FOR YUKON GOVERNMENT

Assessment of Bear-Human Incidents and Mitigations in Yukon Mining and Exploration

JULY 2019

boreal logic
Research for the North

Table of Contents

Background

This contract involved undertaking field surveys of approximately 100 mining and exploration sites distributed across Yukon and reporting on the extent and severity of human-bear incidents in relation to regulated mining and exploration activities. These surveys were conducted with the goal of determining whether mitigations imposed by regulators are being implemented by proponents and whether they are effective.

The effectiveness of human-wildlife conflict (HWC) mitigations recommended by the Environmental Affairs Unit of the Department of Environment (ENV) and the Yukon Environmental Socio-economic Assessment Board (YESAB), some of which are included in operating conditions by regulators, has never been assessed in the field to see if there is any measurable effect on HWC. It has long been suspected that HWC at placer and quartz mines or during exploration activities has gone largely under-reported.

Every year there are conflicts between people and wildlife related to mining and exploration activities. Some of these conflicts are minor in nature while others are much more serious and result in property damage, human injury and/or bear death. In many cases, these conflicts are entirely preventable. ENV is trying to reduce HWC relating to regulated activities that are subject to environmental assessments by reviewing proponents' applications and recommending best management practices to mitigate HWC.

Entrance way sign at placer mining site in Dawson district displays a bear bite.

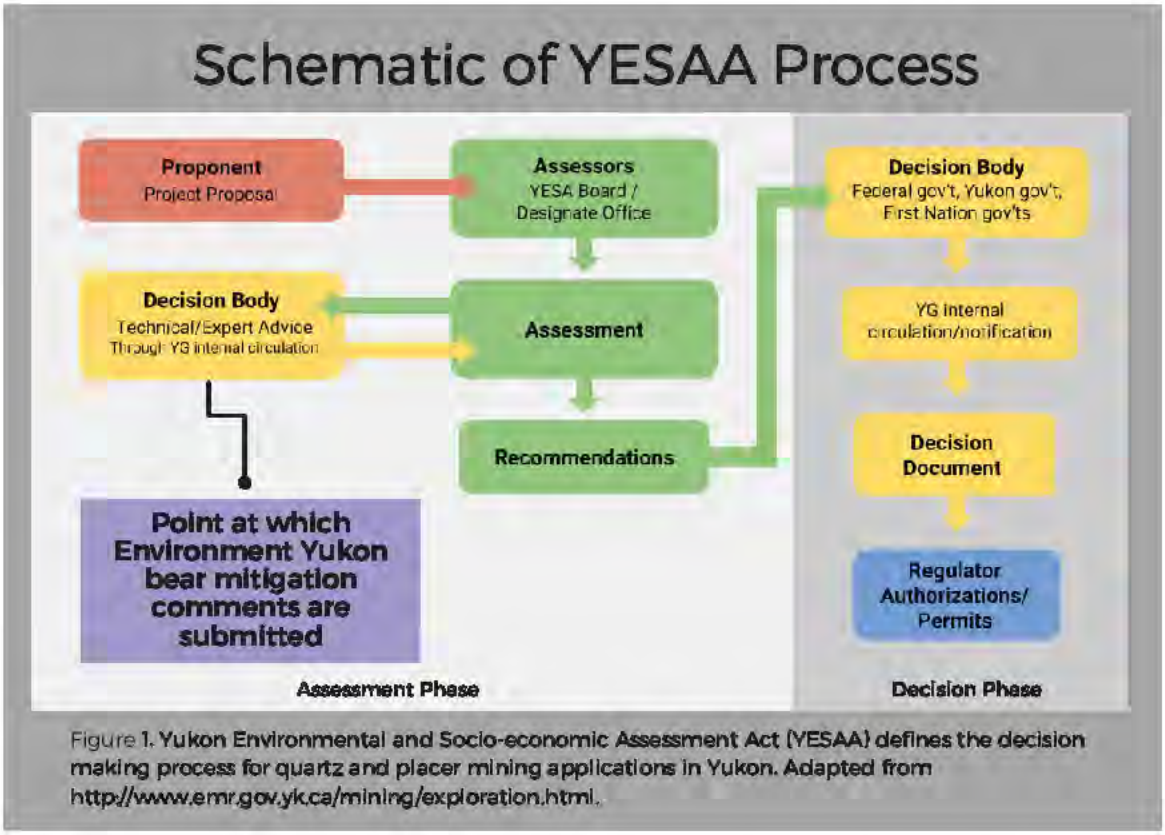

Figure 1. Yukon Environmental and Socio-economic Assessment Act (YESAA) defines the decision making process for quartz and placer mining applications in Yukon. Adapted from http://www.emr.gov.yk.ca/mining/exploration.html.

Bear conflict mitigation recommendations are provided to YESAB assessors who then determine if they are applicable and forward them on to the regulators, who in turn may accept, vary or reject these recommendations (see Figure 1). Often, the final HWC mitigations are reduced to unenforceable conditions, such as suggestions to follow the ENV publication "Guidelines for Industrial Activity in Bear Country" (GIABC) or self-prescribed proponent commitments, as opposed to compulsory conditions. Mitigations that are most likely to make it through the YESAA process onto permits are those that are supported by empirical data.

Regulators and environmental assessors require evidence to develop and support HWC mitigation recommendations, such as statistics of the numbers of bear-human conflicts and bear incidents in particular geographic areas.

However, there are few incentives for miners in Yukon to report bear-human conflicts and as a result, the statistics of the number of bear-human conflicts in Yukon's mining areas are understood to be under-representative of the actual level of bear-human conflict.

Of further consideration, in the absence of reliable statistics regarding the number of bear-human conflicts, capturing data regarding how wildlife attractants are managed at individual sites, the use of bear deterrents, and knowledge of site operating conditions provides vital information for regulators and assessors when determining the efficacy and level of implementation of operating conditions. As a result, Boreal Logic was contracted to gather statistics through in-person surveys from the Dawson, Mayo and Haines Junction mining districts.

Survey Methods

Environment Yukon provided a list of preselected, randomly distributed placer and quartz mining and explorations site locations which specifically contained bear mitigations in their mining authorization documents.

In July, August and September of 2018, ninety eight sites were surveyed in the Haines Junction, Mayo and Dawson districts. Sites were accessed predominantly by truck, however, a handful of remote sites were accessed by boat and helicopter. Aside from gathering survey answers, observations of site cleanliness and attractant management were noted. In many cases, the survey was conducted away from the camp so observations of camp cleanliness was not always possible.

After visiting several sites that were on the preselected list, it was apparent that many of the sites were inactive. In order to obtain the target sample size of approximately 100 distinct site surveys, it was decided that whenever an active site was encountered, it was necessary to include it in the survey.

Individuals on a given placer or quartz site were approached by the surveyor and provided a brief introduction. The surveyor indicated that they were an independent contractor and that the contract was financed through Environment Yukon. The contractor indicated that they were collecting data on the efficacy of YESAB's recommendations regarding bear mitigations. Boreal Logic contact information and the survey pre-amble sheet (see Appendix 2) were offered to the respondent. When an active site was successfully surveyed, the GPS location was noted. Respondents were not offered an incentive to complete the survey and were not subsidized if they did complete the survey.

Of those 98 sites that were surveyed, 91 respondents were cooperative and 7 respondents were deemed uncooperative. Of the 91 viable surveys, 71 surveys could be traced to their site YESAB and mining authorization number with 100% certainty. Twenty sites could not be accurately traced back to their YESAB or mining authorization number because the GPS coordinates recorded at the location of survey were at an access road which led to several other claims and were not actually reflective of site where respondent worked and/or the respondent was not able to provide the name of the owner of the site or the name of the person who was listed on the YESAB/mining authorization documents.

Respondents were asked about bear incidents that occurred on site versus in camp. In camp included any area where food was stored, prepared (including kitchen facilities) and where people slept. On site was considered all other areas of camp.

YESAB Registry Document Database Methods

To create the YESAB Registry Document Database, the YESAB registry was accessed (www.yesabregistry.ca) and the mining authorization document, decision document and evaluation report were downloaded for 181 projects. The terms and conditions relating to bear mitigations were extracted from these documents. The bear mitigation comments made by Environment Yukon (see Figure 1) were also obtained from the YESAB registry and compiled. The terms and conditions were then analyzed with particular emphasis placed on whether certain bear mitigations were recommended, legislated or rejected throughout the YESAB process.

Barriers to Gathering Data

A lack of information on which mining sites were active made gathering more than 98 surveys impractical. Furthermore, there is no system in place with the Energy, Mines and Resources Department of Yukon Government to track whether or not a particular mining site is active or not at any given time. As a result, there was no way to "call ahead" to a site to ensure that there were going to be potential survey respondents present. Lastly, no legal immunity for mine workers who might be willing to provide information about illegally shot bears meant that there was apprehension on behalf of respondents to disclose information that might have implicated them.

Results

SURVEY DATABASE AND YESAB REGISTRY DOCUMENTS DATABASE

The following results section depicts graphical representations of the survey responses, cross comparisons between survey question responses, important features of the YESAB registry document database presented graphically, as well as a series of analyses of the survey data in conjunction with components of the YESAB registry documents database.

Figure 2. Responses to the question: "What is your position in the placer/quartz mine?".

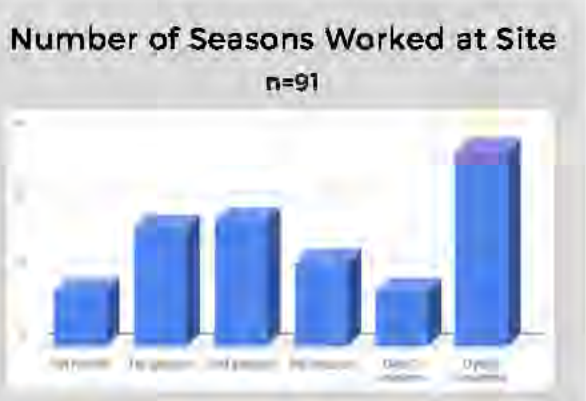

Figure 3. Responses to the question: "How long have you worked at this site?".

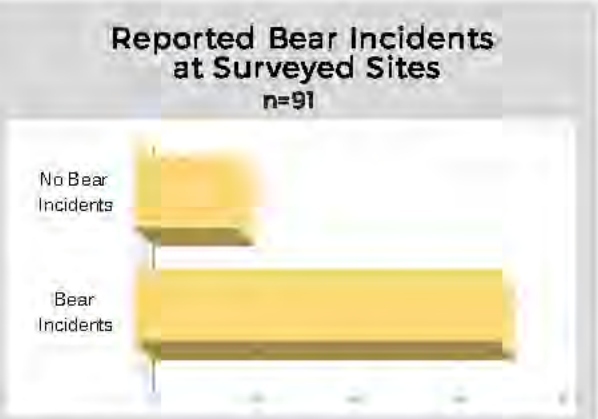

Figure 4. Responses to the question: "Have you or anyone on this site had any incidents or conflicts with bears?".

As depicted in Figure 2, of those surveyed, 41 (45%) indicated they were the owner of the site. Twenty eight (30%) of people fell into the category "helper or other" which included doing odd jobs around camp. Fifteen people were equipment operators and 7 were kitchen staff or cooks.

Of those surveyed, 28 indicated that they had worked at that specific site for over 5 years (Figure 3).

Respondents were asked to recall the most memorable bear incidents or conflicts that happened on site. Of the 91 survey respondents, 71 reported bear sightings, incidents or conflicts on site (Figure 4). Many of these 71 respondents reported multiple incidents.

Figure 5. Responses to the question: "Where on site did you or anyone have conflict/incidents with bears?".

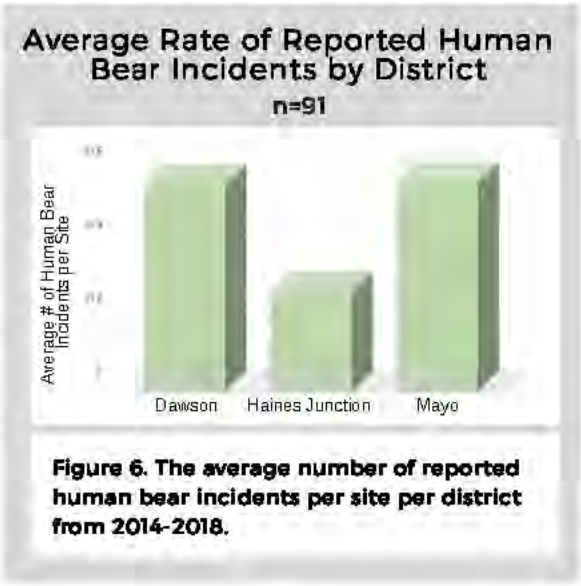

Figure 6. The average number of reported human bear incidents per site per district from 2014-2018.

When respondents were asked to recall the most significant bear incidents/conflicts over the past 5 years the majority of respondents indicated that bear incidents occurred "on site" which was any place other than the camp (Figure 5). For those human bear incidents that occurred in camp, the majority occurred in and around the kitchen - either in food preparation areas or in food storage areas. Respondents could report more than one bear incidents.

The average rate of human bear incidents per site were calculated according to the district in which they occurred. Dawson and Mayo had a similar rate of reported human bear incidents (Figure 6).

The average rate of human bear incidents per site was also calculated according to the type of mine. Respondents from quartz mines reported slightly higher rates, on average, of human bear incidents compared with placer mines (Figure 7).

Respondents reported higher numbers of human bear incidents with black bears compared with grizzly bears across all districts (Figure 8).

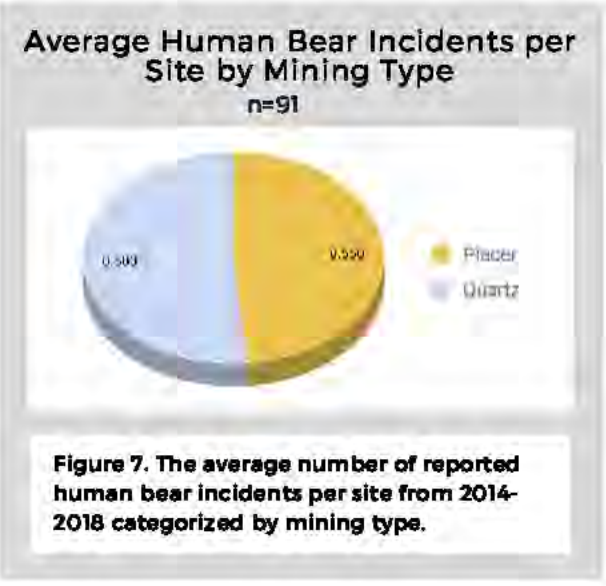

Figure 7. The average number of reported human bear incidents per site from 2014-2018 categorized by mining type.

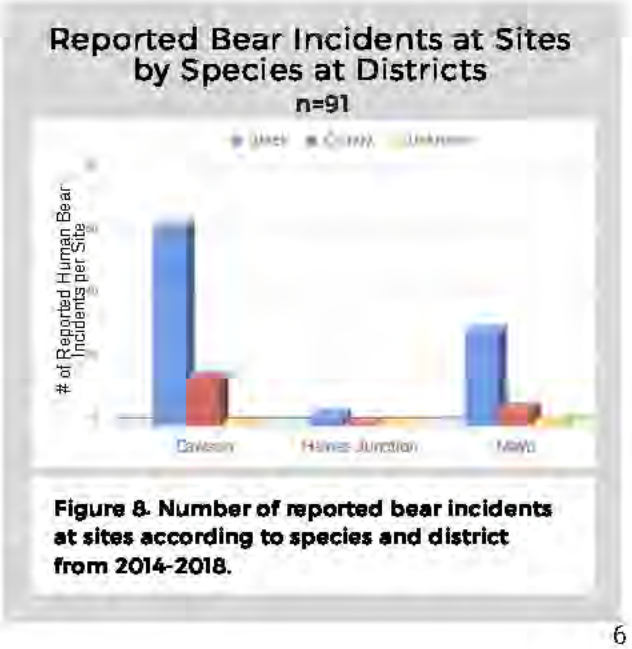

Figure 8. Number of reported bear incidents at sites according to species and district from 2014-2018.

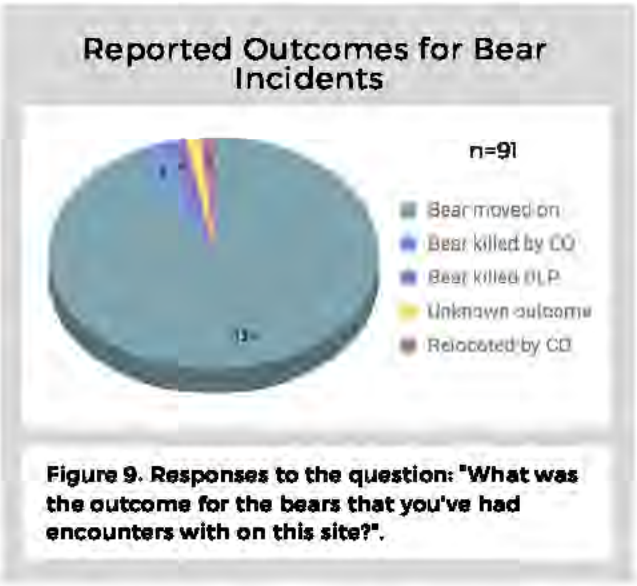

Figure 9. Responses to the question: "What was the outcome for the bears that you've had encounters with on this site?".

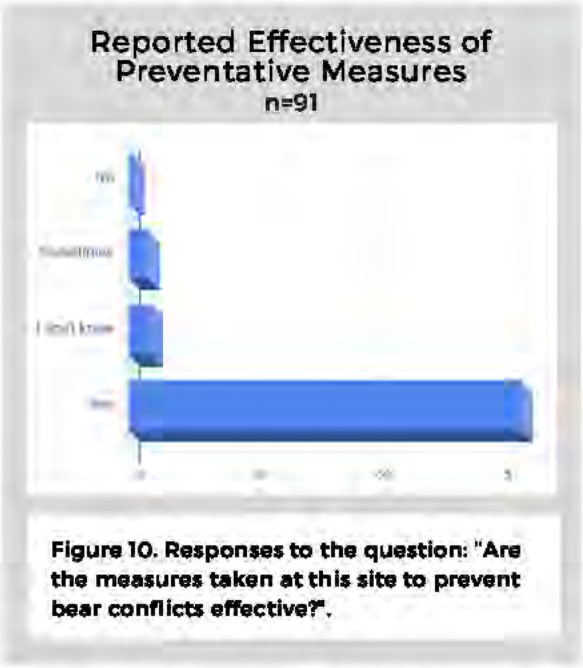

Figure 10. Responses to the question: "Are the measures taken at this site to prevent bear conflicts effective?".

As shown in Figure 9. of those who reported bear incidents. 4 individuals reported killing a single bear in defence of life and property (DLP) while 139 bears were reported as moving on from the site. Several of the 91 respondents reported more than one bear incident.

When survey respondents were asked if the measures taken at the site to prevent bear conflicts were effective. only one respondent said "no" while 81 respondents said "yes", 4 said "sometimes", and 5 said "I don't know" (Figure 10).

Respondents were asked what tools were used on site to deter bears and respondents could indicate more than one answer (Figure 11). The majority of people used firearms. while bear spray. and dogs were indicated as the second and third most common way to deter bears. Six people in total reported using electric fencing.

When asked about whether site operations ever changed in response to a bear incident. 48 of the 91 surveyed said that there had never been a conflict on site and 26 said that they did not know (Figure 12).

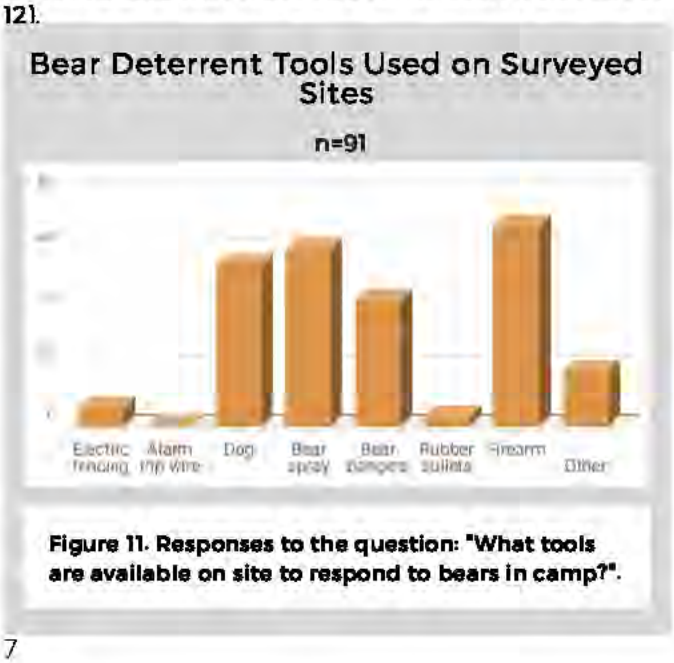

Figure 11. Responses to the question: "What tools are available on site to respond to bears in camp?".

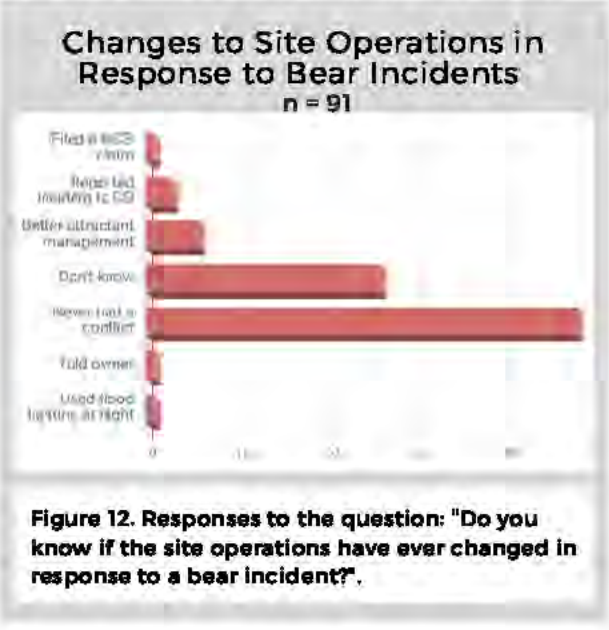

Figure 12. Responses to the question: "Do you know if the site operations have ever changed in response to a bear incident?".

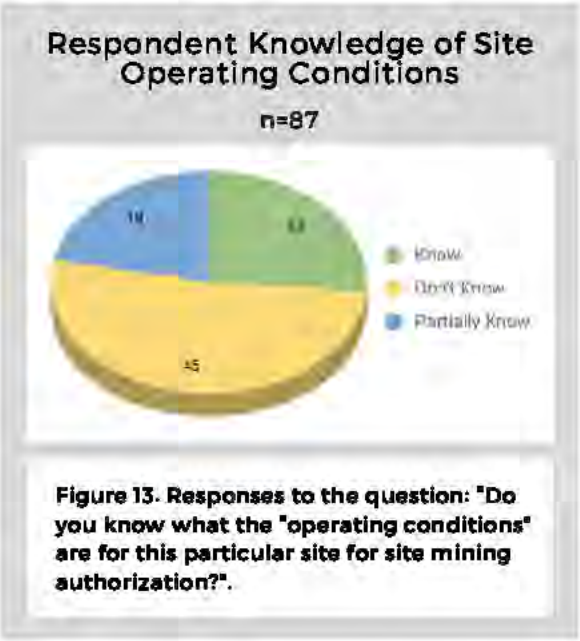

Figure 13. Responses to the question: "Do you know what the "operating conditions" are for this particular site for site mining authorization?".

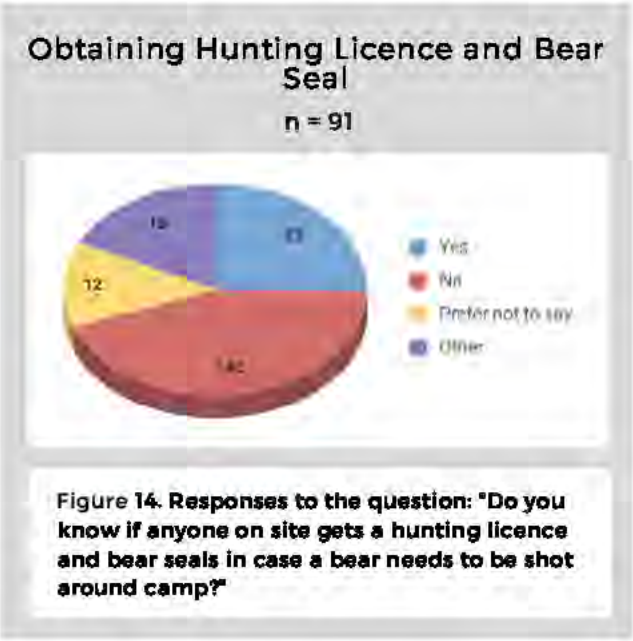

Figure 14. Responses to the question: "Do you know if anyone on site gets a hunting licence and bear seals in case a bear needs to be shot around camp?"

Respondents were asked whether they knew what the particular operating conditions were for the site they were working on. For clarification, the surveyor explained that YESAB and Yukon Government, along with other stakeholders, make recommendations regarding wildlife and other environmental considerations. These may then become the terms and conditions ("operating conditions") for a particular mining authorization permit when the Decision Body issues a mining authorization permit. Of those respondents who answered this question, only 23 (26%) said they knew the operating conditions for the site (Figure 13).

Less than half of the respondents said that no one on site obtained a hunting license and bear seal just in case a bear needed to be shot (Figure 14). The majority of respondents reported that they did not think that there were any barriers to reporting conflicts that happen at the site and respondents could indicate more than one category (Figure 15). 'Poor relationships with COs' were the least reported response, while 'Time', 'Concerns about prosecution' or '...Shutting down operations' and 'Mistrust of government' all scored similarly. The majority of survey respondents said that bear safety training on site was not mandatory (Figure 16).

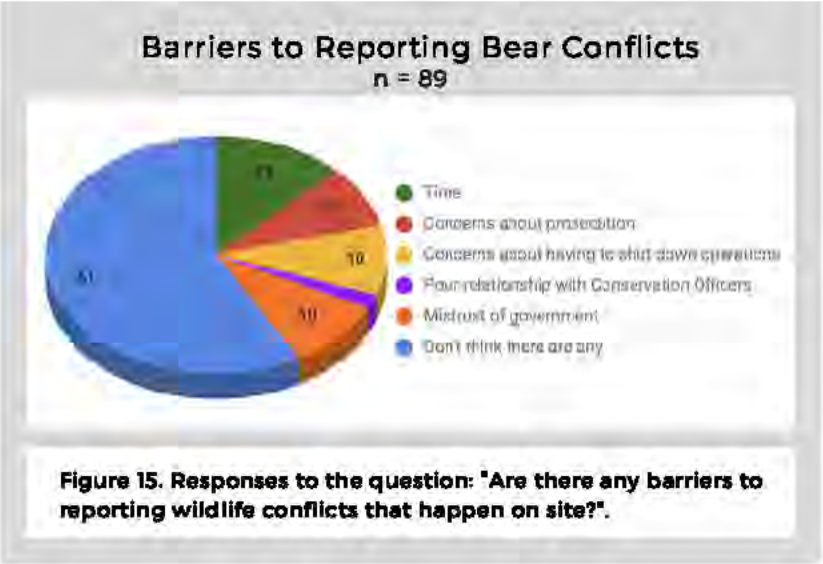

Figure 15. Responses to the question: "Are there any barriers to reporting wildlife conflicts that happen on site?".

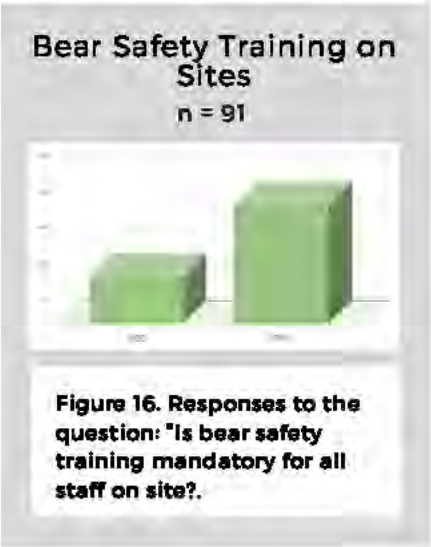

Figure 16. Responses to the question: "Is bear safety training mandatory for all staff on site?.

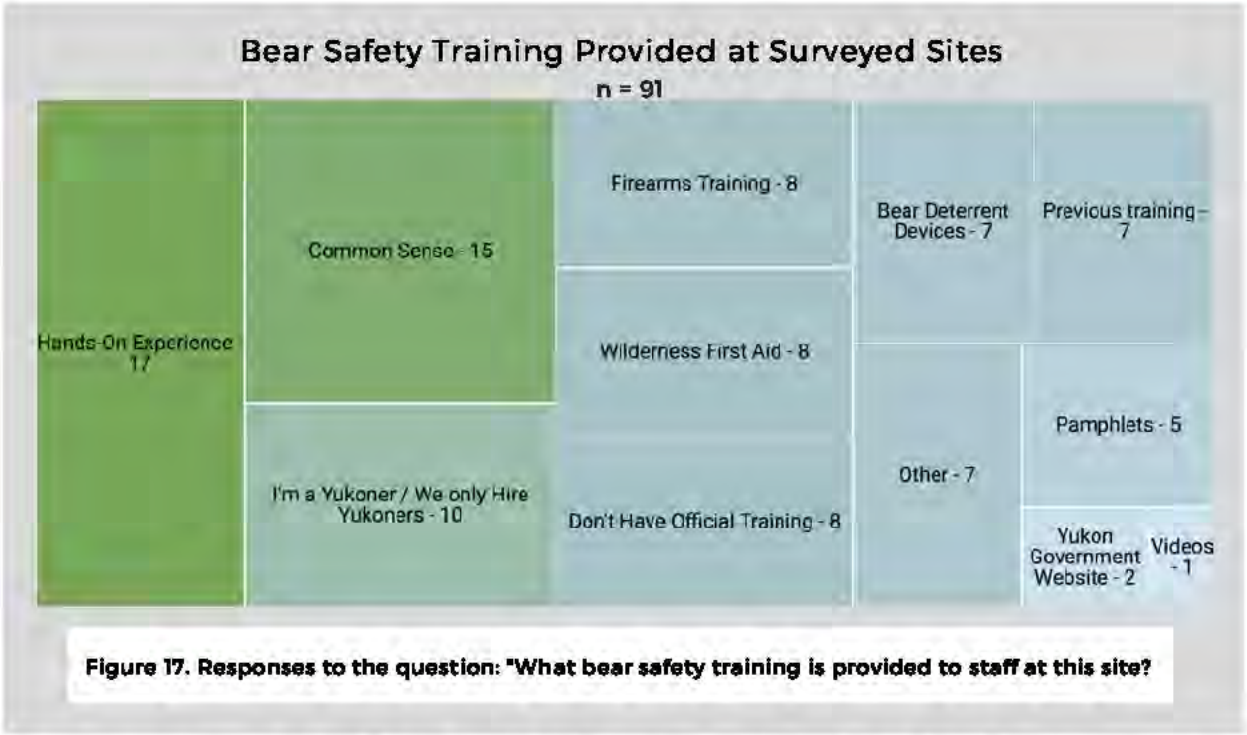

Figure 17. Responses to the question: "What bear safety training is provided to staff at this site?

When respondents were asked what bear safety training they received, the majority of responses were not actually examples of safety training (Figure 17). Combined, those reporting "Hands on experience", "common sense" and "I'm a Yukoner/We only hire Yukoners" plus those sites that admitted to having no official training totalled 50. Note that respondents could indicate more than one category.

Respondents were asked the open ended question of what they would change about Yukon's regulatory system regarding miners and how to deal with bears. Respondents were prompted to consider what they would have to do if they had to shoot a bear that came on site, according to Yukon law. The open ended responses were binned into 9 categories (Figure 18). Twenty six respondents answered that they would not change the system while 24 respondents said that they did not know what the regulations are, exactly, for miners with regard to bears.

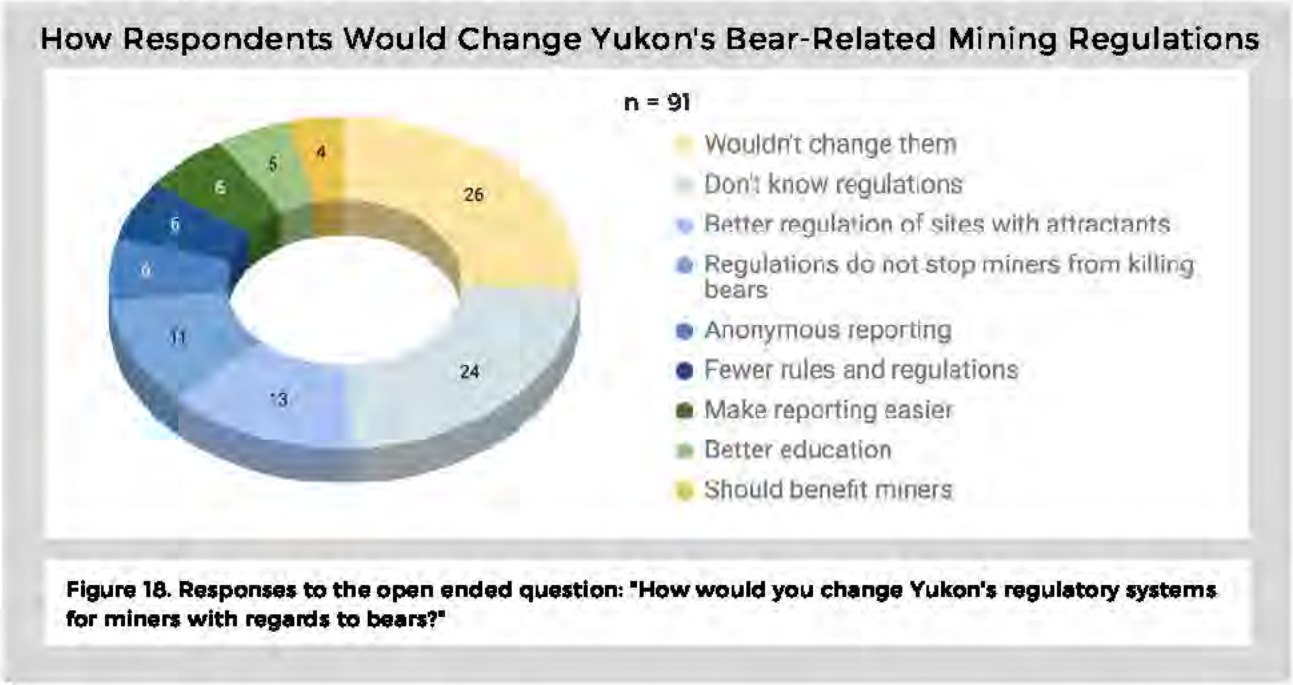

Figure 18. Responses to the open ended question: "How would you change Yukon's regulatory systems for miners with regards to bears?"

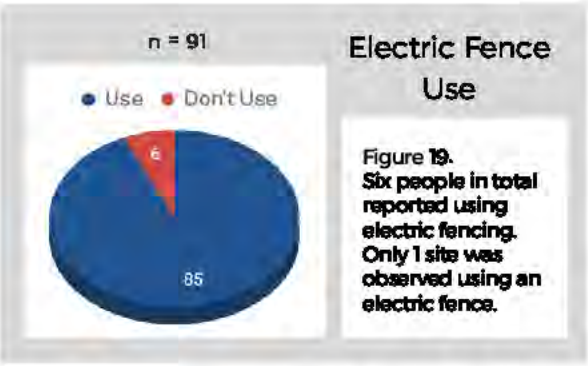

Figure 19.
Six people in total reported using electric fencing. Only 1 site was observed using an electric fence.

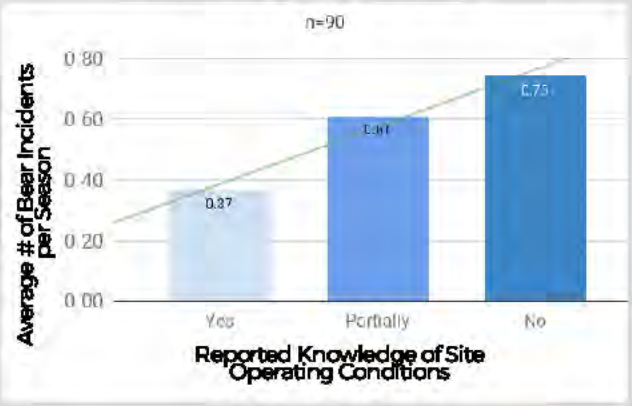

Figure 20.
Respondents were asked about their most memorable bear incidents on site. These responses were cross-referenced with whether or not the respondent knew the operating conditions for the site.

Six out of the 91 respondents reported using an electric fence (Figure 19). Respondent knowledge of site operating conditions was then examined in relation to the number of reported bear incidents, the number of seasons spent at site, and the position at the site (Figure 20). Those who reported that they did not know the operating conditions for the site also reported a higher number of bear incidents, on average. Half of the owners and supervisors reported that they knew the operating conditions (Figure 21a) whereas only 2 (9%) of labourers and operators knew (Figure 21b) and none of the kitchen staff indicated that they knew the site operating conditions (Figure 21c). Figure 22 (next page) shows that respondents were less likely to know the site operating conditions if it was their first season at the site, whereas they were more likely to know the operating conditions at the site if they had been there for 5 seasons or longer.

The single site that was observed with an electric fence. Site located at quartz mine near Burwash.

Figure 21 (a. b and c). Respondents were asked if they knew the operating conditions at the site they were working on. Respondents were also asked about their position on the site.

Knowledge of Site Operating Conditions and # of Seasons at Site

Figure 22.
Respondents were asked how long they had been working at the site. Their responses were cross-referenced with their knowledge of site operating conditions.

During the course of the survey, observations were made of sites including how fuel and petroleum products were stored. These observations were cross referenced with the YESAB Registry Documents Database. Of the 181 sites included in the YESAB Registry Documents Database, 43 had explicit fuel storage terms and conditions included in descriptions of attractant management. Forty of these 43 terms and conditions made direct reference to "Guidelines for Industrial Activity in Bear Country" (GIABC), a 2008 publication for Yukon Government which states: "Store motor oil, diesel, gas and anti-freeze in airtight containers in a location that is inaccessible to bears such as a well-made shed, or steel locking container. Bears are often attracted to these types of synthetic materials" (pg. 8, GIABC, Appendix 3). For the 91 sites that were visited during the course of the survey, 31 sites were observed to have petroleum that was not secured in a manner that is consistent with the best practices that are outlined in GIABC (Figure 23). Sites that did not have petroleum storage best practices explicitly linked to bear mitigation were almost twice as likely to have unsecured petroleum products observed on site (Figure 24).

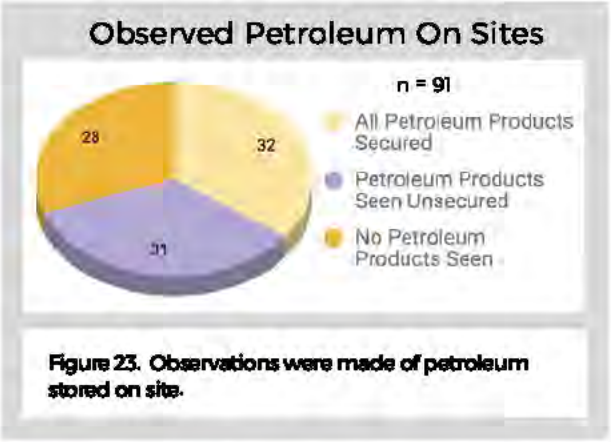

Figure 23. Observations were made of petroleum stored on site.

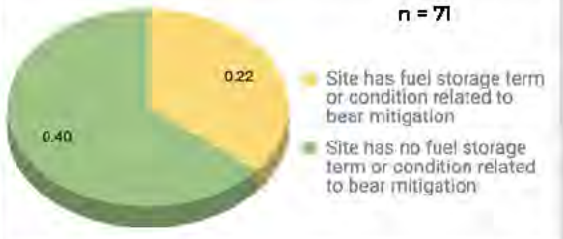

Figure 24. Sites with no conditions placed on how petroleum ought to be stored were twice as likely to have unsecured fuels on site as compared to sites that did have conditions placed on the storage of petroleum products. There was no difference in reported numbers of Human-Bear Incidents between these two groups.

Several buckets of used petroleum based products on a site in Dawson district.

Enforceability of Bear Mitigation Terms and Conditions in Decision Documents

n=71	Decision Document		
Term/Condition	**Shall**	**Should**	**Rejected**
Install Electric Fence	6	1	2
Secure Attractants	26	2	18
Secure Petroleum	5	6	1
Use GIABC	10	9	3
Use Deterrents	2	1	-
Provide Training	1	-	-
Report Incidents	22	-	17
Make Bear Plan	1	1	5
Report Bear Mortalities	1	1	1
Prevent Habituation	1	1	3

Table 1.
Summary of the legislated ("shall") versus recommended ("should") versus rejected terms and conditions found in the 71 survey sites that were cross-referenced to their mining authorization number.

The terms and conditions from the 71 surveyed sites that were cross referenced to their decision documents where analyzed (Table 1). Some of the bear mitigation terms and conditions were legislated - described using the word "shall" - whereas other terms and conditions were recommended - described using the word "should". In contrast, some projects' bear mitigation terms and conditions were rejected at some point during the YESAA process. Of the 71 sites that were cross-referenced to their mining authorization number, 27 were observed as having poorly secured petroleum products on site (Figure 25). Of these 27 sites, only 6 had fuel storage *recommendations* while 3 had fuel storage *legislations* listed explicitly in their terms and conditions. The 6 sites with recommendations for fuel storage were initially put forward as legislation but were varied to a recommendation in the YESAB process.

The decision documents for these 27 sites had highly variable descriptions of the term "attractant". In some instances, the term attractant was described as including fuel/petroleum products whereas other instances it was not (Table 2, page 14). In other instances, the only reference made to proper petroleum storage was made by referencing GIABC. For the purposes of this analysis, references made to GIABC were excluded.

Recommended and Legislated Fuel Storage Terms and Conditions

Figure 25.
Twenty seven of the 71 sites that were cross-referenced to their mining authorization number were observed as having unsecured fuel stored on site. Of these, only 3 had legislated fuel storage terms or conditions, while 6 had recommendations. The remaining 18 had no fuel storage recommendation or legislation.

Decision documents do not consistently state how project proponents need to manage wildlife/bear attractants. For example, in the 71 sites that were surveyed and linked to their mining authorization number, 26 decision documents legislated attractant management ("proponent shall store garbage...") whereas 18 project proposals had the same term removed before the decision document was issued. Two decision documents made attractant management a recommended term and condition while 25 decision documents made no mention of reporting wildlife incidents at all (Figure 26).

Examples of the different terminology used to describe attractant management terms and conditions are outlined in Table 3, next page. Decision documents do not consistently state what project proponents need to do in the case of wildlife incidents. For example, for the 71 sites that were surveyed and linked to their mining authorization number, 22 decision documents legislated the reporting of wildlife incidents ("proponent shall report wildlife incidents...") whereas 17 project proposals had the same term removed before the decision document was issued and 32 decision documents made no mention of reporting wildlife incidents at all (Figure 27).

Finally, 10 of the 71 surveyed sites that were cross-referenced to their mining authorization number had legislated the use of GIABC in their terms and conditions. 9 recommended its use and 3 had had GIABC rejected at some point during the YESAB process. Fifty of the projects had no mention of GIABC during the course of the YESAB process or decision document (Figure 28).

Figure 26.
Terms and conditions regarding attractant management were legislated ("shall"), recommended ("should"), rejected or never mentioned in project decision document for 71 surveyed sites.

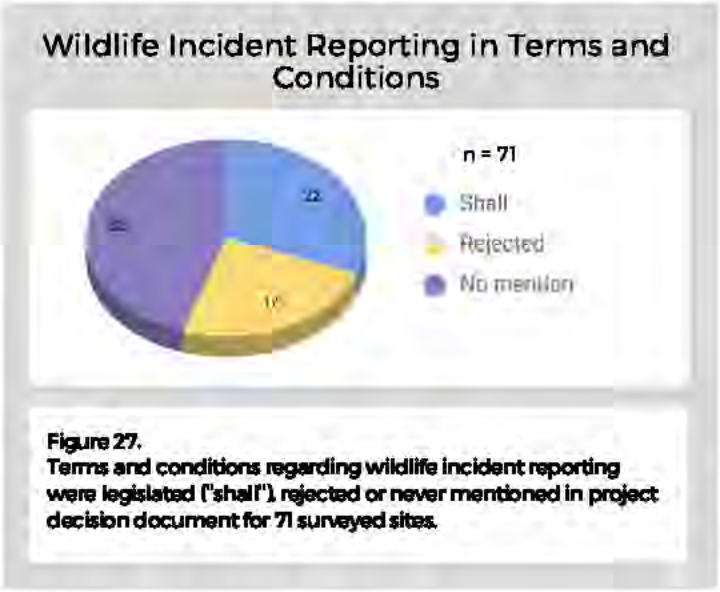

Figure 27.
Terms and conditions regarding wildlife incident reporting were legislated ("shall"), rejected or never mentioned in project decision document for 71 surveyed sites.

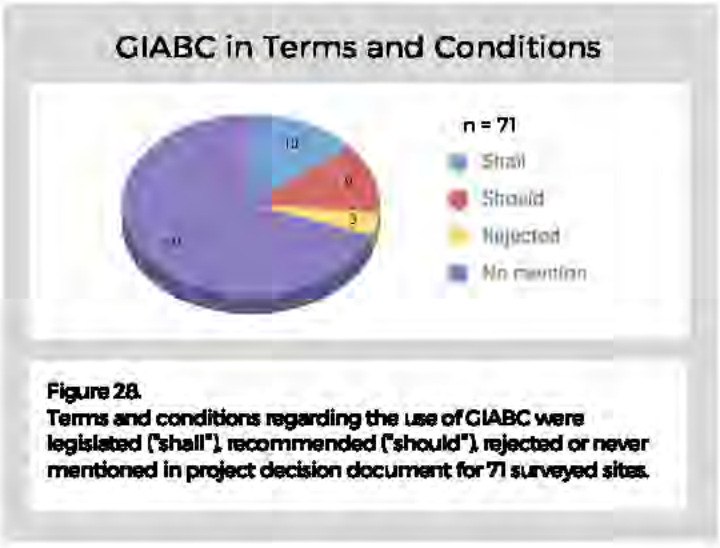

Figure 28.
Terms and conditions regarding the use of GIABC were legislated ("shall"), recommended ("should"), rejected or never mentioned in project decision document for 71 surveyed sites.

Fuel Management Descriptions in Project Terms and Conditions

Does not refer to fuel or petroleum as an attractant	Does refer to fuel or petroleum as an attractant
All attractants, including garbage, kitchen waste and strained solids from grey water, shall be stored in a container that prevents access by bears and other wildlife, until properly disposed according to the Solid Waste Regulation or burned daily to ash by forced air or fuel fired incineration according to the Air Emissions Regulations.	All attractants, including **fuel**, garbage, kitchen waste and strained solids from grey water, shall be stored in a container that prevents access by bears and other wildlife, until properly disposed according to the Solid Waste Regulations or burned daily to ash by forced air or fuel fired incineration according to the Air Emissions Regulations.
All attractants, including kitchen waste, solid waste and food, shall be stored in such a way that prevents access by wildlife until properly disposed of in accordance with the Solid Waste Regulation by 1) transporting to a licensed landfill facility or 2) by burning daily to ash by forced air and fuel fire incineration.	All attractants like domestic waste, **used oils and fuel** shall be stored in containers that prevent access by wildlife, bears in particular, until properly disposed of according to the Solid Waste Regulations.
The Proponent shall store garbage and other bear attractants in a manner that prevents access by bears.	
The Proponent shall store all wildlife attractants in a manner that prevents access by wildlife.	

Table 2.
The terms and conditions from the Decision Documents of the 27 sites that were observed as having unsecured fuel on site had highly variable definitions of attractants.

Attractant Management Descriptions in Project Terms and Conditions

Legislates wildlife attractant management	Recommends wildlife attractant management
The Proponent **shall** keep all attractants, including but not limited to: food, food wastes, fuel and other garbage, stored in a bear proof container until such a time as attractants are able to be disposed of at a government approved disposal facility.	It is **recommended** that food and other attractants be concentrated into as small an area as possible and be enclosed by an electric fence. Not only does this require the proper management of food and garbage, but also petroleum-based products. Even small amounts of fuel (e.g., a jerry can) will attract bears.
All attractants like domestic waste, used oils and fuel **shall** be stored in containers that prevent access by wildlife, bears in particular, until properly disposed of according to the Solid Waste Regulations	
All attractants, including petroleum products, kitchen waste, solid waste and food, **shall** be stored in containers that prevents access by wildlife until final disposal at an approved facility or incineration.	
The proponent **shall** store garbage and other bear attractants in a manner that prevents bear access.	

Table 3.
The terms and conditions from the Decision Documents of the 71 sites that were cross referenced back to their mining authorization number were analyzed for how wildlife attractants ought to be handled on site. Some of the terms and conditions legislated attractant management whereas others recommended attractant management.

Discussion

A moose hide on a placer mining site in Dawson district.

A bucket of industrial lubricant found on Freegold Road.

The back of an old pickup truck used as garbage storage in a site in Dawson district.

Bears are frequenting placer and quartz mining sites in Yukon. This is evidenced by 71 of the 91 survey respondents reporting interactions with or sightings of bears on their site between 2014 and 2018 (Figure 4, page 5). Significantly more interactions with black bears compared with grizzly bears were reported (Figure 8, page 6). The districts of Mayo and Dawson had comparable rates of reported bear interactions (Figure 6, page 6). There was no significant difference between the reported rates of bear interactions on quartz versus placer mine sites (Figure 7, page 6). While only 4 people during the course of this project actually reported killing bears on site in defence of life and property (Figure 9, page 7), several people nonetheless made reference to knowledge that miners kill bears and do not report it (page 19).

Of the 91 people surveyed, 24 indicated that they did not know what Yukon Government regulations are regarding bear conflicts (Figure 18, page 9). In total, 74% of respondents did not know or only partially knew their specific site's operating conditions (Figure 13, page 8). If a respondent indicated that they knew the site's operating conditions, there were more than 50% fewer bear interactions reported at that site (Figure 20, page 10). Respondents were more likely to know the site operating conditions if they had worked at the site for 5 seasons or longer, as demonstrated by Figure 22 on page 11. Of those respondents who indicated that they worked as kitchen staff - the area in camps most frequently cited as the place of bear interactions - only one kitchen employee could identify the site's operating conditions (Figure 21, page 10). In total, 31% of respondents indicated some kind of barrier to reporting bear conflicts that occurred on site (Figure 15, page 8).

More than 50% of those surveyed indicated that they did not explicitly participate in bear training (Figure 16, page 8). Firearms were the most frequently reported tool used on site to deter bears (Figure 11, page 7). Of those sites that were visited, only 1 site was observed using an electric fence. However, 6 out of the 91 respondents indicated that they use an electric fence as a tool for bear deterrence (Figure 19, page 10). Forty out of the 91 respondents definitively answered "no" to the question of whether people on site obtain a hunting license and bear seals in case they need to shoot a bear on site (Figure 14, page 8).

The most consistently referenced publication in proponent terms and conditions regarding bear training, attractant management, proper fuel storage and bear mitigation strategies is GIABC, available as a pamphlet or on the Yukon Government website. Of the 71 confirmed sites, 27% have either recommendations or legislations regarding the use of GIABC (Figure 28, page 14). However, only 6% of survey respondents indicated that they use pamphlets or the Yukon Government website as a source for bear mitigation information (Figure 17, pg. 9). This suggests that people working on Yukon placer and quartz claims are not using the resources explicitly suggested by YESAB and the decision body to mitigate bear interactions.

Of those sites that were visited, 34% were observed to have poorly secured petroleum products - a known bear attractant (Figure 23, page 11). The survey data also shows that sites with no legislation or recommendation regarding petroleum storage in their terms and conditions are twice as likely to have unsecured fuels on site compared to sites that do have petroleum storage terms and conditions (Figure 24, page 11).

Inconsistent description of attractant management in decision documents:
There are inconsistencies in how attractant management is either legislated or recommended in proponent terms and conditions (Figure 26 and Table 3, page 14). This potentially results in ambiguity regarding how proponents ought to manage their attractants. For example, some proponents might tell their neighbour that it is not a legislated requirement - which might in fact be true for their site, but not for their neighbour - especially given that 74% of survey respondents indicated that they did not know or only partially knew their operating conditions. Such inconsistencies also pose difficulties from an enforcement standpoint. When the terms and conditions differ from site to site, it is more challenging to implement a clear and consistent response policy.

Inconsistent citation of “wildlife incident” in decision documents:
Decision documents do not consistently state what project proponents need to do in the case of wildlife incidents. For example, in the 71 sites that were surveyed and linked to their mining authorization number, 22 decision documents legislated the reporting of wildlife incidents (“proponent shall report wildlife incidents…”) whereas 17 project proposals had the same term removed before the decision document was issued and 32 decision documents made no mention of reporting wildlife incidents at all (Figure 27, page 13). As a result, there is inconsistency in the understanding of how proponents ought to respond to wildlife incidents.

Ambiguous use of the term “wildlife incident” in decision documents:
Many of the decision documents issued by YESAB for placer and quartz projects include terms and conditions that legislate or recommend the reporting of wildlife incidents. For example, many decision documents state that, “…the Proponent shall report any incidents involving wildlife to the District Conservation Officer and report when bears are frequenting the camp area for advice on further mitigation”. However, the Quartz and Placer Land Use Regulations makes no reference to the term “incident” nor does the Yukon Wildlife Act. In a Yukon Conservation Officer Services Facebook post from December 2018, it was noted, "…that a bear incident does not mean a human altercation with a bear, but could simply be a bear passing through a community or property” (https://www.facebook.com/yukoncoservices/). It is in the best interest of mining proponents as well as those responsible for responding to wildlife incidents, such as conservation officers, to establish more clarity around the term wildlife incident.

Conclusion

Evidence of human wildlife conflicts in the majority of other Yukon sectors, namely residential, is derived based on the number of reported conflicts. This information is gathered through COSB occurrence reports which include important descriptions of where a conflict occurred, the type of animal species involved and how a resident can better enhance their attractant management strategy. Mining sites, however, occupy far more remote spaces in Yukon. As a result, for those mining sites that are situated in particularly active bear territory and are mismanaging attractants, shooting a bear is an easier strategy than reporting a conflict and risking unwanted attention from enforcement and regulators. As evidenced in this report, many miners have easy access to firearms and are not aware of the obligation to report bear incidents. This report also demonstrates that many miners are not aware of their site's terms and conditions ("operating conditions") which may or may not impose explicit obligations to report bear incidents that occur onsite. Taken together, the reliability of the data regarding the actual number of bear conflicts that are occurring at Yukon mining sites remains questionable.

This report also demonstrates that the decision documents issued to proponents are lacking in consistency with regard to bear conflict mitigation legislation. When YESAB assessors submit their comments for a particular project, they do so based on a case-by-case basis using the most recent similar files and ones that have the same context (e.g. habitat interactions). However, there is no framework or grid which dictates, for example, that all class 3 placer sites with a camp must have an electric fence. Furthermore, the decision body might comment on the YESAB assessor's comment and change the outcome. The result, as evidenced in this report, is that some terms and conditions contain bear mitigations that are enforceable (e.g. legislated through the use of the term "shall" in the decision document) whereas other bear mitigation terms and conditions are mere recommendations. Furthermore, the lack of consistency with regard to terms and conditions promotes a lack of clarity for proponents given that the neighbouring site might have a completely different set.

Key Suggestions

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Appendix 1
Anecdotes from Survey

Excerpts from the question "How would you change Yukon's regulatory systems for miners with regards to bears?":

*none of the responses included here were made by respondents who also reported having killed bears on site in defence of life and property.

(1) I think they need to make it so that if a bear gets shot by a miner, that they can report the shooting without fearing they will be prosecuted. If you report a shooting of a bear, the CO comes and does an investigation. I haven't had to shoot many bears on my other sites but when I have had to, I'm always surprised. I don't change any of the practices between my various sites, but some of the sites are located in areas that are on bear routes or something. As a result, I don't know if bear conflicts are at all to do with site [operating] conditions.

(2) I know that lots of miners shoot bears and just don't report it cause it's too much hassle or they don't want to deal with the headache.

(3) If you want to know about # of bears being shot, make it easy to report anonymously. Most miners just deal with trouble bears themselves - there's no incentive to report.

(4) Lots of miners don't report because they are worried about prosecution

(5) I hear people talking about bears being shot.

(6) I've heard of lots of miners that have killed and buried bears

(7) There's not much the government can do if a miner wants to shoot a bear - they're going to do it. Well, the government has no idea about the actual number of bears that are shot because most people/miners don't want to deal with government crap. So if they make it easier to report, they might actually get an accurate number of bears that miners are encountering.

(8) Because of how remote we are/how far away we are from the COs, we have to handle bear encounters ourselves. As a result, there really needs to be more flexibility and understanding of this context. The COs are compelled to blame someone for a dead bear so it doesn't create a system that is conducive to wanting to report.

Appendix 2
Survey

Are bear incidents at Yukon mines becoming more common or staying about the same? Do the operating conditions that each mine operation must follow do anything to help reduce conflicts with bears?

Environment Yukon wants to review whether the human-wildlife conflict (HWC) mitigations recommended by Environment Yukon and the Yukon Environmental Socio-economic Assessment Board (YESAB) and mandated operating conditions by regulators are effective at reducing conflicts with wildlife, especially bears. Some miners have raised questions and concerns about the mandated mitigations. Environment Yukon recognizes that it is necessary to review the current regulations to ensure that they are accessible, fair and effective at reducing the number of bears that are destroyed and the time and effort that miners have to spend dealing with conflicts on their claims. Obtaining feedback from placer and quartz miners in Yukon is vital to this review process.

Boreal Logic, an independently owned and operated research consultancy business based out of Whitehorse, has been contracted by Environment Yukon to engage with people working on placer and quartz mines throughout the Yukon. To collect useful information we are asking placer and quartz mine employees to answer a few questions about their experience with bears and with certain aspects of the regulatory process. We will analyze responses, and provide a final report to Environment Yukon with the ultimate goal of helping miners reduce human-wildlife conflict, maximize hours spent mining and avoid prosecution.

Your confidentiality is of utmost importance. The aim of this survey is to collect information that will be used to better serve placer and quartz operations and will not be used in an investigative manner or to prosecute. If you have any questions or concerns, please contact Aja Mason, at 867-334-4634 or boreal.logic@gmail.com.

Answering the questions below should take 10 - 15 minutes of your time. Thank you for your time!

* 1. What mining or exploration site do you work at?

2. What is your position in the placer/quartz mine?

- ☐ Owner
- ☐ Cook
- ☐ Equipment operator
- ☐ Kitchen Staff
- ☐ Other (please specify)

3. How long have you worked at this site?

- ○ 1st month at site
- ○ 3rd season at site
- ○ 1st season at site
- ○ I've been here for over 3 seasons
- ○ 2nd season at site
- ○ I've been here for over 5 seasons

4. Have you or anyone on this site had any interactions/conflicts with bears?

	Species (black, grizzly?)	Site of conflict	Final result (outcome for bear)	Year it occurred
Incident 1				
Incident 2				
Incident 3				
Incident 4				
Incident 5				

Other (please specify)

5. Are there any barriers to reporting wildlife conflicts that happen on site?

- ☐ Time
- ☐ Concerns about prosecution
- ☐ Concerns about having to shut down operations to deal with reporting
- ☐ Other (please specify)
- ☐ Poor relationship with Conservation Officers
- ☐ Mistrust of government

6. What tools are available on site to respond to bears in camp?

- ☐ Electric fencing
- ☐ Alarm trip wire
- ☐ Dog
- ☐ Bear spray
- ☐ Other (please specify)
- ☐ Bear bangers
- ☐ Rubber bullets
- ☐ Firearm

7. Are the measures taken at this site to prevent bear conflicts effective?

- ○ Yes
- ○ No
- ○ Other (please specify)
- ○ Sometimes

8. If you use an electric fence, what do you keep inside of it?

- [ ] Cook shack/kitchen
- [ ] Tents, campers, other sleeping arrangements
- [ ] Food storage
- [ ] Garbage/compost
- [ ] Petroleum products
- [ ] Other (please specify)

9. What bear safety training is provided to staff at this site?

- [ ] Pamphlets
- [ ] Bear deterrent training
- [ ] Videos
- [ ] Firearms
- [ ] Yukon Government website
- [ ] Wilderness first aid
- [ ] Hands-on training
- [ ] Other (please specify)

10. Is bear safety training mandatory for all staff on site?

- ( ) Yes
- ( ) No
- ( ) Other (please specify)

11. Do you know if the site operations have ever changed in response to a bear incident?

- [ ] Temporarily shut down operations
- [ ] Created a bear response policy
- [ ] Moved camp
- [ ] Reported incident to CO services
- [ ] Filed a WCB claim for self or other employee
- [ ] Other (please specify)

12. Do you know what the "operating conditions" are for this particular site for your mining authorization? eg. YESAB, YG, FN government requirements

- ( ) Yes
- ( ) Partially
- ( ) No
- ( ) Other (please specify)