

Squamish WildSafeBC Year End Report 2016



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23 November 2016



Ministry of
Environment

Acknowledgements

I would like to thank the District of Squamish (DOS) for their support by providing resources and staff time to work on various initiatives. A special thanks to Robin Arthurs, General Manager of Corporate Services who has provided invaluable insight and strong support for the WildSafeBC Program. Many thanks to the DOS staff that have been supportive and provided their expertise and knowledge. The coordinator would like to recognize that this program would not be possible without the support of the Squamish community and Squamish Council. Thank you also to Paul Wick, Squamish Nation Administrator, Austin Chandler, Team Leader and the members and of the Squamish Nation I have collaborated with in 2016.

I would also like to recognize the important role of the Conservation Officers and Squamish Bylaw Enforcement Officers that work collaboratively with the WildSafeBC Community Coordinator. Their support directly impacts the effectiveness of this program. The information and insight they provide is invaluable.

In 2016 I worked with a number of volunteers and would like to thank them for their commitment and support. The strength of this program is reinforced and broadened by this team of caring individuals.

Last, but certainly not least, I would like to recognize that I do not work alone but have a team of supporting individuals at the BC Conservation Foundation and the insights and constructive ideas of all of the other community coordinators throughout BC to lean on. Thank you all.

Financial support for this program is generously provided by the Ministry of Environment, the District of Squamish and the British Columbia Conservation Foundation.



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Executive Summary

The Squamish WildSafeBC Program provides education to the community, facilitates stakeholder discussions and collaborates with the District of Squamish (DOS) and other stakeholders in reducing human-wildlife conflicts. The program began in 2005 after a particularly high year of human-bear conflicts in 2004 resulting in the destruction of 27 black bears. Since then, much progress has been made to manage wildlife attractants, garner community support, educate the community in human-wildlife conflicts and collaborate with stakeholders to implement creative ideas and strategies. This report provides context, highlights key program activities and provides suggestions for 2017.

The Conservation Officer Service (COS) received 722 calls regarding black bears in Squamish between 1 April and 22 November, 2016 (Mike Badry, Ministry of Environment). The year was characterized by an early berry crop, abundant production of fruits and nuts by domestic fruit and non-native mast trees, a low pink salmon return and two black bear attacks (9 October and 8 November). Black bear attacks are highly unusual within the DOS with no known written records. Both attacks resulted in relatively minor injuries and occurred in the Garibaldi Estates.

The program was delivered by a new community coordinator, with strong support of DOS staff and council. Highlights of the year included education to 1,318 students, the first BC Goes Wild event, an effective bin tagging program, six community events, six public presentations, 445 households reached via door-to-door activities, public outreach via traditional and social media, monthly Wildlife Working Group meetings and collaboration with DOS staff on wildlife and attractant related policies and guidelines. Recommendations for 2017 include: fruit tree management, updated human-bear conflict management plan, vegetation management and increasing compliance through education and enforcement.

1.0 Local Environmental Factors

Precipitation was above average in early 2016 but beginning in April, precipitation was repeatedly below average until October (Appendix I). August was particularly dry with only 9.6 mm of rain. Precipitation, temperature and sunlight are all critical factors that affect berry production and timing.

According to anecdotal information and direct observation, this year was characterized by an abundant berry crop from late spring to late July. The warm dry weather in August was favourable for abundant domestic fruit crops such as plum, apple and pear trees. Mast producing trees such as non-native English oaks also produced abundant nuts. However, the high alpine crops of blueberry and huckleberry did not fare as well due to cold weather in June (Michael Allen, pers. comm.). Himalayan blackberry crops (introduced species) were mixed and many berries were shrivelled. Pink salmon, a locally important food source for bears, have alternating high and low years and this was a 'low' run year.

3.0 Data Results

A total of 634 calls regarding wildlife were made to the COS through the Report All Polluters and Poachers (RAPP) line from 1 January to 30 October 2016. Black bears were the most reported (88%) followed by coyotes at a distant second (3.5%) (Fig. 1).

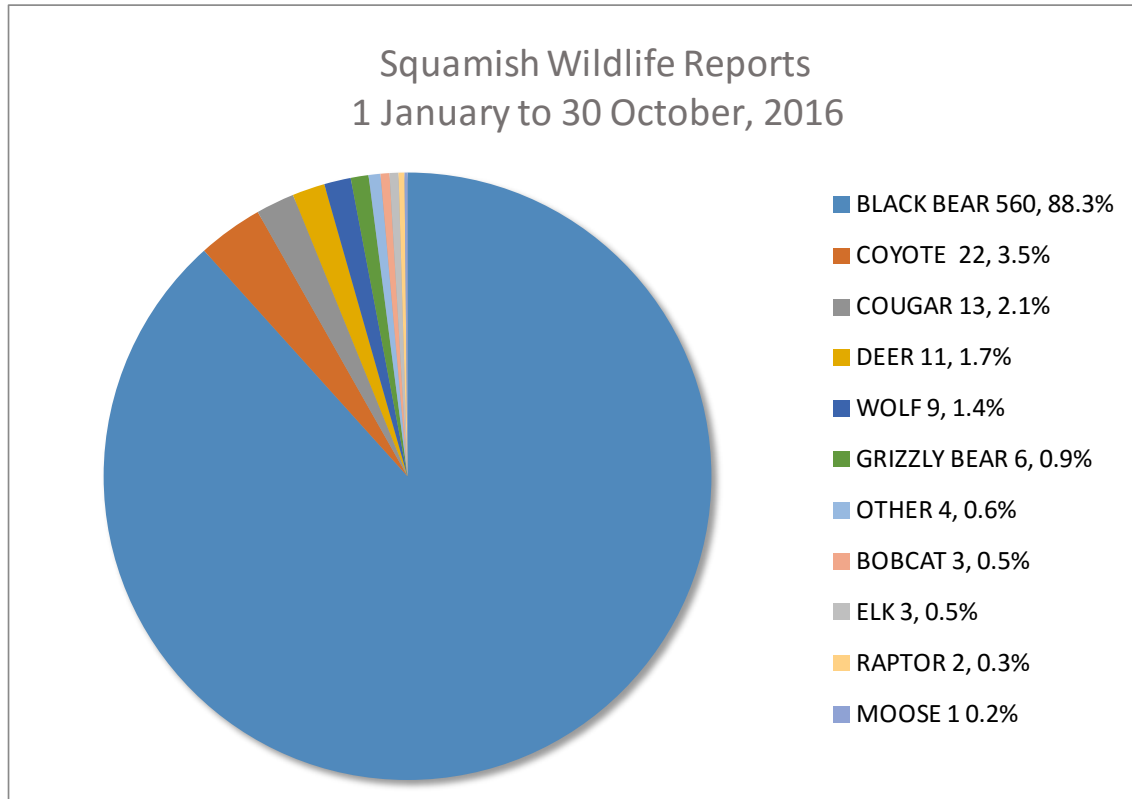


Figure 1. Squamish wildlife reported to the Conservation Officer Service through the RAPP line with black bears remaining the highest reported species year over year.

After a relatively quiet April to July, black bear reports spiked to a high of 46 from the 21 to 27 of August (Fig. 2). A breakdown of total August 2016 calls categorize the majority of the encounters as either food conditioned (46%), general sighting (30%) followed by injured or distressed (17%).

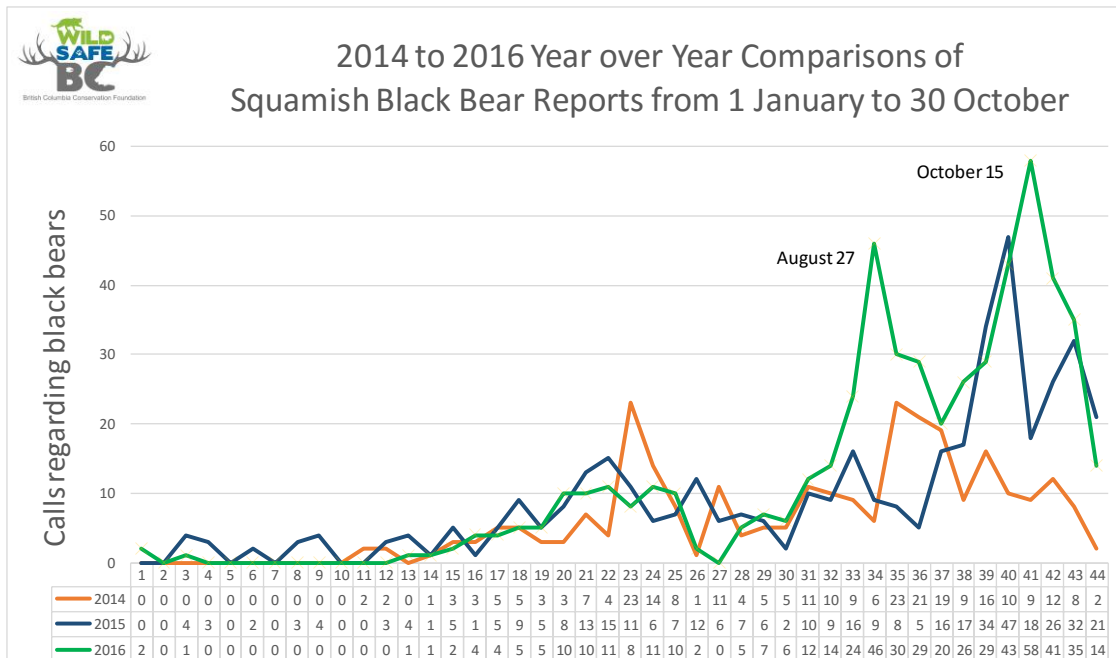


Figure 2. Reports of Squamish black bear activity with two noticeable spikes in August and October.

General sightings account for 46% of the calls which indicates a good understanding by some members of the public that the data can be used in a proactive nature (Fig. 3). Garbage continues to be a powerful attractant (32%) while fruit trees are a close second (10%) followed by compost (8%). One bear was destroyed after accessing and killing all the hens from four separate chicken coops in the Garibaldi Estates area. None of the coops had functioning electric fences. Only 2 were zoned for urban chicken coops and required electric fencing.

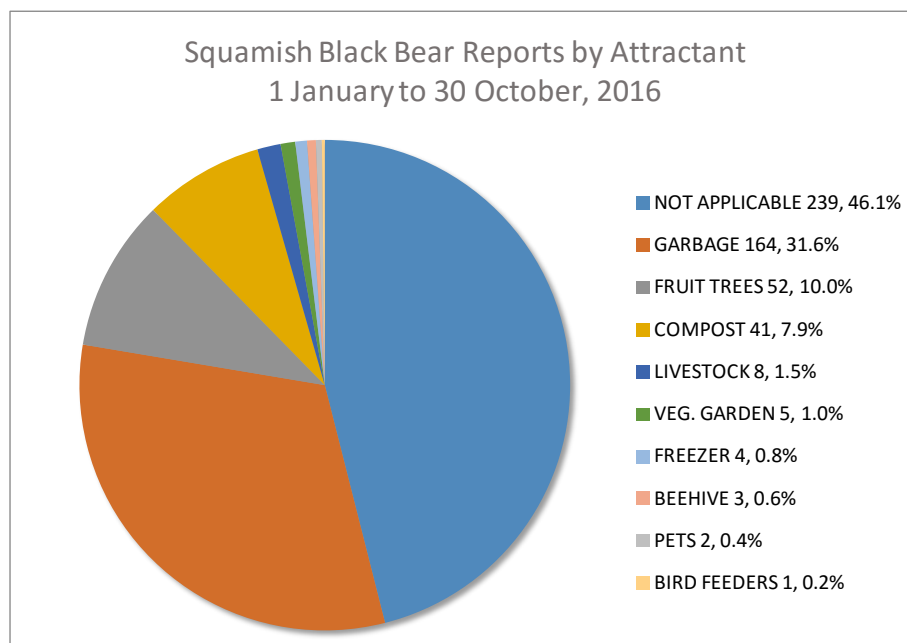


Figure 3. Squamish black bear reports categorized by attractant. Unnatural attractants account for 54% of the calls indicating an opportunity to reduce human-bear conflicts.

4.0 Trends

After a low year of reports in 2013, human-bear conflicts have steadily increased year over year (Fig.4) and have coincided with 11 bear destructions in 2016 as of November 22nd (Appendix 2). There is a strong relationship between high conflict years and bear destructions.

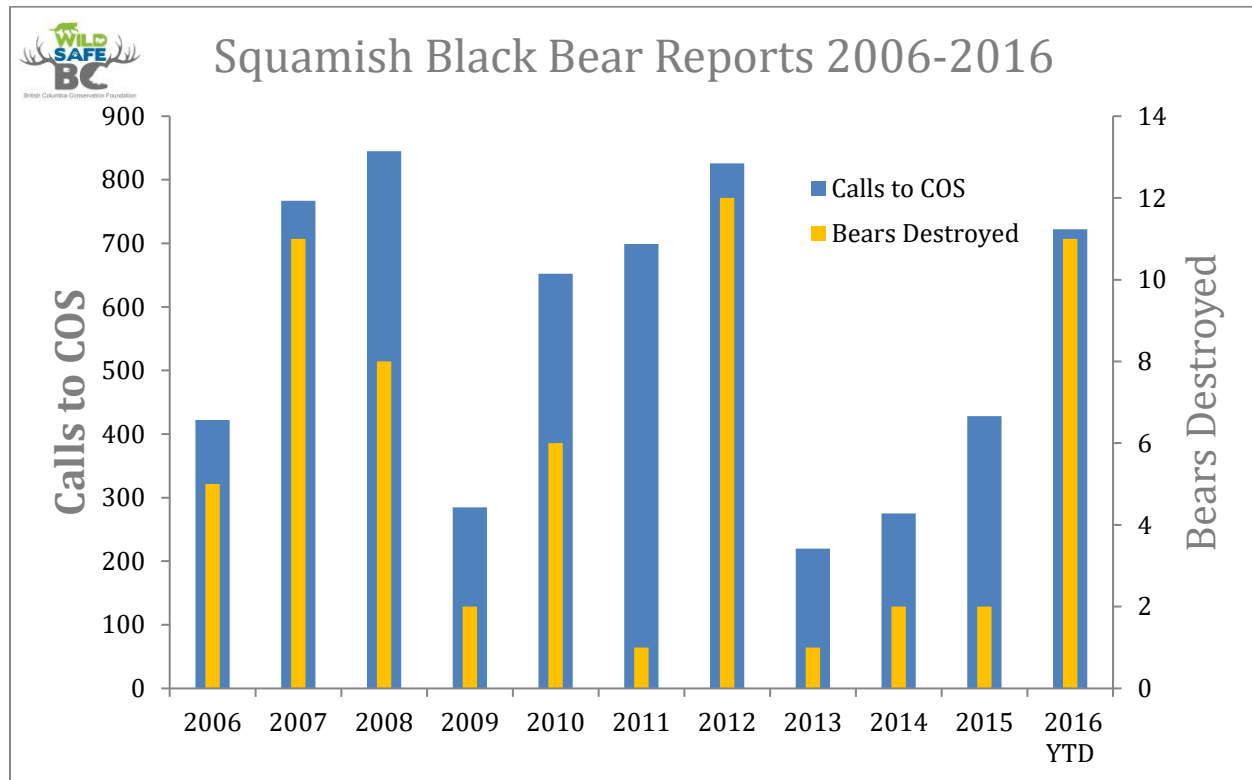


Figure 4. Squamish black bear reports since 2006. The data for 2016 is up to 22 November and provided by Ministry of Environment.

5.0 Squamish WildSafeBC Program Highlights

5.1 School Programs

The Junior Ranger Program (JRP) was delivered to 1,138 students in four elementary schools (Brackendale, Mamquam, Garibaldi Highlands and École Les Aiglons). The JRP presentation was translated and delivered in French for École Les Aiglons. The Brackendale Elementary K/1 class was inspired by the JRP presentation and created a series of posters which they posted in the Brackendale post office (Fig.5). They also visited a homeowner and gave her a complimentary audit regarding bear smart practices around her home. The coordinator also did presentations at a local preschool and for Sea to Sky Community Services' LEAP program. Don Ross Middle School (180 students) received a custom presentation that incorporated inquiry-based learning strategies. The students were presented with four case studies which they had to research and present a solution.



Figure 5. Brackendale Elementary K/1 class doing a bear smart audit (left) and posting one of their posters at the Brackendale post office (right). Photo credits: Shannon Fieldhouse.

5.2 BC Goes Wild

Squamish WildSafeBC held seven events with 104 attendees on September 17th for "BC Goes Wild" - a provincial WSBC celebration of wildlife in BC. On September 18th we brought BC Goes Wild to the Sea to Sky Gondola for HikeFest and were joined by South Coast Bats and Quest University students. The 12 students organized activities including a fun skit that illustrated what to do if you encountered a bear. It is estimated that we reached over 300 people.

The education weekend was followed by an enforcement blitz afternoon coordinated with the Conservation Officer Service, Ministry of Forest, Lands and Natural Resource Operations, Squamish Bylaw and WSBC. The community coordinator also performed bin tagging throughout Squamish over four nights.

5.3 Bin Tagging

The DOS Wildlife Attractant Bylaw (NO. 2053, 2009) requires that garbage and compost totes remain locked except between 5:00 am and 7:00 pm on collection day. The bin tagging program involves driving through neighbourhoods on the eve of collection and putting stickers on unlocked totes (Appendix III). Addresses are recorded and repeat offenders are passed on to Squamish Bylaw for follow up. There were only a couple that required follow up. Tagging totes has proven to be an effective and efficient method to increase compliance of the Wildlife Attractant Bylaw (Fig. 6; Appendix III).

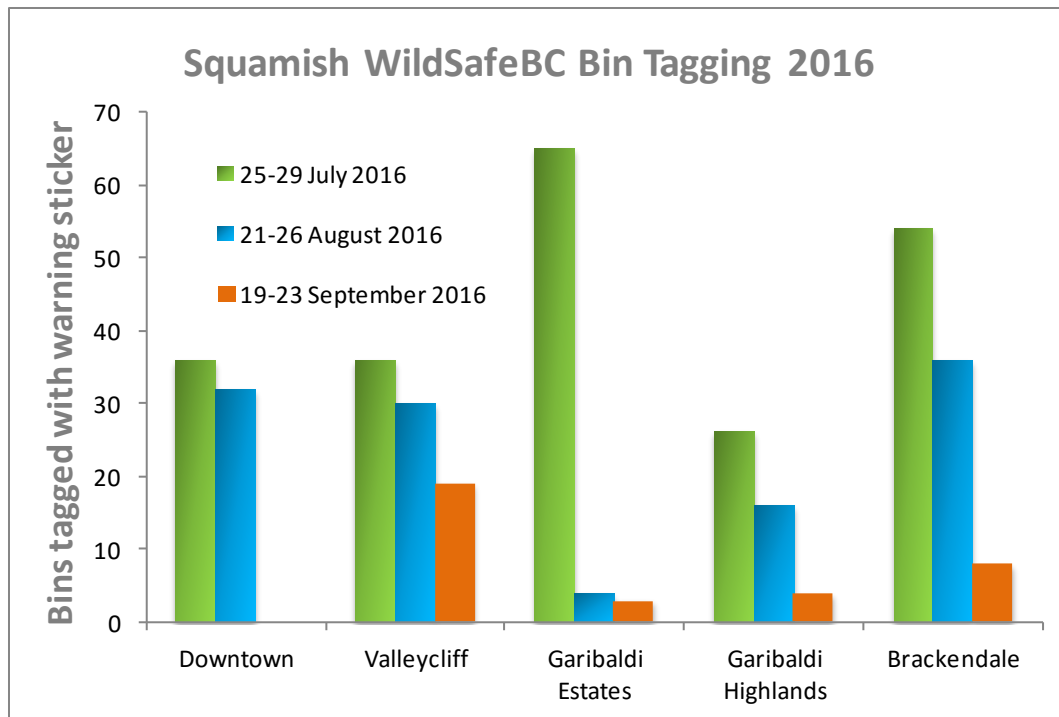


Figure 6. Results of bin tagging on the eve of curbside collection throughout Squamish from July to September. Tagging effort was consistent each month with over 90% coverage of each neighborhood.

5.4 Campgrounds

The coordinator visited the campgrounds in Squamish and provided education, literature, brochures and signage. These included: Paradise Valley Campground, Klahanie Campground, Whistler Punk Hollow Adventure RV, Wonderland Valley Resort and Kinsman Campground. The coordinator also visited Alice Lake Provincial Campground and reached out to other provincial campgrounds.



Figure 7. Signs produced by the District of Squamish and provided to the local campgrounds.

5.5 Social Media

Between 28 May to 31 October, 2016, Squamish WildSafeBC posted 66 times on [Facebook](#) and had a total reach of 24,565. Page likes increased from 209 to 344 over this period (65% increase).

5.6 Wildlife Working Group

The community coordinator continued to chair monthly Wildlife Working Group (formerly Bear Working Group) meetings with stakeholders. These include the DOS, COS, RCMP, waste management services provider, Squamish Nation, and other government agencies. These meetings improve communications and bring to light opportunities and challenges. This group has an opportunity to provide input during the Official Community Plan (OCP) review.

5.7 Wildlife Alerts

The DOS, in collaboration with WSBC and COS, issued five Wildlife Alerts. The Wildlife Alert is a direct email to 885 subscribers that has an average open rate of 46%. This system was used for the coyote attacks on Wonderland Trail, the spike in August bear activity, as well as the bear attacks in October and November. This alert is also shared on social media and the DOS website and is often picked up as a news item by local media.

5.8 Other Program Activities

- attended six community events
- delivered six presentations for varying organizations
- reached 445 households through door-to-door
- performed door-to-door with Squamish Nation Bylaw
- performed site visits on request of DOS, COS, Squamish Bylaw and for special events and film productions
- reached a wider audience with interviews on Mountain FM, The Squamish Chief, The Squamish Reporter and CBC radio
- installed temporary wildlife warnings signs on advice of COS
- provide input to DOS on various policies and guidelines related to wildlife and attractant management including the Official Community Plan currently under review
- recruited and engaged 15 volunteers to assist in various activities
- created a new homeowner letter and provided copies to real estate offices to include in welcome package
- created a new door hanger regarding "Active Bear in Area" with advice
- revised the broken tote letter provided to residents
- reached out to hotels, offered staff education and provided brochures
- created a felt storyboard for use in pre-school programs
- worked collaboratively with Quest University on several initiatives
- worked collaboratively with the Community Police coordinator to enlist the assistance of volunteers
- worked closely with COS and Squamish Bylaw to follow up with education where required

6.0 Challenges in 2016

The Bear Hazard Assessment (BHA) and Bear-People Conflict Prevention Plan (BCP) was adopted by council in 2009 (McCrory and Paquet, 2006). While significant progress has been made based on the recommendation of the plan, there are recurring themes in annual year end reports regarding fruit trees, waste management and trails.

6.1 Fruit Trees

Fruit trees continue to draw wildlife into residential neighbourhoods. The current Wildlife Attractant Bylaw (NO. 2053, 2009) states:

"Every owner or occupier of real property must ensure that:

- (a) any fruit that has fallen from a tree is removed from the ground within 3 days and if stored outdoors, only in a wildlife resistant container or wildlife resistant enclosure"

This bylaw is difficult to enforce and many bears will access fruit trees before the fruit is fully ripe. Reports of bears accessing fruit trees has steadily increased from 18 in 2014, 27 in 2015 and 51 in 2016. New homeowners are potentially purchasing properties without understanding the responsibility associated with having a fruit tree in bear country. There is also a high degree of complacency and lack of urgency when speaking with property owners that have fruit trees. The lack of a fruit gleaning program made the season even more challenging for those that had relied on this service - especially the elderly or physically challenged.

6.2 Bear Resistant Totes

Black bears were very persistent in damaging bear resistant totes to access garbage and compost in October. The tote design passed WildSafeBC testing in Kamloops which requires one hour of contact time. The waste management provider estimates 340 compost and 60 garbage totes were destroyed in October 2016 compared to 140 garbage and 60 compost totes in October 2015 (Paul Kindree, pers. comm.). The totes were damaged using various methods including chewing off the handles, damaging the carabiners, prying the lid or simply breaking the cover. Since the totes are stored outdoors this increases opportunities and access for bears to work at them.

6.3 Vegetation Management

The Squamish valley bottom is a complex mosaic of urban infrastructure, trails, parks and greenways. Greenways provide wildlife corridors but can also increase the interface between wildlife habitat and human developments that can lead to more interactions (McCrory and Paquet, 2006). Dense brush provides security cover for wildlife and increases the chance of a trail user surprising a bear or vice versa.

For example, in the second half of September 2016 there were five bears that made daily appearances at Rose and Smoke Bluff Park, crossed Highway 99 and followed the riparian corridor bordering the downtown schools to the Squamish Youth Resource Centre. They were attracted by the abundance of acorns produced by the English oaks and other berry producing shrubs. This area is a safety concern as it

is surrounded by three schools and includes a DOS designated safe route to school. The COS recommended a temporary closure of Rose Park near Lily's garden while bear activity was highest (Simon Gravel, pers. comm.). Many tourists visit Rose Park as it lies between the Adventure Centre which provides tourism information and the Squamish Hostel. A young cub was hit by a car and killed near this area.

A bear was also attracted to a pear tree growing on school grounds at Mamquam Elementary. There remains a number of DOS and school district properties that have bear attractants, including community and school gardens.

7.0 Recommendations for 2017

7.1 Fruit Tree Management Education and Increased Compliance

A revision of the Wildlife Attractant Bylaw should include changes around fruit trees that require the fruit to be picked upon ripening. Fruit that has fallen to the ground should be removed immediately. This will encourage residents to pick fruit early and let it ripen indoors. It will also allow the bylaw to be enforced more easily. Collaboration should take place with Squamish Climate Action Network's fruit tree project to increase awareness to this bylaw change and to provide long term management solutions for residents. This could also include workshops on electric fencing and fruit tree management strategies such as pruning. It would be most effective and efficient if the bylaw is updated early in 2017 to allow time to roll out education prior to harvest season.

7.2 Vegetation Management

The DOS Operations department is charged with managing vegetation within the DOS. Managing vegetation to reduce bear attractants and improve sightlines will require planning and consideration of riparian areas, sensitive habitat and compensation work. It would be prudent to begin early in 2017 to identify high priority areas such as parks, schools, safe routes to school and travel corridors. Identifying bear attractants and security cover that can increase human-bear conflicts could then be mapped and strategies and guidelines put in place to manage in the short and long term.

7.3 Planning

The Official Community Plan is currently being updated and refers to the Bear-People Conflict Prevention Plan written in 2006. This conflict management plan is one of the six criteria required to have Bear Smart Community status and should reflect the current challenges and opportunities regarding wildlife in Squamish. It is recommended that this plan be updated.

With the rapid pace of development in Squamish, it is also recommended that a landscaping guide be developed that provides clear information for developers and promotes best practices.

Trail signage has been identified as an important strategy to reduce bear-human conflicts. The DOS Wayfinding project should incorporate signage that identifies areas where bear encounters occur more

frequently due to known attractants that cannot be removed or mitigated. This is especially important for visitors or new residents to Squamish. Examples would include: Coho Park, Rose Park, trails leading to the Squamish Estuary and the Ray Peters trail in Brackendale.

7.4 Waste Management and Increased Compliance

Garbage remains the greatest attractant in Squamish. The coordinator should continue to work with the DOS, waste management services provider and other stakeholders to find solutions. A 2011 study has shown that public education regarding attractant management is most effective when done in conjunction with proactive enforcement such as written warnings (Baruch-Mordo et al.). Bin tagging should begin early in the season when bears begin to emerge to prevent that initial reward. Increased enforcement among COS and Squamish Bylaw early in the season may increase compliance which will help reduce conflicts later in the year.

7.5 Other High Impact Activities

- Community Events; book early and often
- School education; focus on schools not visited in 2016
- Engaging user groups and clubs
- Adventure Centre tourism information and brochures
- Public presentations; try to attract new homeowners
- Collaboration with DOS communications group to increase reach
- Site visits (i.e. commercial businesses, campgrounds, filming and special events)
- Wildlife Working Group monthly meetings
- Squamish Nation collaboration
- Media outreach (interviews, social media, DOS portals)
- Network with other communities and agencies to share best practices

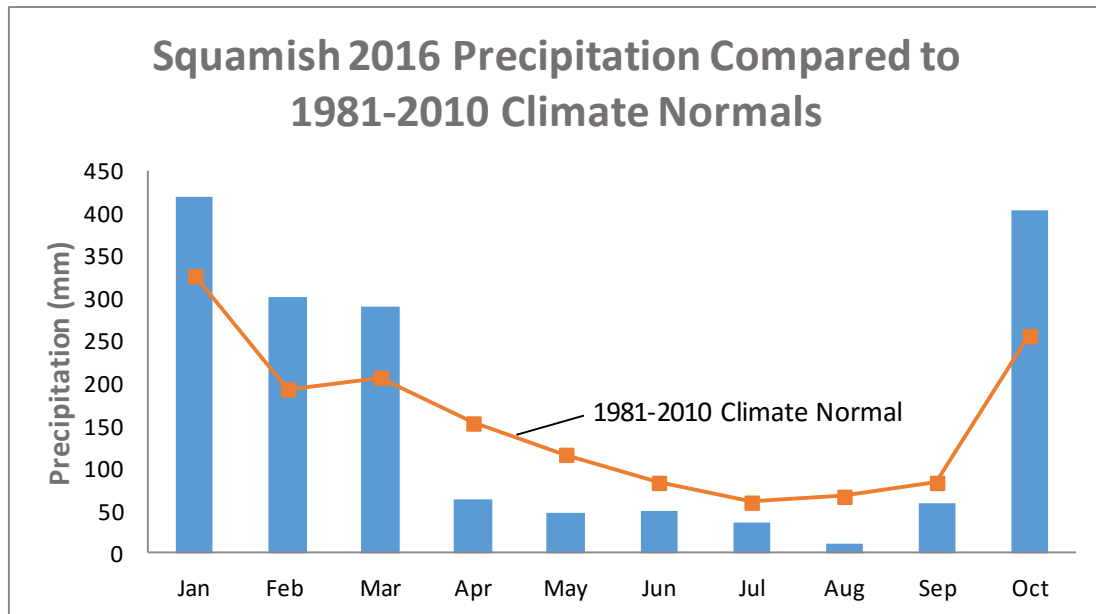
8.0 Summary

While 2016 was a relatively high conflict year it is difficult to determine which factors had the most impact: natural, environmental or anthropogenic. While the Squamish community has made great strides since 2004, there remain many challenges that can be overcome with community and stakeholder support. Wildlife will continue to be part of the Squamish landscape and is arguably one of the reasons tourists come to visit and why new residents are drawn to the community. Reducing human-wildlife conflicts while avoiding negative impacts to either should continue to be the overarching goal.

References

- Baruch-Mordo, S., S. W. Breck, K. R. Wilson and J. Broderick. 2011. The carrot or the stick? Evaluation of education and enforcement as management tools for human-wildlife conflicts. PLoS ONE 6(1): e15681. doi:10.1371/journal.pone.0015681
- Environment Canada. 2016. Canadian Climate Normals. Government of Canada. Accessed 30 October 2016 at: http://climate.weather.gc.ca/climate_normals/index_e.html.
- Environment Canada. 2016. Past weather and climate. Government of Canada. Accessed 30 October 2016 at: http://climate.weather.gc.ca/historical_data/search_historic_data_e.html.
- McCrory, W. and M. M. Paquet. 2006. Phase I bear hazard assessment/problem analysis report and phase II (proposed) bear-people conflict prevention plan for District of Squamish, BC: application for bear smart community status. Unpublished report prepared for the District of Squamish.

Appendix I - Squamish Rainfall Compared to Climate Normals



Precipitation in Squamish was above average in early 2016 but was below average from April to September. August was particularly dry with only 9.6 mm of rain (Environment Canada, 2016).

Appendix II - Squamish Black Bear Conservation Officer Service Statistics

Squamish Black Bears			
Year	Apr-Nov Calls to COS	Destructions by COS or Other	Motor Vehicle Accident
2004		27	
2005			
2006	422	5	na
2007	767	11	na
2008	845	8	5
2009	285	2	5
2010	652	6	4
2011	699	1	5
2012	826	12	9
2013	220	1	5
2014	275	2	
2015	428	2	1
2016 YTD	722	11	2*

Historical statistics from 2004 to 2016 up to and including 22 November 2016. *Motor vehicle accidents are anecdotal.

Appendix III - Bin Tagging



Photo of bin tagging sticker applied to unlocked totes in contravention of the Squamish Wildlife Attractant Bylaw

WSBC Bin Tagging Addresses		25-29	21-26	19-23
		July 2016	August 2016	September 2016
Total	Downtown	36	32	0
Total	Valleycliff	36	30	19
Total	Garibaldi Estates	65	4	3
Total	Garibaldi Highlands	26	16	4
Total	Brackendale	54	36	8
Grand Total		217	118	34

Number of stickers applied to unlocked totes with over 90% neighbourhood coverage.