

Commercial Recreation Management Plan
for

Canadian Mountain Holidays

CMH Silvertip



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This Management Plan has been approved by the
British Columbia Assets and Land Corporation

Signatures

Date

CANADIAN MOUNTAIN HOLIDAYS
 COMMERCIAL RECREATION MANAGEMENT PLAN
 - CMH SILVERTIP -

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1.0 INTRODUCTION

1.1 Overview of Business Proposal

This management plan is submitted to the BC Assets and Land Corporation by Canadian Mountain Holidays (CMH) under the province's Commercial Recreation Policy. The name of the operating area is "CMH Silvertip". While the plan has been prepared to deal with vacant Crown land, we hope that we may – at some point in the future – obtain approval from government to access new ski terrain in Cariboo Mountains Provincial Park. The operation will – eventually - offer heli-skiing from December to April each winter, which is a new activity in the area. The target date for start of operations is December 2002.

An investigation of the area occurred over a ten-day period during early April 1999. This occurred under an Investigative Use Permit and a Park Use Permit. The base of operations was the Wells Hotel in Wells, B. C. While this is not a viable site for a base of regular operations (because of its distance from the ski terrain), a number of other options were investigated. These include remote camps for logging operations, existing resorts in the area, or a new facility.

The ski zones, ski runs, potential ski terrain and proposed fuel caches necessary to successfully operate the business are shown on detailed 1:50,000 maps enclosed.

1.2 Proponent

Canadian Mountain Holidays is the founding and largest heli-ski operator in the world. CMH presently has eleven existing operations in British Columbia similar to this one under application. Three of these are adjacent to the north and east. Our thirty-five year proven track record has set the standard for the mechanized ski industry. We have demonstrated that we can operate in a manner that is both environmentally sensitive and safe. We have the resources required to establish the "CMH Silvertip" operation and to make it viable.

CMH is extra-provincially registered in B. C. under Incorporation # A 21821. The company is wholly-owned by Alpine Helicopters Ltd. of Kelowna, B. C. CMH presently employs about 500 people during full operations, with an administrative staff of 70 people. Corporate offices have been historically located in Banff, Alberta. Most area management and supervisory staff are employed year-round and live in various communities throughout the southern interior of B. C.

2.0 GENERAL DESCRIPTION OF AREA

2.1 Location and Access

The operating area is located in the Cariboo Mountains generally east of Williams Lake and Quesnel. It extends from the area around Mt. Tinsdale in the northwest (excluding the Mt. Tinsdale Ecological Reserve) to the headwaters of Bill Miner Creek in the south. It adjoins the Bowron Lakes Provincial Park (to the north), the Cariboo River Provincial Park (to the west), and the Wells Gray Provincial Park (to the east). The area does not currently include those portions of the Cariboo Mountain Provincial Park which are not already included in the existing license of occupation for the adjacent CMH McBride operating area. Operations on Crown land are primarily between the North Arm and East Arm of Quesnel Lake, and the area south of the East Arm. See detailed 1:50,000 maps attached.

Access to the operation for most clients will be on chartered or scheduled flights from Calgary to Williams Lake or Quesnel. From there, further transport may be via fixed-wing aircraft if weather permits and if the base facility location allows for fixed-wing access. Alternatively, access will be via road transportation to a suitable staging area and then via a helicopter transfer to the base. The location of potential staging areas is determined by the utility of local logging roads, and the eventual permanent location of the base of operations (see below).

2.2 Base of Operations

The initial base of operations for CMH Silvertip will be located at Silvertip Lodge, a private resort facility (on private land) located on the east arm of Quesnel Lake. This location allows for good access to the skiing area and it allows CMH to operate from a pre-existing local facility.

2.3 Ski Zones Within Operating Area

The proposed operating area, which covers approximately 1461.89 sq. km +/-, has been divided into five ski zones on the basis of the following criteria:

- Existing administrative boundaries
- Access and operating logistics
- Terrain similarities and geography
- Snow and weather patterns

The five zones are listed below. Detailed descriptions about how each area will be used, and specific operating practices for individual ski runs and flight lines in each zone, are outlined in various sections of this plan and in Appendix 1.

2.3.1 Tinsdale (206.06 sq. km; 12.37 sq. km of ski terrain)

This is the northern-most zone, and it has a good variety of short runs and provides some good bad-weather skiing with elevation differences in the 500 m range. Existing harvesting and burns offer opportunities for open skiing during difficult weather conditions. It excludes the Mt. Tinsdale Ecological Reserve.

2.3.2 Kimball (208.86 sq. km; 16.95 sq. km of ski terrain)

This zone includes the Matthew River and Kimball Creek. It offers a broad variety of runs, most of them starting at tree-line and reaching down near the valley bottoms of both creeks. Existing logging blocks make for great drop-offs and pick-ups in the Matthew drainage. The ski runs in this zone will not be used in the first winter of operation because of a lack of knowledge about the nature and potential of the ski terrain and of the wildlife habitat in the area. These runs will be left in abeyance until further reviews with gov't staff are complete (see sections below and Appendix 1).

2.3.3 Penfold (297.01 sq. km; 35.52 sq. km of ski terrain)

This zone encompasses terrain surrounding the Penfold and Watt Rivers. It also encloses the highest terrain within the License area around Mt Watt and Mt Wotzke. It offers a great variety of skiing from open alpine and glaciated runs to steep tree skiing at lower elevations.

2.3.4 Roaring (277.3 sq. km; 39.42 sq. km of ski terrain)

This is the second largest zone, and encompasses the center of the operating area. It contains the highest concentration of runs and provides a variety of terrain from open burns to tree skiing that ends in existing or future cut-blocks. The presence of road access and proximity to fuel makes this a very valuable and productive area for us.

2.3.5 Southern Lakes and Highlands (472.63 sq. km; 47.38 sq. km of ski terrain)

This is the largest and southern-most zone in the operating area, and does not include any glaciated ski terrain. Elevation differences are between 500 and 750 m and skiing occurs primarily at or just above tree-line; pick-ups are located in head-waters of creeks and in sub-alpine basins. This area will be very important because of its proximity to the base of operations at Silvertip.

It is important to note that the actual ski terrain within these areas consists of 128 ski runs and covers a total of 151.644 sq. km (or 10.35%). All potential ski runs have been identified in this plan (and on associated maps); however, specific operational practices (including, in some cases, removal from the active run list, are detailed in sections below and in Appendix 1.

3.0 COMMERCIAL RECREATION ACTIVITIES OFFERED ON CROWN LAND

All commercial recreation activities take place on Crown land as shown on the detailed 1:50,000 maps (attached). These include:

- existing ski runs identified and skied in 1999;
- potential ski terrain;
- fuel storage, rescue cache and communication sites.

3.1 Description of Heli-skiing

Helicopter skiing involves transporting skiers from base or pick-up area to the tops of ski runs with a helicopter. Normal skiing operations use a Bell 212 twin-engine helicopter. Groups of up to 10 or 11 people ski together with a certified guide. The various CMH operations have between one and four groups of skiers per helicopter. These groups make multiple runs during the day. Flying and skiing are optimized to run as safe and efficient an operation as possible under the given conditions. Please visit our web-site at www.cmhski.com for more detailed information.

Because approval for the operation came so late in the fall of 2001, CMH will use the first full winter (2001/02) for planning, and will only use the area on a very limited basis for investigative work. In year 2 (2002/03), CMH Silvertip will operate with 10 clients per week for a projected 10-week period (this will occur within a Jan. 1 – April 30 window, depending on timing of bookings). The guests will ski as a group of 10 skiers and two guides. The trips will occur on a weekly basis, from Saturday to Saturday. Generally skiing will start at 0900h, lunches will be served in the field, and skiers will return to base at about 1630h. The daily program depends on weather and snow conditions, and client abilities and desires. The normal ski season runs from mid-December to late April of each season. Section 5.0 outlines a plan for the first 5 years of operation that includes detailed annual reviews with government staff.

3.2 Improvements

To the greatest extent possible, operations use the ski terrain as it is. Below treeline, natural clearings or existing harvest openings are used for helicopter drop-offs and pick-ups wherever practicable. Improvements are sometimes required to maximize safe and effective use of the areas.

Improvements normally involve cutting small numbers of trees or shrubs to create or enhance openings for helicopter landing areas. When trees are to be cut, the MoF and local forest companies are involved to secure licenses to cut and to meet their respective requirements.

Top-quality tree skiing is one of the most exciting experiences offered to the guests. Good tree skiing is dependent on the natural forest cover. In certain high-intensive use areas, accessible under adverse weather and snow conditions, a spacing program can increase separation between trees and offer additional skiing options. These crucial areas will become evident with operating experience. A run development program

will specify the work proposed to address MoF specifications and WLAP issues (such as caribou habitat – see Sec. 8.1.1 and 8.2.3 below).

4.0 INTENSIVE USE SITES

A heli-ski operating area requires a fixed base of operations (see 2.2 above) as well as ancillary fuel caches, emergency caches and communication site(s). The following ancillary facilities will be placed or constructed within the operating area:

- **Communication site** – An FM radio repeater for the operating frequency will be placed in the vicinity of Mt. Wotzke, outside of the boundary of Cariboo Mountains Provincial Park. The site needs to fulfill a number of criteria that are difficult to anticipate in advance of operating experience in the area. Initially, a temporary facility will be placed on Mt Wotzke (specific location to be supplied to BCAL when in place). Radio coverage needs to extend to as much of the area as possible, as well as to the base and to outside resources and telephone landlines. Further, the repeater needs to link to existing repeaters on Mt. Halvorson and Mt. Zillmer (to the east and south), for emergency communication capability to adjacent CMH areas. The site itself must allow for reliable helicopter access for maintenance purposes under most weather conditions.

The facility will be a temporary, portable installation initially, comprised of an antenna, mast, and freezer chest containing batteries and radio equipment. As the suitability of the site is determined, the installation may need to be relocated during the operating season. Once the optimum location has been established, a more permanent installation comprised of a typical 4.5m-high fiberglass com-shell anchored to rock with a propane power source is proposed. Again, BCAL will be consulted on, and advised of the final location. The Department of Communications, Transport Canada, licenses all radio frequencies for the area.

- **Fuel caches** – Aside from permanent fuel storage at our base (10,000 gals), we foresee the placement of two remote jet fuel tanks in the area. While their location will depend on continued road access, we propose to place a 6,000-gal tank in the vicinity of Warttig Lake, and to use existing fuel tanks at West Fraser's Penfold logging camp. Exact locations will be determined during the fall of 2001 and 2002 (see 1:50,000 maps); we will advise BCAL of these locations. Portable pumps and hoses are installed at the beginning and removed at the end of each season. All facilities will be operated and maintained in compliance with all provincial and federal regulations.
- **Emergency caches** – Emergency rescue gear will be placed at strategic sites throughout the operating area. Caches are generally installed at each remote fuel tank as well. They consist of weatherproof structures that contain a toboggan, rescue and survival gear. The contents are placed at the beginning and removed at the end of each season.

5.0 LEVELS OF USE

As mentioned in Sec. 2.3 above, the proposed area has been divided into five ski zones for operational reasons. These zones will also be used to record and to report to government on our level of use (skier –runs) of each portion of the area.

“Skier-days” are reported (by June 1st at the end of each season) for the purpose of annual rental calculations as defined in the Commercial Recreation Policy, whereas the number of “skier-runs” is reported to indicate levels of use for each zone. We have provided initial targets for the first five years of operation; these targets will be re-evaluated with BCAL (and WLAP) prior to the start of each winter season.

PROJECTED SKIER-DAYS FOR FIRST FIVE YEARS OF OPERATION

	Year 1 (2001/2002)	Year 2 (2002/2003)	Year 3 (2003/04)	Year 4 (2004/05)	Year 5 (2005/06)
Heli-skiing	40	700	1470	1470	1820

Projected skier-days and skier-runs are based on:

- no operation in Year 1, other than some limited investigative skiing from our existing McBride operation;
- an estimated 10 skiers per week in a 10-week second season;
- an estimated 10 skiers per week for the third and fourth years; these seasons will probably see an increase to 15 weeks, and we may consider up to 20 guests per week for six of those 15 weeks;
- an estimated 20 weeks with 10 skiers per week in year 5 (during which we may consider up to 6 weeks with 20 guests per week);
- an average of 7 ski-days per week, with an average 8 runs per skier per day.

The increase in runs from the second to the third year in the table is based on a forecasted extension of the season from ten to fifteen weeks and an increase in guests during some of those weeks.

The operation is based on a commitment to annual reviews with government staff (BCAL and WLAP). These reviews are slated to occur in mid-May each year. While the numbers above and below are offered as five-year targets, the specifics of these numbers for each year (total number and distribution across the operating area) will be determined for the following year during each annual review. A new five-year plan will be developed each year.

LEVELS OF USE BY ZONE

ACTIVITY	SKI ZONE	SKIER-RUNS Year 1	SKIER-RUNS Year 2	SKIER-RUNS Year 3	SKIER-RUNS Year 4	SKIER-RUNS Year 5	FORECAST % USE BY ZONE
Heli-skiing							
	Tinsdale	0	280	588	588	728	5
	Kimball	0	280	588	588	728	5
	Penfold	160	1680	2940	3528	4368	30
	Roaring	160	1960	2940	4116	5096	35
	Southern Lakes and Highlands	0	1400	2940	2940	3640	25
TOTAL		320	5600	11760	11760	14560	100

** In reviewing these numbers, it should be noted that these are initial projections based solely on investigative work during April of 1999.

Normally, our ski operations use what we call “bad weather terrain” more frequently than other ski terrain, simply because it is accessible to us (because of proximity to base and/or its geography) in all weather conditions. It is too early in the operation to make any definitive statements about “bad weather terrain” for this operation. We will, however, discuss this in detail with BCAL (and with WLAP, in the context of wildlife) over the first few years of the operation.

6.0 HAZARDS AND SAFETY PLAN

Heli-skiing in the backcountry takes skiers into a remote, rugged mountain environment. Guests are under the supervision of certified guides at all times. Risks are managed by pilots and guides on behalf of clients. The operation has self-capability for rescue and evacuation.

The hazards associated with helicopter flight operations and skiing activities are detailed in a comprehensive waiver, which all clients are required to sign in advance. In so doing they confirm their awareness of the risks and their willingness to share them with the operator(s).

CMH has a standard rescue plan that will be implemented in the CMH Silvertip area with modifications specific to the area. CMH operates in accordance with the operations guidelines set out by the BC Helicopter and Snowcat Skiing Operators Association (BCHSSOA).

7.0 IMPACTS ON OTHER USERS

7.1 Public Use and Access

We recognize that we will operate in an area that is used by the public for a range of recreational activities. The License of Occupation that we receive from the Crown is not exclusive, and as in our other operating areas, we understand our responsibilities toward the recreating public. This includes not interfering with the public's privilege to access Crown land, and to provide assistance to backcountry users whenever we can.

There are some specific recreational activities that occur in all or part of the operating area around which we have some specific comments:

7.1.1 Snowmobiling

As is discussed in the recommendations of the Provincial Backcountry Skiing – Snowmobiling Committee, it is clear that heli-skiing and snowmobiling are incompatible activities on the same terrain. As a result, we trust that our interests and needs will be respected in the future by local sledders and government agencies. To ensure that we remain consistent with changing circumstances, we will:

- continue to maintain regular contact with local snowmobile clubs (Powder Kings Snowmobile Club; Crooked Lake Ridge Runners) and the BC Snowmobile Federation;
- participate in local land use/recreation plans; and
- develop working agreements for specific areas as required.

7.1.2 Backcountry Skiing

As with our other operating areas, we do not see backcountry skiing as a conflict with our operations; generally their levels of use are low and infrequent.

However, we recognize that our use in areas can affect the experience for backcountry skiers. We will make every effort to keep our activities out of areas being used by local skiers if we see them while we are flying or if they contact us prior to their trip. This approach has worked successfully in our other operating areas. The Cariboo Ski Touring Club has a cabin (under L/O from BCAL) in Monkton Creek. This is one of a series of four backcountry cabins that the Club holds under tenure. While we do not have any ski runs in the vicinity of the hut, we are now working with the Club's executive to ensure that our activities in the area do not impact their use of the area and to look for opportunities to work together. It appears that there is also some limited backcountry skiing in the Penfold area (Hilda Lake Cabin) and around Ogden Peak. Other areas of use may include the area south of Quesnel Lake in \ around Bill Miner Creek, Bouldery Creek, west of the North Arm on Quesnel Lake, Mt. Barker and along Cariboo Lake

We will develop a brochure that will be available to all backcountry skiers (through local clubs, at local government offices and in skiing-related stores) that will explain how we work with skiers, and will provide contact information for us.

7.2 RESOURCE / INDUSTRIAL INTERESTS

This is a complex area, and government has already made a range of legal commitments around the use of the area's natural resources. This includes:

7.2.1 Timber Tenures and Forest Management

The following major companies hold some form of forest tenure in the proposed operating area:

- West Fraser Mills Ltd. (Quesnel Division)
- West Fraser Timber (Williams Lake Division)
- Weldwood of Canada (Quesnel)
- Weldwood of Canada (Williams Lake)

We also assume that there will be a range of smaller forest tenures and SBFEP projects in the area.

As we do in all of our areas, we will work closely with local forest companies to share development plan information, review harvesting and silviculture plans and manage access. We will look for ways to work together on projects such as the use of heli-logging, and linking our ski terrain with cut-blocks through glading programs. In those rare circumstances where we might land adjacent to active haul roads, we will work closely with local forest companies / contractors to maintain safe operations. Generally, forest harvesting can be beneficial to heli-skiing if a cooperative approach is taken in all aspects of planning and implementation.

As we do in our other operating areas, we will monitor and manage our use of plantations to ensure that our skiing does not cause damage to the leaders of regenerating trees.

7.2.2 Mineral Tenures

According to the Gold Commissioner in Williams Lake, there are a large number of active tenures held under the MINERAL TENURE ACT. Because of the area's high mineral potential, we understand that these and other companies may wish to explore and/or develop in the area. We will continue to communicate with any companies that are operating within our tenured operating area.

7.2.3 Guide Outfitting

Based on information received from WLAP in Williams Lake, the proposed operating area covers guide-territories held by 4 individuals:

- Glynnis Cox PO Box 98, Likely, BC V0L 1N0
- Bill Zimmer PO Box 10, Horsefly, BC V0L 1N0
- Tim Stephenson PO Box 136, Horsefly, BC V0L 1L0
- Stewart Maitland PO Box 1332, 100 Mile House, BC V0K 2E0

As we do in all of our operating areas, we will work directly with (and maintain regular communication with) these individuals to ensure that our activities do not affect their hunting in spring or fall. It is unlikely that there will be any impacts in the spring or fall because we will not start our skiing program until mid-December, and finish by late April. Specifically, we will continue to meet with each G/O who operates in the area to:

- set up a direct line of communication between the two companies;
- offer our radio frequency so that they can contact us when we are both "in the field;"
- agree not to ski in, or fly over pre-determined areas where hunting activities are taking place (this will be a particular issue during the spring bear hunt). We will ensure that BCAL is aware of any such agreements, and we will incorporate these into our management plan as required.

7.2.4 Trap-lines

We will liaise with individuals who hold registered trap-lines as necessary.

7.3 Other Commercial Or Public Recreation Interests

We recognize that BCALC and/or BC Parks may accept applications for other CR activities within our tenured operating area. We assume that the intent of the CR policy will be followed around the compatibility of activities and that new applicants will be encouraged to speak with existing tenure-holders. We hope that we will receive referrals from BCAL for relevant (overlapping) applications, but we will regularly review the BC Gazette, and will maintain contact with BCAL's Client Services Coordinator to ensure that we remain aware of future applications.

8.0 FISH, WILDLIFE, AND OTHER ENVIRONMENTAL VALUES

The proposed operating area lies within the North Columbia Mountains (NCM) and Quesnel Highlands (QH) ecosections. It includes representation from 3 biogeoclimatic zones – Alpine Tundra (AT), Engelmann Spruce – Subalpine Fir (ESSF) and Interior Cedar Hemlock (ICH) as well as a number of variants of those zones. In essence, this suggests that the area includes an impressive range of plant communities ranging from high alpine to lush valley-bottom old-growth forests and riparian areas. The diversity of plant communities, combined with diverse climate and topography equates to a diversity in wildlife species.

As we do in all of our operating areas, it is a basic CMH philosophy to act as stewards of the areas in which we operate. As evidence of this approach, we use state-of-the-art systems in our mountain lodges to minimize our energy consumption, we use leading-edge technology for fuel storage and handling, and we always practice “low impact” techniques when in the field with guests.

While some of our operational practices are detailed in sections above, it is clear that wildlife (and habitat) values are of such significance in the area that it is important that specific operational approaches to deal with these values be outlined in significant detail.

This information is presented in two parts: (1.) overall approaches taken to wildlife, regardless of species; and (2.) species- or geography-specific approaches. This information has been developed in light of all of the correspondence and discussions between CMH and WLAP over the last two years, and the existence of government's *interim* Commercial Recreation – Wildlife Guidelines. Because these guidelines are still under development, our approaches will change over time accordingly.

8.1 Overall Approaches to Wildlife and Wildlife Habitats

8.1.1 Wildlife Habitats

The nature of our activity normally equates to little or no alteration of wildlife habitat. The most significant issue that we may have with habitat relates to our need to cut small #'s of trees – on occasion - for heli-pads and to improve our skiing (glading). The heli-pads are always very small openings (we utilize natural openings wherever and whenever we can), so these should not present a problem from the perspective of creating changes to the age class or seral stage composition of the stands.

We will review all future glading or cutting plans with WLAP, BCAL and MOF. We realize that government reviews of any future glading plans will focus on how they fit within the harvesting targets for specific areas (based on the needs wildlife species such as caribou), but that our chances of approval are probably greater on slopes above 45%.

8.1.2 Flight Paths

Flight paths are the most common routes that will be used by our helicopters between the base facility and the ski terrain, and between various parts of the operating area. These may change based on weather, location of wildlife and recreationists (skiers, hunters etc.), and in the case of emergencies. However, we manage these flight paths very carefully in consideration of resource values (particularly wildlife) during our on-going staff training, in on-going discussions with pilots and guides, and in day-to-day operations.

Our initial flight paths were developed on the basis of the location of the ski terrain, our knowledge of flight patterns based on our experience in other areas and the location of areas occupied / used by wildlife. Specific flight vectors for individual runs are described in Appendix 1. We have also been made aware of specific areas of wildlife habitats where we need to manage the flight paths carefully to respect wildlife values (e.g. goat habitat on the north side of Quesnel Lake just west of Silvertip Lodge, and other intermittent and consistent use areas by goats). We propose to continue to work with government staff to identify, fine-tune and finalize these flight paths as we jointly monitor and review the operation over time. As flight paths are finalized with government staff, they will be added to our operating area maps after each annual review.

There are many variables that affect the level and nature of helicopter noise, but the main sources are the rotors and the engines. In this operation, we will use a Bell 212 helicopter, which is a twin-jet machine that has become the workhorse of the helicopter skiing industry. Its power, capacity and reliability are without comparison. The 212 is also the most efficient model to use in helicopter skiing when one compares lift capacity, safety and cost of operation. We will continue to work with our pilots to ensure that the operation of these aircraft minimizes the impacts of noise on wildlife and humans. We will do this by actively managing flight vectors such as speed, approach distance, rate of descent, etc.

As mentioned in other sections, we will maintain 600 m. elevation above the Mitchell River, and at least the same elevation (which is federal aviation standard) when we fly up / over the Niagara to reach Penfold and Lynx Creeks.

8.1.3 An Adaptive Approach to Monitoring and Operations

We will use an adaptive, performance-based approach to our operations in the context of wildlife and their habitats. This means that we will constantly feed back into our operations as we learn more:

- about individual pieces of ski terrain that lie within the proposed operating area, their relationship to each other and to our base and ancillary facilities; and
- about weather and snow-fall patterns; and
- about the overlaps between ski terrain, flight paths, pick-ups and landings, and sensitive areas; and
- about the animals in the area and their use of specific habitats during the winter; and
- about how individual animals and groups of animals react to our presence (or not) in specific habitat types in the operating area;
- from other sources (such as from the Kootenay Region goat - helicopter research project).

Much of the feedback mechanism in our operation will occur through incorporating operational data into our daily guide (and pilot) meetings as it is collected in the field, and during our annual reviews with government staff.

In the case of wildlife, we will maintain daily records of all wildlife sightings. This will include:

- date and time;
- location description (watershed and run name);

- UTM coordinates (using hand-held or helicopter-based GPS technology);
- weather;
- species, number, sex (if possible) of animals;
- behaviour upon first sighting;
- responses to our presence using the index outlined in Penner (1988) (i.e. No Overt Response, Unconcerned Response, Curious Response, Concerned Response, Alarmed Response, Very Alarmed Response).

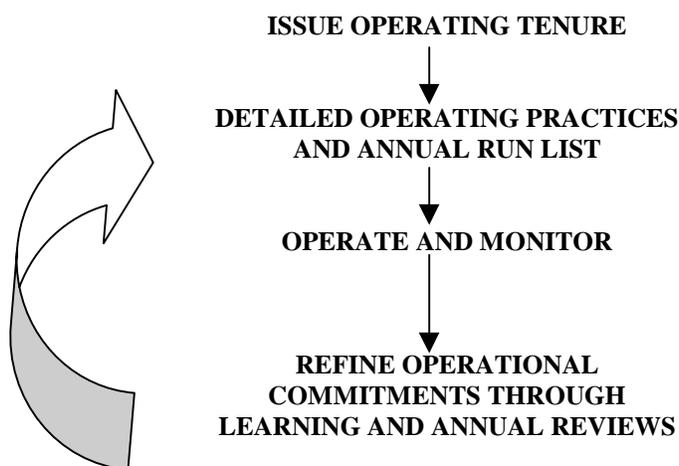
These observations will be made during the course of our regular operations; we will not purposely fly near(er) animals to make these observations. If we are not able to record all of the above during a regular flight, we will continue on our way, and will not “circle around” or return to the area simply to complete the observation. Again, our objective is to minimize potential disturbances.

As this data is collected, the presence and behavioural responses of sub-populations of goats, caribou or moose (or other species) throughout the area will be discussed at the daily meetings, as is done with snow stability, wind and weather, natural hazards and the presence of public recreationists. With this information in hand, we will then revise our flight and skiing plans (weather and snow permitting) to completely avoid areas, or to ensure that pilots and guides maximize separation distances. This information will also be “wrapped up” and provided to WLAP and BCALC (in a format acceptable to them) prior to our annual reviews. This will ensure that the information gained in these feedback loops is available to government and can be used in the annual reviews to jointly plan future operations.

IN ALL CASES, RUNS THAT ARE SHOWN IN APPENDIX 1 AS “INACTIVE” OR “OFF THE ACTIVE RUN LIST” WILL NOT BE SKIED UNTIL THEY HAVE BEEN DISCUSSED WITH BCAL AND WLAP STAFF AND RESOLUTION HAS BEEN REACHED ON OPERATIONAL APPROACHES TO BE USED.

Allowing us to use this type of approach clearly requires a high degree of intimate knowledge with the land, and it suggests a high level of trust on the part of government. We recognize this, and will use the annual reviews and monitoring to continually discuss with, and involve government staff in the results of the approaches. Because it is a new activity to them, we will also work to build an understanding about heli-skiing with government staff.

In approaching this complex question of learning about the terrain, we will move in a cycle that moves in a step-wise fashion:



Operating in this cyclical manner will also allow us to:

- continually work with government to learn about the area;
- to determine where the skiing will be in various weather conditions and at various times of the year;

- fine-tune our operational practices in an adaptive, feedback cycle that should result in continuous improvements and increasing levels of understanding.

8.1.4 Minimizing Disturbance

The basic premise of our approach to wildlife issues associated with this proposal is to work carefully to minimize our direct and indirect disturbance of wintering animals, while at the same time ensuring that they will come to see us as a neutral influence on their daily lives. This means that we will work to ensure that all negative associations and impacts are avoided. We will use the categories of response as per Penner (1988) to record these over the course of each year. And as noted above, we will use these responses to change the ways in which we operate to ensure that animal responses (if any) are always at the “non-disturbed” end of the Penner scale.

8.1.5 Working with WLAP on Systematic Data Collection

It is important that we continue to work with WLAP to collect data over time. CMH will:

- become directly involved with the committee(s) that is (are) planning, administering and managing these studies over the long-term;
- become involved in the implementation of future monitoring studies by providing some level of direct funding, as well as in-kind contributions such as: access to helicopters; snow and weather data; accommodation at our base facilities; access to professional mountain guiding staff, etc.
- ensure that our daily data collection is in a format and at a level of detail that will be useful to managers and researchers (via sharing information in a compatible GIS-format);
- host 1 - 2 flights each year with staff from WLAP and BCALC (or their designates). These will look at specific pieces of habitat as required, and will look at trends in distribution of wildlife and habitat use;
- directly involve WLAP staff in our annual fall staff training (start-up) sessions for this operation.

8.2 Species and Geography-Specific Operational Approaches

Aside from all of the operational assumptions and approaches listed above, there are specific issues of either a species or geographic nature that require additional detail. These are listed below and in Appendix 1. Our approaches will change as the province’s Commercial Recreation – Wildlife Guidelines evolve.

8.2.1 Red and Blue-Listed Plants and Animals

We have obtained the list of red and blue-listed plant and animal species, and plant communities for this area from the BC Conservation Data Centre, and will maintain records of all sightings (both inside and outside provincial parks) as part of our daily operations. These records will be forwarded to the CDC and WLAP annually.

8.2.2 Mountain Goats

Mountain goats inhabit winter and spring ranges within the proposed operating area, as shown in maps supplied by WLAP (maps indicate habitats with consistent, intermittent and potential use by goats). These areas tend to be small pockets of primarily south-facing cliff bands (below tree-line) scattered throughout the proposed operating area.

While we do have many years of experience in operating in mountain goat habitats in other areas of the province, we have developed specific approaches to specific ski runs that are in the proximity of these habitats (see Appendix 1). These are based on many discussions and field inspections with Wildlife staff (primarily Pat Dielman), and on the guidance contained in the *interim* Commercial Recreation – Wildlife Guidelines.

In general, we will complete early season field checks (at distances sufficient not to create disturbance) to verify the presence of goats (or their tracks) in winter habitats, particularly in areas categorized by WLAP as “consistent” or “intermittent use.” These would continue on a regular basis throughout the season during normal “fly-bys” to other areas. If animals are using a specific piece of habitat immediately adjacent to a ski run(s), that run(s) would not be available for skiing until subsequent checks have confirmed that the animal(s) has moved to other areas.

In essence, these approaches are designed to minimize direct impacts on the animals by our helicopters through use of regular and predictable flight paths. They include: complete avoidance (removing runs from active ski run list); a range of adaptive approaches that are based on the presence / absence of animals on specific ranges at specific times; and our ability to minimize potential disturbance through timing, terrain features, management of flight vectors, etc.

In all cases, we will keep away from maternity groups in late winter, and from any known mineral licks.

8.2.3 Mountain Caribou

The proposed operating area includes habitat used by the mountain caribou, a species that is considered to be of provincial significance and is red-listed by the CDC and COSEWIC. WLAP staff advise us that about 30 caribou inhabit the application area (August 2001).

Our skiing will not specifically impact caribou habitats, and we propose to undertake a series of site-specific operational approaches to ensure that we minimize our impacts on caribou use of all of these areas. An issue that we may have with caribou habitat at some point in the future relates to our need to cut small numbers of trees for heli-pads and to improve our skiing. The heli-pads, which are maintained for safety purposes, are always very small openings (we utilize natural openings wherever we can), so these should not present a problem from the perspective of creating changes to the age class or seral stage composition of the stands. We realize that government reviews of any future glading plans will focus on how they fit within the harvesting targets for specific areas, but that our chances of approval are greater on slopes >45%.

Based on habitat capability mapping and radio-collar data, it appears that the caribou use a range of habitat types (as shown in the November 1998 Radio-Telemetry Progress Report). In general, the animals appear to use lower elevation stands in the ICH and ESSF zones during early winter, while they tend to move to the upper ESSF and AT zones during mid- to late winter. In all cases, they seem to prefer slopes less than 45%. The highest capability habitats seem to lie in Kimball Creek, Lynx / Roaring Creek, Watt Creek, Bill Miner / Bouldery Creek, east of Ogden Peak, and south of Summit Lakes. At a micro-scale, there is very little direct overlap between ski terrain and high capability caribou habitat – we tend to use slopes that are steeper and more open than those that seem to be preferred by caribou.

Even more so than with mountain goats, we try to be flexible and adaptive when dealing with the needs of caribou because of their tendency to utilize broad areas during the winter. We use this same approach in Wells Gray Provincial Park, and in other operating areas (such as at CMH Revelstoke, Adamants, Gothics, Kootenay and Monashees) where we successfully deal with populations of caribou. This means not landing or skiing in areas when we observe caribou or their tracks, and using these sightings to make subsequent operational decisions around routes and ski terrain.

The issue of “sightability” of the animals and their tracks (particularly during / after storms) has been (and will probably remain) a key issue during our discussions with WLAP staff. It is our experience that when skiing in habitats that are most commonly used by caribou, the nature of the tree cover and snow-pack provide a high degree of sightability of animals or their tracks. The regular and predictable nature of our visits to areas (more so than any other user) allows our mountain guides to maintain a high degree of understanding of animal use of these areas.

Based on our discussions with WLAP staff re the sightability issues and our joint concern for minimizing disturbance, we will record (and share with government during our annual reviews):

- the number of times we use each ski zone and each ski run;
- the number of times we observe and record animals or their tracks, and the location of those sightings (reports will differentiate between observations of animals and tracks);
- the behavioural responses of animals when those sightings are made (as per Penner);
- the number of times we see or observe caribou after we assume that they were not in the area;
- our responses to those sightings (i.e. how we adapt and move to other areas, etc);
- how we can further adapt our operational approaches (including use of specific runs) for the next season.

These observations will be maintained for a range of forest cover types, with particular emphasis on those areas with greater crown closures.

On the assumption that:

- we will use an average of 8 ski runs each day (out of a total of 128);
- some of those runs will be used more often than others (see Sec. 5.0);
- we will maintain a detailed tracking system (location, elevation, slope %, etc.) for caribou (and track) sightings;
- we will actively avoid areas where animals or tracks are seen (at least until the next storm cycle passes); and
- the (30 or so) caribou will disperse themselves throughout the area during the winter;

we anticipate that the number of times that we may interact with the animals will be very small. However, this will be verified through the results of these annual reviews.

The key areas of concern with this operation are those ski runs (and associated helicopter approach and take-off paths) where there is a direct overlap with, or close proximity to areas that exhibit two characteristics: (1.) “high caribou capability” habitat (as defined by W.L.A.P.); and (2.) a relatively high probability of use by animals (based on WLAP’s radio-telemetry results). These areas, shown by X-hatching on WLAP maps, tend to be portions of runs that are <45% slope and covered by sparse-moderate cover of sub-alpine forest. Depending on the location, these areas can occur at the top, mid-slope or in the bottoms of our proposed runs. While we are only currently dealing with only 30 animals (+/-) in an area of about 1465 sq km, Appendix 1 outlines the proposed approaches in these specific areas, which are based on the specific realities in each area.

8.2.4 Grizzly and Black Bears

While grizzly and black bears will likely be hibernating while we use the area for skiing, we know that bears leave their dens from time-to-time over the winter, and that they may leave their dens for good in early spring.

While spring is some of our best skiing, it has been our experience that if bears leave their dens early, they immediately head for the lower valleys where there is more opportunity for early spring

plants. In our experience, this generally takes them below (in elevation) our area of interest for skiing.

However, we will record and monitor bear sightings in late winter to early spring and revise flying and skiing program accordingly to avoid known areas of early bear use. Our objective will be to avoid disturbing the bears, and avoid causing them to move from these critical spring habitats. There are some specific locations that have been identified for us by WLAP staff (primarily south-facing avalanche slopes; see “record of Discussions dated Oct 3-5, 2000) that our guides will prioritize for monitoring as spring approaches. Regular sightings of bears at these locations may lead to voluntary seasonal closures of specific flight lines and/or runs; this will be discussed with WLAP staff during the annual reviews. Sighting information will be made available to WLAP annually.

8.2.5 Moose

According to WLAP staff, moose is a yellow-listed species with concentrated herds in the lower elevations (e.g. Mitchell River, Niagara Creek, Blue Lead Creek, Wasko Creek). Smaller groups of animals occasionally winter at higher elevations in specialized habitats (e.g. north side of Mitchell Lake, upper Niagara). Their potential role in the relationship between mountain caribou and wolves has been described in many WLAP publications, and we understand that the ways in which forest harvesting will occur in the area has been designed – at least to some degree - to help to manage moose populations.

The maps of “critical moose habitat” that have been provided to us by WLAP show a small number of areas that are adjacent to our proposed ski runs (e.g. Penfold). We will record any sightings of these animals or their tracks in these (and other) areas (with particular emphasis on the “yards” that are used regularly in winter), provide these to WLAP staff annually, and use these sightings to plan flight routes to minimize any disturbance to wintering animals.

8.2.6 Wolves, Fur-bearers and Other Wildlife Species

In discussions with WLAP staff, and based on our experience in other areas, it appears that there is little impact on these species. However, we will monitor sightings of these species as part of our regular day-top-day programs, and we will provide these records to WLAP annually.

In particular, wolverines occupy large home ranges and are expected to occur within the operating area. Winter is a critical time for the animals. We know from our experience in other areas that female wolverines establish natal dens in mid-late February, often in non-forested micro-habitats in upper-elevation forested zones. We propose to work with WLAP staff over time to identify any of these specific den locations that might occur in the operating area, and to maximize our separation (while both flying and skiing) from these sites.

8.2.7 Waterfowl

We understand that WLAP staff has some concern about the potential impacts of over-flights on over-wintering waterfowl (such as the Tundra Swan) in the lower Mitchell River (and its associated delta). We recognize the sensitivity of these species, and suggest that we will normally fly over such an area at high altitude because of the need to move from one skiing area to the next without losing elevation. We will use a minimum ceiling of 600 m (2000 ft) above such areas, except in emergencies.

8.2.8 Fishery and Aquatic Issues

It is clear that the area contains high fishery values. However, our high-elevation operations should not create any impacts on fish or their habitats. We will work with MOF and WLAP if and when

we look to creating openings (or enlarge existing openings) in or near riparian areas. Our concern for overall water quality is shown through our commitment to leading-edge fuel containment and waste management systems.

9.0 LAND PLANNING ISSUES

The proposed operating area is within the area covered by the CORE Cariboo – Chilcotin Land Use Plan (CCLUP) of 1994 and the subsequent implementation initiatives by government. Portions of the area were also the focus of earlier processes such as Parks Plan 90 and the Protected Areas Strategy.

The CCLUP process resulted in recommendations for the creation of a new protected area known as “Mitchell Lake.” This has since become the new Cariboo Mountains Provincial Park, which is adjacent to the operating area. The plan also recommended the designation of large “Sensitive Development Zones” in the Niagara \ Penfold and Quesnel Highlands; these have since been designated as Special Management Zones because of the presence of high ecological, recreational and mineral values or other factors. Our approach to dealing with these values is outlined in other sections of this plan, but our use of the area appears to be compatible with all aspects of this plan.

The only other relevant plan of which we are aware is the Horsefly Sub-Regional Plan. This plan will likely set up broad objectives and strategies for recreation and tourism in the Horsefly District (primarily the south end of our operating area), and will set the stage for detailed landscape level planning. We will continue to work with BCAL and MSRM to ensure that our activities are consistent with the plan (and vice versa).

We recognize that other such plans (either at the sub-regional or landscape scale) may happen in the future, and we commit to being active players in any future planning processes in the area.

APPENDIX 1 - MITIGATION OF WILDLIFE ISSUES ON A RUN-BY-RUN BASIS

Runs listed below are those with specific identified wildlife issues that have been discussed with Wildlife staff; all other ski runs on management plan maps (see attached) will be dealt with in the manner outlined in the management plan text. Standard adaptive procedures (see text above) apply on runs with blank “fields.”

(For the purpose of this table, assume that sightings of animals can be the animals themselves **or their tracks**)

SKI ZONE	RUN NAME	NATURE OF WILDLIFE ISSUE	MITIGATION MEASURES
SOUTHERN LAKES AND HIGHLANDS			
	Blue Lead 1	Overlap with “high capability” caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Blue Lead 2	Proximity to mountain goat winter range to the north that sees intermittent use by goats. Overlap with “high capability” caribou habitat	Use adaptive approach – no skiing when goats are observed in these ranges, or when caribou present
	Blue Lead 3	Proximity to mountain goat winter range to the north that sees intermittent use by goats. Overlap with “high capability” caribou habitat	Use adaptive approach – no skiing when goats are observed in these ranges or when caribou present
	Blue Lead 4	Overlap with “high capability” caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Blue Lead 5	Proximity to mountain goat winter range to the north that sees intermittent use by goats. Upper portion of run in high capability caribou habitat	Use adaptive approach – no skiing when goats are observed in these ranges. The upper drop-off for this run is located inside Cariboo Mountains Provincial Park. Field reviews will determine if there is a (viable) lower drop-off or if it is useful to approach BC Parks for a PUP.
	Summit 1	Upper portion of run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Killdog 1	Upper portion of run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Killdog 2		
	Bill Miner 1	Upper portion of run in high capability and X-hatched habitat	When in the area, the caribou are expected to be on ridges because the ski terrain itself is much too steep for them. Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present.
			When in the area, the caribou are expected to be on ridges because

	Bill Miner 2	Upper portion of run in high capability and X-hatched habitat	the ski terrain itself is much too steep for them. Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Bill Miner 3	Upper portion of run in high capability and X-hatched habitat	When in the area, the caribou are expected to be on ridges because the ski terrain itself is much too steep for them. Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Bill Miner 4	Upper portion of (if not entire) run in high capability and X-hatched habitat	The run is primarily a very steep, open avalanche chute. It is anticipated that caribou will rarely if ever use / occupy this run. Use adaptive approach – no skiing on run when caribou present
	Bill Miner 5	Upper portion of run in high capability and X-hatched habitat	We expect that this run could be used by caribou as a travel corridor between habitat areas to the east and west. While we will review run in field to determine if lower pick-up can be located / developed, we will remove the run from the active run list.
	Bill Miner 6	Upper portion of (if not entire) run in high capability habitat	Use adaptive approach – no skiing on run when caribou present
	Bouldery 1	Top portions of run located in mountain goat winter range	Remove run from active ski run list
	Bouldery 2	Run in high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Bouldery 3	Upper portion of run in high capability habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Bouldery 4	Upper portion of run in high capability habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Wasko 1	Proximity to mountain goat winter ranges with frequent to occasional use by goats; escape terrain at west end. Overlap with high capability caribou habitat	Use adaptive approach (no skiing when goats (or caribou) are in habitat) and develop pick-up further downstream to maximize separation
	Wasko 2		
	Wasko 3		
	Wild Ride		
	Isaiah 1	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Isaiah 2	Drop-off within high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Isaiah 3	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
		Proximity to small pockets of winter range (small rock	

	Isaiah 4	bluffs) along north side of Isaiah Creek and on opposite (south) side of same ridge complex. Overlap with high capability caribou habitat	Remove from active run list for 2002-2003 and review location of goats (and caribou) during that period
	Isaiah 5	Proximity to small pockets of winter range (small rock bluffs) along north side of Isaiah Creek and on opposite (south) side of same ridge complex. Overlap with high capability caribou habitat	Remove from active run list for 2002-2003 and review location of goats (and caribou) during that period
	Isaiah 6	Proximity to small pockets of winter range (small rock bluffs) along north side of Isaiah Creek and on opposite (south) side of same ridge complex. Overlap with high capability caribou habitat	Remove from active run list for 2002-2003 and review location of goats (and caribou) during that period
	Isaiah 7	Proximity to small pockets of winter range (small rock bluffs) along north side of Isaiah Creek and on opposite (south) side of same ridge complex. Overlap with high capability caribou habitat	Remove from active run list for 2002–2003 and review location of goats (and caribou) during that period
	ROARING ZONE		
	Roaring 1	Upper portion of run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 2	Upper portion of run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 3	Upper portion of run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 4	Upper portion of run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 5	Upper portion of (if not entire) run in high capability and X-hatched habitat	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 6	Proximity to mountain goat winter range used intermittently by goats. Upper portion of run in high capability and X-hatched habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges. Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff
		Proximity to mountain goat winter range used	Use adaptive approach – no skiing when goats (or caribou) are

	Roaring 7	intermittently by goats. Upper portion of run in high capability and X-hatched habitat	observed in these ranges. Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff
	Roaring 8	Proximity to mountain goat winter range used intermittently by goats. Upper portion of run in high capability and X-hatched habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges. Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff
	Roaring 9	Adjacent to mountain goat winter range that is used intermittently by goats. Some overlap with high capability caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
	Roaring 10	Adjacent to mountain goat winter range that is used intermittently by goats. Some overlap with high capability caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
	Roaring 11	Adjacent to mountain goat winter range that sees intermittent use by goats. Some overlap with high capability caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
	No Refer	Small pocket of mountain goat winter range to southwest of drop-off that is used intermittently by mountain goats. Upper portion of (if not entire) run in high capability and X-hatched habitat	The upper portion of the run is steep open alpine, and after a 100 m traverse, it moves out onto an open 40° slope. In our opinion, It is very unlikely that caribou will be on or near this run. Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges. Review in field with WLAP and BCAL staff
	Roaring 12	Some overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Roaring 13	Adjacent to mountain goat winter range that sees intermittent use by goats. Upper portion of (if not entire) run in high capability and X-hatched habitat	This is a steep, open avalanche slope. Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges.
	Roaring 14	Adjacent to mountain goat winter range that sees intermittent use by goats. Upper portion of (if not entire) run in high capability and X-hatched habitat	This is a pair of steep open avalanche slopes. Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
	Roaring 15	Adjacent to mountain goat winter range that sees intermittent use by goats. Some overlap with high capability caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
	Roaring 16	Adjacent to mountain goat winter range that sees intermittent use by goats. Some overlap with high capability caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
		Proximity to mountain goat winter range to north that	Pick-up skiers at western end of run, as close as possible to Roaring

	Roaring 17	sees consistent use by goats (vicinity of Roaring 22). Upper portion of run in high capability and X-hatched habitat	8. Review run in field to determine if lower pick-up can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 18	Proximity to mountain goat winter range to north that sees consistent use by goats (vicinity of Roaring 22). Upper portion of run in high capability and X-hatched caribou habitat	Pick-up skiers as far upstream as possible to maintain separation from south-facing terrain to north. Review run in field to determine if lower pick-up can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 19	Upper portion of run in high capability and X-hatched caribou habitat	Review run in field to determine if lower pick-up can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing when caribou present
	Roaring 20	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	Remove run from active run list.
	Roaring 21	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	Remove run from active run list.
	Roaring 22	Proximity to mountain goat winter range to west that sees consistent use by goats. Upper portion of run in high capability and X-hatched caribou habitat	Remove run from active run list
	Roaring 23	As above re goats. Upper portion of run in high capability and X-hatched caribou habitat	Make this run wider and use only when mountain goats are not observed on the adjacent winter range. Review run in field to determine if lower pick-up can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Roaring 24	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	This is a high alpine run that is well above tree-line; use by caribou is very unlikely. Use adaptive approach – no skiing on run when caribou present
	Roaring 25	Along edge of high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Roaring 26	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	This is a high alpine run that is well above tree-line; use by caribou is very unlikely. Use adaptive approach – no skiing on run when caribou present
	Lake Side	Upper portion of run in high capability and X-hatched caribou habitat. Consistent use goat habitat around corner to the south-east.	Review run in field to determine if lower drop-off can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Lynx 1	Drop-off on edge of high capability caribou habitat.	Review in field to determine if a lower drop-off can be developed to shield goat area; re-review with WLAP and BCAL staff

	Lynx 2	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	Upper portion is in high alpine; run only used in good weather. We suggest that the sightability in the lower portions of the run will be high because of sparse tree cover and timing of use. Use adaptive approach – no skiing on run when caribou present
	Lynx 3	Use adaptive approach – no skiing on run when caribou present	Use adaptive approach – no skiing on run when caribou present
	Lynx 4	Proximity to mountain goat winter range to the north-east that sees intermittent use by goats	Skiers to stay to western edge of this run to maximize separation from winter range (review logging plans to see if new cut-blocks might provide better pick-ups further to west) downstream)
	Lynx 5	Proximity to mountain goat winter range that sees intermittent use by goats on south side of same ridge and habitat to north that sees intermittent to consistent use; Upper portion of run in high capability and X-hatched caribou habitat	No skiing the run when goats (or caribou) are observed in these ranges, depending on their location. This is a run that will likely be used infrequently because of the anticipated frequent presence of wildlife. Review in field with WLAP staff for possibility of changing pick-up location.
	Lynx 6	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	This is a series of open avalanche chutes that reach an open meadow at pick-up; caribou use considered to be very unlikely. Use adaptive approach – no skiing on run when caribou present
	Lynx 7	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	Upper portion is in high alpine; run only used in good weather. We suggest that the sightability in the lower portions of the run will be high because of sparse tree cover and timing of use. Review run in field to determine if lower pick-up can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Lynx 8	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	Upper portion is in high alpine; run only used in good weather. We suggest that the sightability in the lower portions of the run will be high because of sparse tree cover and timing of use. Review run in field to determine if lower pick-up can be located / developed; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Lynx 9	Upper portion of (if not entire) run in high capability and X-hatched caribou habitat.	Upper portion is in high alpine; run only used in good weather. We suggest that the sightability in the lower portions of the run will be high because of sparse tree cover and timing of use. Review run in field to determine if lower pick-up can be located / developed Use adaptive approach – no skiing on run when caribou present
	Lynx 10	Proximity to mountain goat winter range immediately to east and west that sees intermittent – consistent use by goats	Remove run from active ski run list
	Lynx 11	Run within high capability caribou habitat and adjacent	Use adaptive approach – no skiing on run when caribou present

		to X-hatched area.	
	Lynx 12	Run within high capability caribou habitat and adjacent to X-hatched area.	Use adaptive approach – no skiing on run when caribou present
PENFOLD ZONE			
	Watt 1	Upper portion of (if not entire) run in high capability and X-hatched habitat.	While we propose to keep to western end of proposed run and/or develop a lower drop-off, we don't not know if this will be useable until such time as we can study it in detail and review with WLAP staff (winter set-up for 2002/2003). Use adaptive approach – no skiing on run when caribou present
	Watt 2	Close proximity to mountain goat winter range to north, which sees consistent use by goats. Upper portion of (if not entire) run in high capability and X-hatched habitat.	Remove from active run list
	Watt 3	Proximity to mountain goat range to north that sees consistent use by goats	Move pick-up as high as possible to maintain separation from mountain goat habitat to north. Review logging plans to see if any cut-blocks planned that will actually allow pick-ups for this run; re-review with WLAP and BCAL staff as this is clarified
	Watt 4 (a & b)		Review logging plans to see if any cut-blocks planned that will actually allow pick-ups for this run; re-review with WLAP and BCAL staff as this is clarified
	Watt 5	Entire run in high capability and X-hatched habitat.	Upper portion is in high alpine; run only used in good weather. We suggest that the sightability in the lower portions of the run will be high because of sparse tree cover and timing of use. Use adaptive approach – no skiing on run when caribou present
	Watt 6	Proximity to mountain goat winter range that sees consistent use by goats located to the south (and on the south-facing side of the same ridge); slight overlap with high capability caribou habitat	Use adaptive approach – use lower drop-offs or no skiing when goats are observed in these ranges, depending on their location Review in field to determine if a lower drop-off can be developed; re-review with WLAP and BCAL staff
	Watt 7	Proximity to mountain goat winter range that sees consistent use by goats located to the south (and on the south-facing side of the same ridge)); slight overlap with high capability caribou habitat	Use adaptive approach – use lower drop-offs or no skiing when goats are observed in these ranges, depending on their location. Review in field to determine if a lower drop-off can be developed; re-review with WLAP and BCAL staff
	Niagara 4	Proximity to high capability and X-hatched caribou habitat	Pick-up and drop-offs may be shielded from adjacent goat habitat by terrain features; review with WLAP and BCAL staff in field. Pick-up to be established above tree-line to avoid disturbance to caribou.

	#16A	Overlap with high capability caribou habitat; proximity to habitat used intermittently by goats	Use adaptive approach – no skiing on run when caribou present. Review in field to locate higher pick-up.
	Penfold 1	Overlaps with mountain goat winter range that sees intermittent use by goats. Overlap with high capability caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges
	Penfold 2	Overlap with high capability and X-hatched caribou habitat in upper portions of run	Review run in field with WLAP and BCAL staff re location of drop-off and pick-up with respect to tree-line and caribou habitat.
	Penfold 3	Overlap with high capability and X-hatched caribou habitat	Review run in field with WLAP and BCAL staff re location of pick-ups with respect to location of tree-line and caribou habitat.
	Penfold 4	Proximity to mountain goat winter range that sees intermittent use by goats. Lower portion of run overlaps with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats are observed in these ranges, depending on their location.
	Penfold 5	Lower portion of run overlaps with high capability and X-hatched caribou habitat	Review run in field to identify and develop pick-ups above caribou habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Penfold 6	Lower portion of run overlaps with high capability and X-hatched caribou habitat	Review run in field to identify and develop pick-ups above caribou habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Penfold 7	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 8	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 9	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 10	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 11	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 12	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 13	Lower portion of run overlaps with high capability and X-hatched caribou habitat	Review run in field to identify and develop pick-ups above caribou habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Penfold 14	Proximity to mountain goat winter range that sees intermittent use by goats. Lower portion of run overlaps with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats are observed in these ranges, depending on their location. Review run in field to identify and develop pick-ups above caribou habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	#16	Proximity to mountain goat winter range that sees intermittent use by goats. Lower portion of run overlaps with high capability and	Use adaptive approach – no skiing when goats are observed in these ranges, depending on their location. Review run in field to identify and develop pick-ups above caribou

		X-hatched caribou habitat	habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Penfold 15	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Penfold 16	Lower portion of run overlaps with high capability and X-hatched caribou habitat	Review run in field to identify and develop pick-ups above caribou habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Puff Chute	Lower portion of run overlaps with high capability and X-hatched caribou habitat	Review run in field to identify and develop pick-ups above caribou habitat; re-review with WLAP and BCAL staff Use adaptive approach – no skiing on run when caribou present
	Conn Creek	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
KIMBALL ZONE		Ski runs in Kimball Zone not to be used in winter 2002 – 2003 because of lack of knowledge about nature of potential ski terrain and wildlife habitat; leave in abeyance for future field reviews with WLAP and BCAL staff (see page 14)	
	Connection		
	Belch	Proximity to mountain goat winter range to north-east that sees consistent – intermittent use by goats	Use adaptive approach – no skiing when goats are observed in these ranges, depending on their location. Choose location for drop-offs that maximizes separation between helicopter and goats through terrain features. See zone note above
	Matthew 1		
	Matthew 2	Proximity to mountain goat winter range to north-east that sees consistent use by goats	Use adaptive approach – no skiing when goats are observed in these ranges, depending on their location. Choose location for drop-offs that maximizes separation between helicopter and goats through terrain features. See zone note above
	Matthew 6		See zone note above
	Kimball 1	Overlap with high capability and X-hatched caribou habitat	See zone note above
	Kimball 2	Overlap with high capability and X-hatched caribou habitat	See zone note above
	Kimball 3	Proximity to / overlap with mountain goat winter range that sees consistent use by goats. Overlap with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges, depending on their location. See zone note above
		Proximity to / overlap with mountain goat winter range	

	Kimball 4	that sees consistent use by goats. Overlap with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges, depending on their location. See zone note above
	Kimball 5	Proximity to mountain goat winter range on opposite (north side) of same valley that sees consistent use by goats. Overlap with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges, depending on their location. See zone note above
	Kimball 6	Proximity to mountain goat winter range on opposite (north side) of same valley that sees consistent use by goats. Overlap with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges, depending on their location. See zone note above
	Kimball 7	Proximity to mountain goat winter range on opposite (north side) of same valley that sees consistent use by goats. Overlap with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing when goats (or caribou) are observed in these ranges, depending on their location. See zone note above
	Kimball 8	Overlap with high capability and X-hatched caribou habitat	Use adaptive approach – no skiing on run when caribou present. See zone note above
TINSDALE ZONE		The runs in this zone are located within high capability caribou habitat that currently receives minimal use by caribou. Caribou use of the area may change over time as the animal population changes. The area also sees little use by mountain goats, but there is potential for them to become established within this mountain complex.	
	Tinsdale 1	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Tinsdale 2	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Tinsdale 3	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Tinsdale 4	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Antler 1	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Babcock 1		
	McKenna 1	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present

	McKenna 2	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	McKenna 3	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	McKenna 4	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Monkton 1	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Monkton 2	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Monkton 3	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Russian 1	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Russian 2	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present
	Russian 3	Overlap with high capability caribou habitat	Use adaptive approach – no skiing on run when caribou present