Influences of Social Norms, Habit and Ambivalence on Park Visitors' Dog Leash Compliance for Protecting Wildlife

by

Matthew Bowes
BA, University of Waterloo, 2000
MES, Lakehead University, 2006

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of

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in the Department of Geography

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Supervisory Committee

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Abstract

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Non-compliance with visitor regulations in national parks can have an impact on park conservation and the experience of other park visitors. Park management in Pacific Rim National Park Reserve located on the west coast of British Columbia, Canada is challenged by visitors' non-compliant behaviour concerning regulations to keep dogs on the leash in the park. Dogs that run free (off-leash) on the beaches of the park disturb migratory shorebirds, and have the potential to habituate wolves to regard dogs as objects of prey. This study investigates why many visitors opt for non-compliance with regulations aimed at conservation. The goal of the study is to contribute new insights that may help park management find workable solutions to deliver the 'dual mandate' of managing protected areas both, for conservation and for nature-based tourism.

The study is grounded within the context of Lefebvre's (1991) notions of the production of space, and recent work in animal geography that addresses the changing role of our canine companions in modern society. The methodology combines qualitative and quantitative research applying Fishbein & Ajzen's (2010) theory of planned behaviour (TPB). The research is presented using a journal format, which unavoidably implies some repetition of information but allows for the different sections to be read as

stand-alone documents. The thesis starts with an introductory chapter. This is followed by a book chapter published in *Domesticated Animals & Leisure* (Carr, 2015 in press) that reports highlights from qualitative research exploring why park visitors appear reluctant to comply with on-leash rules. Results reveal the beach as a contested space, driven by a strong off-leash social norm. Chapter Three is a journal article format paper that reports on a quantitative survey based on the theory of planned behaviour (TPB) to identify beliefs that underlie visitor behaviour. Results indicate that habit, with respect to dog leashing when at home and on previous visits to the park, appear to impact the ability of the model to predict future behaviour. Chapter Four is a second journal article format paper where it is suggested that ambivalence, the presence of conflicting behavioural beliefs, influences the relation between behavioural beliefs and attitudes in the TPB, resulting in non-compliance behaviour. A concluding chapter summarizes how results presented in the three main chapters contribute to the body of knowledge on animal geography, compliance and research using the TPB, as well as suggesting techniques that park staff should consider for managing visitor behaviour under situations of apparent non-compliance.

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Acknowledgements

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My wife Jen Smith, the Human Dimensions Specialist for the Province of British Columbia' Fish and Wildlife Branch provided expert face validity during the analysis stage. Both social scientist and wildlife biologist, Jen's feedback throughout this process was invaluable.

Throughout the process of my PhD, not only was I going through the rigors of academia, but also running a very busy sea kayaking company and teaching at Vancouver Island University in the geography department. Jen also took on extra responsibilities of construction projects, fixing kayaks, cleaning boats and gear, managing the office, running courses and guiding trips when I needed to be in the field, writing, marking and/or prepping course material.

A sincere thanks also goes out to my parents, who were able to help out with things at Gabriola Sea Kayaking, cleaning boats, picking up clients, building fences, not to mention all the amazing food prepared for Jen and I when we were busy.

The people at Pacific Rim National Park Reserve were fundamental in making this research happen and providing support with campsites and staff accommodation throughout my field research stage. I'd like to thank Yuri Zharikov, Monitoring Ecologist for Pacific Rim National Park Reserve for recognizing the importance of social science in wildlife conservation and linking my project with shorebird research and conservation in the park. Bob Hansen, for inspiration and paving the way with human dimensions of wildlife research in the park and the Clayoquot Biosphere with wolves. Rene Wissink for encouragement and support for this research and helping to coordinate my activities with other park staff. Human-Carnivore Conflict Specialists Daniel Thompson and Todd Windle for keeping me up to date on the state of wolf activity in the park. Tanya Dowdall for feedback and insight into law enforcement issues in the park, compliance and human behaviour.

My research assistants Jaylene Murray and Devon Clark, endured many long hours on the beach in all sorts of weather, tirelessly handing out surveys, and listening to the endless drone of my voice transcribing interviews. Thank you both for your professionalism and enduring enthusiasm, even after the 300th survey and 40th interview transcription.

Finally, I would like to thank my funding partners from the Clayoquot Biosphere Trust and Protected Area and Poverty Reduction (PAPR) conservation research program, without which this project would not have happened.

Dedication

The ‘human dimension’ to which this work is dedicated is my wife Jen, who patiently provided the moral support, expert advice and encouragement throughout this entire process. The other component of this would naturally be the park itself, its enduring wildness of wolves, shorebirds, and the abundant ‘wildlife’ that form the fabric of this special place. My first Vancouver Island experience was hiking the West Coast Trail with my dad when I was 21, then taking the Lady Rose through the Broken Group Islands to Ucluelet, to finally end up in Tofino and at Long Beach. From that point onward it has become a recurring and dominant theme in my life and it continues to pull me back to the west coast of the Island. I have been lucky enough to spend well over a decade of my life ‘roaming around out here’ (as the late canoeist, artist, naturalist and conservationist Bill Mason would have put it) in a sea kayak for months at a time as a guide, hiking its beaches or looking for the next wave. I met Jen in the Broken Group Islands and we got married on a beach just outside the Long Beach Unit. Jen’s master’s research was conducted in the Broken Group and we eventually bought the company for whom we guided and continue to spend a substantial portion of our time in the park and the Clayoquot Biosphere region, exploring, learning and educating about this special place. I am deeply honoured to give back to this place in a meaningful way, to somewhere that has given me much joy and inspiration. To parks and protected areas, fresh wolf tracks on the beach, and shorebirds darting along the shoreline.

Chapter 1

Introduction

Parks and protected areas provide important conservation benefits, and also provide for unique tourism opportunities that can help build public support for conservation. This dual mandate implies that it is important to manage tourism behaviour in ways that reduce the risk to conservation, to the safety of park visitors, and to the experience of other tourists visiting the park. Compliance with visitor management regulations is key to the provision of these desired outcomes.

This dissertation explores the challenge of non-compliance behaviour of park visitors. It seeks to better understand why some visitors choose to comply while others choose not to comply. The study employs the theory of planned behaviour (TPB) (Fishbein & Ajzen, 2010) as a theoretical framework, as well as the concepts of habit and ambivalence. A portion of the study is also theoretically grounded within the context of Lefebvre's (1991) notions of the production of space, and recent work in animal geography that addresses the changing role of our canine companions in modern society. This chapter introduces and elaborates on these issues and concepts, describes the study site and methodology, and provides an overview of the organization of the dissertation.

The Issue

Biodiversity is a measure of the health of ecosystems, yet it is increasingly threatened by the modification of our environment from human development, resource extraction and population pressure. Wildlife plays a critical piece in the fabric of

biodiversity, but often requires large areas that are more frequently compromised by social and economic factors that negatively affect species and communities (Theberge & Theberge, 2009). Extensive efforts to protect and restore species and habitats are needed to prevent any further erosion of biodiversity (Withgott, Brennan & Murck, 2013). As wilderness areas continue to be compromised on a global scale, parks and protected areas (PAs) like Pacific Rim National Park Reserve (PRNPR) can be one effective strategy in the conservation of biodiversity (Millennium Ecosystem Assessment, 2005; McNamee, 2009).

As well as supporting biodiversity, PAs also provide for nature-based tourism that can serve to build support for conservation, if managed properly (Vaske, Donnelly & Whittaker, 2000; Manning, 2007; Haider & Payne, 2009; Rollins, Eagles & Dearden, 2009). However, park managers are often challenged to 'strike a balance' between the dual mandates of conservation and visitor experiences (Wright & Rollins, 2009). For example, visitor numbers are sometimes controlled in PAs in order to protect biodiversity.

A second related concern is 'compliance behaviour' of park visitors to management regulations. This is a significant issue in many parks. PAs have experienced issues with visitors' non-compliance concerning bird-feeding (Ballantyne & Hughes, 2006; Hughes, Ham & Brown, 2009), staying on designated trails (Beeton, Weiler & Ham, 2005; Bradford & McIntyre, 2007), proper food storage in bear country (Lackey & Ham, 2003), littering and garbage disposal (Brown, Ham & Hughes, 2010) and off-leash dogs set free by owners during park visitation (Hughes, Ham & Brown, 2009). Park

regulations are established to mitigate these behaviours for very specific reasons. For example, if park visitors are careless in storing their food, bears may be attracted to the area leading to a negative experience for the park visitor and conservation issues as these bears become habituated to human food, altering their normal feeding behaviour.

Pacific Rim National Park Reserve exemplifies the importance of parks and protected areas for biodiversity conservation. The park protects an example of temperate rainforest, identified in the Parks Canada Systems Plan as Natural Region One (Parks Canada, 2014a). Heavy rainfall and a consistently mild climate support a highly productive ecosystem with some of the largest and oldest trees in Canada, and significant wildlife populations (e.g. wolves, cougars and bears) occupying the forest environment, the intertidal areas (e.g. mussels, clams, shorebirds), and the marine environment (e.g. salmon, humpback whales, and sea lions). The park is divided into three distinct areas (Fig. 1) including the rainforest fringed, surf-pounded expanse of Long Beach (Fig. 2); the 100 plus islands of the Broken Group Islands; and the 77 km coastline of the West Coast Trail, which includes an inland watershed known as the Nitinat Triangle. Pacific Rim National Park Reserve makes up 500 km^2 of the Coastal Wetland Zone, consisting primarily of Douglas fir, Sitka spruce, red cedar and western hemlock, occurring to approximately 600 meters above sea level.

National Parks in Canada are managed through the National Parks Act (2000), and various national park policies. The Canada National Parks Act (2000) balances a dual mandate of maintaining ecological integrity while enhancing visitor experience: “The national parks of Canada are hereby dedicated to the people of Canada for their benefit,

education and enjoyment, subject to this Act and the regulations, and the parks shall be maintained and made use of so as to leave them unimpaired for the enjoyment of future generations" (c. 32., s. 4[10]). The statement making sure parks are "…unimpaired for the enjoyment of future generations" places importance on ecological integrity (Wright & Rollins, 2009).

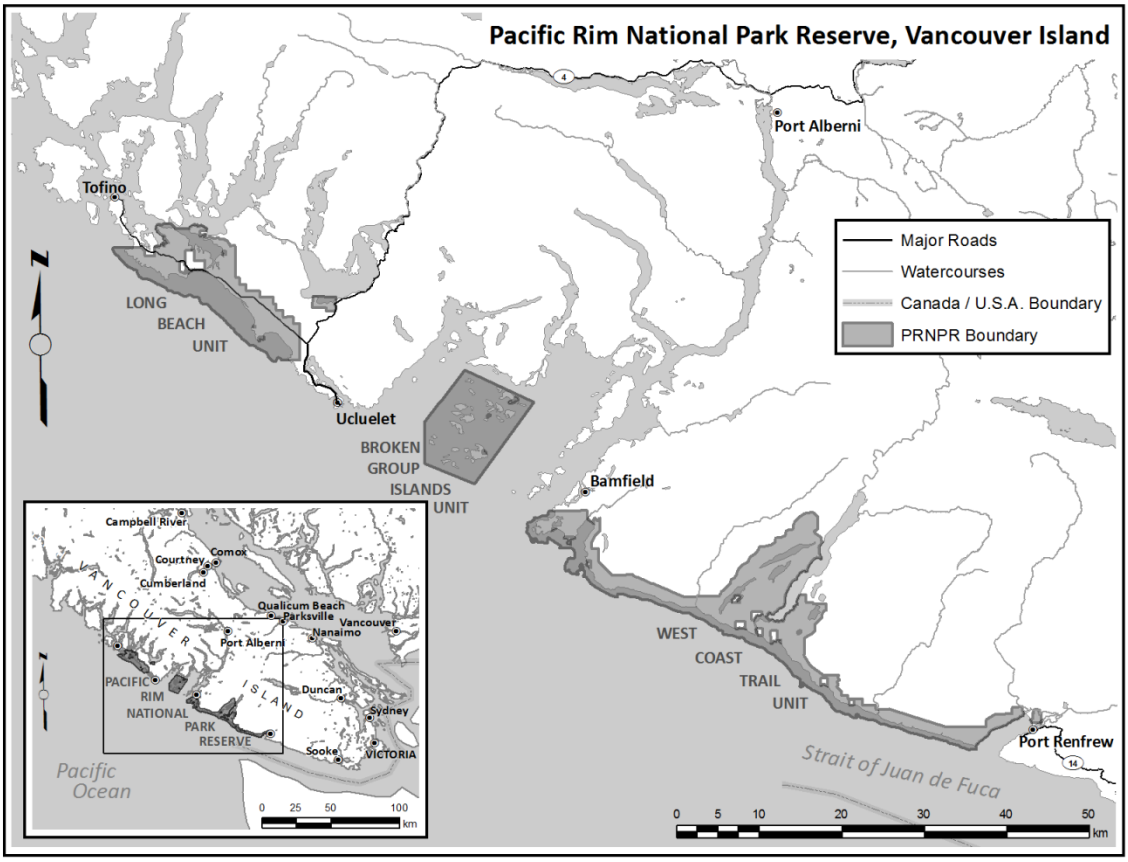

Figure 1. Location of Pacific Rim National Park Reserve (Parks Canada, 2014).

This focus on ecological integrity as a priority is clarified in the National Parks Act: "Maintenance or restoration of ecological integrity through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks" (s. 8[2]). The Act also goes so far as

to define ecological integrity in a park as "…a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes" (s. 8[2]). Ultimately, Wright and Rollins (2009) contend that this focus on ecological integrity projects intent and priority on ecosystem management (Grumbine, 1994) and its collaborative blend of scientific understanding and awareness of the complex social and political climate required for long term protection.

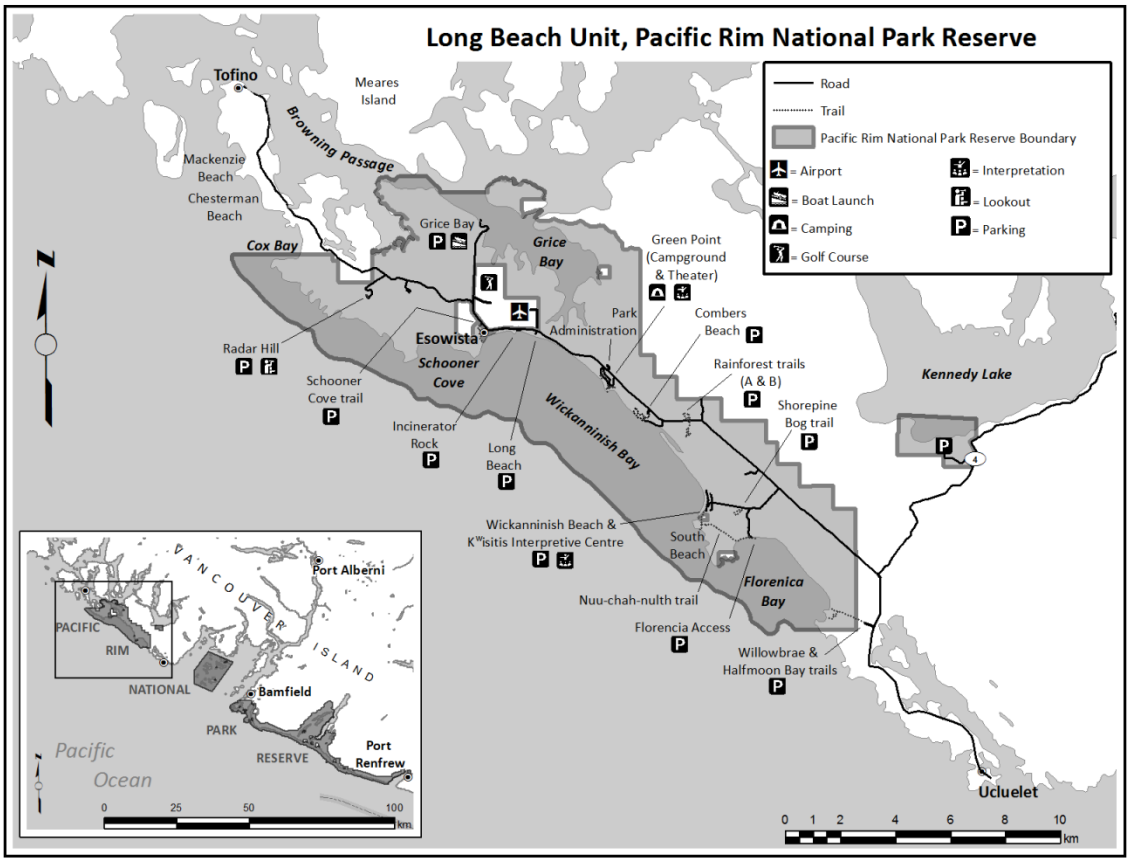

Figure 2. The Long Beach Unit of Pacific Rim National Park Reserve (Parks Canada, 2014)

Perhaps challenging to ecological integrity is the more recent direction laid out in a corporate plan that establishes three pillars of national parks as (1) protecting natural and cultural resources, but also (2) providing opportunities for education and (3) enhancing visitor experience (Wright & Rollins, 2009). While recruiting support for parks though visitation is integral for PA survival, a precautionary viewpoint may question the increased emphasis in the latter two pillars to the detriment of the former (Wright & Rollins, 2009).

Internationally, national parks are thought to provide multiple benefits as well as biological conservation. The International Union for the Conservation of Nature (IUCN) designates national parks as "Category II protected areas" with primary, secondary and potential objectives (IUCN, 1994). Primary objectives are for the preservation of species and genetic diversity, maintenance of environmental services but also for recreation and tourism (IUCN, 1994). Secondary objectives include scientific research, wilderness protection, the protection of both natural and cultural features and education. Potential objectives may include sustainable use of natural resources from the park ecosystem.

Park managers are challenged to address these sometimes-conflicting mandates that place importance on both ecosystem integrity and visitor experience. For example visitor behaviour (such as feeding wildlife) or visitor facilities (such as a campground) can influence wildlife behaviour and compromise conservation objectives. Human wildlife interactions in parks present a unique challenge in that one of the significant experiences parks can provide is the opportunity to see wildlife in a natural setting, but the presence and behaviour of visitors can sometimes lead to consequences that are

dangerous for park visitors and/or undermine the viability of wildlife populations. This study focuses on one important aspect of this dynamic, the relationship between dogs, people (Fig. 3) and carnivores such as wolves, and migratory shorebirds.

Figure 3. Dog Walkers at Long Beach in Compliance with On-Leash Regulations

Temperate rainforest, abundant wildlife, sandy beaches, dramatic scenery and ease of access make Long Beach in PRNPR one of Canada's most popular national park destinations with consistently high levels of visitation upwards of 750,000 annually (Parks Canada, 2014b). The park's beaches also play an important role as wildlife corridors and wildlife foraging habitat. Migratory shorebirds use the Pacific coast as their flyway between northern breeding grounds and wintering grounds in the Americas. The park's ocean foreshore is critical habitat for the sanderling (*Calidris alba*), and western

sandpiper (*C. mauri*) (Zharakov, 2011). In the Long Beach unit (LBU) of PRNPR, a key area for both people and shorebirds is its 20 km long stretch of beach (Fig. 2).

From July to October of 2011, during the southward migration of shorebirds, a shorebird study was conducted coinciding with both peak migration and human recreational use (see Zharikov, 2011). Twenty sites were established between Schooner Cove and Florencia Bay (Fig. 2) where the behaviour of birds, people and their dogs were observed. Results indicated that shorebirds spent 6% of their time flying, 19% roosting, and 75% foraging, highlighting Long Beach as important habitat. People, on the other hand, spent 75% of their time in various active pursuits such as walking, surfing, playing and swimming, running and cycling. In total, 5,100 shorebirds and 2,400 people were observed over a total of 142 hours. Overall, 167 dogs accompanied park visitors using the beach.

Temporal trends in shorebird and visitor distribution experienced a gradual increase of people in July, August and September, then quickly declining in the latter part of September (Zharikov, 2011). Shorebirds however peaked later in July and into the middle of August, dropping in the latter part of the month and rising again in September. Regardless, human and shorebird use of Long Beach overlap and displace shorebirds (Esrom, 2004; Zharikov, 2011)

Spatial patterns in the distribution of shorebirds and visitors demonstrated the greatest abundance of birds approximately in the middle of Long Beach, in between Incinerator Rock and Green Point and lowest at access points and parking lots (Fig 2.) (Zharikov, 2011). A key finding by Esrom (2004) identified that access points such as

Green Point and Incinerator Rock (Fig. 2) show low shorebird use during southward migration, when human use is highest. However, spring use during northward migration is higher, highlighting shorebird displacement by people during peak summer season.

People and their dogs were most abundant at popular access points of Incinerator Rock, Green Point, Wickaninnish (Fig. 2) and the further away from these convenient locations, the number of people declined (Zharikov, 2011). When park visitation is lower, the impact of dogs on shorebirds is quite apparent, but the 'dog effect' is 'masked' with greater abundance of people on the beach and the cumulative impact of human use (Zharikov).

The park's beaches are also home to the Vancouver Island wolves (*Canis lupis cracidon*), and have a history of conflict between wolves and people and their pet dogs (*Canis lupis familiaris*) (Windle, 2003; Edwards, 2005; Bob Hansen, personal communication, 2011).

These same beaches are a focus of visitor activity, including surfing, kayaking, and beach walking, including walking with dogs. Park regulations specify that dogs must be on a leash at all times. This regulation was developed to reduce impacts on park wildlife, particularly on migratory shorebirds, wolves and cougars (Zharikov, 2011). Wolves from PRNPR on the west coast of Vancouver Island and surrounding wilderness areas have started to move outside of their natural habitat into the nearby towns of Tofino and Ucluelet to predate on dogs and other local animals, creating a hazard for people and a serious human–wildlife challenge. Within the park, wolves are attracted to dogs belonging to locals and park visitors. When locals and park visitors allow their dogs to

run free off leash, dogs become sources of easy prey, creating potentially dangerous interactions with park visitors, habituation of wolves, and conflict with wolves in Tofino and Ucluelet.

In a study of wolf encounters PRNPR (Windle, 2003), 52 wolf encounters were recorded in the PRNPR database from January 1983 to September 2003. Twenty-two encounters were aggressive behaviour, 13 encounters were non-aggressive, and 17 encounters were aggressive behaviour toward dogs. The report contains only reports of wolf encounters in the PRNPR database.

There are no evident correlations between visitor numbers and the frequency of carnivore reports (Edwards, 2005). In the LBU, the number of visitors increased, as well as the number of observations until 2004. Monthly trends are apparent with visitor numbers and wildlife numbers, but there is neither a positive nor a negative correlation with this trend. In general, wolf sightings tend to decrease during peak season in July and August and increase during the off-season (Edwards, 2005).

The most infamous wolf incident was in 2000, where a food-conditioned wolf attacked a camper in a nearby provincial park. Subsequently, conservation service officers destroyed two wolves after an extended period of aggressive behaviour of wolves towards people, prior to the attack (Edwards, 2005). It was 1999 that saw the first wolf advisory posted in the park, with a particular focus on the risk to off-leash dogs in a second warning issued that same year. Both 1999 and 2000 remain peaks in wolf activity. Since then it has fluctuated with no apparent trends, other than animals behaving indifferently towards people and approaching people and pets, occasionally leading to

attacks on off-leash dogs (Edwards, 2005).

This issue has been highlighted in recent years, with two fatal attacks on off-leash dogs in the park and one fatal attack in a nearby provincial park during 2011. Wolf activity also increased considerably the following year (2012), with two more fatal attacks on dogs in March of that year. January 2014 witnessed the emergence of an additional pack of wolves in the park, and on March 4th, 2014 a dog was attacked and dragged off in a residential area during daylight hours. In March 2015, wolves attacked two dogs on popular Wickaninnish Beach in front of their owners, a couple and their small child, during a morning walk on the beach.

These recent events highlight the importance of leashing pets when visiting the park. However, according to a recent study (Zharikov), 61% of dogs brought to the Park's beaches are set off-leash by their owners. Most beach visitors with dogs kept their dogs on-leash only close to beach access points. Zharikov (2011) and Esrom (2004) found that the further away from these locations people travelled with their pets, the fewer dogs were kept on leash. In other words, the compliance rate for this leashing regulation was just 39%. This is similar to findings of a previous study conducted in the Long Beach Unit of the park where compliance was reported at 38% (Esrom, 2004). This low compliance is despite education and prevention measures such as 'dogs on-leash' signs present at all beach access points, and warnings issued to visitors walking with their dogs off-leash.

Efforts to reduce the percentage of off-leash dogs on Pacific Rim's beaches to mitigate both human–carnivore conflict and shorebird disturbance appear to have had

little impact. Park regulations state that dogs must be kept on-leash in the park. However, many people ignore this regulation, and allow their dogs to run off leash in the park, perpetuating the issues outlined above. Like many parks, PRNPR lacks the resources and support to enforce these regulations and instead relies heavily on messaging and signage to educate and influence visitor behaviour. It appears that this interpretive messaging is not effective, so there is a need to better understand the factors that shape visitor decisions to comply or not comply with off-leash regulations.

Managing Visitor Behaviour and Impacts in National Parks

Visitor behaviour can sometimes be inappropriate and lead to negative impacts in park ecosystems and on wildlife populations found within (Reynolds & Braithwaite, 2001; Weaver, 2001; Buckley, 2004; Weaver & Lawton, 2007; Haider & Payne, 2009). Most visitor impacts on parks and protected areas are not intended, but occur rather from a lack of awareness or knowledge of low impact behaviour (Bradley, 1979; Marion & Reid, 2007). The issue of non-compliance with park regulations such as leashing dogs requires an understanding of how to manage visitor behaviour in PAs.

One approach is through ‘direct’ management techniques that include physical barriers, structures, and legal sanctions (Hendee & Dawson, 2008). While often effective, these approaches to park management can be expensive to implement, difficult to enforce and may be viewed as inappropriate for natural areas because they may detract from the wilderness experience (Marion & Reid, 2007).

A second type of approach is through ‘indirect’ techniques that aim to influence visitor behaviour and attitudes towards parks and protected areas (Moscardo, 1999; Knapp & Poff, 2001; Hughes & Morrison-Saunders, 2005; Kuo, 2002; Kohl, 2005). These include verbal and non-verbal visitor management strategies such as signage, and personal communication. Broadly defined as visitor education, in its various forms, indirect techniques are often used as a management tool that helps to guide visitors to make appropriate decisions to engage in a desired behaviour (Hendee & Dawson, 2008). Its ultimate goal is to foster support for the maintenance of ecological integrity by encouraging people to care about the natural and cultural values of the park (Parks Canada, 1999).

Visitor education designed to persuade visitors to adopt low-impact practices is a softer, ‘indirect’ (Hendee & Dawson, 2008) cost effective approach to reducing resource impacts and improving visitor experiences in a way that reflects park values (Roggenbuck, 1992; Manning, 1999; Vistad, 2003; Bullock & Lawson, 2007; Hendee & Dawson, 2008; Park, Manning, Marion, Lawson & Jacobi, 2008; Martin, Marsolais & Rolloff, 2009). Because visitors maintain their freedom of choice, these indirect approaches are more compatible with leisure settings (Lucas, 1982, 1983; Hammit & Cole, 1998; Hendee & Dawson, 2002; Manning, 2007; Marion & Reid, 2007).

However, developing effective indirect strategies aimed at influencing visitor behaviour is challenging. Simply providing information is usually not effective (Mackenzie-Mohr, 2011) unless this information is linked somehow to the decision-

making process that park visitors employ when deciding whether or not to comply with park regulations (Ham, Brown, Curtis, Weiler, Hughes, & Poll, 2009).

Models such the theory of planned behaviour (TPB) (Fishbein & Ajzen, 2010) offer potential to help gain insights to develop effective strategies to promote compliance behaviour and discover ‘ what works and why,’ by focusing on the underlying beliefs that form people’s attitudes, intentions and subsequent behaviour.

Theory of Planned Behaviour (TPB)

In this study the TPB (Fishbein & Ajzen, 2010) is used as a framework for understanding visitor decisions to comply or not comply with the park off leash regulations. The TPB approach argues that decision making is guided by three main factors: (1) attitude toward the decision (how good or bad I feel about complying with the off leash regulations); (2) the influence of important others on our decision (subjective norms); and (3) our perceived control over our behaviours (e.g. do I have the skills to comply with these regulations). These relationships are illustrated in Figure 4 below.

Intention to perform behaviour is stronger the more attitude and subjective norms towards the behaviour are positive, and when there is a sufficient degree of perceived behavioural control. If there is enough actual control over behaviour, determined by skills, abilities and environmental factors, the person is expected to act on his or her intentions, provided that that they are given the opportunity and there are no other barriers or intervening variables. On the other hand, intentions toward a behaviour can be

reduced if attitudes are low, subjective norms are low, perceived control is low, and/or actual control is low.

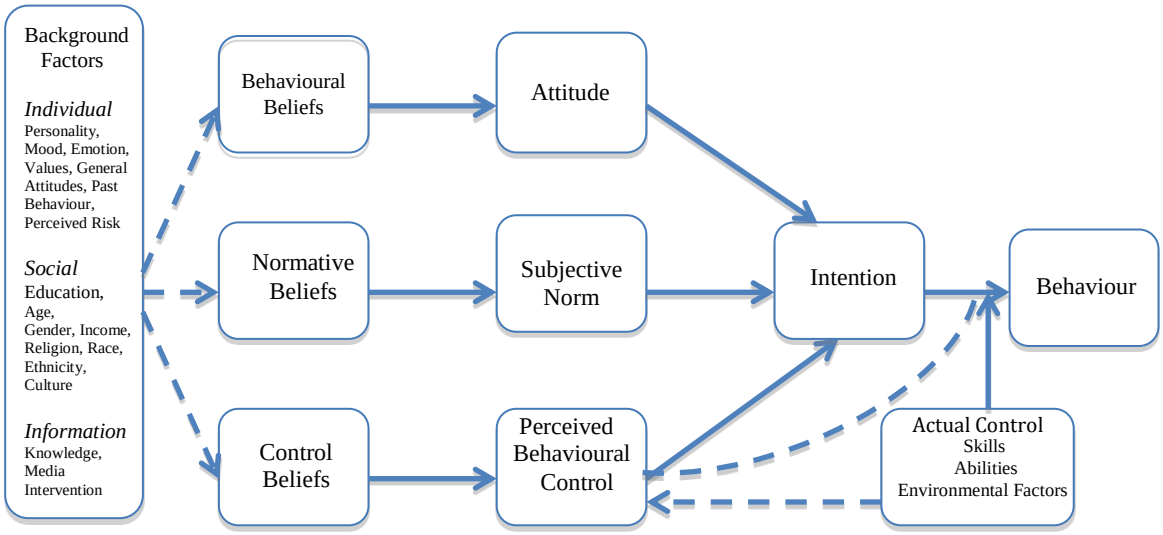

Figure 4. Theory of Planned Behaviour (adapted from Fishbein & Ajzen, 2010)

In the most recent incarnation of the TPB (e.g. Fishbein & Ajzen, 2010), this perceived social pressure is conceptualized into 'injunctive' and 'descriptive' components. These two components are represented in Fishbein and Ajzen's (2010) model as 'perceived norm.' An injunctive norm is perceived social pressure from other important people, like family members or a park ranger and the motivation to comply with those wishes. The injunctive norm reflects earlier versions of the theory of planned behaviour (e.g. Ajzen, 1991) where this component is called the 'subjective norm.'

A descriptive norm derives from evidence of what 'important' others around you are actually doing regarding the target behaviour and the influence that their behaviour has on your behaviour. People may model their behaviour on what others are doing, under the perception that the others are experts in the given situation, or that they want to

be like them (Fishbein & Ajzen, 2010). This modeling of behaviour may also provide an example of what may appear to be a reasonable behaviour under the particular circumstances of that situation (Reno, Cialdini & Kallgren, 1993; Kallgren, Reno & Cialdini, 2000; Cialdini, 2001). For example, if everyone on the beach allows his or her dog to run free on the beach, the descriptive norm is the influence of what important others are doing, to follow suite with their actions.

Following Fishbein and Ajzen (2010), this study added a descriptive component to reflect the most up to date conceptualization of the 'perceived norm' in the TPB model that includes both injunctive and descriptive components. However results from the descriptive norm were found not to be significant. This is confounding given the powerful influence of deeply ingrained social norms, including the influence of other dog walkers' behaviour that prompted others to behave in a similar way (see Chapter 2).

While the influence of the descriptive norm is certainly not a new idea, it is not well developed within the TPB. Notwithstanding the TPB's prolific application to a wide variety of behaviours, very few studies address descriptive norms and questions remain about appropriate measurement (Fishbein & Ajzen, 2010). This study's attempts to measure descriptive norms in the TPB appear to have been insufficient. It is left to other research to make progress in this area.

One particular nuance is that both injunctive and descriptive components maintain deference to a particular social referent of some 'important person.' This is consistent with Fishbein and Ajzen's (2010) identification of the problems associated using a 'generalized social agent' to assess descriptive norms. For example, injunctive norms

identify those who think that ‘you should keep your dog on-leash,’ whereas descriptive norms identify people whose off-leash behaviour may greatly influence your own, like a friend, or family member. The latter construct assumes that the behaviour of this “generalized social agent…serves as the basis for this descriptive norm” (Fishbein & Ajzen, p. 144).

In the context of this study, other people on Long Beach walking their dogs off-leash serve as the basis for this descriptive norm. But they are simply just that: other park visitors on Long Beach with their dogs. They may not be the important social referents with which respondents identify as ‘like them’ and perhaps not the most appropriate indicator of descriptive norms. Following Fishbein and Ajzen (2010), the descriptive norm is measured on a 7-point scale from 1 = Strongly Disagree, to 7 = Strongly Agree. In the questionnaire (Appendix A), Q17F states, “Most people like me leash their dogs on Long Beach.” Alternately, it seems logical to suggest that the modeling of off-leash dog walking behaviour provides an example of what simply seems to be reasonable in that situation (Reno, Cialdini & Kallgren, 1993; Kallgren, Reno & Cialdini, 2000; Cialdini, 2001) and may be a better indicator of the descriptive norm. Questions based on identification with an important other with both descriptive norms and descriptive normative beliefs may be problematic, particularly if the respondent does not identify with the generalized social agent, as conceptualized by Fishbein and Ajzen (2010) for inclusion in the TPB.

Descriptive normative beliefs were measured in two ways: (1) normative referent measure on a 7-point scale from 1 = False to 7 = True (e.g. “Is it your experience that

most people on the beach with their dogs have them leashed?") (see Q12 A, Appendix A); and (2) identification with the normative referent measured on a 7-point scale from 1 = False to 7 = true (e.g. "Does this feel as you should do the same?") (see Q12 B, Appendix A).

Following Francis et al.'s (2004a, 2004b) treatment of the injunctive norm (see below section on normative beliefs), the analysis of descriptive normative beliefs, the normative referent was recoded into positive and negative values from -3 to +3. Coding for the identification with the normative referent remained the same. The overall impact of descriptive normative beliefs on the descriptive norm is estimated by computing the product of each normative referent and identification with the normative referent. These products are then summed to create a composite score considered to determine the subjective norm (Fishbein & Ajzen, 2010) (Descriptive Normative Belief Composite =∑ Normative Referent x Identification with that Normative Referent). This would be referred to as an indirect or belief based measure of the descriptive norm. This composite score is then correlated with the descriptive norm using a linear regression to assess the validity between direct and indirect measures. Fishbein and Ajzen (2010) state that no research to date has performed this test and regardless, it would likely not improve the predictability of the descriptive norm.

Another possibility for the weak findings with descriptive norms is the level of specificity and compatibility (Fishbein & Ajzen, 2010) in Q12 A and B (see Appendix A) required for accurate results. All questions must be phrased in such a way that considers the **t**arget behaviour (compliance or non-compliance), **a**ction (walking dogs), **c**ontext

(Long Beach) and **t**ime (when dog walkers were on Long Beach with their dogs) (an approach abbreviated to TACT) (Fishbein & Ajzen, 2010).

In the questionnaire, Q12 A "Is it your experience that most people on the beach with their dogs have them leashed?" and Q12B "Does this feel as you should do the same?" may have left the context and time open to interpretation. Questionnaires were administered in situ directly following observed behaviour (compliance/non-compliance). This is perhaps enough by our reasoning, to infer the moment in which they were present in context of Long Beach and 'when' they were on Long Beach with their dogs. The introduction that preceded administration of the questionnaire (Appendix B) and the participant consent form (Appendix F) also provided context and temporal specificity. However, any speculation by respondents of other situations and contexts beyond the one at hand can negatively influence results (Fishbein & Ajzen, 2010).

Despite the problems encountered with the descriptive norm, overwhelming evidence of the influence of other dog walker's behaviour that prompted others to behave in a similar way suggests otherwise. We found this nuance of 'what others around you are doing and the influence that their behaviour has on your behaviour' was better reflected in a qualitative analysis of the semi-structured interviews found in Chapter Two of the dissertation. Hence, the singular concept of subjective norm in the TPB is employed in this study.

Measurement of intentions, attitudes, subjective norms and perceived behavioural control is a crucial component of the TPB. As previously mentioned, questions must consider the TACT principle: **t**arget behaviour (compliance or non-compliance), **a**ction

(walking dogs), **c**ontext (Long Beach) and **t**ime (when dog walkers were on Long Beach with their dogs) (Fishbein & Ajzen, 2010). Behavioural intentions are measured by asking the extent to which people intend to engage in the behaviour in question (e.g. "I intend to walk my dog on-leash when I come to Long Beach"). This is measured on a 7-point Likert scale from 1 = Strongly disagree to, 7 = Strongly agree. Intentions are elicited in the questionnaire (Appendix A) with Q17A "I <u>want</u> to walk my dog on a leash when I come to Long Beach, Q17C "I <u>intend</u> to walk my dog on a leash when I come to Long Beach," and Q17I "I <u>expect</u> to leash my dog when I come to Long Beach."

Attitudes are measured by asking people's opinions about leashing their dogs when they come on Long Beach. This is demonstrated in the questionnaire (Appendix A), with Q2A "Leashing my dog on Long Beach is…" This is measured on a 7-point Likert scale from 1 = Bad to, 7 = Good. In Q2B, "Walking my dog on a leash on Long Beach," is measured on a 7-point Likert scale from 1 = Unpleasant for me to, 7 = Pleasant for me.' Finally, in Q2C, "Using a leash for my dog on Long Beach," is measured on a 7-point Likert scale from 1 = Useless to, 7 = Useful.

Subjective norms are measured by asking the extent to which the subject is influenced by important others. This is measured on a 7-point scale from 1 = Strongly Disagree, to 7 = Strongly Agree. In the questionnaire (Appendix A), Q17E states "It is expected of me to leash my dog when I come to Long Beach," Q17H states "Most people who are important to me think that I should leash my dog when I come to Long Beach," and Q17L elicits response to "I feel under social pressure to leash my dog at Long Beach."

Perceived control can be measured in different ways. One approach employs a 7-point Likert scale from 1 = very difficult to 7 = very easy. In the questionnaire (Appendix A) this construct is elicited via Q16 "To keep my dog on-leash on Long Beach is…" A second approach is to use a 7-point Likert scale from 1 = Strongly disagree to, 7 = Strongly Agree. This is illustrated with Q17B "Whether or not I leash my dog here is entirely up to me." Q17D states "To keep my dog on-leash is beyond my control." In Q17G "I am confident that I could leash my dog if I wanted to" also examines this construct.

Composite scores for attitude, subjective norm and perceived behavioural control are created by the sum of each direct measure and are correlated with intention using a multiple regression procedure. These composite scores are later used to assess the validity between direct and indirect measures of the same constructs.

There is no current established method to measure actual control. For this component of the model, perceived behavioural control is used as a proxy for actual control (Fishbein & Ajzen, 2010).

To the left of Figure 4 are found a number of types of beliefs that are predicted by TPB to influence attitudes, subjective norms, and perceived behavioural control. Behavioural beliefs are a series of outcomes of a behaviour and the individual's evaluation of these outcomes from which attitude towards the behaviour is revealed. For example, a possible behavioural belief is "leashing my dog in the park will keep it safe from wolves." Each behavioural belief has two components: (1) belief probability (see Q3 A-J, Appendix A), measured on a 7-point scale from 1 = Very Unlikely to 7 = Very

Likely (e.g. “how likely or unlikely is it that leashing your dog will keep it safe from wolves”); and (2) belief outcome (see Q4 A-J, Appendix A), measured on a 7-point scale from 1 = Bad to 7 = Good (e.g. “how good or bad do you feel about keeping your dog safe from wolves”).

Following Francis et al. (2004a, 2004b), in the analysis, behavioural belief outcome evaluation responses were recoded +3 to -3 while behavioural belief strength coding was unchanged. The overall impact of behavioural beliefs on attitude is estimated by computing the product of each belief strength (unlikely-likely) and evaluation (good-bad). These products are then summed to create a composite measure of beliefs considered to determine attitudes (Fishbein & Ajzen, 2010) (Behavioural Belief Composite = $\sum$ Belief Strength x Motivation to Comply). This is often referred to as an indirect or belief based measure of attitude. This composite score is then correlated with the direct measure of attitude using a linear regression to assess the validity between direct and indirect measures.

Normative beliefs shape the subjective norm, and focus on those people who may exert social influence on performing that behaviour. This is measured in two ways: (1) belief strength measure on a 7-point scale from 1 = I Should Not to 7 = I Should (e.g. “my family think I should/should not keep my dog on leash in the park”) (see Q11 A-M, Appendix A); and (2) motivation to comply measured on a 7-point scale from 1 = Strongly Disagree to 7 = Strongly Agree (e.g. I agree/disagree that I want to do what my family thinks I should do) (see Q13 A-M, Appendix A).

Following Francis et al. (2004a, 2004b), in the analysis of normative beliefs,

beliefs about how other people, who may be in some way important to the person, would like them to behave were recoded into positive and negative values from -3 to +3. Coding for the motivation to comply with the wishes of others remained the same.

The overall impact of normative beliefs on the subjective norm is estimated by computing the product of each belief strength and motivation to comply. These products are then summed to create a composite score considered to determine the subjective norm (Fishbein & Ajzen, 2010) (Normative Belief Composite = $\sum$ Belief Strength x Motivation to Comply). This is often referred to as an indirect or belief based measure of the subjective norm. This composite score is then correlated with the subjective norm using a linear regression to assess the validity between direct and indirect measures.

Control beliefs shape perceived behavioural control (PBC), and focus on whether a person feels they have adequate control to perform the behaviour. Control beliefs are measured in two ways: (1) belief strength (see Q5 A-D, Appendix A), on a scale of 1 = Strongly Disagree to 7 = Strongly Agree (e.g. I disagree/agree that not having enough education and information about why I need to have my dog on-leash makes it difficult to keep my dog leashed); and (2) belief power (see Q7 A-D, Appendix A), on a scale of 1 = Less Likely to Leash My Dog to 7 = More Likely to Leash My Dog (e.g. When there is not enough education and information about why I need to leash my dog, I am less/more likely to leash my dog).

In the analysis, following Francis et al. (2004a, 2004b), the power component questions were recoded into positive and negative values from +3 to -3. Coding for the strength component remained the same.

The overall impact of control beliefs on the PBC norm is estimated by computing the product of each belief strength and power component (Fishbein & Ajzen, 2010). These products are then summed to create a composite score considered to determine PBC (Control Belief Composite = ∑ Belief Strength x Power). This is often referred to as an indirect or belief based measure of PBC. This composite score is then correlated with PBC using a linear regression to assess the validity between direct and indirect measures.

Finally, all beliefs may also be affected by background factors possessed by an individual such as personality, mood, emotion, stereotypes, values, general attitudes, perceived risk, past behaviour and habit. Social factors may include demographic variables such as education, age, income, religion, race, ethnicity and culture. The amount or type of information such as knowledge, media exposure and previous interventions may also affect beliefs. In this study, we included measures of 'habit' and 'ambivalence' as background factors. These are discussed in the below sections on "The Effect of Habit on the Theory of Planned Behaviour" and "The Effect of Ambivalence on the Theory of Planned Behaviour."

Applications of the Theory of Planned Behaviour

A number of problem behaviours in national parks have been addressed by the theory of planned behaviour (TPB) to better understand a visitor's actions and to inform ways to improve compliance. In two studies on bird-feeding, Ballantyne and Hughes (2006) and Hughes, Ham and Brown (2009) examined visitor's beliefs and attitudes about feeding birds from which signage was then designed and evaluated. Staying on

designated trails can be a problem in natural areas. Beeton, Weiler, and Ham (2005) employed the TPB to identify beliefs to target in a communication intervention strategy intended to persuade park visitors to stay on trails. In a related study on visitor trail use, Bradford and McIntyre (2007) designed and tested two types of messages to prevent use of 'social trails' that deviate from designated pathways. In many North American parks, bears can become food conditioned, if campers' food is not properly stored. To promote proper food storage Lackey and Ham (2003) employed the theory of planned behaviour to inform future strategies to persuade park visitors to mindfully store their food in bear country. Littering is also another problem behaviour in parks. Brown, Ham and Hughes (2010) designed and tested a communication intervention to persuade people not to inappropriately discard their garbage. In a particularly salient example to this study, Hughes, Ham and Brown (2009) employed and tested theory based messages designed to discourage off-leash dogs set free by owners during park visitation.

Critiques of the Theory of Planned Behaviour

The TPB (Fishbein & Ajzen, 2010) is a well-established theory in social psychology that addresses behaviours that people perform everyday. These behaviours affect personal, societal and ecological/environmental health and well-being. A greater understanding of behaviour and its determinants, with the goal of improving societal, environmental/ecological health and sustainability is a hallmark of the model. However, the theory has been subject to some criticism.

Conner and Armitage (1998) focus on extending the TPB in a variety of ways in order to strengthen the model. These authors suggest additional variables including belief salience measures, past behaviour, habit, moral norms, self-identity and affective beliefs.

Greve (2001) challenges whether psychological theory and empirical evidence can explain human action. The main point argued is that human behaviour is more than just a series of human actions. Greve (2001) contends that actions represent intentional behaviour, rather than just merely behaviour that is observable. While intentions, expectations and evaluations are connected to actions, assumptions of causal relationships between intentions and actions are problematic.

A major point of contention is the TPB's focus on rationality in the decision making process. Sheeran, Gollwitzer and Bargh (2013) suggest that attention to unconscious influences on behaviour may have a great deal to contribute to theories on behaviour change and subsequent interventions.

Affect and emotion are often an ignored and considered to be missing from the TPB model (Conner & Armitage, 1998; Rapaport & Orbell, 2000; Richard, de Vries, & van der Pligt, 1998; Wolff, Nordin, Brun, Berglund, & Kvale, 2011). In a recent study, Conner, Godin, Sheeran and Germain (2013) recommended that emotion be included in theory of planned behaviour studies. These authors found that emotions were also a strong predictor of behaviour of intention, simultaneously with TPB components.

Hardeman et al. (2002), challenge the efficacy of behaviour change interventions. In a review of papers describing interventions, the author's criticize the emphases placed upon the measurement, outcome variables, and predicting intention and behaviour, as

opposed to actually developing the intervention. Of those that did, only half of the interventions were effective in changing intentions, and only one third were effective in influencing behaviour. While the model illustrates potential, the authors call for more 'comprehensive' studies that utilize and compare the theory with alternative models and techniques to influence behaviour.

Webb and Sheeran (2006), provide a meta-analysis that investigates the intention behaviour relationship and challenges the notions of causality. The authors integrate experimental studies on relations between intention-behaviour to ascertain the degree to which intention produces change in behaviour. They found that medium to large changes in intention produced a small to medium change in behaviour. Intentions were also found to be less influential when there was a lack of control over the behaviour, some type of social reaction is anticipated, or when performance of the behaviour is habit forming. These results prompt a call for more effective methods to investigate the intention – behaviour relationship.

In a similar vein, Sniehotta (2009) questions the prominence of TPB and incongruences between the model's success predicting intentions and limited results in behaviour change. The thrust of the author's criticism is the lack of experimental design in favour of correlational studies. Findings from a persuasive communication intervention supported the formation of intention as assumed by the model, however results demonstrated that behaviour change was not consistent with these intentions.

Sniehotta, Presseau and Araújo-Soares (2014) echo the above criticisms of the TPB. They go as far as to suggest that the theory be entirely discarded, suggesting that

the theory is ‘outdated’ and the “[t]he TPB is no longer a plausible theory of behaviour or behaviour change and should be allowed to enjoy its well-deserved retirement (p. 4).” As alternatives, these authors suggest more attention on theories of action that do not presuppose generalized assumptions about cognitions (see Sniehotta et al. for a brief review).

Reflections on TPB

The response to Sniehotta et al. (2014) is that the TPB is ‘alive and well,’ (Ajzen, 2014) and its usefulness has endured over its long and productive lifespan. Overall, the TPB (Fishbein & Ajzen, 2010) has undeniably contributed to a greater understanding of human behaviour and its determinants. Applied to a wide variety of everyday behaviours, its overall goal is the improvement of personal, societal and ecological/environmental health and well-being. From a management perspective, several research implications can be identified from this study that may be useful for managers of parks and protected areas. This section reflects upon the criticisms outlined above and presents related arguments in support of the model.

In response to criticisms about the TPB’s focus on rationality in the decision making process, Ajzen and Fishbein contend that this could not be further from the truth (e.g., Ajzen, 2004, 2008, p. 2804, 2011a, 2011b, 2012, 2014; Ajzen & Fishbein, 2000, 2005; Fishbein & Ajzen, 2010). Alternately, they claim that beliefs “…may be irrational, reflecting unconscious biases, paranoid tendencies, wishful thinking or other self-serving motives; and they may fail to correspond to reality in many other ways” (Ajzen, 2014, p.

3). However 'irrational,' they still generate attitudes, intentions and behaviours based on these beliefs (Geraerts et al., 2008). Behaviour is only suggested to be reasoned, planned or rational in that people's subjective norms and their perceived behavioural control flow from their behavioural, normative and control beliefs and their attitudes towards the behaviour (Ajzen, 2011).

The presumption of a 'rational actor model' also assumes that affect and emotion are not considered in the TPB and these components are often thought to be missing from the TPB (Conner & Armitage, 1998; Rapaport & Orbell, 2000; Richard, de Vries, & van der Pligt, 1998; Wolff, Nordin, Brun, Berglund & Kvale, 2011). Ajzen (2011) provides a comprehensive review and the responses to these criticisms are briefly outlined below. Ajzen (2011) contends that indeed, affect and emotion are presented as background factors to beliefs (Fig. 3 – see p.11) and can influence indirect measures of belief strength and evaluation. For example, good moods present the greater possibility of positive appraisals about the consequences of a behaviour and an evaluation that these positive outcomes are more likely to occur (Forgas, Bower & Krantz, 1984; Johnson & Tversky, 1983; Schaller & Cialdini, 1990). Affect and emotion can also assist people in choosing accessible beliefs. For example, negative moods produce negative beliefs and vice versa (Clark & Waddell, 1983; McKee, Wall, Hinson, Goldstein, & Bissonnette, 2003).

Some researchers insist that anticipated effect (e.g. that a behaviour will stimulate pain or pleasure) directly influences intentions (e.g. Abraham & Sheeran, 2003; Conner, Smith, & Mcmillan, 2003; Wolff et al., 2011). However, Ajzen (2011) suggests that anticipated effect is in fact a variation of behavioural beliefs about the consequences that

may occur from engaging in a particular behaviour.

The belief elicitation phase of a TPB study has also been criticized for rigidity and adherence to instrumental consequences (e.g. advantages - disadvantages), while not leaving room for experiential or affective outcomes (e.g. interesting - boring) (Conner & Armitage, 1998; Wolff et al., 2011). However Ajzen (2011) contends that there are 'no rules' that suggest TPB interviews are to elicit only instrumental consequences, but can also accommodate affective or experiential consequences (e.g. Ajzen & Driver, 1991).

One of the greatest strengths of the TPB is its ability to predict behaviour in a variety of applications, using only the core components of the model (Conner, 2014). Suggestions for extending the TPB in a variety of ways to strengthen the model (e.g. Conner & Armitage, 1998) and the increasing number of studies that assess moderation effects have been viewed with criticism (e.g. Sniehotta et al., 2014). But it more importantly speaks to the substantial contribution it has made to understanding human behaviour and the considerable amount of research that has enabled these extensions and moderation effects to be considered (Conner & Armitage, 2014).

Ajzen (2014) does also recognize the challenge of entirely capturing each underlying construct of the model, particularly because of the small number of items typically employed to assess the TPB constructs, thereby impairing validity. Frequent findings consistently illustrate that additional variables to the model can aid in predicting intentions (Ajzen, 2014). Fishbein and Ajzen (2010) have been open to the possibility of the utility of extensions to the model. Consider also that the TPB emerged from the addition of perceived behavioural control to its theory of reasoned action (TRA)

predecessor.

A more recent inclusion is splitting the TPB components (e.g. Ajzen & Fishbein, 2005; Conner & Sparks, 2005). Particularly salient to this study are the injunctive and descriptive components of the 'perceived norm' in the most recent iteration of the model (Fishbein & Ajzen, 2010). While our results concerning descriptive norms were not significant, Chapter 1 outlines plausible explanations, including research design, but also points to the dearth of research in this area that provides a fertile field for exploration of the descriptive norm as a component of the TPB.

Fishbein and Ajzen (2010) suggest that questions remain about the most appropriate way to measure descriptive norms and descriptive normative beliefs. They also comment on the problems associated with the use of a generalized social agent for assessing descriptive norms. Similar to Fishbein and Ajzen, we also found that motivation to comply or group identification was not compelling enough to warrant strong correlations and significance between indirect and direct measures, particularly with the assumption that other dog walkers on the beach were 'important people.' Further research in this area should produce appropriate ways to measure descriptive norms. Following these authors, research could also include an approach to measurement that incorporates both injunctive and descriptive components. Furthermore, the identification of a salient set of both descriptive and injunctive beliefs could be combined to create an 'index' of normative beliefs that can be used to determine the social norm.

Research has also considered interactions between TPB components and other external variables, including the role of habit and effect of ambivalence, such as with the

present study. However, the extent to which these and other extensions to the TPB are applicable to a wide range of behaviours is uncertain (Conner, 2014). In a similar vein, both Ajzen (2014) and Head and Noar (2014) contend that some of these suggested extensions to the TPB are warranted while others may be less so. Notwithstanding, their exploration has contributed greatly to both the model and a better understanding of human behaviour.

Questions remain about causality, the TPB's predictive power (e.g. Greve, 2001; Sniehotta, 2014) and the 'intention-behaviour gap' (Conner, 2014). However, Fishbein and Ajzen (2010) and Ajzen (2014) contend that this 'gap' exists because attitudes and beliefs are unavoidably measured imperfectly and there are a great many intervening variables that occur between intention and acting upon those intentions. As a consequence, we may never be able to predict intentions and subsequent behaviour with infallible accuracy, but this does not eliminate its usefulness and the insight that this provides.

Azjen (2014) also asserts that the TPB is not a theory of behaviour change, but rather conceptualized to provide explanations for why people 'do what they do' and aid with the prediction of intentions and subsequent behaviour. A distinction can be made between this purpose and its utility as a framework to design behaviour change interventions that facilitate those predisposed to take action on their existing positive intentions (e.g. on-leash dog walkers), while encouraging those less inclined, (e.g. off-leash dog walkers) to engage in the desired behaviour (e.g. walk dogs on-leash) (Fishbein & Ajzen, 2010; Ajzen, 2011a,b). Unequivocally, TPB methodology identifies

beliefs to target that may change intentions and influence subsequent behaviour, even if it was not the original purpose of the model to inform how exactly this should be carried out (Ajzen, 2014).

However, changing intentions and behaviour is very difficult and time consuming. It begins with the steps outlined in Chapters 1, 3 and 4, which include a great deal of preparation and formative research to elicit salient beliefs and identify those to target in an intervention. The next steps are the design of an intervention and subsequent evaluation. It is no wonder that there is more emphasis placed upon the measurement, outcome variables, and predicting intention and behaviour, as opposed to actually developing the intervention and experimental design, as criticized by Hardeman et al. (2002), Sniehotta (2009) and Sniehotta et al. (2014). Very few studies actually conduct the formative research for an effective intervention study, often relying on previous research (Curtis, Ham & Weiler, 2009). For example, Sniehotta's (2009) criticism of the inadequacy of the TPB in predicting intentions and limited results in behaviour change are ironically founded upon a poorly designed intervention that ignore the foundational elements of an effective strategy. "Given the offhand way in which the interventions were designed, it is hardly surprising that the results were disappointing and difficult to interpret" (Ajzen, 2014, p. 5).

Webb and Sheeran's (2006) meta-analysis investigates the intention behaviour relationship and challenges notions of causality. While they found that medium to large changes in intention produced a small to medium change in behaviour, Conner (2014) contends that this was still enough to suggest that targeting intentions to influence

behaviour is effective. In addition, this meta-analysis aided in the identification of successful methods for changing intentions across studies (Conner, 2014).

Hardeman, et al., (2002) challenge of the efficacy of behaviour change interventions in a review of 24 papers describing interventions. In their review of this paper Fishbein and Ajzen (2010) and Ajzen (2014) claim irrelevancy with 4 of the studies because there was no intervention. In two other studies where there was an intervention present, but not based on the TPB. The TPB was employed to evaluate interventions in other studies, however the intervention was not based on the TPB. Six studies used the TPB for intervention design and evaluation, however there were compatibility issues with two of them (i.e. target, action time and context). However, the four studies that did conform to TPB methodology demonstrated promising results. Hardeman et al. (2002) did acknowledge that any conclusions about the model must be tempered by poor design in many of these studies. Regardless, Sniehotta et al. (2014) inappropriately use this paper to make a case for the inadequacy of TPB interventions.

Is the TPB ready to be retired as suggested by Sniehotta et al. (2014)? Naturally, Ajzen's (2014) playful (if not exasperated) response to this is that the TPB is 'alive and well,' and receives further support from Conner (2014) in its enduring usefulness over the lifespan TPB's long career. As a reductionist model that infers causality, its openness to extensions and additions that help to explain emergent phenomena, the TPB can be an effective tool that identifies particular beliefs to target in a communication intervention and a useful theoretical framework to help explain 'why we do what we do.' Fishbein and Ajzen are frank in their discussions about the strengths and weaknesses of the model and

gracious in their handling of constant criticisms that challenge the TPB's efficacy. And rightly so, as any prominent theory 'worth its salt' seeks advancement and enhanced rigor from these contributions, when viewed in this way. The TPB is but one way to approach a better understanding of human behaviour. It is not the only way and in all fairness, its originators have never presumed it to be.

Its greatest weakness is perhaps also its greatest strength. The complexity of conducting a TPB study from the identification of the problem behaviour to the evaluation of the intervention limits its usefulness, only in the considerable amount of time required to conduct a well-designed study. Yet at the same time, this demands a high degree of rigor. Great effort has been made by some researchers in the protected area (PA) and interpretation fields to make the TPB accessible to practitioners and PA managers, to whom the model may be useful. For example, Ham et al.'s (2009) practitioner guide to using the TPB capitalizes on the simplicity of computing cross products to illustrate difference between compliers and non-compliers and the use of composite scores to create an indirect belief based measure of attitude. However, Fishbein and Ajzen (2010) advocate correlations with the direct measure of attitude using a linear regression to assess the validity between direct and indirect measures in order to validate the findings. In Ham et al.'s (2009) well-meaning attempt to appeal to park managers, it weakens the robustness of this type of application of the model. Bridging the gap between theory and practice will continue to be a challenge. Application by practitioners will require guidance from academic researchers at the outset and statistical analysis may require additional assistance.

The TPB (Fishbein & Ajzen, 2010) has undoubtedly contributed to a greater understanding of human behaviour with the goal of improving of personal, societal and ecological/environmental health and well-being. From a management perspective, several research implications can be identified from this study that may be useful for managers of parks and protected areas. In the present study, the TPB helped to identify habit and ambivalence as factors that challenge the model and point to the limitations of belief based persuasive communication.

The Effect of "Habit" within the Theory of Planned Behaviour

The TPB assumes that people are 'rational decision makers,' logically assessing the information available to them (beliefs) prior to making decisions about now to behave. Challenges to reasoning in the decision-making process from 'habit' can reduce the efficacy of the TPB. When actions are performed many times previously, they can become habitual, automatic and stimulated by cues in the environment, rather than by rational thought (Ouellette & Wood, 1998; Aarts & Dijksterhuis, 2000). Cialdini (2001) contends that the original reasons why the behaviour was initially adopted may fade after repeated actions. Moreover, the 'tunnel vision' like effect of habit ignores any new information that may be inconsistent with the habitual behaviour (Aarts, & van Knippenberg, 1997; Betsch, Haberstroh, Gl¨ockner, Haar & Fiedler, 2001). Consequently, it is unlikely that signs, messaging and interpretive efforts would have a persuasive effect in influencing park visitors, for example, to leash their dogs (Hughes, Ham & Brown, 2009).

The effect of habit is illustrated in a number of different behaviours. Aarts and Dijksterhuis (2000) and Verplanken, Aarts and Van Knippenberg (1997) argue for the automaticity of behaviour such as cycling, and the strong association between goals and actions: frequent cycling (habit) becomes the automatic transportation mode of choice in a situational context like attending a lecture at university or going to work (goal). Mittal (1988) similarly describes the use of seatbelts as habitual, after frequent, repetitive use. Verplanken and Faes (1999) found that eating is a domain where habit had a negative effect on healthy eating intentions. Habit also had an impact on intentions and reduced the significance of perceived behavioural control in the recreational use of the drug Ecstasy (Orbell, Blair, Sherlock & Conner, 2001).

One particularly salient example is off-leash dogs in an Australian national park where non-compliance with an on-leash rule in the park was identified as habitual behaviour (Hughes, Ham & Brown, 2009). This study tested the persuasive influence of interpretive messaging in a TPB intervention designed to encourage park visitors to keep their dogs on-leash. Messaging targeted behavioural beliefs: "If I keep my dog on lead, it will be less of a nuisance for other people and dogs in the park" (Hughes, Ham & Brown, p.44); and normative beliefs: "I believe that other dog owners in the park think that I should/should not keep my dog on a lead" (Hughes, Ham & Brown, p.44). While the signage appeared to be successful, there was no evidence of change in beliefs. The authors surmised that the presence of "non message factors" (Hughes, Ham & Brown, p.51) such as the 'authority' of the park indicated on the signage as well as the presence of the researchers influenced dog walkers to keep dogs on-leash, more than the message

itself. In persuasive messaging, authoritative influence is far less enduring than when a decision to engage in the desired behaviour is carefully considered (Petty & Cacioppo, 1986). Without change in cognition, beliefs are unlikely to be effected.

With habitual behaviour, Hughes, Ham and Brown (2009) suggest that the absence of 'reason' in the decision-making process makes it extremely difficult to have any influence through persuasive communication (Manfredo & Bright, 1991). Hughes, Ham and Brown also address the role of past behaviour and experience in relation to habit.

In a related study, past behaviour was successful in predicting speeding behaviour (Conner, Smith, & McMillan, 2003). However, Azjen (1991) and Fishbein and Ajzen (2011) among others (e.g., Conner & Armitage, 1998; Ouellette & Wood, 1998; Albarracín, Johnson, Fishbein, and Muellerleile, 2001; Ajzen & Fishbein, 2005) contend that the model has been unable to adequately explain the relationship between past behaviour and future behaviour, thereby challenging persuasive attempts to influence actions.

Experience can also play an important role in persuasion strategies. For example, Wilderness recreationists with more experience are argued to be less susceptible to persuasive influence (Krumpe & Brown, 1982; Roggenbuck & Berrier, 1982; Williams & Huffman, 1986; Manfredo & Bright, 1991). Ultimately, indirect attempts at behaviour modification (such as park interpretation or signage) are less likely to succeed where behaviours are habitual and experienced many times over (Hughes, Ham & Brown, 2009). These authors suggest combining direct approaches to management (i.e.

enforcement), along with persuasive messaging for a more enduring impact on habitual behaviour.

The study reported here introduces 'habit' as a background factor. The concept of habit is not fully developed within TPB, so in this study habit was measured in two ways. Following Verplanken (2010), in the first approach, habit is measured by asking the percentage of time people kept their dog on-leash when visiting the park on a 5-point likert scale from 1 = ~0%, 2 = ~25%, 3 = ~50%, 4 = ~75% and 5 = ~100% (e.g. "When I am at Long Beach, I leash my dog about what percent of the time?") (see Q14, Appendix A).

In a second approach, participants were asked about their at-home behaviour and measured on a 7-point scale from 1 = Strongly Disagree to 7 = Strongly Agree (e.g. "When I'm at home, I always have my dog on-leash to comply with on-leash dog laws") (see Q9, Appendix A).

The Effect of Ambivalence

Ambivalence occurs when an individual simultaneously holds positive and negative evaluations about an attitude object (e.g. any action, behaviour, object, etc.) and research has either focused on attitudes (e.g. Sparks et al., 2001) or beliefs (e.g. Maio, Bell, & Esses, 1996). In this study, analysis of ambivalence measured the degree of conflict between a person's positive and negative evaluative components of a belief. For example, positive attitudinal belief is 'I have more control over my dog if I keep it on-leash' (see Q3J, Appendix A). A negative attitudinal belief is 'my dog loses the freedom

to run around, play and just be a dog, if I keep my pet on-leash' (see Q3F, Appendix A). When a person feels these two conflicting beliefs are likely consequences, the subject may reject or fail to access the behavioural beliefs when forming an attitude, and so the correlation between attitude and behavioural beliefs will be weak under the condition of 'high ambivalence.' Low ambivalence occurs if two conflicting beliefs exist, but one or both of these beliefs are felt 'unlikely to occur.' The respondent can then more easily access this information and the corresponding correlation between attitude and beliefs is stronger.

To measure the degree of conflict between a person's positive and negative evaluative components of a belief, the sample was subdivided into a 'low ambivalence' group and a 'high ambivalence' group by selecting two behavioural beliefs that were 'conflicted,' in the sense that one was a 'positive' outcome while the other was a 'negative' outcome (see also Table 6 in Chapter 4). These groups were correlated with indirect and direct measures of attitude (see Table 7 in Chapter 4), intention and the three predictors of the TPB (see Table 8 in Chapter 4), intentions and behaviour (see Table 9 in Chapter 4) and in a multiple regression of the TPB model (see Table 10 in Chapter 4). While correlations and results for each individual correlation may be significant, they do not indicate that they are *significantly* different from each other. The Fisher r_z transformation was used to assess the significance of the difference between the correlations of high and low ambivalence for all of the above regression analyses (Tables 6-10). To examine that the coefficients are different, the following test is used (Kenny, 1987):

$$Z = \frac{z_1 - z_2}{\sqrt{\frac{1}{n1-3} + \frac{1}{n2-3}}}$$

Specific tables are used to provide a corresponding *Z* score with each correlation and a *p* value for the final *Z* score. If the *Z* score is statistically significant, then the two correlations are different.

This approach to measuring ambivalence originates with Fishbein and Ajzen (2010) who state: "In the context of our expectancy-value model, information about the origins of ambivalence is provided by the salient beliefs that serve as the attitude's determinants" (p.119). In contrast to computations used in TPB, there are fewer consensuses on how to measure ambivalence (Breckler, 1994; Priester & Petty, 1996; Thompson et al., 1995). Ambivalence has been measured through a calculation involving all positive behavioural beliefs and all the negative behavioural beliefs (see Thompson et al., 1995; Conner et al., 2002). However, in this research we have explored a technique involving the two most extreme conflicting beliefs, departing from the convention of using all beliefs. This reasoning appears appropriate given the pattern of cross products described in Table 7 (see Chapter 4), where it is observed that two contrasting beliefs appear to contribute to ambivalence more than other beliefs.

This view is consistent with others that view ambivalence as an element of attitude strength (e.g.: Bassili, 1996; Krosnick, Boninger, Chuang, Berent, & Carnot, 1993; Thompson et al., 1995) where lower ambivalence is associated with stronger

attitudes and more likely to guide behaviour (Converse, 2014; Krosknick & Petty, 2014). A particularly salient facet of attitude strength is how it influences information processing (Petty & Krosnick, 2014). Because attitudes that are ambivalent are less accessible, (Bargh, Chaiken, Govender & Pratto, 1992; Bassili, 1996; Jonas, Brohmer & Deihl, 2000, Fazio, 2014), they are less likely to guide how particular information is processed (Jonas, Diehl & Brohmer, 1997). In essence, ambivalence may challenge people's ability to access beliefs to shape attitudes.

Often linked with a reduced inclination to act (Conner, Povey, Sparks, James & Shepherd, 2003), ambivalence is sometimes used as a moderator or predictor in the TPB. Sparks et al. (1992) and Sparks et al. (2001) found that higher levels of ambivalence weakened the attitude-intention relation in a study on the moderating effects of ambivalence in two separate studies that respectively addressed green consumerism and food consumption. Moore (1973, 1980) demonstrated that attitudinal relationships to behaviour were more robust with participants who had lower degrees of ambivalence in comparison to those with high ambivalence in the measurement of capital punishment in one particular study and recycling, gambling and pets in the other. Armitage and Conner (2000) also demonstrated that ambivalence weakened the relation between attitudes about a low fat diet and behaviour. Conner et al. (2003) addressed the moderating role of ambivalence towards healthy eating and found weaker attitude-behaviour and PBC-behaviour relations with higher ambivalence in comparison to lower ambivalence study participants. In a study on the frequency of ecstasy use, Conner, Sherlock and Orbell

(1998) found weaker relations between intention and behaviour with higher levels of ambivalence.

High levels of ambivalence are also associated with low engagement in conservation behaviour. For example, Castro, Garrison, Rei and Menesez, (2009) found this to be true with the recycling of metal cans by comparing the predictive ability of beliefs, attitudes and intentions for groups with respectively high and low levels of ambivalence. Other research conducted by Costarelli and Collorca (2004) found that ambivalent environmental attitudes resulted in lower pro-environmental intention. In a recent study, Barata and Castro (2013) examined the effect of ambivalence on the separation of paper and packaging among teenagers. The authors similarly found that ambivalence facilitates a weak relationship between beliefs about recycling and subsequent attitudes, and between intention and behaviour. Ambivalence also has an influence on the relationship between recycling intention and behaviour, and mediates the effect of ambivalence on recycling intention and behaviour.

Social Construction and the Politics of Place

In addition to TPB methodology, other approaches to understanding psychological barriers to compliance behaviour and ‘why people do what they do’ were examined in this dissertation. Alternate epistemologies and qualitative methodologies address the social construction of meaning with different questions about ‘what works and why?’ in dealing with non-compliance and provide insight into human behaviour (Hvenegaard, Shultis & Butler, 2009).

This dissertation research employed recent work in animal geography to address the changing role of our canine companions in modern society. The liminal space dogs inhabit in society can be characterized as both human and wild (Fox, 2006). Alongside their human companions, canines have undergone their own unique urbanization process (Urbanik & Morgan, 2013). Socially constructed as companions (Fox, 2006) dogs are construed as members of 'furry' families (Power, 2008) with personhood status (Sanders, 1993. Fox, 2006). Yet still, dogs are a possession (Fox, 2006) requiring ongoing attention to maintain the relationship/control paradox (Haraway, 2003).

French philosopher Henri Lefebvre (1991) provides key insights into contestations over public spaces where "resistant and subversive practices take place in, and produce, spaces that challenge dominant social and political assumptions" (Horton & Kraftl, 2014, p.274) in everyday socio-spatial relations. Lefebvre (1991) suggests that we perceive or conceive physical and built environments in three ways: (1) 'conceived' space found for example in the rules, laws and regulations that require dogs to be on-leash on park beaches at all times; (2) 'perceived space' and the personal feelings that people may have towards these spaces and the daily experiences of park visitors and their pets; and (3) 'spatial practices,' where these two notions of space are often interlinked and may be in conflict with each other. For example, these practices are manifested in the daily activities of dog-walkers on the beach that shape and reshape material space and structure the realities of park visitation. Spatial practices are sometimes referred to as 'third spaces' (Soja, 1996) where secluded, or out of view places (e.g. Matthews et al., 2000) in the park landscape enable behaviour that may be considered as subversive,

inappropriate, or deviant, like non-compliance with the on-leash regulation in the park. A particularly salient example is Holmberg's (2013) work on the contested space of the 'beach as a dog park', whereas other work has considered skateboarding (Stratford, 2002; Chiu, 2009), graffiti (Brighenti, 2010), street youth (Valentine, 2004), punks (Hebdige, 1979), and youth and shopping malls (Matthews et al., 2000) are other behaviours that have been addressed in this context.

Lefebvre's conceptualizations about the social construction of space and work in animal geography provides insight into the deeply ingrained off-leash social norm on Long Beach, despite park laws that require dogs be on-leash at all times. Social norms can broadly be defined as the widely accepted behaviour of society or a group of people. The promotion of behaviour by local business, the physical environment of the beach, and the apparent lack of enforcement of on-leash regulations exacerbate this off-leash norm that is underscored by themes of responsibility of pet ownership, the perception of and reactance to the regulation as an indiscriminate rule, lack of knowledge of the rules, the limited options of spaces to let pets run free with 'nowhere else to go' but the beach, and the importance of education expressed by the 'power of information.' However, even before people arrive at the beach, general urban attitudes towards pets that view them as family members with the same rights and privileges as people appear to drive social normalization.

The presence of this deeply ingrained off-leash social norm also demonstrates that for some dog walkers in the park, non-compliance with the off-leash regulation is often a response to the behaviour of those around them. This follows the notion that when

behaviour is modeled, it also may provide an example of reasonable behaviour under the circumstances (Reno, Cialdini & Kallgren, 1993; Reno & Cialdini, 2000; Cialdini, 2001) and thereby illustrates the influence of the descriptive norm. Social norms refer to the influence that the behaviour of others has on our behaviours. Descriptive norms refer to the influence on our behaviour brought on by the behaviour of 'important' others, whereas social norms refer to how we are influenced by the behaviour of 'general others' (not necessarily important others). For example, if everyone on the beach allows his or her dog to run free on the beach, this is the influence of that behaviour, on others to follow those actions.

Research Questions

If protected areas are to contribute to conservation, then visitor compliance with conservation related park regulations is essential. This non-compliance concern is addressed with data collected at Pacific Rim National Park Reserve with a focus on non-compliance behaviour regarding the park regulation to keep dogs on a leash. With the theory of planned behaviour as a vehicle for better understanding human responses to human-wildlife interactions, the central questions guiding this research are as follows:

1. What insights can the application of TPB offer to answer:

    a. To what extent are behavioural intentions regarding the leashing regulation influenced by (1) attitudes; (2) subjective norms; and (3) perceived behavioural control?

b. What are the beliefs that underlie and explain attitudes, subjective norms and perceived behavioural control regarding visitor decisions to comply with the leashing regulation?

2. How does habitual behaviour influence decision-making behaviour and provide insight into the cognitive foundation of the behaviour?
3. How does ambivalence influence decision-making behaviour and provide insight into the cognitive foundation of the behaviour?
4. What other psychological barriers might influence compliance behaviour that the theory of planned behaviour does not reveal?

Method

This study employed both qualitative and quantitative methods. TPB procedures specify that beliefs should be identified through a belief elicitation procedure using qualitative methods, specifically semi-structured interviews (see Appendix D for interview guide). These beliefs are then transposed into a quantitative based questionnaire (Appendix A), as outlined below.

While the belief elicitation phase identified a pool of salient beliefs to carry over into the survey, the interviews provided depth and richness to the study, beyond belief classification to be tested in a later stage. In this context, the goal of qualitative research is to understand a particular social situation, event, role, group or interaction (Creswell, 2003) providing depth and richness to the study. On the other hand, quantitative research is effective in accumulating breadth (Henderson & Bedini, 1995) and generalizability

with a systematic empirical investigation of social phenomena. Its objective is to develop and employ models, theories and/or hypotheses pertaining to a particular phenomenon.

Phase 1 – The Qualitative Research

Semi-structured interviews based on the theory of planned behaviour were conducted to investigate why people choose to let their dogs run free on the park's beaches (see Appendix D for a description of the interview questions and guideline). Specifically, respondents were asked to describe normative beliefs, control beliefs and attitudinal beliefs regarding their intentions to leash or not leash their dogs while they were visiting Pacific Rim National Park Reserve. Respondents were also asked additional questions, beyond the theory of planned behaviour variables, about: 1) social norms surrounding off-leash dogs on the beach, 2) awareness and knowledge of the park regulations and wildlife issues, and 3) attitudes and perceptions of leash laws. A convenience sample of forty-two, consisting of 'on-leash compliers' (n = 22) and 'non–compliers' (n = 20) were interviewed on Long Beach, in Pacific Rim National Park Reserve (Fig. 2) from June to September of 2013. We observed that theoretical saturation, the point at which any additional information does not provide further insight into the phenomenon, was reached after the forty-two interviews. Prior to interviews, prospective participants were unobtrusively observed on the beach either with their dogs on-leash, or allowing them to run free.

Interviews were recorded on an iPhone and accompanied by field notes to document mood, atmosphere and expression (Shank, 2003). After being transferred to a computer, the audio files were then transcribed into Word documents. Following

Middlestadt, Bhattacharyya, Rosenbaum, Fishbein, and Shepherd (1996), a content analysis of interview responses from this convenience sample identified the salient beliefs. In lieu of a large research team and multiple coders, the internal validity of the content analysis was assessed based on face validity (Weber, 1990) and assessment by the Human Dimensions Specialist for the Province of British Columbia's Fish and Wildlife Branch. A pool of salient beliefs developed from this phase was then used to inform the creation of a fixed-item survey instrument which identified the most pervasive and frequent salient beliefs used in the theory of planned behaviour to explain attitudes, subjective norms, and perceived behavioural control (Ajzen, 2010).

Following Fishbein and Ajzen (2010), the interview questions identified the **t**arget behaviour (compliance or non-compliance), **a**ction (walking dogs), **c**ontext (Long Beach) and **t**ime (when dog walkers were on Long Beach with their dogs) (an approach abbreviated to TACT). For example, the interview question that elicited salient behaviour beliefs asked, "can you tell what me what is good about leashing your dog when you walk your dog here on Long beach?" A second question asked "can you tell me what is bad about leashing your dog when you walk your dog on Long Beach?" (Appendix D).

Some questions outside the TPB explored other psychological barriers that might influence compliance behaviour (Appendix D). For these questions, interview transcripts and field notes were then searched and arranged to discover emerging themes (Struthers and Peden-McAlpine, 2005) and to obtain a deeper understanding of the phenomenon (Bogden & Biklen, 2003). There was also some overlap into the TPB questions. The iterative process of analysis and interpretation (Creswell, 2003) moved back and forth to

the transcripts for many subsequent readings to clarify the meaning and context of words, statements and phrases (Neuman, 2003). Writing and re-writing allows for reflection on the narrative text and a deep level of interpretation of the phenomenon (Caelli, 2001).

Following Tesch (1998), field notes and transcripts were reviewed to get a general 'feel' for the material. Data were imported into NVivo, which enabled particular phrases, sentences and paragraphs that represented topics of interest to be highlighted and saved with the 'NVivo coding' feature of the program. This was completed for all interviews from which universal categories or 'codes' were developed after similar topics were clustered and organized into a manageable number of topics that represented common patterns and themes.

Findings from this portion of the qualitative research component of the dissertation were used to develop a book chapter that has been published in *Domesticated Animals* and *Leisure* (Carr, 2015 in press) (Chapter Two), which focuses on how people socially construct parks and protected spaces. The qualitative research based on the theory of planned behaviour, more formally called a ' belief-elicitation' informed the development of the survey questionnaire, used to prepare the quantitative parts of the study found in Chapter Three and Chapter Four. Chapter Three reports on compliance and non-compliance behaviour using the TPB and the effect of "habit" within the TPB. This chapter has been written and formatted ready for submission to a journal. Chapter Four reports on how ambivalence influences compliance behaviour within the TPB. It has been written and formatted ready for submission in a second journal.

Phase 2 – The Quantitative Study

Research reported in Chapters Three and Four builds on the belief-elicitation phase of semi-structured interviews to obtain dog walkers' salient beliefs reported above (Phase 1), followed by a larger scale quantitative survey (Phase 2) to measure beliefs attitudes, subjective norms, perceived behavioural control and intention. Following Fishbein and Ajzen (2010), the survey questions also employed the TACT principle by identifying the **t**arget behaviour (compliance or non-compliance), **a**ction (walking dogs), **c**ontext (Long Beach) and **t**ime (when dog walkers were on Long Beach with their dogs).

The thrust of this research was to examine compliance and non-compliance behaviour with park regulations that dogs be on-leash at all times. Compliance behaviour was measured by observing and selecting a sample of respondents who were observed to be either compliers or non-compliers.

Habit was measured in two ways: (1) survey questions that measured the percent of self-reported compliance in the park, and (2) survey questions that measured leashing-compliance behaviour at home.

All respondents were asked for their demographic and other background information (age, gender, place of origin) (see Appendix A for a description of the survey instrument). Survey response rate was high at 94%.

The dissertation concludes with a chapter (Chapter 5) that expands on the findings provided in the previous three chapters, outlines how each finding contributes to knowledge about the topic and current related literature, points out possible weaknesses and limitations of the study, and highlights further research questions or methods that

could be pursued in the future. It also discusses how results and findings may possibly be used to inform actual policy and practice.

Chapter 2[1]

Parks, Dogs and Beaches: Human-Wildlife Conflict and the Politics of Place

Abstract

Dogs allowed to run free (off-leash) on the beaches of Canada's Pacific Rim National Park Reserve are identified as a disturbance to migratory shorebirds, and have the potential to habituate wolves to regard dogs as objects of prey. Extensive efforts have been made to promote on-leash rules to allow for a balance between the parks' mandate to preserve ecological integrity and offering a satisfying visitor experience. Efforts to promote on-leash behaviour have been unsuccessful.

This chapter reports highlights from a study exploring why park visitors appear reluctant to comply with on-leash rules. Qualitative analysis of semi-structured interviews with compliers (dogs on-leash) and non-compliers (dogs off-leash) in the park reveals the beach as a contested space, driven by a strong off-leash social norm and exacerbated by a number of barriers to compliance behaviour. The study is grounded within animal and urban geography and how people socially construct parks and protected area spaces. The research contributes to the literature addressing the changing role of our canine companions in modern society and associated spatial conflict, and provides new insights into compliance behaviour.

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Introduction

Parks and protected areas provide important habitats for wildlife in an otherwise increasingly settled and urbanized world. They also provide people with a connection to nature (Wilson, 1984; Kellert & Wilson, 1993; Frumkin, 2003) and for urban dwellers are a source of 'restoration' (Kaplan & Kaplan, 1990; Kaplan, 1992, 1995) and outdoor recreation. Although park mandates try to balance ecological integrity with visitor experience and satisfaction, these interests can compete with each other. An issue that has gained growing attention is spatial conflict between wildlife and the behaviour of park visitors' dogs, including on beaches in protected coastal areas.

This chapter reports highlights from a study exploring what the barriers are to keeping dogs on-leash on beaches in protected areas. The study is theoretically grounded within the context of Lefebvre's (1991) notions of the production of space, and recent work in animal geography that addresses the changing role of our canine companions in modern society. The chapter starts with a brief introduction to the literature covering the relationship between dogs as pets and modern society. The next section looks at the beach as a contested space between efforts towards wilderness protection and use by humans for recreational purposes, including allowing their pets to run free. We then introduce the case study site of Long Beach in Canada's Pacific Rim National Park Reserve as well as the study and its underlying methodology. This is followed by a highlight of some research findings, a discussion, and some conclusions.

Dogs and Modern Society: The Pet-Human Relationship

Dogs, as pets, are argued to occupy a liminal or 'in between' space and status in modern society, as both human and animal (Sanders, 1993; Fox, 2006). Our canine companions are perceived on one hand as 'wild' and a part of nature that should be allowed to run free and 'be a dog,' but also socially constructed as family members and close companions (Fox, 2006; Power, 2008). In Canada, 83% of people who own pets describe them as family (Ipsos-Reid, 2001), as do 49% of those polled in the USA (American Veterinary Medical Association, 2007) and 88% in Australia (Franklin, 2006).

The pet dog's close relationship to family derives from a long history of domestication in human culture and the dog's role as a companion animal (Serpell, 2002; McHugh, 2004). 'Man's best friend' has co-evolved with people. As we have become predominantly urban, canines have similarly gone through their own urbanization process (Holmberg, 2013; Urbanik & Morgan, 2013). Dogs have transcended the wilderness (and wildness) of their ancestors, and have moved into our homes and hearts where they are embedded in our daily lives. Beyond their historical utilitarian roles as protectors, hunters, herders and rescue animals (McHugh, 2004), dogs and other pets promote physical, and mental health (Cutt, Giles-Corti, Knuiman & Burke, 2007) social support (Bonas, McNicholas & Collis, 2000), social capital (Wood, Giles-Corti & Bulsara, 2005) and sense of community (Wood, Giles-Corti & Bulsara & Bosch, 2007). The wide variety of pet products and services available on the market for dogs today (Nast, 2006), and the high levels of pet ownership (American Pet Products Manufacturers Association, 2008), are examples of evidence of the importance of pets in modern society.

Tuan (1984) comments on the role of dominance and affection in the pet-human relationship where pets are symbolic of a human desire for control over nature. However, Haraway (2003) suggests that the pet-human relationship perhaps is more about negotiating an understanding between two different species. Fox (2006) adds that: "Living intimately with animals on a day-to-day basis means that pets and owners come to know each other's individual personality quirks and traits, viewing their animals as subjective beings and attributing them with human-like characteristics" (p.531). Pets are commonly anthropomorphized (Serpell, 2003) and other research has suggested pet-owners recognize their pets as close companions and part of the family (Sanders, 1993; Power, 2008). This engagement in social relationships affords pets a 'personhood' status (Fox, 2006), capable of subjective thought, individuality, personality, and emotion (Sanders, 1993). However, Fox (2006, p.529) notes that pets often occupy a "dual status as both a person and possession." Haraway (2003) adds that the pet-human relationship requires ongoing attention to the pet's wellbeing, and concern about what the animal is thinking or feeling. Power (2008) suggests that dogs become part of a family as (1) 'furry children' that require a considerable time commitment for their care; (2) members of a tightly formed hybridized 'pack' that blends both people and its 'more than human' canine members; and (3) by meeting the particular needs of dogs, such as food, exercise, toys, schedules and recognizing 'dogs as dogs.'

Keeping pets transcends the boundaries of our human relationships to include a 'more than human' (Urbanik & Morgan, 2013) 'other.' In a 'post-human world' that blurs boundaries between nature, society, humans and animals (Instone, 1998), this trans-

species social bond seems to be driven by a variety of factors including a desire for power, control and affection, kinship, and companionship which promote a wide host of benefits. Humans and their pets are also negotiating a new form of family and relationship (Power, 2008) in an increasingly urban lifestyle. Exploring this phenomenon, Urbanik and Morgan (2013) note that beyond the closed doors of 'furry families' (Power, 2008) in suburban split levels, bungalows, hip downtown lofts, condominiums, and apartments, urban dwellers increasingly demand spaces outside of the home for 'dogs to be dogs.' This is evidenced by the emergence of urban places such as dog parks where pets can run free, unconstrained by leashes, and where pets are able to 'socialize' with other animals (Urbanik & Morgan, 2013).

Despite a growing trend towards urbanization, humans also continue to need to be close to nature and to have an intimate bond with the natural world, a phenomenon referred to as biophilia (Wilson, 1984; Kellert & Wilson, 1993; Frumkin, 2003). Wilson (1984) contends that our close relationship with our companion animals is evidence of the modern urban dwellers' need for such an ongoing bond with the natural world, even if this relationship is negotiated as a new form of family structure (Power, 2008).

The Contested Space of the Beach

It is recognized that parks and wilderness spaces play an important part in allowing people to reconnect with the natural world, and that these spaces can be restorative, particularly for urban dwellers (Kaplan & Kaplan, 1990; Kaplan, 1992, 1995). This applies to beaches in parks, which in many instances are argued to occupy a

liminal space between nature and society in a similar way as already argued is applicable for dogs as pets (Holmberg, 2013). The oceans and their beaches commonly are perceived as wild and very much a part of nature (Fiske, 1989; Brown, Fox & Jaquet, 2007), invoking a sense of freedom. Beaches also often represent important habitat for wildlife. In the context of the Pacific Northwest, the beach is an open area between heavily forested regions and the ocean and plays an important role as a wildlife corridor for large carnivores such as wolves, bears and cougars.

The beach is also critical foraging habitat for shorebird species that depend on the ocean foreshore for food. But this natural 'wildness' of the beach is juxtaposed with urban qualities we have added to the beach environment that are a part of our urbanized culture, such as roads, parking lots, toilets, groomed access paths and signage (Fiske), and they are associated with recreational activities such as sunbathing, hiking and surfing. Urban style facilities, ease of access, and often-close proximity to resorts invite throngs of park visitors with their families, friends and companion animals to descend upon the beach when visiting coastal protected areas. Urban visitors and their pets may well think of the beach as the ultimate urban dog park. Spatially vast, long and linear are design goals underlying urban dog parks (Lee, Shepley & Huang, 2009). These are also key features offered by beaches, and when combined with the natural setting, are perceived by many to be an ideal environment for dogs to run free and 'just be dogs.'

The focus of the study on which this chapter is based concerns control over pet dogs while they are on the beach. Owing to increasing urban dog ownership, environmental concerns, including negative interactions with wildlife (Zharikov, 2011)

and conflict between people and off-leash dogs (Beckoff & Meany, 1997; Manning, Jacobi & Marion, 2006), many parks require that dogs be leashed and in some places, dogs are entirely prohibited (Lee et al., 2009) from access.

Inappropriate behaviour with respect to control over pets in parks and wilderness areas where their presence is permitted, according to Hendee, Stankey and Lucas (1990), is manifested in five different ways: (1) actions which are deliberate and illegal activities such as violating laws that require dogs to be on leash; (2) actions which are careless like allowing dogs to bother other people; (3) lack of skill, such as the inability to adequately control poorly trained animals; (4) actions which are uninformed such as letting dogs run free, being unaware of leash laws and why they might exist; and (5) unavoidable impacts on wildlife, for example disturbance of shorebirds on the beach by people and/or their dogs, and high visitation during peak migration. Inappropriate visitor behaviour impacting natural areas and wildlife in parks and protected areas is not usually intended but that it occurs rather from lack of awareness or knowledge (Bradley, 1979; Marion & Reid, 2007).

The research presented in this chapter draws upon key insights from French philosopher Henri Lefebvre (1991) about contestations over public spaces and subsequent research where certain "resistant and subversive practices take place in, and produce, spaces that challenge dominant social and political assumptions" (Horton & Kraftl, 2014, p.274) in everyday socio-spatial relations. Lefebvre's (1991) insight into the production of space is primarily used in urban contexts. It has however gained some attention in national park settings (e.g. Morehouse, 1996).

A particularly salient example is Holmberg's (2013) work on the contested space of the 'beach as a dog park,' whereas other work has considered skateboarding (Stratford, 2002; Chiu, 2009;), graffiti (Brighenti, 2010), street youth (Valentine, 2004), punks (Hebdige, 1979) and youth and shopping malls (Matthews, Taylor, Percy-Smith & Limb, 2000).

Lefebvre (1991) suggests that we perceive or conceive physical and built environments in three interrelated ways. Soja (1996) has termed this the 'trialectics of space.' According to Lefebvre (1991) 'conceived,' or representations of space can be found in the rules, laws and regulations that, in the context of the present study, require dogs to be on leash in parks at all times. Following suit, 'perceived spaces,' or spaces of representation, are concerned with how people feel about these spaces and the daily experiences of park visitors and their pets. Both of these notions of space are often intertwined and embedded with conflicting viewpoints. The third interrelated way we conceptualize space is through 'spatial practices.'

These are manifested in the daily activities of dog-walkers on the beach that shape and reshape material space and structure the realities of park visitation. Spatial practices are sometimes referred to as 'third spaces' (Soja, 1996) where secluded, or out of view places (e.g. Matthews et al., 2000) in the park landscape enable behaviour that may be considered as subversive, inappropriate, or deviant.

Study Context

The case study reported here is based in the Long Beach Unit of Pacific Rim National Park Reserve located in British Columbia, Canada, on the west coast of Vancouver Island. The park and its beaches are book-ended at either end by the villages of Ucluelet and Tofino (Fig. 1 - see p. 4).

One of the primary features in this area is Long Beach, a 16 km long sandy beach of Wickaninnish Bay (Fig. 2 - see p. 5). Other popular beaches on the edge of the park include Mackenzie and Chesterman Beaches, and Cox Bay. These beaches host a mix of private residences, condos and resorts. Situated within indigenous Tla-o-qui-aht and Yuułuʔiłʔatḥ traditional territories, the park is intersected by the Tla-o –qui-aht communities of Esowista, located within the park boundary.

The Pacific Rim National Park Reserve as well as the adjacent communities are often construed by visitors as a ‘last frontier’ and considered to be ‘wild.’ These themes are evident in place-based ‘end of the road culture,’ cultural memes that proliferate in destination marketing, surf culture, beachside café’s and eateries, and by sheer virtue of the park’s geographic location, on an island that is 20 km from the coast of mainland British Columbia, on the western edge of Canada. The pace of life is laid back, and the pounding of the surf, lingering fog, frequent rain and the briny tang of salt in the air permeate the landscape. It is not at all uncommon, surprising, or out of place to see dogs roaming freely and unattended in Tofino, Ucluelet or surrounding areas, including the beaches.

Historically a resource-based region making its living from declining fishing and forestry industries, this area is in transition to an economic focus on tourism. Today the area is an epicenter for whale watching, wildlife viewing, sport fishing, sea kayaking and surfing. Concerning surfing, the area offers some of the best and most accessible waves in Canada. Employment in the various forms of nature-based tourism and the many restaurants and hotels located in Tofino and Ucluelet has resulted in the establishment of a youth-oriented amenity-based subculture. This youth culture combines with what is often thought of as one of the oldest demographics in a post-industrial Canada, of well-heeled baby-boomer retirees who flock to Vancouver Island because of its moderate climate, compared to the rest of Canada. A counterculture feel and history of activism also remain vibrant from a legacy of civil disobedience and the largest act of protest in Canadian history to halt logging activities on Meares Island in Clayoquot Sound in 1992. Amid the throngs of tourists, retirees, fishermen, kayakers and surfers, loggers, and activists there is sense that this is a special place.

Nuu-chah-nulth First Nations have made Clayoquot Sound their home for thousands of years. Traditional territory of the Tla-o-qui-aht, Hesquiat and Ahousat people, Clayoquot Sound has some of the largest, unaltered watersheds and stands of ancient rainforest in Canada. Overlain with tourism and resource extraction interests, the park and its surrounding region is the epitome of 'contested space.'

Beaches in the park and adjacent coast play an important role as wildlife corridors and wildlife foraging habitat. Notable for the purpose of this study are the use of beaches by shorebirds (notably sanderlings (*Calidris alba*) and western sandpipers (*C. mauri*) and

Vancouver Island wolves (*Canis lupis cracidon*). As background for this study we explore the use of the park by wolves and shorebirds in more detail.

Wolves

When people and wildlife, including predators such as wolves, share the same spaces, the potential for negative human-wildlife encounters escalates (Linnell, Andersen, Andersone, Balciauskas, Blanco & Boitani et al., 2002). Wolves are characteristically shy and wary of humans (Yellowstone National Park, 2003). Consequently, problem animals and negative interactions with people are rare (Yellowstone National Park). However, some wild wolves have demonstrated aggressive behaviour towards people (Linnell et al., 2002; McNay, 2002a; Windle, 2003; Yellowstone National Park) and there exists a history of conflict between wolves and visitors in the Pacific Rim National Park Reserve (Windle 2003, Edwards, 2005; Lacombe, 2005; Bob Hansen, personal communication, 2011).

Since 1999, a significant and progressive increase in wolf activity in the park and the surrounding region has been noted. In 2011 there were two fatal attacks on off-leash dogs in the Pacific Rim National Park Reserve, and one fatal attack in a nearby provincial park. Wolf activity also increased considerably the following year (2012), with two more fatal attacks on dogs in March of that year. Retaliation for the fatal wolf attacks on dogs, by angry community members, led to the death of two wolves that were killed and left in a dumpster in Tofino. The incident made national news and an upset community railed against the perpetrators. Members of the aboriginal community were shocked and in disbelief at the insensitivity, disrespect and ignorance of this violent act against wolves, a

prominently featured being in their spiritual and cultural life. January 2014 witnessed the emergence of an additional pack of wolves in the park, and on March 4th, 2014 a dog was attacked and dragged off in a residential area during daylight hours. The attack was captured by video footage filmed by a local resident and broadcast on the evening news. In March 2015, wolves attacked two dogs on popular Wickaninnish Beach, in front of their owners, a couple and their small child, during a morning walk on the beach.

As animals lose their fear of humans and become habituated to people, there is an increased risk of attack (Linell et al., 2002; Orams, 2002). Habituation, defined as "the loss of an animal's fear response to people arising from frequent non-consequential encounters" (McNay, 2002b), has preceded the majority of negative interactions between wolves and people (Linnell et al., 2002; McNay 2002a). Particularly salient is the potential for wolf attacks in highly modified environments (Linnell et al., 2002), created by industrial development and urban encroachment into natural habitat, as evident in Clayoquot Sound. Off-leash dogs have also been shown to disturb wolf behaviour and elicit a predatory response towards canines (Sime, 1999). When wolves begin to identify dogs as 'food,' this can lead to food-conditioning and wolves viewing dogs as easy prey (Bob Hansen, personal communication, 2011; 2012; Todd Windle, personal communication, 2013, 2014). In a study conducted in Finland, seasonality and food availability were linked to a greater frequency of wolf attacks on dogs in people's yards (Kojola & Kuittinen, 2002). In urban/residential environments and popular parks with high levels of visitation, it seems reasonable to suggest that dogs can play a role in conflicts and encounters with wolves and people. Many Canadians are well versed in

etiquette around large carnivores. Although bears and cougars are present in our wilderness vernacular, we are really only beginning to understand our impact on and associated behavioural adaptations of wolves to people. According to the park human-wildlife conflict specialist, "dogs are to wolves, are what garbage is to bears" (Todd Windle, personal communication, 2013).

The above statement suggests that in the same way that bears become 'problem' or 'garbage bears' through habituation and food-conditioning to human food sources such as garbage, dogs become 'food' attractants for wolves. In Canadian parks and wilderness areas, most people understand the consequences of leaving a 'messy campsite' strewn with food attractants and waste, or unattended garbage. Not only will it potentially attract bears, but also pose potential risk to safety to both people and the animal. In urban areas, bears may also forage for food in garbage cans and back yards. Ultimately, a food-conditioned bear will be killed if it continues to be a problem. A similar problem appears to be occurring with wolves, attracted to dogs as an easy food source and through food-conditioning. However, it is far less common and more regionally focused in PRNPR, its adjacent communities of Tofino and Ucluelet, and nearby areas.

Shorebirds

Migratory shorebirds use the Pacific coast as their flyway between arctic breeding grounds in Canada, the US and Russia, and wintering grounds in South and Central America, and southern North America, with beaches an important part of their migratory habitat (Zharikov, 2011). A recent study (Zharikov, 2011) found 90% of all shorebirds recorded on Long Beach were sanderlings (50%) and western sandpipers (40%), and that

these birds spent 6% percent of their time flying, 19% roosting, and 75% foraging. This demonstrates the importance of Long Beach as a roosting and foraging habitat (Zharikov, 2011). The 2011 (Zharikov) study of beach use by park visitors and their interactions with migratory shorebirds came to the conclusion that dogs running off-leash are one of the strongest sources of disturbance on migratory shorebirds.

Other studies have also noted the impact of off-leash dogs on shorebirds (e.g. Lafferty, 2001a, b; Thomas, Kivitek & Bretz, 2003; Borgmann, 2011; Meager et al., 2012). When migratory shorebirds lose time on their journey and/or compromise meager energy reserves, this can have a negative effect on survival and breeding success (Van de Kam, 2004; Colwell, 2010). The sanderling in particular is a globally declining species specializing in sandy beach habitats (Payne, 2010). Today the sanderling is rarely found in other coastal and wetland areas (Payne, 2010). Zharikov's study (2011) left no doubt that human visitors and the presence of dogs dramatically affect shorebird distribution on the beaches of the Pacific Rim National Park Reserve.

Leashing to Manage Dog-Wildlife Encounters

Pacific Rim National Park Reserve management instituted on-leash regulations after recognizing the conflict between wildlife and off-leash dogs well over a decade ago. However, efforts to reduce the number of off-leash dogs on Pacific Rim's beaches have had little success, regardless of education and prevention measures. This is exacerbated by the vast expanse of the area and the number of visitors and dogs. According to Parks Canada law enforcement staff, enforcement of the dog on-leash regulation essentially remains ineffective (Esrom, 2004; Bob Hansen, personal communication, 2011;

Zharikov, 2011). The research presented here seeks to address the question why it is that visitors with pets continue to opt to ignore on-leash regulations when visiting the beaches of Pacific Rim National Park Reserve?

Study Details

Semi-structured interviews were conducted with a convenience sample of twenty two 'on-leash compliers' and twenty 'non–compliers' on Long Beach, the longest of all the beaches in the Pacific Rim National Park Reserve (Fig. 2) from June to September of 2013. Time of day ranged from early morning to late afternoon and evening to capture a diversity of beach environments and scenarios (i.e. number of people and dogs on the beach). Thirty-five respondents were visitors, primarily from nearby locations on Vancouver Island and mainland British Columbia. However some were from the British Columbia interior, Montana USA, Alberta, and Saskatchewan. Seven of the interviewees were local residents from Ucluelet and Tofino. Interviews lasted from 10-20 minutes. Although people were sometimes walking with a family member or friend, who occasionally may have also had a dog, individuals were targeted for the interview, rather than groups or pairs of people. When two people were approached, one interview sometimes led to an additional interview with the second person.

Theoretical saturation was reached after the forty-two interviews. Theoretical saturation is the point at which any additional information does not provide further insight into the phenomenon. This was ascertained by a preliminary analysis that reviewed the interviews after each day, taking note of key themes, ideas and concepts that emerged from these conversations, and whether they were repetitive, or unique. Prior to

interview, prospective participants were unobtrusively observed on the beach either with their dogs on-leash, or allowing them to run free. Respondents were asked open-ended questions about: (1) social norms surrounding off leash dogs on the beach; (2) awareness and knowledge of the park regulations and wildlife issues; and (3) attitudes towards and perceptions of leash laws. Interviews were recorded on an iPhone and accompanied by field notes to document mood, atmosphere and expression (Shank, 2002). After being transferred to a computer, the audio files were then transcribed into Word documents.

The aim of qualitative research is to provide an in-depth understanding of a social situation, event, role, group or interaction (Creswell, 2003). To accomplish this goal, interview transcripts and field notes were searched and arranged to discover emerging themes (Struthers & Peden-McAlpine, 2005) and obtain a deeper understanding of the phenomenon (Bogden & Biklen, 2003). The iterative process of analysis and interpretation (Creswell, 2003) moved back and forth to the transcripts for many subsequent readings to clarify the meaning and context of words, statements and phrases (Neuman, 2003). Writing and rewriting allows for reflection on the narrative text and a deep level of interpretation of the phenomenon (Caelli, 2001).

Following Tesch (1990), field notes and transcripts were reviewed to get a general 'feel' for the material. Data were imported into NVivo, which enabled particular phrases, sentences and paragraphs that represented topics of interest to be highlighted and saved with the 'NVivo coding' feature of the program. This was completed for all interviews from which universal categories or 'codes' were developed after similar topics were

clustered and organized into a manageable number of topics that represented common patterns and themes.

What We Heard

The following common themes emerged: attitude and behaviour with respect to leashing of pets looked to be established by watching the behaviour and attitude of others in the communities and on the beach; the promotion of behaviour by local business; the physical environment of the beach; and the apparent lack of enforcement of the on-leash regulation. These contributing factors were underscored by themes of responsibility of pet ownership, the perception of and reactance to the regulation as an indiscriminate rule, lack of knowledge of the rules, the limited options of spaces to let pets run free, with 'nowhere else to go' but the beach, and the importance of education expressed by the 'power of information.' But attitudes towards pet behaviour and leashing also look to have been well developed before beach visitation by more general urban societal attitudes towards pets as members of the family and associated expectations of a pet's rights and privileges.

The behaviour and attitude of "locals" and others.

Interview respondents observed that off-leash dogs appear to be the norm in the study area, both in the park and in adjacent communities. This norm looks to have been expected by the visitors upon arrival as evidence of an 'end-of-the-road culture' for which the area is reputed. As one non-complying local resident stated: "[I]n the city of Tofino itself, I don't think a lot of people put their dogs on the leash. It's like when I

grew up in the ‘60’s, your dog just wandered around, so I think that a lot of that is still going on…I think that having a leash law in town is weird for these people…” Regardless of a City of Tofino bylaw that requires dogs to be on-leash in town, off leash dogs were observed by a non-complying visitor to be all around the community and “…most of the people have their dogs off [leash] … [at] Mackenzie beach” and dogs at “Cox [Bay] and Chesterman’s [Beach] are off leash most of the time” according to a visiting complier. Another visiting respondent with their dog on-leash commented that “[t]here’s also a lot of nobody’s dogs…and they’re just down [on the beach] moseying along.” This respondent identified these unattended animals as being from the First Nations community of Esowista, adjacent to the park on Long Beach. Throughout the study, a few dogs appeared to roam back and forth between the park and Esowista, however ownership and belonging to the community was not confirmed.

The norm established by local behaviour is verified and supported by a strong presence of a surf culture in the area, including surfers who leave their dogs running free on the beaches while surfing. One visiting non-complier noted: “Surfers who have their dogs, their dogs sit on the beach and watch them, so if they couldn’t leave their dog there, they’d have to leave it at home.”

Behaviour shaped by watching what goes on around them is summarized by one non-complying visitor’s comment: “The reason we let them [our dogs] off [leash] is because we saw other dogs who were already off…so we’re gonna ignore the signs too.” This is verified by anecdotal evidence provided by park wardens who suggested that people who had their dogs off leash influenced those who would have otherwise had

them on-leash (Zharakov, 2011).

The suggestion is that it is common for people visiting the beach with their pets not to rely on signage or on-leash regulations in, or outside of the park, but to self-determine whether to have their pet on a leash depending on how many people are present. Observed by a visitor with their dog off-leash, one respondent concluded:

> "[People]…have them off leash for a while and when they see someone, they put the leash on …I don't know if this is what everybody does, but I think some people might take them out to a spot where there are not many people and let them run for a while, then put them back on the leash … to some degree it always seems like a dog town."

According to a non-complying local, there also appeared to be the attitude that "[u]sually, when you see people with their dogs on a leash, it's somebody from out of town." Combined, all of this creates a palpable sense of a 'dog friendly place' driven by an off-leash social norm.

Promotion by local business.

A place-based destination marketing for a beachfront hotel and restaurant adjacent to the Pacific National Rim Park Reserve featured in a British Columbia magazine (BC Home & Garden, 2013) serves as a good illustration of how local businesses portray the beach as an off-leash area. In the advertisement, an attractive color image of the beach shows visitors with their dogs running off-leash to communicate a 'typical' day on the beach in peak tourist season. Its languid imagery reflects the social norms of a 'dog-friendly' canine "nirvana" where people and their pets can roam freely, shaped by the

large white, sandy beaches characteristic of the region and its *raison d'être* as a popular tourist destination and subsequent high park visitation (Edwards, 2005). Text accompanying the image informs the reader that:

> On a Blissfully warm Friday in May, dogs sprint every which way among families exploring the shoreline… Despite the spirited action, the sprawling beach is so vast it's easy to feel alone. (BC Home & Garden, 2013)

According to one visiting couple with their dog off-leash, who were staying at a resort adjacent to the park: "You know the interesting thing… [is that where we are staying]…those people specifically said: It's fine to have your dog off-leash on the beach…" Furthermore, "I saw one person with a dog on a leash out of … about sixty people that I've seen with dogs" " [I]t's not like when you book a place to stay and they're like, oh and also [you have to keep you dog leashed at all times]… as a visitor you don't… [think of this] as a place that you cannot have your dog off leash."

Physical environment and the space to be a dog.

The wide expanse of white sandy beaches characteristic of the region are the featured attractions of the park and perceived as the ideal environment for a 'dog just to be a dog.' We learned from a local complier that: "Dogs [and their people] love the beach" and "…the west coast, the fresh air… the ocean and everything." For a complier visiting from out of town, this creates the ideal environment for dogs "because [they have]… the freedom to run…" in the wide expanse of the beach. According to a local resident walking their dog off-leash, "[dogs] should be able to run around. Would you like to have a leash on all the time? When you're in your [natural] element

and…somebody puts a leash on you…that's not right." In addition, "there's no roads [and] there's no cars…" which contribute to the perception of the park's beaches as a 'wild space,' 'wilderness,' which evoke a sense of 'freedom' and facilitate the ability to let dogs run free. With respect to the park's beaches, another non-complying visitor claimed, "…we go into the wilderness…for freedom…probably which is why we don't leash our dogs." One visiting non-complier commented that "[we] let the dogs have freedom on the beach just like people like to do … and he does his happy dance … when he sees the big beach and big ocean."

Knowledge and awareness.

Most respondents agreed that they had 'seen the signs' about keeping dogs on-leash. They noted that the rationale and details surrounding the reasons for this regulation however were not really clear. There appeared to be a greater awareness and understanding of the issues with wolves than shorebirds. Some people had a solid grasp of the shorebird issue. For example, a compliant local commented "…Just the sheer amount of animals, people, dogs … There's certain times of year when all the birds are coming through and it's … around now it's going on. Like there's tons of shorebirds…" However others appeared to not understand that the beach was an important wildlife habitat for shorebirds. Some respondents drew on examples from their experiences back at home to communicate an awareness of the impact of dogs on birds, but this did not appear to transfer to the current context, according to a compliant visitor:

> "I think we saw one bird on this beach and he was a small bird flying over the ocean but, there's, there are no birds whatsoever. Like where we live in Comox

> they have…restrictions out at Goose Spit. No dogs off-leash from this time to this time because of the Brant geese, that type of stuff. That's understandable. But you know, other than that, this is not where the birds hang out, you know let's be honest, they're at the estuaries and things like that where there is food."

Others had no idea what a shorebird was. When a non–compliant couple were asked if they had seen any shorebirds, they responded that "No, we haven't seen [any] really, I don't know what a shore bird is, we've only seen robins." Although the couple did previously mention particular areas on freshwater beaches at home where dogs were banned for exactly the same reason (shorebirds), they were out of context in the immediate environment. Given the latter statement, there perhaps is some merit to the following statement by a local resident:

> "I think it's more for tourists because they're ignorant …they let their dogs chase birds…because they don't know… the other day there [were hotel] guests on Chesterman's [beach]…[for] twenty minutes…[their dog] was chasing the shorebirds and I went and told the people, can you stop your dog? And they were like: really? Do we have to? …So it's people that don't understand that they're in a natural environment … they're the ones that don't understand [about] being respectful."

However, in the same regard, one local resident walking with their dog on-leash thought that Chesterman's Beach was an off-leash area, despite the Tofino bylaw and ample signage at the beach entrance areas and parking lots, and stated, "It is nice … occasionally … going to … Chesterman's … because the dogs do get to interact. So I do

like going there you know, [where he's allowed to be off-leash] … he gets to sniff all kinds of ass and play."

Lack of enforcement.

Lack of evidence of enforcement of on-leash regulation also looks to promote non-compliance. According to one non-compliant visitor "If they don't have a park ranger down here to tell people put your dogs on the leash, then why have the rule?" Another non-complying visitor commented, "I see the signs…it definitely says don't chase the shorebirds…" But at the same time it created a sense that letting dogs run free is unofficially sanctioned behaviour: "… but I also thought you were allowed to have your dogs off leash on the beach here…if you don't enforce it, no one's gonna follow it…"

Indiscriminate rule.

Related to lack of enforcement and absence of park rangers patrolling the beaches, other respondents felt that the on-leash law was more of an 'indiscriminate rule.' One complying visitor elaborated "… that way, they can appease both sides of the group. I mean if they wanted to enforce it, they would be down here... I'm sure they know people have them off leash but I don't see anyone enforcing it. It gives them the ability to enforce it if they want to." "… [I]t's too often a case of you know, one size fits all and it's easier for them to say no dogs off-leash, than to say [to] owners [to] use common sense [and] control your dog."

Nowhere else to go.

If dogs must be on-leash when in the park and in the towns, where do they have a chance to run off-leash to 'just be dogs?' In the absence of an 'official' off-leash area, respondents, whether local residents or visitors, asked where exactly they were supposed to go to let dogs off-leash? A visiting non-complier stated, "When we're … [at home] we just go to the dog parks. But here? I would hate to have to leave him at our place and we're down here at the beach when he's out there in the water right now…" According to another non-complying visitor:

> "I agree that it should be regulated, but I think that people need a beach that they can go to with their dogs to let them run … I also believe that they should maybe limit [beaches in] … certain seasons when the birds are migrating … I think that if it was more regulated in that way people would listen … [but] also … have a beach that they can go to that can be a dog beach."

In another instance, a visiting non-complier commented:

> "… If there was a way to say: You can have your dog in this space, not in that green space, that's the space for the birds, …and there would be a third option [of] somewhere to bring your dog… that would feel more comfortable for me, because then I could make an educated decision about whether my dog would fit into that…"

Information, knowledge and awareness are power.

"Information is power … knowledge is power so … the more people are educated … I had no idea there was an impact on shorebirds" stated a complying visitor. However,

despite extensive efforts to promote dogs on-leash, one non-complying visitor commented, “there are so many signs everywhere you go that you just kind of ignore [them]…” Conservation appeared to be a salient issue, and the same individual stated, “… if it’s particular to conservation, your attitude would change and a lot of people would [comply].”

Some forms of education appear to be more powerful than others, which speak to the effectiveness of personal communication through the park interpretive programs. According to one visiting compliant father:

> “I know my kids saw the interpretive center is closed…which is a shame because we were excited about it…last year when we were here, there was an information piece on … a person walking their dog and showed these wolves… [and] photographs somebody had taken of these wolves chasing somebody walking their dog…it had an impact on my kids … They were like, wow wolves in the morning on a walk like this, near the forest…[S]o now that I’m aware of that when I’m walking in the morning, especially when there’s not that many people around, or in the evening, I keep my eye for it. [I]f you know that your dogs are gonna [sic] have an impact on other birds, or if there’s a hazard of wolves or anything around, it makes it a lot easier to justify in your mind [to] keep your dog on a leash, [be]cause you’ll forget the rule to keep your dog a leash, but you’ll remember the impact… of pictures of wolves trying to eat somebody’s dog, or the knowledge that they’re having an impact on shorebirds.”

My dog is a part of my family.

As noted earlier, many people attribute human-like qualities, emotions, want and needs to dogs. They are thought of by many as members of the family and often referred to as children. Dogs are often assumed to have the same rights and privileges as children: *"*A dog's kinda like a child, [yet] at the same time, … having an animal." When asked why they brought their dogs to the beach, one complying visitor stated "… they're part of our family … so if they come with us … it's like bringing your kid to [the] beach." Another local non-complying resident stated in a logical tone: *"*Well, the dog is part of our family and we're doing a family outing on the beach at the moment, so this is where we're walking," as if it could be any different. For the visiting dad with his kids and their young, purebred German shepherd that was on-leash, "I could not have brought the dog … my wife wanted a break and to her, a break would be taking the kids and the dog." At a different life-cycle stage, a baby boomer 'mom,' with an 'empty nest' at home commented about her two off-leash mixed breeds: "… these are my boys. I had girls so these are my boys."

According to a local surfer who had just walked back from a surfing session to his loyal dog waiting off-leash for him by his gear,

> "I'm not gonna leave her at home … I spend a lot of time on the beach and…she virtually goes everywhere I go and has since I've had her … Great, beach dog …she'd hang out at … the beach all day and that's how she grew up … it's healthy for her to be outside, enjoying life like everybody else. I kinda treat her

like she's part of the family, you know I'm not just gonna leave her on the boat or in the vehicle or anything like that."

Discussion

Conversations with both, on-leash compliers and non-compliers yielded evidence of deeply ingrained social norms driven by the widely shared and common held belief that Long Beach is a dog-friendly place. These social norms suggest that how people behave is often a response to the behaviour of those around them. An excellent example of this phenomenon was demonstrated by Asch's (1951) classic study on social norms. In this experiment, study participants were shown the length of four lines, to which answers reflected what other people had previously identified, as opposed to the actual length of the line.

The social norm that the study area is a dog friendly place looks to be established by watching the behaviour and attitude of others in the communities and on the beach and the promotion of behaviour by local business. The latter exists in stark contrast to both Tofino bylaws and park regulations and creates expectations about beach experiences through destination marketing that targets a lucrative 'furry family' market. While various forms of visitor education temper these expectations, the physical environment of the beach, and the apparent lack of enforcement of on-leash regulations exacerbate the issue. These contributing factors were found to be underscored by themes of responsibility of pet ownership, the perception of and reactance to the regulation as an indiscriminate rule, lack of knowledge of the rules, the limited options of spaces to let

pets run free with ‘nowhere else to go’ but the beach, and the importance of education expressed by the ‘power of information.’ However, general urban societal attitudes towards pets that view them as family members with the same rights and privileges as people appear to drive social normalization, even before people get to the beach.

Statements elicited from open-ended semi-structured interviews confirmed that the dog as a pet looks to occupy a liminal space in contemporary society as both human and animal (Fox, 2006), being socially constructed as a member of the family (Fox, 2006; Power, 2008). Described with such terms as ‘child’ and ‘kid’ participating in a ‘family outing,’ just as a family member would not be left at home or in the car, our ‘furry family’ members (Power, 2008) are included in the family vacation, a stroll on the beach, or a surf session. The suggestion is that we have perhaps moved from the ‘family dog’ to ‘dog as family.’ This implies a much more intimate relationship than mere ownership, perhaps even as replacement ‘ersatz kinder’ or ‘children’ for the ‘empty nest’ ‘boomer’ couples or companion with personhood and family member status for the surfer.

In modern society, the close relationships that people have with their pets negotiate a new form of family (Power, 2008) with the dog given the dual status of pets as both person and possession, domesticated and wild, human and animal (Fox, 2003). This hybridity transcends both nature and culture. There is recognition of the dog’s ‘wildness’ and its need to run free and ‘be a dog’ to give it ‘the best life possible’ and ‘right not to be leashed.’ Yet the personhood status (Fox, 2006) granted to our companion animals imbues them with human emotions, thoughts and feelings such as ‘happiness’ and ‘love’ and physical expressions of joy (Sanders, 1993; Fox) such as ‘dancing’ in

response to the freedom of the beach, which must also be accommodated and attended to by their human companions (Haraway, 2003; Power, 2008). This status entitles them to empathy from their human companions, to the notion of how it would feel to be leashed and special concern for what the animal may be thinking or feeling (Haraway, 2003).

We argued that just as dogs occupy a liminal space in modern society, so can the beach in a park context if managed and construed as an 'urbanized wilderness' for what Holmberg (2013) terms a trans-species urban crowd of people and their pets. Long Beach is a wild and natural area but, at the same time, subject to the same rules, laws, regulations and restrictions found in urban environments to manage the throngs of visitors during summer months. On easy access beaches, dogs that run free thus become mired in spatial conflict "where [they] inhabit a contested role as liminal creatures roaming in a liminal place" (Holmberg 2013, p. 40).

The perceptions of the beach by interviewees are embedded with 'freedom,' 'wildness' and the *raison d'être* for both people and pets to be there as an 'ideal environment' for dogs to run free. Yet dogs running off-leash are in direct conflict with the laws, rules and regulations that require dogs to be on-leash at all times. Those responsible for managing the park and the beach note that: 'You may think of your pet as a member of your family, but at the end of the day, a dog is still a dog' (Bob Hansen, personal communication, 2011). Visitors look to address this tension by choosing to abide by their own set of inherent rules and norms governed by the 'responsibility' of dog ownership and the recognition that they ought to maintain control over animals just like their children. There seemed to be a sense that the leash laws were indiscriminate and

'blanket' sanctions that did not consider the individual needs of different animals, tinged with a sense of entitlement among owners to make their own decisions about when and where to let their dogs run free, or not. Inherently knowing when to leash up around other people, other dogs and wildlife, and using common sense to manage their pets, illustrates the 'dominance' of the pet-human relationship suggested by Tuan (1984) and Power's (2008) leader of a family 'dog pack.' Invariably, common sense, responsibility and control are subjective and there was always a sense that 'it was somebody else's dog that was the problem.

The attitude and behaviour of locals towards on-leash rules, combined with savvy destination marketing that targets dog owners and the laid-back 'end-of-the-road-culture' from which an overarching sense of freedom permeates, all send out and reinforce the message that off-leash behaviour is tolerated, if not the norm. The notion that 'when in Rome, do as the Romans do' therefore suggests that it is accepted if not expected to let dogs run off-leash, whatever the posted regulations which clearly are not enforced, and whatever the posted information seeking to educate both visitors and locals about the impacts of off-leash dogs on wildlife.

They say that 'information is power.' Although information distributed about ecological reasons proved to be more powerful than social reasons (Marion & Reid, 2007), any signage and subsequent messaging for keeping dogs on-leash in the park appear to remain mainly ineffective (Zharikov, 2011). A well-developed information program to manage people's behaviour in parks is recognized to be crucial (McCool & Braithwaite, 1992), but just by increasing the amount of information and how often it is

delivered (i.e. increased signage and messaging) does not necessarily result in success (Rizzo, 1999; Timmerman, Garshelis & Fulton, 2001; Hughes & Morrison-Saunders, 2005). Our findings confirm other studies that conclude that letting dogs run free is habitual behaviour that is resistant to attempts at persuading people to engage in desired behaviour (Hughes, Ham & Brown, 2009).

Work in community based social marketing suggests that a personal approach to promote desired behaviour can be an effective strategy to change deeply ingrained norms (Mackenzie-Mohr, 2011). With an additional focus on outreach and interpretation outside of the park (Parks Canada, 2006), there is potential to have a powerful and enduring impact on visitor behaviour. But perhaps the targets for behaviour change should first be the local communities, and local business.

One particular issue not addressed is this study is the presence of "nobody's dogs" roaming the beach, in that the owners appeared to be nowhere in sight. These dogs were identified by one respondent as being from the neighbouring First Nations community of Esowista, adjacent to the park on Long Beach. Observations throughout the study identified a few animals that appeared to roam back and forth between the park and Esowista, however ownership and belonging to the community was not confirmed. This poses an additional challenge to efforts designed to encourage compliance, better addressed by community outreach and personal contact.

If social normalization by visitors is influenced by local behaviour and local messaging, then educating and persuading locals to leash their dogs and advocate for on-leash behaviour may see visitors follow suit.

Conclusion

Is there space for a dog just to be a dog in a national park beach setting? From a legal standpoint, perhaps no, but in the absence of regular patrols and enforcement of law in the park, and the ineffectiveness of signage, owners do allow dogs to run free on the beach. With 'nowhere else to go' for a dog to just be a dog, the beach emerged as a 'third space' (Soja, 1996) that captured the rhythm of daily life of both locals and park visitors to beach-going, surfing, walking, exploring, walking their dogs and letting them run free. Management might consider identifying some parts of the beach near the settled communities and tourism resorts where off-leash behaviour is allowed, at the same time as more rigorously enforcing on-leash behaviour in key and heavily used adjacent beaches.

A reflective, qualitative approach created a deeper understanding of experiential dimensions of human behaviour and acknowledged the social context of behaviour. Social norms, driven by local behaviour and the role that dogs play in the lives of people in modern society and the pet-human relationship, have made the beach emerge as a contested space where the off-leash social norm becomes reinforced by perceived spaces. Observed behaviour reflects the personal feelings that people have towards the parks beaches and the daily experiences of park visitors and their pets. Although off-leash behaviour comes in direct conflict with the rules, laws and regulations set in place by Parks Canada and the municipality of Tofino, it may continue to prove to be resistant to change. Consequently, shifting deeply ingrained social norms may require a different approach than those previously employed, and attention should perhaps be paid to

identifying some beach areas where dogs are explicitly allowed to run off leash, and in the first instance to focus on the behaviour and attitude of the local community (including businesses), with anticipation that if there is a local change in behaviour, visitors may follow suit.

Beyond the context of this study, growing urban populations combined with increased pet ownership and the evolution of the 'more than human' family in post-industrial societies and all the rights and privileges that are extended to our canine companions provide insight into people, their pets and potential impacts on parks and protected areas, however unintended. Whereas pets and their 'right' to be a dog has been explored in an urban context with respect to urban dog parks, little attention is given to compliance behaviour in a front-country national park setting, particularly in the contested space of the beach. Understanding a seemingly harmless behaviour such as letting dogs run free and unrestricted from leashes in natural areas reveals much about park visitors, local residents in nearby communities and an increasingly urbanized society. Further research could help to develop effective strategies to produce new social norms that mitigate non-compliance behaviour. However other efforts could also be directed to better understand our tenuous relationship with 'wilderness' and 'nature' through our pets and places like the beach, both of which transcend the nature/culture divide.

Chapter Three

Understanding Non-Compliance Behaviour with On-Leash Regulations by Visitors in Protected Areas

Abstract

Protected areas are usually managed for both conservation and visitor experiences. Critical to the achievement of both objectives is the management of visitor behaviour. When visitors chose to not comply with park regulations, conservation and the experience of other visitors can be compromised. This paper examines non-compliance in Pacific Rim National Park (Canada) with a regulation to keep domestic dogs-on leash when in the park. This regulation aims to avoid impacts of off-leash dogs with park wildlife, specifically wolves and shorebirds, as well as the experience of those visitors who are not comfortable with dogs. The study used the Theory of Planned Behaviour (TPB), to explore the factors that may influence non-compliance behaviour. Results from a survey of 162 compliers and 140 non-compliers indicated moderate to strong relationships between visitor behavioural intentions regarding compliance, and the three factors predicted by TPB to shape intentions: attitude; subjective norms; and perceived behavioural control. However, weak relations were found between these three factors and the beliefs thought to influence each factor. Habit, as measured by compliance behaviours at home and on previous visits to the park, was shown to impact on the ability of the TPB model to predict future behaviour. The results of this study inform efforts to mitigate conflict between pets and wildlife in natural areas.

Introduction

Links between people, wildlife, prey, foraging habitat, and landscape dynamics can contribute to an increase in conflict with wildlife as human populations blend, overlap, and stress local wildlife populations. Protected areas, such as national parks are an important focus of these conflicts, and present particular challenges to both conservation and visitor experience objectives. If visitor behaviour is inappropriate, negative interactions between people and wildlife may occur. A critical issue is visitor non-compliance behaviour with park regulations, such as the leashing of dogs in the park.

Most visitor impacts on parks and protected areas are not intended, but occur from lack of awareness or knowledge of low-impact behaviour (Bradley, 1979, Marion & Reid, 2007). Managing visitor behaviour in parks usually requires the use of 'direct' or 'indirect' approaches (Hendee & Dawson, 2002). Direct approaches include the use of physical barriers, enforcement and regulations; whereas indirect approaches typically consist of interpretation, visitor education and information programs. Park agencies often rely on indirect approaches to accomplish their objectives of maintaining ecological integrity and enhancing visitor experience. These indirect approaches are thought to be cost effective, 'softer' and more consistent with leisure experiences as opposed to 'harder' direct approaches (Roggenbuck, 1992; Manning, 1999; Vistad, 2003; Bullock & Lawson, 2007; Hendee & Dawson, 2008; Park, Manning, Marion, Lawson & Jacobi, 2008; Martin, Marsolais & Rolloff, 2009).

A well-developed information program is crucial for implementing indirect approaches (McCool & Braithwaite, 1992). Information strategies that are built primarily

upon the sole provision of educational material and information, 'hunches' (Mackenzie-Mohr, 2011), intuition (Ham, Brown, Curtis, Hughes & Poll, 2009), and increase in the quantity of information or the intensity of information delivery (e.g., increased signage and messaging) (Rizzo, 1999; Timmerman, Garshelis & Fulton, 2001; Hughes & Morrison-Saunders, 2005) are not always successful. A combination of indirect and direct approaches may provide more effective strategies for managing and influencing visitor behaviour (Hughes, Ham & Brown, 2009; Zharikov, 2011).

One interesting case is the Pacific Rim National Park Reserve on the west coast of Vancouver Island, British Columbia, Canada, where domesticated dogs running free on beaches is one of the largest sources of disturbance and displacement of sensitive habitat for migratory shorebirds (Zharikov, 2011), and can habituate wolves to dogs and people, when pets become easy prey (Windle, 2003; Edwards, 2005; Theberge, 2007; Bob Hansen, personal communication, 2011; Todd Windle, personal communication, 2012, 2013).

A number of indirect and direct efforts to encourage on-leash behaviour in the park have not been as successful as hoped. Esrom (2004) found that 62% of dogs were off-leash after 'dogs on-leash' signs were placed in front of parking stalls and beach access points, and education, prevention and enforcement targeted at park visitors with dogs were established. Seven years later another study found that behaviour had not changed significantly despite ongoing efforts: 61% of domestic dogs were off-leash (Zharikov, 2011).

Therefore, despite considerable effort, the number of off-leash dogs on the park's beaches continues to be an issue. The present study was undertaken to gain insight into why compliance has not been as successful as hoped. A theory-based approach to visitor management was applied to inform management strategies and to offer insights into directions that may be more successful. The purpose of this research was to identify the factors that underlie visitor non-compliance behaviour, based on an application of the TPB (Fishbein & Ajzen, 2010). The goal is to better inform education, interpretation, and outreach efforts to mitigate conflict with wildlife.

Theory of Planned Behaviour

One of the most influential and widely applied theoretical frameworks for informing the development of communication interventions is Fishbein and Ajzen's (2010) TPB. The theory proposes that behaviour depends on one's intentions to behave in certain ways, which are determined by one's attitude toward the behaviour, subjective norms, and perceived behavioural control over the behaviour (Fig. 4 – see p. 12).
An understanding of the beliefs underlying a particular behaviour can help to inform strategies that persuade visitors who violate park regulations to engage in more-desired behaviour. The theory has been applied to a number of national park behaviours such as feeding wild birds (Ballantyne & Hughes, 2006; Hughes, Ham & Brown, 2009), staying on designated walking and hiking trails (Beeton, Weiler, & Ham 2005; Bradford & McIntyre, 2007), 'bear proofing' and appropriate food storage in bear country (Lackey & Ham, 2003), littering and garbage disposal (Brown, Ham & Hughes, 2010) and

domesticated dogs set off-leash by their owners (Hughes, Ham & Brown, 2009).

The attitudes in the theory are the favourable or unfavourable evaluation of the behaviour in question. Subjective norms refer to the perceived social pressure to perform the behaviour, or not. Perceived behavioural control is the subjective ease or difficulty of performing the behaviour. The more favourable the attitude and subjective norm towards a behaviour, and the greater the perceived behavioural control, the stronger the intention to perform the behaviour.

Beliefs in particular underlie attitude, subjective norm and perceived behavioural control. For example, dog walkers' behavioural beliefs include what they think are likely to be the outcomes or consequences of leashing their pet (or not), and whether they believe that each of these outcomes is good or bad. Normative beliefs are about what others, such as other dog walkers, significant others, or park management, think about them having their animal on, or off-leash and the motivation to comply. Control beliefs are about the facilitators or inhibitors to the desired behaviour, whether their presence makes the behaviour easy, or difficult, and the strength of those evaluations. For example, the presence of a leash may make it 'easier' to keep dogs on-leash and consequently more likely for the visitor to leash them.

Actual control, determined by skills, abilities and environmental factors, may also influence the performance of the behaviour (Fishbein & Ajzen, 2010). Finally, all beliefs may be affected by background factors such as individual values, general attitudes, past behaviour, ethnicity, religion, education, culture and information (Fishbein & Ajzen, 2010).

Factors that Challenge the Theory of Planned Behaviour

Although considerable empirical evidence supports the TPB, actions performed many times previously become habitual, automatic and stimulated by cues in the environment (Ouellette & Wood, 1998; Aarts & Dijksterhuis, 2000). Lacking any reason to perform the behaviour, influence through persuasive communication by targeting park visitor beliefs is not likely to be effective (Manfredo & Bright, 1991).

A number of behaviours have been associated with 'habit,' including choice of travel mode (Bamberg, Ajzen, & Schmidt, 2003), the use of seatbelts (Mittal, 1988), eating (Verplanken & Faes, 1999), non-addictive controlled substances (Orbell, Blair, Sherlock, & Conner, 2001), speeding (Conner, Smith, & McMillan, 2003), and off-leash dogs in national parks (Hughes, Ham & Brown, 2009).

Other research has demonstrated that experience also plays an important role in successful persuasion strategies: wilderness recreationists with more experience are argued to be less susceptible to persuasive influence (Krumpe & Brown, 1982; Roggenbuck & Berrier, 1982; Williams & Huffman, 1986; Manfredo & Bright, 1991). Consequently, indirect attempts at behaviour modification (such as park interpretation or signage) are less likely to succeed where behaviours are habitual and experienced many times over (Hughes, Ham & Brown, 2009).

Azjen (1991) and Fishbein and Ajzen (2011) among others (e.g., Conner & Armitage, 1998; Ouellette & Wood, 1998; Albarracín, Johnson, Fishbein, & Muellerleile, 2001; Ajzen & Fishbein, 2005) also contend that the model has been unable to adequately explain the relationship between past behaviour and future behaviour, thereby

challenging persuasive attempts to influence actions. The central research question for this study is ‘how does habitual behaviour influence decision-making behaviour and provide insight into the cognitive foundations of the behaviour?’

Study Context

Temperate rainforest, abundant wildlife, sandy beaches, dramatic scenery, and ease of access make the Pacific Rim National Park Reserve (for location see Fig. 1 p. 4) one of Canada’s most popular National Park destinations (Edwards, 2005). The present study was conducted on Long Beach, the most-visited beach in the park, Wickaninnish Beach, and in Florencia Bay. Conflict exists on these beaches between dogs that run off-leash and the desire to minimize disturbance of shorebird habitat and habituation of wild wolves to humans and food-conditioning toward their pets.

These wolves (*Canis lupis cracidon*) have a history of human-carnivore conflict and evidence exists of an increased trend of wolves following and approaching people and attacking dogs (Windle, 2003, Edwards, 2005; Theberge, 2007). In 1999, a significant increase in wolf activity was recorded in the park and the surrounding region, with consequent increases of encounters. The paradox is that although wolves characteristically avoid people (Linnell, 2002; McNay, 2002a) they have started to exhibit aggressive behaviour towards people and their pets (Windle, 2003; Edwards, 2005; Theberge, 2007). As wolves lose their fear of humans and become habituated to people, the risk of attacks increases (Linnell et al., 2002; Orams, 2002). Dogs disturb wolf behaviour (Sime, 1999), which can lead to habituation and food-conditioning where

wolves associate dogs as easy prey (Windle, 2003; Edwards, 2005; Theberge, 2007; Parks Canada Agency Human-Carnivore Conflict Specialist, personal communication, 2011, 2012, 2013). Attacks on dogs are a major factor in conflicts between wolves and people (Kojola & Kuittinen, 2002).

The Pacific coast of British Columbia is a flyway for migratory shorebirds travelling between Arctic breeding grounds and southern wintering grounds in the Americas. Sandy beaches, which are the primary habitat for shorebird species such as the sanderling (*Calidris alba*) and western sandpiper (*C. mauri*), are another site of human-wildlife conflict involving off-leash dogs (Lafferty, 2001a, b; West, 2002; Thomas, Kivitek & Bretz, 2003; Borgmann, 2011; Zharikov, 2011; Meager, 2012).

In the Park, the ocean foreshore provides critical shorebird habitat, especially for the western sandpiper and globally threatened sanderlings (Zharakov, 2011). The latter rely on sandy beach habitats that are rare in other coastal and wetland areas (Payne, 2010). Shorebirds in the Park spend 75% of their time foraging on the beaches, 19% of their time roosting, and only 6% of their time flying (Zharikov, 2011). These behaviour patterns illustrate the importance of Long Beach as a shorebird habitat (Zharikov, 2011). Shorebird breeding success and therefore their survival can be severely compromised by the loss of energy reserves spent avoiding off-leash dogs (Van de Kam, 2004; Colwell, 2010; Zharikov, 2011).

Method

The study was conducted in two phases: a belief-elicitation phase of semi-

structured interviews to obtain dog walkers' salient beliefs; followed by a larger scale survey (Appendix A) to measure beliefs attitudes, subjective norms, perceived behavioural control and intention.

Phase 1

Following Middlestadt, Bhattacharyya, Rosenbaum, Fishbein, and Shepherd (1996), 42 semi structured interviews based on theory of planned behaviour principles were conducted with a convenience sample of compliers (n = 21) and non-compliers (n = 21) on Long Beach, Wickaninnish Beach, and Florencia Bay (Fig. 2 - see p. 5) in June of 2013 (see Appendix C for interview questions). The interviews were conducted until theoretical saturation was reached, that is, the point at which additional information does not provide further insight into the phenomenon, and conducting more would not likely reveal new insight into compliance behaviour (Ajzen & Fishbein, 1980).

A content analysis of interview responses from this convenience sample identified the salient beliefs. In lieu of a large research team and multiple coders, the internal validity of the content analysis was assessed based on face validity (Weber, 1990) and assessment by the Human Dimensions Specialist in the Province of British Columbia's Fish and Wildlife Branch. A pool of salient beliefs developed from this phase was then used to inform the creation of a fixed-item survey instrument which identified the most pervasive and frequent salient beliefs, attitudes, subjective norms, perceived behavioural control beliefs, and behavioural intentions (Fishbein & Ajzen, 2010).

Phase 2

The initial fixed-item survey was pilot tested (n = 20) on the beach in June 2013

with a random sample of compliers (n = 10) and non-compliers (n = 10) to discover any problems with language, wording, and formatting. Following the refinement of the survey instrument (Appendix A), the main study was then conducted from July to September of 2013 with independent random samples of compliers (n = 162) and non-compliers (n = 140) after they were first observed unobtrusively on Long Beach, Wickaninnish Beach, and Florencia Bay (Fig. 2). These beaches encapsulate both the main areas of the park and the expanse of the Long Beach Unit of Pacific Rim National Park Reserve. Administration of questionnaires in these locations captured the most frequently visited and popular locations in the park, but also the more remote regions and less frequently visited areas of each beach. This sampling strategy was employed to obtain a representative sample of the population of dog walkers in the park in order to survey people entering and leaving the beach at access points, amidst crowds of people on busy days closer to these access points, and in more secluded and remote areas of the beach. After each survey was completed, every other complier or non-complier was selected. Response rate was high at 94%.

The thrust of this research was to examine compliance and non-compliance behaviour with park regulations that dogs be on-leash at all times to better understand non-compliance behaviour, and the possible role of habit in non-compliance behaviour. Compliance behaviour was measured by selecting sample respondents according to their observed behaviour when the survey was administered as either compliers or non-compliers. Measurement of the other study variables is described in the results section.

Results

The demographic and background characteristics of the survey population reveal that many are experienced, repeat visitors primarily from Vancouver Island and BC. (Table 1). Following Verplanken (2010), their habitual behaviour in the park was measured on a 5-point scale by percentage of time observed compliers and non-compliers self-reported they leashed their dog when they visited the park (1 = Never, 2 = ~25%, 3 = ~50%, 4 = ~75%, 5 = Always). Regular leashing behaviour when at home is an indicator of a habit forming, frequently repeated past behaviour, an important consideration since regular behaviour outside the park may stimulate an automatic behavioural response. At-home compliance with leashing regulations was probed by asking respondents if they complied with leash regulations when they were at home and the degree to which they agreed with the statement. Responses were measured on a 7-point scale (1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Slightly Disagree, 4 = Neutral, 5 = Slightly Agree, 6 = Somewhat Agree, 7 = Strongly Agree). Results are shown in Table 2.

Independent measures *t* – tests demonstrated that agreement between self-reported behaviour in both the park and at home) was significant, with compliers close to slightly agreeing that they always had their dog on-leash to comply with regulations when they were at home and non-compliers slightly disagreeing that this was the case. Regardless of observed behaviour, compliers identified that they leashed their pet more often (mean = 3 = 75%) than non-compliers (mean = 2 = 25%) in the park (Table 2).

Table 1. Sample Characteristics

Demographic Variable	**N = 302**
Age	
Under 21	<1%
21-30	26%
31-40	25%
41-50	27%
Over 50	22%
Average Age	~40 yrs
Gender	
Male	35%
Female	61%
Other	4%
Repeat Visitor	86%
First Time Visitor	14%
Frequency of Visit in the Last Year: # of Days	
1-3	70%
4-6	13%
7-9	2%
10 and Over	15%
Place of Origin	
Vancouver Island	
Victoria	9%
Nanaimo	13%
Other Vancouver Island	27%
Vancouver Island Total	48%
Vancouver	25%
Other BC	22%
BC Total	94%
Other Canada	5%
Other Countries	<1%

Table 2. Relation Between Observed Compliance and Self-Reported Compliance

Context	**Mean**			
	Complier	Non-Complier	*SD*	*Sig.*
At Park (1-5 Scale) 1 = never, 2=~25%, 3=~50%, 4=~75%, 5=always	4.0	2.0	1.39	< 0.001
At Home (1-7 Scale) 1=Strongly Disagree, 2=Somewhat Disagree, 3=Slightly Disagree, 4=Neutral, 5=Slightly Agree, 6=Somewhat Agree, 7=Strongly Agree	4.6	3.0	2.28	< 0.001

In summary, the sample population appeared to be experienced, repeat visitors, regionally focused on Vancouver Island and in BC, who frequently engaged in non-compliance behaviour when they came to the park.

Behavioural beliefs.

TPB specifies procedures for measuring beliefs that are predicted to shape attitudes to the non-compliance behaviour. Behavioural beliefs are a series of outcomes of a behaviour and the individual's evaluation of these outcomes from which attitude towards the behaviour is revealed. For example a possible behavioural belief is "leashing my dog in the park will keep it safe from wolves". Each behavioural belief has two components: (1) belief strength, measured on a 7-point scale from 1 = Very Unlikely to 7 = Very Likely (e.g." how likely or unlikely is it that leashing your dog will keep it safe from wolves"); and (2) belief outcome, measured on a 7-point scale from 1 = Bad to 7 = Good (e.g. "how good or bad do you feel about keeping your dog safe from wolves"). Following Francis et al. (2004a, 2004b), behavioural belief outcome evaluation responses were recoded +3 to -3 while strength responses remained unchanged.

Responses of compliers and non-compliers are compared in Table 3. To determine the effect of each belief on attitude, a behavioural belief cross-product score was computed for each by multiplying the belief strength score by the evaluation score for each respondent. In general, the more positive the cross-product score, the more likely the person is to have a positive attitude towards complying, and the more likely is the intention to carry out the behaviour. The cross-products with the greatest differences between compliers and non-compliers identify beliefs to target in a communication

intervention.

Table 3. Behavioural Beliefs Regarding Dog Leash Regulations Compared for Compliers and Non-Compliers Using Independent Samples *t* - test

Beliefs	**Q3. Mean Belief-Strength Measure (Unlikely-Likely)**			**Q4. Mean Belief-Outcome/Evaluation (Bad-Good)**			***Mean Cross-product**			
If I keep my dog on-leash…	*C	*NC	*Sig.*	*C	*NC	*Sig.*	*C	*NC	*Dif.	*Sig.*
A. My dog will be safer from wolves.	4.30	3.40	0.001	2.34	2.40	0.669	10.30	8.29	2.00	0.038
B. It will be safer for other people.	3.63	2.80	0.001	2.39	2.33	0.675	8.70	6.70	2.00	0.019
C. My dog loses the freedom to run, play, explore, sniff around and 'just be a dog.'	4.50	5.94	<0.001	-1.31	-2.15	<0.001	-7.14	-13.13	6.00	<0.001
D. I have more control over my dog.	5.39	4.00	<0.001	2.42	2.05	0.020	13.20	8.63	4.60	<0.001
E. My dog will attract wolves to me.	1.94	2.10	0.404	-2.44	-2.14	0.061	-4.80	-4.80	0.22	0.969
F. My dog will bother other people.	2.06	2.11	0.760	-2.28	-2.16	0.441	-4.32	-4.40	0.08	0.887
G. My dog will run through flocks of shorebirds	2.21	1.92	0.158	-1.95	-1.87	0.670	-3.76	3.45	-0.29	0.604
H. My dog will behave aggressively towards other dogs.	2.20	2.12	0.722	-2.64	-2.55	0.487	-5.60	-5.30	-0.30	0.633
I. My dog pulls me around and it is hard to keep up to it.	2.70	2.80	0.552	-2.09	-2.16	0.641	-4.90	-5.90	0.98	0.160

*C=Complier, *NC = Non-Complier
*Cross-product for each behavioural belief can vary between -21 and +21
*Difference between complier and non-complier.

In terms of belief strength, four items differ significantly between compliers and non-compliers, and in three of these cases compliers have higher scores. With respect to belief evaluations, two items are significantly different between compliers and non-compliers. Four of the nine belief cross products differ between compliers and non-compliers (see shaded area of Table 3). The greatest difference in cross-products is evident in the element losing the freedom to run and play (item C).

As specified in TPB, these cross-products were summed to create a composite measure of behavioural beliefs that determine attitude. This is sometimes referred to as an indirect measure of attitude. With 9 items, the total possible range of scores was (7x3) x 9 = -189 to 189. Therefore the overall attitude score (*mean* = -5.26) demonstrates a weak attitude about keeping dogs on-leash. Using a linear regression, this composite score was then correlated with attitude to confirm the validity of the indirect measures (see Fig. 6).

Normative beliefs.

Normative beliefs consider how much various social referents would approve or disapprove if the respondents engaged in the target behaviour, and motivation to comply. Measurement of normative beliefs is reflected by these two components: (1) belief strength measured on a 7-point scale from 1 = I should not to 7 = I should (e.g. "My family thinks I should/should not keep my dog on leash in the park"); and (2) motivation to comply measured on a 7-point scale from 1 = Strongly Disagree to 7 = Strongly Agree (e.g. "I agree/disagree that I want to do what my family thinks I should do"). Following Francis et al. (2004a, 2004b), the mean strength component of normative beliefs were recoded into positive and negative values from -3 to +3. Coding for the outcome evaluation (motivation to comply) component of the positive or negative judgments about each belief and motivation to comply remained the same.

Responses of compliers and non-compliers are compared in Table 4. Mean strength measures were significantly different for all but 2 items, and mean motivation to comply measures were significantly different for all but 2 items. To determine the effect of each normative belief, a normative belief cross-product score was computed for each

normative belief by multiplying the belief strength score by the motivation to comply score for each respondent.

From these values, a mean cross-product score was computed for each normative belief, and compared between compliers and non-compliers using the *t*-test for independent samples. All these comparisons were statistically significant. These scores were generally positive and higher among compliers than non-compliers; the greatest differences were between: 'my friends (i.e. my friends think I should/should not leash my dog),' 'families with small children (i.e. families with small children think I should/should not leash my dog),' 'elderly people (i.e. elderly people think I should/should not leash my dog),' 'wildlife conservationists (i.e. wildlife conservationists think I should/should not leash my dog)' and 'park wardens (i.e. park wardens think I should/should not leash my dog).' In general, the more positive the cross-product score, the more likely the person is to have a positive subjective norm to complying, and the more likely is the intention to carry out the behaviour. The cross-products with the greatest differences between compliers and non-compliers identify beliefs to target in a communication intervention.

As specified in TPB, these cross-products were summed to create a composite measure of normative beliefs that determine the subjective norm. This is sometimes referred to as an indirect measure of subjective norm. With 14 items, the total possible range of scores was (7x3) x 13 = -273 to +273. Therefore the overall score for the subjective norm (*mean* = 41.28) demonstrates a weak, but positive subjective norm about keeping dogs on-leash. Using a linear regression, this composite score was then

correlated with subjective norm to confirm the validity of the indirect measures (see Fig. 5).

Table 4. Normative Beliefs Regarding Dog Leash Regulations Compared for Compliers and Non-Compliers Using Independent Samples *t* - test

Normative Belief	**Mean Strength**			**Mean Motivation to Comply**			***Mean Cross-product**			
	*C	*NC	*Sig.*	*C	*NC	*Sig.*	*C	*NC	*Dif.	*Sig*.
A. People who don't like dogs	2.69	2.45	0.036	4.34	3.23	<0.001	11.70	7.91	3.75	0.001
B. Afraid of dogs	2.78	2.51	0.019	4.74	3.63	<0.001	13.32	9.44	3.88	0.001
C. Families with small children	1.91	0.89	<0.001	5.00	4.01	<0.001	10.54	4.48	6.06	<0.001
D. Elderly people	1.63	0.64	<0.001	4.55	3.58	<0.001	8.50	2.67	5.83	<0.001
E. Other cultures	1.39	1.06	0.065	4.09	3.21	<0.001	6.56	3.93	2.63	0.002
F. Wildlife conservationists	2.32	1.89	0.007	3.80	2.68	<0.001	9.53	5.43	4.10	<0.001
G. Wardens	2.62	2.10	<0.001	5.08	3.94	<0.001	13.67	9.05	4.62	<0.001
H. Tourists	1.18	0.30	<0.001	3.81	3.00	0.001	5.31	1.48	3.83	<0.001
I. Dog freedom people	-1.88	-2.08	0.248	3.62	4.48	<0.001	-6.35	-9.45	3.10	0.002
J. With well trained dog	-0.53	-1.74	<0.001	4.48	4.52	0.830	11.34	9.74	1.60	<0.001
K. Local residents	0.12	-0.87	<0.001	4.91	4.45	0.032	0.96	-3.52	-2.56	<0.001
L. My family	0.20	-1.62	<0.001	4.97	4.48	0.029	2.12	-7.11	-4.99	<0.001
M. My friends	-0.04	-1.64	<0.001	4.55	4.14	0.068	1.20	-6.64	-7.84	<0.001

*C = Complier, *NC = Non-Complier
*Cross-product for each normative belief can vary between -21 and +21
*Difference between complier and non-complier.

Control beliefs.

Control beliefs are the respondent's belief that a given factor could either facilitate or inhibit carrying out the behaviour is present or absent in the immediate environment. Control beliefs are measured in two ways: (1) belief strength, on a scale of 1 = Strongly Disagree to 7 = Strongly Agree (e.g. "I disagree/agree that not having enough education and information about why I need to have my dog on-leash makes it difficult to keep my dog leashed"); and (2) belief power, on a scale of 1 = Less likely to leash my dog to 7 = More likely to leash my dog (e.g. "When there is not enough education and information about why I need to leash my dog, I am less/more likely to

leash my dog"). Following Francis et al. (2004a, 2004b), the power component questions were recoded into positive and negative values from +3 to -3. Coding for the strength component in remained the same

Table 5. Control Beliefs Regarding Dog Leash Regulations Compared For Compliers and Non-Compliers Using Independent Samples *t* – test

Control Beliefs	**Mean Strength**			**Mean Power**			***Mean Cross-product**			
	*C	*NC	*Sig.*	*C	*NC	*Sig.*	*C	*NC	*Dif.	*Sig.*
A. Not enough education makes it difficult	3.36	3.34	0.915	-0.28	-1.09	<0.001	-2.22	-4.35	-2.13	0.029
B. Dog trained well to be on leash makes it easy	5.97	5.03	<0.001	1.82	0.22	<0.001	11.80	2.60	9.20	<0.001
C. Breed of dog makes it difficult	2.03	2.71	<0.001	0.33	-1.08	<0.001	0.34	-3.73	4.07	<0.001
D. The right equipment makes it easy	5.14	3.90	<0.001	1.49	-0.10	<0.001	8.65	1.93	6.72	<0.001

*C=Complier, NC = Non-Complier
*Cross-product for each normative belief can vary between -21 and +21

Comparisons of compliers and non-compliers are provided in Table 5. Mean strength differs significantly regarding 3 of the 4 beliefs. Mean belief power differs significantly for all 4 control beliefs. To determine the overall effect of each control belief, a cross-product was computed for each belief by multiplying the strength score and power score obtained from each respondent. Then a mean cross product score was obtained, and compared between compliers and non-compliers. All cross product scores were significantly different, and the greatest differences were evident with dogs 'well trained to be on-leash' and 'having the right equipment,' (making it easy to keep dogs on-leash).

As specified in TPB, these cross-products were summed to create a composite measure of control beliefs that determine perceived behavioural control. This is sometimes referred to as an indirect measure of perceived behavioural control. With 4

items, the total possible range of scores was (7x3) x 4 = -84 to +84. Therefore, the overall score for perceived behavioural control (*mean* = 7.43) demonstrates a weak, but positive perceived behavioural control about keeping dogs on-leash. Using a linear regression, this composite score was then correlated with perceived behavioural control to confirm the validity of the indirect measures (Fig. 4).

Testing the theory of planned behaviour model.

Relations predicted from the theory of planned behaviour are illustrated in Figure 5. According to the TPB model, intentions are influenced by attitudes, subjective norms and perceived behavioural control. As estimated from linear regression analyses, the impact on intentions by attitude ($R^2 = 0.49$); subjective norms ($R^2 = 0.55$) and perceived behavioural control ($R^2 = 0.36$) are supported with moderate- to-strong relations (Gravetter & Wallnau, 2007). The total predictive ability of the model was $R^2 = 0.71$. This demonstrates that attitudes toward the behaviour, subjective norms, and perceived behaviour control predict 71% of the variability in intention. However, the correlation between intention and observed behaviour was lower ($R^2 = 0.22$).

Next, the impacts of beliefs on attitudes, subjective norms, and perceived behavioural control were computed using linear regression. The relation between attitude and behavioural beliefs were not particularly strong ($R^2 = 0.25$), as was the relation between perceived behavioural control and control beliefs ($R^2 = 0.27$). The relation between subjective norms and normative beliefs was somewhat stronger ($R^2 = 0.38$).

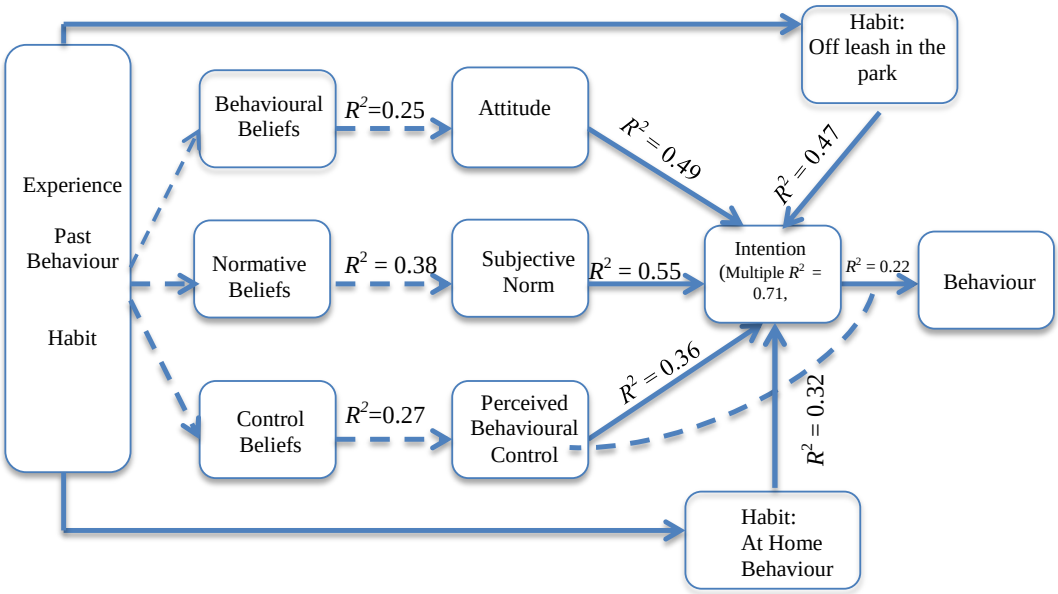

Figure 5. The Theory of Planned Behaviour (adapted from Fishbein & Ajzen, 2010) as Applied to Dog-Leashing in Pacific Rim National Park.

The effect of habit was computed in two ways. The relation between past behaviour in the park (the percentage of time dogs were leashed in the park) and intention was strong (R^2 = 0.47). The relation between intention and at home behaviour was moderate (R^2 = 0.32).

In summary, the general theory of planned behaviour model demonstrates strong relations between intentions and the three variables that TPB posits to influence intentions: attitude, subjective norm, and perceived behavioural control, with an overall robust predictive ability of intention. However, relations between the indirect measures of beliefs and direct measures, and between intention and behaviour were weaker than anticipated. In general, stronger correlations between indirect and direct measures would indicate greater access to the beliefs that shape attitude, subjective norms and perceived behavioural control and subsequent intentions. However, the relations between habit and

intention ranged from moderate to strong, suggesting that habit may be confounding the predictive capacity of the model.

Discussion

The application of the theory of planned behaviour provides insight into non-compliance behaviour. The findings suggest possible strategies to influence underlying beliefs with communication and messaging, focused on persuading the individual to engage in on-leash behaviour. These include: 1) attempts to influence underlying behavioural beliefs (e.g. dogs on-leash will mitigate shorebird disturbance); 2) attempts to influence underlying normative beliefs (e.g. families with small children would prefer dogs to be leashed) and; 3) attempts to influence control beliefs (e.g. having the right equipment handy, like a retractable leash would make it easier to keep dogs on-leash).

The efficacy of these approaches is contingent upon strong relationships in the model. The model provides strong relations between intention and direct measures of attitude, subjective norm, and perceived behavioural control and intention, with an overall robust predictive ability of intention. However, relations between the indirect measures of beliefs and direct measures, and between intention and behaviour were weaker.

A plausible explanation for the weak relations between indirect and direct measures is that habitual behaviour, resilient to persuasive influence, may be overwhelming the other influences that are included in the model. A routine behaviour that becomes ‘habit’ eliminates reasoning in the decision making process (Ouellette &

Wood, 1998; Aarts & Dijksterhuis, 2000). Instead, an automatic behavioural response is initiated by simple stimulus cues (Ouellette & Wood, 1998; Aarts & Dijksterhuis, 2000). Without a reasoned decision to perform the behaviour, influence through persuasive communication is not likely to be effective (Hughes, Ham & Brown, 2009).

Similar to habit, frequent past behaviour and future behaviour have also posed problems to the theory of planned behaviour when it is unable to fully explain the relations between them (Ajzen, 1991; Conner & Armitage, 1998; Ouellette & Wood, 1998; Albarracín, Johnson, Fishbein & Muellerleile, 2001; Ajzen & Fishbein, 2005).

Consequently, indirect attempts to influence behaviour (such as park interpretation or signage) are less likely to succeed where behaviours are habitual and experienced many times over (Hughes, Ham & Brown, 2009).

In the present study, 86% of participants were repeat visitors. Regardless of observed behaviour at the time of survey administration, compliers identified that they leashed their pet 75% and non-compliers 25% of the time in the park (Table 2). In essence, we only captured them in a moment when they were choosing to leash their pets, or not. This is interesting given the criticisms of inaccuracy and response bias with self-reports. With this measure of habit, self-reports of dog walkers on Long Beach appear to be more accurate than observations. The relation of the percentage of time dogs were leashed in the park and intention was also quite strong ($R^2 = 0.47$). At-home behaviour was less strongly correlated with intention to have the dog on-leash ($R^2 = 0.32$).

The most common method of measuring habit was employed in this study by asking a participant to respond to their frequency of repetition of the behaviour on a scale

from ‘never’ to ‘always’ (Verplanken, 2010). Following Verplanken (2010), in the present study we used a 5-point scale to reflect 25 percent increments of increase in likelihood (1 = Never, 2 = ~25%, 3 = ~50%, 4 = ~75%, 5 = Always) to measure habitual behaviour in the park. However Verplanken criticizes self-reported frequency of past behaviour because it only capitalizes on the frequency component of habit and ignores the automatic behavioural response and stimulus cues. At home measurements of habit employed a 7-point scale that ranged from ‘Strongly Disagree’ to ‘Strongly Agree.’ Participants responded to whether they always complied with leash laws when they were at home. In essence, this may not reflect a true measure of habit by a measure of frequency, but rather an indication of past behaviour.

Given the criticisms of measuring frequency of behaviour, the role of habit and its effect on the theory of planned behaviour could be explored more thoroughly. Questions could be formulated to address all three ‘pillars’ of habit (Verplanken, 2010) including automaticity and the effect of stimulus cues in the environment and frequency. Verplanken suggests that a more appropriate and robust measure of habit is Verplanken and Orbell’s (2003) 12- item Self Report Habit Index (SRHI), which addresses both frequency of behaviour and automatic responses. In a review of the SRHI (Verplanken, 2010), this index has proven to be successful in a wide array of behaviours such as the consumption of food and snacking (Brug, et al., 2006; Conner et al., 2007; de Bruijn et al., 2007; Honkanen et al., 2005; Verplanken et al., 2005), beverage consumption (Kremers et al., 2007), food safety (Hinsz et al., 2007), participation in exercise and physical activity (Chatzisarantis & Hagger, 2007;Verplanken & Melkevik, 2008), use of

the internet (Lintvedt et al., 2008) and social behaviour (Verplanken, 2004). It seems that letting dogs run free in national parks, or parks in general would be a welcomed additional domain, given the physical, emotional and mental health benefits of pet keeping, let alone the negative impact of off-leash dogs on wildlife.

Knowing that visitors at a given park are experienced repeat performers of problem behaviour can be useful (Hughes, Ham & Brown, 2009). Complex strategies are required with highly experienced, repeat non-compliers that include direct incentives, disincentives, rewards, and punishments in combination with persuasive communication (Roggenbuck, 1992; Hughes, Ham & Brown). Interventions based on a singular approach are occasionally successful but typically require a diversity of 'tools' for an effective strategy (Mackenzie-Mohr, 2011).

Other research has acknowledged the importance of 'layering' interpretive strategies for greater effectiveness (Madin & Fenton, 2004; Weiler & Smith, 2009; Coghlan & Kim; 2012). Community-based communication campaigns reaching into urban centres like Victoria, Nanaimo and Vancouver may also be effective (Hughes, Ham & Brown, 2009).

Approaches such as community-based social marketing (Mackenzie-Mohr, 2011) may provide another avenue for progress, given the ineffectiveness typically found with information-driven campaigns, combined with the limitations of the theory of planned behaviour in the present study. The effectiveness of personal contact is well established in the parks and interpretation literature (e.g. Roggenbuck & Berrier, 1982; Roggenbuck, 1991; Wearing & Neil, 1999; Hughes & Morrison-Saunders, 2005). Community-based

social marketing to foster sustainable behaviour draws on similar notions, which suggest that initiatives carried out at the community level and that incorporate personal contact have a higher likelihood of being more effective (Mackenzie-Mohr, 2011).

In national parks, relationships forged by community outreach can be fundamental to successful education programs (Knapp & Benton, 2004). Given that the majority of visitors with dogs are either from Vancouver Island or mainland British Columbia, campaigns targeting repeat non-compliers in these places might be effective. A recent shift in focus to off-site communication programs in Canadian national parks (Parks Canada, 2006) and increasing interest social and mass media (e.g. Parks Canada, 2010, 2013a,b) are a step in that direction. Websites can also play key roles for visitors in trip planning, post trip reflection on park experiences and engaging in both on-site and web-based interpretive programs (Tsai, Chou & Lai, 2010; Hughes, 2011).

Much social capital exists in communities adjacent to the park. However some parks suffer from a lack of integration with these 'gateway' communities to foster environmental stewardship among local residents (Vaugois, Rollins & McDonald, 2007). Gateway communities have the ability to promote park values, key conservation messages, and they can be valuable partners and supporters of park communication programs (Knapp & Benton, 2004). Yet in a recent study of rural tourism on Vancouver Island, Vaugois, Rollins & McDonald (2007) found very little interaction between park management and local business communities. Local tourism businesses did not view parks as a partner and park management generally seemed too busy with operational concerns to engage with local community members.

However, park managers did recognize the need to support and foster community involvement in order to address management issues which affected both the park and gateway community. This is evident in past community outreach efforts about dog-wolf conflicts in the park and surrounding area (Bob Hansen, personal communication, 2011). In more recent 'tracking programs,' community members and visitors are encouraged to report any sign of wolves in the park (Todd Windle, personal communication, 2014). Capitalizing on existing events such as the local shorebird festival and extending its outreach potential throughout peak migration may also be effective.

Direct management techniques such as patrolling and actively enforcing policy violations in combination with outreach informed by research also may be more effective. Closing sensitive areas to dogs at particular times may make enforcement more feasible, given the challenging task of actively enforcing compliance in such a large area (Zharakov, 2011).

Another major barrier to compliance behaviour is convenience (Mackenzie-Mohr, 2011). Providing an alternative area where dogs can be set free may make it easier for visitors and their dogs to comply with park regulations.

Conclusion

Several research implications can be identified from this study that maybe useful for managers of parks and protected areas. As have other studies that have applied the theory of planned behaviour to national park behaviours, this one identified and measured beliefs salient to a particular behaviour that may have a persuasive effect. Reliance on ad

hoc strategies is often unsuccessful. In this study the theory of planned behaviour can help to provide insight into what to target in a communication intervention strategy, or why it does not work. The TPB was particularly useful in understanding why communication intervention strategies have been unsuccessful with regard to habitual behaviour. It also suggests that direct management techniques, such as enforcement and 'dog free' areas, making accessible some areas in the region for off-leash play, and community outreach need to be considered when dealing with experienced visitors who habitually let their dogs run free when they visit Long Beach.

Chapter 4

The Affect of Ambivalence on On-Leash Dog Walking Compliance Behaviour in Protected Areas

Abstract

This study employs the theory of planned behaviour (TPB) to examine how ambivalence affects compliance of visitors to regulation concerning on-leash dog requirement in a national park setting. This paper explores ambivalence as a possible factor influencing the relationships between behavioural beliefs and attitudes, possibly contributing to non-compliance behaviour despite robust correlations between attitudes and intention. The model illustrates a strong relation between behaviour, intentions and the three factors that influence intentions. However, relations between indirect and direct measures and between intention and behaviour are weaker. When visitors experience ambivalence (hold conflicting beliefs about a desired behaviour), these visitors may ignore these beliefs when formulating an attitude about complying with leashing regulations. Under these conditions, traditional messaging aimed at influencing attitudes by targeting attitudinal beliefs is unlikely to be effective. Findings have implications for communicating messages to park visitors in that park managers need to consider a variety of techniques when the intent is to influence visitor behaviour.

Introduction

Parks and protected area managers are often challenged by negative impacts imposed by visitors such as littering, defacing facilities or inappropriate behaviour around wildlife. Instituting laws, regulations and their enforcement can be very effective, and can often be costly and difficult to maintain. Visitor education strategies are thought to be appropriate in leisure settings like national parks as an effective means to manage visitor behaviour. However simply providing information is rarely successful in persuading people to engage in a desired behaviour (Mackenzie-Mohr, 2011) regardless of intensity and frequency of delivery (Rizzo, 1999; Timmerman, Garshelis & Fulton, 2001; Hughes & Morrison-Saunders, 2005).

Attention to theory can help to explain why a particular approach to managing visitor behaviour is successful or not. Associated research can then inform education and information strategies more effectively to reduce undesirable visitor behaviour. In parks and protected areas, the theory of planned behaviour (TPB) (Ajzen, 2010) is one of the most influential and widely applied models used to inform the development of persuasive communication to influence visitor behaviour.

An emerging issue in many parks is the management of dogs, particularly when off-leash. Off-leash dogs can disturb sensitive wildlife habitat for shorebirds (Gill, 1996; Lafferty, 2001a, b; West, 2002; Borgmann, 2011; Zharikov, 2011; Milton, 2011; Meager, 2012), come into conflict with people and have the potential to habituate and food-condition large carnivores, such as wolves to dogs as easy prey (Esrom, 2004; Parks Canada, 2011) placing humans at potential risk (Linnell, Andersen, Andersone,

Balciauskas, Blanco & Boitani et al., 2002; Orams, 2002; Kojola & Kuittinen, 2002). This paper elaborates on a study exploring how the TPB can be applied to understand lack of visitor compliance related to on-leash regulations in a protected area despite a considerable information campaign (Bowes, Keller, Rollins & Gifford, submitted – Chapter 3 of this thesis). In specific, this paper explores the role of ambivalence as a possible factor influencing the relationship between behavioural beliefs and attitudes, possibly contributing to non-compliance behaviour despite robust correlations between attitudes and intention.

The Theory of Planned Behaviour

The TPB has been applied to a variety of national park management issues such as feeding birds (Ballantyne & Hughes, 2006), staying on designated trails (Beeton, Weiler, & Ham, 2005, Bradford & McIntyre, 2007), proper food storage (Lackey & Ham, 2003), littering (Brown, Ham & Hughes, 2010) and discouraging off-leash dogs (Hughes, Ham & Brown, 2009; Bowes et al., submitted - Chapter 3 of this thesis). According to the model, behaviour is driven by our intention to behave in a particular way. These intentions are influenced by attitudes (favourable or unfavourable evaluations of behaviour), subjective norm (social pressure to perform the behaviour), and perceived behavioural control (the ease or difficulty of performing the behaviour) (Fig. 4 - see p. 12). When attitude and subjective norm towards behaviour are favourable, combined with a sufficient amount of perceived behavioural control, intention to perform the behaviour is the strongest.

An understanding of the beliefs that underlie attitude, subjective norm and

perceived behavioural control can aid intervention strategies that encourage visitors to behave appropriately in a given situation. For example, the behavioural beliefs of a dog walker, which form attitudes about keeping their pet on a leash, are the outcomes or perceived consequences of leashing their dog (or not), and whether each of these outcomes is good or bad. A positive behavioural belief related to leashing a dog is the amount of control that the use of a leash affords. A negative behavioural belief regarding the use of a leash is the loss of freedom and the ability for a 'dog, just to be a dog.'

Normative beliefs consist of what other important people, like other dog walkers, family members, friends or park management think about them having their dog on, or off-leash, and the motivation to comply with this social pressure. Control beliefs are the factors that facilitate or inhibit the desired behaviour. Control beliefs consider what things make it easy or difficult to perform to comply, and the strength of that evaluation. Having a leash for example may make it 'easier' to leash a pet and therefore perhaps may make it more likely for the individual to do so.

Any intervening variables that may interfere with performing the behaviour are mitigated with less time between intention and behaviour. Actual control, determined by skills, abilities and environmental factors and a person's actual control over the behaviour may also be a consideration. Finally, background factors such as individual values, general attitudes, past behaviour, ethnicity, religion, education, culture and information all have an effect on beliefs.

Ambivalence

Considerable empirical evidence supports the TPB, but ambivalence may

challenge people's ability to access beliefs to shape attitudes. Ambivalence is the simultaneous existence of positive and negative evaluations of an attitude object (Conner & Sparks, 2002, Jonas, Diehl, & Bröemer, 1997; Thompson, Zanna, & Griffin, 1995) and focuses on attitudes (e.g. Sparks et al., 2001) or beliefs (e.g. Maio, Bell, & Esses, 1996). In the context of the present study, ambivalence occurs when a respondent holds conflicting behavioural beliefs. For example, a positive behavioural belief is 'I have more control over my dog if I keep it on-leash.' A negative behavioural belief is 'my dog loses the freedom to run around, play and just be a dog, if I keep my pet on-leash.' When people feel these two conflicting beliefs, they may reject or fail to access the behavioural beliefs when forming an attitude, and so the correlation between attitude and belief will be weak under the condition of 'high ambivalence.' This conflict between positive and negative beliefs makes the decision to use a leash more difficult. Low ambivalence occurs if conflicting beliefs exist, but these beliefs are felt 'unlikely to occur.' The person can then more easily access this information and the corresponding correlation between attitude and beliefs is stronger. Because less conflict exists, it is an easier decision to use a leash.

This reasoning follows along a particular line of inquiry where attitude ambivalence is considered a measure of attitude strength (e.g. Bassili, 1996; Krosnick, Boninger, Chuang, Berent, & Carnot, 1993; Thompson et al., 1995), where stronger attitudes are associated with lower levels of ambivalence and are more likely to guide behaviour (Converse, 2014; Krosknick & Petty, 2014). A number of studies on attitude strength also suggest that with high ambivalence there is a lower degree of accessibility

to information (Bargh, Chaiken, Govender & Pratto, 1992; Fazio, 1995; Bassili, 1996; Jonas, Brohmer & Deihl, 2000). The resultant effect is that ambivalent attitudes are far less likely to guide how information is processed (Jonas, Diehl & Brohmer, 1997).

Ambivalence is often linked with a reduced inclination to act (Conner, Povey, Sparks, James & Shepherd, 2003) and is sometimes used as a moderator or predictor in the theory of planned behaviour. In the TPB, high levels of ambivalence are associated with low engagement in conservation behaviour. For example, ambivalence moderates the relationship between attitudes and intention as predictor variables with recycling (Castro, Garrison, Rei & Menesez, 2009, Barata & Castro, 2013) and pro-environmental intentions (Costarelli & Collorca, 2004).

Ambivalence shares a common lineage with Festinger's (1957) theory of cognitive dissonance. At the core of both concepts is that people hold evaluations, which may be mutually inconsistent. Where the two interrelated concepts of cognitive dissonance and ambivalence diverge is their specificity. As previously stated, ambivalence is the simultaneous positive and negative evaluation of an attitude object (Conner & Sparks, 2002; Jonas, Diehl, & Bröemer, 1997; Thompson, Zanna, & Griffin, 1995) focusing on either attitudes (e.g. Sparks et al., 2001) or beliefs (e.g. Maio, Bell & Esses, 1996).

Festinger (1957) used 'cognition' more broadly as knowledge a person might have about behaviours, attitudes, perceptions, beliefs or feelings. Inconsistency between cognitions can occur within or between oneself, or concern another individual, a group, or an object in the physical environment. These inconsistencies are often accompanied by

feelings of discomfort, conflict or unpleasantness. Awareness of these concurrent thoughts and feelings has the ability to moderate dissonance (Zanna et al., 1973) by resolving these inconstancies. For example, increased accessibility of inconsistent cognitions among children about playing with a 'forbidden toy' led to greater discomfort and increased motivation to achieve cognitive consistency (Zanna et al.). Kindergarten children were forbidden from playing with a desirable toy by either a mild (high dissonance) or severe (low dissonance) threat of punishment for disobedience. In general, the mild threat produced greater relaxation of the rules of playing with the forbidden toy than severe threat.

Study Context

Pacific Rim National Park Reserve (Fig. 1 - see p. 4) is one of Canada's most popular National Park destinations. The focus of this study is the Long Beach Unit within Pacific Rim National Park Reserve, characterized by its expansive white sand beaches, temperate rainforest, abundant wildlife and dramatic scenery. Ease of access facilitates consistently high levels of visitation (Parks Canada, 2014b) and its beaches are the most visited and accessible in the park (Fig. 2 - see p. 5).

The park and its beaches are also habitat for the Vancouver Island wolf (*Canis lupis cracidon)* with an increase in wolf activity reported in 1999 and annual rises since then (Windle, 2003; Edwards, 2005). Wolves will typically avoid people. However, when carnivores such as wolves and people share overlapping territory, human-wildlife conflict becomes common. Some wild wolves have demonstrated aggressive behaviour towards

people (Linnell, 2002; McNay, 2002a; Windle, 2003) with an increased trend in wolves behaving indifferently by following and approaching people and attacking dogs in the park and surrounding region (Windle, 2003; Edwards, 2005). This atypical behaviour of wolves has been linked to the concept of habituation, defined as non-consequential encounters with humans. This can lead to food conditioning which can be caused by leaving food or garbage out and enabling, or not inhibiting, access to these attractants. Habituated animals can pose a risk to people (Linell et al., 2002; Orams, 2002) and off-leash dogs in particular can lead to food-conditioning when animals begin to associate dogs as easy prey (Parks Canada, 2011). Off-leash dogs can also be a factor in conflicts and encounters directly between wolves and people (Kojola & Kuittinen, 2002).

The park beaches also provide critical shorebird habitat for the western sandpiper (*C. mauri*) (Zharikov, 2011), and sanderling (*Calidris alba*). The latter is globally threatened, rare in other coastal and wetland areas, and specializes in sandy beach habitats (Payne, 2010). These migratory shorebirds use the Pacific coast of British Columbia as a flyway between Arctic breeding grounds and southern wintering grounds in the Americas. Dogs running free on the park's beaches displace shorebirds from sensitive foraging habitat (Gill, 1996; Lafferty, 2001a, b; West, 2002; Borgmann, 2011; Milton, 2011; Zharikov, 2011; Meager, 2012). Consequently, breeding success and survival can be compromised by loss of energy reserves and/or time (Van de Kam, 2004; Colwell, 2010; Zharikov, 2011).

In summary, when dogs are left unleashed, the results are loss of critical foraging habitat for migratory shorebirds and habituation of wolves. These conservation issues are

compounded by threats to park visitors by habituated and food-conditioned wolves. Influencing visitor behaviour (towards leashing pets) is complex, particularly when enforcement is expensive and difficult to maintain. Signage and messaging has been the preferred management approach, however its lack of effectiveness indicates the need for an alternative strategy for dealing with this enduring issue (Zharikov, 2011).

A study reported in Bowes et al. (submitted and Chapter 3 of this thesis) introduced the application of TPB to understand why so many visitors fail to comply with on-leash requirements in the Pacific Rim National Park Reserve. The study found a strong relation between behaviour, intentions and the three factors that influence intentions. However, relations between indirect and direct measures and between intention and behaviour were noted to be weaker (Bowes et al., submitted - see Chapter 3 of this thesis). Elaborating on that work, this paper examines ambivalence as a factor influencing visitors' attitudes and subsequent behaviours. The central research question asks 'how does ambivalence influence decision-making behaviour and provide insight into the cognitive foundation of the behaviour?' We predict that for park visitors who have a higher degree of ambivalence (1) their attitudes will be less likely to be shaped by behavioural beliefs and (2) their attitudes are less likely to influence their intentions and behaviour. Dog walkers with a lower degree of ambivalence are more able to access beliefs to shape their attitudes and, under these conditions, attitudes will be more strongly correlated with intention and behaviour.

Method

Two phases of research consisted of semi-structured interviews to elicit dog walkers' salient beliefs and a survey to measure beliefs, attitudes, subjective norms, perceived behavioural control and intention.

Phase 1

In June of 2013, semi structured interviews (n = 42) based on the theory of planned behaviour (Middlestadt, Bhattacharyya, Rosenbaum, Fishbein & Shepherd, 1996) were conducted with a convenience sample of compliers (people walking their dogs on-leash) (n = 21) and non-compliers (people allowing their dogs to run free off-leash) (n = 21) on Long Beach, Wickaninnish Beach and Florencia Bay (Fig. 2 - see p. 5) until theoretical saturation (see Appendix D for interview questions). This is the point when any new information does not provide further insight into the phenomenon (Ajzen & Fishbein, 1980).

Beliefs were identified with a content analysis of the interview responses. In lieu of a large research team, internal validity was assessed as face validity (Weber, 1990) by the Human Dimensions Specialist of the Province of British Columbia's Fish and Wildlife Branch. A pool of salient beliefs was then used to inform the creation of a questionnaire that identified the most prevalent and frequent beliefs, attitudes, subjective norms and perceived behavioural control (Ajzen, 2010).

Phase 2

A pilot study of compliers (n = 10) and non-compliers (n = 10) was conducted which targeted every other study participant to ascertain and resolve any concerns with

formatting, wording and language. This was followed by a survey of an independent random sample of compliers (n = 162) and non-compliers (n = 140) from July to September of 2013 on the main beaches of the park (Fig. 2 - see p. 5). Random selection was achieved by approaching every other complier or non-complier on the beach following the previous survey. Response rate was 94%. For more details concerning the two phases of the research see Bowes et al. (submitted and Chapter 3 of this thesis).

Results

Belief Measurement

This paper focuses on behavioural beliefs, that is, how behavioural beliefs might contribute to ambivalence, and how ambivalence may influence the prediction of attitudes and behavioural intentions. Measurement of behavioural beliefs is divided into two parts (Table 6). Behavioural belief strength is measured by a rating of the likelihood

Table 6. Behavioural Belief Cross Products (Indirect Measure of Attitude) Regarding Leashing a Dog in a Park

Behavioural Belief	Belief Strength (1 to 7)	Evaluation (-3 to +3)	Cross Product (-21 to +21)
My dog will be safer from wolves	3.90	2.40	+9.30
It will be safer for other people	3.21	2.40	+7.70
My dog loses freedom to run and play	5.22	-1.73	-9.03
More control over my dog	4.70	2.24	+10.50
My dog will attract wolves to me	2.02	-2.30	-4.80
My dog will bother other people	2.09	-2.22	-4.63
My dog will run through flocks of shorebirds	2.07	-1.91	-3.95
My dog will be have aggressively towards other dogs	2.16	-2.6	-5.61
My dog pulls me around and it is hard to keep up to it	2.80	-2.13	-5.96

that an outcome will occur if the respondent engages in the target behaviour (such as having more control over their pet), using a 7-point scale from 1 = extremely unlikely to 7 = extremely likely. This is followed by an evaluation to measure whether this outcome is good or bad, measured on a 7-point scale from -3 = very bad to +3 = very good.

Behavioural belief cross-products.

The impact of behavioural beliefs on attitudes is determined by computing a composite score often referred to as an 'indirect measure' of attitude. This is achieved by calculating the cross-product of the likelihood and evaluation measures as outlined in Table 6. To calculate a cross-product, each belief strength score was multiplied by its respective evaluation. The cross-product reveals the strength of the belief in relation to the target behaviour. For example, a person is more likely to carry out a behaviour with a higher and more positive cross-product score. The overall impact of all behavioural beliefs (indirect attitude) is computed by summing cross products of belief strength (see column 2 in Table 6) and evaluation (see column 3 in Table 6).

Testing the Theory of Planned Behaviour

Bowes at al. (submitted and Chapter 3 of this thesis) report that the TPB postulates that intentions are influenced by attitudes, subjective norms and perceived behavioural control, as indicated by the arrows in Figure 5 (see p. 96).

The impact of each of these factors on intentions is moderate to strong: attitude (R^2 = 0.49), subjective norms (R^2 = 0.55) and perceived behavioural control (R^2 = 0.36). A multiple regression (R^2 = 0.71) illustrated that attitudes, the subjective norm and

perceived behavioural control have the ability to predict 71% of the variability in intention. However, the correlation between intention and observed behaviour was weak (R^2 = 0.22). In the linear regressions of indirect belief measures, all correlations are less strong: attitude and behavioural beliefs (R^2 = 0.25); subjective norm and normative beliefs (R^2 = 0.38); and perceived behavioural control and control beliefs (R^2 = 0.27).

Ambivalence Measurement

Analysis of ambivalence measured the degree of conflict between a person's positive and negative evaluative components of a belief. The sample was subdivided into a 'low ambivalence' group and a 'high ambivalence' group by selecting two behavioural beliefs that were 'conflicted,' in the sense that one was a 'positive' outcome while the other was a 'negative' outcome. Examination of the cross-products in Table 6 reveals that two beliefs appear to create conflict. The most positive belief cross product is "I have more control over my dog" (*mean* = +10.5), and the most negative belief cross product is "my dog loses the freedom to run, play…" (*mean* = -9.03). Dog walkers who rated both of these conflicting outcomes as highly likely (scores of 6 or 7 on the 7-point likelihood scale) were assigned to the 'high ambivalence' (n = 237) groups. Subjects who rated these two outcomes as 5 or lower on the likelihood scale were assigned to the low ambivalence group (n = 64).

This approach to measuring ambivalence originates with Fishbein and Ajzen (2010) who state: "In the context of our expectancy-value model, information about the origins of ambivalence is provided by the salient beliefs that serve as the attitude's

determinants" (p.119). In contrast to computations used in TPB there is less consensus on how to measure ambivalence (Breckler, 1994; Priester & Petty, 1996; Thompson et al., 1995). Ambivalence has been measured through a calculation involving all positive behavioural beliefs and all the negative behavioural beliefs (see Thompson et al., 1995; Conner et al., 2002). However, in this research we have explored a technique involving the two most extreme conflicting beliefs, departing from the convention of using all beliefs. This reasoning appears appropriate given the pattern of cross-products described in Table 6, where it is observed that two contrasting beliefs appear to contribute to ambivalence more than other beliefs.

Table 7. The Relations Between Direct Measures of Attitude and Indirect Measures of Attitude for the Low and High Ambivalence Groups

Group	*R*	R^2	*Sig.*
Low Ambivalence	0.55	0.30	<0.001
High Ambivalence	0.32	0.10	0.011
Total Sample	0.50	0.25	<0.001
Fisher r_z			0.046

Table 7 illustrates that the low ambivalence group demonstrated a stronger correlation (R^2 = 0.30) than the high ambivalence group (R^2 = 0.10) in relationships between behavioural beliefs and attitude. While there is a difference between these correlations and results for each individual correlation were significant, they may not be *significantly* different from each other. The Fisher r_z transformation was used to assess the significance of the difference between the two correlations of high and low ambivalence between direct and indirect measures of attitude. A *Z* value table for the Fisher r_z transformation is used to indicate that the *Z* value for the *R* = 0.55 is Z = 0.6184 and *R* = 0.32 is *Z* = 0.3316. To examine that the coefficients are different, the following

test is used:

$$Z = \frac{z_1 - z_2}{\sqrt{\frac{1}{n1-3} + \frac{1}{n2-3}}}$$

$$0.200 = \frac{0.6184 - 0.3316}{\sqrt{\frac{1}{64-3} + \frac{1}{237-3}}}$$

If the $Z = 0.200$ is statistically significant, then the two correlations are different. From a *p* value table, results were significant ($p = 0.046$).

Table 8 compares high and low-ambivalence groups in terms of how intentions are predicted by attitude, subjective norm and perceived behavioural control. Low-ambivalence groups had stronger correlations than high-ambivalence groups for attitude and perceived behavioural control correlations, but not for subjective norm.

Table 8. Linear Regression Between Intention and Three Predictors by High Ambivalence and Low-Ambivalence Groups

	Group	*R*	R^2	*Sig.*
Attitude vs. Intention	Low Ambivalence	0.73	0.53	<0.001
	High Ambivalence	0.51	0.26	<0.001
	Overall	0.70	0.50	<0.001
Fisher r_z				0. 010
Subjective Norm vs. Intention	Low Ambivalence	0.69	0.47	<0.001
	High Ambivalence	0.75	0.56	<0.001
	Overall	0.74	0.55	<0.001
Fisher r_z				0.384
Perceived Behavioural Control vs. Intention	Low Ambivalence	0.66	0.40	0.003
	High Ambivalence	0.38	0.14	0.003
	Overall	0.39	0.30	<0.001
Fisher r_z				0.006

All results were significant. The Fisher r_z transformation was used to assess the significance of the difference between correlations of high and low ambivalence groups with attitude, subjective norm and perceived behavioural control, and intention. Results were significant.

The impact of intentions on observed behaviour for low-and high-ambivalence groups is compared in Table 9. The correlation of intention with behaviour for the low ($R^2 = 0.23$) ambivalence group exhibited a stronger correlation than the high ambivalence group ($R^2 = 0.14$). The Fisher r_z transformation was used to assess the significance of the difference between the two correlations of high and low ambivalence, with behaviour. Results were significant.

Table 9. Linear Regression of Intentions on Behaviour for Low Ambivalence and High Ambivalence Groups

	R	R^2	*Sig.*
Low Ambivalence	0.48	0.23	0.001
High Ambivalence	0.37	0.14	0.001
Overall	0.47	0.22	<0.001
Fisher r_z			0.347

Table 10. Multiple Regression Predicting Intention from Attitude, Subjective Norm and Perceived Behavioural Control: Comparing Low Ambivalence with High Ambivalence Groups

Group	Multiple *R*	R^2	*Sig.*	Predictor Variables					
				Att.		SN		PBC	
				B	*Sig.*	*B*	*Sig.*	*B*	*Sig.*
Low Ambivalence	0.88	0.77	<0.001	0.29	<0.001	0.58	<0.001	0.15	<0.001
High Ambivalence	0.69	0.48	<0.001	0.19	0.090	0.53	<0.001	0.19	0.053
Overall	0.86	0.73	<0.001	0.29	<0.001	0.56	<0.001	0.16	<0.001
Fisher r_z			<0.001						

Table 10 demonstrates that intention can be more strongly predicted among the low ambivalence dog walkers (multiple $R^2 = 0.77$) than can the high-ambivalence dog walkers (multiple $R^2 = 0.48$). The Fisher r_z transformation was used to assess the significance of the difference between two correlations of high and low ambivalence in a multiple regression predicting intention from attitude, subjective norm and perceived behavioural control. Results were significant.

The *beta* values outlined in Table 10 are also of interest, as they provide an estimate of the unique contribution of each independent variable (attitude, subjective norm and perceived behavioural control) in the prediction of the dependent variable (intention). For the low ambivalence group, the beta values are strongest for subjective norm (*beta* = 0.58), followed by attitude (*beta* = 0.29) and perceived behavioural control (*beta* = 0.15). Findings for the high ambivalence group are somewhat different, with the strongest value occurring with the subjective norm (*beta* = 0.53), followed by perceived behavioural control (*beta* = 0.19), with the beta value for attitude not being significant (*sig.* = 0.09).

The findings from Table 10 (multiple regression) compare with findings from Table 8 (linear regression), in that the influence on intentions is stronger for low ambivalence groups in both analyses, and the influence of subjective norms on intention is high in both analyses. Where the two analyses differ is that multiple regression findings indicate a stronger influence of subjective norm compared to attitudes or perceived behavioural control.

Discussion

This application of the TPB to off-leash dog walkers demonstrates that low-ambivalence groups had stronger correlations than high-ambivalence groups for attitude and perceived behavioural control correlations, but not for subjective norms (see Table 8) In general, intention can be more strongly predicted among the low-ambivalence dog walkers than it can among the high-ambivalence dog walkers (see table 10). When combined, these three elements of the theory are strong predictors of intention. However, correlations between the indirect measures of beliefs and direct measures, and between intention and behaviour were weak. The results from this paper suggest that ambivalence plays an influential role in this model, influencing the way that intentions and behaviours are predicted from attitudes, subjective norm and perceived behavioural control.

As predicted, dog walkers with higher levels of ambivalence possess more internal conflict likely to have an impact on attitudes. Those with a lower degree of ambivalence are more able to access beliefs to shape attitudes, as illustrated by stronger correlations between behavioural beliefs and attitude. That is, for dog walkers with less conflict between their positive and negative evaluations of an attitude object, such as using a leash, the relations to their attitudes will be stronger.

The prediction of intentions was also influenced by ambivalence. The lower the ambivalence group, the stronger was the correlation between attitude and intention and between perceived behavioural control and intention. However, the low ambivalence group had a stronger correlation between subjective norm and intention. This is not

surprising given the strong correlation between subjective norm and intention in the TPB model, in comparison to attitude and perceived behavioural control.

In addition, predicting observed behaviour from intentions was influenced by ambivalence. The high-ambivalence group exhibited a weaker correlation between intention and behaviour. This relation seems logical considering the weak correlation between intention and behaviour in the theory of planned behaviour model and the enduring nature of the off-leash problem in general.

These findings are congruent with studies that consider ambivalence as an element of attitude strength (e.g. Bassili, 1996; Krosnick, Boninger, Chuang, Berent & Carnot, 1993; Thompson et al., 1995) in which lower ambivalence is associated with stronger attitudes and more likely to guide behaviour (Converse, 2014; Krosnick & Petty, 2014). A particularly salient facet of attitude strength is how it influences information processing (Petty & Krosnick, 2014). Because attitudes that are ambivalent are less accessible, (Bargh, Chaiken, Govender & Pratto, 1992; Bassili, 1996; Jonas, Brohmer & Deihl, 2000, Fazio, in, Petty & Krosnick, 2014), they are less likely to guide how particular information is processed (Jonas, Diehl & Brohmer, 1997).

After the survey administration, there is potential for the interaction between the researcher and respondent to aid the latter in forming stronger attitudes towards leashing their pet and therefore lower ambivalence, particularly with people who demonstrate high ambivalence. However, previous research on the off-leash dog issue in a national park setting has demonstrated the presence of the researcher as an ‘authority’ figure may have influenced only short term compliance (Hughes, Ham & Brown, 2009). Observations

from Long Beach enforcement suggest greater compliance when park authorities were on patrol, however to a much lesser degree as soon as park ranger presence was withdrawn (personal communication, Tanya Dowdell, 2012).

In the TPB literature, two separate studies by Sparks et al. (1992) and Sparks et al. (2001) that respectively addressed green consumerism and food consumption found that higher levels of ambivalence weakened the attitude-intention behaviour relation in a study on the moderating effects of ambivalence. Moore (1973, 1980) in ambivalence research that addressed the measurement of capital punishment in one particular study and recycling, gambling and pets in the other, demonstrated that attitudinal relationships to behaviour were more robust with participants who had lower degrees of ambivalence in comparison to those with high ambivalence. Armitage and Conner (2000) also demonstrated that ambivalence weakened the relation between attitude and behaviour concerning health and following a low fat diet. In another study on healthy eating, Conner, Povey, Sparks and James (2003) addressed the moderating role of ambivalence and found weaker attitude-behaviour and perceived behavioural control-behaviour relations with higher ambivalence in comparison to lower ambivalence study participants. Conner, Sherlock and Orbell (1998) found weaker relations between intention and behaviour with higher levels of ambivalence in a study on the frequency of ecstasy use.

However, others have found greater predictive capacity with high ambivalence groups in conservation behaviour and the recycling of metal cans, particularly with negative beliefs (Castro et al., 2009). Conner et al. (2001) also found that high ambivalence had a greater intention behaviour relation for engaging in a healthy low-fat

diet. This can be explained by the information processing and elaboration that ambivalence generates in some cases actually helps to resolve the inconsistency between positive and negative attitudes towards the attitude object. For example, Jonas et al. (1997) manipulated ambivalence by providing participants with either inconsistent or consistent information about a particular product. Greater consistency between the attitude toward buying the product and the behavioural intention was obtained in the ambivalent condition than in the non-ambivalent condition.

In the closely related cognitive dissonance literature, creating a sense of 'hypocrisy' from conflicting cognitions can produce environment-friendly changes in behaviour (e.g. Kantola, Syme & Campbell, 1984; Dickerson, Thibodeau, & Aronson, 1992; Aitken, McMahon, Wearing & Finlayson, 1994). For example, Dickerson et al. (1992) created dissonance by highlighting the 'hypocrisy' between an individual's behaviour and their norms for environmentally proper behaviour by making patrons of a campus recreation facility feel hypocritical about their showering habits. It was found that participants who were reminded that they wasted water while showering after making a public commitment to conserve tended to use less water.

The above examples provide interesting possibilities for successful persuasive communication and visitor education strategies by highlighting the information processing and elaboration that ambivalence engenders to resolve the inconsistency between positive and negative attitudes towards the attitude object, or 'hypocrisy.' People who are seen as consistent are naturally viewed more positively as trustworthy individuals than those perceived otherwise (Cialdini, 1993). Committing to something

alters the attitude about the behaviour. This type of influence could be accomplished by requesting a written commitment to comply with park regulations (Burger, 2000; Michel-Guillou & Moser, 2006). Furthermore, simply performing the action of signing the document increases people's intentions to behave in the desired way (Bem, 1972). This draws upon self-perception theory (Bem) where in the act of signing to agree to something, people start to view themselves as someone who plays an important role in living up to that and demonstrating proper behaviour, given strong internal pressure to be 'consistent.'

This strategy may be worthwhile to pursue with visitors to the Long Beach Unit in Pacific Rim National Park Reserve who are more able to access beliefs to shape attitudes. However, results from the present study and others suggest that with higher levels of ambivalence, attitudes are less accessible and less likely to guide how information is processed.

Application of the TPB provides a number of possible management strategies to explore that have the potential to influence underlying beliefs with communication and messaging, focused on persuading the individual to engage in the desired behaviour. These include: (1) attempts to influence underlying behavioural beliefs (e.g. dog's on-leash will mitigate shorebird disturbance); (2) attempts to influence underlying normative beliefs (e.g. families with small children would prefer dogs to be leashed) and; (3) attempts to influence control beliefs (e.g. having the right equipment handy, like a retractable leash would make it easier to keep dogs on-leash). Findings suggest that the first and third strategy would be more effective for low ambivalence visitors, whereas the

second strategy may be more effective for high ambivalence visitors.

In Table 7 the low ambivalence group demonstrated a stronger correlation (R^2 = 0.30) than the high ambivalence group (R^2 = 0.10) in relationships between behavioural beliefs and attitude. Table 8 compares high and low-ambivalence groups with respect to how intentions are predicted by direct measures of attitude, subjective norm and perceived behavioural control. Low-ambivalence groups had stronger correlations than high-ambivalence groups for attitude (Low R^2 = 0.26 - High R^2 = 0.53) and perceived behavioural control correlations (Low R^2 = 0.14 - High R^2 = 0.40). However, the subjective norm illustrated a stronger correlation with the high-ambivalence group (Low R^2 = 0.56 - High R^2 = 0.47). In Table 10 the beta values for the low-ambivalence group are strongest for subjective norm (*beta* = 0.58), followed by attitude (*beta* = 0.29) and perceived behavioural control (*beta* = 0.15). Findings for the high-ambivalence group are somewhat different, with the strongest value occurring with the subjective norm (*beta* = 0.53), followed by perceived behavioural control (*beta* = 0.19), with the beta value for attitude not being significant (*sig.* = 0.09). The findings from Table 10 (multiple regression) compare with findings from Table 8 (linear regression), in that the influence on intentions is stronger for low-ambivalence groups in both analyses, and the influence of subjective norms on intention is high in both analyses.

This study does however point to some limitations that can occur with the TPB when the intent is to design strategies to influence behaviour. The weak relations between the indirect and direct measures of attitude in the TPB influenced by ambivalence suggest that alternative strategies to influence visitor behaviour may be warranted.

Community-based social marketing (Mackenzie Mohr, 2011) emphasizes community level initiatives focused on personal contact. The importance of personal contact over signage, pamphlets and brochures is well established in the parks literature (e.g. Hughes 2004, Wearing & Neil, 1999; Hughes & Morrison-Saunders, 2005).

Outreach with local communities can be fundamental to successful education programs in national parks (Knapp & Benton, 2004). Most visitors with dogs are from neighbouring communities of Tofino and Ucluelet as well as Vancouver on mainland British Columbia and Victoria, Nanaimo and other locations on Vancouver Island. These are all citizens of the Province of British Columbia and represent a target population for an opportunity for focused outreach and education. Parks Canada's (2006) attention to off –site communication programs and shift towards social media and mass media (e.g. Parks Canada, 2010, 2013a,b) have the potential to harness the efficacy of outreach and personal contact especially with this group. Websites also represent a fertile field for innovative communication strategies in their increasing importance for trip planning, interpretation and reflection (Tsai, Chou & Lai, 2010).

'Gateway' communities to the park like Tofino and Ucluelet can also help to foster environmental stewardship among local residents. Local communities can help to promote park values, conservation messages and be supporters of park communication programs (Knapp & Benton, 2004), as well as of course setting examples through their own compliance with on-leash regulations. Canada's national and provincial parks and its local communities however have historically lacked collaboration and integration in these efforts (Hvenegaard et al., 2009). A study of Vancouver Island tourism found that park

management and local business communities did not view each other as partners (Vaugois, Rollins & McDonald, 2007). Nevertheless, park managers recognized the need to foster community involvement in order to address mutually important issues. This is demonstrated in recent outreach efforts about dog-wolf conflicts in the park and surrounding area through innovative 'tracking programs,' where visitors and local residents are encouraged to report any sign of wolves in the park (Todd Windle, personal communication, 2014). Events such as the local shorebird festival in Tofino during shorebird migration in May also provide promising outreach potential to highlight ecological integrity goals and rarity issues, while having a positive local economic impact.

Patrolling and enforcement of the on-leash regulation in combination with outreach may be more effective. Seasonal closures to sensitive area during peak migration may also make enforcement a less daunting task of managing visitors in such a large area (Zharakov, 2011). Providing an alternative beach area or other location where dogs can run free may also make it easier for park visitors with dogs to engage in compliance behaviour.

Conclusion

The greatest success in influencing park visitors' actions comes from understanding what they think about a given behaviour (Brown, Ham & Hughes, 2010). Attention to theory, such as in the application of TPB to national park behaviours can identify and measure beliefs salient to a particular behaviour that may have a persuasive

effect. In this study, the TPB was useful in providing insight into why communication intervention strategies have been unsuccessful, particularly with regard to ambivalence. For managers of parks and protected areas this study highlights the ineffectiveness of ad hoc communication strategies. It also suggests that persuasive communication in visitor education strategies along with direct management techniques such enforcement and 'dog free' areas and community outreach need to be considered when dealing with visitors who hold ambivalent beliefs about letting their dogs run free when they visit Long Beach.

Chapter 5

Discussion and Conclusion

Revisiting the Context

A variety of human activities such as industrial development, resource extraction, agriculture, and population pressure alter landscapes, fragment habitat, and threaten biodiversity on a global scale (Vitousek, Mooney, Lubshenco & Melillo, 1997; Steffen, Crutzen & McNeill, 2007). Parks and protected areas can play an important role in the conservation of biodiversity through the protection of representative ecosystems (Millennium Ecosystem Assessment, 2005; McNamee, 2009; Parks Canada Agency, 2014b). Currently there are 47 national parks in Canada that cover approximately 4% of Canada's territory. Of the world's remaining wilderness spaces, Canadian national parks cover 22% (Parks Canada Agency, 2000). The significance of national parks in Canada and elsewhere is shaped by how parks are managed, and particularly how human use within the parks is managed.

Parks can foster a deeper appreciation and connection to the land and wildlife, and promote conservation through appropriate visitor experiences (Dearden, 1995; McNamee, 2009; Rollins & Dearden, 2009). For example, Parks are restorative spaces (Kaplan & Kaplan, 1990; Kaplan, 1992, 1995) and exposure to the outdoors throughout life from a young age enhances appreciation for nature (Iso-Ahola, 1980). Wilson (1984) goes so far as to suggest that people also have a deeply ingrained need to connect with nature through 'biophilia.' Cordell (2008) notes a growing participation in recreation that

includes nature observation and study as an activity, creating opportunity to deepen appreciation of conservation values.

Above all parks and protected areas promote values and trends that need to be instilled, cultivated and promoted, particularly in the wake of ‘nature deficit’ claims by Louv (2005) and ‘videophilia’ suggested by Pergrams and Zardic (2008) that highlight the pervasive influence of technology and their relationship to declining park visitation. Our inherent need to connect with wilderness and current nature-based recreation and tourism trends can be harnessed for public support for protected areas (Cordell, 2008). Encouraging people to visit and engage with protected areas therefore is highly desirable. However, people visiting protected areas can be a two-edged sword since their behaviour can sometimes be inappropriate and lead to negative impacts on park ecosystems and on wildlife populations found within (Reynolds & Braithwaite, 2001; Weaver, 2001; Buckley, 2004; Weaver & Lawton, 2007; Haider & Payne, 2009).

The case study, in the Long Beach Unit of PRNPR, is an example of a protected area where conflict between visitor behaviour and wilderness and conservation goals needs to be managed. High park visitation (Edwards, 2005; Parks Canada, 2014b) and the popularity of PRNPR overlap with the park’s role as wildlife corridors and wildlife foraging habitat for migratory shorebirds and Island wolves, resulting in a history of human-wildlife conflict. Park regulations require that dogs be kept on leash in the park to mitigate both human–carnivore conflict and shorebird disturbance. Visitor compliance with this regulation remains low despite genuine management efforts.

Visitor impacts on parks and protected areas are usually not intended and usually occur because of lack of awareness or knowledge of low impact behaviour (Bradley, 1979; Marion & Reid, 2007). Park managers are challenged to find ways to enhance visitor awareness concerning types of behaviour that have negative impacts in parks. Visitor education in parks and protected areas in its various forms is often used as a management tool that helps to guide visitors into making appropriate decisions to engage in a desired behaviour (Hendee & Dawson, 2008). By encouraging people to care about the natural and cultural values of the park, the goal of visitor education is to foster support for the maintenance of ecological integrity (Parks Canada, 1999) and compliance with associated regulations. Educational strategies however often do not translate into the hoped for compliance with strategies designed to protect wilderness and conservation goals. This has been the case with educational strategies designed by management of the PRNPR concerning compliance with on-leash dog regulations. Compliance remains weak. In order for the park's beaches to remain viable habitat for migratory shorebirds and free of human-carnivore conflict with wolves, a different approach to management therefore is required (Zharikov, 2011).

Designing effective indirect strategies (such as visitor education) to influence visitor behaviour can be challenging. Simply providing information is usually not effective (Mackenzie-Mohr, 2011). In order to be effective, information needs to be linked to the park visitor's decision-making process when they are deciding whether or not to comply with park regulations (Ham, Brown, Curtis, Weiler, Hughes & Poll, 2009). Alternative epistemologies that address the social construction of how meaning is created

and expressed in national park spaces can provide valuable insight into compliance behaviour. Ultimately, understanding ‘what works and why’ can better inform management strategies and provide insights into directions and strategies that may be more successful than current approaches. By focusing on the underlying beliefs that form peoples attitudes, intentions and subsequent behaviour, models like the TPB (Fishbein & Ajzen, 2010) have the potential to be applied to help develop effective strategies to promote compliance behaviour and discover ‘ what works and why.’

This dissertation set out to explore visitor compliance and non-compliance with park regulation regarding leashing of dogs. The study employs the TPB as a model for identifying the factors that influence decision-making behaviour to gain new insights that may help management obtain better compliance success. Non-compliance with park regulations is not unique to PRNPR, and is a significant issue in many parks. Findings from this study offer potential for broader implications.

Summary of Findings

Chapter 2

In this chapter, highlights from qualitative data gathered during the belief elicitation in Phase 1 of the research explored why park visitors do not comply with on-leash rules. Qualitative analysis of semi-structured interviews with compliers (dogs on-leash) and non-compliers (dogs off-leash) in the park revealed the beach as contested space, driven by a strong off-leash social norm and exacerbated by a number of barriers to compliance behaviour. The following common themes emerged: attitude and

behaviour with respect to leashing of pets appeared to be influenced by watching the behaviour and attitude of others in the communities and on the beach, the promotion of behaviour by local business, the physical environment of the beach, and the lack of enforcement of on-leash regulations. These contributing factors were accentuated by themes of responsibility of pet ownership, the perception of and reactance to the regulation as an indiscriminate rule, lack of knowledge of the rules, the limited options of spaces to let pets run free with 'nowhere else to go' but the beach,' and the importance of education expressed by the 'power of information.'

Chapter 3

This chapter reports on beliefs underlying visitor behaviour in an application of the TPB to better inform efforts to mitigate conflict between pets and wildlife in natural areas. In general, the sample population appeared to be experienced, repeat visitors, originating from Vancouver Island and in BC, who frequently allowed their dogs to run free when they came to the park. Their behaviour at home demonstrated a similar inclination for off-leash behaviour, more evident with non-compliers than compliers.

The TPB model demonstrates strong correlations between intentions and each predictor variable: attitude, subjective norm, and perceived behavioural control, with an overall robust predictive ability of intention. However correlations were weak between the beliefs related to attitudes, perceived norms, and perceived control. Also, the correlation between intention and behaviour was weak. Correlations between intention and habitual behaviour measured by the percentage of time dogs were leashed in the park were stronger than the correlation between intention and habitual behaviour at home.

Chapter 4

This portion of the study examined the possible confounding influence of ambivalence when using the theory of reasoned action to examine compliance behaviour of park visitors. Ambivalence was hypothesized to occur in the study when a respondent considered two conflicting attitudinal beliefs, thereby increasing the likelihood of rejecting or failing to access the behavioural beliefs when forming an attitude. This results in a weakening of the correlation between attitude and behavioural beliefs. The study found that low ambivalence groups demonstrated stronger correlations than high ambivalence groups in relationships between behavioural beliefs and attitude and intention.

The Fisher r_z transformation was used to assess the significance of the difference between the two correlations of high and low ambivalence 1) between direct and indirect measures of attitude, 2) with attitude, subjective norm and perceived behavioural control, and intention, 3) with behaviour and 4) in a multiple regression predicting intention from attitude, subjective norm and perceived behavioural control. All results were significant.

Contributions

Application of the TPB was successful in identifying the limitations of belief based persuasive communication by identifying habit and ambivalence as considerable factors that challenge the TPB. While extensive empirical evidence supports the model, 'habitual behaviour' is particularly confounding and presents challenges to the TPB in this study and others dealing with the problem of off-leash dogs (e.g. Hughes, Ham &

Brown, 2009). 'Habit,' suggests that frequently repeated, routine actions eliminate reasoning in the decision making process and are replaced by an automatic response driven by cues in the environment (e.g., Aarts, Verplanken & Van Knippenberg, 1998; Conner & Armitage, 1998; Verplanken & Orbell, 2003). If reasoning to perform the behaviour is absent, persuasive communication is unlikely to be successful (Manfredo & Bright, 1991).

In the present study, 86% of participants were repeat visitors. When they were observed as compliers or non-compliers at the time the survey was administered, compliers identified that they leashed their pet 75% and non-compliers 25% of the time in the park (Table 2). Therefore, we only captured each participant in a moment when they were choosing to leash their pets, or not. This is an interesting finding given the criticisms of inaccuracy and response bias with self-reporting. With this measure of habit, self-reports of dog walkers on Long Beach appear to be more accurate than observations because of the apparent variability of behaviour throughout the visitation with both compliers and non-compliers.

Associated with a reduced inclination to act (Conner, Povey, Sparks, James & Shepherd, 2003), ambivalence and people's conflicting attitudinal beliefs about the consequences of complying with off leash regulations were shown to challenge people's ability to access beliefs to shape attitudes that support the use of leashes in the park. Within the context of this study, if people have conflicting beliefs about the consequences of complying with off-leash regulations, then these people may not respond rationally to off-leash regulations and persuasive attempts informed by the TPB and its belief-based

approach. In a model that presupposes a rational, linear decision-making process with beliefs as a foundational component of attitudes, intentions and subsequent behaviour, people who are ambivalent in their beliefs about leashing their animals when they visit the park pose potential problems.

People were also influenced by and had deeply ingrained social norms when it came to appropriate leashing behaviour in the park. Grounded within animal and urban geography and how people socially construct parks and protected area spaces, the research contributes to the literature addressing the evolving role of our canine companions in modern society and associated spatial conflict, and provides new insights into compliance behaviour. Social norms, driven by local behaviour and the role that dogs play in the lives of people, dogs in modern society and the pet-human relationship have made the beach emerge as contested space in which the off-leash social norm becomes reinforced by perceived spaces. Observed behaviour reflects the personal feelings that people have towards the parks beaches and the daily experiences of park visitors and their pets.

The application of an alternate epistemology and understanding how people socially construct their experience moves beyond reductionist models like the TPB that are typically used to inform communication strategies. A qualitative approach revealed thick and rich descriptions of park visitors' actions that identified other important elements that guide people's actions and decisions that are not captured in the TPB model.

Management

In this study, the TPB was successful in identifying the limitations of belief based persuasive communication by identifying habit and ambivalence as considerable factors that challenge the TPB. From a management perspective, several research implications can be identified from this study that may be useful for managers of parks and protected areas. 'Legal' space for a 'dog just to be a dog' usually is limited in a national park beach setting. However in the absence of regular patrols and enforcement of the on-leash regulation in the park, and given the ineffectiveness of educational signage, owners do allow dogs to run free on the beach. The study discovered that the beach emerged as a 'third space' (Soja, 1996) that captured the rhythm of daily life of both locals and park visitors using the beach for surfing, walking, exploring, walking their dogs and letting them run free, with 'nowhere else to go' for a dog to just be a dog. The study also revealed urban societal attitudes towards pets as members of the family with associated expectations of a pet's rights and privileges. Attitudes towards behaviour with respect to pets and leashing appear to have been well developed before arriving at the beach.

An information program must be based on solid theory, evidence and proven success to be worthwhile (McCool & Braithwaite, 1992). Approaches that are ad hoc, or based on 'hunches' and 'feelings' are not likely to be successful. The provision of information alone is typically not effective (Mackenzie-Mohr, 2011). Simply increasing quantity of information and/or intensity of delivery also has proven not to be effective (i.e. increased signage and messaging) (Rizzo, 1999; Timmerman, Garshelis & Fulton, 2001; Hughes & Morrison-Saunders, 2005).

Our findings confirm other studies which suggest that letting dogs run free is habitual behaviour and resilient to attempts at persuading people to 'leash up' (Hughes, Ham & Brown, 2009). Knowing in advance that visitors at a given park are experienced repeat performers of a problem behaviour can be useful (Hughes, Ham & Brown, 2009). This is important, because highly experienced and repeat offenders may demand a more complex approach to attain compliance, possibly including direct strategies such as incentives, disincentives, rewards, and punishments in combination with persuasive communication (Roggenbuck, 1992; Hughes, Ham & Brown, 2009). Community-based communication campaigns (Hughes, Ham & Brown, 2009) and reaching out to urban centres like Victoria, Nanaimo and Vancouver may also be warranted.

The TPB was useful in providing insight into why communication intervention strategies have been unsuccessful, particularly with regard to ambivalence. In some studies (e.g. Jonas et al., 1997; Castro et al., 2009) the information processing that ambivalence generates actually helps to resolve the inconsistency between positive and negative attitudes. In the closely related cognitive dissonance literature (e.g. Kantola, Syme, & Campbell, 1984; Dickerson, Thibodeau & Aronson, 1992; Aitken, McMahon, Wearing & Finlayson, 1994), creating a sense of 'hypocrisy' between an individual's behaviour and their norms for environmentally proper behaviour can potentially produce a persuasive effect (Dickerson et al.). This may be a possibility for low ambivalence groups who were shown in Chapter 4 to have greater access to information processing in order to shape attitudes and subsequent behaviour. It also may present the possibility of this strategy 'backfiring' for high ambivalence groups. For example, a person with a high

ambivalence may be compliant with the leashing regulation, but resolve their dissonance by letting their dog run free.

People who are seen as consistent are viewed more positively than those perceived otherwise (Cialdini, 1993) and by agreeing to do something, the greater the likelihood for it to be carried out. For example, highlighting the inconsistency between peoples' positive and negative beliefs about keeping their pets leashed in relationship to control and freedom and targeting their ambivalence towards leashing may provide a way forward. This could be addressed by asking for a written commitment from people to engage in compliance behaviour. Committing to something moderately changes the attitude about the behaviour (Burger, 2000; Michel-Guillou & Moser, 2006) and performing the action increases people's intentions to behave in the desired way (Bem, 1972). There are of course considerable logistical challenges to developing an environment that can facilitate the securing of a written commitment from visitors. Also, whereas securing written commitment may be successful for respondents who demonstrated low ambivalence, highly ambivalent participants were shown to inadequately process information required to shape attitudes and subsequent behaviour with weak relations between high ambivalence and constructs of the TPB. Other strategies outlined in this dissertation may be more effective in encouraging compliance with park regulations for high ambivalence groups.

A major barrier to compliance behaviour is convenience (Mackenzie-Mohr, 2011). Providing an alternative area where dogs can be set free may make it easier for visitors and their dogs to comply with park regulations.

Shifting the deeply ingrained social norms found in Chapter 2, habit in Chapter 3 and ambivalence in Chapter 4 may require a different approach than previously employed. Direct management techniques that provide an alternative area where dogs can be set free may make it easier for visitors and their dogs to comply with park regulations.

What about imposing an outright ban on dogs in the park? Pacific Rim National Park Reserve is one of the only national parks in Canada that allow dogs in the park without any limitations beyond the leash regulation (Zharikov, 2011). Restrictions on dogs in national parks exist not only in other parks in Canada, but also for example in Australia, Tasmania and in the US national parks overall, with two particularly salient examples in Washington State and California coastal parks. Restrictions range from year-round bans from some beaches and sites to seasonal limitations. The rationale for the dog restrictions ranges from visitor experience, public safety and ecological integrity with respect to nesting sea birds and shorebirds, migratory shorebirds and caribou. It seems evident that an 'all out' ban on dogs in the PRNPR is very unlikely to occur given the magnitude of the issue and the inaction of this sort to date.

Regular patrolling and actively enforcing policy violations concerning dog leashing in combination with outreach informed by research may make non-compliance more 'inconvenient' and 'risky.' Closing sensitive areas to dogs at particular times and concentrating enforcement during these times may make enforcement more feasible, given the challenging task of actively enforcing compliance in such a large area (Zharakov, 2011).

Bandura's (1977) social learning theory is built around situationally adopting the behaviour of those around you. In essence, when a particular behaviour is modeled, others will follow suite. What 'others see others doing' and the descriptive norm play an important role in influencing people's behaviour. One approach therefore may be to focus on the behaviour and attitude of the local community (including businesses), with anticipation that if there is a local change in behaviour, visitors and others can be anticipated to follow. There exists a great deal of social capital in communities adjacent to the park. Personal contact and initiatives carried out at the community level and that incorporate personal contact have a higher likelihood of being more effective (Hughes 2004, Wearing & Neil, 1999; Hughes & Morrison-Saunders, 2005; Mackenzie-Mohr, 2011). The collective value of everybody to build community support can be harnessed to 'model' compliance behaviour and demonstrate to visitors from away how to behave on the beach with their pets. If social normalization by visitors is in part to pay attention to local behaviour and local messaging, than educating and persuading locals to leash their dogs and advocate for on-leash behaviour may see visitors follow suite.

Social diffusion (Rogers, 2003) and the adoption of keeping dogs on-leash in the park occurs as 'the news' spreads itself around by sharing information. By assigning community 'block leaders' (Burn, 1991) to adopt the behaviour and targeting these early adopters to spread the information around the community can speed up its adoption. Once a few people adopt the desired behaviour, it is the personal conversations with others that have the most profound effect (Costanzo, Archer, Aronson, Pettigrew, 1986).

With an additional focus on outreach and interpretation outside of the park (Parks Canada, 2006), there is potential to have a powerful and enduring impact on visitor behaviour. In national parks, relationships forged by community outreach can be fundamental to successful education programs (Knapp & Benton, 2004). Given that the majority of visitors with dogs are either from Vancouver Island and mainland British Columbia, with the largest numbers coming from Vancouver, Victoria and Nanaimo and other locations on Vancouver Island, campaigns targeting repeat non-compliers in these places may prove to be effective. Social diffusion (Rogers, 2003) and sharing information with others can be enhanced by gaining commitment from people to comply with the leash laws in the park. The same as argued for local communities, early adopters can be asked to share the information with other people. Capitalizing on existing events such as the local shorebird festival and extending its outreach potential throughout peak migration may also highlight ecological integrity goals and rarity issues, while having a positive local economic impact. The attitudes and perceptions of dog walkers and the impact of off-leash dogs vs. other people on the beach such as hikers, surfers, swimmers etc. may also provide insight into the issue.

New and innovative programs to engage park visitors with wildlife are currently underway in the park. In recent 'tracking programs,' community members and visitors are encouraged to report any sign of wolves in the park (Todd Windle, personal communication, 2014). In effect, this recruits the public to engage in conservation behaviour by helping the park monitor wildlife. The public could subsequently be encouraged to share information about the program and evidence of wolf activity in the

park with others, including discussion of the relationship between wolves and pets, thereby creating further interest and awareness.

A similar strategy could also be applied to shorebirds in an adaptation of seasonal bird counts that occur in most regions in Canada and the Audubon Society's Great Backyard Bird Count. 'Shorebird count programs' would recruit local residents and visitors during peak migration to report shorebird numbers and locations, providing an opportunity for personal contact and sharing experiences with each other, including observations about the relationship between shorebirds and off-leash pets. A particular effort in both the shorebird and wolf programs could be made to identify those visiting the park with their dogs.

Limitations

Despite reflections and criticism on the TPB noted above, this study has found evidence to support the TPB. This well-tested model has strong predictive validity, making it particularly useful in applied fields (Sheppard, Hartwick & Warshaw, 1988; Albarrac´in, Johnson, Fishbein & Muellereile, 2001; Armitage & Conner, 2001). It also effectively describes the structure and influence of attitudes with a clearly described method and it produces results that can have practical applications (Ajzen & Fishbein, 2010). Its application to persuasive communication strategies in park interpretation allows it to be applied in a broader context beyond the current study (Absher & Bright, 2006).

However in different contexts and situations, unique studies need to address

problem behaviours, regardless of how similar the problem behaviour may be to the one in question. Specificity and complementarity is fundamental to adequately representing the attitude behaviour relationship (Fishbein & Ajzen, 2010). For example, in the present study, action (walking dogs), target (compliance behaviour reflected in keeping dogs on-leash), context (walking dogs on Long Beach) and time (when dog walkers were on Long Beach with their dogs) all reflect the uniqueness and specificity of the off-leash problem on Long Beach. However, off-leash dogs and conflict with wildlife is a regional issue beyond the park boundaries. Issues with wolves and off-leash dogs in Tofino, Ucluelet, and on nearby Vargas Island and Flores Island Provincial Parks and their unique contexts would require related studies. While the present study provides insight into the issue and can help to inform future mitigation strategies, the research findings of this cannot be directly applied to different areas.

The seasonal nature of park visitation at Long Beach also required the study to be completed in two separate, subsequent seasons. Visitation increases throughout the spring, peaks during the summer and experiences a decline once the warm and favourable weather disappears in the fall and families return home from holidays, children return to school and/or people assume their regular work routines, requiring two data collection seasons.

The time frame made it difficult to transcribe interviews, conduct the content analysis and formulate a pool of salient beliefs to carry over into the survey component, design the survey and administer the questionnaire in one season. Although it is unlikely that attitudes and behaviour would shift dramatically between seasons, variations in

enforcement efforts, wildlife activity and any subsequent interpretation and messaging may have created certain incongruences between the 2012 and 2013 field seasons.

Funding constraints precluded a large research team to conduct this research. This was most evident in the content analysis of the belief elicitation phase of the research and forming the pool salient beliefs to carry over into the survey. In TPB methodology, following Middlestadt et al. (1996), multiple coders will typically analyze the data and internal validity is tested for reliability. Because there was only one coder conducting the analysis, face validity from a human-dimensions of wildlife specialist was employed to validate the findings. This would not be an issue in research that is primarily qualitative, as it will typically draw upon alternate epistemologies that deal with the subjective, socially constructed nature of reality and meaning. Due to the positivistic nature of TPB and its well accepted mixed method approach to content analysis, alternative strategies that draw upon differing epistemological principles might be viewed unfavourably as being biased, however pragmatic.

The most common method of measuring habit was employed in this study by asking a participant to respond to their frequency of repetition of the behaviour on a scale from ‘never’ to ‘always’ (Verplanken, 2010). In the present study we used a 5-point Likert scale to reflect 25% increments of increases in likelihood (never = 0, 25%, 50%, 74%, 100% = always), to measure habitual behaviour in the park. However Verplanken criticizes self-reported frequency of past behaviour because it only capitalizes on the frequency component of habit and ignores the automatic behavioural response and stimulus cues. At home measurements of habit employed a 7-point scale that ranged from

'Strongly Disagree' to 'Strongly Agree.' Participants responded to whether they always complied with leash laws when they were at home. In essence, this may not reflect a true measure of habit by a measure of frequency, but rather an indication of past behaviour.

Further Research

Given the criticisms of measuring frequency of behaviour, the role of habit and its effect on the theory of planned behaviour could be explored more thoroughly. Questions could be formulated to address all three 'pillars' of habit (Verplanken, 2010) including automaticity and the effect of stimulus cues in the environment and frequent behaviour rather than just a focus on the latter. Verplanken suggests that a more appropriate and robust measure of habit is Verplanken & Orbell's (2003) 12-item Self Report Habit Index (SRHI), which addresses both frequency of behaviour and automatic responses. In a review of the SRHI (Verplanken, 2010), this index has proven to be successful in a wide array of behaviours such as the consumption of food and snacking (Brug, et al., 2006; Conner et al., 2007; de Bruijn et al., 2007; Honkanen et al., 2005; Verplanken et al., 2005), beverage consumption (Kremers et al., 2007), food safety (Hinsz et al., 2007), participation in exercise and physical activity (Chatzisarantis & Hagger, 2007; Verplanken & Melkevik, 2008), use of the internet (Lintvedt et al., 2008) and social behaviour (Verplanken, 2004). Given the physical, emotional and mental health benefits of pet keeping, not to mention the negative impact of off-leash dogs on wildlife, off-leash dogs in national parks, or parks in general would be a welcomed addition to habit research.

The applied nature of the present study also lends itself well for a host of future intervention studies based on some of the principles, ideas and concepts discussed in the above section on implications for management. The impact of commitment, its relationship to self-perception theory (Bem, 1977) and the notion of consistency could be tested to address ambivalence. For example, written and verbal commitments with respect to leashing pets in the park could test the efficacy and strength of each by observing the subsequent behaviour of dog walkers on the beach and the difference between the written and verbal strategies. Following the treatment, self-reports could also be used in lieu of observation, by approaching participants just before they left the beach for the day.

The recruitment of community block leaders (Burn, 1991) to model on-leash behaviour in the park could test this strategy and descriptive norms by having people conspicuously walk dogs on-leash in a predetermined high dog traffic area when there are many dogs present. A control condition would do much the same, but with dogs off-leash instead.

Making compliance behaviour convenient would offer potential insight into this powerful barrier. By providing an alternative off-leash area for people to let their dogs run free would test this strategy by observing the number of dogs off-leash on the main beaches prior to the installation of the off-leash area and after it has been installed. The impact of social diffusion and the speed of adoption of the off-leash area use could also be tested by initially creating the off-leash area without formally providing any information associated with the new facility via personal communication. The subsequent

stage would recruit local residents and/or visitors to share the information with other dog owners.

Programs designed to engage park visitors with wildlife conservation issues currently underway in the park can also be adapted as an effectiveness study on the impact of social diffusion and the community block leader approach to create awareness, understanding and ultimately, compliance with the off-leash regulation among dog-owners walking their pets on the beach. The 'tracking programs' mentioned in the above section encourage community members and visitors to report any sign of wolves in the park (Todd Windle, personal communication, 2014). This public engagement recruits people to help the park monitor wildlife. The public could subsequently be encouraged to share information about the program and evidence of wolf activity in the park with others, thereby creating further interest and awareness.

This strategy could also be applied to shorebirds. By adapting existing seasonal bird counts 'shorebird count programs' would recruit local resident and visitors during peak migration to report shorebird numbers and locations providing an opportunity for personal contact and sharing the experience to others. A particular effort in both the shorebird and wolf programs could be made to identify those visiting the park with their dogs. Although greater in both temporal and spatial scales than the other proposed intervention studies presented for further research, the capacity and resources available for such programs are present. With some adjustments, long term monitoring of the impact of such programs seems possible.

The powerful influence of the behaviour of other people and the tendency for this to compel others to do the same, situates the descriptive norm as an element of social pressure that needs greater attention in the TPB model. In the most recent incarnation of the TPB (e.g. Fishbein & Ajzen, 2010) the descriptive norm has been added as a component of perceived social pressure in addition to injunctive norms. In the current model these two components are represented as 'perceived norm.' The perceived social pressure from other important people, like a friend, family members or a park ranger, and the motivation to comply with those wishes is an injunctive norm. In earlier versions of the model, the injunctive norm is represented and referred to as a 'subjective norm.'

A descriptive norm is driven by the example of important others and the subsequent influence that it has on your behaviour. People may model their behaviour on what others are doing, under the perception that they are experts in the given situation, or that they want to be like them (Fishbein & Ajzen, 2010). Under the particular circumstances of that situation this modeling of behaviour may also provide an example of what may appear to be a reasonable way to behave (Reno, Cialdini & Kallgren, 1993; Reno & Cialdini, 2000; Cialdini, 2001). Very few studies address descriptive norms in the TPB. This additional nuance provides a fertile field for future exploration.

Conclusion

Through the protection of representative ecosystems, parks and protected areas can play an integral role in the conservation of biodiversity, (McNamee, 2009; Parks Canada Agency, 2014). This is a critical function in an epoch referred to as the 'anthropocene' (Steffen, Crutzen & McNeill, 2007) where overwhelming human

domination of the landscape in its various forms threaten biodiversity on a global scale (Vitousek et al., 1997). Parks and protected areas can foster a deeper appreciation and connection to the land and wildlife and function as agents of conservation through visitor experience (Dearden, 1995; MacNamee, 2009, Rollins & Dearden, 2009). However, inappropriate visitor behaviour can lead to negative impacts in park ecosystems and on wildlife populations found within (Reynolds & Braithwaite, 2001; Weaver, 2001; Buckley, 2004; Weaver & Lawton, 2007; Payne & Haider, 2009).

In our desire for some connection to nature and wildness, domestication of dogs has transformed them into the ultimate nature/culture hybrid (Swyngedouw, 1996), both human and animal, person and possession. This liminality creates curious problems, to the extent that what we perceive as 'wild' is in fact a product of the same urbanization process that humans have experienced (Urbanik & Morgan, 2013). Dogs as pets don't necessarily fit in with nature. Domesticated they generally exist in urbanized populations finding themselves from time to time transported to far flung places such as Long Beach because people bring them there as extensions of their urban selves. Owners of domesticated dogs often have expectations that their pets receive the same rights and privileges as people, in the sense that the pets' needs as perceived by their owners should be met by "dogs being allowed to be dogs' to run free on beaches while at the same time being welcome in upscale hotels, café's, bars and restaurants. Just like us, our pets thus have capacity to impact and transform both human and natural landscapes.

Among the many roles that parks and protected areas play, they maintain whole and functional ecosystems that may not exist elsewhere (Dearden, 1995). In a society that

is now more urban than rural, national parks in Canada that cover only 4% of all land in Canada (Dearden & Mitchell, 2012), but 22% of the world's remaining wilderness spaces (Parks Canada Agency, 2000) must be protected as integral and natural as possible. Dogs running free on the park's beaches are one of the strongest sources of disturbance on migratory shorebirds (Zharikov, 2011) and can habituate/food-condition predatory wildlife to dogs as sources of easy prey. Managing the behaviour of dogs on beaches in protected areas therefore becomes paramount to wilderness and conservation efforts despite their owners possible opposition to restrictions and regulations.

Understanding 'what works and why' can better inform management strategies and provide insights into directions and strategies that may be more successful than current approaches. Application of the TPB was successful in identifying the limitations of belief based persuasive communication by identifying habit and ambivalence as considerable factors that challenge the theory of planned behaviour. People also had deeply ingrained social norms and this research contributes to the literature addressing the evolving role of our canine companions in modern society and associated spatial conflict, providing new insights into compliance behaviour.

Is there space for 'dogs to be dogs' in the protected areas and national park context? Perhaps the question has more to do with 'should' there be space for 'dogs to be dogs' in these areas. Outside the PRNPR, some areas such as Prince Albert National Park in Saskatchewan do allow dogs, but in many other Canadian national parks domesticated dogs are prohibited. The history and uniqueness of the PRNPR does allow them there. Given this reality, social norms as well as existing barriers to compliance, the question

most appropriately phrased remains ‘where’ and/or ‘when’ dogs should be allowed in PRNPR, and what can be done to ensure that dog owners comply with regulations? My hope is that this study has made progress on answering that question.

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Q29. Do you have any other comments you would like to make?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for completing this questionnaire. Please return the questionnaire to the researcher. If you would like a copy of the results of this survey, please provide your email address to the research assistant.

Visitor Beliefs About Walking Dogs On Long Beach

2013 Survey

We'd like to understand everything about dog owners' opinions about leashing their pets.

Thanks for helping us.

University of Victoria

conservation knowledge

Protected Areas and Poverty Reduction

CLAYOQUOT BIOSPHERE TRUST

Bringing Your Dog to Long Beach

Q1. Please indicate the reasons why you brought your dog to the beach today by circling the number which best describes how strongly you feel about the statement.

I bring my dog to the beach because…

	Strongly Disagree						Strongly Agree
A. the open space of the beach is a good environment for my dog because my dog loves it.	1	2	3	4	5	6	7
B. the open space of the beach is a good environment for me because I love it.	1	2	3	4	5	6	7
C. my dog can run, sniff around and 'just be a dog.'	1	2	3	4	5	6	7
D. I wanted to spend time with my dog.	1	2	3	4	5	6	7
E. my dog needed to go to take a pee/dump.	1	2	3	4	5	6	7
F. I wanted to go to the beach.	1	2	3	4	5	6	7
G. I am going to the beach and I bring my dog because my dog is part of my family.	1	2	3	4	5	6	7

H. Is there any other reason we missed? If so, please briefly state below.

_____

_____

Q2. Now, we would like to know your opinion about leashing your dog when you come to Long Beach.

	Bad						Good
A. Leashing my dog on Long Beach is:	1	2	3	4	5	6	7
	Unpleasant for Me						**Pleasant for Me**
B. Walking my dog on a leash on Long Beach is:	1	2	3	4	5	6	7
	Useless						**Useful**
C. Using a leash for my dog on Long Beach is:	1	2	3	4	5	6	7

A Little About You

Q25. Which best describes where you are from?

1 VANCOUVER
2 VICTORIA
3 TOFINO
4 UCLUELET
5 COURTENAY/CUMBERLAND/COMOX
6 CAMPBELL RIVER
7 PARKSVILLE/QUALICUM
8 NANAIMO
9 DUNCAN
10 OTHER VANCOUVER ISLAND
11 OTHER BC
12 CALGARY
13 CANMORE
14 EDMONTON
15 OTHER ALBERTA
16 OTHER CANADA
Please state where _____
17 WASHINGTON/OREGON
18 OTHER US
Please state where_____
19 EUROPE
20 ASIA
21 OTHER
Please state where_____

Q26. What best describes the size of your dog(s)?

1 **SMALL** (30-50 cm or 12-20 in from the shoulder)
2 **MEDIUM** (50-70cm or 20-28 in from the shoulder)
3 **LARGE** (70cm + or 28 in from the shoulder)

Q27. What best describes the breed of your dog(s)?

MIXED BREED	PUREBRED	NOT SURE
1	2	3

Q28. What best describes the purpose for which your dog(s) was/were bred?

1 **HUNTING**
2 **HERDING**
3 **PROTECTION**
4 **COMPANIONSHIP**
5 **LABOUR**
6 **NOT SURE**

A Little About You

Q19. What year were you born _____

Q20. Who are you here with today? Circle all that apply.

1 I AM ALONE
2 SIGNIFICANT OTHER
3 FAMILY
4 FRIENDS
5 OTHER

Q21. How many times have you visited Long Beach in the past 12 months? Estimate if you are not sure. _____

Q22. Year of first visit to Long Beach _____

Q23. Are you…

1 MALE
2 FEMALE
3 OTHER

Q24. What is your opinion about each of the following possible management strategies?

	Strongly Disagree				Strongly Agree
A. I support increased enforcement of the off-leash dog regulation (e.g. ticketing owners of dogs off-leash).	1	2	3	4	5
B. I support increased education about the impact of off-leash dogs on wildlife.	1	2	3	4	5
C. I support seasonal closures to dogs on the beaches of the Long Beach Unit, especially at certain times of year.	1	2	3	4	5
D. I support permanently closing some beaches to dogs.	1	2	3	4	5
E. I support the regulation that dog's must be on-leash at all times.	1	2	3	4	5
F. If Long Beach were closed to dogs, I would not come to Pacific Rim National Park Reserve.	1	2	3	4	5

Consequences of Leashing Your Dog at Long Beach

Q3. How unlikely or likely do you feel about the following consequences of leashing your dog here on Long Beach?

If I keep my dog on-leash…	Very Unlikely						Very Likely
A. my dog will bother other people.	1	2	3	4	5	6	7
B. my dog will run through flocks of shorebirds.	1	2	3	4	5	6	7
C. my dog will behave aggressively towards other dogs.	1	2	3	4	5	6	7
D. my dog will be safer from wolves.	1	2	3	4	5	6	7
E. it will be safer for other people.	1	2	3	4	5	6	7
F. my dog loses the freedom to run, play, explore, sniff around and 'just be a dog.'	1	2	3	4	5	6	7
G. my dog will attract wolves to me.	1	2	3	4	5	6	7
H. my dog will behave aggressively with other dogs.	1	2	3	4	5	6	7
I. my dog pulls me around and it is hard to keep up to it.	1	2	3	4	5	6	7
J. I have more control over my dog.	1	2	3	4	5	6	7

Q4. What is your opinion about the following?	Bad						Good
A. My dog bothering other people is:	1	2	3	4	5	6	7
B. My dog running through flocks of shorebirds is:	1	2	3	4	5	6	7
C. My dog behaving aggressively towards other dogs is:	1	2	3	4	5	6	7
D. When my dog is safer from wolves, this is:	1	2	3	4	5	6	7
E. When it is safer for other people, this is:	1	2	3	4	5	6	7
F. When my dog loses the freedom to run, play, explore, sniff around and 'just be a dog,' this is:	1	2	3	4	5	6	7
G. My dog attracting wolves to me is:	1	2	3	4	5	6	7
H. My dog behaving aggressively with other dogs is:	1	2	3	4	5	6	7
I. When my dog pulls me around, this is:	1	2	3	4	5	6	7
J. Having more control over my dog is:	1	2	3	4	5	6	7

Your Beliefs About Leashing Your Dog on Long Beach

Q5. In this next section, let us know the things that make it easy or difficult to keep your dog on-leash.

	Strongly Disagree						Strongly Agree
A. Not having enough education and information about why I need to have my dog on-leash makes it difficult to keep my dog leashed.	1	2	3	4	5	6	7
B. Having a dog that is trained to be on-leash makes it easy to keep my dog leashed.	1	2	3	4	5	6	7
C. The breed of my dog makes it difficult to keep my dog on-leash.	1	2	3	4	5	6	7
D. Having the right equipment, like a very long or retractable leash, makes it easy to keep my dog on-leash.	1	2	3	4	5	6	7

	False						True
Q6. Most people walking their dog on the beach here have them off-leash.	1	2	3	4	5	6	7

Q7. Please indicate how likely you are to keep your dog on-leash.

	Less Likely To Leash My Dog						More Likely To Leash My Dog
A. When there is not enough education and information about why I need to leash my dog, I am:	1	2	3	4	5	6	7
B. When I have the right equipment like a very long, or retractable leash, I am:	1	2	3	4	5	6	7
C. When my dog is trained to be on-leash I am:	1	2	3	4	5	6	7
D. The breed of my dog makes me:	1	2	3	4	5	6	7

Your Intentions About Leashing Your Dog on Long Beach

	Very Difficult						Very Easy
Q16. To keep my dog on-leash on Long Beach is:	1	2	3	4	5	6	7

Q17. Please indicate the extent to which you disagree or agree with the following.

	Strongly Disagree						Strongly Agree
A. I want to walk my dog on a leash when I come to Long Beach.	1	2	3	4	5	6	7
B. Whether or not I leash my dog here is entirely up to me.	1	2	3	4	5	6	7
C. I Intend to walk my dog on a leash when I come to Long Beach.	1	2	3	4	5	6	7
D. To keep my dog on leash is beyond my control.	1	2	3	4	5	6	7
E. It is expected of me that I leash my dog when I come to Long Beach.	1	2	3	4	5	6	7
F. Most people like me leash their dogs on Long Beach.	1	2	3	4	5	6	7
G. I am confident that I could leash my dog on Long Beach if I wanted to.	1	2	3	4	5	6	7
H. Most people who are important to me think that I should leash my dog.	1	2	3	4	5	6	7
I. I expect to leash my dog when I come to Long Beach.	1	2	3	4	5	6	7
J. I consider my dog to be part of my family.	1	2	3	4	5	6	7
K. I leash my dog because I am in a National Park.	1	2	3	4	5	6	7
L. I feel under social pressure to leash my dog at Long Beach.	1	2	3	4	5	6	7

	YES	NO	NOT SURE
Q18. Have you seen the signs about 'Dogs On-Leash?'	1	2	3

What You Normally Do

Q14. When I am at Long Beach, I leash my dog about what percent of the time? 0% 25% 50% 75% 100%

Q15. Why do you leash, or not leash, your dog?

	Strongly Disagree						Strongly Agree
A. I feel an obligation as a responsible dog owner to leash my dog under certain circumstances because it's 'the right thing to do.'	1	2	3	4	5	6	7
B. I leash my dog only if there is a direct benefit to my dog and myself.	1	2	3	4	5	6	7
C. I leash my dog because it is the law.	1	2	3	4	5	6	7
D. I choose to leash, or not leash my dog, because everybody has the right to make this choice, regardless of the law.	1	2	3	4	5	6	7
E. I choose to leash, or not leash my dog because I believe my actions are right.	1	2	3	4	5	6	7
F. I leash my dog only if the rule is enforced with a fine.	1	2	3	4	5	6	7
G. I let my dog run off-leash at Long Beach because the hotels and campgrounds here promote it.	1	2	3	4	5	6	7
H. I came to Long Beach because I thought that dogs were allowed to be off leash.	1	2	3	4	5	6	7

I. Is there anything else you'd like to add? Please briefly state below.

_____

_____

_____

About Leashing Your Dogs on Long Beach

Q8. Please let us know what you think about the following by circling the most appropriate answer.

	Strongly Disagree				Strongly Agree
A. Off-leash dogs pose a threat to shorebirds.	1	2	3	4	5
B. Off-leash dogs are at risk to falling prey to wolves.	1	2	3	4	5
C. Off-leash dogs pose a threat to other wildlife.	1	2	3	4	5
D. Off-leash dogs can have a negative impact on the experience of other visitors.	1	2	3	4	5

	False	True	Not Sure
E. Wolves have been attacking and killing dogs in the Long Beach Unit of Pacific Rim National Park and the communities of Tofino and Ucluelet.	1	2	3
F. Dogs are required to be on leash at all times in the National Park.	1	2	3
G. Where I live, there are on-leash dog laws.	1	2	3

	Strongly Disagree						Strongly Agree
Q9. When I'm at home, I always have my dog on-leash to comply with on-leash dog laws.	1	2	3	4	5	6	7

Q10. If you have any other thoughts or comments about keeping your dog on-leash, please briefly explain below.

_____

_____

_____

_____

The Importance of What Other People Think You Should Do

Q11. Who probably thinks that you should, or should not, keep your dog on-leash here?

		I Should Not						I Should	
A.	People who don't like dogs think:	1	2	3	4	5	6	7	leash my dog
B.	People who are afraid of dogs think:	1	2	3	4	5	6	7	leash my dog
C.	Families with small children think:	1	2	3	4	5	6	7	leash my dog
D.	Elderly people think:	1	2	3	4	5	6	7	leash my dog
E.	Some people from other cultures think:	1	2	3	4	5	6	7	leash my dog
F.	Wildlife conservationists think:	1	2	3	4	5	6	7	leash my dog
G.	Park wardens think:	1	2	3	4	5	6	7	leash my dog
H.	Tourists think:	1	2	3	4	5	6	7	leash my dog
I.	People who believe dogs should be free 'to be a dog' think:	1	2	3	4	5	6	7	leash my dog
J.	People who have well trained-dogs think:	1	2	3	4	5	6	7	leash my dog
K.	Local residents from Tofino or Ucluelet think:	1	2	3	4	5	6	7	leash my dog
L.	My family thinks:	1	2	3	4	5	6	7	leash my dog
M.	My friends think:	1	2	3	4	5	6	7	leash my dog

Q12. What do you see other people doing?

		False						True
A.	Is it your experience that most people on the beach with their dogs have them leashed?	1	2	3	4	5	6	7
B.	Does this make you feel as if you should do the same?	1	2	3	4	5	6	7

The Importance of What Other People Think You Should Do

Q13. When it comes to leashing your dog here, indicate how strongly you disagree or agree about doing what other people think you should to do.

		Strongly Disagree						Strongly Agree
A.	I want to do what people who are afraid of dogs think I should do.	1	2	3	4	5	6	7
B.	I want to do what families with small children think I should do.	1	2	3	4	5	6	7
C.	I want to do what wildlife conservationists think I should do.	1	2	3	4	5	6	7
D.	I want to do what elderly people think I should do.	1	2	3	4	5	6	7
E.	I want to do what some people from other cultures think I should do.	1	2	3	4	5	6	7
F.	I want to do what people who don't like dogs think I should do.	1	2	3	4	5	6	7
G.	I want to do what park wardens think I should do.	1	2	3	4	5	6	7
H.	I want to do what tourists think I should do.	1	2	3	4	5	6	7
I.	I want to do what people who think dogs should be free 'to be a dog' think I should do.	1	2	3	4	5	6	7
J.	I want to do what people with well-trained dogs think I should do.	1	2	3	4	5	6	7
K.	I want to do what local residents from Tofino or Ucluelet think I should do.	1	2	3	4	5	6	7
L.	I want to do what my family thinks I should do.	1	2	3	4	5	6	7
M.	I want to do what my friends think I should do.	1	2	3	4	5	6	7

APPENDIX B

Introduction: Survey

Hi, my name is Matt Bowes/Devon Clark. I am a PhD researcher/research assitant from the University of Victoria. Would it be ok if I asked you some questions?

You are being asked to participate in my study because you are walking your dog on the beach.

Research of this type is important because people often have an impact on natural resources, such as wildlife, without realizing it. Long beach is a focal point for our recreation, but also for migratory shorebirds traveling between the arctic and southern latitudes, and a healthy local population of wolves. Off leash dogs in particular have both a negative impact on sensitive shorebird habitat and can habituate wolves to dogs as easy prey. It is important for these beaches to remain habitat for shorebirds and free of human-carnivore conflict.

The purpose of this research project is to contribute to the effectiveness communication, interpretation and education on Long Beach to improve visitor compliance with keeping dogs leashed while on the beach. We are interested in understanding what you think about wildlife, keeping your pets leashed, and what motivates you to bring your dog to the beach.

This research has implications for how Long Beach interpretation, education and outreach services directed at human–wildlife conflicts may improve.

If you agree to participate it will include a recorded 20-minute anonymous survey here on the beach.

APPENDIX C

Introduction: Interview

Hi, my name is Matt Bowes. I am a PhD researcher from the University of Victoria. Would it be ok if I asked you some questions?

You are being asked to participate in my study because you are walking your dog on the beach.

Research of this type is important because people often have an impact on natural resources, such as wildlife, without realizing it. Long beach is a focal point for our recreation, but also for migratory shorebirds traveling between the arctic and southern latitudes, and a healthy local population of wolves. Off leash dogs in particular have both a negative impact on sensitive shorebird habitat and can habituate wolves to dogs as easy prey. It is important for these beaches to remain habitat for shorebirds and free of human-carnivore conflict.

The purpose of this research project is to contribute to the effectiveness communication, interpretation and education on Long Beach to improve visitor compliance with keeping dogs leashed while on the beach. We are interested in understanding what you think about wildlife, keeping your pets leashed, and what motivates you to bring your dog to the beach.

This research has implications for how Long Beach interpretation, education and outreach services directed at human–wildlife conflicts may improve.

If you agree to participate it will include a recorded 20-minute, anonymous interview here on the beach.

APPENDIX D

Interview Guide

Can I ask where you are from?
Probe…

Do you come here vey often?
Probe…

Who are you here with?
Probe…

How long are you staying in the area?
Probe…

Where are you staying?
Probe…

What kind of dog is he/she?
Probe…

How old is your dog?
Probe…

Why do you bring your dog to Long Beach?
Probe

Why do you keep your dog on/of- leash here on Long Beach?
Probe…

What do you see as advantages to keeping your dog leashed here on Long Beach?
Probe…

What do you see as advantages of keeping your dog leashed here on Long Beach ?
Probe…

What do you see as disadvantages of keeping your dog leashed here on Long Beach?
Probe…

Who would be supportive or approve of keeping your dog leashed here on Long Beach?
Probe…

Who would object to keeping your dog leashed here on Long Beach?
Probe…

Do you feel it is the right thing to do to keep your dog leashed here on Long Beach?
Probe…

What things make it easy to keep your dog leashed on the beach here on Long Beach?
Probe…

What things make it difficult to keep your dog leashed on the beach here on Long Beach?
Probe…
What do most people do with their dogs here on Long Beach?
Probe…

Can you tell me a story about wildlife that makes you feel happy?
Probe…

Can you tell me a story about wildlife that makes you feel sad?
Probe…

Can you tell me a story about wildlife that makes you feel angry?
Probe…

Can you tell me a story about wildlife that makes you feel afraid?
Probe…

Can you tell me anything else about your experiences with wildlife?
Probe…

Are you aware of the on-leash park regulations here on Long Beach?

Do you think park management is basing these regulations on good information/science here on Long Beach?
Probe…

Do you think that these regulations threaten your freedom here on Long Beach?
Probe…

Do you think that there is any risk to yourself when your dog is off leash here on Long Beach?
Probe…

Do you think that there is any risk to your dog when your dog is off leash here on Long Beach?

Probe…

Thanks very much for your help!

APPENDIX E

University of Victoria

Department of Geography

Participant Consent Form

Understanding Visitor Behaviour: Human-Wildlife Conflict and Off Leash Dogs in Pacific Rim National Park Reserve

You are invited to participate in a study entitled Understanding Visitor Behaviour: Human-Wildlife Conflict and Off Leash Dogs in Pacific Rim National Park Reserve that is being conducted by Matthew Bowes MES.

Matt is a PhD Candidate in the Department of Geography at the University of Victoria and you may contact him if you have further questions by phone: 1(250) 327-3346; or email: matthewbowes71@yahoo.ca

As a graduate student, I am required to conduct research as part of the requirements for a PhD in Geography. It is being conducted under the supervision of Dr. Peter Keller. You may contact my supervisor at: 1(250) 472-5058

This research is being funded by the Clayoquot Biosphere Trust.

Purpose and Objectives
The purpose of this research project is to contribute to the effectiveness communication, interpretation and education on Long Beach to improve visitor compliance with keeping dogs leashed while on the beach. We are interested in understanding what you think about wildlife, keeping your pets leashed, and what motivates you to bring your dog to the beach.

Importance of this Research
Research of this type is important because people often have an impact on natural resources, such as wildlife, without realizing it. Long beach is a focal point for our recreation, but also for migratory shorebirds traveling between the arctic and southern latitudes, and a healthy local population of wolves. Off leash dogs in particular have both a negative impact on sensitive shorebird habitat and can habituate wolves to dogs as easy prey. It is important for these beaches to remain habitat for shorebirds and free of human-carnivore conflict.

This research has implications for how Long Beach interpretation, education and outreach services directed at human–wildlife conflicts may improve.

Participants Selection
You are being asked to participate in this study because you are walking your dog on the beach.

What is Involved
If you agree to voluntarily participate in this research, your participation will include a 20 minute interview on the beach.

Audio-data, written notes and observations will be taken and a transcription will be made.

Inconvenience
Participation in this study may cause some inconvenience to you by disrupting your leisure time and asking for approximately 20 minutes of your time.

Risks
There are a few anticipated risks to you by participating in this research.
A participant may become embarrassed because they are engaged in non compliance behaviour (e.g. walking dog off leash).

A participant may feel a social risk, stigmatized; perceive a loss of status, privacy and/or reputation because they are engaged on non-compliance behaviour (e.g. walking dog off leash).

A participant may be fined because they are engaged in non compliance behaviour (e.g. walking dog off leash).

To minimize or prevent the risks, the participants will remain anonymous.

If any of the anticipated risk occurs, the interview will be terminated and information destroyed. Parks Canada will be appealed regarding any fines as a result of your participation in this research.

Benefits
The potential benefits of your participation in this research include:
1) Enhanced awareness of wildlife issues on Long Beach for the participant
2) Conservation of wildlife
3) A greater understanding and knowledge of recreation behaviour

Voluntary Participation
Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will not be used.

Anonymity
In terms of protecting your anonymity, your confidentiality and the confidentiality of the data will be protected by the use pseudonyms in the interviews and a coding sheet to help analyze the data.

Confidentiality
Audio data and transcribed interviews will be stored on a computer disc that will be locked in my filing cabinet in my office on Gabriola Island British Columbia.

Dissemination of Results
It is anticipated that the results of this study will be shared with others in the following ways
- Thesis/Dissertation/Class presentation
- Presentations at scholarly meetings
- Published article
- Media – Newspaper
- Report
- Information session

Disposal of Data
Data from this study will be kept for seven years and then destroyed. The computer disc containing all information will also be erased.

Contacts
Please refer to this information at the beginning of the consent form

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

By participating in the interview, **YOUR FREE AND INFORMED CONSENT IS IMPLIED** and indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

Please retain a copy of this letter for your reference.

APPENDIX F

University of Victoria

Department of Geography

Participant Consent Form

Understanding Visitor Behaviour: Human-Wildlife Conflict and Off Leash Dogs in Pacific Rim National Park Reserve

You are invited to participate in a study entitled Understanding Visitor Behaviour: Human-Wildlife Conflict and Off Leash Dogs in Pacific Rim National Park Reserve that is being conducted by Matthew Bowes MES.

Matt is a PhD Candidate in the Department of Geography at the University of Victoria and you may contact him if you have further questions by phone: 1(250) 327-3346; or email: matthewbowes71@yahoo.ca

As a graduate student, I am required to conduct research as part of the requirements for a PhD in Geography. It is being conducted under the supervision of Dr. Peter Keller. You may contact my supervisor at: 1(250) -472-5058

This research is being funded by the Clayoquot Biosphere Trust.

Purpose and Objectives
The purpose of this research project is to contribute to the effectiveness communication, interpretation and education on Long Beach to improve visitor compliance with keeping dogs leashed while on the beach. We are interested in understanding what you think about wildlife, keeping your pets leashed, and what motivates you to bring your dog to the beach.

Importance of this Research
Research of this type is important because people often have an impact on natural resources, such as wildlife, without realizing it. Long beach is a focal point for our recreation, but also for migratory shorebirds traveling between the arctic and southern latitudes, and a healthy local population of wolves. Off leash dogs in particular have both a negative impact on sensitive shorebird habitat and can habituate wolves to dogs as easy prey. It is important for these beaches to remain habitat for shorebirds and free of human-carnivore conflict.

This research has implications for how Long Beach interpretation, education and outreach services directed at human–wildlife conflicts may improve.

Participants Selection
You are being asked to participate in this study because you are walking your dog on the beach.

What is Involved

If you agree to voluntarily participate in this research, your participation will include a 10 minute survey on the beach.

Inconvenience
Participation in this study may cause some inconvenience to you by disrupting your leisure time and asking for approximately 20 minutes of your time.

Risks
There are a few anticipated risks to you by participating in this research.
A participant may become embarrassed because they are engaged in non compliance behaviour (e.g. walking dog off leash).

A participant may feel a social risk, stigmatized; perceive a loss of status, privacy and/or reputation because they are engaged on non-compliance behaviour (e.g. walking dog off leash).

A participant may be fined because they are engaged in non-compliance behaviour (e.g. walking dog off leash).

To minimize or prevent the risks, the participants will remain anonymous.

If any of the anticipated risk occurs, the interview will be terminated and information destroyed. Parks Canada will be appealed regarding any fines as a result of your participation in this research.

Benefits
The potential benefits of your participation in this research include:

4) Enhanced awareness of wildlife issues on Long Beach for the participant
5) Conservation of wildlife
6) A greater understanding and knowledge of recreation behaviour

Voluntary Participation
Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will not be used.

Anonymity
In terms of protecting your anonymity, your confidentiality and the confidentiality of the data will be protected by the use pseudonyms in the interviews and a coding sheet to help analyze the data.

Confidentiality
Audio data and transcribed interviews will be stored on a computer disc that will be locked in my filing cabinet in my office on Gabriola Island British Columbia.

Dissemination of Results
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Disposal of Data
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Contacts
Please refer to this information at the beginning of the consent form

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

By completing and submitting the questionnaire, **YOUR FREE AND INFORMED CONSENT IS IMPLIED** and indicates that you understand the above conditions of participation in this study and that you have had the opportunity to have your questions answered by the researchers.

Please retain a copy of this letter for your reference