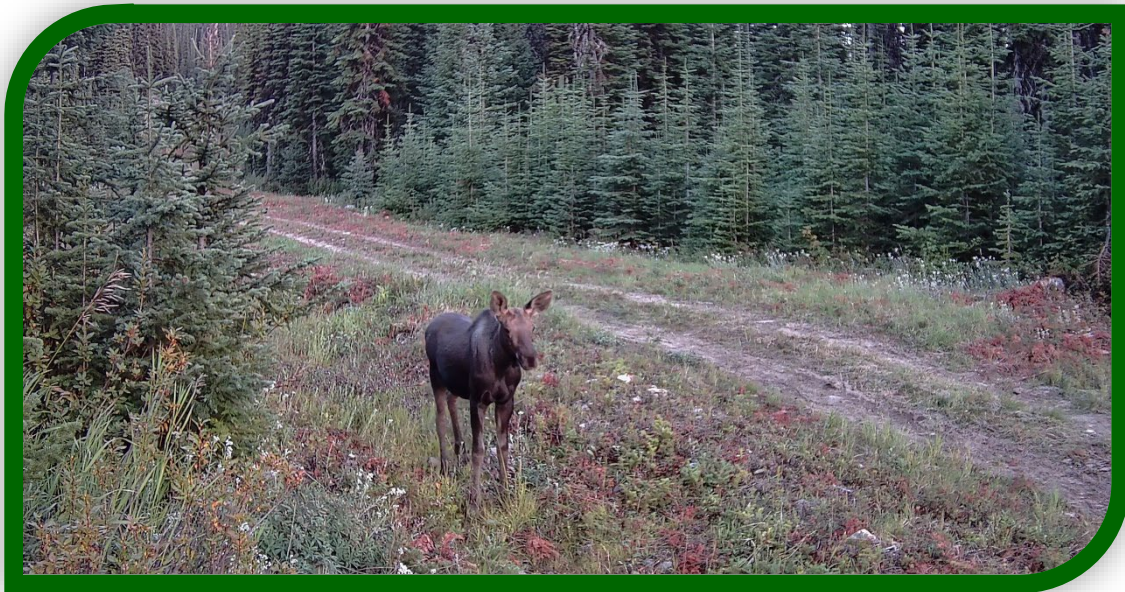




**CASCADE ENVIRONMENTAL**  
RESOURCE GROUP LTD

# Big White Ski Resort

## Wildlife Management and Monitoring Plan



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**File No.:** 017-10-05

**Date:** November 27, 2025

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## 1 Introduction

### 1.1 Location of Site

Big White Ski Resort is located in south-central British Columbia, approximately 50 km east of Kelowna (Map 1). The Controlled Recreation Area (CRA) ranges in elevation from approximately 1500 m to 2300 m (Map 2). The CRA is drained to the south by Trapping Creek into West Kettle River, to the west and north by Hallam Creek into West Kettle River, and to the southeast by Whitefoot Creek and Copperkettle Creek. These drainages and the CRA are identified on the Watersheds and Drainage Basins map (Map 2).

### 1.2 Project Description

Big White Ski Resort (Big White) retained Cascade Environmental Resource Group Ltd. (Cascade) to provide environmental services during the Master Plan approval process and Master Development Agreement renewal. These services include supporting permit applications and regulatory submissions, preparing wildlife and habitat management plans, developing species-specific mitigation measures, and conducting environmental monitoring before, during, and after construction activities. Cascade will also provide guidance on best management practices, regulatory compliance, and adaptive management to ensure that development proceeds in an environmentally responsible manner and in alignment with applicable legislation.

### 1.3 Goals and Objectives

Cascade has developed this Wildlife Management and Monitoring Plan (WMMP) to outline measures aimed at avoiding and minimizing potential negative effects on wildlife related to the proposed development within the CRA. The plan is intended to guide future development projects proposed within the Master Plan in a manner that avoids and minimizes disturbance to wildlife and their habitats. It includes practical strategies for managing wildlife and conserving key habitat features, as well as steps to reduce the risk of human-wildlife conflicts. The WMMP is grounded in the principles of the *Species at Risk Act*, *Migratory Birds Convention Act*, and the *Wildlife Act*, and incorporates a range of Best Management Practices (BMPs) for specific groups such as amphibians, reptiles, and migratory birds. The plan will also follow the BC Environmental Mitigation Procedures (MOE, 2014). The plan aligns with applicable provincial and federal regulations while offering clear, environmentally responsible, and feasible guidance for on-the-ground implementation.

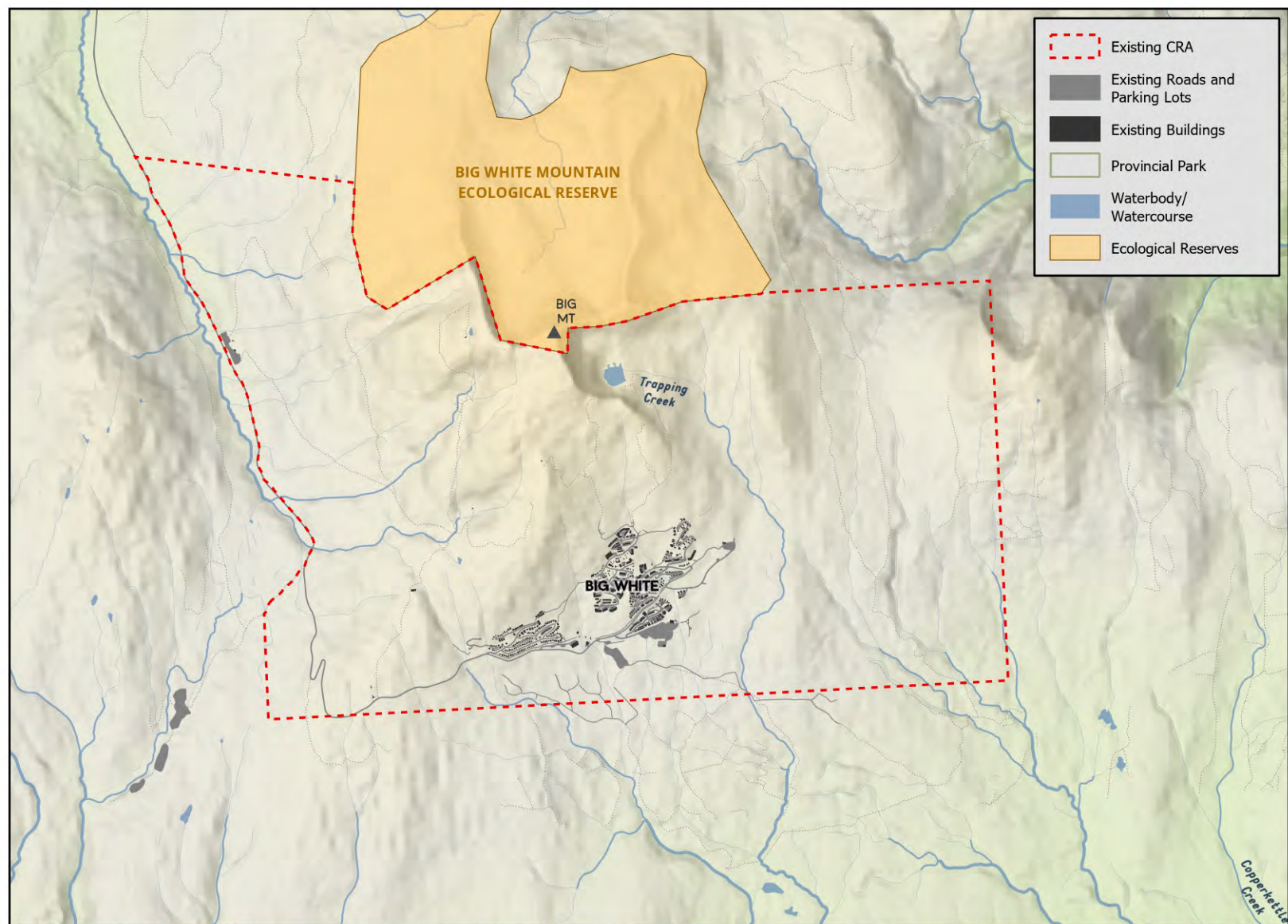
The objectives of this WMMP are to:

- Avoid habitat loss and disturbance during critical life stages (e.g., breeding, nesting, denning).
- Maintain habitat connectivity and wildlife movement corridors within and adjacent to the CRA.
- Mitigate potential impacts through species-specific measures and timing restrictions.
- Reduce the risk of human-wildlife conflicts through education, site protocols, and waste management.
- Comply with all relevant wildlife protection legislation and permitting requirements.
- Monitor and adapt management strategies based on field observations and monitoring results.

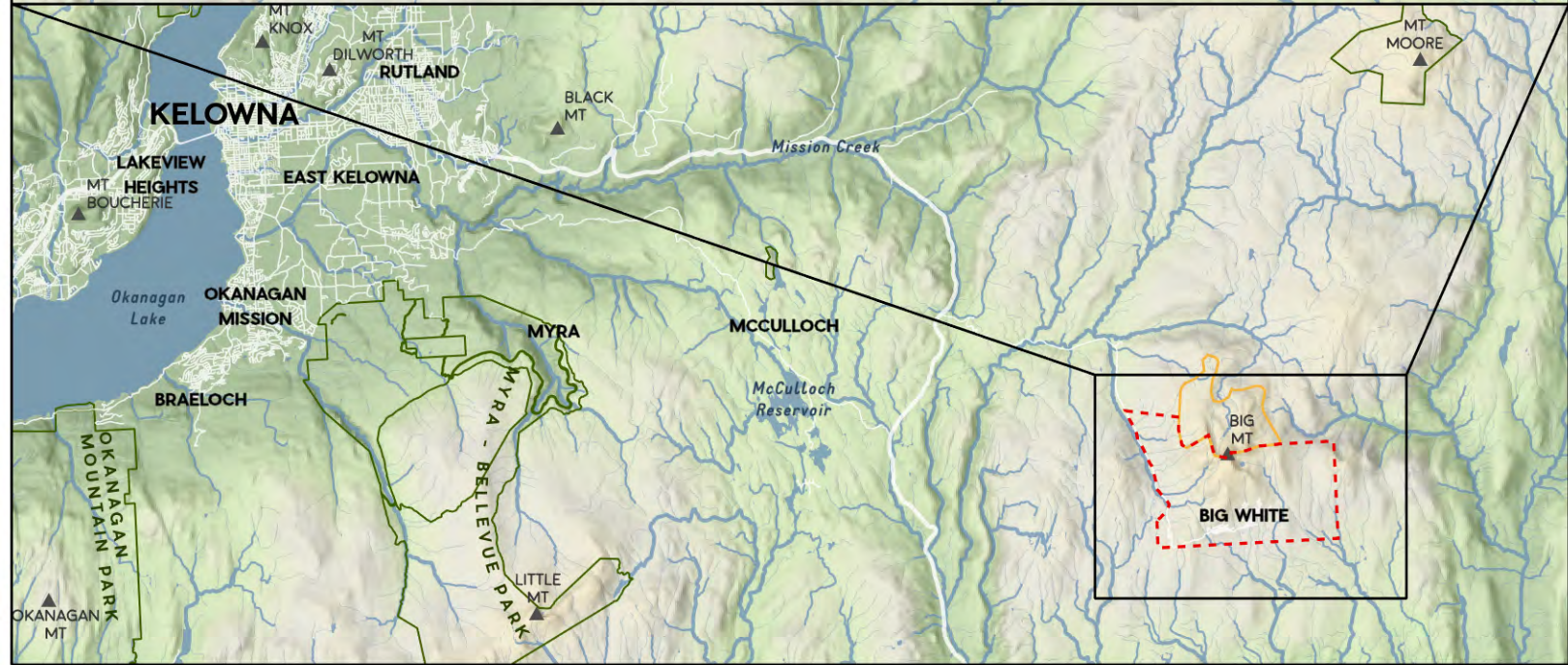
Valued Components (VCs) considered in this WMMP were identified through the environmental assessment process and consultation with regulatory agencies and First Nations consultation. Grizzly bear is addressed in a separate document (Cascade, 2025). These VCs were selected based on ecological significance, conservation status, and potential sensitivity to resort activities and include the following:



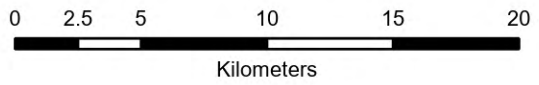
- Moose (*Alces alces*) – important ungulate species with seasonal habitat requirements, sensitive to disturbance during calving.
- Mule Deer (*Odocoileus hemionus*) – locally important game species that require intact migration routes and seasonal ranges.
- Raptors – apex predators with protected nesting sites, sensitive to disturbance during breeding.
- Migratory birds – protected under federal law, with vulnerability during nesting season.
- Species at risk – federally or provincially listed species whose conservation is a legal and ecological priority.



- Existing CRA
- Existing Roads and Parking Lots
- Existing Buildings
- Provincial Park
- Waterbody/Watercourse
- Ecological Reserves



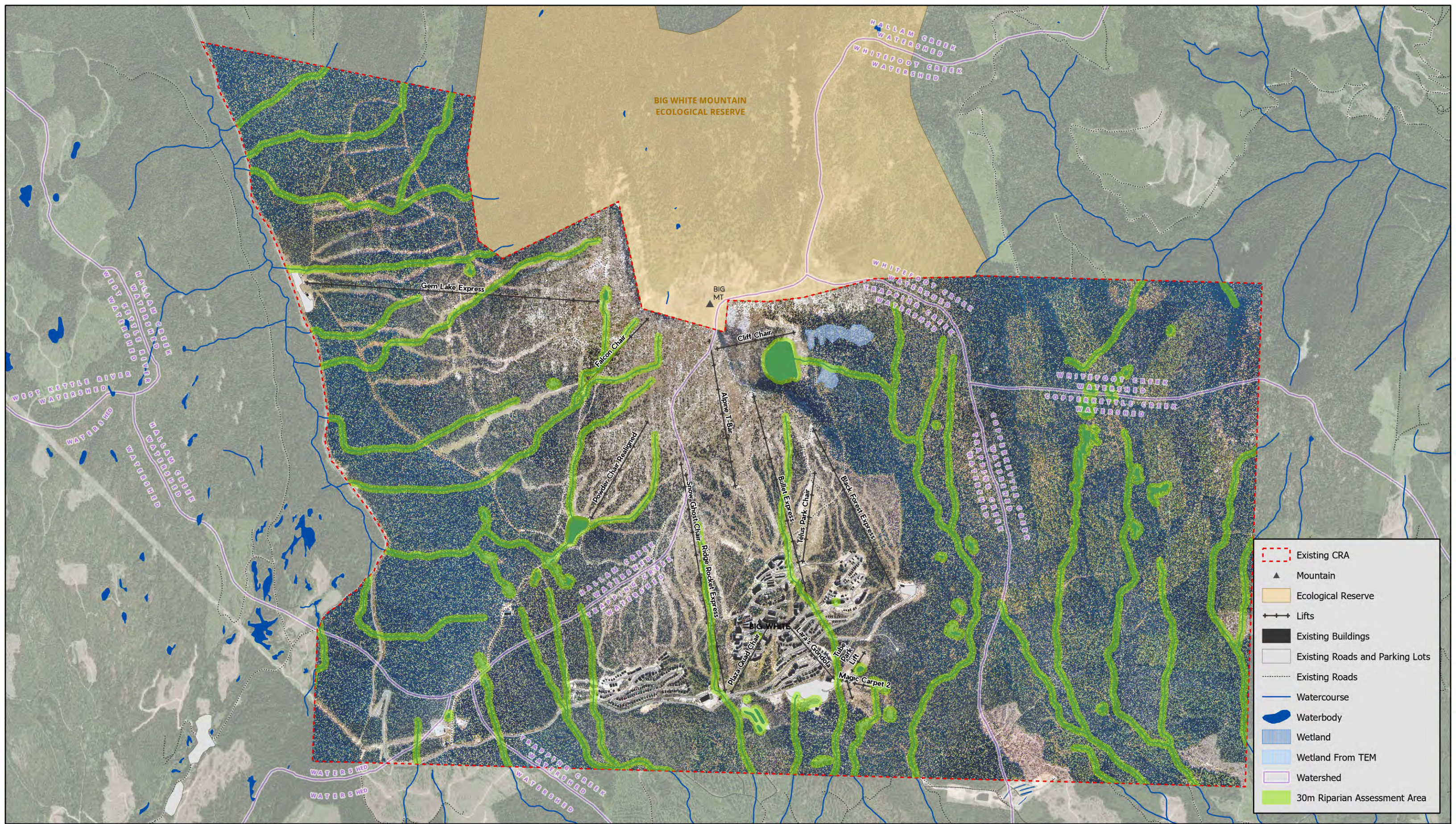
GIS Cartographer: Oliver Chew  
 Date: 2025-11-12  
 CERG File #: 017-10-04-03  
 Projection: NAD 1983 UTM Zone 10N



**Map 1 - Location**

Invasive Species Management Plan  
 Big White  
 British Columbia



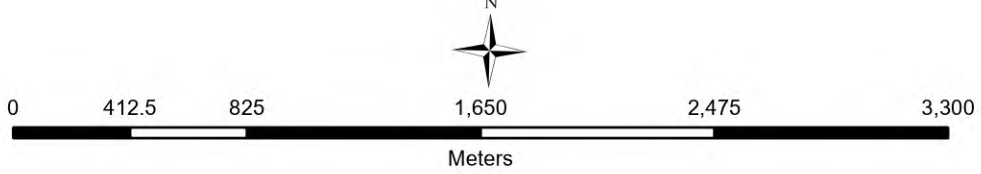


	Existing CRA
	Mountain
	Ecological Reserve
	Lifts
	Existing Buildings
	Existing Roads and Parking Lots
	Existing Roads
	Watercourse
	Waterbody
	Wetland
	Wetland From TEM
	Watershed
	30m Riparian Assessment Area

**Map 2 - Hydrology**

Environmental Review  
Big White  
British Columbia

GIS Cartographer: Oliver Chew  
Date: 2025-10-22  
CERF File #: 017-10-03  
Projection: NAD 1983 UTM Zone 11N







## 2 Regulatory and Permitting Requirements

This WMMP is designed to meet all relevant local, Provincial and Federal legislation, regulations, orders, standards and guidelines. The WMMP assumes that all necessary permits, permissions, allowances and licenses required by governing bodies are obtained and their provisions complied with. Applicable legal or permitting requirements for the development in the CRA are outlined below.

### 2.1 Federal Statutes and Regulations

#### 2.1.1 Migratory Birds Convention Act

The *Migratory Birds Convention Act* protects and conserves migratory birds and their nests (Government of Canada, 2024). The Act describes prohibitions under Section 12 (h) prohibiting the killing, capturing, injuring, taking or disturbing of migratory birds or the damaging, destroying, removing or disturbing of nests.

The regional nesting period for the area encompassing the Big White Ski Resort is April 1 to September 1 (BC Gov, 2025a). Further analysis on specific species of birds and nesting windows within the Northern Okanagan Highland Ecodistrict recommends a nesting survey window of March 5<sup>th</sup> to September 1<sup>st</sup> (BirdCanada, 2025). This nesting window is based on the earliest migratory bird species nesting window for Clark's nutcracker (*Nucifraga columbiana*) and the latest being the evening grosbeak (*Hesperiphona vespertina*). Later nesting times for cedar waxwing (*Bombycilla cedrorum*) and American goldfinch (*Spinus tristis*) were not considered as breeding is listed to occur mainly below 750 m elevation for both species (CornellLab, 2025), which is below the elevational site of Big White Village.

A songbird nesting survey should be conducted prior to any vegetation removal during this annual window to avoid contravention of the *Migratory Birds Convention Act*. Raptors' nests are protected year-round, and a raptor nest survey should be conducted by a Qualified Environmental Professional (Q.E.P.) should any large trees require removal for works. Bird surveys are discussed in Section 3.4.2.4.

#### 2.1.2 Species at Risk Act

The Canadian government enacted the *Species at Risk Act* (SARA) in 2002 to complement the Accord for the Protection of Species at Risk, a national effort to identify and protect threatened and endangered wildlife and their associated habitats across the country. The Committee on the Status of Endangered Wildlife (COSEWIC) in Canada is the scientific body responsible for assigning the status of species at risk under SARA.

Section 32 (1) of the *Species at Risk Act* (SARA) states that: No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species (Government of Canada, 2002). A species that is listed as Endangered, Extirpated or Threatened is included on the legal list under Schedule 1 of SARA and is legally protected under the Act with federal and/or provincial measures to protect and recover these species in effect. However, the *Species at Risk Act* is only applicable on federal land unless the Governor in council issues an order under Section 34 or 80 of the Act. No such order has been issued for the Big White CRA

### 2.2 Provincial Statutes and Regulations

#### 2.2.1 Wildlife Act

The provincial *Wildlife Act* prohibits the destruction of active songbird nests or any raptor nests (active or inactive) (BC Gov, 1996). In addition, wildlife is provided certain protections under the *Wildlife Act*, provincial legislation (BC Gov, 1996):

- All wildlife is considered property of the government



- It is an offense not to report accidental kills of wildlife
- It is an offense to hunt, trap, wound or kill wildlife at a time not within the open season. For species without an open season, these activities are prohibited without a permit.

Additionally, pileated woodpecker (*Dryocopus pileatus*) nests are protected for a period of 36 months after last reported use under the federal Migratory Birds Regulations (Government of Canada, 2022).

### **2.2.2 Wildlife Habitat Features - Kootenay Boundary Region**

An order under the *Forest and Range Practices Act* (FRPA) was enacted for the Kootenay Boundary Region of British Columbia to protect high-priority wildlife habitat features that are important to species of special management concern and potentially affected by forest or range practices (MOECCS, 2018).

In 2018, the Minister of Environment & Climate Change Strategy signed the Wildlife Habitat Feature (WHF) Order, which identifies 14 wildlife habitat features in the Kootenay Boundary Region. Under this order, any legal land occupant conducting tree clearing as part of exploration or development is subject to its requirements. Forest and range activities must not damage or render ineffective any identified wildlife habitat feature. The Kootenay Boundary Region overlaps only with the eastern third of the CRA, Big White is committed to applying WHF requirements where required

To comply with the order, agreement holders must:

- Be aware of known WHFs;
- Identify new WHFs encountered during operations;
- Take appropriate protective measures when conducting routine forest or range activities.

The 14 wildlife habitat features protected under the WHF Order for the Kootenay Boundary Region are:

- A nest of a Bald Eagle (*Haliaeetus leucocephalus*)
- A nest of an Osprey (*Pandion haliaetus*)
- A nest of a Flammulated Owl (*Psiloscops flammeolus*)
- A nest of a Western Screech-Owl, macfarlanei subspecies (*Megascops kennicottii macfarlanei*)
- A nest of a Great Blue Heron (*Ardea herodias*)
- A nest of a Lewis's Woodpecker (*Melanerpes lewis*)
- A nest of a Williamson's Sapsucker (*Sphyrapicus thyroideus*)
- An American Badger burrow (*Taxidea taxus*)
- A Grizzly Bear den (*Ursus arctos*)
- A significant mineral lick
- A significant wallow
- A bat hibernaculum
- A bat nursery roost
- A hot spring or thermal spring



### 3 Wildlife Management

#### 3.1 Baseline and Existing Data

##### 3.1.1 Species At Risk

Grizzly bear is the only species at risk that has been identified within the CRA. A variety of species at risk were identified that possibly inhabit the CRA based on available habitat (Cascade, 2024). These potential species have been grouped by taxonomic type. This plan provides general mitigation measures aimed at reducing impacts to each group, rather than to individual species. The potential species at risk and grouping are presented in Appendix 1.

##### 3.1.2 Wildlife Habitat

The Big White CRA supports a range of wildlife habitat features shaped by elevation, forest composition, and the presence of natural landforms such as wetlands and talus slopes (Cascade, 2024). Habitat protection in the area is guided by both federal and provincial legislation, including the BC *Wildlife Act*, FRPA, SARA, and the *Migratory Birds Convention Act*.

##### 3.1.2.1 Habitat Features and Legislative Context

- **Nesting Sites:** The area contains key nesting habitat for raptors such as eagles, peregrine falcons, and osprey, as well as for pileated woodpecker and other species listed under SARA. These nests are protected year-round, irrespective of occupancy, under applicable legislation.
- **Wildlife Trees:** Old forest stands in the study area include a high abundance of wildlife trees—snags, veteran trees, and cavity-bearing trees—that provide important roosting, nesting, and perching habitat for a range of birds and mammals.
- **Riparian and Wetland Areas:** Riparian zones, small wetlands, and moist depressions support high biodiversity, providing habitat and movement corridors for amphibians, small mammals, and a variety of bird species. These areas also contribute to regional connectivity for larger wildlife.
- **Talus Slopes and Rocky Outcrops:** These features offer denning and thermal refuge opportunities for species such as American badger and various small mammals, as well as roosting habitat for bats.
- **Wildlife Habitat Area (WHA):** The southern portion of the study area overlaps with **WHA #8-232**, established for grizzly bear. This WHA includes forested habitats used for foraging and seasonal movement.

##### 3.1.2.2 Species Use

- **Large Mammals:** Field investigations confirm that grizzly bear, moose, and mule deer use the study area, particularly during summer and shoulder seasons. Moose and mule deer utilize forested habitats and natural openings for foraging and cover.
- **Medium and Small Mammals:** The CDC identifies a known occurrence polygon (Shape ID 74373) for the American badger that encompasses the CRA. This known occurrence polygon covers broad landscapes extending from Vernon to Osoyoos over 100 kms in length. However, no American badger has been observed or recorded with the CRA. American badgers are associated with open grassy or talus-dominated terrain and also occur in disturbed mid-elevation forests with suitable soils. Bats were observed, with roosting habitat likely available in snags, rock crevices, and building structures.
- **Birds:** The area supports a diverse avian community, including migratory species protected under the *Migratory Birds Convention Act*, cavity-nesting species, and birds of prey. Observed



species indicate the presence of high-quality nesting and foraging habitat across various forest types and elevation gradients.

### 3.1.2.3 Land Use Designations

While no Wildlife Management Areas (WMAs) or Ungulate Winter Ranges (UWRs) are formally designated within the CRA, the landscape’s natural features and confirmed wildlife use highlight its ecological value. In addition, no WHF were identified in previous survey. If found to be present during future surveys, appropriate mitigation measures should be implemented.

### 3.1.3 Potential Effect to Wildlife and Wildlife habitat

Project activities during both the construction and operation phases may influence wildlife presence, population size, distribution, and movement. These impacts are considered at both the individual level (e.g., behavior, health, survival) and the population level (e.g., abundance, range, mortality). Since population-level effects are more significant, the assessment emphasizes impacts on local wildlife populations.

**Table 1: Potential effects associated with the proposed development in the CRA**

Potential Effect	Description of Impact
Habitat Loss and Degradation	Project activities may result in the loss or degradation of wildlife habitat, affecting resources like food, shelter, breeding areas, and movement corridors. Physical disturbances (e.g., vegetation clearing) can cause temporary or permanent habitat loss. Wildlife may avoid or abandon affected areas, especially critical seasonal habitats. The project will minimize impacts through infill development of the CRA.
Sensory Disturbance	Noise, light, dust, and human presence may disturb wildlife, altering behaviors such as feeding, breeding, and predator avoidance. These disturbances can lead to reduced habitat use or abandonment.
Disruption of Movement	Infrastructure may create physical or sensory barriers that hinder wildlife movement between habitats, especially in constrained terrain. The project will reduce these impacts through infill development of the CRA.
Direct Mortality	Wildlife may be killed due to vehicle collisions, ingestion of chemicals (e.g., fuel, lubricants), or increased human presence. Mitigation measures and best practices will be implemented to reduce these risks.
Indirect Mortality	Habitat changes and increased access may lead to higher predation or reduced health, indirectly increasing mortality. Mitigation measures and best practices will be used to minimize these risks.
Attractants	Improper food or waste management may attract wildlife, increasing the risk of habituation and human-wildlife conflict, potentially leading to relocation or lethal control. Proper management practices will be implemented.
Chemical Hazards	Exposure to toxic substances stored on-site may harm wildlife health and reproduction. Mitigation measures and best practices will be used to minimize these risks.

### 3.2 Best Management Practices (BMPS)

The effects of the Project on wildlife and their habitats will be minimized through the application of recognized provincial BMPs. These BMPs provide clear, science-based guidance to avoid, minimize, or mitigate impacts to wildlife and sensitive habitats during land development and operation activities. The following BMPs should be used to inform planning, design, construction, and operations in the CRA:

- Best Management Practices for Amphibian and Reptile Salvages in BC (2016);



- Best Management Practices for Bats in BC (2016);
- Guidelines for Raptor Conservation during Urban and Rural Land Development in BC (2013);
- Best Management Practices for Raptor Conservation during Urban and Rural Land Development in British Columbia (2005);
- Guidelines for Amphibian and Reptile Conservation During Urban and Rural Development in BC (2014);
- Guidelines for Amphibian and Reptile Conservation During Road Building and Management Activities in BC (2014)
- Environmental Best Management Practices for Urban and Rural Land Development: Special Wildlife and Species at Risk (2004)

### **3.3 Site-Specific Mitigation Measures**

Site-specific mitigation measures have been developed to minimize impacts to wildlife and their habitats during the development and operation in the CRA. These measures are informed by field observations and the ecological characteristics of the project area. In general, the following measures should be implemented:

- Avoid and/or reduce human activity in sensitive habitat areas, especially during key wildlife periods (e.g., nesting, denning, rearing);
- Minimize the loss of high-quality habitat and disruption to wildlife movement corridors by carefully planning the location of ski runs, lifts, and access roads;
- Identify and protect potential mineral licks;
- Avoid the destruction or disturbance of active dens, nests, or roosts during all project phases;
- Implement protocols to avoid and/or reduce wildlife mortality during both construction and operations.

Potential effects on wildlife associated with resort development and ongoing operations may vary depending on the timing and location of activities. In general, these impacts may include:

- Changes to habitat connectivity and wildlife movement patterns as a result of land clearing and the development of linear features (e.g., roads, ski runs, lift lines);
- Reduction in habitat availability for critical life functions such as mating, foraging, denning, nesting, or overwintering;
- Increased sensory disturbance due to construction noise, 24-hour operations (e.g., grooming, snowmaking), lighting, and human presence;
- Risk of direct and indirect mortality (e.g., wildlife-vehicle collisions, infrastructure hazards);
- Attraction of wildlife to resort areas due to improper storage or disposal of food, garbage, or other attractants;
- Potential health effects on wildlife from exposure to fuels, lubricants, or chemicals stored or used on site.

#### **3.3.1 Pre-Clearing Surveys**

Prior to any land clearing or site preparation, pre-clearing surveys should be conducted under supervision of a qualified environmental professional (QEP) with experience in wildlife habitat assessment. The wildlife sweep should be completed during daylight hours and appropriate weather conditions. It is also



recommended that a Q.E.P. performs a wildlife sweep as part of their initial site assessment to ensure any features are accounted for during planning activities and can be avoided during future operations.

These surveys will identify previously undocumented wildlife features or sensitive habitat types, such as active nests, dens, hibernacula, mineral licks, wallows, or wildlife movement corridors. The findings will inform site-specific mitigation strategies to ensure the protection of key habitat elements.

When important wildlife features are encountered, they will be documented with GPS coordinates, photographs, and a written description. These features should be avoided to the greatest extent feasible. Where complete avoidance is not possible, disturbance will be minimized through activity setbacks, timing windows, or protective barriers. Any work in proximity to these features will require site-specific mitigation, and in some cases, consultation with regulatory authorities may be necessary (e.g., nests of species listed under the *Wildlife Act* or SARA).

Wildlife trees, including standing live or dead trees with cavities, nests, or structural features used by bats, birds, or small mammals, are critical habitat elements that should be retained wherever possible. Trees with high wildlife value, such as those containing active nests or bat roosts, should be clearly marked and protected with a no-work buffer zone. This buffer is typically one to two tree lengths in radius, depending on the tree height and local site conditions.

Where a wildlife tree presents a safety hazard, safety considerations will take precedence; however, any work must still comply with applicable legislation protecting active nests and roosts. If a hazardous tree is actively used by wildlife, necessary construction safety measures should be implemented to allow work to proceed without disturbing the wildlife.

Once a wildlife tree, whether hazardous or not, is no longer actively used by birds or bats, and retention is not feasible, the tree may be removed following confirmation by a QEP.

### **3.3.2 Traffic Management**

Currently, resort-controlled and managed roads include Horsefly Road, a hard-packed gravel road with a posted speed limit of 30 km/h, as well as other small maintenance roads where the rough surface and steep grades naturally prevent vehicles from exceeding 30 km/h. Vehicle traffic is infrequent on resort maintenance roads outside of the Horsefly Road.

During current operations wildlife collisions or mortality have low risks on resort-controlled and managed roads. If, during additional in-resort road development and construction phases, wildlife collisions are observed to be at a higher risk, clear protocols and mitigation measures should be employed to minimize wildlife disturbance and reduce the risk of vehicle-related mortality. These measures would apply during both construction and operation phases where required and would maintain safe conditions for wildlife, staff, and guests. Wildlife will be given the right-of-way at all times along all resort-controlled and managed roads.

All personnel operating vehicles or equipment should receive training on wildlife safety procedures, including recognition of high-risk areas, proper reporting of wildlife incidents, and protocols for reducing attractants.

To ensure prompt response and adaptation, any vehicle-wildlife collision will be documented and reported immediately. Incident records will include species, location (GPS coordinates if available), date, time, and circumstances. These will be submitted to the environmental lead, who will notify provincial agencies as needed. Locations with repeated incidents will be flagged for further mitigation, which may include:

- Additional signage or reflective markers;
- Further reduced speed limits;



- Vegetation clearing to improve line-of-sight;

On resort-controlled and managed roads, vegetation and roadside management should be carried out to reduce the attractiveness of roadsides to wildlife while maintaining driver visibility. This includes:

- Routine vegetation trimming to discourage foraging along road edges;
- Maintenance of road ditches and culverts to prevent pooling water, which could attract amphibians and other wildlife;
- Ensuring gates and signage restricting public or unauthorized vehicle access are functional and clearly visible at all times.

Dust on access and construction roads can impair visibility and contribute to habitat degradation, if dust becomes an issue on resort-controlled and managed roads, the following measures should be used:

- Enforcing posted speed limits ;
- Applying water as the preferred dust suppressant during dry conditions;
- Considering alternative, wildlife-safe dust suppressants only if water proves insufficient, and evaluating all products for potential ecological effects before use.

This traffic management approach should be reviewed periodically, particularly if repeated wildlife incidents are reported. Adaptive management strategies should be applied as needed to address emerging risks or patterns. These may include enhanced driver training, improved signage placement, or changes to operational practices to ensure continued alignment with wildlife protection objectives.

### **3.3.3 Noise Management**

Noise generated from construction equipment, grooming machinery, generators, and vehicle traffic can disturb sensitive wildlife, particularly during breeding, nesting, or denning periods. The resort should implement the following protocols to minimize the acoustic footprint of its operations:

- Avoid unnecessary noise by turning off machinery and equipment when not actively in use;
- Maintain all equipment regularly to ensure proper functioning and reduce excessive mechanical noise (e.g., replacing worn parts, ensuring proper lubrication);
- Where feasible, install sound-muffling components or dampening systems (e.g., mufflers, acoustic panels) on heavy equipment and machinery, particularly those used near sensitive wildlife habitat;
- Use physical sound barriers (e.g., acoustic enclosures for generators or snowmaking compressors) in areas where noise could propagate into key wildlife zones, such as riparian corridors or forested patches known to support roosting or denning;
- Plan high-noise activities during periods when wildlife is less active (e.g., mid-day for nocturnal species) and outside of key seasonal windows (e.g., nesting or fawning periods).

Where noise-sensitive species are known to occur, the implementation of noise management should be monitored and adapted as needed based on observed responses or new wildlife data.

### **3.3.4 Light Management**

Artificial lighting can disrupt circadian rhythms, alter predator-prey dynamics, and displace species that rely on low-light conditions. Resort activities such as night grooming, snowmaking, early morning operations, night skiing, cross country skiing, tubing and use of multipurpose trail networks will require



lighting in certain areas. These activities are mostly limited to winter months, when wildlife presence is less frequent in the CRA.

The following protocols should be followed to reduce light-related impacts on wildlife during operations and included in future development:

- Use only the minimum level of illumination required to maintain safe and enjoyable conditions in operational and recreational areas;
- Direct all lighting downward and use shielding to focus light only on the work or recreational area, avoiding unnecessary light spill into adjacent forested or open habitats;
- Utilize motion-activated or timer-controlled lighting systems where appropriate to limit continuous exposure and reduce energy use;
- Choose full-spectrum LED fixtures that emit lower levels of heat and ultraviolet light, reducing insect attraction and subsequent bat activity around artificial light sources;
- Avoid lighting riparian areas, wetland edges, and forest canopies wherever possible, as these habitats are particularly sensitive to light disturbance and are often used by nocturnal or crepuscular species.

### **3.3.5 Waste/Attractant Management**

To minimize the risk of attracting wildlife to the resort site and reduce potential human-wildlife conflicts, strict attractant and waste management protocols should be implemented throughout all phases of development and operation. Food waste, garbage, and other attractants should not be left unattended or stored unsecured on site for extended periods. All workers should be required to follow a “pack-in, pack-out” policy, ensuring that all food-related waste and personal garbage are removed daily from work areas. Outside of winter, any onsite waste storage should be limited to bear-proof or wildlife-resistant containers that meet provincial standards to prevent wildlife access.

All sightings of nuisance or attractant-conditioned wildlife must be promptly reported to the designated Environmental Monitor (EM) or Environmental Coordinator. The responsible authority will liaise with the appropriate wildlife management agencies, such as the BC Conservation Officer Service, to address and mitigate potential conflicts.

Chemical attractants, including fuels, lubricants, and other hazardous materials, will be securely stored, transported, and handled to prevent environmental contamination and accidental ingestion by wildlife. Preventative measures include regular inspection and maintenance of machinery to ensure surfaces remain free of grease, oil, and residues. Fuel and lubricant storage must comply with provincial regulations, requiring placement at least 30 meters from any waterbody such as streams, lakes, or wetlands. Large containers (exceeding 454 liters) will be housed within secondary containment systems to mitigate spill risks. Spill response protocols will be in place, with spill kits accessible on site at all times to enable rapid containment and cleanup of accidental releases.

Training programs should be provided to all personnel to educate them on proper waste handling, attractant management, and the importance of minimizing human-wildlife interactions. Monitoring efforts should include recording instances of waste mismanagement, detailing the location, date, time, and type and quantity of waste observed. Additionally, any observations of wildlife interacting with waste—including species identification, number of individuals, behaviour, and condition—should be documented to inform management actions.

Should monitoring identify wildlife accessing improperly managed waste, a management response will be initiated. This response will investigate the source of the problem and develop site-specific adaptive strategies to mitigate future occurrences. All problem wildlife must be reported to local wildlife authorities to ensure appropriate intervention measures are taken.

Additional attractant and waste management practices include:



- Disposal of all refuse in accordance with a site Waste Management Plan, emphasizing secure containment and regular removal;
- Management of vegetation along resort-controlled and managed roads to improve visibility for drivers and discourage wildlife from foraging near roadways;
- Prompt removal of carrion or animal carcasses found along resort-controlled and managed roads to prevent attracting scavengers;
- Avoidance of creating or allowing formation of roadside pools or water pooling, which may attract amphibians and other wildlife.

Together, these measures aim to reduce wildlife attractants, lower the potential for hazardous wildlife encounters, and maintain ecological integrity within and around the resort area.

### 3.4 Species-Specific Mitigation and Management Measures

#### 3.4.1 Species-Specific Timing Windows

Certain periods in the year are particularly sensitive for wildlife due to their vulnerability to disturbance and habitat changes. Whenever feasible, project activities, especially during construction phases like vegetation clearing, should be scheduled to avoid these sensitive times. If avoiding these periods isn't possible, pre-construction surveys will be carried out to locate important wildlife features, and suitable measures will be implemented to reduce potential negative impacts during the initial clearing stage.

Table 2 details critical timing windows for the VC listed species that could occur within the CRA, along with the recommended timing periods when project activities pose the least risk to them.

**Table 2: Species-Specific Timing Windows**

Species	Risk Timing Windows	Risk Timing Windows Dates
<b>Moose</b>	The calving period (including late parturition, birth and post-parturition) from late May to June is considered a high-risk period (BC Gov., 2023).  Additionally, the rutting season and the late winter months, when food sources are limited, are regarded moderate risk period requiring caution (BC Gov., 2023). However, the CRA is unlikely to provide suitable winter habitat	High risk: Calving- late May to June (BC Gov., 2023) Moderate risk: Rutting- September to November (BC Gov., 2023) Low risk: July, August and December to early May
<b>Mule Deer</b>	The fawning period (including late parturition, birth and post-parturition) from Late May to early June is considered a critical period  Additionally, the rutting season and the late winter months, when food sources are limited, are regarded as sensitive times requiring caution. However, the CRA is unlikely to provide suitable winter habitat.	High risk: Fawning- Late May to early June (BC Gov, N.D.) Moderate risk: Rutting - November and early December (MELP, N.D.) Low risk: Late June to October and late December to early May
<b>American Badger</b>	Maternal dens are typically occupied ( <i>i.e.</i> , March 15 to July 15). Maternal dens are utilized for longer periods of time with young typically dispersing by mid-July.	High risk: March 15 and July 15 (Transmountain, 2024) Moderate risk: October 16 to March 14 Low Risk: July 16 to October 15



Species	Risk Timing Windows	Risk Timing Windows Dates
<b>Migratory Birds</b>	To avoid contravention of both the <i>Wildlife Act</i> and the Migratory Birds Convention Act, vegetation clearing should be outside of the nesting window (March 5, to September 1)	Moderate risk: March 5 to September 1 Low risk: September 2 to March 31
<b>Raptors</b>	The courtship/egg laying/early incubation periods are the most sensitive phases of the breeding season as the birds have less invested in a particular nest site at that time and are more likely to abandon it if disturbed; particularly if the disturbance is at or directly above the nest (BC Gov., 2013).	High risk: January to September (Varies based on species) (BC Gov., 2013) Low risk: October to December (Varies based on species)
<b>Bats</b>	There are key seasonal periods when bats use hibernation and birthing sites. Where possible, vegetation clearing will be planned outside of the sensitive hibernation period (November 1 to March 31, if present) and the maternity roosting period (April 1 to August 31) (Craig <i>et al.</i> , 2014). If clearing cannot be scheduled outside these windows, pre-clearing surveys will be carried out to identify any bat habitat features within the project area.	High Risk: <ul style="list-style-type: none"> <li>• Maternity roost sites: April 1 to August 31</li> <li>• Hibernaculum sites: November 1 to March 31</li> </ul> Low Risk: September 1 to October 31

### 3.4.2 Species-Specific Mitigation Measures

#### 3.4.2.1 Overview

As project activities during both construction and operation phases may potentially impact wildlife, the WMMP is designed to avoid, minimize and/or manage identified effects to reduce detrimental impacts to local wildlife populations and their habitat. Particular attention is paid to species during vulnerable periods of the life cycle (e.g., denning and breeding and species at risk)

#### 3.4.2.2 Mammals

##### 3.4.2.2.1 Ungulate

Because the CRA provides limited suitable winter habitat for moose and mule deer, these species are more likely to use the area during spring and summer. Therefore, resort development should, where feasible, be scheduled outside their rutting and calving seasons. If development is planned within the rutting and calving season the following mitigation measures should be implemented as below:

General mitigation measures:

- Active searches for mineral licks and wallows should be conducted prior to initial land clearing, where required, to identify any previously undocumented wildlife habitat features. These searches may be carried out on a Phase-by-Phase or project-by-project basis, depending on the scope and location of planned works. In addition to these targeted searches, resort staff and contractors will remain vigilant for wildlife habitat features during regular operations and maintenance activities, and will report any observations of mineral licks, wallows, or associated wildlife trails to the EM or



environmental coordinator. Locate mineral licks and wallows and avoid development in those areas. It is recommended to avoid development within 250 m of mineral-lick sites and along wildlife trails connecting to these mineral licks. Where roads or linear corridors, facilities or other developments cannot be avoided near mineral licks, ensure that connectivity to adjacent forested areas is maintained. For existing roads or other linear features near wildlife habitat features, minimize use and disturbance during critical-use periods; and, avoid disruptions to drainage and groundwater near mineral licks and wildlife habitat features.

- Avoid development in known moose habitat areas (e.g., riparian areas, wetlands).
- Install wildlife crossing and speed limit signs on resort-controlled and managed roads, and ensure workers comply with posted limits and respect wildlife crossings.
- Yield to wildlife on project roads; workers must wait until animals have moved off the roadway before continuing.
- Do not feed ungulates. Outside of winter, all food waste and garbage must be packed out or stored in bear-proof containers—no refuse is to be left unsecured on site.

Mitigation measures for work within the rutting and calving season:

- Maintain safe distances from ungulates to prevent disturbing their behavior (recommended distance: more than 500 m line-of-sight).
- Avoid disturbing fawns and calves; give mothers with young a wide berth.
- Use caution during rutting season, as ungulates may become aggressive and charge. Be alert for warning signs such as lowered heads and flattened ears, and identify escape routes if needed.

#### **3.4.2.2.2 American badger**

American Badgers have not been recorded in the Big White CRA. The CDC American badger occurrence polygon overlaps the CRA covers broad landscapes extending from Vernon to Osoyoos. A total of 498 badger sightings have been recorded within the habitat polygon that encompasses the CRA, with most observations collected between 1995 and 2012 (BC Gov, 2025b). The American badgers are most commonly found at valley bottom elevations; however, they can be found at any elevation. As American badgers can utilize dynamic/ephemeral habitat types (e.g., temporary clearings resulting from forest harvest) which is associated with the CRA. Therefore locations of core critical habitat that could support denning should also be mitigated during initial clearing activities (COSEWIC, 2012). A SARA safe movement critical habitat area for American badger overlaps the CRA (COSEWIC, 2012). Resort development and planning should avoid and minimize impacts to the biophysical features and attributes listed for the critical habitat. That includes a continuous habitat not impeded by anthropogenic barriers (e.g. Paved roads, buildings and fencing) to safe movement (COSEWIC, 2012). The following mitigation measures should be implemented:

- Preconstruction sweeps should be conducted from March 15 to October 15 to identify maternal dens or summer dens during initial clearing activities in possible American badger habitat with Bio-physical attributes as listed in point 3 below. Maternal dens are utilized for longer periods of time with young typically dispersing by mid-July. Summer dens are used for shorter durations (in some cases only a day). Winter dens are difficult to determine occupancy, therefore, if clearing and construction activities are scheduled to be initiated between October 16 and March 14 when there can be snowfall accumulation, a pre-construction survey in areas with known potential to support badgers will be conducted prior to snowfall to identify potential dens that have evidence of recent use (Transmountain, 2024).
- To minimize vegetation and ground cover loss construction should remain within designated clearing boundaries.



- Big White staff should be vigilant in observing and recording any American badger presence in the CRA. The following biophysical attributes are required for the American badger habitat (Transmountain, 2024):
  - Habitats with soil types that allow for digging (both in pursuit of prey and to establish dens) (i.e., Brunisols, Chernozems and Aeolian soil types with Glaciolacustrine, Lacustrine and Fluvial parent materials and low coarse fragments).
  - Non-forested habitats that support an abundance of small-mammal prey;
    - non-forested habitat types that support small-mammal prey for badger - natural grasslands, pasture, open forested sites, as well as recently cleared areas and burned sites,
    - prey - primarily Columbian ground squirrels (*Urocitellus columbianus*), but also yellow-bellied marmots (*Marmota flaviventris*), northern pocket gophers (*Thomomys talpoides*), voles (*Microtus spp.*) and muskrat (*Ondontra zibethica*).
- Employ measures to reduce ground disturbance during construction for resort development where possible limiting grading and grubbing
- Proper soil handling technique should be used to avoid compaction of soil and erosion.

#### **3.4.2.2.3 Bats**

Resort development activities can potentially impact the quality of bat habitat and bat populations. Altering forest habitat can destroy or degrade winter and summer roosting habitat, in addition to foraging habitat. Active maternity roosts or hibernacula may occur within the CRA. Pre-clearing surveys will be conducted by an appropriately trained QEP to identify potential species present and their roosting habitats within and adjacent to proposed resort development. If a significant roost is identified, proponents are encouraged to plan activities to limit impacts on bats and their habitat. Buffer zones should be established around any habitat feature identified as a hibernacula or roost. The most effective methods of minimizing potential negative effects to bats are to 1) avoid damaging habitat and 2) conduct activities when bats are not present. If there is an identified loss of bat habitat due to operations or development, an offset of roosting structures must be implemented.

#### **3.4.2.3 Amphibians and Reptiles**

Best management practices must be implemented when working in or around amphibian or reptile habitat. Appropriate mitigation (i.e., maintain water quality, maintaining riparian vegetation or salvage), must be conducted prior to development in and around waterways used by amphibians. Best Practices for working near amphibians and reptiles include the following:

- Avoid the development of talus fields and apply construction buffer identified in the CRA that could contain an important habitat for reptiles.
- Avoid development in riparian setback areas to maintain suitable habitat for amphibians.
- Avoid development that infills or disturbs wetlands, pools, streams, however small or seasonal associated with amphibian habitat including the wetland bog identified in the CRA.
- Resort development and construction activities should follow the Guidelines for *Amphibian and Reptile Conservation during Urban and Rural Land Development in British Columbia* (2014). Best management practices include (MOE, 2014):
- Maintain habitat connectivity from wetlands and riparian areas to surrounding terrestrial forest.
- Retain coarse wooded debris and stumps wherever possible to retain riparian and amphibian habitat.



- Prevent road mortality: Avoid developing roads near wetlands and any locations where migration activities are observed.
- Maintain hydrological features of wetlands and watercourses.
- Stormwater management plans should avoid outfalls into wetlands and pools to preserve hydrological conditions that are favorable to amphibians.
- Reduce pollution in wetland and riparian areas.
- Protect vegetated borders around parking lots to reduce the transport of sediments and contaminants into watercourses.
- Install oil/water separators to remove hydrocarbons and other contaminants from roads and parking lots before they enter storm sewers and the aquatic environment.
- A Construction Environmental Management Plan (CEMP) should be produced for construction works that implement Erosion and Sediment Control (ESC) measures and spill containment and response plans to protect aquatic and riparian features.

#### **3.4.2.4 Birds**

A bird nest search should be conducted for any clearing works that occur at any time of the year for the bird species nests that are protected year-round by the *Migratory Birds Act*, *Wildlife Act* and SARA that potentially occur in the CRA. These species include:

- Pileated woodpecker
- Eagle
- Peregrine falcon
- Gyrfalcon
- Osprey
- Yellow-breasted chat
- Western screech owl

Vegetation clearing should occur outside of the bird migratory nesting season for the Northern Okanogan Ecodistrict of March-September wherever possible.

If vegetation clearing activities are planned between March 5<sup>th</sup> and September 1<sup>st</sup>, a bird nest survey should be completed under the supervision of a QEP prior to works to ensure an active bird nest is not impacted. Outside of these dates, nest sweeps are not required. However, raptor nests (eagles, hawks, falcons, owls and pileated woodpeckers) are protected year-round.

Appropriate buffers will be employed if an active nest is found, and construction cannot occur within these buffer's until the nest is assessed as inactive by the QEP.

#### **3.4.3 Species At-Risk**

Fifty-five (55) species at risk were determined to have the possibility to utilize habitat found within the CRA as detailed per Appendix 1. These species were grouped in categories and general mitigation measures are provided for each group.

##### **3.4.3.1 Birds**

Nineteen (19) of the species at risk listed were bird species. Measures listed in Section 3.4.2.4 will mitigate impacts to these possible species during resort development activities.



### **3.4.3.2 Aquatics**

Two (2) of the species at risk listed were aquatic species which included the speckled dace and striated fingernail clam. Avoiding impact to watercourses and following erosion sediment control measures presented in the CEMP will mitigate impacts to these potential species during resort development activities.

### **3.4.3.3 Invertebrates**

Twenty-one (21) of the species at risk were invertebrate species. The majority of the invertebrates listed depend on aquatic and wetland areas during their life cycle and following measures presented in the CEMP will mitigate impacts to these potential species during resort development activities.

### **3.4.3.4 Mammals**

Ten (10) of the species at risk listed were mammal species. American badger occurrences within the CRA are addressed in section 3.4.2.2.2 for applicable mitigation measures. Grizzly bears will be addressed in a separate document (Cascade, 2025a). Conducting pre-clearing survey in addition to following the measures listed in Section 3.4.2.2 will also mitigate impacts to these species from resort development.

## **3.5 Human-Wildlife Interactions**

The Human-Wildlife Interaction Plan is intended to ensure public, guest, employee and worker safety as well as to protect wildlife from activities associated with the project. Due to the mountainous and forested nature of the project area, it can be difficult to avoid wildlife. Wildlife avoidance strategies should be employed as appropriate to ensure minimal disturbance to wildlife as detailed in the Wildlife Avoidance Response Protocol below in Section 3.5.2.

Potentially dangerous wildlife that may occur in the project area include black bear, grizzly bear and cougar. Management objectives related to potentially dangerous wildlife include:

- Eliminating wildlife attractants.
- Implementing appropriate responses to wildlife encounters (see Section 3.5.2: Wildlife Avoidance Response Protocol)
- Educating guests, employees, and contractors on safe and responsible behaviour around wildlife.

When human food attractants are secured away from wildlife, potential human-wildlife conflicts and unnecessary deaths of wildlife can be avoided. Wildlife that learns to associate humans and human developments with food (food-conditioning) tend to react more boldly with humans and are more likely to cause human injury and property damage than wildlife that are not food-conditioned. Some wildlife, particularly bears, may only need to access human food attractants once or twice to change their behavior toward humans. It is therefore imperative that all potentially attractive sources of food for wildlife are secured using tested and approved wildlife-resistant containers.

Ensure no natural wildlife attractants accumulate within the CRA.

Potential wildlife attractants on site may include human food, garbage, recycling, compost and petroleum products. Bears will tip over garbage cans, break into sheds and hang around garbage compactor sites. Common bear proofing procedures include using tested and approved wildlife-resistant containers, keeping all food waste and recycling receptacles inside well-built (i.e., completed) buildings, and ensuring that the receptacles are emptied at the end of the workday.

Any person in the CRA who observes potentially “dangerous wildlife” should immediately notify their supervisor, site lead or resort employee who will in turn notify the EM or Environmental coordinator and others on site. The area should be avoided for at least 30 minutes. If it is safe to do so (i.e., from a vehicle or inside a building), making noise may scare the animal off the site. All wildlife sightings and



locations should be documented by the person responsible for safety. If a potentially dangerous animal remains in the vicinity or is observed near areas accessible to the public, the resort should issue notifications through its communication channels (e.g., website, social media, or guest alerts) advising people to avoid the area, and temporary closures of affected zones should be implemented as necessary to ensure safety.

### **3.5.1 Guest Education and Awareness**

To support the objectives of the Human–Wildlife Interaction Plan, Big White should develop and/or implement a guest education and awareness program aimed at reducing human–wildlife conflict. The program will include high-level messaging and materials on themes such as:

- Avoiding the feeding or approach of wildlife;
- Securing food, garbage, and other attractants; and
- Recognizing and responding appropriately to encounters with potentially dangerous wildlife (e.g., bears, moose, or cougars).

Where feasible, Big White will adopt or integrate existing educational resources and initiatives (e.g., provincial Bear Smart program or existing resort safety campaigns) to ensure consistent messaging and efficient implementation. Guest education materials may be delivered through signage, maps, the resort website, and other public communication channels.

### **3.5.2 Wildlife Avoidance Response Protocol**

If a bear or other large mammal is observed within 50 m of a worksite, trail or public area:

- All persons (including contractors, employees, and guests) should immediately halt activity and remain calm.
- Make a wide detour around the animal or leave the area immediately if it is safe to do so.
- If near the animal, keep calm, maintain visual contact, avoid direct eye contact, and move away slowly without running.
- Be aware that a single animal may have young nearby and could act defensively.
- Do not resume activity until the animal has moved out of sight.
- Report all bear and large mammal sightings excluding deer to the Environmental coordinator as soon as possible.
- Report aggressive animal behaviour to the Conservation Officer Service immediately.

Additional recommendations:

- Avoid conflict by managing food and waste attractants.
- Remain alert and make noise regularly (talking, shouting, use of machinery).
- Listen to your surroundings, especially when working or recreating alone.
- Watch for signs of recent wildlife activity, such as droppings, tracks, digging, claw or bite marks on trees, or carrion. If signs are fresh, leave the area and report the observation.
- Work or travel in groups whenever possible.
- Dogs should be kept on a leash at all times.
- Keep bear spray accessible to staff, contractors, and designated personnel. Ensure all staff and key personnel are trained in its safe use.



If you encounter a bear:

- Stop and stay calm. Screams or sudden movements may trigger an attack.
- Never run, running may cause a bear to pursue you.
- Stay in a group if possible.
- Bears may approach or stand on hind legs to look at you or pick up your scent. This is a way to identify you and may not be aggressive.
- Scan the area for young bears, as mothers can act aggressive and territorial if you are near cubs.
- Speak calmly and firmly to indicate you are not a prey animal. Appear passive.
- If bear spray is available, prepare for use. Take note of the direction and strength of wind. Bear spray is also effective at deterring attacks from other dangerous wildlife.

## **4 Wildlife Monitoring Plan**

### **4.1 Objectives**

The goal of the WMMP is to avoid and minimize negative impacts to wildlife and their habitat. Regulatory compliance and ongoing data collection are key objectives that support this goal. During the implementation of monitoring activities, staff and qualified professionals should systematically document and map features that are not yet fully inventoried, including mineral licks, wallows, raptor nests, bat roosts, badger dens, and other critical wildlife habitat features.

This information will be incorporated into reports and used to refine future management decisions.

The WMMP is designed with the following objectives:

- Verify compliance with mitigation measures, regulatory requirements, and timing windows identified in the WMMP.
- Document wildlife use and key habitat features in the CRA throughout the year.
- Close existing data gaps by identifying and mapping:
  - Mineral licks and wallows
  - Badger dens
  - Raptor nests
  - Bat roosts and hibernacula
  - Other sensitive or unique habitat features
- Assess the effectiveness of mitigation measures (e.g., traffic management, noise reduction, waste handling).
- Support adaptive management by providing evidence-based recommendations to reduce impacts and improve future planning.

### **4.2 Environmental Management Roles and Responsibilities**

Effective wildlife monitoring and management requires a clear and coordinated structure of responsibility. The following framework is proposed to guide implementation of the WMMP.



#### **4.2.1 Environmental Monitor (EM)**

It is recommended that an independent EM be retained to provide objective oversight of WMMP implementation. This EM position will be combined with the responsibility of the EM in the CEMP and could be contracted on an as-needed basis during certain construction activities (e.g. initial land clearing). The EM will be responsible for overseeing environmental compliance, conducting independent field verification, coordinating specialized surveys, and providing technical advice to Big White. The EM will also have the authority to pause or modify work or operations if sensitive wildlife or habitats are at risk. The EM should oversee all monitoring activities, coordinate surveys, and has the authority to pause or modify work or operations if sensitive wildlife or habitats are at risk.

#### **4.2.2 Environmental Coordinator**

It is recommended that Big White designate one or more Environmental Coordinators from existing staff to support day-to-day implementation of the WMMP. The Environmental Coordinator(s) will coordinate wildlife monitoring activities, maintain observation records, and ensure that wildlife protection measures are followed during routine resort operations. They will also serve as the primary liaison between resort staff, contractors, and the EM, facilitating communication and ensuring timely reporting of wildlife sightings or habitat features such as mineral licks, wallows, or nests discovered during operations.

#### **4.2.3 Environmental Management Team (EMT)**

Oversight of the EM and Environmental Coordinator will be provided by an Environmental Management Team (EMT) composed of senior management representatives from Big White. The EMT will review annual monitoring reports, assess WMMP performance, and identify updates or improvements as required. The EMT will provide strategic direction to the EM and Environmental Coordinator and ensure that the Plan continues to align with Big White's operational needs and environmental objectives.

#### **4.2.4 Qualified Environmental Professionals (QEPs)**

When specialized expertise is required, such as for bat roost inspections, raptor nest surveys, amphibian salvages, or assessments of wildlife habitat features, Big White or the EM may engage Qualified QEPs on a project-by-project basis. These specialists will provide technical input and recommendations to the EM and EMT but will not hold ongoing operational roles.

#### **4.2.5 Resort Staff and Contractors**

Resort staff and contractors will continue to play a key role in day-to-day wildlife observation and reporting. They will be trained to recognize signs of wildlife activity, report sightings, and document features such as mineral licks or wallows discovered during routine work.

### **4.3 Monitoring Components**

#### **4.3.1 Ongoing Data Collection**

Monitoring should begin with baseline and ongoing data collection, drawing on existing studies while adding new observations each season. As data accumulates, the resort will build a more comprehensive understanding of wildlife use of the area, which in turn will allow for more precise management actions. Ongoing data collection should include:

- Summer camera trap monitoring program in order to better understand species present in the CRA, their habitat use and distribution. The cameras should be located at key sites, including wildlife corridors, road crossings, and potential mineral lick areas. These cameras should provide year-round data on wildlife activity and help identify patterns that may not be visible through direct observation.
- Surveys to determine the potential location of mineral lick and wallow used by ungulates



- American badger den surveys
- Raptors nest surveys

#### **4.3.2 Wildlife Sightings and Encounters**

All employees, contractors, and site personnel should be required to systematically record wildlife sightings using a standardized wildlife reporting form specifically developed for the resort. This comprehensive “observe, record, and report” approach ensures consistent data collection to support wildlife monitoring, risk assessment, and management decision-making.

Any unusual (e.g. species at risk) or problematic wildlife interactions—such as sightings of nuisance animals, habituated individuals, injured or sick wildlife, or aggressive behaviour—must be reported immediately to the designated environmental monitor and, when appropriate, to the BC Conservation Officer Service or other relevant authorities. Prompt reporting facilitates timely response to wildlife safety concerns and helps reduce potential risks to both animals and humans.

The goals of this wildlife reporting program include:

- Documenting species presence, distribution, and relative abundance within and adjacent to the resort footprint.
- Identifying specific locations where wildlife frequently interacts with resort infrastructure, roads, trails, or recreational activities.
- Highlighting areas of elevated risk where wildlife encounters or conflicts with people are more likely to occur.
- Detecting potential issues related to waste or attractant management that could be drawing wildlife into project areas.
- Recording instances of animal-vehicle near misses, collisions, or mortality events to inform traffic management improvements.
- Tracking temporal changes that may suggest avoidance behaviours or displacement related to resort operations.

Data collected through this reporting system should be reviewed regularly by the environmental management team to identify emerging trends, assess the effectiveness of mitigation measures, and support adaptive management. This proactive approach contributes to the long-term coexistence of resort activities with native wildlife populations and promotes a safe environment for both wildlife and resort users.

#### **4.3.3 Pre-Clearing Surveys**

Pre-clearing surveys should be conducted before any vegetation removal, grading, or new ground disturbance. These surveys will identify active nests, dens, roosts, or amphibian breeding areas. When new features such as mineral licks or wallows are discovered, they will be documented with GPS coordinates, photographed, and mapped for inclusion in the resort’s environmental records. Any habitat features recorded during preclearing surveys should be reassessed periodically in order to ensure mitigation measures are appropriate and successful.

#### **4.3.4 Species-Specific Monitoring**

Monitoring will focus on wildlife groups known or likely to occur in the CRA, while documenting new habitat features:

- **Ungulates:**
  - Observe and record seasonal moose movement patterns, particularly near new developments.



- Search for and map mineral licks and wallows prior to any new development.
- **American Badger:**
  - Prior to any initial land clearing, conduct seasonal den sweeps (March 15–October 15).
  - Record all den locations, classify (maternal, summer, winter), and photograph.
- **Bats:**
  - Conduct pre-clearing surveys for maternity roosts and hibernacula.
  - Maintain a georeferenced inventory of roost locations.
- **Birds (Migratory and Raptors):**
  - Nest surveys for clearing activities (March 5th–September 1st).
  - All raptor nests will be recorded and mapped, even if inactive.
- **Amphibians & Reptiles:**
  - Salvage amphibians prior to wetland disturbance.
  - Monitor riparian areas for new breeding sites or overwintering habitat.

#### **4.3.5 Human–Wildlife Conflict Monitoring**

Human–wildlife conflict monitoring will be embedded into daily operations. Staff will record all wildlife sightings (excluding common occurrences like deer) and report any hazardous encounters, particularly those involving potentially dangerous species like bears or cougars. Attractant incidents (e.g., unsecured garbage) will be tracked and management practices adjusted as needed. Trend in human wildlife conflict will be analysed over time. Adaptive measures will be implemented as needed based on trends.

#### **4.4 Adaptive Management**

The WMMP is designed to evolve as new information is collected. Each year, data from field surveys, cameras, and staff reports should be reviewed by the EM and resort management. If monitoring reveals new wildlife features—such as an undocumented mineral lick—or recurring issues like frequent bear sightings near a particular waste area, management actions will be adjusted accordingly. This might mean installing protective buffers, modifying construction schedules, changing traffic speed limits, or enhancing staff training. In this way, the plan functions not just as a monitoring program but as a feedback system that continually improves the resort’s approach to wildlife management.

#### **4.5 Reporting**

Monitoring efforts will be documented systematically to create a clear record of wildlife activity, habitat features, and mitigation effectiveness. The EM will maintain daily or weekly logs during active work periods, summarizing wildlife sightings, survey findings, and mitigation measures applied. These logs will feed into summaries for internal use, allowing resort management to stay informed of ongoing trends and any emerging issues. All newly identified wildlife features should be documented.

#### **4.6 Review & Updates**

The WMMP should be reviewed annually by the EMT to ensure it remains current and effective. Each review will incorporate the latest monitoring data, update the inventory of wildlife features, review latest provincial BMPs and assess whether existing mitigation measures are sufficient. If new data points to gaps in protection or reveals emerging risks, the plan will be revised accordingly. By combining structured monitoring, opportunistic data collection, and regular review, the WMP will serve as both a compliance tool and an evolving management resource, supporting the long-term coexistence of resort operations and local wildlife.



## 5 Signature

Please do not hesitate to contact the undersigned should you have any questions about this report.

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## References

- BC Government. 2013. Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia 2013. [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/best-management-practices/raptor\\_conservation\\_guidelines\\_2013.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/best-management-practices/raptor_conservation_guidelines_2013.pdf) Accessed on July 30, 2025.
- BC Government. 1996. BC Wildlife Act. [https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96488\\_01](https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/96488_01). Accessed July 30, 2025.
- BC Government. 2023. Moose. <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-conservation/moose>. Accessed July 30, 2025
- BC Government. 2025a. Thompson Okanagan Timing Windows <https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights/working-around-water/regional-terms-conditions-timing-windows/thompson-okanagan-timing-windows>. Accessed June 23, 2025
- BC Government. 2025b. CDC iMap. <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/conservation-data-centre/explore-cdc-data/known-locations-of-species-and-ecosystems-at-risk/cdc-imap-theme> Accessed October 31, 2025
- BC Government. N.D. Mule Deer Species Account. [https://a100.gov.bc.ca/pub/acat/documents/r1632/tem\\_4163\\_modhe\\_1097880679948\\_05387b1f8bfb43e5b386e0bd340b5b45.pdf](https://a100.gov.bc.ca/pub/acat/documents/r1632/tem_4163_modhe_1097880679948_05387b1f8bfb43e5b386e0bd340b5b45.pdf). Accessed July 30, 2025
- BC Ministry of Environment and Climate Change Strategy. 2019. Wildlife Habitat Features Field Guide (Kootenay Boundary Region). [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/legislation-regulation/frpa-pac/wildlife-habitat-features/whf\\_field\\_guide\\_kootenay\\_boundary.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/legislation-regulation/frpa-pac/wildlife-habitat-features/whf_field_guide_kootenay_boundary.pdf) Accessed: July 2, 2025.
- Birds Canada, 2025. Nesting Calendar Query Tool. Location Selection- North Okanagan Highland, Eco district, Region 9 Bird Conservation Region, Nesting Region A1. <https://www.naturecounts.ca/apps/rnest/index.jsp?lang=EN>. Accessed on November 18, 2025
- British Columbia Ministry of Environment. (2016). Best Management Practices for Bats in British Columbia. <https://a100.gov.bc.ca/pub/eirs/viewDocumentDetail.do?fromStatic=true&repository=BDP&documentId=12460>, accessed on July 2, 2025.
- British Columbia Ministry of Forests, Lands and Natural Resource Operations. (2016). Best Management Practices for Amphibian and Reptile Salvages in British Columbia (Version 1.0). [https://fraservalleyconservancy.ca/wp-content/uploads/2021/07/BC-Herptile-Salvage-BMPs\\_2June2016.pdf](https://fraservalleyconservancy.ca/wp-content/uploads/2021/07/BC-Herptile-Salvage-BMPs_2June2016.pdf), accessed on July 2, 2025.
- British Columbia Ministry of Forests, Lands and Natural Resource Operations. (2013). Guidelines for Raptor Conservation during Urban and Rural Land Development in British Columbia. [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/best-management-practices/raptor\\_conservation\\_guidelines\\_2013.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-stewardship/best-management-practices/raptor_conservation_guidelines_2013.pdf), accessed on July 2, 2025.
- British Columbia Ministry of Water, Land and Air Protection. (2004). Environmental Best Management Practices for Urban and Rural Land Development: Special Wildlife and Species at Risk. [https://www.env.gov.bc.ca/wld/documents/bmp/urban\\_ebmp/EBMP%20PDF%205.pdf](https://www.env.gov.bc.ca/wld/documents/bmp/urban_ebmp/EBMP%20PDF%205.pdf), accessed on July 2, 2025.
- Cascade Environmental Resource Group Ltd. 2025 Big White Ski Resort Grizzly Bear Management and Monitoring Plan. Prepared for Big White Ski Resort, BC



- Cascade Environmental Resource Group Ltd. 2024. Phase 1 Study Area of the Management Plan Update – 2024, prepared for Big White Ski Resort, BC
- COSEWIC. 2012. COSEWIC assessment and status report on the American Badger *Taxidea taxus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. iv + 63 pp. <https://publications.gc.ca/site/eng/442261/publication.html> Accessed July 30, 2025.
- CornellLab, 2025. All About Birds webpage. <https://www.allaboutbirds.org> Accessed on November 17, 2025.
- Craig, M. Sarell and S. Holroyd. 2014. *Got Bats?* BC Community Bat Project Frequently Asked Questions. Prepared for the BC community Bat Project Initiative. <https://bcbats.ca/got-bats/>. Accessed July 30, 2025.
- Demarchi, M. W., & Bentley, M. D. (2005). Best Management Practices for Raptor Conservation during Urban and Rural Land Development in British Columbia. British Columbia Ministry of Environment. [https://www.env.gov.bc.ca/lower-mainland/electronic\\_documents/raptor\\_bmp\\_final.pdf](https://www.env.gov.bc.ca/lower-mainland/electronic_documents/raptor_bmp_final.pdf), accessed on July 2, 2025.
- Government of Canada. 2022. Migratory Birds Regulations. <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2022-105/index.html> Accessed July 30, 2025
- Government of Canada. 2024. Migratory Birds Convention Act. S.C. 1994, c. 22. <https://laws-lois.justice.gc.ca/eng/acts/m-7.01/>. Accessed July 30, 2025.
- Government of Canada. 2002. Species at Risk Act. <https://laws.justice.gc.ca/eng/acts/S-15.3/page-1.html>. Accessed July 30, 2025.
- Ministry of Environment. 2014. Procedures for mitigating impacts on environmental values (Environmental mitigation procedures) Version 1.0. [https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/environmental-mitigation-policy/em\\_procedures\\_may27\\_2014.pdf](https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/environmental-mitigation-policy/em_procedures_may27_2014.pdf) . Accessed: October 7, 2025.
- Ministry of Environment and Climate Change Strategy. 2018. Kootenay Boundary Wildlife Habitat Features Order. <https://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/laws-policies-standards-guidance/legislation-regulation/forest-range-practices-act/regulations-supporting-frpa/government-actions-regulation/wildlife-habitat-features/kootenay-boundary-wildlife-habitat-features-order> Accessed July 30, 2025
- Ministry of Environment, Lands and Parks (MELP). N.D. Mule and Black-tailed Deer in British Columbia. Ecology, Conservation and Management. <https://www.env.gov.bc.ca/wld/documents/muledeer.pdf#:~:text=In%20British%20Columbia%2C%20these,Although%20they%20are%20at%20home> Accessed July 30, 2025
- Ovaska, K., Sopuck, L., Engelstoff, C., Matthias, L., Wind, E., & MacGarvie, J. (2014). Guidelines for Amphibian and Reptile Conservation During Urban and Rural Development in British Columbia. British Columbia Ministry of Forests, Lands and Natural Resource Operations. <https://www2.gov.bc.ca/assets/gov/environment/plants-animals-ecosystems/wildlife/wildlife-conservation/amphibians-reptiles/amphibian-reptile-urban-rural-guidelines.pdf>, accessed on July 2, 2025.
- Wind, E., Beasley, B., & Sarell, M. (2020). Guidelines for Amphibian and Reptile Conservation During Road Building and Management Activities in British Columbia (Version 1.0). British Columbia Ministry of Environment and Climate Change Strategy. [https://fraservalleyconservancy.ca/wp-content/uploads/2021/11/HerpsRoadsGuidanceDocumentFINAL\\_Mar30\\_2020Revised\\_8Jan2021.pdf](https://fraservalleyconservancy.ca/wp-content/uploads/2021/11/HerpsRoadsGuidanceDocumentFINAL_Mar30_2020Revised_8Jan2021.pdf), accessed on July 2, 2025.



## Appendices

### Appendix 1: Species at risk identified as potentially occurring or occurring in the Big White CRA.

Group	Common Name	Scientific Name
Birds	Northern Goshawk, atricapillus ssp.	<i>Accipiter gentilis atricapillus</i>
Birds	White-throated Swift	<i>Aeronautes saxatalis</i>
Birds	Short-eared Owl	<i>Asio flammeus</i>
Birds	Rough-legged Hawk	<i>Buteo lagopus</i>
Birds	Broad-winged Hawk	<i>Buteo platypterus</i>
Birds	Evening Grosbeak	<i>Coccothraustes vespertinus</i>
Birds	Olive-sided Flycatcher	<i>Contopus cooperi</i>
Birds	Rusty Blackbird	<i>Euphagus carolinus</i>
Birds	Prairie Falcon	<i>Falco mexicanus</i>
Birds	Peregrine Falcon	<i>Falco peregrinus</i>
Birds	Peregrine Falcon, anatum ssp.	<i>Falco peregrinus anatum</i>
Birds	Gyrfalcon	<i>Falco rusticolus</i>
Birds	Yellow-breasted Chat	<i>Icteria virens</i>
Birds	Western Screech-Owl, macfarlanei ssp.	<i>Megascops kennicottii macfarlanei</i>
Birds	Red-necked Phalarope	<i>Phalaropus lobatus</i>
Birds	American Golden-Plover	<i>Pluvialis dominica</i>
Birds	Flammulated Owl	<i>Psilosops flammeolus</i>
Birds	Wandering Tattler	<i>Tringa incana</i>
Birds	Sharp-tailed Grouse, columbianus ssp.	<i>Tympanuchus phasianellus columbianus</i>
Fish	Cutthroat Trout, clarkii ssp.	<i>Oncorhynchus clarkii clarkii</i>
Fish	Speckled Dace	<i>Rhinichthys osculus</i>
Invertebrates (Mollusks etc)	Striated Fingernailclam	<i>Sphaerium striatinum</i>
Invertebrates (Mollusks etc)	Lance-tipped Darner	<i>Aeshna constricta</i>
Invertebrates (Mollusks etc)	Banded Tigersnail	<i>Anguispira kochi</i>
Invertebrates (Mollusks etc)	Vivid Dancer	<i>Argia vivida</i>



Group	Common Name	Scientific Name
Invertebrates (Mollusks etc)	Coeur d'Alene Oregonian	<i>Cryptomastix mullani</i>
Invertebrates (Mollusks etc)	Alkali Bluet	<i>Enallagma clausum</i>
Invertebrates (Mollusks etc)	Western Pondhawk	<i>Erythemis collocata</i>
Invertebrates (Mollusks etc)	Shortface Lanx	<i>Fisherola nuttalli</i>
Invertebrates (Mollusks etc)	Golden Fossaria	<i>Galba obrussa</i>
Invertebrates (Mollusks etc)	Attenuate Fossaria	<i>Galba truncatula</i>
Invertebrates (Mollusks etc)	Pale Jumping-slug	<i>Hemphillia camelus</i>
Invertebrates (Mollusks etc)	Magnum Mantleslug	<i>Magnipelta mycophaga</i>
Invertebrates (Mollusks etc)	Northern Tightcoil	<i>Pristiloma arcticum</i>
Butterflies & Moths	Silver-spotted Skipper	<i>Epargyreus clarus</i>
Butterflies & Moths	Silver-spotted Skipper, clarus ssp.	<i>Epargyreus clarus clarus</i>
Butterflies & Moths	Variegated Fritillary	<i>Euptoieta claudia</i>
Butterflies & Moths	Nevada Skipper	<i>Hesperia nevada</i>
Butterflies & Moths	Lilac-bordered Copper	<i>Lycaena nivalis</i>
Butterflies & Moths	Sandhill Skipper	<i>Polites sabuleti</i>
Butterflies & Moths	Checkered Skipper	<i>Pyrgus communis</i>
Butterflies & Moths	California Hairstreak	<i>Satyrium californica</i>
Butterflies & Moths	Half-moon Hairstreak	<i>Satyrium semiluna</i>
Butterflies & Moths	Mormon Fritillary, erinna ssp.	<i>Speyeria mormonia erinna</i>
Mammals	Mountain Beaver	<i>Aplodontia rufa</i>
Mammals	Wolverine	<i>Gulo gulo</i>
Mammals	Wolverine, luscus ssp.	<i>Gulo gulo luscus</i>
Mammals	White-tailed Jackrabbit	<i>Lepus townsendii</i>
Mammals	Red-tailed Chipmunk, simulans ssp.	<i>Neotamias ruficaudus simulans</i>
Mammals	Mountain Goat	<i>Oreamnos americanus</i>
Mammals	Bighorn Sheep	<i>Ovis canadensis</i>
Mammals	Columbia Plateau Pocket Mouse	<i>Perognathus parvus</i>



Group	Common Name	Scientific Name
Mammals	American Badger	<i>Taxidea taxus</i>
Mammals	Grizzly Bear	<i>Ursus arctos</i>
Mammals	Big Brown Bat	<i>Eptesicus fuscus</i>
Mammals	Californian Myotis	<i>Myotis californicus</i>
Mammals	Long-eared Myotis	<i>Myotis evotis</i>
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>
Mammals	Long-legged Myotis	<i>Myotis volans</i>
Reptiles & Amphibians	Western Skink	<i>Plestiodon skiltonianus</i>
Reptiles & Amphibians	Western Toad	<i>Anaxyrus boreas</i>