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Environmental consciousness of RV visitors to Rocky Mountain National Parks

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RV travel is a growing market but remains largely under-studied. More and more visitors to National Parks choose to travel in an RV. The goal of the study presented in this paper was to investigate the environmental consciousness of RV visitors to National Parks and determine their awareness of the negative environmental impacts of RV traveling, as well as the actions they take to mitigate these impacts. A paper-based intercept survey of RV travelers was conducted in the summer of 2007 at three major campgrounds in the Mountain Parks: Whistlers (Jasper), Tunnel Mountain (Banff) and Lake Louise. The results reveal that less than half of the RV visitors are aware of their ecological footprint while traveling in an RV, and an even smaller number takes measures to reduce their ecological footprint while traveling in an RV. However, the study results also show that some RVers are more environmentally conscious than others. The paper concludes that with the growing number of RV travelers, National Parks are a perfect place to educate the visitors and raise the environmental awareness. These issues are further discussed in relation to the Parks Canada mandate.

Key words: *RV travelers, environmental consciousness, Parks Canada, Mountain Parks*

Introduction and Background

The drive tourism industry, including recreational vehicles (RV's), is increasing rapidly in Canada. The most recent figures for the province of British Columbia (BC) were collected in 1996 and suggested that more than one million non residents took a holiday in their own or a hired motor vehicle (Statistics Canada 2001). Additionally, per capita, Canada has a higher level of RV ownership than the USA, with 13% of the population owning an RV, compared to 10% in the USA (Go RVing 2004). These figures, which

have most likely increased, suggest that a summer influx of RV travelers to remote areas of Canada can have dramatic visitation impacts. However, apart from estimations of their numbers and demographic profiles, little research exists which explores their behavior and environmental impacts. Given that the goal of sustainable tourism is now a cornerstone of many tourism development agencies, an understanding of this rapidly growing market is imperative in order to plan and create policy for the environmental, socio-cultural or economic impacts of RV tourism.

Gas consumption and the attendant carbon contributions associated with RV's is perhaps the single greatest impact. Fuel-consumption for RV's can range from 24 litres/100km for a Class A "luxury" motorhome to a more efficient 12-13 litres/100km for a CamperVan type model ([Pembina](#) Institute nd). Beyond fuel use, grey water – particularly tank waste water with the chemical additives of formaldehyde and ammonia is of significant concern (Environment Canada 2001). RV's have other ecological impacts including an increased hardscaped ecological footprint within campgrounds; secondary energy use consisting typically of either electric or diesel generation; increased water consumption; and potential for increased noise/light pollution caused by generators, TV's and other amenities (Davies and Cahill 2000). The extent of the associated impact is influenced both by the RVers behaviour and also by the size of the RV.

A study of RV users behaviours with regard to holding tank wastewater treatment in response to a special program on treating liquid wastes was conducted throughout private, provincial and federal campgrounds in Atlantic Canada (Camp Green Canada! 2000). Just over half (55%) of respondents used biological treatments for wastewater instead of the more harmful chemical treatments (43%), and 96% of those who had never used a biological treatment indicated that given availability and competitive pricing they would consider using a biological treatment alternative. In a related study in a similar location conducted by Camp Green Canada in 2003, campground operators were asked about their awareness use and promotion of the Camp Green, Canada! Campaign on RV waste-water initiated by Environment Canada, Parks Canada and various tourism organizations (Environment Canada nd). Roughly half of operators were aware of the program and 54% indicated that they encouraged non-toxic RV wastewater dumping at their campground. The overwhelming majority (96%) indicated that they had observed a change in tourist's product choice behaviour – towards biological controls in the last three years. Although holding tank wastewater has received the bulk of the attention in greening RV travel – other tourism campaigns target more general green camping behaviours such as choosing more efficient RV vehicles (see for example <http://www.greenlearning.ca/climate/solutions/lifestyle/4#rec> and www.gorving.ca).

While National Parks can do their share in implementing sustainability measures, such initiatives ultimately need to be accepted by the visitors and often require their active participation. Very little reliable information about environmentally friendly tourists and their specific attitudes is currently available (Dolnicar et al. forthcoming). A recent study by Dolnicar and Leisch (2008) finds that individuals generally demonstrate higher levels of pro-environmental behavior at home in comparison to when they travel. Since RVers take a piece of home with them and often travel in RVs to be able to feel "at home" while on the road (Counts and Counts 1997), it is possible that they exhibit more environmental behaviours. At the same time, they are often perceived as travelers driving huge gas-

guzzling vehicles and leaving garbage and grey water behind wherever they go (Hardy et al. 2007).

With more and more visitors to National Parks choosing to travel in an RV, a study was conducted in the summer of 2007 as a result of collaborative effort between Parks Canada, University of Northern British Columbia and Texas A&M University to better understand this segment of the market. While the overall study tries to understand a more complete picture including visitors' profiles and travel habits, as well as their campground use behavior, this paper focuses on the environmental consciousness of RV visitors to Rocky Mountain National Parks. In particular, this paper seeks to answer the following research questions:

1. Who are the RV visitors to National Parks?
2. Are RVers aware of their environmental impacts?
3. Do RVers consciously take actions to mitigate these impacts?
4. Does environmental consciousness play a role in campground choice?

Methodology

A paper-based intercept survey was used to collect data for this study. It was designed to collect a combination of quantitative and qualitative information. Quantitative, closed-ended questions were mainly used to collect demographic information about RVers, as well as information about their travel behaviours and camping preferences. Qualitative, open-ended, questions were used in order to better understand users' perceptions when it comes to the issues surrounding environmental awareness, such as evaluating positive and negative impacts of RVing in the National Parks. Rather than fitting their experiences into predetermined boxes, we decided that qualitative questions would enable our participants to express themselves fully, and also provide us with more information, as qualitative data can be richer in meaning than quantitative data (Babbie 2004).

A total of 409 surveys were collected at six different campgrounds during the months of August and first half of September. According to the Parks Canada website, June through September are considered to be the months during which campgrounds receive the most use, with July and August being the busiest. Although a convenience based sampling method was used to select sampling days, a systematic random sample was used to start each day such that the starting campsite was selected randomly after which every other campsite was surveyed. If there was more than one person in an RV party, the person with the next birthday was questioned.

There were a total of 49 questions included in the survey. The survey aimed at collecting the following information about RV travellers:

- Demographic information (age, gender, income, employment, hometown)
- RV related information (type of RV vehicle, whether it was owned or leased; RV club membership)

- Travel preferences (caravan vs independent travel, full-timers vs vacationers, overnight preferences, gas price influence; annual distance and average time travelled in an RV per year).
- Trip information (trip length, distance traveled, destination and starting point)
- Campground preferences (repeat visitation, preferred amenities, evaluation of services in Parks Canada campgrounds)
- Environmental awareness (perception of environmental impacts, actions taken to reduce negative impacts, greening of RVs)

Most of the surveys were conducted in three main campgrounds: Tunnel Mountain (138), Lake Louise (122), and Whistlers (120). These campsites are very similar in nature, as they are all located near or within town sites: Tunnel Mountain in Banff, Lake Louise in Lake Louise, and Whistlers near Jasper. Furthermore, these campsites provide very similar services and ratios of serviced and unserviced campsites. The remaining 29 surveys were collected in the campgrounds along the Icefields Parkway (Mosquito Creek, Waterfowl and Snaring Overflow).

The quantitative data was analyzed using descriptive analyses to profile the RVers in the sample and to investigate their environmentally conscious behaviors. Crosstabs and Chi-Square tests were used to examine whether differences in environmentally conscious behaviors existed between various groups of RVers. The qualitative data was analyzed with the support of NVivo and involved coding themes that emerged from the open-ended responses.

Results

Descriptive Statistics

RVer Profiles

The majority of RVers travels as couples. About three quarters of the participants were from North America, with 58.2% from Canada and 15.4 % from the United States. Other significant groups include Dutch (7.8%), German (7.1), British (3.9), and Swiss (3.7%). Overall, over 26% of the respondents were international visitors. In comparison, a 2007 survey of mountain park visitors (Lajeunesse, 2007) identified slightly less Canadians overall (50%) and slightly more Americans (21%) and Europeans (25%). Most of the RVers were between the ages of 35 and 64 (Figure 1).

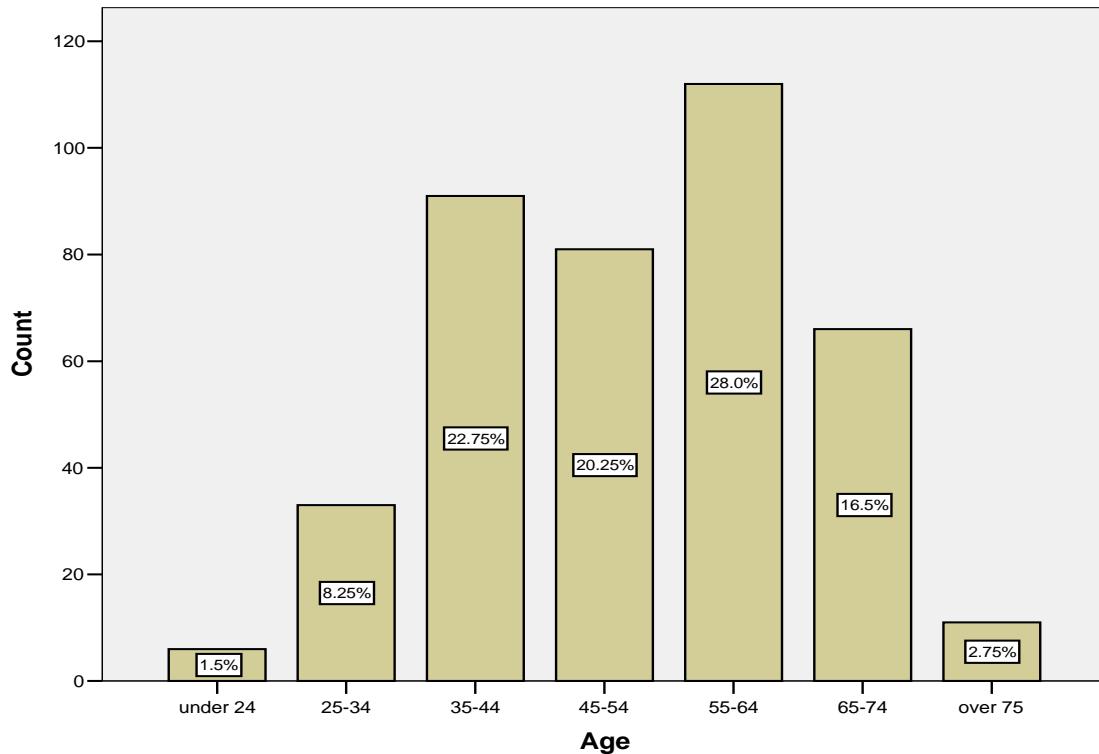


Figure 1- Age distribution of RVers

There were also a large number of retirees among the RVers (31.5%). Education levels were generally high with over 80% having some sort of post-secondary education and over 45% having university degree or higher. Family annual incomes were also generally high, as more than 80% made over \$60,000, with nearly 40% making over \$100,000.

RV Type and Ownership

Over three quarters of the respondents (76.4%) own the RV or trailer they travel with. Younger RVers are significantly less likely to own their RV ($p=.000$), with only 48.7% of the 34 or younger age group claiming ownership compared to 65.9% of those aged 35-44, 75.3% of those aged 45-54, 85.6% of those aged 55-64 and 90.9% of those 65 or older. Surprisingly, 25% of international RVers own the RV or trailer they travel with.

Travel related information

It was interesting to note that there was a definite trend in the number of years of RV experience. Number of RVers and years of experience were inversely proportional. This might be an indication of the booming market. However, there was one exception to this pattern, as the number of participants with over 20 years of experience was the greatest (Figure 2).

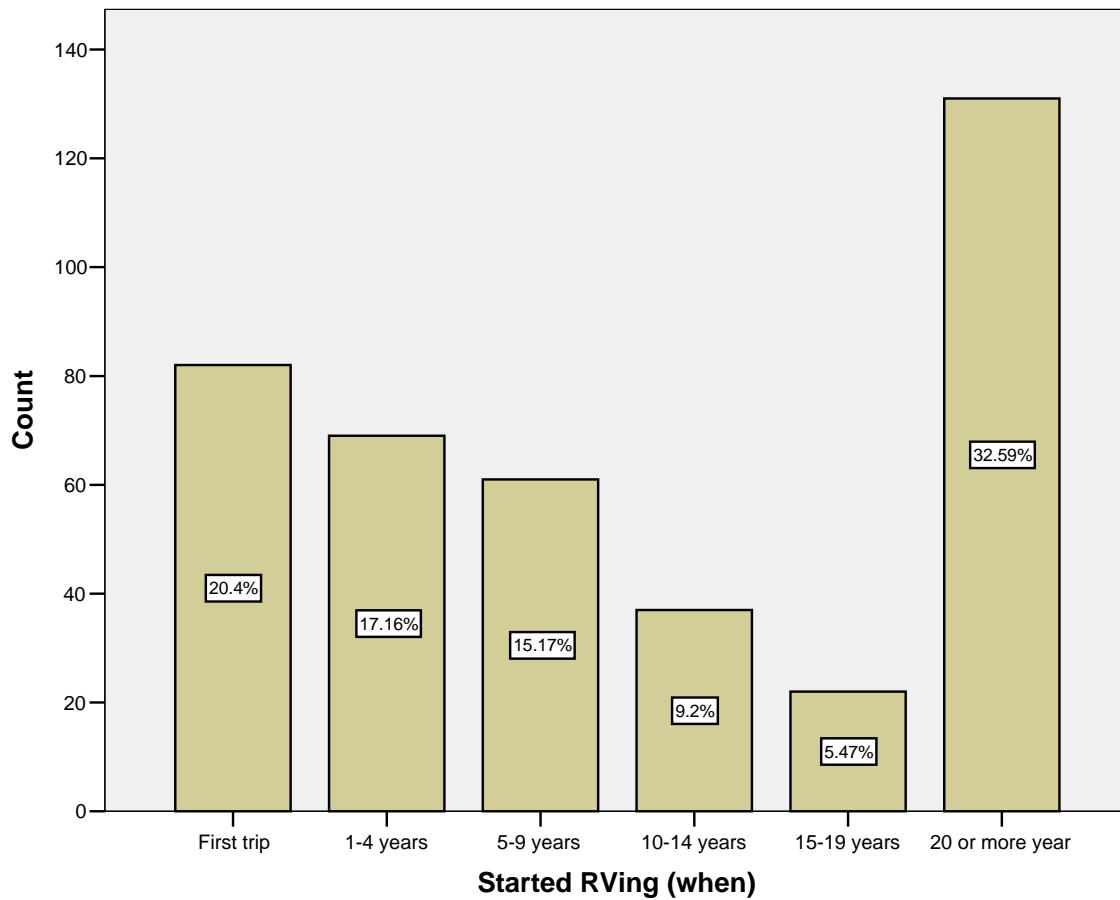


Figure 2 - RV experience in years

Most commonly (57%) RVers travelled between 1000 and 5000 kilometres per year in their RV. Another 25% travelled between 5000 and 14000 kilometres and nearly 10% travelled more than that. Gas prices did not have much influence on their decision to RV (Figure 3) although we might expect that as prices have continued to rise since the study it may become an issue.

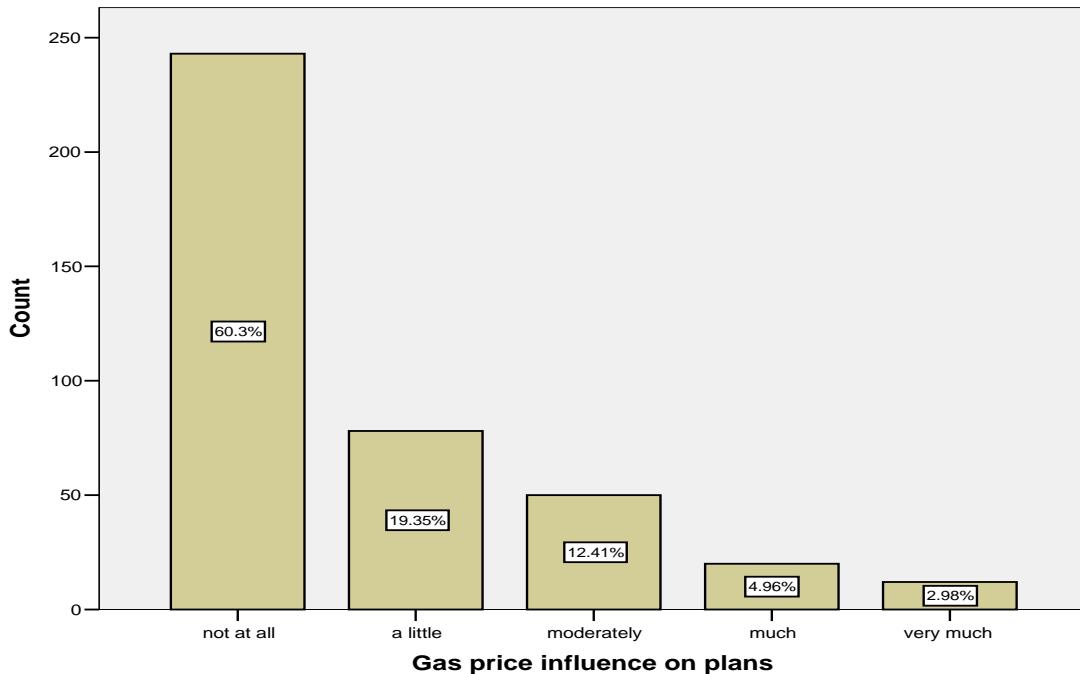


Figure 3 - Influence of gas price on travel plans

The Canadian Rockies were a final destination for approximately 42% of the RVers, while for the rest they were a drive through attraction. It is also interesting to note that 57% of the RV visitors were first time visitors to the region.

Preference for Campgrounds with Green Amenities

Almost a quarter (24.3%) of the RVers in the sample indicated that they would choose a campground based on the availability of solar-powered electrical hook ups. Slightly more (28.5%) prefer campgrounds that offer recycling. Almost half (46.2%) stated that they would choose a campground over a similar other if it had sites that were constructed in an environmentally friendly way. No significant differences were found based on RVer characteristics except for very young RVers having a greater preference for campgrounds that offer recycling ($p=.006$; Table 1).

Table 1- Preference for Campgrounds with Recycling based on Age Group

	34 or younger	35-44	45-54	55-64	65 or older
% of age group who prefer campgrounds that offer recycling	43.6	22.2	22.2	37.8	21.2

Perceptions of Positive and Negative Impacts of RVing

Participants were asked to list positive and negative impacts that RVing has upon National Parks. Three main concepts that emerged as positive impacts included:

- RVing being the source of money for National Parks, both through Parks fees (n=111) and other incidental impacts of tourism (n=58);
- Bringing people closer to the environment and in that way creating new stewards (n=119); and
- It's cleaner than building hotels and permanent structures (n=57).

Negative impacts listed by the participants included:

- Environmental pollution through gas emissions and chemicals used (n=124);
- Wildlife disturbances (n=94);
- Garbage (n=59);
- Traffic jams and road safety (63); and
- Crowding (n=54).

Over half of the RVers (55.5%) who identified negative impacts of RVing (n=292) stated that they had taken actions to mitigate those negative impacts. Whether steps are taken to reduce negative impacts depends on nationality, with Canadians being more likely to take actions (Table 2). It also depends on income (the over \$100,000 bracket is more likely to take actions), time spent RVing (with first timers not surprisingly being less likely to engage in mitigation) and ownership (RV owners are more likely to try to reduce negative impacts. No significant relationships were found for time spent traveling in an RV per year, RV club membership, kilometers traveled per year, age and education level.

Most significant actions RVers take to mitigate their negative impacts include: picking up garbage and litter (n=31), leaving a campsite clean (n=25), recycling (n=21), and using environmentally friendly fuels and chemicals (n=17).

Table 2 - Significant Influences on Whether Actions Have Been Taken

	Have taken actions to reduce negative impacts of RVing	
	Yes (% of respondents)*	No (% of respondents)*
<i>Nationality</i>		
Canada	62.7	37.3
US	56.3	43.8
International	39.5	60.5
<i>Income</i>		
\$60,000 or less	47.1	52.9
\$60,001 - \$80,000	59.6	40.4
\$80,001 - \$100,000	43.2	56.8
More than \$100,000	66.7	33.3
<i>RV Ownership</i>		
Yes	60.6	39.4
No	39.7	60.3
<i>First-Timer</i>		
Yes	41.7	58.3
No	59.1	40.9

*Differences significant at the p< 0.05 level

Greening the RV

About 10% of the respondents use diesel generators as an energy source for their RV, 54.5% use a gasoline generator, 24.8% use solar panels and 31.2% use some other form of energy source (e.g. propane, batteries or other electrical sources). Most RVers (80%) use only one form of energy source for the RV while 20% use two or more sources. Of those who use only one energy source, about 12% depend solely on solar power.

Overall, less than a third (30.2%) of the respondents indicated that they had taken steps to "green" their RV. Differences exist based on demographic variables as well as RV-related behaviors. Canadians are more likely to have taken steps to green the RV (41.8% compared to 25.4% for Americans and 4.5% for international RVers) (Table 3). Also, young RVers are least likely to have taken steps to green the RV they travel with. Not surprisingly, RV or trailer owners are more likely to have taken steps and first-timers are less likely to have greened the RV. Interestingly, RV club membership has a positive influence in that club members are more likely to indicate that they had greened their RV. Finally, those who travel only a limited distance annually in their RV are least likely to have taken steps to green the RV. No significant differences were found for income, time spent traveling in an RV annually and education level.

Most of the RVers that have taken steps to green their RV installed solar panels (n=43). Some (n=23) also mentioned using more environmentally friendly products, chemicals and fuels, such as energy efficient lights and other electrical devices, biodegradable toilet paper, biodegradable soap, green water and drain chemicals. Some (n=3) have even mentioned downsizing to a more fuel-efficient RV units.

Table 3 - Significant Influences on Whether RV Has Been Greened

	Have greened the RV	
	Yes (% of respondents)*	No (% of respondents)*
<i>Nationality</i>		
Canada	41.8	58.2
US	25.4	74.6
International	4.5	95.5
<i>Age</i>		
34 or younger	13.5	86.5
35-44 years	25.9	74.1
45-54 years	28.0	72.0
55-64 years	41.5	58.5
65 or older	29.7	70.3
<i>RV Ownership</i>		
Yes	37.4	62.6
No	3.6	96.4
<i>First-Timer</i>		
Yes	5.5	94.5
No	36.1	63.9
<i>RV Club Membership</i>		
Yes	42.4	57.6
No	28.0	72.0
<i>Distance Traveled Annually</i>		
0-999km	20.0	80.0
1,000-4,999km	26.4	73.6
5,000-14,999km	43.2	56.8
15,000km or more	34.2	65.8

*Differences significant at the p< 0.05 level

Conclusions

RVers seem to be generally aware of the impacts they have and about half of those who perceive problems actively seek to mitigate the negative consequences of their travel style. This is also reflected in preferences for environmentally friendly campgrounds. However, only a small percentage of RVers have invested in alternative energy sources or engage in other activities to green the RV in which they travel. This is especially the case for those who do not own their RV and travel only short distances and perhaps do not seem to perceive the necessary impetus to exhibit pro-environmental behaviours. Interestingly the issue of greening wastewater holding tank procedures that is so pronounced in the existing practice of organizations promoting green RVing did not receive much mention in our study.

While clearly not all RVers are environmentally conscious, there seems to be a large enough group of RVers that are attracted to sustainable facilities to warrant investment in environmental protection in National Parks. Also, there appears to be a great potential to educate these travelers about their impacts and possibilities to mitigate such negative

effects while they visit protected areas. The existing programs on green waste-water RVing for tourists and campground operators that appear to be used heavily in eastern Canada did not resonate in this study, thus suggesting the possibility to tap into existing campaigns and programs for relatively little cost and potential high reward. The findings indicate that RVers see themselves as creating greater stewardship for parks and should certainly be involved in environmental protection initiatives. However, messages regarding the greening of the RV itself are almost certainly lost on those who do not own the RV.

One of the limitations of the study is that given the convenience-based sampling strategy we may not have achieved a representative sample of travelers. For example, compared to the 2007 General Summer Survey (Lajeunesse, 2007) this RV survey appears to have over-represented Canadians and under-represented Americans and Europeans. Consequently we recommend that if funding is available to continue the study a representative sampling strategy be utilized to identity how the entire market behaves. Also, many respondents skipped the open-ended questions where detail about specific concerns, actions and behaviours was provided. Follow-up, in-depth interviews could definitely shed even more light on perceived impacts and actions taken. Alternatively, Parks Canada could build off the information gathered in this study and the RV studies from eastern Canada to develop closed-ended questions for further research. A further limitation is the lack of available data with which to compare the environmental attitudes and actions of RVers to those of other visitors to National Parks.

The number of RV enthusiasts and RV buyers is likely to grow extensively in the US as well as Canada as the enormous baby boomer generation retires (Hardy et al. 2007). National Parks have to be aware of this growing visitor segment and should play an active role in encouraging RV travelers to engage in pro-environmental behaviours.

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