

# Bear Occurrence Reports and Mortalities for Prince George, BC, 2011-2017



Submitted to:

## **THE CITY OF PRINCE GEORGE**

Laurie-Ann Kosec, Strategic Parks Planner  
Parks & Solid Waste Services  
3990 18th Ave. Prince George, BC



Submitted by:

## **Lana M. Ciarniello, Ph.D., RPBio** **Aklak Wildlife Consulting**

3021 Jody Lynne Way  
Campbell River, BC, V9H 1N3  
Email: [aklak@telus.net](mailto:aklak@telus.net)



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*"When we put our houses and cabins next to good bear habitat, the onus falls on us to learn how to live with bears."*

Chuck Schwartz, Retired Chief Researcher with the federal Yellowstone Interagency Grizzly Bear Study team.



Photos: Bears and bear damage in Prince George, BC. Copyright© Dave Bakker, President, Northern Bear Awareness Society.

### Disclaimer

This document was prepared exclusively for The City of Prince George by Aklak Wildlife Consulting and uses 2011 to 2017 BC Conservation Officer Service Problem Wildlife Occurrence Report data and expert knowledge to assess the types and spatial distribution of human-bear reports within the city of Prince George, BC, Canada. It is intended as an update of the Bear Occurrence Report results in the 2008 Hazard Assessment and 2009 Management Plan, which were prepared in accordance with the Provincial Bear Smart guidelines. Any other use or reliance on this report by any third party is at that party's sole risk. ***Bears are wild animals that can occur anywhere in Prince George at any time and the author assumes no liability with respect to use and application of the information contained herein.***

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Research bear, “Nechako” and her 4 cubs of the year in a residential yard in Hart Highlands. Photo courtesy the Northern Bear Awareness Society, D. Bakker.



A black bear eating birdseed in a carport in Prince George. Photo: Frank Ogamien, 2010.

## 1.0 Introduction

This report provides an update of the BC Conservation Officer Service (COS) Problem Wildlife Occurrence Report (PWOR) data for Prince George, B.C., 2011 to 2017. The information contained with the PWORs may be used to assess the type and spatial distribution of human-bear occurrence reports within the city. The bear occurrence reports in the PWOR database are not necessarily 'problematic' in nature and indeed the majority may simply be the public reporting a bear sighting. The goal of this report is to update the results in the 2008 Hazard Assessment, specifically Figures 2-6 and Tables 3-5 and 7-8; comparison with past results is used to determine whether there has been an improvement or not in human-bear conflicts since the Bear Hazard Assessment (Ciarniello 2008) and Management Plan (Ciarniello 2009) were completed.

The results of the 2008 Hazard Assessment were used to formulate the Management Plan for Prince George. Those documents were prepared in accordance with the Provincial Bear Smart guidelines (Davis et al. 2002). There are six steps required for a city to achieve Provincial Bear Smart Status (Table 1).

Table 1. Steps Required to Achieve Provincial Bear Smart Status

Steps	Description of Activity	Completed for Prince George
1	Prepare a <b>Bear Hazard Assessment</b> using criteria outlined in Davis et al. (2002).	√
2	Prepare a <b>Human-Bear Conflict Management Plan</b> designed to address the bear hazards and land-use conflicts identified in the hazard assessment.	√
3	<sup>1</sup> <b>Revise</b> planning and decision-making <b>documents</b> to be consistent with the human-bear conflict management plan.	
4	<sup>2</sup> Implement a <b>continuing education program</b> directed at all sectors of the community.	√
5	<sup>1</sup> Develop and maintain a <b>bear-proof municipal solid waste</b> management system.	
6	<sup>1</sup> Implement " <b>Bear Smart</b> " <b>bylaws</b> prohibiting the provision of food to bears as a result of intent, neglect, or irresponsible management of attractants.	√

<sup>1</sup>Fulfillment of these activities requires partnership between the City of Prince George, the Regional District of Fraser Fort George, the Conservation Officer Service, and the Northern Bear Awareness Society.

<sup>2</sup>Since 1998, this activity has been almost solely carried out by the by the Northern Bear Awareness Society.

The goal is to examine the PWORs to determine the root-cause of human-bear occurrence reports in order to apply proactive management techniques to dissuade bears from using the city and reduce the probability of human-bear conflicts (HBC).

## 2.0 Methods

Problem Wildlife Occurrence Reports are reports of bears by the public to the COS or RCMP. The report does not necessarily need to be ‘problematic’ in nature and may simply be a bear sighting. The database also contains bears destroyed by the RCMP, COS, or the public (if reported). PWOR for Prince George, BC, 2011-2017, were obtained from the BC Ministry of Environment, Conservation Officer Service.

The database contained 8,824 entries. Each entry was reviewed and the “Nature of Complaint” and “Occurrence Notes” was read in detail. Based on those categories a preliminary list of 19 attractants types was developed (Table 1). In order to make the 2008 Hazard Assessment results comparable the same 5 primary attractant categories were used:

1. *Domestic attractants* which included apiary, BBQ, bird feeders, carcass, cookhouse, crops, freezers, hunter kills, and livestock;
2. *Fruit Trees* including gardens;
3. *Garbage*;
4. *Sightings* including bears feeding on vegetation, bears along the road, bear-dog interactions; and,
5. *Not Recorded*.

Table 2. List of bear report categories developed using the COS PWOR information. The categories were then combined to match the 2008 Hazard Assessment for Prince George.

	<b>Bear Activity Reported</b>	<b>Combined Bear Activity Category</b>
1	Ants	Foods Natural
2	BBQ	Domestic Attractant
3	Bird Feeder/Food	Domestic Attractant
4	Break in attempt	Garbage/Food
5	Break in	Garbage/Food
6	Compost	Domestic Attractant
7	Dogs	Sighting
8	Freezer/Fridge outdoors	Domestic Attractant
9	Fruit Trees	Fruit Trees
10	Natural Fruits	Foods Natural
11	Garbage/Food	Garbage/Food
12	Gardens	Domestic Attractant
13	Injured & Dead Bears	Injured Bears
14	Livestock	Domestic Attractant

15	N/A No Attractant	N/A No Attractant
16	Not Recorded	Not Recorded
17	Pet Food	Domestic Attractant
18	Property Damage	Garbage/Food
19	Sighting	Sighting

The 2011-2017 PWOR reports contained additional information than the past 2004-2007 reports. The recorder now asks the caller specifically about the nature of bear attractants, such as the type of fruit the bear is feeding on. Because of the additional information the data can be more fully explored and two categories were added:

1. *Foods Natural* which in the 2008 report was included under “Fruit Trees”; however, I was able to record whether bears were feeding on natural fruits versus domestic varieties; and,
2. *N/A No Attractant* which represents residents calling to solicit advice or report that a bear was in the trap, for example.

Each report was evaluated for its contribution to determining the root cause of the conflict type, or the nature of the report type, for Prince George. There were cases where some callers that had bears on their property or in their neighbourhood would call, possibly up to 10 times during one day. Each call was evaluated for its contribution and if it was believed to be related to the same event it was omitted from the database. This resulted in 5,048 reports remaining. Next, it was determined that reports should only be evaluated for the City of Prince George. Of the 5,048 reports, 602 reports fell outside PG City boundary (with a 500 m buffer), leaving 4,446 reports within the city for 2011-2017.

Each report was assigned a geographic location based on the address/location provided by the caller. If a location was not provided or if it was general location, such as RCMP, it was used in the summary analyses but omitted from spatial maps. Of the 4,446 reports, 617 had no or general locations assigned to them, therefore, their information was used in the tables and charts but not in the spatial representations (i.e., maps). Spatial mapping used 3,829 reports for 2011-2017. Reports were mapped on LandSat images using ArcMap™ (ESRI Inc., ArcGIS version 10.5.1, Environmental Systems Research Institute, Inc., Redlands, California) in order to identify areas with high potential for human-bear conflict or destructions (i.e., clusters/hotspots).

The reader is cautioned that bear occurrence reports represent those areas where bears are reported sighted and are therefore are not necessarily representative of bear use of the city of Prince George and surrounding area. For example, bears are less likely to be sighted in forested or areas with heavy brush than they are walking down a road, and the public may also be less likely to report them using those areas as they expect them to be there. Furthermore, rural

residents may be less likely to report bears unless there is a direct threat to persons or property than urban residents.

An additional reminder when viewing these data is that bears may be sighted multiple times by different people resulting in more than one report of the same animal to the COS. Bear occurrence reports should not be used to estimate the number of bears using Prince George and/or to make inferences about the bear population; that is, an increase in bear sightings does not imply an increase in bear numbers.

### 3.0 Bear Occurrence Report Results

From 2004-2007, 2,124 reports were recorded for an average of 531 reports per year. From 2011-2017, 4,446 reports were recorded for an average of 635 reports per year. This is an increase of ~100 bear reports per/year.

Table 3. Number of bear reports used in analysis for Prince George, BC, by year.

Year	No. Reports
2011	539
2012	641
2013	745
2014	787
2015	531
2016	673
2017	530
<b>Total</b>	<b>4446</b>

Similar to the 2008 report, the bear calls continue to cluster along the outskirts of town and in specific neighbourhoods, such as the Hart Highlands, College Heights and Charella Gardens (Figure 1, yellow dashed lines). In fact, the cluster for the College Heights area appears to now be joined and is larger than the 2008 report.

In order to match the 2008 Hazard Assessment for Prince George, the data were broken into 4-year intervals (i.e., 2011-2014 & 2014-2017; Figures 2 & 3). As the years progress, there are more calls reported for the city centre although the “hotspots/clusters” continue for the chronic ‘problem’ areas.

Calls in the College Heights area are increasing which is likely in part due to expanding human development without consideration of Bear Smart landscape planning; there continues to be a general lack of Bear Smart planning for all city areas, such as managing the placement of green-spaces, implementing bear-resistant garbage cans and electric fencing for those that want to keep their fruit trees.



Figure 1. Location of Bear Reports for the city of Prince George with a 500m buffer, 2011-2017.

*Similar to the 2008 Hazard Assessment the bear reports continue to cluster along the outskirts of town and in specific neighbourhoods, such as the Hart Highlands, College Heights and Charella Gardens (yellow dashed lines).*

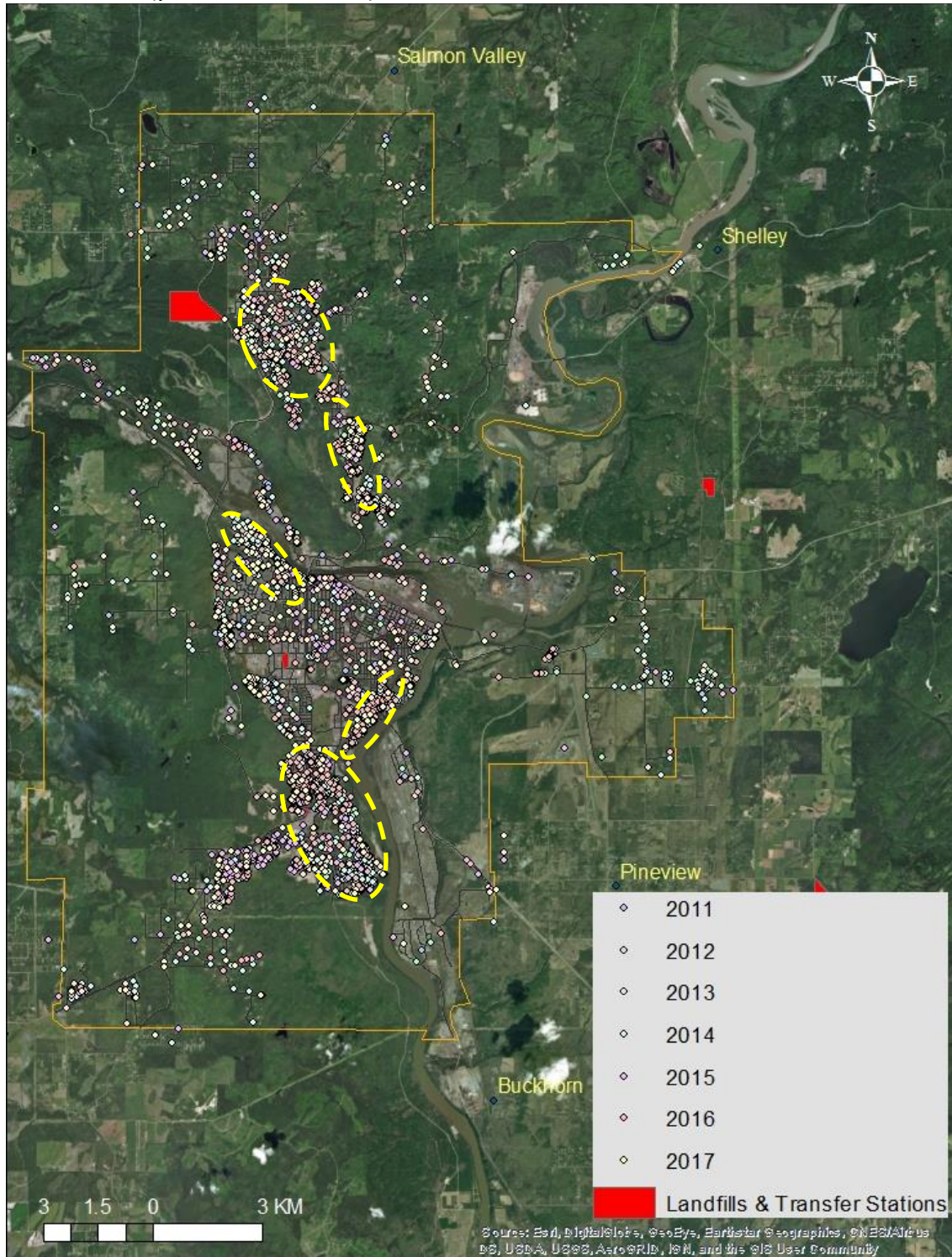
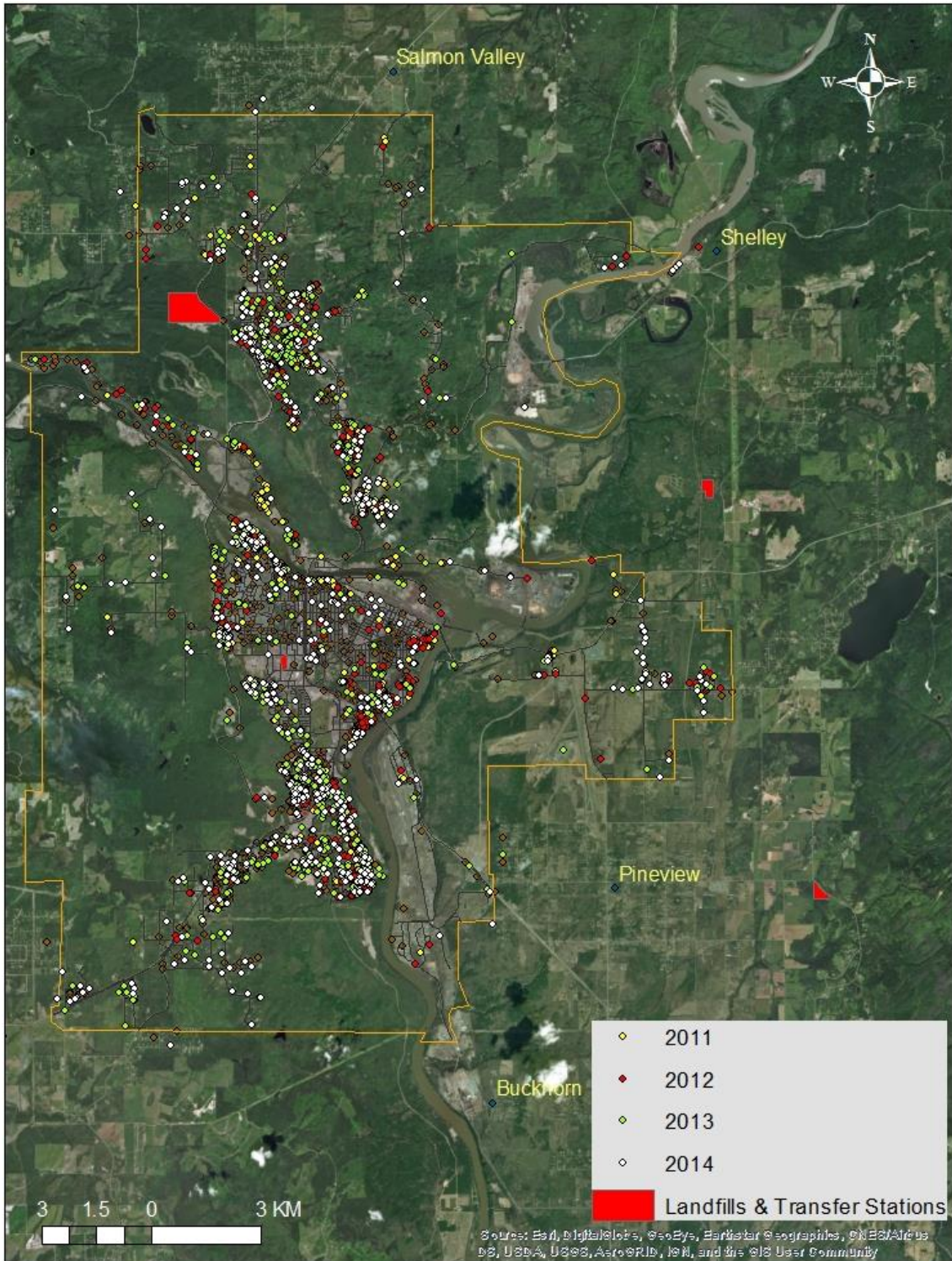




Figure 2. Location of Bear Reports for the city of Prince George with a 500m buffer by 4-year intervals, 2011-2014.

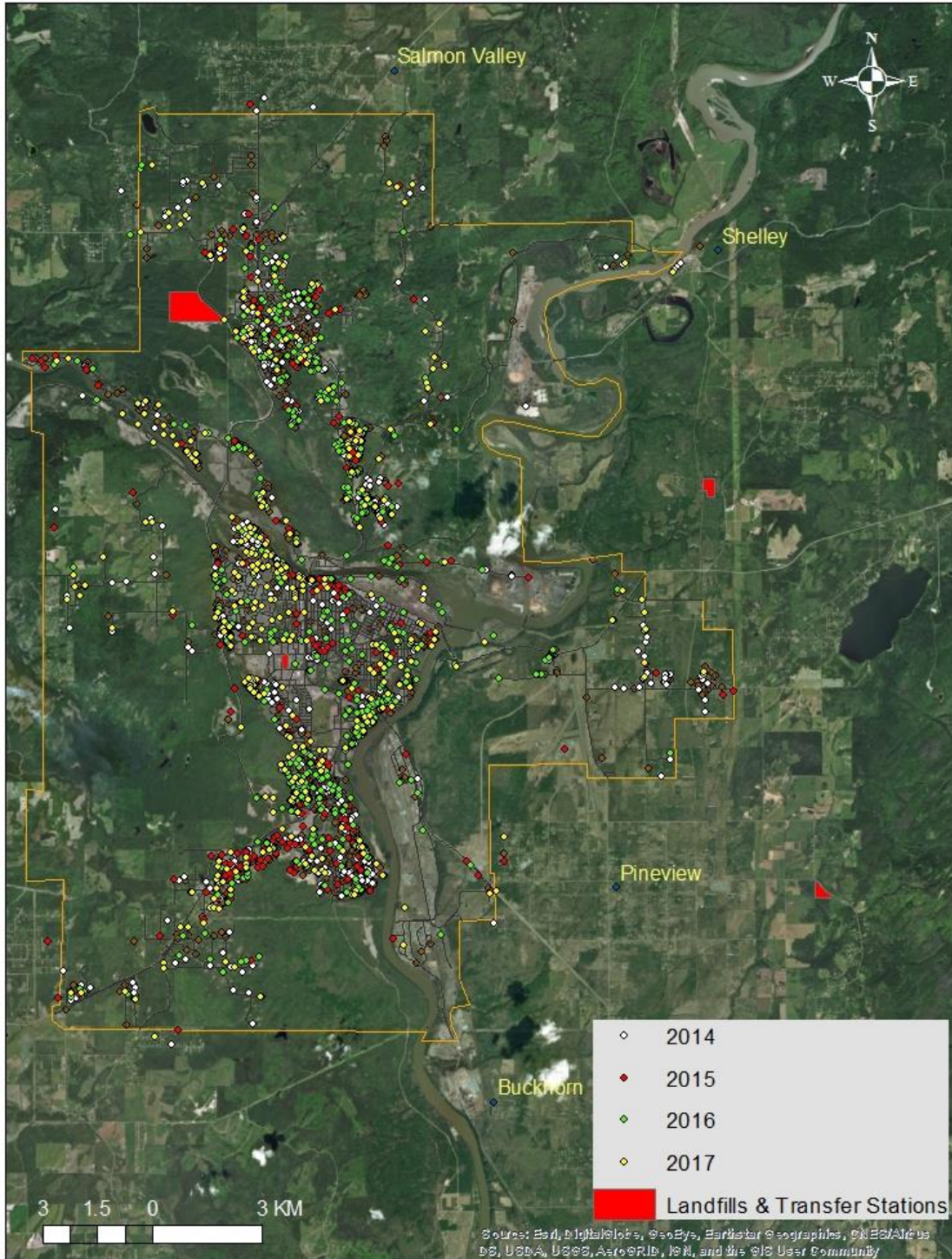


Four year intervals were used to make the maps comparable to the 2008 Hazard Assessment.



Figure 3. Location of Bear Reports for the city of Prince George with a 500m buffer by 4-year intervals, 2014-2017.

*As the years progress, there is an increase in bear reports in the city centre as well as the College Heights area.*



Four year intervals were used to make the maps comparable to the 2008 Hazard Assessment.

The reports were classified into 19 primary reasons why the caller was calling to report the bear. The idea is to identify the primary reason the bear was in the area. If a caller thought the bear was “looking for garbage” it was included as a “sighting” because people do not know the motivation of the bear. However, if a bear was actively knocking over garbage cans while they were walking down a street then that was recorded as “garbage/food”.

Table 4. Detailed reporting categories used for bear reports for the city of Prince George, 2011-2017.

Primary Reason for Report	Black Bear	Grizzly Bear
Ants	2	
BBQ	8	
Bird Feeder/Food	132	
Break in	24	
Break in attempt	13	
Compost	18	
Dog	23	
Freezer/Fridge outdoors	11	
*Fruit Trees	217	1
*Garbage/Food	1,736	5
Gardens	14	
*Injured & Dead Bears	125	1
Livestock	33	
N/A No Attractant	35	
Natural Fruits	65	
Not Recorded	6	
Pet Food	4	
Property Damage	22	
*Sighting	1,917	34
<b>Total</b>	<b>4405</b>	<b>41</b>
<b>Total Reports</b>	<b>4446</b>	

\*Also recorded for grizzly bears

This table was Table 3 in the 2008 Prince George Hazard Assessment (Ciarniello 2008).

Sightings of bears continue to be the primary reason why bears are reported in Prince George followed very closely by garbage (Table 5). Indeed, assigning “sighting” to a number of reports where bears appear to be ‘looking for garbage’ is conservative. It appears that the garbage attractant in Prince George has increased substantially.

It is likely that the majority of the grizzly bear calls were actually brown phase black bears are often reported as grizzly bears. Most grizzly bear reports were related to encounters with livestock and occurred outside the city limits; therefore, they were omitted from analysis.

Table 5. Number and nature of bear reports by the public to the COS using broad categories of the primary reason for the call for Prince George, 2011-2017.

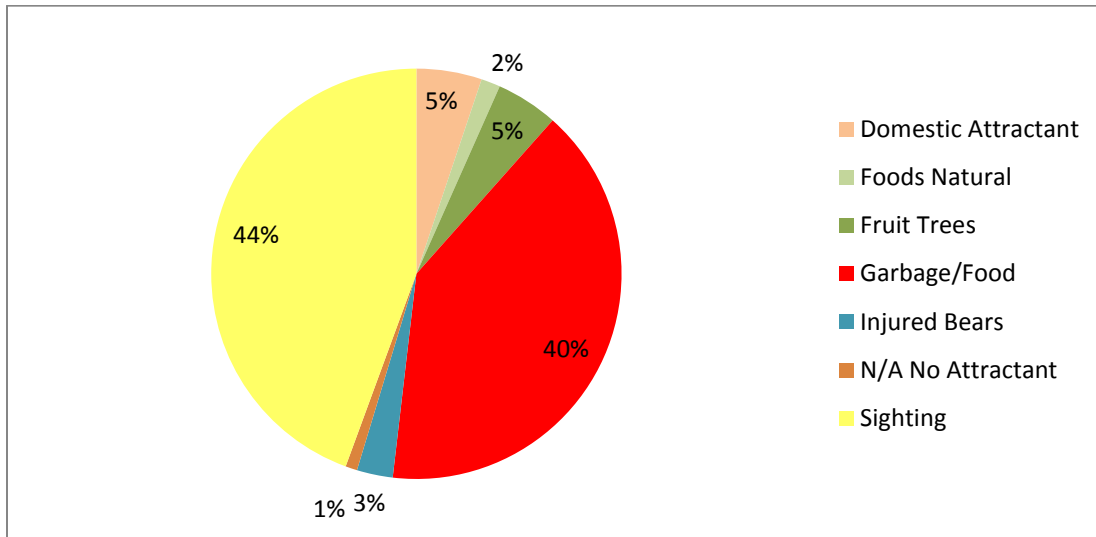
	<b>Black Bear</b>	<b>Grizzly Bear</b>	<b>Total</b>	<b>%</b>
Domestic Attractant	29	1	30	6
Foods Natural	10		10	2
Fruit Trees	17		17	3
Garbage/Food	225		225	42
Injured Bears	17		17	3
N/A No Attractant	7		7	1
Not Recorded	3		3	1
Sighting	228	2	230	43
<i>2011 Total</i>	<b>536</b>	<b>3</b>	<b>539</b>	<b>100</b>
Domestic Attractant	33		33	5
Foods Natural	8		8	1
Fruit Trees	20		20	3
Garbage/Food	279	1	280	44
Injured Bears	12	1	13	2
N/A No Attractant	1		1	0
Not Recorded			0	0
Sighting	279	7	286	45
<i>2012 Total</i>	<b>632</b>	<b>9</b>	<b>641</b>	<b>100</b>
Domestic Attractant	29		29	4
Foods Natural	5		5	1
Fruit Trees	34	1	35	5
Garbage/Food	322	2	324	43
Injured Bears	29		29	4
N/A No Attractant	9		9	1
Not Recorded	0		0	0
Sighting	309	5	314	42
<i>2013 Total</i>	<b>737</b>	<b>8</b>	<b>745</b>	<b>100</b>
Domestic Attractant	52		52	7
Foods Natural	14		14	2
Fruit Trees	67		67	9
Garbage/Food	275		275	35
Injured Bears	21		21	3
N/A No Attractant	4		4	1
Not Recorded	0		0	0
Sighting	345	9	354	45
<i>2014 Total</i>	<b>778</b>	<b>9</b>	<b>787</b>	<b>100</b>
Domestic Attractant	24		24	5
Foods Natural	3		3	1
Fruit Trees	31		31	6



Garbage/Food	218		218	41	
Injured Bears	10		10	2	
N/A No Attractant	2		2	0	
Not Recorded	3		3	1	
Sighting	235	5	240	45	
<i>2015 Total</i>	526	5	531	100	
Domestic Attractant	39		39	6	
Foods Natural	23		23	3	
Fruit Trees	25		25	4	
Garbage/Food	258	1	259	38	
Injured Bears	19		19	3	
N/A No Attractant	3		3	0	
Not Recorded	0		0	0	
Sighting	303	2	305	45	
<i>2016 Total</i>	670	3	673	100	<b>2014-2017</b>
Domestic Attractant	22		22	4	137
Foods Natural	4		4	1	44
Fruit Trees	23		23	4	146
Garbage/Food	210		210	40	962
Injured Bears	17		17	3	67
N/A No Attractant	9		9	2	18
Not Recorded	0		0	0	3
Sighting	241	4	245	46	1144
<i>2017 Total</i>	526	4	530	100	2521

\*Table 4 on page 15 of the 2008 Prince George Hazard Assessment (Ciarniello 2008).

Figure 4. Percent of the nature of occurrence reports for each of the main reporting categories for the city of Prince George, BC, 2011-2017.

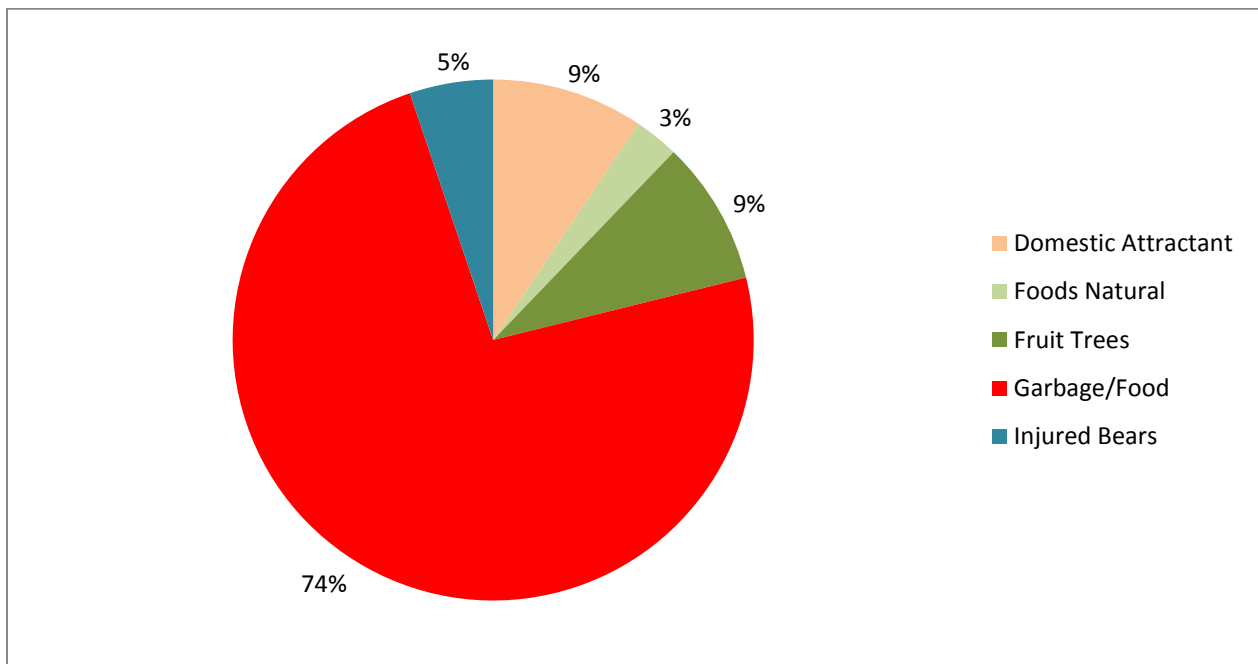


\*Figure 3 on page 16 of the 2008 Prince George Hazard Assessment (Ciarniello 2008).

Once “Sightings” are removed (since they are not an ‘attractant type’) garbage becomes the overwhelming primary reason bears are reported in Prince George. Garbage is followed by “Fruit Trees” and it is not realistic to think a bear can discern a natural fruit from a domestic fruit so in reality and in relation to attractant types these categories should be combined resulting in 12% of reports.

The calls for bears accessing “Domestic Attractants” is somewhat similar to previous reports; however, it was apparent that raising chickens and rabbits has increased in the city over time and is cause for a number of reports (Figure 5).

Figure 5. Percent of occurrence reports for the primary non-natural attractant categories (i.e., excluding bear sightings) for the city of Prince George, BC, 2011-2017.



\*Figure 4 on page 16 of the 2008 Prince George Hazard Assessment (Ciarniello 2008).

Bear reports by year, season and type appear to be similar between the 2008 report and today despite a hazard assessment and management plan (Table 6). There is a slight increase in spring sightings and a “winter” sightings needed to be added. Two of these reports were dogs that entered bear dens and aroused them from hibernation. The rest are likely due to climate change and bears waking up earlier due to warmer spring temperatures. These types of reports can be expected to increase as the climate continues to warm. If it continues that little to no proactive management is being done to manage for the anthropogenic attractants that are attracting bears into Prince George then it can be assumed that as global warming increasing the amount of time bears spend not hibernating there will be an increase in human-bear conflicts.

Table 6. Primary reason reported by the caller for the bear occurrence report by year, season and sighting or attractant type for Prince George, BC, 2011-2017.

Season	Year	Domestic Attractant	Foods Natural	Fruit Trees	Garbage /Food	Injured or Orphaned	N/A No Attractant	Not Recorded	Sighting	Total	% of Total
<b>Greenup</b>	2011	11		1	82	6	3	2	51	156	
	2012	15	2	2	65	6	1		85	176	
	2013	7		1	84	17	2		80	191	
	2014	18	1		61	5	1		85	171	
	2015	14		1	68	3	1	1	79	167	
	2016	16	1		47	5	1		69	139	
	2017	8	1		52	8	2		67	138	
	<i>n</i>	<b>89</b>	<b>5</b>	<b>5</b>	<b>459</b>	<b>50</b>	<b>11</b>	<b>3</b>	<b>516</b>	<b>1138</b>	
	%	8	0.4	0.4	40	4	1	0.3	45	100	26%
<b>Summer</b>	2011	8	8	5	18	7	1		47	94	
	2012	4		8	76	5			81	174	
	2013	10	4	26	129	9	1		159	338	
	2014	27	9	41	144	9	1		171	402	
	2015	3	2	8	48	2		1	67	131	
	2016	16	20	18	140	8	1		169	372	
	2017	5	3	11	52	7	1		99	178	
	<i>n</i>	<b>73</b>	<b>46</b>	<b>117</b>	<b>607</b>	<b>47</b>	<b>5</b>	<b>1</b>	<b>793</b>	<b>1689</b>	
	%	4	3	7	36	3	0.3	0.1	47	100	38%
<b>Fall</b>	2011	11	2	11	125	4	3	1	132	289	
	2012	14	6	10	135	2			118	285	
	2013	11	1	8	111	3	6		75	215	
	2014	7	4	26	70	7	1		98	213	
	2015	7	1	22	102	5	1	1	94	233	
	2016	7	2	7	71	6	1		63	157	

	2017	8		12	102	2	6		77	207	
	<i>n</i>	<b>65</b>	<b>16</b>	<b>96</b>	<b>716</b>	<b>29</b>	<b>18</b>	<b>2</b>	<b>657</b>	<b>1599</b>	
	%	4	1	6	45	2	1	0.1	41	100	36%
<b>Winter</b>	2012				4				2	6	
	2013	1								1	
	2014						1			1	
	2016				1				4	5	
	2017	1			4				2	7	
	<i>n</i>	<b>2</b>			<b>9</b>			<b>1</b>	<b>8</b>	<b>20</b>	
%	10			45			5	40	100	0.4%	
<b>Grand Total</b>	<b>229</b>	<b>67</b>	<b>218</b>	<b>1791</b>	<b>126</b>	<b>35</b>	<b>6</b>	<b>1974</b>	<b>4446</b>		
<b>2014-2017</b>	137	44	146	962	67	18	3	1144	2521		
%	5	2	6	38	3	1	0	45	100		

<sup>1</sup>Definition of seasons follows Ciarniello et al. (2003) where spring = den emergence to 14 July, Summer = 15 July to 20 September, and fall = 21 September to den entry. The winter season was added for reports that occurred during January to March.

The two main attractant types were garbage (74%) and fruits (natural & domestic, 12%; Fig 6). They often occurred together but often it was a bear in garbage then in the fruit tree. If a bear was reported in a fruit tree and then that same bear got into the garbage fruit tree was selected as main 'attractant type.' The primary hotspots remain but the city center appears to be receiving more calls than previously, i.e, Ciarniello 2008.

Figure 6. Location of Garbage/Food, Fruit Trees Domestic and Fruit Natural Bear Reports for the city of Prince George, 2014-2017.

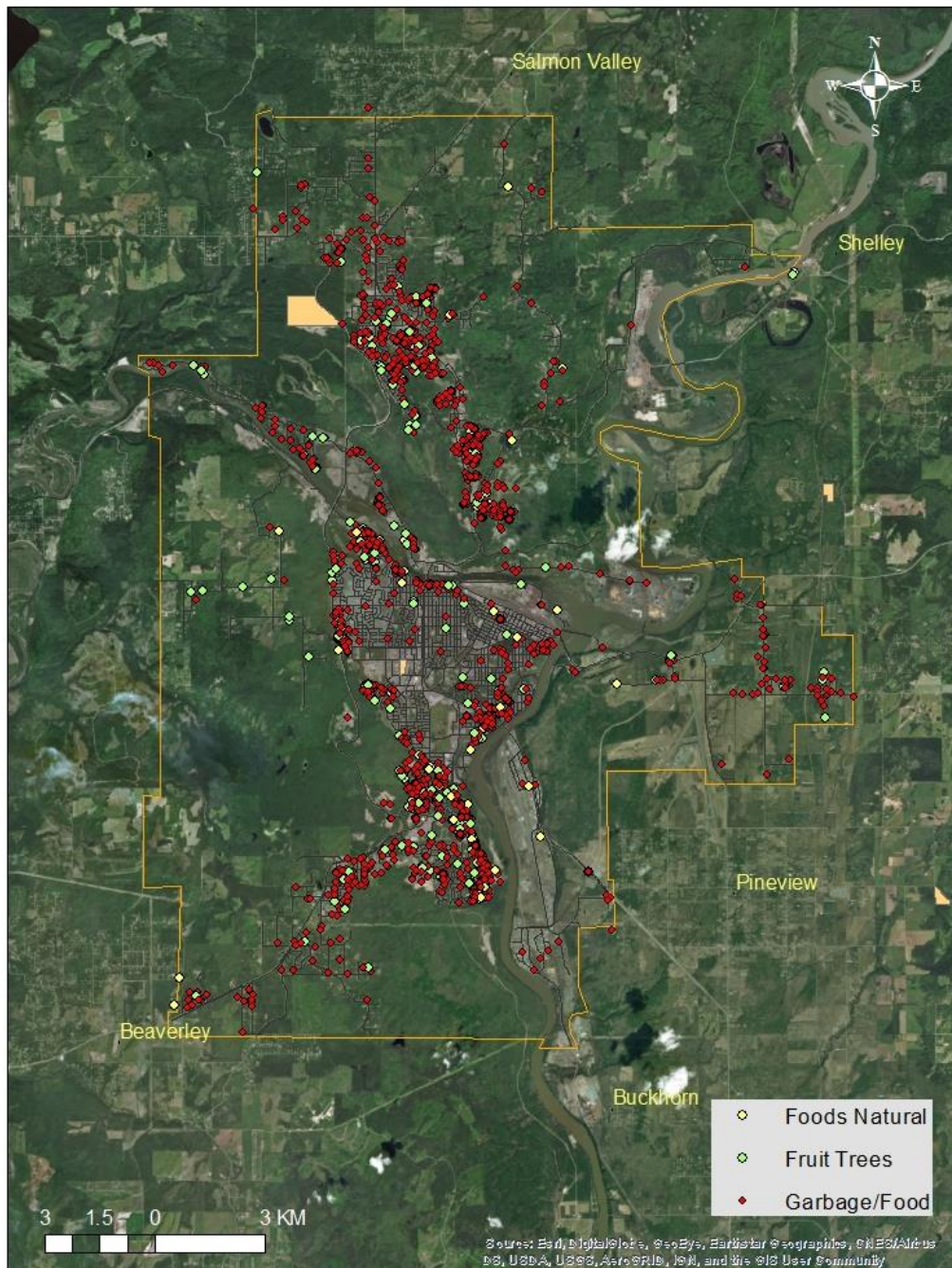
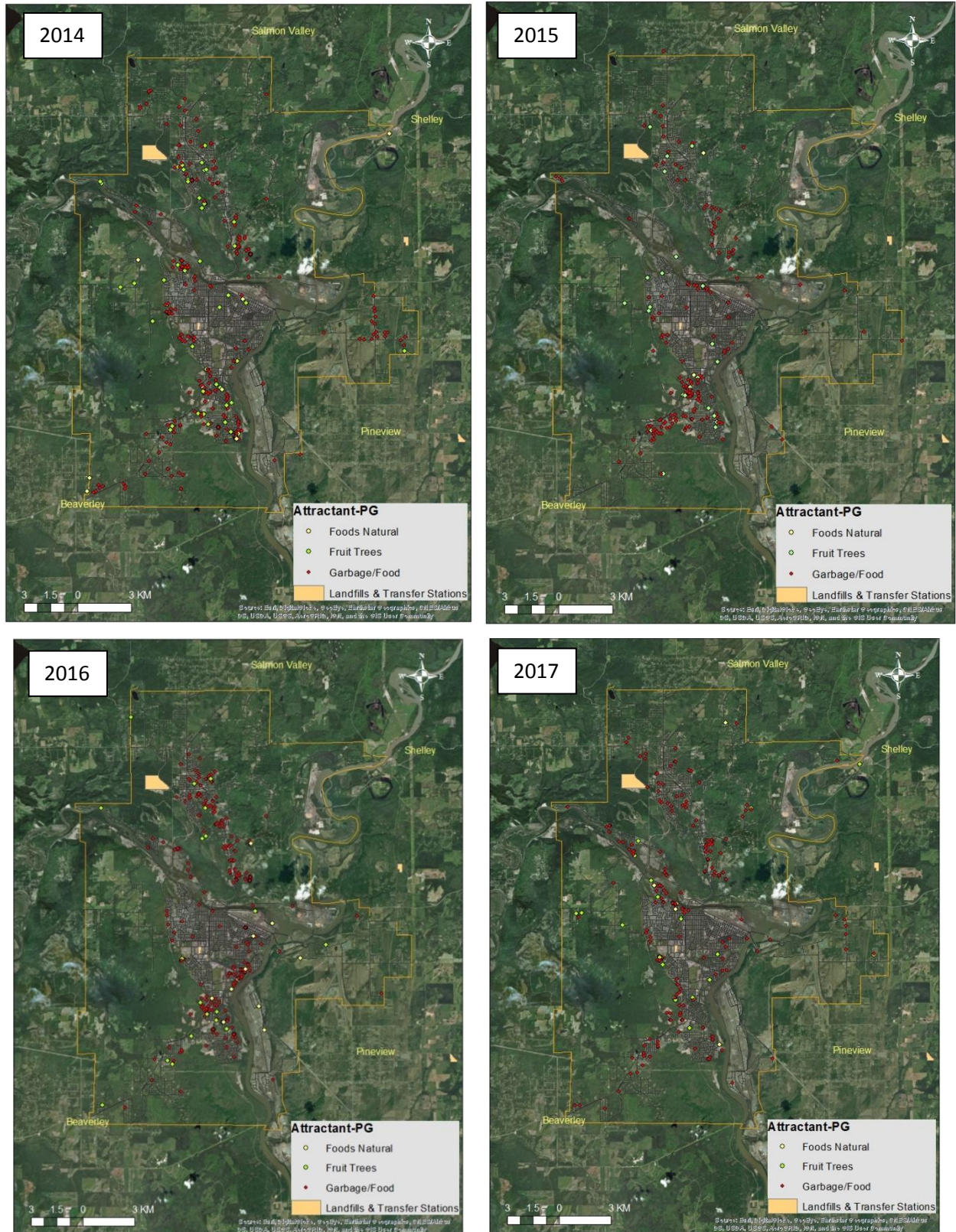




Figure 7. Garbage/Food, Fruit Trees Domestic and Fruit Natural for the city of Prince George, by year, 2014-2017. All other reporting categories have been omitted.



### 3.1 Bear Mortalities

176 of the 218 (81%) mortalities in the COS database were within the City of Prince George. It appears the number of mortalities is similar or slightly greater than the 2008 report. It has not decreased (Table 7).

Table 7. Number of bears destroyed within the city of Prince George and surrounding areas, 2011-2017. The numbers in brackets indicate numbers of bears destroyed within the City limits only. Mean and SE were based on 4-year intervals to match the 2008 Hazard Assessment.

Year	Black Bear	Grizzly Bear	Bears Destroyed	Yrs. Used to calculate mean	Mean No. Bears Destroyed	Standard Error
2011	15		15			
2012	23	1	24			
2013	36		36			
2014	52		52	2011-2014	32	8
2015	28		28			
2016	49		49			
2017	35	1	36	2014-2017	41	5.6
<b>Total</b>	<b>238</b>	<b>2</b>	<b>240</b>			

\*Table 7 on page 19 of the 2008 Prince George Hazard Assessment (Ciarniello 2008).

Garbage remains the primary attractant category resulting in the death of a bear (Table 8). The number of bears injured saw a drastic increase since 2007 (Ciarniello 2008). Bear-vehicle and bear-train collisions were reported. Table 8 includes the larger surrounding area which is largely comprised of acreages. In those outlying areas bear conflicts are higher for livestock attractants, such as grain, bee hives, chickens, sheep, and even donkey and llama. There are more grizzly bear reports for outlying areas.

Table 8. Attractant category resulting in the death of a bear for the city of Prince George and surrounding area, 2011-2017.

	2011	2012	2013	2014	2015	2016	2017	Total
Domestic Attractant	3	2 (1)	1	6	1	5	1	19
Foods Natural		3				1		4
Fruit Trees			2	1	1	4		8
Garbage/Food	5	4	11	10	9	14	12	65
Injured Bears	1	3	5	8	5	6	4	32
N/A No Attractant		1	6	1		3	7	18
Not Recorded	2				2			4
Sighting	4	8	9	20	8	12	7 (1)	68
<b>Total</b>	<b>15</b>	<b>21</b>	<b>34</b>	<b>46</b>	<b>26</b>	<b>45</b>	<b>31</b>	<b>218</b>

\*Numbers in brackets indicate grizzly bears

The primary attractant category resulting in the death of a bear for the city of Prince George is garbage followed by injured bears (Table 9). Bear-vehicle collisions appear to be coming more common.

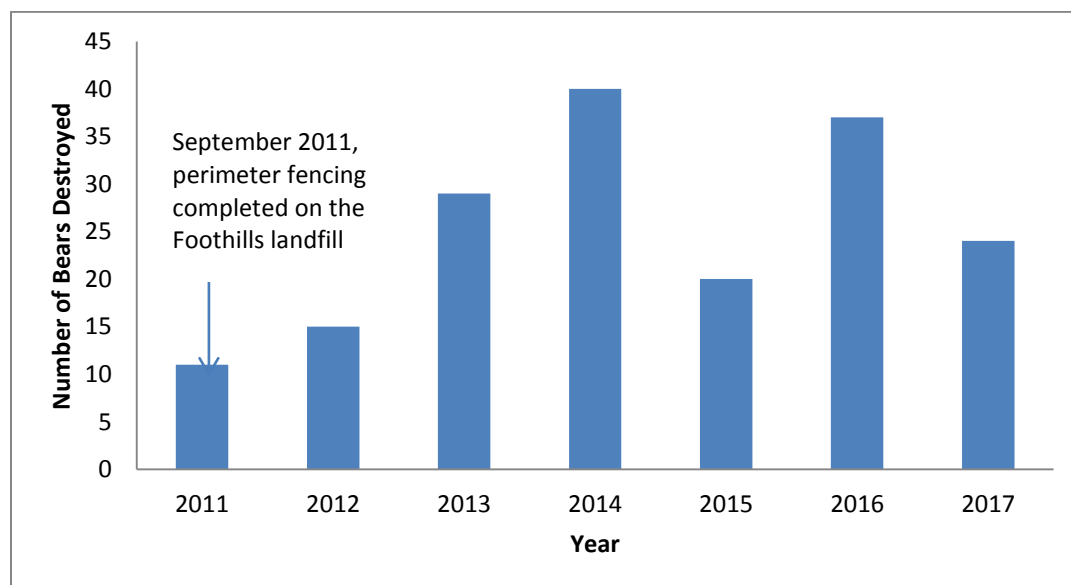
Table 9. Attractant category resulting in the death of a bear for the city of Prince only, 2011-2017. Bears deaths outside the city have been omitted from analysis.

	2011	2012	2013	2014	2015	2016	2017	Total
Domestic Attractant	1		1	4	1	2		9
Foods Natural		3				1		4
Fruit Trees			2	1	1	3		7
Garbage/Food	5	4	10	9	8	13	8	57
Injured Bears	1	2	4	9	3	6	2	27
N/A No Attractant			6	1		3	7	17
Not Recorded	1				2			3
Sighting	3	6	6	16	5	9	6 (1)	51
<b>Total</b>	<b>11</b>	<b>15</b>	<b>29</b>	<b>40</b>	<b>20</b>	<b>37</b>	<b>24</b>	<b>176</b>

\*Table 8 on page 21 of the 2008 Prince George Hazard Assessment (Ciarniello 2008).

The number of bears destroyed appears to follow a similar pattern to past years (Figure 8). The 2008 report contains destructions that occurred when the McLeod Lake landfill was closing so are not directly comparable until ~2002. It would be of value to study how this level of mortality is sustainable to the larger black bear population.

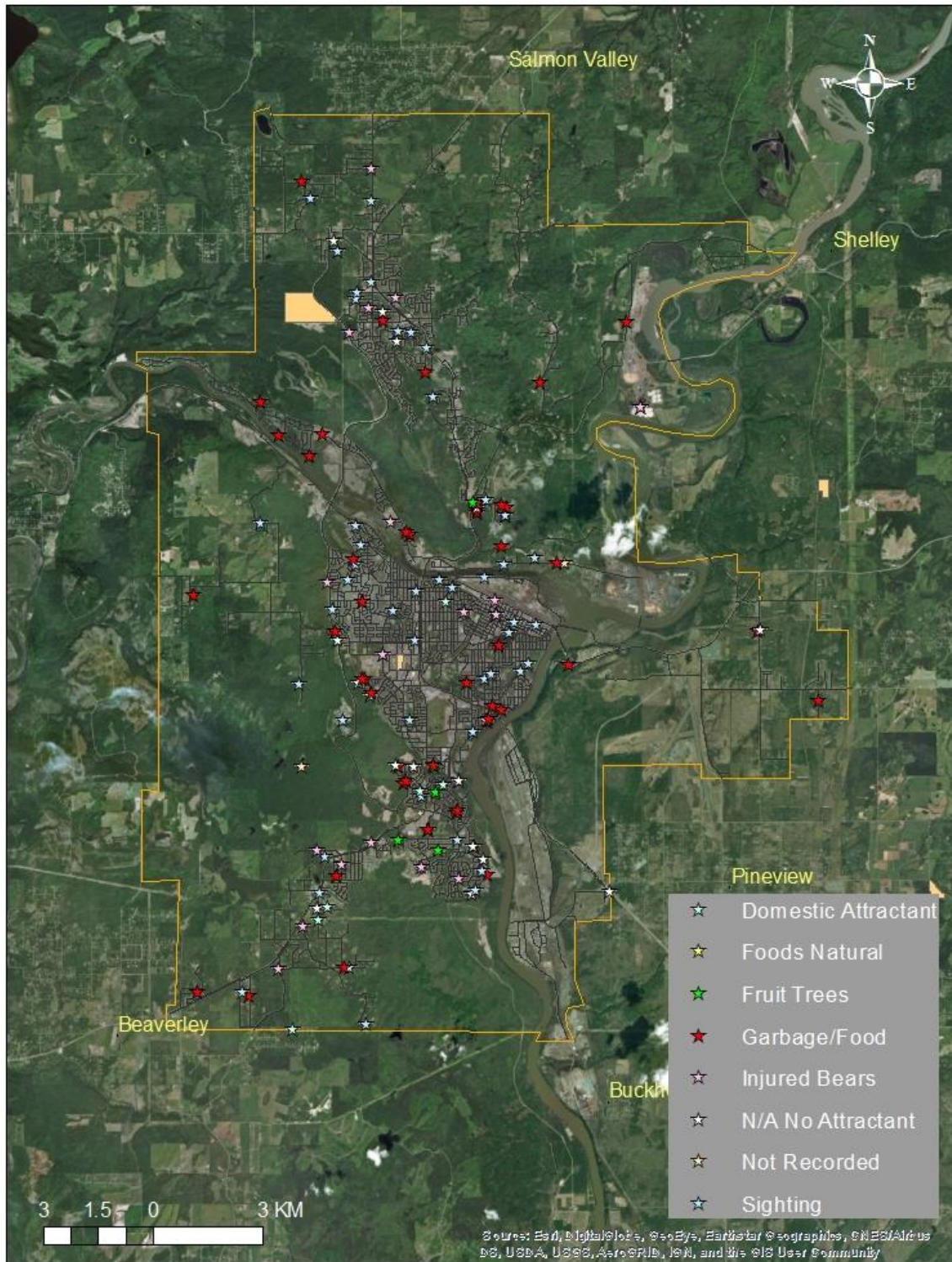
Figure 8. Number of bears destroyed in Prince George by year, 2011-2017.



\*This is a variation of Figure 5 on page 20 of the 2008 Prince George Hazard Assessment (Ciarniello 2008) because it is only mortalities within the City boundaries and does not include outlying areas.



Figure 9. Mortality location for bears by primary reporting category for the city of Prince George, 2011-2017.



## 4.0 Select Comments of Interest from the PWOR

The PWOR reports reveal several important points about the development of behaviours of bears that lead to human-bear conflict and the management of anthropogenic food sources within the city:

### **1. *The misconception remains that because the city provided the automated garbage cans in winter 2004 they are bear-resistant and are meant to be kept outside.***

- PWOR report - CO advised the caller that he needs to secure the garbage; com said that it was in an approved city garbage container. CO advised the com that these are city garbage cans, not bear proof cans and he must secure the garbage. COM was argumentative towards CO and just wants us to move the bear, CO advised that if we caught the bear it will be destroyed. COM didn't care as the bear is the problem getting into his garbage. Culvert trap to be set as bear is garbage habituated.
- PWOR report - Caller reports a bear getting into garbage... Caller does not have any place the garbage can be stored inside, and the city requires they uses specific cans, so he doesn't know what he can do to keep the bear out.

### **2. *There is a lack of Landscape-level planning to deter bears both for new developments and greenspaces.***

Housing the backs onto greenspaces report more conflicts with bears and need to be targeted for attractant management. For example, there were six calls from one such household and they had accessible garbage and fruit trees that they were not managing.

Mismanagement of attractants in neighbourhoods surrounding schools was a common problem and bears on school property were responded to by the COS, RCMP or both. All fruit trees close to schools need to be cut down or this problem will continue to happen.

Parks are greenspaces; all parks must have bear-resistant garbage cans and the garbage in parks needs to be emptied frequently.

### **3. *There is a common misconception that once a resident has secured their garbage the bear will immediately leave the area.*** It was very common to read that 'I secured my garbage a week ago and the bear still comes around''

#### ***\*The Key is to manage attractants before bear season! \****

*Bears are extremely quick learners and there is a need for proactive management of attractants. The earlier attractants are secured the faster the bear will move along.* PWOR reports:

- ...The bear got into her garbage once a couple months ago. The garbage is now locked up in the shed but the bear routinely returns to investigate.



- ...they said they secured all of their attractants 4 days ago but the bear keeps coming around and that the bear broke their gate on their deck and was up on their deck and pawed at the window.
- ...Bear was around last fall and got into their garbage which they secured. A trap was set but the bear was not caught. The bear came back this spring and go into their garbage once. They secured the garbage, trap set, but the bear was not caught. Bear returned this fall and ripped apart the shed they built for their garbage. They reinforced the shed. The bear came back and tried pushing on all three sides of the shed.
- ....[the bears] got into the garbage, they put it in the shed. They got into their freezer, they moved it into the shed. [The bears] have now been trying to break into the shed, ripping off panels...

#### ***An Example in the PWOR of Escalating Human-Bear Conflict Behaviour***

*Once a bear has accessed a non-natural attractant it becomes difficult to deter and its conflict behaviour can quickly escalate.* The following reports highlight the development of unwanted bear behaviours (PWOR reports):

- Black bear has been hanging around the last 3 mornings and the caller is worried about her small children. Bear keeps going to a tree that has some kind of small berries on her property.
- Advises that the bear has still been hanging around and pried the metal doors on her garbage shed open last night. Her garbage had just been emptied, however it got a bucket of dog food out. She also has livestock.
- Advises that the black bear returned late last night and broke the newly installed lock on door to garbage shed. There was no garbage inside shed as she immediately took all garbage to dump yesterday after reporting the black bear on her property. This morning at 0630am, BB came and knocked over a dog kennel that houses COMs ducks. The bear kills a duck.
- Advises that last night the bear opened/ ripped the bunny cage open and both bunnies were missing. The caller found one bunny hiding and it had some injuries. The bear tried to get into the livestock feed cage, and bent through the wood and metal. The neighbour said if they see the bear again they will shoot the bear.

A trap was set for this bear but it was not captured. The residents also reacted immediately to the situation. They purchased electric fencing and made all attractants bear resistant. There were no further reports.

#### ***4. There is segment of the population that was trying to secure their garbage cans using bungees and/or ratchets.***

It was good to see that a segment of the population was trying to deter bears from accessing their garbage. Bungee cords alone did not appear to work to secure garbage lids and were easily removed by bears, but if that is the only resort then try it. Some people reported to

solidly secure the can with ratchets to a solid object to hold it in one place and they also strapped the lid down. On occasion it was reported that this worked to deter bears from obtaining the garbage; however, it is likely that the bear just moved to an easier source of unsecured garbage.

**5. *There are chronic annual problems with some of the Trailer Parks, particularly Inverness Trailer Park. The mismanagement of garbage at the Trailer Parks is negatively affecting the surrounding neighbourhoods.***

In October 2016, Caledonia Park removed the large dumpsters and went to individual containers that were not bear resistant. It is apparent that problems with bears increased. Sometime in 2017 the park was under new management and went back to large waste containers.

**6. *Garbage Storage.*** Bears attempting to or actually breaking into areas where garbage is being stored has increased.

The vast majority of the sheds people are using to store their garbage in are not bear-resistant. Storage boxes made of wood were commonly reported to be used and commonly reported to be broken into by bears. Wood boxes or the small metal sheds sold at hardware stores are not bear-resistant.

The food conditioning and habituation of bears that used the Inverness Trailer Park area had a negative effect on surrounding dwellings and bears appeared to attempt more break-ins in this area to access non-natural attractants.

**7. *The garbage bylaw was not being enforced. There was a segment of the population that was becoming increasingly frustrated with the City and the COS for what they stated was a lack of support in trying to get their neighbours to manage their attractants.***

There are members of the public that want to help manage attractants but they stated that they were not getting the support from the City or the COS.

- PWOR report - Caller wants to report people who keep putting out bird feeders and attracting a bear. It's a young bear that's just on its own for the first time. He still runs when dogs bark but he's getting more familiar. He talked to one man who got angry and said he wasn't taking his bird feeders down.
- The caller is calling to complain about the garbage that her neighbour is currently leaving out on an ongoing basis which is attracting black bears. The caller stated she has complained to bylaw in the past and is unsatisfied with the actions being taken or lack thereof.

This caller called on 5 separate occasions to report her neighbours overflowing garbage. The escalating frustration with the lack of support and enforcement appeared to foster negative attitudes towards the City and the COS.

**8. Few Dangerous Wildlife Protection Orders (DWPOs) were being issued** and traps were set in areas where bears had access to excessive non-natural attractants including garbage.

There also was a general lack of consistency with how or when DWPOs were issued. It is known that education alone is not a panacea to alter human behaviour (Dietsch et al. 2017). Enforcement action must be coupled with education, especially where garbage is identified as the attractant.

**9. The Destruction of bears in conflict is not effective at addressing the bear issues in Prince George; at best destructions are a short-term solution to complaints. It is apparent that a “catch-22” situation exists in Prince George where when one bear is destroyed another just moves in to take its place.**

*If attractants are not managed then a “catch-22” situation occurs where one bear is removed and another just takes its place and management is caught in continually responding to calls and destroying bears.*

There is a general lack of structure in the decision on when a bear(s) is destroyed. There are times when a trap will not be set until the attractant is removed and other times when traps are set despite the extreme availability of non-natural attractants to bears. Often there are reports of multiple bears in the area and it appears that for the most part the bear that is destroyed is the bear that gets into the trap and if the attractant is not managed then the problem continues.

- PWOR report - ....Not sure if they trapped the correct bear as last night another huge large black appeared. The bear got into the garbage.

Destroying bears simply because they are ‘in the city’ or within a block of a school takes away from the actual root cause of the problems – excessively abundant and easily accessible garbage and fruit trees, and the need to manage the greenspaces properly to deter bears from entering the areas in the first place.

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