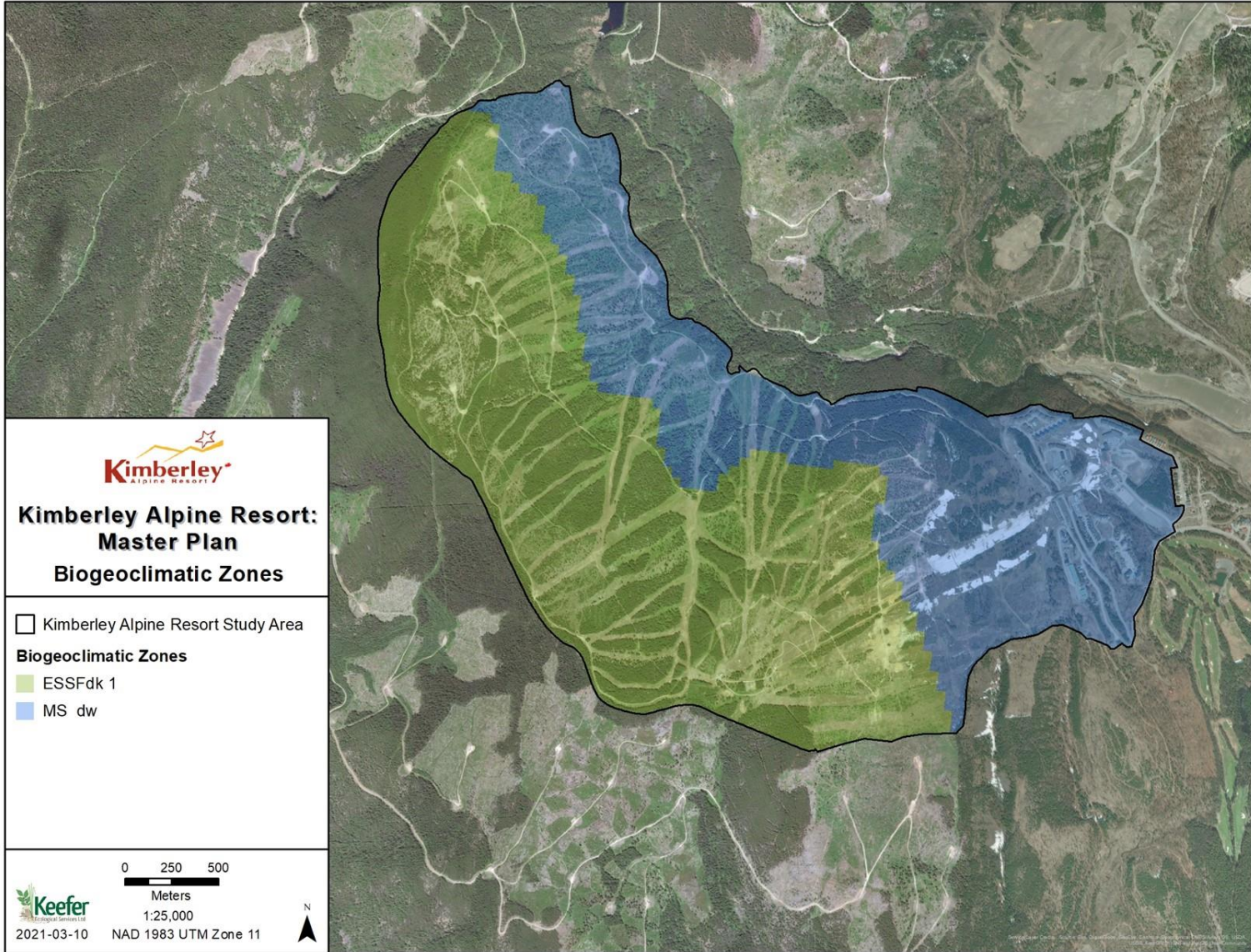


Figure 6 Biogeoclimatic zones within the Kimberley Alpine Resort study area.

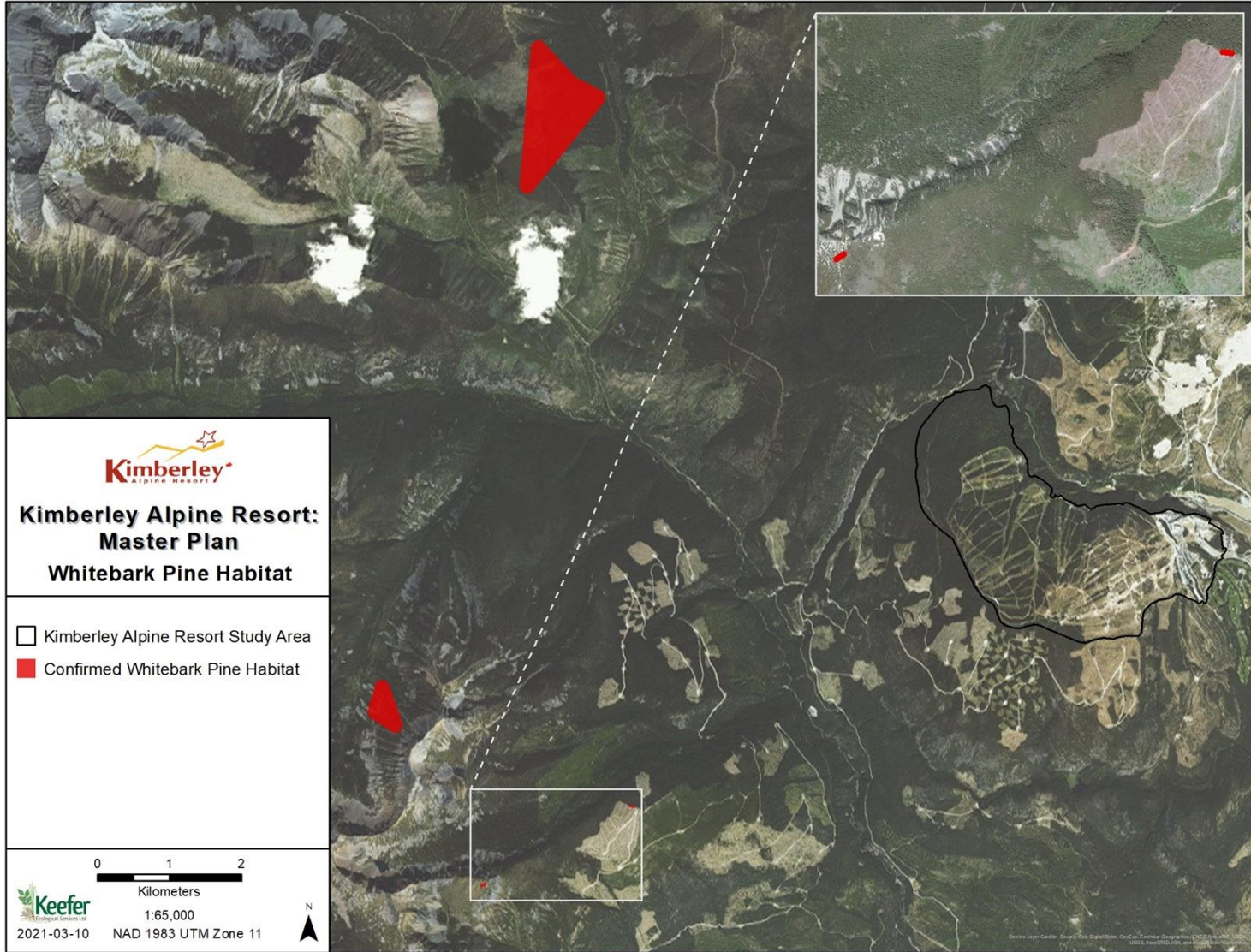


Figure 7 Whitebark Pine habitat near the Kimberley Alpine Resort study area.

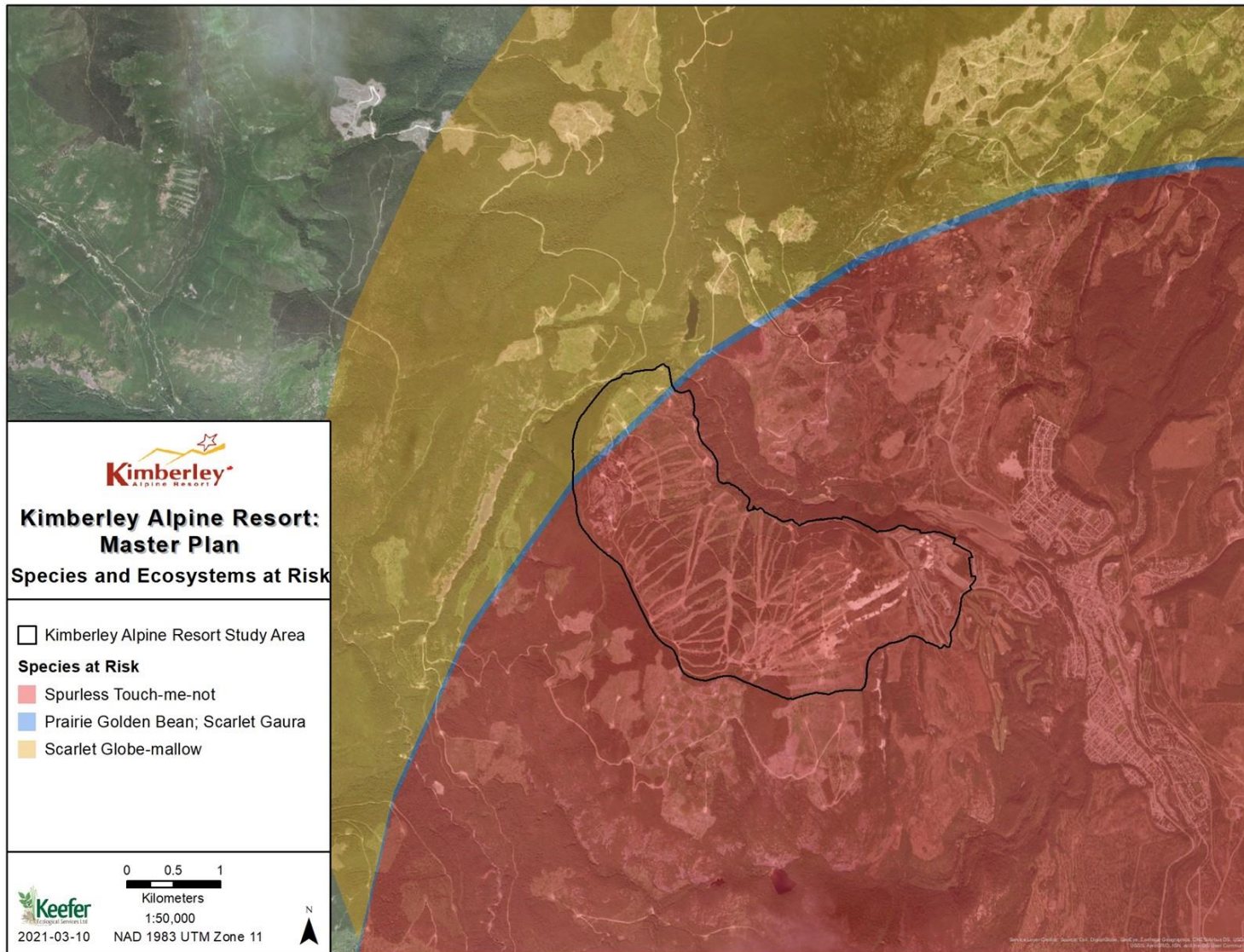


Figure 8 Species at risk within and surrounding the Kimberley Alpine Resort study area. It should be noted that spurless touch-me-not layer overlaps with the prairie golden bean layer. The spurless touch-me-not the and prairie golden bean layers overlap with the scarlet globe-mallow layer.

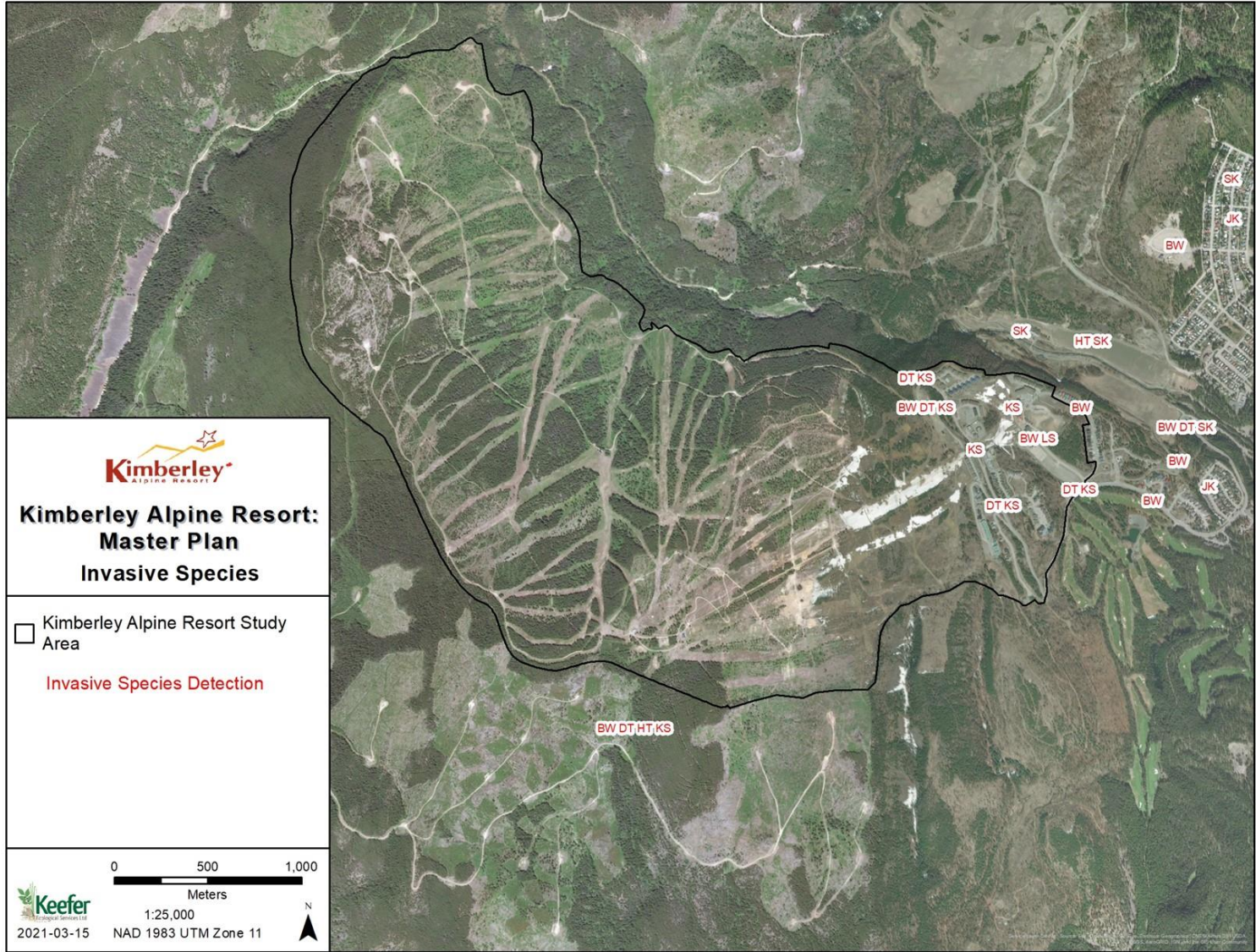


Figure 9 Invasive species within and surrounding the Kimberley Alpine Resort study area.

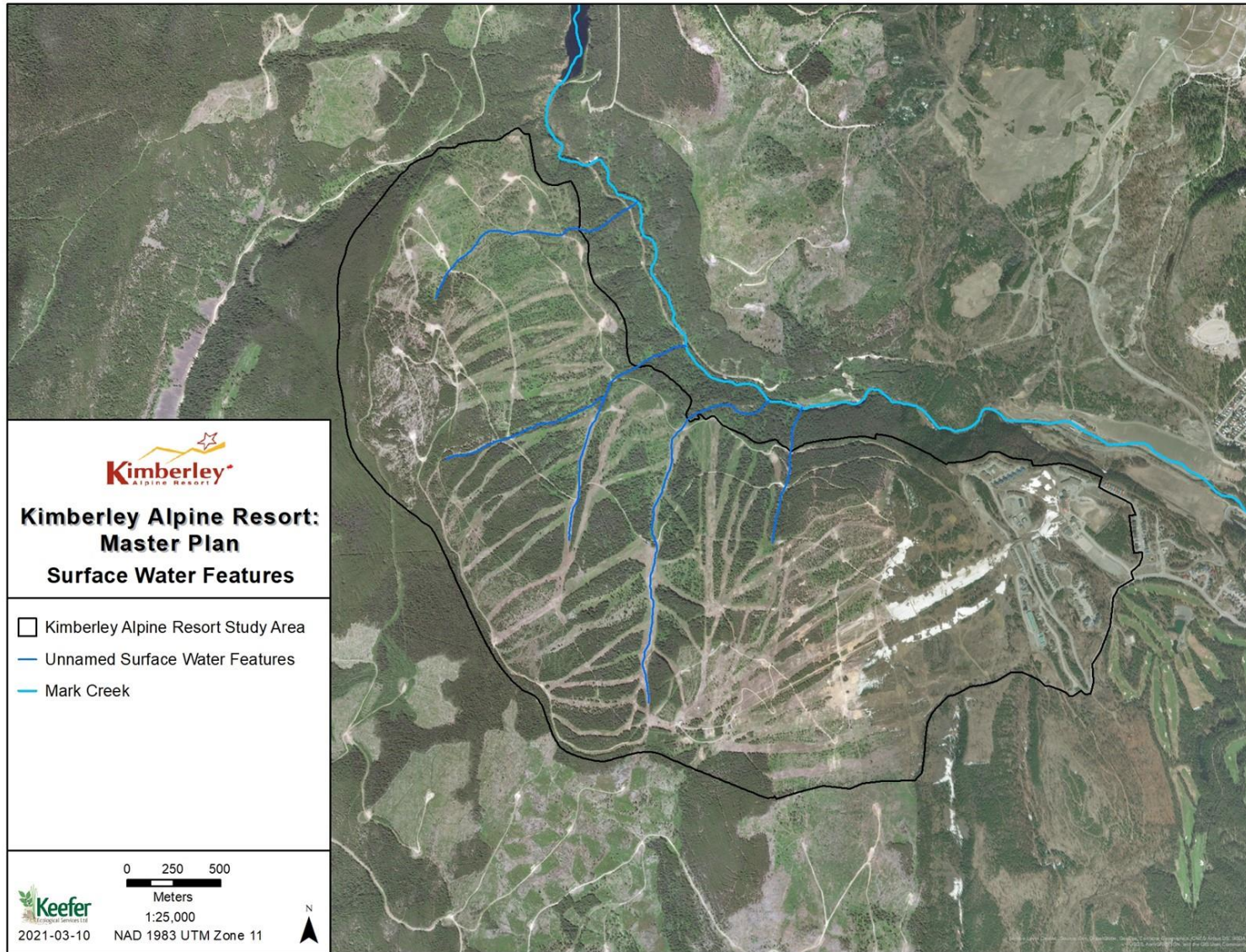


Figure 10 Surface water features within the Kimberley Alpine Resort study area.

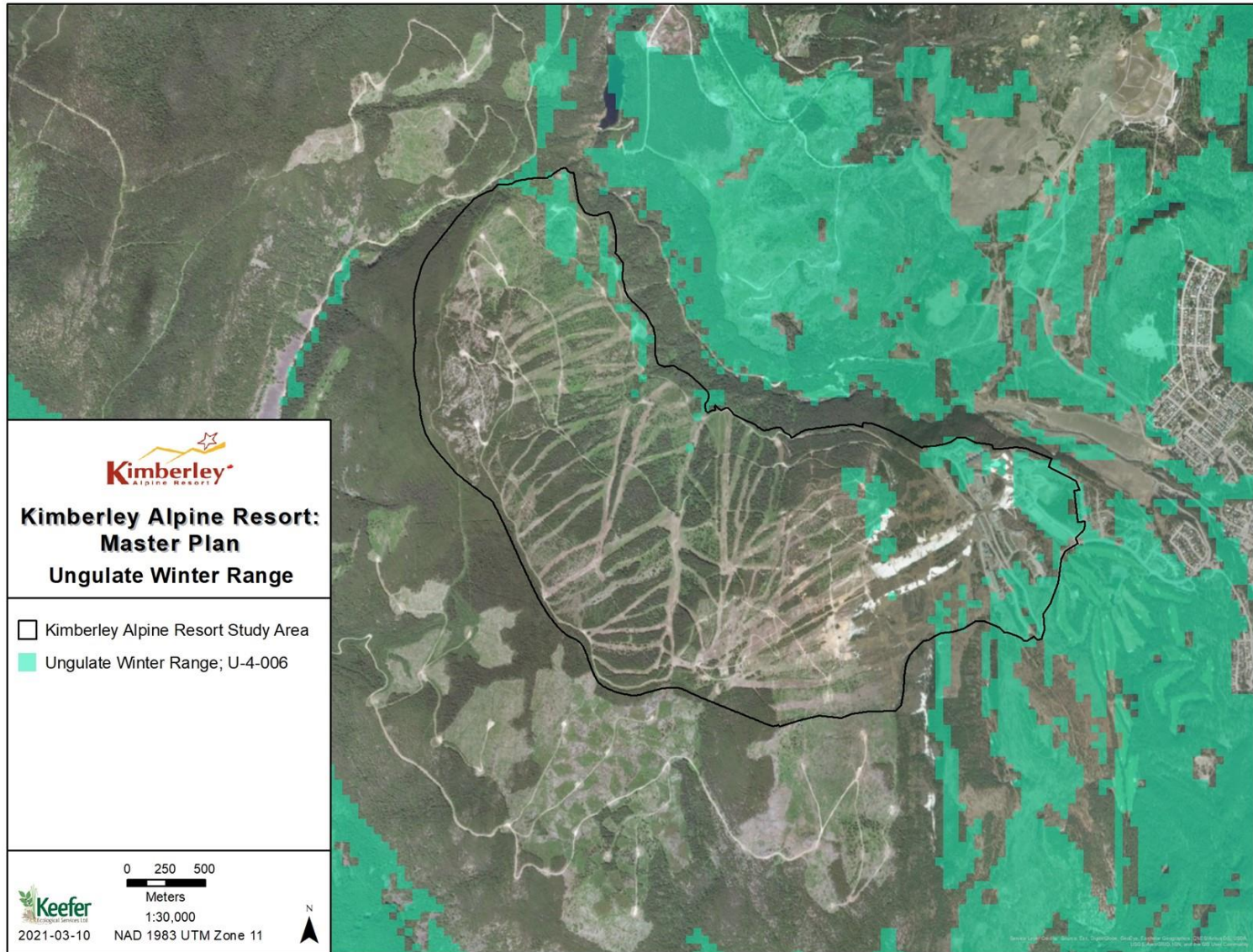


Figure 12 Ungulate winter range within and surrounding the Kimberley Alpine Resort study area.

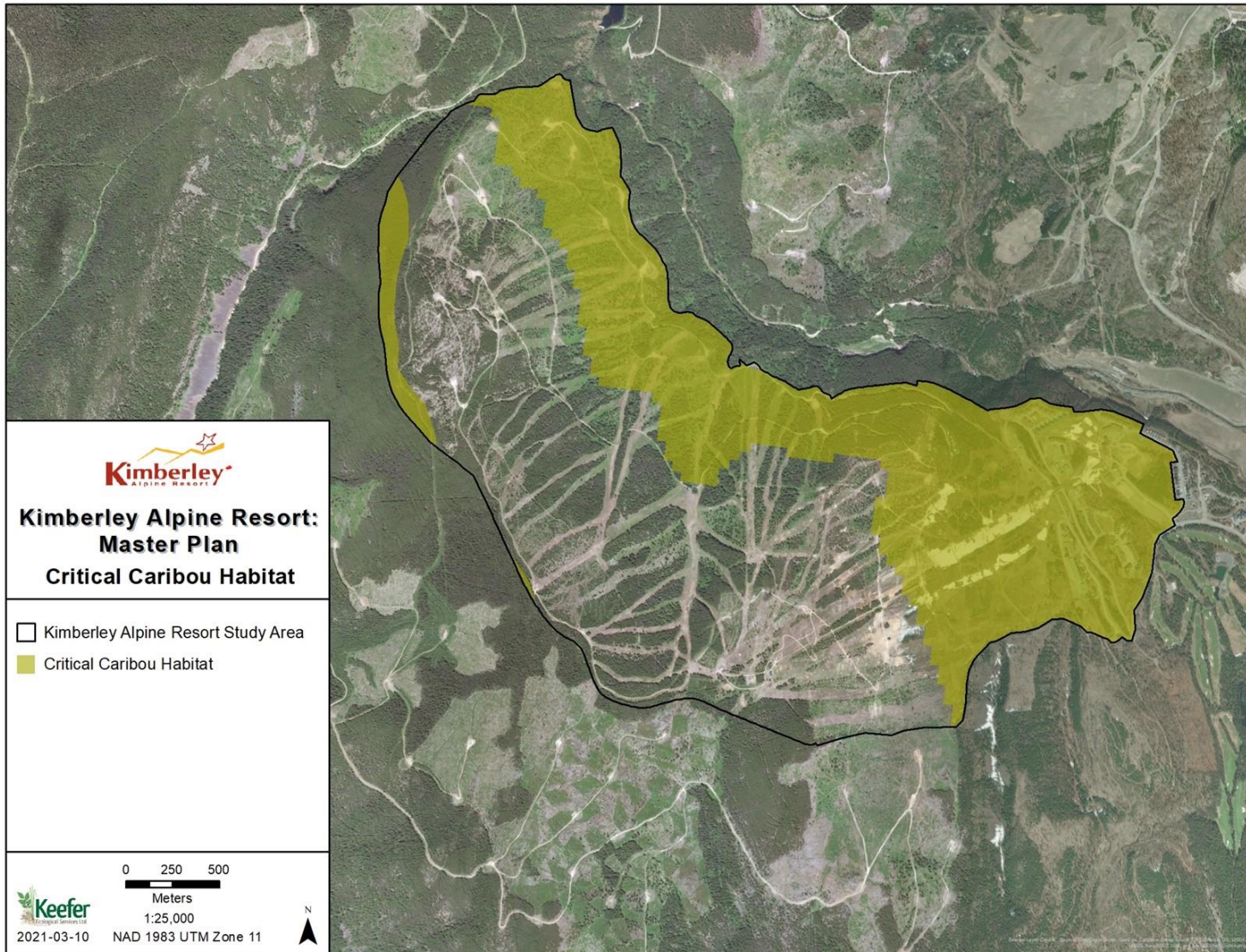


Figure 13 Critical caribou habitat within the Kimberley Alpine Resort study area.

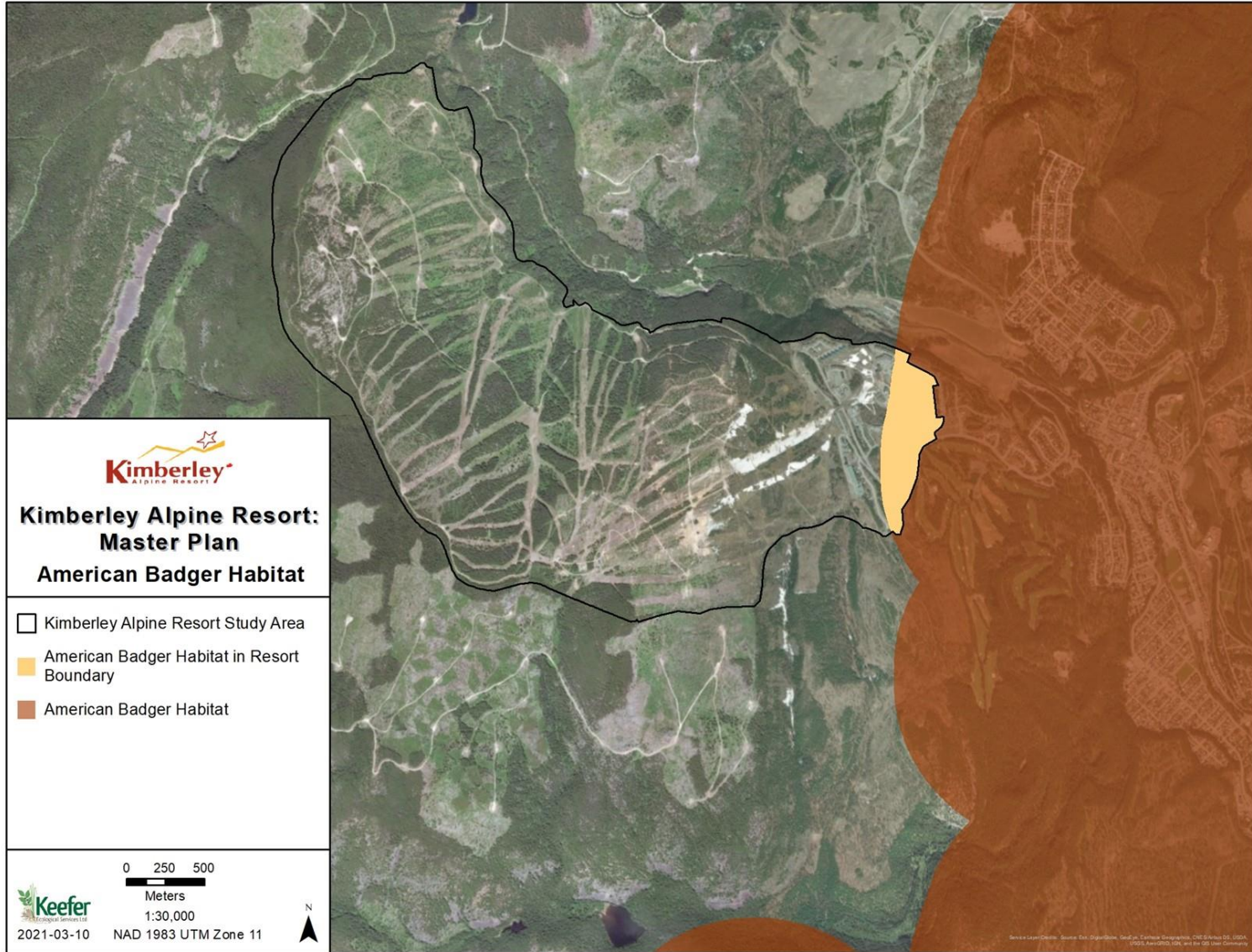


Figure 14 American badger habitat within and surrounding the Kimberley Alpine Resort study area.

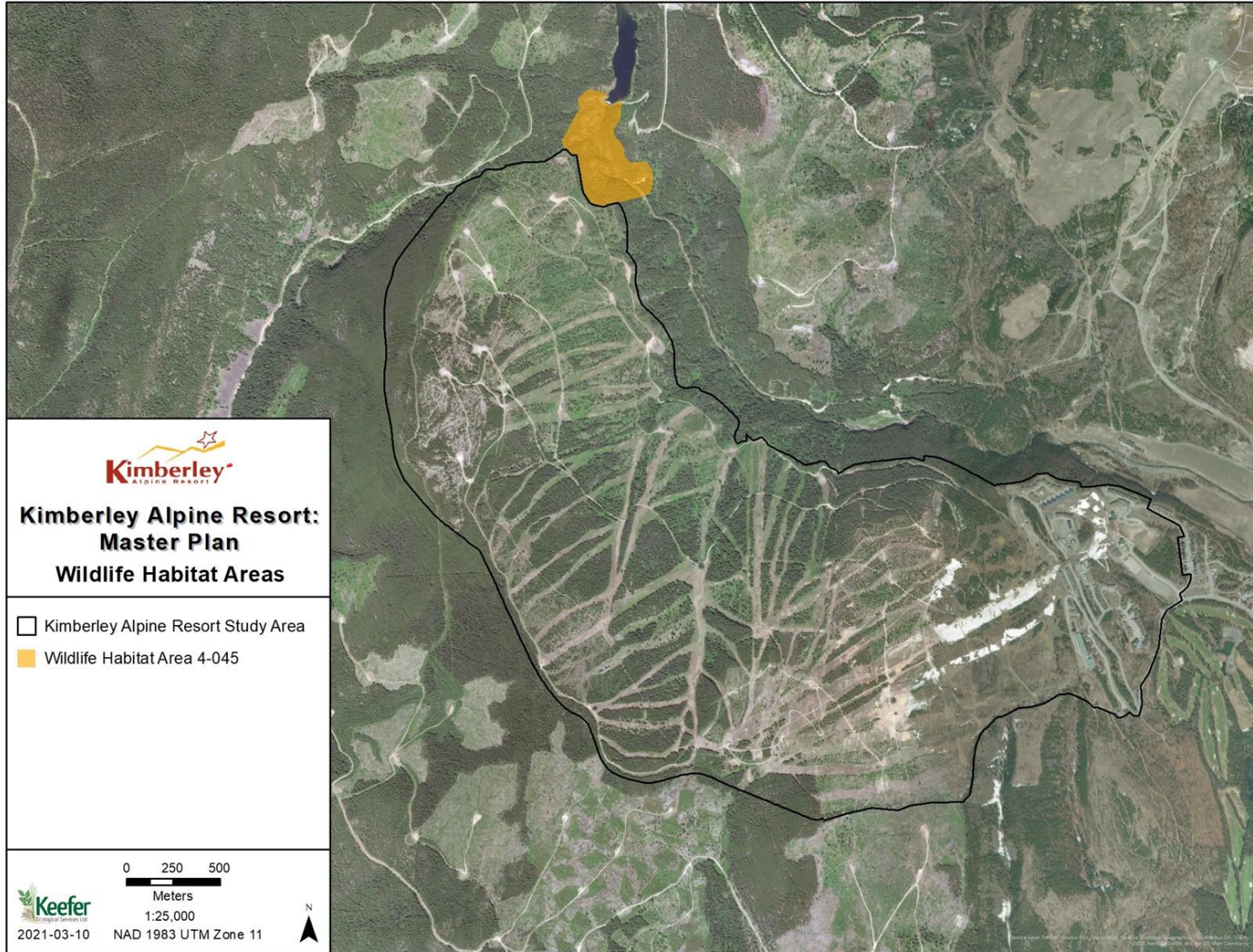


Figure 15 Wildlife habitat area adjacent to the Kimberley Alpine Resort study area.

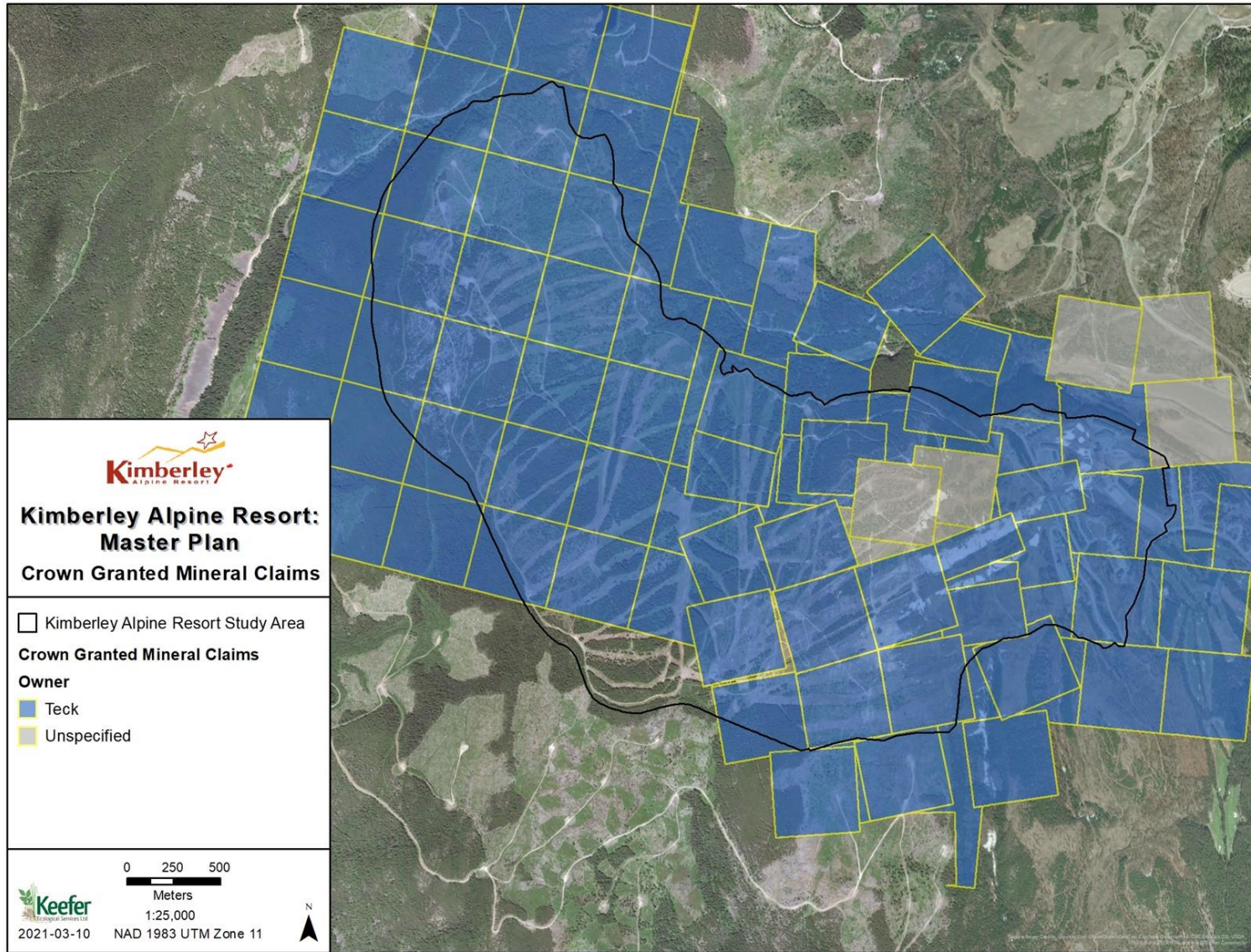


Figure 16 Mineral claims within and surrounding the Kimberley Alpine Resort study area.

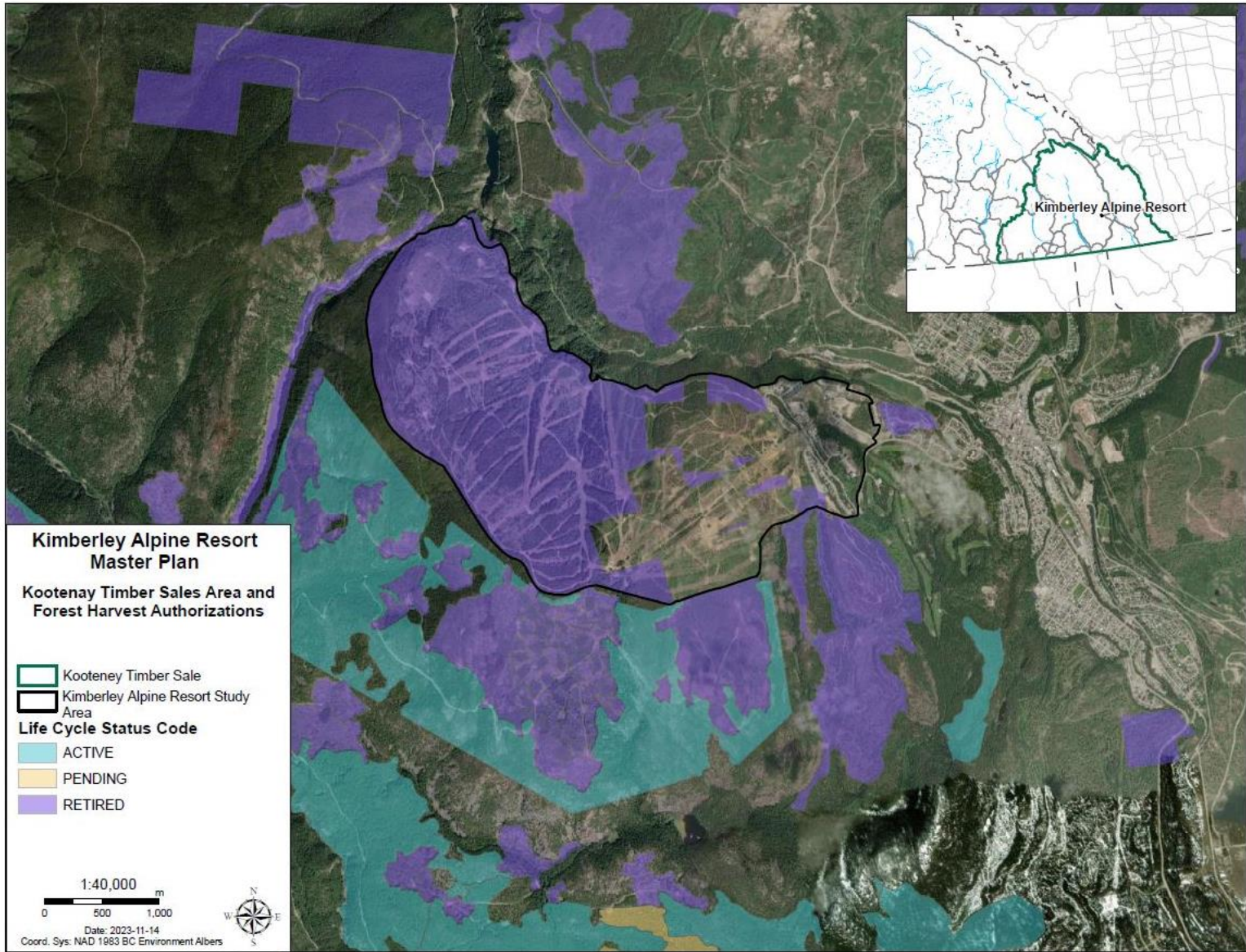


Figure 17 Timber sales and forest harvest authorizations within and surrounding the Kimberley Alpine Resort study area.



Figure 18 Range units within and surrounding the Kimberley Alpine Resort study area.

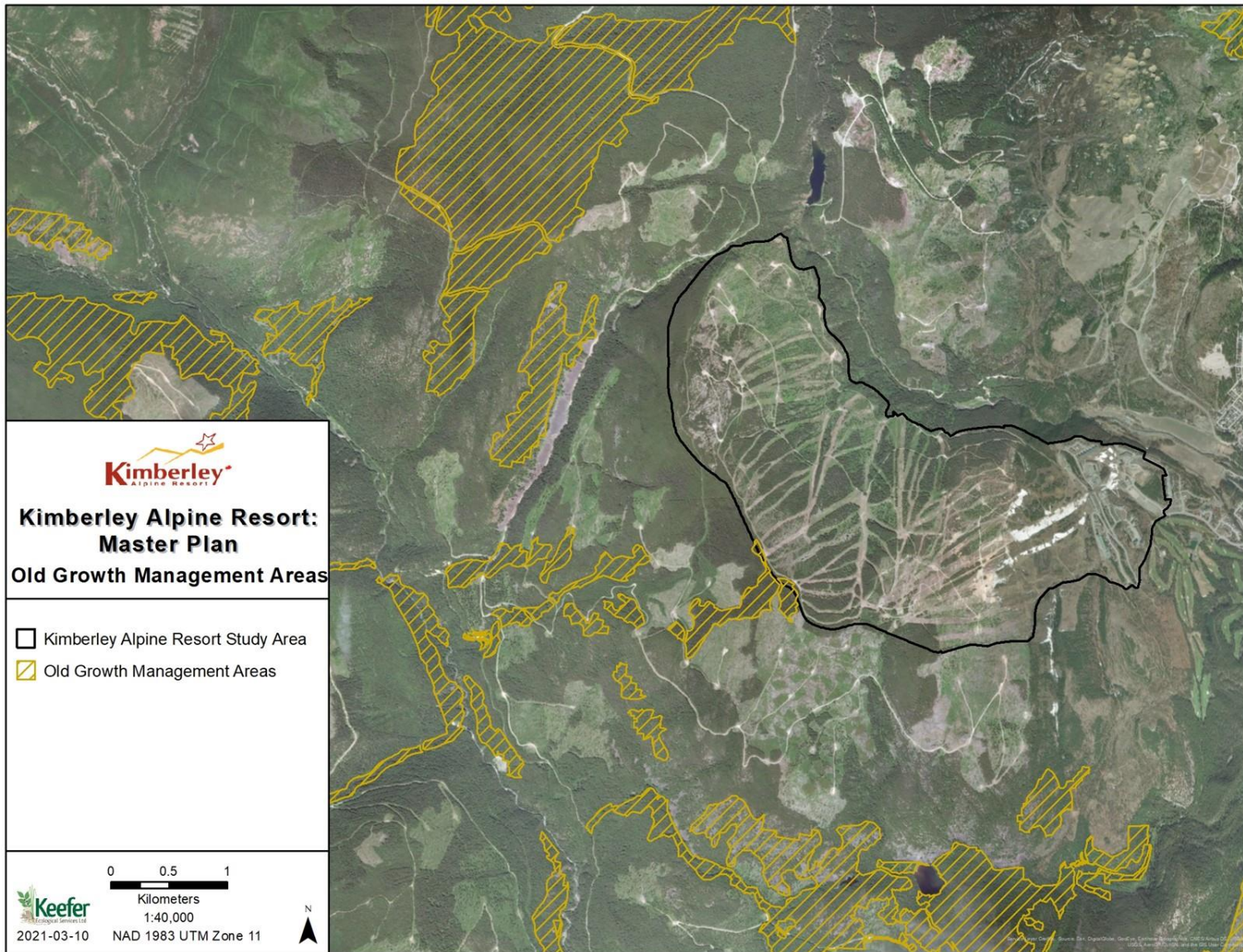


Figure 19 Old growth management areas surrounding the Kimberley Alpine Resort study area.



Figure 20 Guide outfitter areas within and surrounding the Kimberley Alpine Resort study area.

Appendix B. Health and Safety Plan

From a safety and liability perspective you are required to have a Hazards and Safety Plan that meets or exceeds Workers Compensation Board and approved industry standards. Please note that you meet this requirement by checking off the appropriate box below and signing.

I certify that I have prepared Hazards and Safety Plan which meets or exceeds Workers Compensation Board and approved industry standards and that my operation will meet the requirements of this plan.

_____ Signed

_____ Date