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Visitor Behaviour and Perception of Bears, Wolves and Cougars at Pacific Rim National Park Reserve

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Abstract

This study's objective was to determine whether conflict-related behavior of visitors in Pacific Rim National Park Reserve (PRNPR) towards bears, cougars and wolves could be predicted by their perceived risk, emotional attribution about the animal, perceived knowledge, or overall true animal knowledge. An additional aim was to test the Simplified Conjoint Expected Risk model, which explains differences in perceived risk. Surveys were administered to 179 PRNPR visitors. Perceived knowledge, perceived risk and emotional attribution towards the animal were significant predictors of conflict-related behavior. Subjective probability of harm significantly predicted perceived risk. These results have implications for renewed park management strategies and programs that target the behaviour of visitors to PRNPR.

Wildlife management is largely a matter of human management. How we behave in relation to animal populations is tightly interwoven with the needs, competitions, and frivolities of humans (Norris, 1978). The manner in which visitors behave in relation to the black bears, cougars and wolves in Vancouver Island's Pacific Rim National Park Reserve (PRNPR), is not an exception. Parks Canada has reported a striking increase in interactions between these animals and visitors along the Park's West Coast Trail, Long Beach Unit, and Broken Group Islands. Staff believe many visitors do not attempt to scare bears, cougars or wolves away, avoid contact or maintain a considerable distance with these animals, are feeding the animals directly or indirectly, and consistently display environmentally irresponsible behaviour. Interactions that result from such behaviors are considered undesirable. Consequently, the number of bears, cougars and wolves becoming food-conditioned or losing their fear of humans is increasing, so they are becoming dangerous to humans. Hence, the number of animals being destroyed in the larger region that includes the park is increasing.

Animals are suffering the consequence of a problem that is clearly the product of human behavior. Parks Canada reports making considerable efforts to educate visitors about how they should behave in PRNPR, but the negative interactions have not decreased. Visitors either are not receiving the messages or are influenced by unidentified variables despite receiving the information. The effect of human values, knowledge and perception that affect biologically costly behaviors has rarely been examined (Lillian, Bennet & Klisky, 2003), and many factors may cause irresponsible behavior in the PRNPR.

The two primary dependent variables in this study are whether visitors have interacted with a bear, cougar or wolf and, if they have, their reason for engaging in that interaction. These are called the direct conflict behaviors. This study also examines several indirect conflict behaviors as possible predictors of the two direct interaction behaviours and as correlates of the visitor demographics. The indirect conflict behaviors consist of self-reported fear of bears, cougars and wolves, desired proximity to each of the animals, whether information about each of the animals had been sought, hope of seeing each animal, amount of experience in environments similar to PRNPR and experience with each animal. The four main independent variables in the study are perceived risk, attributed emotions of bears, cougars and wolves, perceived knowledge, and objective knowledge about these animals.

Little research has examined the risk perception of carnivores and bears. Researchers therefore must base their hypotheses on general theories of risk perception. Lupton and Tulloch (2002) argue that risk-taking undertaken without coercion is done in the interest of perceived benefits such as self-improvement, emotional engagement, and control. However, even if visitors experience risk towards bears, cougars and wolves, they may not act only in the interest of benefit.

Instead, perceived risk may be based on both perceived benefits and costs. According to Palmer, Carlson and Woodward (2001), differences in perceived risk can be reliably assessed with the simplified conjoint expected risk (SCER) Model. They demonstrated this by examining perceived risk of various financial and health activities among several ethnic groups. The SCER model postulates that the perceived risk of an activity is a function of five dimensions: the subjective probability of harm, benefit, and

status quo (that is, circumstances remaining unchanged), and the subjective expected harm and benefit.

The SCER model's five predictors of perceived risk may gauge the perceived risk of visitors to the PRNPR. People with increased levels of perceived risk, display higher levels of vigilance to persuasive messages (Lee & Aaker, 2004). Therefore, we hypothesize that visitors who perceive greater risk from bears, cougars or wolves are more likely seek out, pay attention to, and follow recommended behavior to reduce their risk and decrease their chances of having a negative interaction with these animals. Assessing the perceived risk of visitors and the SCER's five predictors of it has important implications for manipulating the behavior of visitors to PRNPR for prevention purposes.

In many models of risk perception, social comparison is an important predictor (Klein, 2002). We hypothesize that risk perception will vary depending on a visitor's companion. Furthermore, we hypothesize that if interactions are reported to the visitors by family or friends, visitors will perceive greater risk

Parks Canada has attempted to educate visitors about the animals of PRNPR, but it remains unclear whether visitors have enough knowledge of bears, cougars and wolves to act appropriately. The successful design of educational programs will require greater knowledge about human perceptions, knowledge, and understanding of wildlife (Kellert, 1983).

We hypothesize that when visitors have adequate knowledge, they will be less likely to have been in a negative interaction with these animals. Braithwaite (1989) recommended that, given the controversy over accuracy of backcountry self-reporting, researchers should investigate the relations between actual backcountry behavior and

reported behavior in occupied grizzly bear habitat. It might also be useful to compare the self-perceived knowledge of visitors with their actual knowledge. Based on Braithwaite's (1989) experience, we hypothesize that self-perceived knowledge will be significantly greater than actual knowledge. Furthermore, based on to the findings of McFarlane (2004) and Gillett, Thomas, Skok, and McLaughlin (1991), self-perceived knowledge is expected to correlate significantly with experience with animals and parks, one of the indirect conflict behaviour variables in this study.

The lack of research on human perceptions of animals is surprising, given the theoretical and practical significance of the topic. Kellert (1983) sees this as a social statement on a society regarded by some as particularly anthropocentric, yet dependent on the nonhuman world. Many questions remain. For example, how do we perceive animals as emotional creatures? Might our perceptions of animals' emotions have an effect on our interaction behaviour with them? Certainly, it has been established that attitudes towards animals varies from species to species (Driscoll, 1995). According to Driscoll (1995), only by examining attitudes towards animals can we understand how experience and education affect perceptions of different animals, and gain better insight into how attitudes toward animals can be changed.

Herzog and Burghardt (1986) took a step in this direction by proposing that we are biased towards species with which we can have the illusion that we are communicating with or are able to accurately decode their signals (e.g., the puppy's pragmatic barking is more communicative than to the less comprehensible screams of bats). Herzog and Burghardt (1986) argue that we are most adamant and emotional about

animals that respond as we think we might in similar circumstances. This implies that our perceptions of animals change depending on how human-like we perceive them to be.

Hills (1995) and Eisenberg (1988) support this view. They discovered that the more people feel they can empathize with an animal, the more positively they view the animal and the greater the extent to which people believe animals have mental experiences. Hills (1995) believes that our perception of animals' emotions leads to positive behavior. Although nothing is known about which emotions humans believe bears, cougars and wolves possess, previous research (Driscoll, 1995 ; Herzog, & Burghardt, 1986 ; Hills, 1995 ; Eisengburg, 1988) implies that these attributions could importantly influence visitor interactions with these animals. Therefore, this study will also attempt to identify visitors' attributions about bear, cougar, and wolf emotions.

Cultural differences in attitudes toward animals are rarely studied (Laurent, 1995). However, Miura, Bradshaw and Tanida (2002) measured differences in attitudes of Japanese and British students towards animals. The Japanese students reported significantly less respect for, companionship with and friendship with animals. Therefore, we hypothesize significant differences in ethnic group attributions about animals' emotions. Because women generally report more emotion than men (Fischer, 2004), we also hypothesize that women will attribute significantly more emotions to these animals. We also expect that bears will have more emotions attributed to them than wolves or because bears are usually associated with positive attributes, possibly because of their diurnal, omnivorous, and aesthetically pleasing character (Kellert, 1983).

However, Roskaft, Bjerke, Kaltenborn, Linnell, and Andersen (2003) reported that fear of bears (and wolves) was significantly greater than that of the lynx, an animal

whose characteristics are arguably similar to those of cougars. Thus, there are contrasting trends in the way bears are characterized (i.e. Kellert's (1983) positive emotion characterization versus Roskaft et al.'s (2003) negative fear characterization). Roskaft et al. (2003) also found that women reported significantly greater fear of all these animals than men. It seems quite an anomaly that fear, a possible indirect conflict variable, and greater emotion attributed to an animal should positively correlate, given that the more we can empathize with an animal, the more positively we view the animal (Hills, 1995 ; Eisenberg, 1988). That is, women may attribute more emotion to animals than men (Fischer, 2004), but apparently report more fear in animals than men (Roskaft et al., 2003). Because these ideas contradict one another and because of the lack of research done in this area, how each of these variables will relate to other indirect conflict behaviours or direct conflict behaviours can only be explored in this study.

Indirect conflict behaviours other than fear, such as desired proximity to bears, cougars and wolves, whether information had been sought out about these animals before visiting, and the hope of seeing any of these animals will also be considered as possible predictors of the direct conflict behaviours. Correlations among the indirect conflict variables also will be explored. We hypothesize that the relation between desired proximity from an animal and the hope of seeing an animal is positive, because we assume that the closer a visitor wants to approach a particular animal, the more the visitor hopes to see the animal. Close proximity to bears, cougars and wolves is considered a negative interaction by Park Staff. If this relation is confirmed, measures can be taken to decrease the hope visitors have of seeing bears, cougars and wolves. Additionally, the relationship between visitors' risk perceptions of these animals and their likelihood of

seeking out information about the animals will be examined. Visitors may seek information either to increase or to decrease their chances of crossing paths with a bear, cougar or wolf. We hypothesize that if visitors report higher perceived risk about an animal, they will be more likely to seek out information about the animal, to prevent negative interactions.

Finally, we anticipate that some characteristics of visitors to PRNPR will relate to some of the indirect and direct interaction variables to be examined. Aside from the already hypothesized relations about gender, type of companion, and country of origin/ ethnicity, the study considers which activities visitors engage in, their first language, age, income, education level and permanent residence.

Most efforts to understand the perception of animals have been vague, but often eloquent urgings and subjectively articulated philosophies (Kellert, 1983). The purpose of this study is to empirically examine some possible predictors of indirect and direct negative conflicts, including risk perception, animal knowledge, and attributions about animal emotions and to explore other possibly important relations.

Method

Participants

The respondents were 179 visitors at the Long Beach Unit of Pacific Rim National Park Reserve, all 19 years of age or older who visited the park in mid-November, 2004. Ninety-one females, 79 males and 9 who did not indicate their gender returned surveys. The mean age was 38.3 years (SD = 13.6). They were visitors from Vancouver Island (21.80%), British Columbia (55.80%), Alberta (5.50%), elsewhere in Canada (7.90%), the United States (4.20%) or elsewhere internationally (4.80%). Eighty-seven and a half

percent of visitors were born in Canada and the mean number of years spent in Canada was 27.9. At the time of the survey, the mean number of days visitors had been at PRNPR was 3 days and the mean cumulative time spent at PRNPR was 24.7 days. It was, on average, visitors' 7th trip to PRNPR. The mean income of visitors was $78,311, and 84.2% of respondents had reached (in approximately equal proportions) an academic level of a high school diploma, technical or college diploma or a university degree. The remainder had either not graduated from high school or reached a graduate school level. Ninety percent of the visitors who were approached and given a survey returned the survey to a designated drop bin.

Survey

The survey (see Appendix) included 72 questions in Likert-scale format. It took approximately 10-20 minutes to complete. With the intention of providing Parks Canada with additional practical information about their visitors, the first few questions of the survey inquired whether or not visitors had sought information about bear, cougar or wolf behavior before or during their visit, if so where, and about which animals. Subsequently, if visitors had had an encounter, they were asked whether they acted according to recommended behaviour during the encounter(s). If not, they were asked to indicate the reason why they did not from a list of options. These responses were of particular interest because they were concerned with direct, problematic interaction behaviour.

The next set of questions gathered information required to test the SCER model for bears, cougars and wolves, separately, in Likert-scale format. The Likert-scale was

designed with an odd number of options (5) to facilitate a distinct choice in a positive or negative direction.

Next, visitors were asked about their experience with bears, cougars and wolves by requesting that they indicate the number of each of these animals they had seen in the wild in their life, and at PRNPR. Then, respondents were asked about their perceived knowledge about bears, cougars and wolves, their expectations, hopes and fears of seeing these animals, and whether they would report seeing these animals.

To investigate social influences, the survey then questioned respondents about whether a friend or family member had seen a bear, cougar or wolf at PRNPR and told them about it and if so, whether this information influenced their decision to visit. Respondents were also asked how close they would like to get to a bear, cougar, or wolf, whether they had fed a bear, cougar or wolf, whether they enjoyed the experience, and whether they thought the animal was harmed.

Then, to measure the experience visitors had had in environments similar to PRNPR, respondents were asked how experienced they were as hikers or campers, and later in the survey, how many visits they had made to PRNPR, how much time they had spent at PRNPR on this trip and cumulatively.

To obtain an objective measure of knowledge (as opposed to their perceived knowledge), a set of 12 true/false questions about bears, cougars, and wolves were included in the survey. Finally, to explore the differences in emotions that visitors attribute to these animals, respondents were asked to check off, from a list of 20, the emotions they believed each animal possessed, and to indicate whether they were seeking an interaction because of these beliefs. The survey concluded with demographic

questions about gender, first language, age, country of birth, gross household yearly income, years spent in Canada, trip companions (i.e., family, friends, dog, etc.), trip activities, education level, and permanent residence.

Procedure

The surveys, consent forms and lottery sheets were distributed to 200 visitors along the Long Beach Unit beach and parking lots during the late morning and early afternoon during periods when it was not raining to randomly encountered visitors who were conveniently accessible. The data collection spanned two days (11/12/04 to 11/13/04). Following a brief introduction, respondents received a verbal explanation of the study. Visitors were told the study was being done for an undergraduate thesis project, that their participation was completely voluntary, and the survey concerned bears, wolves and cougars. Willing visitors were assured, through the consent form they received, that their answers would remain confidential and that permission to carry out the study was obtained from the University of Victoria. Respondents were informed that if a survey was left in a drop bin, this would indicate their consent. Lottery sheets offering three fifty-dollar prizes in a draw at the end of the study were offered as an incentive for visitors to complete the survey. The sheet explained the draw would take place at the end of the study and that respondents would only be included in the draw if they supplied their address on the space provided. Several easily identifiable, marked drop-bins were distributed along entrances or exists to the beach and on the beach area where completed surveys, writing utensils and lottery sheets could be dropped after completion at the leisure of the respondents.

Results

Descriptive Results

As Table 1 shows, the mean number of visits to PRNPR respondents had had was 7.23 (*sd* = 11.73) and the mean visit time for respondents was 3 days (*SD* = 4.89). Respondents reported seeing a mean of 19.07 bears (*sd* = 32.34), 3.24 wolves (*sd* = 11.21), and .57 cougars (*sd* = 1.56) in the wild in their lives. These means are comparable to the percentage of respondents who had friends or family members who had reported seeing a bear (23.8%), wolf (3.5%) or cougar (1.2%) at PRNPR (see Table 2). Sixty percent of respondents recalled seeing a notice related to bears but only 34.1% recalled a notice that described how to act in the presence of bears. Similar trends are also seen with wolves (18.2% recalled a sign, but 9.1% recalled a description about how to act in a wolf's presence) and cougars (24.4% recalled a sign but only 14.9% recalled a description about how to act in a cougar's presence). Approximately 3%, that is, 4 respondents out of 179, reported having given a bear, wolf or cougar food to draw the animal closer to them at some point. Most respondents were visiting with family (57.0%) or friends (48.8%) and reported hiking (63.7%) or taking photos (37.4%) at some point in their visit.

Risk Perception

The SCER model was tested using multiple linear regression. The predictors for perceived risk that were entered in the model were: the subjective probability of status quo, subjective probability of harm, subjective probability of benefit, subjective expected harm and finally, subjective expected benefit. As Table 3 shows, subjective probability

of harm to a person was the only significant predictor for perceived risk for cougars ($p < .001$) , bears ($p < .001$) and wolves ($p < .01$).

The hypothesis that risk perception would vary depending on with whom respondents were visiting PRNPR (i.e. friends, family, dog, etc.) was rejected in general, because only "guide" and "club" were significant. That is, if visitors were at PRNPR with a guide, they reported less risk towards cougars and if visitors were at PRNPR with a club, they reported less risk towards bears and wolves (see Table 4).

The next hypothesis was that if interactions were reported by the family or friends of visitors prior to the respondents' visits to PRNPR, visitors would be biased towards perceiving greater risk or that it would negatively correlate with their decision to visit . this hypothesis was also rejected in general because only one significant relation was found (see Table 5). Respondents who reported having a friend or family member who had seen a cougar at PRNPR and told them about it, reported that this was not why they decided to visit. This occurred only because two respondents had a friend or family member who had seen a cougar at PRNPR and told them about it (see Table 2).

Visitor Knowledge

A reliability analysis for internal consistency was carried out for the 12-question true-false objective knowledge test about bears, cougars and wolves. Initially, a Cronbach's Alpha of .37 was obtained. Item 5, "A bear's behaviour is usually unpredictable", was deleted because its corrected item-total correlation was negative, $r = -.27$. Approximately 50% of respondents correctly answered "true" to this item. However, respondents who correctly answered other items were not more likely to answer this item correctly also. Item 8 was deleted because it had a ceiling effect. The

statement, “If a cougar is sighted, children should be picked up immediately”, was correctly answered “true” 95% of the time. After deleting items five and eight, another reliability analysis was conducted. Unfortunately, a Cronbach’s alpha of only .51 was obtained. Nevertheless, participants were assigned a mean score on the true knowledge test, based on all answered items. This score failed to significantly correlate with any other variable. Therefore, the hypothesis that true knowledge would predict interaction variables and the hypothesis that perceived knowledge would be significantly different from true knowledge were rejected. However, these findings may be due to inadequate reliability.

Self-perceived knowledge was hypothesized to correlate significantly with experience, as measured by the reported number of bears, cougars and wolves respondents had seen in the wild, and by the number of visits to or total time spent at PRNPR (see Table 6). Greater perceived knowledge of bears was significantly correlated with having seen more bears in the wild, $r = .39$, $p < .001$, the mildly positively correlated with visit number, $r = .22$, $p < .001$ and total time spent in PRNPR, $r = .20$, $p < .001$. Furthermore, greater perceived knowledge of wolves was significantly correlated with the same experience variables as with bears: the number of wolves that had been seen in the wild, $r = .22$, $p < .001$, the number of visits the respondent had had to PRNPR, $r = .24$, $p < .01$ and the total time the respondent had spent at PRNPR, $r = .236$, $p < .001$. The perceived knowledge of cougars and experience with cougars demonstrated a smaller, but significant relation with the number of cougars that had been seen in the wild, $r = .21$, $p < .001$.

Emotion Attributions to Animals

A factor analysis and varimax rotation of the 16 emotion choices that people attributed to bears, cougars and wolves was carried out. These emotions were pain, excitement, fear, jealousy, anger, surprise, sorrow, confidence, depression, pity, shame, disgust, confusion, tiredness, joy and temptation. The emotions clearly separated into two distinct factors (see Tables 7, 8, and 9). These two factors were divided into what might be described as "higher cognitive emotions" and "lower cognitive, instinctual emotions".[1] The higher cognitive emotions included jealousy, sorrow, confidence, depression, pity, shame, disgust, joy and temptation. The lower cognitive emotions included pain, excitement, fear, anger, surprise, confusion and tiredness.

To condense these factors into single variables, an average, across emotions was computed for both factors. This was done to avoid overweighting the higher cognitive emotion component because it included more emotions. The mean for each factor was then summed for each participant. Because respondents appeared to consistently attribute higher cognitive emotions to animals only if they attributed lower cognitive emotions, the resulting variable of this summation was an overall measure of cognitive attribution of each respondent for each animal. Because of the exploratory nature of this variable, correlations were computed with all indirect variables, with particular attention to relations with direct variables, given the previously discussed converging evidence in this area (Driscoll, 1995; Herzog & Burghardt, 1986; Hills, 1995; Eisengburg, 1988). Cognitive attribution significantly predicted why respondents desired interactions (see Table 10); greater cognitive emotion attribution scores were associated with more intrinsic reasons for having an interaction, but only for bears, $r = .56$, $p < .05$ and cougars,

[1] For bears, there were two other factors with eigenvalues close to one that were labeled "Unknown 1" and "Unknown 2" (see Table 7 for details).

$r = .56$, $p < .05$. This relation was marginally significant with wolves, $r = .51$, $p = .072$. Cognitive attribution also nearly correlated with acting against recommended behaviour in an encounter with bears, $r = .15$, $p = .063$. This low correlation was likely due to the small sample of respondents who reported having acting against recommended behaviour. Contrary to expectations, cognitive attributions for each of the animals did not significantly differ between men and women (see Table 11) or across birth place, $F(5,147) = .58$, $p > .05$ or first language, $F(5,153) = .45$, $p > .05$.

However, an analysis of variance revealed that cognitive attributions did differ between animals. Bears ($m = 1.01$, $sd = .55$) had significantly higher emotion attributions than cougars, $r = .13$, $p < .01$, whereas wolves ($m = .90$, $sd = .56$) and cougars ($m = .86$, $sd = .55$) had comparable ratings. Animals' love for each other, love for their young, emotional connections with some humans and emotions were analyzed in relation to the direct and indirect interaction variables. These four variables did not significantly correlate with any other variable.

An ANOVA showed that respondents reported significantly higher fear of bears, $r = .20$ than cougars ($p < .001$) and wolves ($p < .01$), which supported our predictions. It was hypothesized that respondents would report significantly higher fear of wolves than cougars, but fear ratings of cougars and wolves did not significantly differ.

In addition, supporting our predictions, women reported significantly greater fear of wolves, $r = .31$, $p < .001$, and bears, $r = .36$, $p < .001$, than men. Fear reports for cougars did not differ as a function of gender.

Consistent with these findings, visitors reported significantly higher perceived risk of bears than cougars and wolves, $r = .36$, $p < .001$, and risk and fear were

significantly correlated for bears, $r = .36$, $p < .001$, wolves $r = .39$, $p < .001$, and cougars, $r = .36$, $p < .001$. Not surprisingly, the less fear that was reported, the more a respondent was likely to express hope of seeing that animal. For cougars, fear and hope had the highest correlation, $r = .45$, $p < .001$, next wolves, $r = .44$, $p < .001$, and finally, bears, $r = .34$, $p < .001$.

Proximity, Information, and Experience

Other indirect conflict variables, such as desired proximity to bears, cougars and wolves and whether information had been sought out about these animals before visiting and hope of seeing any of these animals were examined. None of these variables significantly correlated with any direct conflict variables and some correlated with indirect conflict variables. Respondents who had seen or read notices concerning wolves, were more likely to have spent more cumulative time at PRNPR, $r = .30$, $p < .001$, and to have had more visits to PRNPR, $r = .34$, $p < .001$. Also, respondents who had seen or read notices concerning bears, were more likely to have reported higher perceived knowledge of bears, $r = .31$, $p < .001$. Respondents who had seen a notice about cougars, were more likely than those who had not to have reported observing other notices concerning bears, $r = .37$, $p < .001$ or wolves, $r = .40$, $p < .001$.

The more respondents perceived themselves as experienced hikers, $r = .32$, $p < .001$ or campers, $r = .31$, $p < .001$, the higher number of bears they had reported having seen in the wild. Younger respondents were more likely to report visiting with friends, $r = .33$, $p < .001$, and older respondents were more likely to be visiting with family, $r = .34$, $p < .001$.

Discussion

The results supported many of our hypotheses. Perceived knowledge, perceived risk and emotional attribution towards the animal were significant predictors of conflict-related behavior, although overall objective animal knowledge was not. Surprisingly, indirect conflict behaviour of visitors did not predict direct conflict behaviour. These findings and the animal group differences observed between bears, cougars and wolves may have important implications for future management strategies put into practice by Parks Canada.

Contrary to theories that take into account only the perceived benefits of taking risks (Lupton & Tulloch, 2002), the subjective probability of harm reported by visitors was the most useful predictor of perceived risk from bears, cougars and wolves. In the SCER model, subjective probability of harm was the only significant predictor out of the five that were tested. Previously, Palmer et al. (2001) had used this benefit-cost based model to successfully predict perceived risk financially, or regarding health, cross-culturally. Research designed to determine the dimensions that underlie self-reports of animal fears or perceived risks is rare (Arrindell, 2000). Thus, before testing the SCER model, the factors visitors take into account in gauging their perceived risk was unknown.

This finding may be valuable to policy-makers who wish to increase the perceived risk levels of visitors towards bears, cougars and wolves. The perceived risk of visitors failed to predict any direct interaction variables, but this may have been caused by the extremely low proportion of visitors in the sample who actually reported having an interaction with a bear, cougar or wolf. The level of power may have been too weak to detect a potentially small effect size. Also, some visitors may have offered socially

desirable responses or did not know what "recommended behaviour" referred to. If a relation could be demonstrated, policy makers could convey harmful or negative risks posed by these animals, to increase risk perception and thus to decrease interactions. The solution is not so simple, however, given that Parks Canada wants people to enjoy PRNPR and find a solution that is beneficial to both the animals and visitors.

We hypothesized that the type of companion visitors were at PRNPR with would affect risky behaviour. It was surprising that this hypothesis was not supported because previous social comparison research has indicated that comparison with others predicts construed and acted-upon risk (Klein, 2002). This relation may not have been found because well over half of the respondents were visiting with either friends or family. These broad categories may not have provided enough variation or may not have finely distinguished the attributes of the friend(s) or family the person was with (friend's age, gender, whether family indicated spouse or mother-in-law, etc.).

The data also indicated that, if a family member or friend had seen a cougar, wolf, or bear at PRNPR and told the respondent about it, the respondent was not visiting for that reason. This suggests that social word-of-mouth influence does not encourage visitation. However, we do not know whether people decided not to visit PRNPR as a result of the social word-of-mouth influence from family members or friends. A study that compares visitors to PRNPR to the general population in order to examine these kinds of potential differences might be considered.

Roskaft et al. (2003) suggest that a good visitor management strategy is to develop educational programs in which people learn about the biology and habits of large carnivores, because those who spend most time outdoors are more educated and express

less fear towards carnivores than the general population. This suggestion sounds useful, especially because research shows that wilderness experience significantly increases environmental knowledge (Gillett et al., 1991).

This study attempted to measure the true knowledge of visitors about bears, cougars and wolves and appropriate visitor behaviour in these animals' habitats. However, low reliability of the measure presented a good answer to this. A tool that measures knowledge of bears, cougars, and wolves as separate constructs might yield adequate reliability and distinguish any differences in knowledge about the three animal groups.

In future studies, measuring knowledge of *consequences to actions* may be a more useful approach to take. Perceived knowledge, was slightly more useful than objective knowledge in that it significantly correlated with number of visits to PRNPR and experience with bears, cougars and wolves. This outcome was expected because information is more convincing and there is less uncertainty when information is gained from personal experience than when information is gained in other ways (Weinstein, 1989).

It was not hypothesized that the emotions visitors attribute to animals would provide insight into the reason why visitors have interactions with bears, cougars and wolves. Although relationships between most conflict behaviours and emotions attributed to animals were not correlated, more intrinsically driven reasons for having an interaction with bears and cougars were associated with more attributions of high-level cognitive emotions (i.e., jealousy, empathy, etc.) to these animals.

This phenomenon may be accounted for by the way emotions affect humans. The factor analysis revealed that visitors perceive two distinct groups of emotions in these animals: high cognitive (or emotions that many people understand as being unique to humans) and low cognitive (those emotions that are instinctual and understood to be possessed by every animal). Emotions can exert a direct and powerful influence on behaviour, changing the way we react to risk (Loewenstein, Weber, Hsee & Welch, 2001).

This has important implications for the way a park management team should convey these animals to the public in order to attain more desirable behaviour. At the same time, however, the emotions visitors attribute to these animals did not significantly predict they are more likely to have an interaction (but they nearly did!). Thus, changing the dominant reason for interacting with one of these animals may reduce the motivation for some visitors to seek out interactions, but it will not solve the problem completely. Perhaps with a larger sample size, stronger results could be found, because only a small proportion of the sample reported having an interaction with an animal toward which they did not act according to recommended behaviour.

Because women experience emotions more intensely than men (Loewenstein et al., 2001), one might expect to find, in conjunction with the finding that emotional attribution of animals predicts a visitor's reason for having an interaction, that women would attribute significantly greater cognitive emotion attribution scores than men to animals. Significant differences, however, were not found. This may have occurred because of a ceiling effect in the group of visitors that reported high cognitive emotions (as opposed to the group that report only low cognitive or a few high cognitive emotions). This could be

remedied in a future study by having a greater variety of emotions to choose from that may be attributed to each of the animals. Additionally, birthplace and the first language of visitors did not appear to have an effect on cognitive emotion ratings of animals. This may imply that culture does not affect the way in which emotions are attributed to animals, in contrast to past research (Miura et al., 2002 ; Laurent, 1995), especially given that the number of years spent in Canada did not influence emotion attribution.

The animal comparisons have important implications for the way in which programs or interventions should be established. For example, fear ratings of black bears is higher than fear ratings of wolves and cougars. If a program aims to focus on interaction prevention between humans and cougars, it may be wise to increase risk or fear levels (because they were significantly correlated) of cougars. If a program such as this was successful, hope of seeing cougars would coincide with reducing fear.

Because visitors who did not observe a sign about one of the animals (a bear, wolf or cougar) were less likely to observe a sign about any of the other animals, using or promoting different modalities of conveying information other than the signs used in parks may be beneficial. This approach may be necessary for those visitors who are not attracted to or interested in looking at signs. Furthermore, first-time visitors or visitors who had spent less cumulative time at PRNPR were less likely to observe signs displaying information about bears, cougars, and wolves. Another possible approach to this problem might be to design signs or use some other proactive method of reaching those visitors who do not come often or are new visitors.

Molitor (1995) identified two persuasion strategies that can be used to influence visitors: message-based and behavioral-based. The message-based approach focuses on

changing individuals' attitudes through a persuasive message in order to induce a behavioral change. This approach may be best used with visitors who have a great deal of experience in PRNPR and are possibly more motivated to be persuaded by the Park's signage. The behavioral-based model focuses on initiating individuals' engagement in a behaviour as a means of influencing attitudes. Generally, the message-based approach appeared to be more effective (Molitor, 1995). However, a behavioral-based approach may be more fitting for those visitors who are not regulars at PRNPR or plan to visit only once. They may be less motivated to be persuaded or spend their time reading signs loaded with information.

The different sources of information visitors use to learn about bears, cougars and wolves also provide useful information that have implications for future changes in park management or program development. For example, the internet and PRNPR appear to be the most popularly sought-out places for visitors to seek information about bears, cougars, and wolves. Parks Canada might be wise to promote the use of the information sources that are already popularly used or to try using alternative modalities to convey messages to (potential) PRNPR visitors. Apparently, many visitors see notices, but approximately only half of them are recall which kinds of messages those notices communicate. Methods of teaching visitors about how to behave responsibly in occupied cougar, bear and wolf territory need to produce more memorable messages. Also, it may be, that because the mean visit time to PRNPR is only three days, visitors do not see value in seeking or remembering information about the area or the animals. Perhaps more emphasis needs to be placed on communicating the importance of every visitor's actions, even if they are only visiting for a few days.

Several goals of this study were successfully achieved. Although perceived risk, perceived knowledge, and objective animal knowledge were not related to actually interacting with an animal, perceived risk and perceived animal knowledge were related to certain factors that were indirectly related to interacting with an animal. Also, emotions attributed to the animals proved useful in predicting respondents' reasons for having an interaction. The study also uncovered some important differences in respondents' perceptions of bears, cougars and wolves, and revealed other valuable significant relations among many of the secondary variables. These results provide a baseline from which future studies can be launched and have implications for renewed park management strategies and programs that target the behaviour of visitors to PRNPR.

Table 1.

Means and Standard Deviations of Scale Variables

	Mean	Standard Deviation
Perceived risk of bears	3.26	0.95
Perceived risk of wolves	3.06	1.37
Perceived risk of cougars	4.03	0.87
How many bears seen in the wild, lifetime	19.07	32.34
How many bears seen at Pacific Rim	1.27	3.84
How many wolves seen in the wild, lifetime	3.24	11.21
How many wolves seen at Pacific Rim	0.09	0.45
How many cougars seen in the wild, lifetime	0.57	1.56
How many cougars seen at Pacific Rim	0.02	0.13
Perceived knowledge about how to act with bears	2.70	1.43
Perceived knowledge about how to act with wolves	1.69	1.36
Perceived knowledge about how to act with cougars	1.75	1.47
Respondents' expectations of seeing a bear while visiting the park	1.96	1.27
Respondents' expectations of seeing a wolf while visiting the park	1.11	0.92
Respondents' expectations of seeing a cougar while visiting the park	1.10	1.02
Respondents' hope of seeing a bear while visiting the park	3.21	1.52
Respondents' hope of seeing a wolf while visiting the park	2.80	1.66
Respondents' hope of seeing a cougar while visiting the park	2.38	1.76

Fear of bears	2.54	1.52
Fear of wolves	2.60	1.56
Fear of cougars	3.47	1.56
Respondent would report bear in park	1.67	1.73
Respondent would report wolf in park	1.73	1.76
Respondent would report cougar in park	2.44	1.94
If a friend/family member has seen a bear at PRNPR, that is why the respondent decided to visit	.52	1.07
If friend/family member has seen a wolf at PRNPR, that is why the respondent decided to visit	0.70	1.25
If friend/family member has seen a cougar at PRNPR, that is why the respondent decided to visit	0.50	0.58
Respondent believes they are an experienced hiker	2.57	1.65
Respondent believes they are an experienced camper	2.98	1.66
How close respondent would like to get to a bear	1.64	0.83
How close respondent would like to get to a wolf	1.46	0.79
How close respondent would like to get to a cougar	1.20	0.82
How many years respondent has spent in Canada	27.86	17.42
How many days respondent has spent at PRNPR this trip	3.00	4.89
How many days respondent has spent at PRNPR in their lives	24.74	41.72
How many visits respondent has had to PRNPR	7.23	11.73
Income	$78311.4	$49479.3
Birth year	1967	13.55
Cognitive rating of bears	1.01	0.45

Cognitive rating of wolves	0.90	0.56
Cognitive rating of cougars	0.86	0.55

N = 123-179

Note. For perceived risk, 0 = No Risk, 1 = Very Little Risk, 2 = Little Risk, 3 = Moderate Risk, 4 = High Risk, 5 = Extreme Risk

*F*or perceived knowledge, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For expectations, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For hope, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For fear, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For reporting, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For friends/family having seen an animal, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For experienced hiker, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For experienced camper, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

For proximity, 0 = Completely Disagree, 1 = Mostly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Mostly Agree, 5 = Completely Agree

Table 2.

Percentage of Respondents Who Answered "Yes" to Yes/No Variables

	Yes
Sought information before coming	20.7%
Seen or read notices related to bears	60.5%
Seen or read notices related to cougars	24.4%
Seen or read notices related to wolves	18.2%
Seen notices about how to act in the presence of bears	34.1%
Seen notices about how to act in the presence of cougars	14.9%
Seen notices about how to act in the presence of wolves	9.1%
A friend or family member saw a bear at PRNPR and told the respondent about it	23.8%
A friend or family member saw a cougar at PRNPR and told the respondent about it	1.2%
A friend or family member saw a wolf at PRNPR and told the respondent about it	3.5%
The respondent had given a bear, wolf, or cougar food to draw the animal closer to them	2.9%
If yes (see above), the respondent enjoyed feeding the animal	50%
Also, if yes (see above), the respondent did not believe the animal was harmed in any way from them feeding it	100%
Respondent was born in Canada	73.8%
Visiting with:	
Family	57.0%

Friends	48.8%
Children	4.1%
Dog	7.6%
Cat	.6%
Guide	1.2%
Club	1.2%
Alone	1.2%
Activities, this trip:	
Hiking	63.7%
Camping	18.1%
Picnic	13.5%
On a guided tour	4.1%
Fishing	2.3%
Whale watching	5.8%
Hot springs	3.5%
Photography	37.4%
Bird watching	8.2%
Kayaking	5.3%
Surfing	32.7%
Other activity not listed	11.7%

N = 123-174

Table 3.

Beta Weights and Probabilities for SCER Model Predictors of Risk Perception in Bears, Wolves and Cougars

	Bears	Wolves	Cougars
	Beta	Beta	Beta
Subjective probability of status quo	.04	.07	-.01
Subjective probability of harm	.01	-.10	-.03
Subjective probability of benefit	.48**	.29*	.55**
Subjective expected harm	-.14	-.04	-.08
Subjective expected benefit	.06	.17	-.03

N = 141
* = correlation is significant at the .01 level (2-tailed)
** = correlation is significant at the .001 level (2-tailed)

Table 4.

Risk Perception as a Function of Respondents' Companions

	Bears	Wolves	Cougars
	R	*R*	*R*
Family	-.08	-.04	.10
Friends	.09	.05	-.09
Children	-.03	-.08	-.05
Dog	-.01	-.11	.01
Cat	-.10	-.12	-.01
Guide	-.26	-.09	-.26**
Club	-.20**	-.16*	-.01
Alone	.08	.03	.06

N = 170
* = correlation is significant at the .05 level (2-tailed)
** = correlation is significant at the .01 level (2-tailed)

Table 5.

Correlations Between Respondents Who Had Friends or Family Members Tell Them They Had Seen a Bear, Cougar or Wolf at PRNPR and Perceived Risk of Bears, Cougars or Wolves and Agreement About This Being the Reason Why They Decided to Visit PRNPR

Animal Reported	Risk	Why visit
A friend or family member saw a *bear* and told me about it	-.10	.09
A friend or family member saw a *cougar* and told me about it	.07	1.0**
A friend or family member saw a *wolf* and told me about it	.10	.45

N = 42-170
** = correlation is significant at the .01 level (2-tailed)

Table 6.

Correlations Between Perceived Knowledge of Bears, Cougars, and Wolves and Visitor Experience

	Experience		
Perceived Knowledge	Number of Animal Seen In Wild	Visit Number	TimeSpent at PRNPR
Bears	.39**	.22**	.20*
Cougars	.21**	.10	.11
Wolves	.22**	.24**	.24**

N = 140-174
* = correlation is significant at the .05 level (2-tailed)
** = correlation is significant at the .01 level (2-tailed)

Table 7.

Bear Emotion Attribute Loadings in Components with Eigen Values > 1 in a Rotated Factor Analysis

		Components: Bears			
		Low Cognitive	High Cognitive	Unknown 1	Unknown 2
Emotion	Eigenvalue =	5.45	2.70	1.27	1.06
Pain		0.78			
Excitement		0.71	0.32		
Fear		0.80			
Jealousy		0.55	0.49	-0.36	
Anger		0.64			
Surprise		0.81			
Sorrow			0.31	0.73	
Confidence				0.66	0.30
Depression			0.34	0.79	
Pity			0.75	0.43	
Shame			0.78	0.32	
Disgust			0.84		
Confusion					0.77
Tiredness					0.79
Joy			0.46		0.43
Temptation			0.43		0.41

Note. Loadings less than .30 omitted

Table 8.

Wolf Emotion Attribute Loadings in Components with Eigen Values > 1 in a Rotated Factor Analysis

		Components: Wolves	
Emotion	Eigenvalue =	High Cognitive 6.66	Low Cognitive/ Instinctual 2.34
Pain			0.78
Excitement		0.36	0.63
Fear			0.79
Jealousy		0.54	0.40
Anger			0.67
Surprise			0.76
Sorrow		0.69	
Confidence		0.61	0.38
Depression		0.81	
Pity		0.83	
Shame		0.83	
Disgust		0.85	
Confusion			0.62
Tiredness			0.66
Joy		0.59	0.46
Temptation		0.44	

Note. Loadings less than .30 omitted

Table 9.

Cougar Emotion Attribute Loadings in Components with Eigen Values > 1 in a Rotated Factor Analysis

		Components: Cougars	
Emotion	Eigenvalue =	High Cognitive 6.79	Low Cognitive/ Instinctual 2.25
Pain			0.72
Excitement		0.35	0.61
Fear			0.73
Jealousy		0.62	
Anger			0.68
Surprise			0.76
Sorrow		0.66	
Confidence		0.64	0.30
Depression		0.77	
Pity		0.86	
Shame		0.87	
Disgust		0.90	
Confusion			0.65
Tiredness			0.69
Joy		0.62	0.38
Temptation		0.52	0.34

Note. Loadings less than .30 omitted

Table 10.

Correlations and Probabilities of Relations Between Intrinsic Reasons For Not Acting According to Recommended Behaviour and Bear, Cougar and Wolf Cognitive Attribution

	Cognitive Attribution		
	Bears	Wolves	Cougars
	R	*R*	*R*
Intrinsic Reasons for Acting Against Recommended Behaviour	.56*	.51	.56*

N =162
* = correlation is significant at the .05 level (2-tailed)

Table 11.

Cognitive Attributions of Bears, Wolves and Cougars Across Gender

	Cognitive Attribution		
	Bears	Wolves	Cougars
	R	*R*	*R*
Gender	.02	.00	.025

N = 160

Table 12.

The Percent Usage of Places Where Information Was Sought About Bears, Wolves and Cougars Only By Those Respondents Who Sought Information Before Coming to PRNPR

	Percent		
Information Source	Bears	Cougars	Wolves
PRNPR	26.3	29.4	21.4
Province	10.5	17.6	21.5
Community members	5.3	17.6	14.3
Books	10.5	17.6	7.1
Internet	21.1	23.5	21.4
Other	26.3	11.8	14.3

N = 179

Table 13.

Percentage of Respondents Who Acted According To Recommended Behaviour On Notices in Encounters with Bears, Cougars and Wolves

	Percent		
Recommended Action	Bears	Cougars	Wolves
Yes	17.8	3.6	3.0
No	16.0	14.8	15.0
No Encounter	66.3	81.7	82.0

N = 179

Table 14.

Reasons Respondents Reported for Not Acting According to Recommended Behaviour with Bears, Cougars and Wolves in an Encounter

Reported Reason	Percent
Interacting with wildlife is part of my connection to nature	40
I believe that my one interaction did not hurt the animal	20
I don't like rules and being told how to act	6.7
The animal seemed to be enjoying the interaction with me	6.7
Other people were ignoring the direction, so I did as well	6.7
Other	20

N = 179

Table 15.

Percents of Native Languages Reported

Native Language	Percent
English	87.6
French	5.9
Asian	1.8
European	3.0
Other	1.8

N = 169

Table 16.

Percents of Reported Birth Places

	Percent
Vancouver Island	9.0
British Columbia	29.9
Alberta	8.4
Canada	31.1
United States	4.2
Elsewhere International	17.4

N = 167

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Appendix

Human – Bear, Cougar and Wolf Interactions in Pacific Rim National Park Reserve

My name is Sasha Wade and I am a psychology student from the University of Victoria collecting data for my thesis. My research is being conducted in order to understand more about interactions between people and bears, cougars and wolves in the Long Beach Unit of Pacific Rim National Park Reserve. There are no wrong answers; I seek your opinions and your experiences. I assure you that your contact information will be kept confidential and that your answers within the survey will remain anonymous. At the end of the survey, if you indicate your contact information, I will send you the results of this research. By providing contact information you could also win one of three $50 prizes.

1. When planning to visit the Long Beach Unit, have you ever sought out information related to bear, cougar or wolf behavior and how to act if confronted by one of these animals while visiting the park?

☐ Yes ☐ No

If yes, **where** did you seek out such information (Check all which apply)?

Bears	Cougars	Wolves	
☐	☐	☐	From Pacific Rim National Park Reserve
☐	☐	☐	From the Province
☐	☐	☐	From Community Members
☐	☐	☐	From Books
☐	☐	☐	From Internet
☐	☐	☐	From Magazines
☐	☐	☐	From Other sources (list): _____

2. While visiting the **Long Beach Unit**, **have you ever seen or read notices** related to bear, cougar or wolf behavior?

	Wolves	Bears	Cougars
YES	☐	☐	☐
NO	☐	☐	☐

3. While visiting the **Long Beach Unit**, **have you ever seen or read notices** about how to act if confronted by one of these animals while you visit the park?

	Wolves	Bears	Cougars
YES	☐	☐	☐
NO	☐	☐	☐

4, Did you act according to recommended behaviour in the notice when you encountered one of these animals?

	Wolves	Bears	Cougars
YES	☐	☐	☐
NO	☐	☐	☐
No encounter	☐	☐	☐

5. If you **did not** act in accordance with the recommended behaviour, what motivated you to act differently than the recommended behavior? (check all that apply)

- ☐ Interacting with wildlife is part of my connection to nature
- ☐ I believe that my one interaction did not hurt the animal
- ☐ I don't like rules and being told how to act
- ☐ The animal seemed to be enjoying the interaction with me
- ☐ Other people were ignoring the direction, so I did as well
- ☐ Other (please explain)_____

Please circle the best answer to EACH of the following questions:

6. If you were to see a *bear* 10 meters/yards away, how much risk would there be for you?

No Risk | Very Little Ri | Little Risk | Moderate Ris | High Risk | Extreme Ris

7. If you were to see a *wolf* 10 meters/yards away, how much risk would there be for you?

No Risk | Very Little Ri | Little Risk | Moderate Ris | High Risk | Extreme Ris

8. If you were to see a *cougar* 10 meters/yards away, how much risk would there be for you?

No Risk | Very Little Ri | Little Risk | Moderate Ris | High Risk | Extreme Ris

If a person were to see a *bear* 10 meters/yards away, what is the chance his/her experience would be….

9. Beneficial/Positive?

No Chance | Very Little Chance | Little Chanc | Moderate Chance | High Chanc | Extremely Hi Chance

10. Harmful/Negative?

No Chance | Very Little Chance | Little Chanc | Moderate Chance | High Chanc | Extremely Hi Chance

11. NEITHER Beneficial/Positive NOR Harmful/Negative?

No Chance | Very Little Chance | Little Chanc | Moderate Chance | High Chanc | Extremely Hi Chance

If a person were to see a *wolf* 10 meters (11 yards) away, what is the chance his/her experience would be….

12. Beneficial/Positive?

No Chance | Very Little Chance | Little Chanc | Moderate Chance | High Chanc | Extremely Hi Chance

13. Harmful/Negative?

No Chance | Very Little Chance | Little Chanc | Moderate Chance | High Chanc | Extremely Hi Chance

14. NEITHER Beneficial/Positive NOR Harmful/Negative?

No Chance	Very Little Chance	Little Chanc	Moderate Chance	High Chanc	Extremely Hi Chance

If a person were to see a *cougar* 10 meters (11 yards) away, what do you believe is the chance his/her experience would be….

15. Beneficial/Positive?

No Chance	Very Little Chance	Little Chanc	Moderate Chance	High Chanc	Extremely Hi Chance

16. Harmful/Negative?

No Chance	Very Little Chance	Little Chanc	Moderate Chance	High Chanc	Extremely Hi Chance

17. NEITHER Beneficial/Positive NOR Harmful/Negative?

No Chance	Very Little Chance	Little Chanc	Moderate Chance	High Chanc	Extremely Hi Chance

Please circle the statement which best describes your level of agreement with the following:

If you were to see a *bear* 10 meters (11 yards) away, you would expect the experience to be…

18. Beneficial/Positive.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

19. Harmful/Negative.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

If you saw a *wolf* 10 meters (11 yards) away, you would expect the experience to be…

20. Beneficial/Positive.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

21. Harmful/Negative.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

If you saw a *cougar* 10 meters (11 yards) away, you would expect the experience to be…

22. Beneficial/Positive.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

23. Harmful/Negative.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

24. How many *bears* have you seen in the wild in your life?

_____ (exact or approximate) How many at Pacific Rim? _____

25. How many *wolves* have you seen in the wild in your life?

_____ (exact or approximate) How many at Pacific Rim? _____

26. How many *cougars* have you seen in the wild in your life?

_____ (exact or approximate) How many at Pacific Rim? _____

Please circle the statement which best describes your level of agreement with the following:

27. I have excellent **knowledge** about how to act in the presence of *bears*.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

28. I have excellent **knowledge** about how to act in the presence of *wolves*.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

29. I have excellent **knowledge** about how to act in the presence of *cougars*.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

30. I **expect** to see a *bear* while I am visiting the park.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

31. I **expect** to see a *wolf* while I am visiting the park.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

32. I **expect** to see a *cougar* while I am visiting the park.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

33. I **hope** to see a *bear* while I am visiting.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

34. I **hope** to see a *wolf* while I am visiting.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

35. I **hope** to see a *cougar* while I am visiting.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

36. I am afraid of *bears.*

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

37. I am afraid of *wolves.*

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

38. I am afraid of *cougars.*

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

39. If I see a *bear* in the park, even from a distance, I will report it to a Park Official.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

40. If I see a *wolf* in the park, even from a distance, I will report it to a Park Official.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

41. If I see a *cougar* in the park, even from a distance, I will report it to a Park Official.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

42. A friend or family member saw a *bear* at Pacific Rim Park and told me about it.
☐ Yes ☐ No

43. If yes to the previous question: That is why I have decided to visit.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

44. A friend or family member saw a *wolf* at Pacific Rim Park and told me about it.
☐ Yes ☐ No

45. If yes to the previous question: That is why I have decided to visit.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

46. A friend or family member saw a *cougar* at Pacific Rim Park and told me about it.
☐ Yes ☐ No

47. If yes to the previous question: That is why I have decided to visit.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

48. I am an experienced hiker.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

49. I am an experienced camper.

Completely Disagree	Mostly Disagree	Somewhat Disagree	Somewhat Agree	Mostly Agree	Completely Agree

50. How close would you like to get to a *bear*?

☐ I never want to see a bear.
☐ I want to see one from a great distance.
☐ I want to get close enough for a good look or photo.
☐ I would like to touch a bear.
☐ I have not decided.

51. How close would you like to get to a *wolf*?

☐ I never want to see a wolf.
☐ I want to see one from a great distance.
☐ I want to get close enough for a good look or photo.
☐ I want to touch a wolf.
☐ I have not decided.

52. How close would you like to get to a *cougar*?

☐ I never want to see a cougar.
☐ I want to see one from a great distance.
☐ I want to get close enough for a good look or photo.
☐ I want to touch a cougar
☐ I have not decided.

53. I have given a bear, cougar and/or wolf food to draw it closer to me for a better look or for a photo.
☐ True ☐ False

54. If you answered ‘true’ to question 53, I enjoyed the experience of feeding the animal.
☐ True ☐ False

55. If you answered ‘true’ to question 53, I believe that the animal was not harmed in any way from me feeding it.
☐ True ☐ False

56. Bringing a dog hiking is a good way to scare away bears, wolves or cougars.
☐ True ☐ False

57. A dog is most effective in scaring away a bear, wolf or cougar when it is off leash.
☐ True ☐ False

58. Food should be kept out of sight, in the tent.
☐ True ☐ False

59. Bears, cougars and wolves that are accustomed to eating food provided by park visitors are dangerous.
☐ True ☐ False

60. A bear's behaviour is usually unpredictable.
☐ True ☐ False

61. Bears are carnivores.
☐ True ☐ False

62. If approached by an aggressive adult black bear, you should consider climbing a tree.
☐ True ☐ False

63. If a cougar is sighted, children should be picked up immediately.
☐ True ☐ False

64. Cougars mainly hunt at night.
☐ True ☐ False

65. Wolves are among the few animals that will kill for the pleasure of killing.
☐ True ☐ False

66. When hiking, groups should be kept to a minimum so human scent will not be as easily picked up by carnivorous animals.
☐ True ☐ False

67. You should be aggressive when approached by a bear, wolf or cougar.
☐ True ☐ False

68. In my opinion, *bears* are able to feel **(please check all that apply)**:

☐ love for each other
☐ love for their young
☐ emotional connections with some humar
☐ emotions

In my opinion, the emotions that *bears* can feel are:

☐ pain	☐ sorrow	☐ shame
☐ excited	☐ confidence	☐ confusion
☐ fear	☐ depression	☐ tiredness
☐ jealousy	☐ pity	☐ joy
☐ anger	☐ shame	☐ temptation
☐ surprise	☐ disgust	

74. If you checked off any of the boxes in the above question, are you seeking an interaction with a *bear* because you believe *bears* possess these traits?
☐ Yes ☐ No

69. In my opinion, *wolves* are able to feel **(please check all that apply)**:

☐ love for each other
☐ love for their young
☐ emotional connections with some humar
☐ emotions

In my opinion, the emotions that *wolves* can feel are:

☐ pain	☐ sorrow	☐ shame
☐ excited	☐ confidence	☐ confusion
☐ fear	☐ depression	☐ tiredness
☐ jealousy	☐ pity	☐ joy

☐ anger ☐ shame ☐ temptation
☐ surprise ☐ disgust

70. If you checked off any of the boxes in the above question, are you seeking an interaction with a *wolf* because you believe *wolves* possess these traits?
☐ Yes ☐ No

71. In my opinion, *cougars* are able to feel **(please check all that apply)**:

☐ love for each other
☐ love for their young
☐ emotional connections with some humar
☐ emotions

In my opinion, the emotions that *cougars* can feel are:

☐ pain ☐ sorrow ☐ shame
☐ excited ☐ confidence ☐ confusion
☐ fear ☐ depression ☐ tiredness
☐ jealousy ☐ pity ☐ joy
☐ anger ☐ shame ☐ temptation
☐ surprise ☐ disgust

72. If you checked off any of the boxes in the above question, are you seeking an interaction with a *cougar* because you believe *cougars* possess these traits?
☐ Yes ☐ No

The following information will assist in understanding group differences in opinions. As per the ethical review for my research by the University of Victoria, please be assured that any of the information provided will remain anonymous. No individual data will be reported, only as aggregated data across individuals.

Gender: ☐ Female ☐ Male ☐ Other

First Language: _____

Were you born in Canada? ☐ Yes ☐ No
How long have you lived in Canada? ____ days ____ months ____ years

Time spent in Pacific Rim National Park:
This trip: ____ days ____ months ____ years
Ever: ____ days ____ months ____ years

This is my ____ visit to Pacific Rim National Park. (approximate number of visits)

With whom are you here? **(please check all which apply)**
☐ Family ☐ Guide/Outfitter
☐ Friends ☐ Club/Organized Group
☐ Children ☐ I am alone
☐ Pet
☐ Dog
☐ Cat

Which activities do you plan on engaging in while at Pacific Rim National Park?
(please check all which apply)

- ☐ Hiking
- ☐ Camping
- ☐ Picnic
- ☐ Guided Tour
- ☐ Fishing
- ☐ Whale-watching
- ☐ Hot Springs
- ☐ Other (please specify) _____
- ☐ Photography
- ☐ Bird Watching
- ☐ Kayaking
- ☐ Surfing
- ☐ Other (please specify):_____

Year of Birth: 19___

Place of Birth: city: _____ country: _____

Gross Household Yearly Income (before taxes):_____

Permanent Residence: city: _____ country: _____

Highest Education Level Achieved:

- ☐ Grade Six
- ☐ High School Diploma
- ☐ College or Technical School Diploma
- ☐ University Degree
- ☐ Post-graduate degree
- ☐ Other (please specify) _____

Would you like a copy of the final analysis resulting from this research?
☐ Yes ☐ No

If yes, please provide an e-mail or mailing address where the information can be sent (Please print very clearly):_____
_____
_____

Thank you for your Participation and Good Luck in the Lottery!