

Human-Grizzly Bear Conflict Mitigation Strategy

for the Mount Sproatt/Rainbow Mountain Alpine Trails

Prepared for:

Resort Municipality of Whistler

Prepared by:



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1.0 Table of Contents

2.0	<i>Executive Summary</i>	5
2.0	<i>Background</i>	6
3.0	<i>Grizzly Bears</i>	7
4.0	<i>Strategy Vision</i>	8
2.1	Objectives	9
2.3	Project Scope	9
2.4	Project Area: Mount Sproatt and Rainbow Mountain Alpine Trails	9
2.5	Roles and Responsibilities	10
2.5.1	First Nations	13
2.5.2	Province of British Columbia	13
2.5.3	Resort Municipality of Whistler	15
3.0	<i>Existing Conditions</i>	16
3.1	Biogeoclimatic Zones and Wildlife Habitat	16
3.2	Project Area Grizzly Bear Population	16
3.3	Bear Risk Assessment	18
3.4	Overview of Current Users in Project Area	18
3.5	Alpine Trail Management Zones	20
3.5.1	Zone 1 -Mount Sproatt	20
3.5.1.1	Public Use	20
3.5.1.2	Commercial Use	20
3.5.1.3	Industrial Use	21
3.5.2	Zone 2: Rainbow - 21 Mile Creek Watershed	21
3.5.2.1	Public Use	21
3.5.2.2	Commercial Use	21
3.5.3	Zone 3: Rainbow-19 Mile Creek/Skywalk	21
3.5.3.1	Public Use	22
3.5.3.2	Commercial Use	22
3.5.4	Public Use Summary	22
3.6	Current Mitigation and Response Plans	23
5.0	<i>Human-Grizzly Bear Conflict Mitigation Strategies</i>	23
4.1	Objective 1: Actions to Minimize Impacts of Recreation Trail Use on Grizzly Bear Habitat and Use Patterns	24
4.1.1	Planning and Trail Modifications	24
4.1.2	Existing Trail and Amenity Relocations	24
4.1.3	Sightline maintenance	25
4.1.4	Future Potential Infrastructure	25
4.2	Objective 2: Actions to Minimize Human Interactions with Grizzly Bears	26
4.2.1	Public Education and Communication	26
4.2.2	Bear Awareness	26
4.2.3	Signage	27

4.2.4	Social Media Campaign	27
4.2.5	Attractant Management	27
4.2.6	Improve Data Collection and Trail Counter Plan	28
4.2.7	Enforcement	29
4.2.8	Dog Restrictions	29
4.2.9	Seasonal Restrictions and Closures.....	30
4.2.10	Area Restrictions and Closures	30
4.2.11	Limit User Numbers	31
4.2.11	Alpine Trail Ranger Program	31
5.0	<i>Grizzly Bear Response Plan</i>	32
5.1	Responding to Conflicts with Grizzly Bears	33
6.0	<i>Communication Response Protocol</i>	33
6.1	Grizzly Bear Response Communication Plan.....	33
6.2	Grizzly Bear Response Plan Contact List	37
7.0	<i>Conclusion.....</i>	38
8.0	<i>References</i>	39
9.0	<i>Appendices.....</i>	40
	Appendix A: Non-Compliant Tracking Table	40
	Appendix B: Summary of Recommendations	41
	Appendix C: Trail Planning Working Group (TPWG) Members.....	54
	Appendix D: Acronyms	55

List of Maps and Figures

Map 1: Project Area	11
Map 2: Trail Maps and Zones.....	12
Map 3: Commercial Recreation Tenure Map	19

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2.0 Executive Summary

Grizzly bears in the Mount Sproatt and Rainbow Mountain area near Whistler, BC are part of the Squamish-Lillooet Grizzly Bear Population Unit (GBPU). Currently listed as threatened, they are being managed for recovery by the Province of BC. Recent studies within this area reveal that grizzly bears are starting to recover in the Squamish-Lillooet GBPU.

A series of authorized hiking and mountain biking trails were opened on Mount Sproatt and Rainbow Mountain in mid-summer 2017 to offer an exceptional backcountry alpine experience. The network includes almost 40 kilometers of alpine trails and in the summer of 2018 there were approximately 2,500 users to the area each month for a total of approximately 14,000 users throughout the summer-fall season.

This strategy was developed in response to grizzly bear incidents on the alpine trail system that resulted in trail closures from mid-September to mid-November 2018. The strategy was prepared by the Planning Team, consisting of the Recreation Sites and Trails (RSTBC) Recreation Officer, the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNR) Sea to Sky District Biologist, the Conservation Officer Service (COS) and Resort Municipality of Whistler (RMOW) staff, with early stage research and report writing by Grey Owl Consulting.

The strategy identifies the following objectives and key recommendations:

Strategy Objectives	Key Recommendations
Identify actions to minimize impacts of recreation trail use on grizzly bear habitat and use patterns	Complete a vegetation and habitat mapping analysis to determine areas of high value grizzly bear habitat and 'hot spots' used by bears
	Future trails, campsites and other amenities must avoid high value habitat and forage
	Conduct annual monitoring programs and modify trails as required.
Identify actions to minimize human interactions with grizzly bears on alpine trail system	Develop a comprehensive and consistent public education and communication strategy
	Develop a trail counter and remote camera plan ensuring locations are suitable for maintenance and data collection.
	Continue to prohibit dogs above the Flank trail year round.

Create a response and communications plan to guide decision-making in the event of grizzly bear presence in the alpine trails area	Ensure all relevant agencies receive the response plan and train their staff.
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In Section 4, the strategy identifies actions to minimize impacts of recreation trail use on grizzly bears and their habitat, and to minimize human interactions with grizzly bears. A grizzly bear response plan and communication response protocol was also developed and included in Sections 5 and 6. A summary of all recommendations is included as Appendix B.

2.0 Background

Whistler B.C. is a summer and winter destination. Summer alpine activities include hiking, mountain biking, backpacking and trail running. From 2010 to 2013, the RMOW worked with trail partners and agencies to develop an alpine trail network on Sproatt and Rainbow Mountains. The rationale to provide an alpine trail experience for the resort community was based upon the following items:

- Emerging public use of the Mount Sproatt area, the ensuing potential unmanaged impacts to alpine environments and the municipal water supply, and the desire to be proactive rather than reactive about managing use;
- Whistler Recreational Cycling Plan and Cycling Trails Masterplan endorsed by Council in 2006;
- Recommendations to Council from the Report on Whistler Area Hiking Trails (2010-2012) prepared by a subcommittee of the municipal Forest and Wildland Advisory Committee (FWAC), with a proposal to build a significant alpine hiking system in the Whistler area which resulted in significant funding from Council;
- The Garibaldi Park Management Plan Amendment for the Spearhead Area (2012-2014);
- Concerns regarding existing and further recreational use of the 21 Mile Creek municipal watershed, which led to an assessment in 2014 and the 21 Mile Source Water Protection Plan in 2015; and
- Development of an *Adventure Tourism Tenure Management Plan Replacement (2014-asf2016)* for Canadian Wilderness Adventures including expanded trail networks and associated commercial tenure services on Mount Sproatt, which would result in increased unmanaged public access in the adjacent alpine area.

Through the municipally-led Trails Planning Working Group (TPWG), a series of new trails were planned and several existing trails were proposed to be enhanced. As required under Section 57 of the Forest and Range Practices Act (FRPA), the RMOW, and on behalf of the Alpine Club of Canada-Whistler Chapter (ACC-W) and Whistler Off-Road Cycling Association (WORCA), completed an application to RSTBC. RSTBC reviewed the application and through its referral process circulated the application to the District and Regional wildlife biologists, the regional water quality biologist, the Squamish and Lil'wat Nations, the COS, the Squamish Lillooet

Regional District (SLRD), the Cheakamus Community Forest, commercial recreation tenure holders, relevant industries, and others.

A Section 57 Authorization to construct the new trails was awarded by RSTBC in 2014 and trail construction began shortly thereafter. Significant improvements were made to the existing Rainbow-Madeley hiking trail by RSTBC and RMOW, in particular, the segment within the municipal watershed. A new hiking-only trail network on Rainbow Mountain was developed (collectively referred to as the Skywalk network) by ACC-W and a new network of non-motorized multi-use trails on Mount Sproatt were developed by the RMOW and WORCA. The Mount Sproatt trails are particularly well used by the mountain bike community. Like many other recreational assets in the Sea to Sky corridor the trails have become very popular, thus increasing the public use of these areas. All trails developed under the Section 57 authorization now have Section 56 authorization as well.

In late summer 2018, three separate bear encounters occurred in these alpine areas. The first bear encounter occurred on the Skywalk Trail where the bear species was not confirmed. The second encounter was a confirmed grizzly bear and occurred when an off leash dog instigated the encounter, leading the bear back toward the human owner. The local area was closed resulting from this situation. A third confirmed grizzly bear encounter occurred in the Rainbow Lake area outside of the area closed from the previous grizzly bear encounter, where visitors were illegally camping within the municipal watershed. The COS responded immediately to the area but the bear had left before the COS arrived. The COS recommended that the entire Rainbow and Sproatt trail networks above the Rainbow-Sproatt Flank trail (referred to as the Flank trail) be closed until further notice. The RMOW and relevant partners worked closely with COS by installing area closed signs, providing ongoing monitoring of all access points, and increasing public communication. The area re-opened in mid-November for winter recreational activities when it was confirmed that collared grizzly bears in the area had dened for the winter.

Due to the human-bear conflicts and subsequent trail closures in 2018, the RMOW, RSTBC, FLNR and the COS determined that a grizzly bear conflict mitigation strategy and response plan was needed for the Sproatt-Rainbow alpine trails. As a key alpine trail manager, the RMOW took the lead to develop the strategy with support, input and review from COS, RSTBC, other provincial agencies, the TPWG and through the provincial referral system, First Nations. The strategy provides several mitigation strategies to minimize conflicts between humans and bears in the Sproatt-Rainbow area and also provides a communication response protocol for local and regional land managers if and when grizzly bears are present in this area.

3.0 Grizzly Bears

There are approximately 15,000 grizzly bears in British Columbia which is about a quarter of the North American population. Of the fifty six extant grizzly bear population units in BC, nine are classified as threatened.

Grizzly bears are a significant part of the BC landscape. They are an important umbrella species as landscapes that support healthy grizzly bear populations will be able to sustain many other species. They play a key role in maintaining healthy ecosystems, for example, by distributing salmon nutrients into forests and transporting seeds through their feces. They are also an important part of First Nations' cultures.

Habitat quality and population density vary widely across the province. The cumulative effects of human development are the greatest threat to grizzly bears in BC. These effects impact the bears in overlapping ways:

- Conflicts between bears and humans increase in frequency, often resulting in bears being killed or relocated;
- Bear populations become isolated because of human settlements, agriculture, and utility corridors in major valley bottoms;
- Habitat may be lost or degraded by development, alienated through bears' avoidance of humans and human activities, or fragments – for example, by high density road networks with high traffic volumes.¹

4.0 Strategy Vision

The recovery and long-term viability of this area's threatened grizzly bear population is a goal of the Province of British Columbia's Sea-to-Sky Land and Resource Management Plan (LRMP) which is supported by both the Lil'wat and Squamish Nations. In 2014, the RMOW Council passed a resolution supporting grizzly bear recovery as well as encouraging the Province to develop grizzly bear recovery plans as soon as possible. The SLRD passed a similar resolution as it also plays a role in approving and managing commercial recreation and other development in the area. While grizzly bear management and recovery is a provincial responsibility, this strategy focuses on reducing grizzly bear-human conflicts on the approved alpine recreation trails. The vision of the strategy is that:

- Grizzly bears in the Sproatt-Rainbow alpine area are able to effectively utilize their natural habitats without conflict.
- Recreational users are able to enjoy their recreational activities and also understand their roles and responsibilities to minimize disturbance and avoid encounters with grizzly bears and other wildlife.
- Recreational users will comply with necessary recommendations stemming from this strategy, if and when they are needed.

¹ Plant and Animals, Environmental Reporting BC - <http://www.env.gov.bc.ca/soe/indicators/plants-and-animals/grizzly-bears.html>

- The strategy is supported and implemented by municipal and provincial authorities and the public understands and supports these efforts.

2.1 Objectives

The strategy will guide decision-making for reducing impacts on grizzly bears and their habitat, managing recreation use of the trails, and communicating with the public in the event of grizzly bear presence in the alpine trail area. It is not intended to manage grizzly bears or their recovery. The strategy objectives are to:

1. Identify actions to minimize impacts of recreation on grizzly bear habitat and use patterns;
2. Identify actions to minimize human interactions with grizzly bears on alpine trails; and
3. Develop a response and communications plan.

2.3 Project Scope

The planning team met in December 2018 to review and discuss the 2018 Sproatt and Rainbow wildlife encounters.

The COS, RSTBC and FLNR provided their support for the RMOW to develop a local strategy that would address the areas where the RMOW and local clubs have invested considerable resources in the construction of alpine trails.

This conflict mitigation strategy will provide key mitigation strategies for minimizing human-grizzly bear conflict, provide and a grizzly bear response plan if and when grizzly bears are present in the area and outline a communication response protocol.

2.4 Project Area: Mount Sproatt and Rainbow Mountain Alpine Trails

The project area lies partially within and mostly outside of the RMOW boundary, within the Squamish Lillooet Regional District, and within the traditional territories of the Lil'wat Nation and Squamish Nation (Figure 1). Both First Nations have developed management direction for the land in their respective land use plans. According to the Lil'wat Nation's Land Use Plan the project area sits within the Sú7a (Lower Soo) Conditional Economic Development Area.² Management direction states that environmental and cultural interests exist throughout Sú7a but tourism development may be suitable if Lil'wat environmental, cultural and economic interests are met.³ The Squamish Nation lands are governed by their Xay Temixw (Sacred Land) Land Use Plan and this area lies within a Restoration Area Land Use Zone.⁴

² Lil'wat Land Use Plan: Phase 1, August 1, 2006

³ Lil'wat Land Use Plan, p.74

⁴ www.squamish.net

The project area is defined as the Sproatt/Rainbow Alpine Trails and encompasses all trails on Mount Sproatt above the Flank trail and as far west as the Northair Mine and Madeley Lake, all of the 21 Mile Creek watershed trails above the Flank trail, and the 19 Mile Creek Skywalk trails above the Flank trail, including Iceberg and Screaming Cat Lake (Figure 2). For the purposes of this report, three distinct zones have been established within this large area:

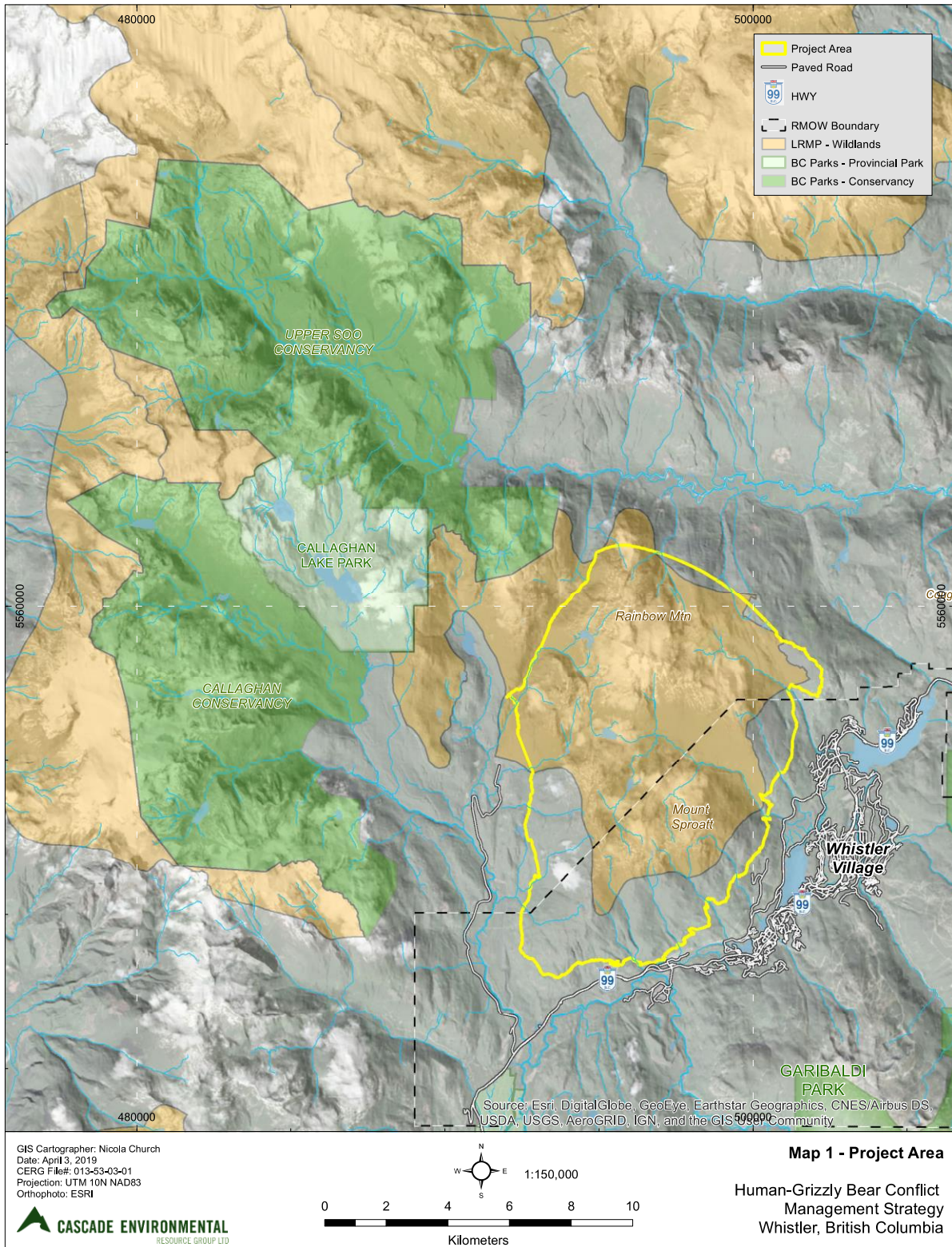
Zone 1: Mount Sproatt

Zone 2: Rainbow - 21 Mile Creek watershed

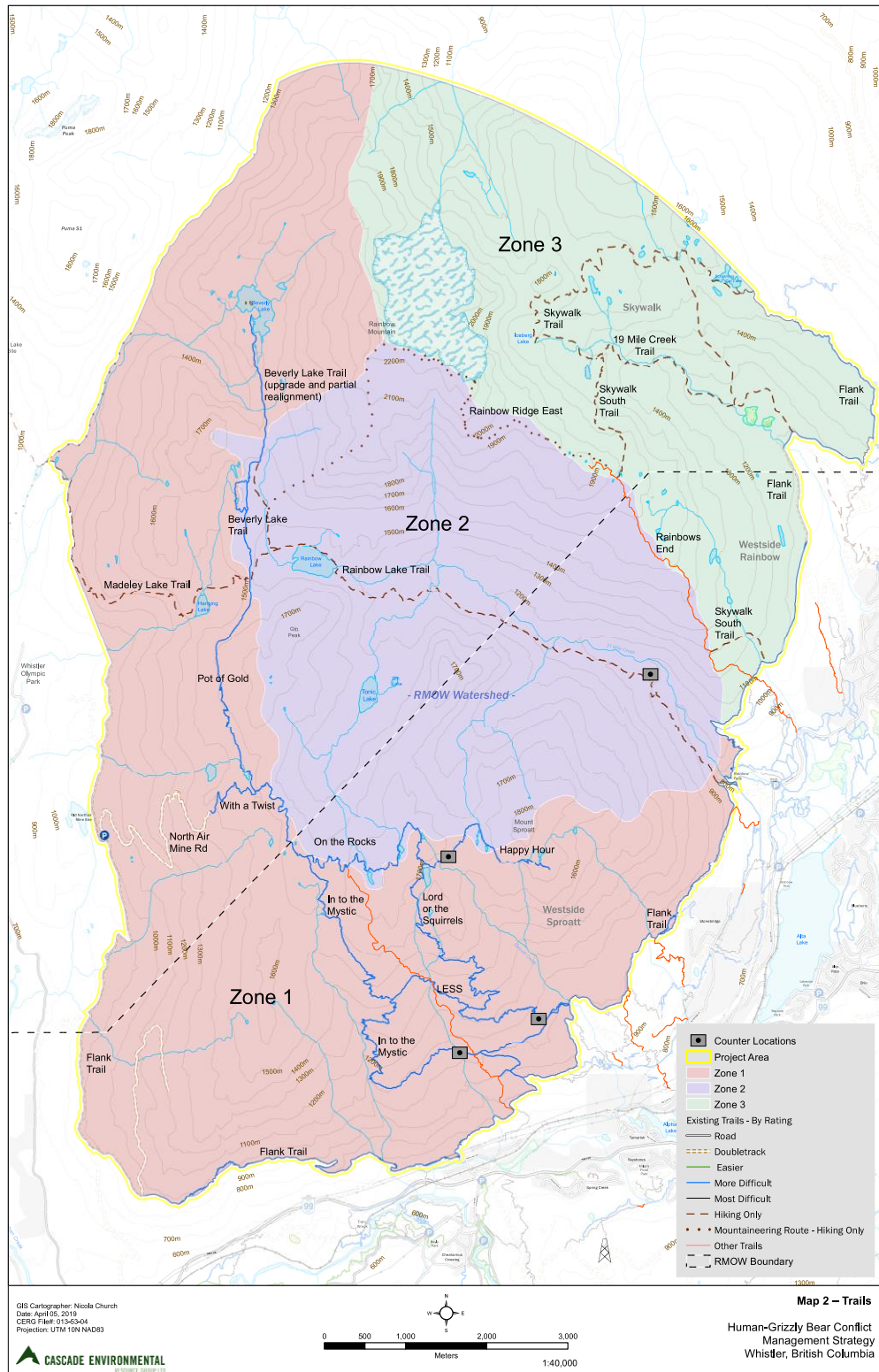
Zone 3: Rainbow - 19 Mile Creek/Skywalk

2.5 Roles and Responsibilities

The Sproatt/Rainbow area is jurisdictionally comprised of the following First Nation, provincial, and municipal government agencies working closely together to ensure public safety and the protection of wildlife and deliver recreational opportunities: Lil'wat Nation, Squamish Nation, Province of British Columbia (FLNR, RSTBC and COS) and the RMOW. Other partners/stakeholders include WORCA, ACC-W, Coast to Cascades Grizzly Bear Initiative, SLRD and commercial recreation tenure holders.



Map 1: Project Area



Map 2: Alpine Trails and Project Area Zones

2.5.1 First Nations

Both the Lil'wat and Squamish Nations have an established process for reviewing activities that take place on Crown land within their traditional territory. Both Nations reviewed the initial alpine trail plan through the provincial referral process. They also reviewed this strategy.

During the Section 57 application and Provincial referral process, the Lil'wat Nation conducted a cultural and archaeological assessment of the area and provided no objections to the construction of the trails.

2.5.2 Province of British Columbia

The Province of British Columbia is responsible for Crown land management, including wildlife management, recreation and trails, conservation and public safety through various ministries and agencies. FLNR and the Ministry of Environment (MOE) are jointly responsible for managing wildlife including grizzly bears. The overall strategic direction for grizzly bear management is described in the government's Wildlife Program Plan (2010) and the Grizzly Bear Conservation Strategy (1995). The Province can use various tools through different pieces of legislation to protect and conserve important wildlife and sensitive habitats.

The *Forest and Range Practices Act* provides FLNR the ability to establish Wildlife Habitat Areas (WHA) which designate critical wildlife habitats. WHAs regulate and manage particular activities (primarily forestry related activities) to limit impacts on identified wildlife and their habitats.⁵ Through the establishment of Ungulate Winter Ranges (UWRs) areas are established to meet the habitat requirements of the ungulate species and maintain mountain goat winter ranges to provide high quality suitability habitat.⁶ The wildlife biologists for the area provide advice and guidance on wildlife management issues.

FLNR is also responsible for adjudicating and approving Adventure Tourism and Commercial Recreation tenures under the *Land Act*. As part of this review process, referrals are sent to First Nations, other agencies and stakeholders by the Authorization staff. Commercial recreation tenures are required to follow all applicable legislation and adhere to specific Provincial wildlife guidelines. Operations found in non-compliance can be subject to fines under the *Land Act* or *Wildlife Act*.

In 2008, the Province of BC completed the Sea to Sky LRMP which provided strategic direction for the management and use of provincially administered (Crown) lands and resources within the Sea to Sky area. The overall area of the plan encompasses approximately 1.1 million hectares of land. The Rainbow-Sproatt project area overlaps with an area that has been

⁵ Ministry of Environment (2006)

⁶ Ministry of Environment (2003)

designated as a Wildland Zone within the LRMP (WL #23-19 and 21 Mile Creeks - Upper Madeley).⁷ Wildland #23 has been designated with a recreation emphasis to reflect the non-commercial (public) recreational activity value. Specific management direction includes:

- No public motorized access or horse/pack animals permitted in 21-Mile watershed;
- Use of helicopters beyond the existing helicopter tenure is discouraged;
- No further expansion of motorized access in the area;
- Overnight camping is discouraged in the watershed, future recreational development will focus on minimizing the potential for water contamination;
- Exploration and development of minerals, aggregates, dimension stone, oil and gas, and geothermal resources is permitted; and
- Increase opportunities for First Nations to participate in commercial recreation and tourism.

The LRMP also outlines management direction for specific wildlife species within the Sea to Sky, of which the grizzly bears are included. The LRMP goals for grizzly bears are to:

- Achieve and maintain a Viable status for each of the four population units;
- Conserve critical bear habitat, including movement corridors;
- Reduce mortality of bears due to bear-human interaction;
- Reduce incidence of grizzly bear mortality within, and displacement from, critical habitats; and
- Reduce incidence of displacement and habituation of grizzly bears due to recreational activities.⁸

Grizzly bear recovery is mandated by the Provincial government and a strategy for provincial grizzly bear management is in progress. Work is currently underway within the Sea to Sky District to develop a regional framework for the Squamish-Lillooet GBPU and surrounding GBPUs.

The Sea to Sky District RSTBC Recreation Officer works with communities, First Nations, and stakeholder groups to balance the various values in land management decisions. The Recreation Officer approves trails and related infrastructure under Section 56 of FRPA and maintenance agreements/responsibility under Section 57. The authority to close any legally established trail rests with RSTBC under FRPA although the FLNR District Manager also has the authority to close an entire area of Crown land including tenured Commercial Adventure Tourism sites.

The COS is tasked with ensuring conservation of wildlife and public safety and may make recommendations to FLNR and RSTBC for trail and area closures. It has the authority to issue tickets to members of the public and/or commercial tenure operators for violations under the *Wildlife Act*. The COS has worked closely with the RMOW for many years to reduce the risk of human-black bear conflict in the Whistler Valley and through partnership funding, delivers a

⁷ [Sea-to-Sky LRMP pg. 108.](#)

⁸ Sea-to-Sky LRMP pg. 73

higher level of response to help Whistler maintain its Bear Smart Community status and meet community expectations.

2.5.3 Resort Municipality of Whistler

The RMOW-led Trail Planning Working Group (TPWG) was formed in 2012 in recognition of emerging community-wide alpine trail issues, and the desire of various stakeholders to develop an alpine trail network. The mandate of the TPWG is to provide a forum to coordinate and prioritize recreational alpine trail maintenance and development issues amongst land managers and stakeholders. The TPWG includes representatives from stakeholder community groups, agencies and governments (see Appendix D).

It was through the TPWG that the RMOW, WORCA and ACC-W successfully applied to RSTBC for the development of the alpine trail network on Sproatt and Rainbow Mountains. The RMOW Resort Experience Department is responsible for the management and maintenance of trails it has built under a *Forest and Range Practices Act* (FRPA) Section 57 authorization within RMOW boundaries and is developing a partnership agreement with RSTBC. WORCA and ACC-W are responsible for the trails they have built under the same authorization. The Province is responsible for trail management decisions outside of the municipal boundary, and solely responsible for grizzly bear management and recovery.

The RMOW recognizes that grizzly bears are present in the Sproatt and Rainbow alpine trail area and is taking the steps identified in this strategy to reduce the risk of human- grizzly bear conflict. At this time, the RMOW commits to supporting the following:

- No new trail construction until further information is gathered to indicate if and how the recreational amenities could be further developed safely. For clarity, the following work will be completed in 2019:
 - Completion of Pot of Gold trail above Sproatt Lake
 - Completion of the short loop trail at half way point of Beverley Trail
 - Completion of Last Call from Sproatt sub peak
 - Improvements to trail and existing camp sites at Hanging Lake including addition of two bear proof food storage bins
 - Proceed with process and approvals for installation of a research/education/ranger station and outhouse at the top of Into the Mystic
 - Installation of educational and regulation signage throughout network
- The RMOW draft e-bike policy adopted by Council on July 9, 2019 states that e-bikes should not be permitted on all hiking-only designated recreational trails and all recreational non-motorized trails located above the Flank Trail on Sproatt and Rainbow Mountains. In alignment and under its authority, RSTBC designated the trails with a no e-bike designation. Staff will monitor e-bike use over the next one to two years to understand changes, trends and issues, and then adapt or re-evaluate the proposed policy with public input where required
- Dogs are not currently permitted on the Rainbow Trail within the RMOW's watershed and no dogs will be permitted anywhere on the alpine trail system in 2019

- Alpine Ranger program doubled to operate 7 days a week on Sproatt and all weekends on Rainbow in 2019
- In 2019, the RMOW did not approve commercial and event use that accesses the Alpine Trail Network through municipal lands. Further input will be sought to determine if this position should be continued in the future and supported through a Provincial *Land Act* decision.
- Commitment to vegetation/habitat mapping for an area up to 200 km² in 2019 that will identify grizzly bear food sources, and aim to identify bear forage by season of use, use existing den site selection to model denning habitat, and develop seasonal habitat ratings
- South Flank Trail improvements put on hold until vegetation and habitat mapping completed

Management of the community's watershed is governed by the RMOW Twenty-One Mile Creek Watershed Source Water Protection Plan.⁹ The plan contains measures designed to minimize the impact to the source water quality. To this end, dogs, bikes, camping, fishing, motorized vehicles, horse or pack animals are prohibited within the watershed, and recreational trail use within the watershed area is monitored by the RMOW Infrastructure Services department.

3.0 Existing Conditions

3.1 Biogeoclimatic Zones and Wildlife Habitat

The Sproatt/Rainbow area is located in the Coast Mountain Range and occurs within the Coastal Western Hemlock (CWH), Mountain Hemlock (MH) and Alpine Tundra (AT) Biogeoclimatic zones. The Sproatt/Rainbow trail network extends through these three zones where there are short cool summers and long, wet and cool winters with 70% of the precipitation falling as snow.¹⁰ Four mountain goat Ungulate Winter Ranges (UWRs) exist within the project area and several mountain goat and moose UWR occur to the north in the Soo Valley. Two grizzly bear specific Wildlife Habitat Areas (WHAs) exist to the west of the project area in the Soo River and Callaghan Valley areas. The entire project area is suitable grizzly bear habitat as it provides food sources, security cover and travel corridors.

3.2 Project Area Grizzly Bear Population

There are 56 Grizzly bear population units (GBPUs) within the Province of BC, nine of which are threatened. The project area is within the Squamish-Lillooet GBPU, one of the five threatened GBPUs within the South Coast region. The government's primary objective for these threatened GBPUs is to recover them to a sustainable level. Recent studies suggest that grizzly bears are starting to recover in the Squamish-Lillooet Unit which is bordered to the east by the Squamish and Cheakamus Rivers and the Sea-to-Sky Highway. Sitting astride the southern end of the

⁹ RMOW (2015)

¹⁰ Homstol and Edwards (2018)

Coast Range, the Squamish-Lillooet grizzly bears have survived primarily in the headwaters of more remote valleys where the habitat is more secure. These include the Ryan River and the undeveloped headwaters of Callaghan Creek, the Soo, Elaho, Ashlu and Tzoonie River ¹¹.



Figure 1: Squamish-Lillooet Grizzly Bear Unit (source: Coast to Cascades Grizzly Bear Initiative website)

In 2018 there were two (2) collared bears in the project area. In 2004 there was one female and four male grizzly bears in the Callaghan area, and in 2018 there were 16 grizzly bears. ¹²

Threats to Squamish-Lillooet grizzly bears include:

- Impacts to core grizzly bear habitats and linkage habitats by existing and/or potential hydro-electric projects and their associated infrastructure and road improvements (e.g. the Upper Lillooet, Ashlu and Ryan River valleys);
- Poaching and human conflict-related grizzly bear deaths;
- Expanding commercial and public recreation - particularly motorized recreation - into important grizzly bear habitat;
- Declines in wild salmon.¹³

It is important to note that grizzly bears require a large home range and can be displaced easily from important foraging habitat. The Ryan River Watershed to the northeast of Whistler provides important grizzly bear habitat and supports GB recovery due to its high value habitat characteristics and limited human presence. Sampling of the grizzly bear population from 2004 onwards has shown an increase in population and new bears are expanding their occupied

¹¹ Coast to Cascades Grizzly Bear Initiative (<https://www.coasttocascades.org/populations>)

¹² Rochetta, S. (2019)

¹³ Coast to Cascades Grizzly Bear Initiative (<https://www.coasttocascades.org/squamish-lillooet>)

range. Both male and female grizzly bears are dispersing from the Ryan River to adjacent drainages, including the Sproatt/Rainbow area.¹⁴ The Sunshine Coast region, which is part of the Squamish Lillooet GBPU, is believed to be far below carrying capacity at this time. There is a chance that the grizzly bears from this area may migrate into the lesser utilized Sunshine Coast region.¹⁵

Provincial wildlife biologists believe that additional collaring of bears the Squamish Lillooet GBPU, and specifically the project area, would help determine how GBs are using some of the important alpine areas. Some prime habitat areas are experiencing increases in bear populations while at the same time, public recreation is also increasing.

3.3 Bear Risk Assessment

During the summer of 2018, the RMOW commissioned a bear risk assessment for the Mount Sproatt (Zone 1) and Rainbow-21 Mile Creek (Zone 2) trails and trail amenities by Wind River Bear Institute Canada (Homstol and Edwards, 2018). A bear risk assessment is conducted to identify risks to human safety, and to support bear conservation. The assessment considers habitat quality, attractant management and other factors such as trail alignments to identify risks and recommend mitigations. This can enable managers and recreational planners to mitigate or prevent human-bear conflict in a proactive manner.¹⁶ An additional grizzly bear habitat mapping exercise was undertaken in 2019 to provide further insight into the amount and types of vegetation that could be used by grizzly bear and seasonal uses. The information will be used to determine what, if any, changes are required to the existing trail system and to inform any plans that may move ahead in the future.

3.4 Overview of Current Users in Project Area

The RMOW Alpine Trail Program is a multi-year initiative focusing on Rainbow Mountain and Mount Sproatt. The goal is to restore popular hiking trails, provide new hiking and mountain biking trails, while managing use with respect to alpine environments and the municipal water supply area. A new priority is to manage use with respect to minimizing human-grizzly bear conflict. This popular alpine multi-use trail network is suitable for hiking, backpacking, trail running, and mountain biking and once complete in 2021 may include approximately 40 kilometers of alpine trails.

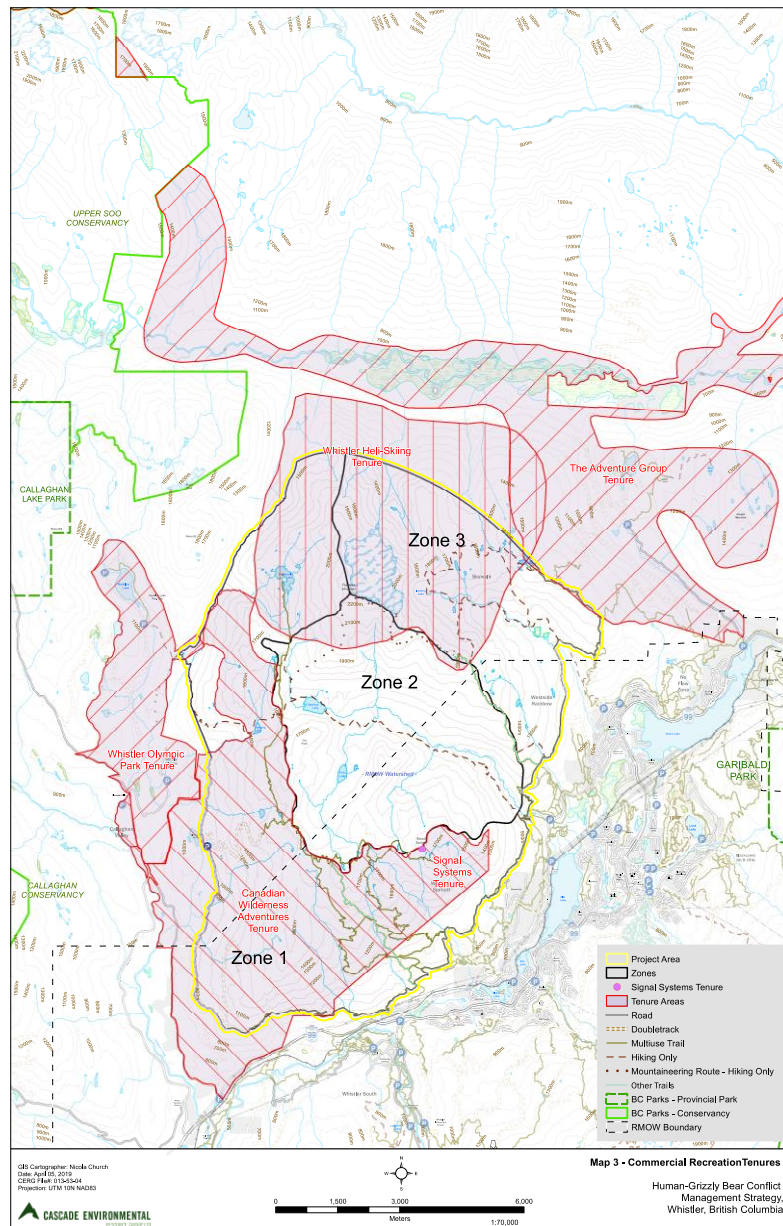
Public and tenured commercial recreational activities take place in the project area year round. This report focuses on non-motorized public use during the spring/summer/fall seasons but it should be noted that there is extensive public and commercial motorized use inside and adjacent to the project area, and ski touring use in all areas during the winter that is outside RMOW management jurisdiction. There are also two older motorized trials bike trails that have

¹⁴ Rochetta, S. (2019)

¹⁵ Rochetta, S. (2019)

¹⁶ Homstol and Edwards (2018)

historical use into the Sproatt and Rainbow alpine areas. While both of these have a historical use that has been unofficially accepted there is a recognition from the TPWG and RSTBC that proper authorization or a prohibition is required and are communicating with the local Trials Club.



Map 3: Commercial Recreation Tenure Map

Currently, the RMOW has the authority to deny permissions to hold special events or commercial operations on trails that are located on municipal lands. However the province holds authority for approving commercial recreation tenures on the crown land.

The emerging use of e-bikes is also occurring in alpine zones and policies and recommendations about their permitted use is underway. Currently, RSTBC and the RMOW have developed policies for the use of e-bikes in the province and for Whistler. Bikes of any kind are not allowed in the Rainbow-21 Mile Creek watershed (Zone 2) as per the 21 Mile Creek Source Water Protection Plan or the Rainbow-19 Mile Creek/Skywalk (Zone 3). It should be noted that an existing unauthorized mountain bike trail, Rainbow's End, is located within Zone 3 and accessed by helicopter as a downhill descent. The future of this trail is being considered by RSTBC. As per the RMOW's July 2019 policy and concurrence by RSTBC, e-bikes are not permitted above the Flank Trail and monitoring will determine if an alternate e-bike management strategy is warranted.

This conflict mitigation strategy addresses the RMOW's commitment and due diligence to managing the public, non-motorized recreation activities and maintenance associated with the trails for which it is authorized within the project area. Addressing the primary risks associated with grizzly bear disturbance in the form of motorized activity occurring on adjacent provincially-approved commercial recreation tenures is a responsibility of provincial land managers.

3.5 Alpine Trail Management Zones

To aid in managing activities and responses to issues in the alpine trail area, the project area is divided into three zones based on varying terrain, recreational uses and existing management direction for the 21 Mile Creek watershed. Mitigation strategies and closures may be implemented to the project area in entirety or to individual zones as needed.

3.5.1 Zone 1 -Mount Sproatt

This area encompasses all of the trails on Mount Sproatt above the Flank trail as far west as the Northair Mine and Madeley Lake and east to the 21 Mile Creek watershed boundary.

3.5.1.1 Public Use

A total of 25 kilometers of non-motorized, multi-use trails opened in August 2017 as the first phase of the Sproatt Alpine Trail Network. The trails typically open in later July/early August and are subject to snow melt and weather conditions. The trail network is largely utilized by mountain bikers, but hikers and trail runners use the area as well. Winter motorized use (snowmobile) also takes place in Zone 1. There are also two older motorized trials bike trails into the Sproatt and Rainbow alpine areas. While both of these have a historical use that has been unofficially accepted there is a recognition from the TPWG and RSTBC that proper authorization or a prohibition is required and are communicating with the local Trials Club.

3.5.1.2 Commercial Use

Canadian Wilderness Adventures (CWA) provides summer and winter motorized and non-motorized recreational opportunities in the Callaghan/Mount Sproatt area. All motorized activities take place outside the 21 Mile Creek watershed. A backcountry cabin exists at 1525 metres close to Mount Sproatt and is used in both winter and summer. CWA has proposed further trail developments within its tenure which are currently being reviewed by the Province. The Whistler Olympic Park (WOP) tenure provides winter recreational activities that were first developed for the 2010 Winter Olympics and now provides summer activities such as biking, hiking, roller skiing and sightseeing on its trail network.

3.5.1.3 Industrial Use

A small land tenure for a communication tower is held by Signal Systems and is located near the peak of Mount Sproatt. Access for maintenance and repairs is by helicopter.

3.5.2 Zone 2: Rainbow - 21 Mile Creek Watershed

This zone encompasses all of the 21 Mile Creek watershed above the Flank trail.

3.5.2.1 Public Use

The Rainbow Lake Trail has been in existence for approximately 30 years and is a very popular hiking-only trail. Significant upgrades to the trail system were completed in 2014 and 2015 by RSTBC and the RMOW. The trail is approximately 8 km long, rising close to 850 metres (2,800 feet) to Rainbow Lake in the 21 Mile Creek watershed. Public motorized access into the watershed is prohibited. Dogs, biking, camping and fishing are also prohibited within the watershed.

3.5.2.2 Commercial Use

Whistler Heli-Ski holds a long standing heli-skiing tenure in the Rainbow Mountain (Zone 2) area. There is some non-tenured summer use which includes helicopter access for mountain biking to the top of a descent trail called “Jaws” (aka Rainbows End). The trail starts in Zone 3 and traverses into sections of Zone 2 (see Figure 2). The trail is being accessed regularly by helicopter for mountain bike descents in the snow-free months. This activity is not an authorized tenure and runs counter to the LRMP’s management direction to discourage the use of helicopters beyond the existing helicopter tenure held by Whistler Heli-Skiing. Neither Zone 2 or 3 support mountain biking and this use is currently under review by the Province.

3.5.3 Zone 3: Rainbow-19 Mile Creek/Skywalk

This zone includes the 19-Mile/Skywalk Trail network above the Flank Trail including Iceberg and Screaming Cat Lakes and west to the 21 Mile Creek watershed boundary.

3.5.3.1 Public Use

This zone includes a hiking-only trail network. The Alpine Club of Canada-Whistler Chapter (ACC-W) upgraded an existing hiking trail route and added new sections to complete the Skywalk Trail. This work was authorized by RSTBC and completed in August 2017 by the ACC-W who are responsible for trail maintenance and oversight.

3.5.3.2 Commercial Use

The Adventure Group (TAG) has a tenure on the eastern boundary of Zone 3. Motorized summer use and winter activities are offered. Whistler Heli-Skiing has tenure in the upper portions of Zone 3 for winter use only.

As described in the Zone 2 Commercial Use section, the start of Rainbow's End trail is in Zone 3.

The tenured commercial activities utilizing motorized recreation, increasing helicopter use, public snowmobile activity and unsanctioned motorized use within Zone 3 are additional activities that pose a well-documented risk to grizzly bears. All untenured activities should be reported to the Province through the Natural Resource Violation Line.

3.5.4 Public Use Summary

The following table is a summary of visitor use in the area which is obtained from counters at the start of each trail network. This data is collected by the RMOW and provided to the RSTBC Recreation Officer on an annual basis. The counter does not distinguish between user types but the summary numbers account for users returning on the same trail.

Year	Trail Count Time Period	Zone 1 Mount Sproatt	Zone 2 Rainbow-21 Mile Creek	Zone 3 Rainbow-19 Mile Creek /Skywalk	TOTAL
2017 Summer Operating Season	August 4- October 12	6274	N/A ¹	N/A ²	6274
2018 Summer Operating Season	July 19- September 14	5556			11,501 ³
	July 1- September 14		5945		
2018 Closure Period	September 15-October 15	256 ⁴	86		342
2019 Summer					

Operation Period					
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NOTES:

- ¹ Rainbow counter failed- no data
- ² There is no counter on the Skywalk Trail
- ³ Total for Sproatt Alpine and Rainbow
- ⁴ During the first 30 days of the bear closures for the Rainbow/Sproatt area, 256 users accessed the area.

3.6 Current Mitigation and Response Plans

Since 1995, the RMOW has actively tried to manage bear attractants and educate the public in an effort to reduce the risk of human-black bear conflicts in the community. The Whistler Bear Advisory Committee (a select committee of RMOW council) was established in late 2015 from the long-standing Bear Working Group to promote black bear conservation, and the minimization and management of human-bear conflicts in the RMOW. The committee provides ongoing public education to reduce human-bear conflicts. In 2009, the Human-Bear Conflict Management Plan was developed and in October 2011 the BC Ministry of Environment officially named the RMOW a “Bear Smart Community.”

The Human-Bear Conflict Management Plan (<https://www.whistler.ca/services/environmental-stewardship/bears-and-wildlife/bears/bear-smart-community>) was updated in October 2016 and the RMOW Bear Response Plan was developed collaboratively between the RMOW and the COS in 2017. The Bear Response Plan provides several non-lethal options for managing bear conflicts. To date the Bear Response Plan and other efforts have focused primarily on black bears. The RMOW’s Environmental Stewardship Department maintains bear-related information on the RMOW website which is noted in 4.2 below.

Many websites also post information about bear awareness including Get Bear Smart Society, WORCA and the Coast to Cascades Grizzly Bear Initiative, as well as the RMOW’s alpine trail webpages.

5.0 Human-Grizzly Bear Conflict Mitigation Strategies

The following mitigation strategies and recommendations were developed based on input from RSTBC, the COS, provincial wildlife biologists, local groups, the RMOW Forest and Wildland Advisory Committee, and current research. This section addresses two of the three objectives of the strategy:

1. Actions to minimize impacts of recreation trail use on grizzly bear habitat and use patterns; and
2. Actions to minimize human interactions with grizzly bears on alpine trail system.

4.1 Objective 1: Actions to Minimize Impacts of Recreation Trail Use on Grizzly Bear Habitat and Use Patterns

4.1.1 Planning and Trail Modifications

It is important when alpine trails and related amenities are being planned to ensure that grizzly bear habitat be assessed in order to avoid prime habitat areas. Modifying trail locations and trail corridors may be required to minimize human-bear encounters.

To be proactive there needs to be pre-planning of the placement of facilities to avoid high quality grizzly bear forage items such as huckleberries and other important habitat features (marked trees, security cover and/or water features). Choices should be made in the following order: avoid critical habitats and well-used wildlife corridors; relocate trails that run through critical habitats; manage trails with closures and restrictions; and manage by removal of trail foods.

Recommendations:

- Complete a vegetation and habitat mapping analysis to determine areas of high value grizzly bear habitat and ‘hot spots’ used by bears. **Note: Habitat Mapping report completed by Grant MacHutchon, January 20, 2020. Recommendations added to this report in italics.**
- Secure funding to continue grizzly bear collaring program, DNA sampling or other method that will assist in identifying priority grizzly bear habitat and seasonal use patterns
- Future trails, campsites and other amenities must avoid high value habitat and forage
- *South Flank Trail improvements not recommended in current route or assess an alternate re-build route lower down the slope*
- Require proponents to develop plans using bear risk assessments and ecosystem/forage mapping to avoid high value habitat.
- Conduct annual monitoring programs and modify trails as required.
- *No infrastructure or trails added to Gin and Tonic Lakes drainage area.*

4.1.2 Existing Trail and Amenity Relocations

Recommendations:

- Existing trails and related amenities should be routed around and or away from high value habitat areas, forage etc.
- *Review trails in the Skywalk and Nineteen Mile Creek areas to assess their placement in relation to higher rated polygons or high value habitats to determine what trail realignments or other mitigation strategies are necessary.*
- *Pot of Gold trail identified as grizzly bear habitat in use from early July to late September. Take steps to minimize risk of conflict.*

- Re-route the proposed trail (Beverly Lake Trail) to avoid large meadow areas with low sightlines.¹⁷
- *Reconsider converting the Beverley Lake Trail beyond the Ninja Lake Loo to multi-use and building a camp site at Beverley Lake.*
- Direct trail use away from wet, spring grizzly bear habitat.
- Ground truth the results from the Bear Risk Assessment and habitat/vegetation mapping exercise and implement recommendations
- When practicable, relocate trails and facilities into lower value habitat areas, and/or thin the vegetation. Remove food sources adjacent to trails only if no other viable option exists.

4.1.3 Sightline maintenance

In order to avoid or minimize surprise encounters between human and bears, it is important to design human-use areas that make human activity predictable for bears and help to make it easy for humans and bears to detect each other.¹⁸

Recommendations:

- In areas where dense vegetation reduces sightlines below 50m, no alternative route is available and habitat quality is high, thinning shrubs and trees may be required.
- Install signage for users when approaching low sightline area. Signage should warn users to yell and/or make noise and/or indicate a “no stopping zone.”

4.1.4 Future Potential Infrastructure

Additional trails and small camping sites were previously considered in the Sproatt and Rainbow alpine areas but were deferred in the original Section 57 application process. At the time it was felt that understanding the outcomes of the approved trails and their use patterns was necessary prior to considering other elements. Since then the Province and the RMOW have becoming increasingly aware of the movement patterns of grizzly bears and are re-assessing future initiatives in its alpine trail program.

Recommendations:

- Review the *Bear Risk Assessment for Sproatt Mountain Trails & Trail Amenities (2018)* report in detail and ground truth all trail and infrastructure locations that intersect with identified prime bear habitat.
- Consider an Alpine Ranger/Research/Emergency Shelter/Public Information Centre be installed in the Alpine to further long term management objectives for the area.
- Ensure any new campsites or other trail amenities avoid high value habitat

¹⁷ Homstol and Edwards (2018)

¹⁸ Homstol and Edwards (2018)

4.2 Objective 2: Actions to Minimize Human Interactions with Grizzly Bears

4.2.1 Public Education and Communication

Informing the public that they are entering bear country and that the presence of grizzly bears may occur in the area is an important step to reduce conflicts between humans and bears. Bear awareness information, improved signage, proper bear attractant management and a robust social media program will aid in the reduction of human-bear conflicts.

Recommendations:

- Develop user profiles to help target educational messaging
- Develop a comprehensive and consistent public education and communication strategy based on input and approval from the Planning Team, in conjunction with the TPWG and other committees, as well as best management practices from other relevant jurisdictions.
- Provide public education workshops about grizzly bears and their habitats.
- Disseminate pertinent information from this strategy in public service announcements or “Did You Know” factoids, such as the status of the grizzly bear population, the various roles of provincial and local governments, etc.
- Distribute general information and trail status update alerts to local bike shops, outdoor stores, Trailforks and other online forums, ACC-W, other known guiding outfits operating in Whistler, and WORCA to share with their clients and members
- Update the Planning Team contact list on an annual basis.

4.2.2 Bear Awareness

Several bear awareness strategies are widely accepted for promoting appropriate human behaviour while recreating in bear country. There are many websites which offer information and advice to reduce chances of humans encountering bears in their natural setting. Some examples of bear awareness information is provided on the following websites:

Organization	Website
RMOW	https://www.whistler.ca/services/environmental-stewardship/bears
Coast to Cascades Grizzly bear Initiative	https://www.coasttocascades.org/
Get Bear Smart Society	http://www.bearsmart.com/

Province of British Columbia	https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/human-wildlife-conflict/staying-safe-around-wildlife/bears
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Recommendations:

- The RMOW, TPWG and other committees should review best management practices (see bullet below for examples) and decide on key messages and communication tactics for the Sproatt/Rainbow Alpine Trail Network.
- *Encourage trail users to carry bear spray through various media channels and signage*
- Develop a messaging strategy, that includes items such as always carry bear spray, never hike/bike alone, be alert to bear signs (scat, prints, tree markings etc.), know the difference between black bears and grizzly bears, stay on designated trails, make noise in areas of low visibility, pack out what you pack in, etc.
- Target high use areas (picnic areas, campsites etc)

4.2.3 Signage

Recommendations:

- Review all current signage and check for consistent messaging throughout.
- Post messaging and any new rules or restrictions developed regarding trail use at trailhead kiosks.
- *Review messaging and investigate novel ways to engage the public*
- *Place signs on trails in locations that transition to high value grizzly bear habitat*
- *Close trails from dusk til dawn*
- Develop a series of “on-trail” reminders based on other recommendations in this plan.
- Install interpretive and bear awareness information at rest spots, viewpoints and trailheads.

4.2.4 Social Media Campaign

Recommendations:

- Review websites and social media sites to ensure consistent messaging regarding the use and restrictions of the alpine trail network.
- Ensure there is a wide distribution of bear awareness information throughout the RMOW for both residents and visitors.
- Encourage the public to use the RAPP line to report bear sightings.
CALL 1-877-952-7277 or 604 905 BEAR to reach the provincial call centre.
- Provide an avenue for public to assist with data collection and link with Ranger Program.

4.2.5 Attractant Management

Common human-induced bear attractants are food-related items (food, food waste), personal care items with odour such as soap, toothpaste, deodorant and bug repellent. Some or all of these items may be introduced into the alpine areas from recreational users.

Natural bear attractants in the area include bear foods such as spring or pre-berry season foods like *Equisetum* (horsetails) and *Erythronium* (glacier lily), summer or berry season foods such as *Vaccinium membranaceum* (black huckleberry), and fall foods such as grasses and marmot colonies.¹⁹

Recommendations for food and personal care items:

- Ensure proper signage is located at all trailhead kiosks, rest areas and campsites.
- Install signage to let users know where or how far it is to a designated rest area or campground to control food items coming out of packs at appropriate areas.²⁰
- Ensure approved campgrounds have bear-resistant food lockers or caches that are regularly inspected for proper functionality.²¹
- Pack it in/Pack it out policy.

Recommendations for bear foods (specifically huckleberries):

- Monitoring berry patches throughout the season for berry ripening, quality and quantity (e.g. Alpine Rangers to monitor).
- Encourage people to stay on trails in prime huckleberry areas when berries are ripe.
- Install trail signs to inform users of “no stopping” in bear food zones (e.g. similar to “no stopping” In avalanche zones along mountain roads.)

4.2.6 Improve Data Collection and Trail Counter Plan

The Alpine Trail Ranger Program is a great option for trained staff to collect data on the public use, compliance and overall conditions of the trails and surrounding environment. Increased research and monitoring of the grizzly bear population and human use patterns in the area is critical to all future decision making.

Recommendations:

- Develop a trail counter and remote camera plan ensuring locations are suitable for maintenance and data collection.
- Install counters for the Skywalk network (above the Flank trail), Into the Mystic, With a Twist, and Rainbow Lake.
- Ensure counters capture data from all access routes into trail networks.
- Explore options to utilize magnetic and optical counters to differentiate between cyclists and hikers.
- Encourage public users to report aggressive or threatening bears through the RAPP line.

¹⁹ Homstol and Edwards (2018)

²⁰ Homstol and Edwards (2018)

²¹ Homstol and Edwards (2018)

- Review existing data collection forms and consider an electronic data collection process such as iPad or ARC/GIS app in order to add geospatial information and photos.
- Add additional check boxes to Alpine Ranger data collection forms indicating if signs of bear activity are present and if dogs accompany trail users.
- Consider developing a consolidated reporting system for internal use based on RAPP line, Alpine Ranger, and other incidental data that is regularly updated by RMOW and provincial staff, and is available to the public on a platform such as Google Earth
- Work with senior levels of government to support and increase funding for research to further shared grizzly bear recovery objectives
- Conduct effectiveness monitoring to determine if strategies are working
- Provide opportunity for public to provide feedback on the trails

4.2.7 Enforcement

Currently the COS, FLNR Natural Resource Officers (NRO) and RCMP can issue tickets on Crown land within BC. The COS have the authority to ticket the public for any offence under the *Wildlife Act* and can enforce other provincial and federal legislation. The Recreation Officer (RSTBC) can enforce regulations for non-compliant behaviour on established trails. The RMOW Alpine Rangers do not have authority to issue tickets but can provide warnings for non-compliant behaviour. RMOW bylaw officers can ticket for offences occurring inside the RMOW boundaries.

Commercial and public motorized recreation occur on the south flanks of Sproatt Mountain and the north side of Rainbow Mountain in the summer. The commercial activities operate under provincial tenures and are monitored by the provincial agencies for adherence to the approved management plans. Summer public motorized activities typically do not extend into the alpine to a significant degree and e-bikes are not permitted above the Flank Trail. While motorized activities adjacent to the project area may have an influence on grizzly bear use patterns, ongoing monitoring and improved understanding of habitat use patterns through mapping exercises will help inform management decisions. The provincial agency staff will enforce regulations as required.

Recommendations:

- Secure additional provincial funding for COS and NRO staff to assist with enforcement and/or ticketing.
- Track all tickets/warnings throughout all zones and review annually to identify patterns and develop mitigation strategies (see Appendix A).

4.2.8 Dog Restrictions

In a review of North American bear attacks between 2010 and 2014 , it was reported that over 50% of black bear attacks on humans involved dogs whether on or off leash.²² People assume

²² Hrisienki and Herrero (2014)

that dogs will protect them but the review found that a dog and bear may begin an interaction which then shifts to the humans nearby when the dog returns to its owner. The COS reports that in Whistler over the last few years, there have been a number of conflicts involving black bears provoked by dogs, including the destruction of a sow and two cubs in 2016 after repeated aggravation by dogs over a period of time resulted in bluff charges and other aggressive behaviour. Given this information, dogs are not currently permitted on the alpine trail system in 2019 while the Planning Team collects information to determine what the long term strategy should be regarding dog presence.

Recommendations:

- Enhance public education program to include information about the risks that dogs pose when in bear country, specifically grizzly bears.
- Continue to prohibit dogs above the Flank trail year round.
- Review monitoring data and if appropriate consider development of a longer term alpine trail dog strategy
- Ensure any new changes to dog use in the area are consistently messaged through signs, social media and all relevant websites.

4.2.9 Seasonal Restrictions and Closures

Human use restrictions such as seasonal, time of day or zonal closures are a proactive way to increase habitat availability and reduce the risk of conflict for wildlife by providing security at key times of day (sunset and sunrise) or during certain seasons (prime berry season and/or extreme wildfire periods).

Recommendations:

- Research options and develop steps for implementing and communicating different types of closures
- Determine what triggers a closure and identify what steps to take to close the area
- Ensure all permanent signage is designed to allow for quick and easy conversion from “open” to “bear in area” to “partial closure” to “full closure”
- Analyse closure data based on grizzly bear monitoring and site conditions.
- Identify ways to control trail access to reduce negative encounters for the most sensitive areas or seasons
- Minimize public from stopping in prime huckleberry patches

4.2.10 Area Restrictions and Closures

Seasonal closures, as described above, will provide habitat security for grizzly bears during key feeding and life cycle phases. Reactive area closures will remain necessary when human-bear interactions occur.

Recommendations:

- When area closures are necessary due to grizzly bear presence, limit the duration and closure area based on presence/absence.
- Where wildlife concerns or priorities have dissipated due to season, conditions, or absence of ongoing wildlife presence for multiple days, all parties will aim to reopen trails or areas when mutually agreed.
- Reopening trails to be coordinated between RMOW, COS, RSTBC and FLNRO Biologists using information provided by all parties including Alpine Rangers monitoring ongoing wildlife activity.
- If area closures occur in a zone, implement and communicate strict regulations on adjacent zones that may remain open such as users only allowed on trails in a group of 4 or more people, carrying bear spray, etc.

4.2.11 Limit User Numbers

Limiting user numbers on a Crown land recreational trail system like the Sproatt/Rainbow Alpine Trail System would be a new concept for the Sea to Sky corridor. It does occur in various provincial and national parks, and with rising visitor numbers is a trend that is occurring in more places across North America. There are many examples within provincial and national parks in both Canada and the United States where quota systems to limit user numbers are in place. The majority of parks that limit use are based on a well-managed reservation system and involve remote, wilderness adventures with a singular or limited number of access points.

The difference between provincial parks and the alpine trail system is the designation of the land. Parks designation carries the authority to regulate and enforce use within its boundaries far beyond what is available to the alpine trail system. Limiting user numbers is not something that should be done without careful consideration and research but based on increasing user numbers, increased grizzly bear presence, relative ease of access from the Whistler village and multiple trail access points it may be a necessary future step in order to reach the vision of this strategy.

Recommendations:

- Continue to monitor visitor use and trends in the alpine environment.
- Work with provincial biologists to monitor health of the habitat and grizzly bear populations.
- Assign RMOW staff to research the possibility of limiting user numbers, and develop a system for how this will be done, including a budget, if deemed necessary by the Planning Team.
- Review of commercial activities and special events in the alpine area in regards to trail and wildlife impacts.

4.2.11 Alpine Trail Ranger Program

The RMOW has operated an Alpine Trail Ranger Program on Mount Sproatt since 2018 and Rainbow-21 Mile Creek (Zone 1 and 2) since 2016 between July and October annually since 2018 and 2016 respectively. The Alpine Rangers conduct trail monitoring and maintenance, outhouse stocking/cleaning, litter pick up, provide public education on safe alpine recreation and administer first aid if necessary. They are also equipped with data collection forms and record wildlife and wildfire observations as well as trail user information. They report to the RMOW Parks and Trails Department and regularly communicate with Search and Rescue, COS, and the Sea to Sky District Recreation Officer. Observation and data collection is an important part of the Alpine Rangers' responsibility and the information gathered informs management and decision making.

Recommendations:

- *Maintain and increase Alpine Ranger numbers and resources; increase public education efforts*
- ACC-W to regularly monitor and share reports with RMOW and provincial staff.
- Investigate potential for the RMOW Bylaw Services to enforce recommended restrictions.
- Assess primary bear habitat/food sources throughout the key seasons (pre-berry and berry season) based on *Bear Risk Assessment Report* (2018 and 2019) and vegetation/habitat mapping report (MacHutchon).
- Consider using non-compliance form in Appendix A to track enforcement and provide input for future planning.
- Permanently embed Alpine Ranger Program funding in annual RMOW operation budgets.

5.0 Grizzly Bear Response Plan

The grizzly bear response plan addresses Objective 3 of the strategy. In British Columbia, the response to conflicts between grizzly bears and people that threaten human health, safety or property is guided by the FLNR Procedure Manual 4-7-04.04.1, Prevention and Responding to Conflicts with Large Carnivores.²³ Multiple branches of provincial government, FLNR Resource Management and the Fish and Wildlife Branch (F&W) and the MOE Ecosystems Branch, provide science-based direction regarding wildlife management to prevent or reduce negative effects of human-wildlife encounters including risks to public safety. In addition, the Conservation Officer Service (COS) takes actions to minimize the risks that conflicts with large carnivores (e.g. grizzly bears) pose to public safety through conflict prevention, enforcement and both non-lethal and lethal responses (FLNR, 2016 Section 1.1, 1.2).

The RMOW has been actively engaged in proactive initiatives to reduce and prevent human – bear conflicts since 1995, although the focus has been primarily on black bears within the RMOW boundaries since there has been limited potential of human interactions with GBs. In

²³ Ministry of Forests, Lands and Natural Resource Operations (2016)

October 2011, the BC Ministry of Environment officially named the RMOW a Bear Smart Community and as such the RMOW is required to complete six specific components to maintain this status. The RMOW has a Bear Response Plan which has been developed using the Provincial Procedure Manual described above and applies to all lands within the municipal boundaries. The RMOW's current Human-Bear Conflict Management Plan (2016) focuses on black bears within the municipality and surrounding environments but does make reference to grizzly bears within the region as well.

5.1 Responding to Conflicts with Grizzly Bears

The addition of the Alpine Trail network has increased the potential for human-GB interactions. The purpose of this locally developed grizzly bear mitigation strategy is to outline measures to avoid conflicts between humans and grizzly bears altogether. The prevention of conflicts is the desired outcome and vision for this area. However, if there is a conflict between humans and grizzly bears in the project area, a response plan is required to direct and manage efforts to maintain public safety and grizzly bear well-being.

First responses should be non-lethal if possible, carried out by the COS as outlined in the provincial policy.²⁴ These include:

- Restricting access and/or closing areas and/or trails
- Hazing
- Aversive Conditioning
- Relocation
- Translocation

These non-lethal responses will be coordinated with the COS and FLNR biologists. Depending on the circumstances, the COS may resort to the use of lethal control as per Provincial Procedure 4-7.04.01.1 Preventing and Responding to Conflict with Large Carnivores and the associated black bear and grizzly response guidelines.

6.0 Communication Response Protocol

Communication between the RMOW, the COS, FLNR, RSTBC, RCMP and non-governmental organizations will be key to addressing human-grizzly bear encounters in the alpine trail system. The following table provides an overview of various grizzly bear encounter scenarios, the response from lead and supporting agencies and the appropriate actions. The Grizzly Bear Response Plan and Communication Response Protocol will be reviewed every three (3) years and updated as necessary.

6.1 Grizzly Bear Response Communication Plan

²⁴ Ministry of Forests, Lands and Natural Resource Operations (2016)

Situation	Lead Agency	Supporting Agency	Action
Grizzly bear sighting, call RAPP	COS	<ul style="list-style-type: none"> ◆ FLNR Wildlife Biologist 	<ul style="list-style-type: none"> ◆ COS assess call report and determine level of risk ◆ COS and FLNR biologist confirm bear species
IF NO Public Safety Issue- Initial Sighting (i.e. bear not displaying aggressive behaviour)	COS	<ul style="list-style-type: none"> ◆ RSTBC Recreation Officer ◆ RMOW Parks and Trails Supervisor ◆ RMOW Alpine Rangers 	<ul style="list-style-type: none"> ◆ Alert RSTBC and RMOW Parks and Trails ◆ Work with RMOW Alpine Rangers to assist in gathering additional information on species, location etc.
IF NO Public Safety Issue- Multiple Sightings – no immediate threat to bear or human	COS	<ul style="list-style-type: none"> ◆ RSTBC Recreation Officer ◆ FLNR Wildlife Biologist ◆ RMOW Environmental Stewardship Manager 	<ul style="list-style-type: none"> ◆ Discuss sightings with RSTBC and provincial biologist and RMOW
	COS	<ul style="list-style-type: none"> ◆ RMOW Parks and Trails Supervisor ◆ RSTBC Recreation Officer 	<ul style="list-style-type: none"> ◆ Post wildlife alert/bulletin at all trailheads
		<ul style="list-style-type: none"> ◆ RMOW Parks and Trails Supervisor 	<ul style="list-style-type: none"> ◆ Alpine Rangers, RMOW Parks Staff assess current habitat conditions of area around bear sighting
		<ul style="list-style-type: none"> ◆ WORCA & ACC-W representatives 	<ul style="list-style-type: none"> ◆ Post bear sighting on website – stress importance of bear awareness in alpine
		<ul style="list-style-type: none"> ◆ RMOW- Bear Smart Program Assistant 	<ul style="list-style-type: none"> ◆ Post bear sighting on website – stress importance of bear awareness in alpine
IF NO Public Safety Issue- Multiple	COS	<ul style="list-style-type: none"> ◆ RSTBC Recreation Officer 	<ul style="list-style-type: none"> ◆ Provincial agencies to discuss and recommend area closures. ◆ Monitor area for bear activity.

Sightings BUT potential for threat to bears or humans (i.e. sow with cubs in trail corridor)		<ul style="list-style-type: none"> ◆ FLNR Wildlife Biologist 	<ul style="list-style-type: none"> ◆ Temporary area closure if deemed necessary.
		<ul style="list-style-type: none"> ◆ RMOW Parks and Trails Manager ◆ RMOW Alpine Rangers 	<ul style="list-style-type: none"> ◆ Monitor area for bear activity. Closures could be expanded or reduced based on monitoring information. ◆ Update closure based on new information ◆ Re-open trails when provincial agencies agree it is safe to do so.
		<ul style="list-style-type: none"> ◆ RMOW Parks and Trails Manager ◆ RMOW Alpine Rangers 	<ul style="list-style-type: none"> ◆ Post closure signs and monitor for compliance ◆ Assist provincial agencies to monitor area for bear activity ◆ Share information through municipal communications streams
IF Public Safety Issue (aggressive, injured or orphaned bear)	COS	<ul style="list-style-type: none"> ◆ RSTBC Recreation Officer ◆ FLNR Wildlife Biologist 	<ul style="list-style-type: none"> ◆ Dispatched to scene ◆ Use non-lethal response options if applicable. ◆ Contact RSTBC if trail or area closures deemed necessary ◆ Response follows recommendations of COS
		<ul style="list-style-type: none"> ◆ RSTBC Recreation Officer 	<ul style="list-style-type: none"> ◆ Close trails ◆ Contact RMOW Parks & Trails Supervisor, Bear Smart Program Assistant and Communications team to share information through media streams
	COS/RSTBC	<ul style="list-style-type: none"> ◆ RMOW Parks and Trails Supervisor ◆ RMOW Alpine Rangers 	<ul style="list-style-type: none"> ◆ Post closure signs and monitor for compliance Monitor area for bear activity ◆ Re-open trails when provincial agencies agree it is safe to do so.
BEAR ATTACK CALL 911	COS	<ul style="list-style-type: none"> ◆ FLNR Wildlife Biologist ◆ RSTBC 	<ul style="list-style-type: none"> ◆ Respond to all bear attacks resulting in injury or death ◆ Assess use of non-lethal or lethal response as appropriate

		<ul style="list-style-type: none"> ◆ RSTBC/RMOW ◆ RMOW-Environmental Stewardship Manager 	<ul style="list-style-type: none"> ◆ Close trails ◆ Collaborate with COS and RMOW Communications teams on messaging
REOPENING TRAILS	COS/RSTBC/FLNR Wildlife Biologist	<ul style="list-style-type: none"> ◆ RMOW Parks 	<ul style="list-style-type: none"> ◆ Communicate decision to reopen with public ◆ Remove closure signs

6.2 Grizzly Bear Response Plan Contact List

The following contact list will be circulated to all COS, RSTBC and RMOW staff and updated each spring by the RMOW Environmental Stewardship department.

Agency/Person	Phone	Email	After Hours
COS – RAPP line	1-877-952-7277 OR CELLULAR *7277		
RCMP Emergency	911		
Field Conservation Officer Services (COS) <i>LEAD- Simon Gravel</i>	604-898-3678 Ext 2228	Simon.Gravel@gov.bc.ca	
Recreation Sites and Trails BC Recreation Officer <i>Alistair McCrone</i>	604 898-2125	Alistair.McCrone@gov.bc.ca	
FLNR-Wildlife Biologist <i>Steve Rochetta</i>	604 898-2100	Steve.Rochetta@gov.bc.ca	
RMOW Environmental Stewardship Manager <i>Heather Beresford</i>	604-935-8374	hberesford@whistler.ca	
RMOW Parks and Trails Supervisor <i>Lorne Russell</i>	604-935-8325	lrussell@whistler.ca	
RMOW Resort Operations Manager <i>Paul Beswetherick</i>	604-935-8306	pbeswetherick@whistler.ca	
RMOW Bear Smart Program Coordinator		bearaware@whistler.ca	

*Current as of September 23, 2019

7.0 Conclusion

The recovery of grizzly bears in the threatened Squamish Lillooet GBPU is the goal and vision of the Province of B.C. This has been supported by First Nations, the Resort Municipality of Whistler, the SLRD and the Coast to Cascades Grizzly Bear Initiative. The Grizzly Bear-Human Conflict Mitigation Strategy was developed to minimize human interactions with grizzly bears on the Mount Sproatt/Rainbow alpine trail network while maintaining a public non-motorized recreational opportunity.

Careful consideration of the Province of BC's grizzly bear population objectives for the Mount Sproatt/Rainbow Mountain area must be balanced with the recognition that the RMOW's primary economic activity is tourism. In order to achieve successful protection of grizzly bears and their habitat within the threatened Squamish Lillooet Grizzly Bear Population Unit (GBPU), the holistic management approach recommended in the 2017 Auditor General's Report including the creation and implementation of grizzly bear management and recovery plans, and adequate resourcing to develop an inventory and monitoring strategy for grizzly bears is recommended.²⁵

Thoughtful planning, public education, enforcement and closures when necessary are key strategies for minimizing human interactions with grizzly bears on the alpine trail system. It is also imperative to minimize impacts to grizzly bear habitat and use patterns, and strategies were identified to achieve that objective. Continued collaboration with provincial agencies and stakeholder groups will be critical to achieving these objectives. In addition, the RMOW will conduct further monitoring and ongoing consultation with the public, First Nations and major stakeholders as needed. Periodic reviews will be conducted as the plan is implemented to assess if objectives and strategies are being achieved.

Using the strategies outlined in this plan, the RMOW, Conservation Officer Service and Recreation Sites and Trails BC are committed to managing the Sproatt-Rainbow alpine trails using high standards in trail and recreational use management, mitigating the risk of conflict, and providing an exceptional recreational experience.

²⁵ Office of the Auditor General of British Columbia (2017)

8.0 References

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9.0 Appendices

Appendix A: Non-Compliant Tracking Table

Example of Tracking Table for warnings issued by RMOW Alpine Rangers and tickets and/or charges issued by Bylaw Officers, COS, NRO's and RSTBC Recreation Officer.

Non-Compliant Behaviour	Zone 1 Mount Sproatt	Zone 2 Rainbow – 21 Mile	Zone 3 Rainbow- 19 Mile/Skywalk
Dogs	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Wildlife Attractants	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Wildlife Harassment	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Feeding Wildlife	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Garbage Violation	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Camping	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Campsite Condition Violation	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:
Other Violations	Warnings: Tickets:	Warnings: Tickets:	Warnings: Tickets:

Appendix B: Summary of Recommendations

Mitigation Strategy	ACTION	Lead	Support Agencies	Timing
4.1.1 Planning and Trail Modifications	Complete a vegetation and habitat mapping analysis to determine areas of high value grizzly bear habitat and 'hot spots' used by bears	RMOW	FLNR	2019
	Secure funding to continue grizzly bear collaring program, DNA sampling or other method that will assist in identifying priority grizzly bear habitat and seasonal use patterns	FLNR	RMOW	2020
	Future trails, campsites and other amenities must avoid high value habitat and forage	RMOW	RSTBC	Ongoing
	Require proponents to develop plans using bear risk assessments and ecosystem/forage mapping to avoid high value habitat.	RSTBC	RMOW	Ongoing
	Conduct annual monitoring programs and modify trails as required.	RMOW	RSTBC	Ongoing

4.1.2 Existing Trail and Amenity Relocations	Existing trails and related amenities should be routed around and or away from high value habitat areas, forage etc	RMOW	RSTBC	
	Re-route the proposed trail (Beverly Lake Trail) to avoid large meadow areas with low sightlines. ²⁶	RMOW		2019
	Direct trail use away from wet, spring grizzly bear habitat.	RMOW	RSTBC	
	Ground truth the results from the Bear Risk Assessment and habitat/vegetation mapping exercise and implement recommendations	RMOW		
	When practicable, relocate trails and facilities into lower value habitat areas, and/or thin the vegetation. Remove food sources adjacent to trails only if no other viable option exists.	RMOW		
4.1.3 Sightline Maintenance	In areas where dense vegetation reduces sightlines below 50m, no alternative route is available and habitat quality is high, thinning shrubs	RMOW		Ongoing

²⁶ Homstol and Edwards (2018)

	and trees may be required.			
	Install signage for users when approaching low sightline area. Signage should warn users to yell and/or make noise and/or indicate a “no stopping zone.”	RMOW		Ongoing
4.1.4 Future Potential Infrastructure	Review the <i>Bear Risk Assessment for Sproatt Mountain Trails & Trail Amenities (2018)</i> and the 2019 habitat and vegetation mapping report in detail and ground truth all trail and infrastructure locations that intersect with identified prime bear habitat.	RMOW		2019
	Consider an Alpine Ranger/Research/Emergency Shelter/Public Information Centre be installed in the Alpine to further long term management objectives for the area.	Planning Team		2019
	Ensure any new campsites or other trail amenities avoid high value habitat	RMOW	RSTBC	Ongoing
4.2.1	Develop user profiles to help			

Public Education and Communication	target educational messaging			
	Develop a comprehensive and consistent public education and communication strategy based on input and approval from the Planning Team, in conjunction with the TPWG and other committees, as well as best management practices from other relevant jurisdictions.	RMOW	Planning Team	2019
	Provide public education workshops about grizzly bears and their habitats.	RMOW	COS/FLNR	Annual
	Disseminate pertinent information from this strategy in public service announcements or “Did You Know” factoids, such as the status of the grizzly bear population, the various roles of provincial and local governments, etc.	RMOW	FLNR/COS	Annually
	Distribute general information and trail status update alerts to local bike shops, outdoor stores, Trailforks and other online	RMOW		As needed

	forums, ACC-W, other known guiding outfits operating in Whistler, and WORCA to share with their clients and members			
	Update the Planning Team contact list on an annual basis.	RMOW		Annually
4.2.2 Bear Awareness	The RMOW, TPWG and other committees should review best management practices and decide on key messages and communication tactics for the Sproatt/Rainbow Alpine Trail Network.	RMOW	TPWG, Planning Team	
	Develop a messaging strategy, that includes items such as always carry bear spray, never hike/bike alone, be alert to bear signs (scat, prints, tree markings etc.), know the difference between black bears and grizzly bears, stay on designated trails, make noise in areas of low visibility, pack out what you pack in, etc.	RMOW	FLNR	2019
	Target high use areas (picnic areas, campsites etc)			

4.2.3 Signs	Install interpretive and bear awareness information at rest spots, viewpoints and trailheads.	RMOW	FLNR	2020
	Post messaging and any new rules or restrictions developed regarding trail use at trailhead kiosks.	RMOW	FLNR	2020
	Review all current signage and check for consistent messaging throughout.	RMOW	FLNR	2020
	Develop a series of “on-trail” reminders based on other recommendations in this plan.	RMOW	FLNR	2020
4.2.4 Social Media Campaign	Review websites and social media sites to ensure consistent messaging regarding the use and restrictions of the alpine trail network.	RMOW		
	Ensure there is a wide distribution of bear awareness information throughout the RMOW for both residents and visitors.	RMOW		
	Encourage the public to use the RAPP line to report bear sightings. CALL 1-877-952-7277 or 604 905 BEAR to	RMOW	COS/FLRN	Ongoing

	reach the provincial call centre.			
	Provide an avenue for public to assist with data collection and link with Alpine Ranger Program.	RMOW		
4.2.5 Attractant Management	For food and personal care items:			
	Ensure proper signage is located at all trailhead kiosks.	RMOW	RSTBC	
	Install signage to let users know where or how far it is to a designated rest area or campground to control food items coming out of packs at appropriate areas.	RMOW	RSTBC	
	Ensure approved campgrounds have bear-resistant food lockers or caches that are regularly inspected for proper functionality.	RMOW		
	Pack it in/Pack it out policy.	RMOW		
	Recommendations for bear foods (specifically huckleberries):			
	Monitoring berry patches throughout the season for berry ripening, quality and quantity (e.g. Alpine Rangers to monitor).	RMOW		
	Where known berry patches intersect with trails, Hanging Lake campground or	RMOW	Planning Team	As needed

	other built infrastructure that cannot be relocated, request Alpine Rangers to remove huckleberries in the vicinity and leave all other huckleberries for bear food sources.			
	Encourage people to stay on trails in prime huckleberry areas when berries are ripe.	RMOW		
	Install trail signs to inform users of “no stopping” in bear food zones (e.g. similar to “no stopping” in avalanche zones along mountain roads.)	RMOW		
4.2.6 Improve Trail Monitoring and Trail Counter Program	Develop a trail counter and remote camera plan ensuring locations are suitable for maintenance and data collection.	RMOW		2019
	Install counters for the Skywalk network (above the Flank trail), Into the Mystic, With a Twist, and Rainbow Lake.	RMOW	ACC-W	2019
	Ensure counters capture data from all access routes into trail networks.	RMOW		2019

	Explore options to utilize magnetic and optical counters to differentiate between cyclists and hikers.	RMOW		
	Encourage public users to report aggressive or threatening bears through the RAPP line.	RMOW	COS/RSTBC	Ongoing
	Review existing data collection forms and consider an electronic data collection process such as iPad in order to add geospatial information and photos.	RMOW		
	Add additional check boxes to Alpine Ranger data collection forms indicating if signs of bear activity are present and if dogs accompany trail users.	RMOW		
	Consider developing a consolidated reporting system for internal use based on RAPP line, Alpine Ranger, and other incidental data that is regularly updated by RMOW and provincial staff, and is available to the public on a platform such as Google Earth	RMOW		

	Work with senior levels of government to support and increase funding for research to further shared grizzly bear recovery objectives	RMOW	FLNR	
	Conduct effectiveness monitoring to determine if strategies are working	RMOW	Planning Team	Ongoing
	Provide opportunity for public to provide feedback on the trails	RMOW		
4.2.7 Enforcement	Secure additional provincial funding for COS and NRO staff to assist with enforcement and/or ticketing	FLNR/RSTBC/ COS		
	Track all tickets/warnings throughout all zones and review annually to identify patterns and develop mitigation strategies (see Appendix A)	Planning Team		Ongoing
4.2.8 Dog Restrictions	Enhance public education program to include information about the risks that dogs pose when in bear country, specifically grizzly bears.	RMOW	COS	Ongoing
	Continue to prohibit dogs above the	RMOW	Planning Team	2019

	Flank trail year round.			
	Review monitoring data and if appropriate consider development of a longer term alpine trail dog strategy			
	Ensure any new changes to dog use in the area are consistently messaged throughout social media and all relevant websites.	RMOW	Planning Team	2019
4.2.9 Seasonal Restrictions and Closures	Research options and develop steps for implementing and communicating different types of closures	RSTBC	COS, RMOW	2019
	Determine what triggers a closure and identify what steps to take to close the area.	RSTBC, COS	RMOW	2019
	Ensure all permanent signage is designed to allow for quick and easy conversion from “open” to “bear in area” to “partial closure” to “full closure”			
	Analyse closure data based on grizzly bear monitoring and site conditions.	COS	Planning Team	As needed
	Identify ways to control trail access to reduce negative	RMOW	Planning Team	

	encounters for the most sensitive areas or seasons			
	Minimize public from stopping in prime huckleberry patches.	RMOW		Ongoing
4.2.10 Area Closures and Restrictions	When area closures are necessary due to grizzly bear presence, limit the duration and closure area based on presence/absence.	RSTBC	COS	As needed
	If area closures occur in a zone, implement and communicate strict regulations on adjacent zones that may remain open such as users only allowed on trails in a group of 4 or more people, carrying bear spray, etc.	RMOW	COS, RSTBC	As needed
4.2.11 Limit Users	Continue to monitor visitor use and trends in the alpine environment.	RMOW		
	Work with provincial biologists to monitor health of the habitat and grizzly bear populations.	RMOW	FLNR	
	Assign RMOW staff to research the possibility of limiting user numbers, and develop a system for how this will be done, including a budget, if deemed	RMOW	Planning Team	

	necessary by the Planning Team.			
	Review of commercial activities and special events in the alpine area in regards to trail and wildlife impacts.	RSTBC, RMOW		
4.2.12 Alpine Trail Ranger Program	Add Zone 3 (Rainbow/Skywalk) to the Alpine Ranger program on a temporary basis until adequate data is collected for this zone.	RMOW		
	Investigate potential for the RMOW Bylaw Services to enforce recommended restriction	RMOW	COS, RSTBC	2020
	Assess primary bear habitat/food sources throughout the key seasons (pre-berry and berry season) based on <i>Bear Risk Assessment Report</i> (2018) and vegetation and habitat mapping	RMOW		
	Consider using non-compliance form in Appendix A to track enforcement and provide input for future planning.	RMOW		2019
	Permanently embed Alpine Ranger Program funding in annual RMOW operation budgets.	RMOW		2020

Appendix C: Trail Planning Working Group (TPWG) Members
(As of September 23, 2019)

Organization	Representative
RMOW Parks and Trails	Lorne Russell, Supervisor
RMOW Parks Operations	Paul Beswetherick, Manager
RMOW Resort Parks Planning	Martin Pardoe, Manager
	Annie Oja, Planner
Whistler Off Road Cycling Association (WORCA)	Dale Mikkelsen
	Trevor Ferrao
	Ryan Murfitt
	Jerome David
99 Trials Association	Andrew DeBoer
Association of Whistler Area Residents for the Environment (AWARE) (as of 2017)	Claire Ruddy
Whistler Blackcomb	Brian Finestone
Alpine Club of Canada- Whistler Section (ACCW)	Kurt Mueller
Recreation Sites and Trails	Alistair McCrone
Cheakamus Community Forest (CCF)	Heather Beresford

Appendix D: Acronyms

ACC-W	Alpine Club of Canada - Whistler
AWARE	Association of Whistler Area Residents for the Environment
COS	Conservation Officer Service
GBPU	Grizzly Bear Population Unit
FRPA	Forest and Range Practices Act
FWAC	Forest and Wildland Advisory Committee
LRMP	Sea to Sky Land and Resources Management Plan
FLNR	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
MOE	Ministry of Environment
NRO	Natural Resource Officer
RLAC	Recreation Leisure Advisory Committee
RMOW	Resort Municipality of Whistler
RSTBC	Recreation Sites and Trails BC
SLRD	Squamish Lillooet Regional District
TPWG	Trails Planning Working Group
UWR	Ungulate Winter Range
WBAC	Whistler Bear Advisory Committee
WHA	Wildlife Habitat Area
WORCA	Whistler Off-Road Cycling Association