Department of Science, Information Technology, Innovation and the Arts

Attitudes of local communities:

Assessing the social impacts of the South East Queensland Horse Riding Trail Network

Griffith UNIVERSITY
Griffith School of Environment
Environmental Futures Centre

Great state. Great opportunity.

Queensland Government

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ISBN xxxxx

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Citation

Rossi, S. D., Pickering, C. M., Byrne, J. (2013). Attitudes of local communities: Assessing the social impacts of the South East Queensland Horse Riding Trail Network. Department of Science, Information Technology, Innovation and the Arts, Brisbane.

Acknowledgements

The authors of this report thank the support provided by officers of the Department of Science, Information Technology, Innovation and the Arts, particularly John Neldner, and to the local community members who took the time to complete the surveys.

March 2013

Table of Contents

List of Figures

List of Tables

Executive Summary

More than thirty-six State Forests were being converted to National Parks or Forest Reserves as part of the South East Queensland Forests Agreement. Although currently the Queensland Government is revising this process, a network of 547 kilometres of horse riding trails has been established within the Forest Reserves. These trails are part of the South East Queensland Horse Riding Trail Network. A twenty-year scientific monitoring program to assess the social and biophysical impacts of this Horse Riding Trail Network was established by the former Department of Environment and Resource Management (DERM). The Queensland Herbarium is responsible for the scientific monitoring program and is now in the Department of Science, Information Technology, Innovation and the Arts.

Griffith University was awarded a tender to develop and test a program to monitor the social impacts of the Horse Riding Trail Network. This included producing three reports, where the first report assessed visitor attitudes, the second report assessed the attitudes of stakeholder organisations, and this, the third report, assesses local communities' attitudes about the Horse Riding Trail Network.

Griffith researchers surveyed local communities living close to the South East Queensland Horse Riding Trail Network to obtain information about their attitudes to different recreational activities in the parks/reserves. A total of 5000 households (>6%) close to the South East Queensland Horse Riding Trail Network were posted survey packages. This included information for consent to the survey, a two page survey including a map of their local park/reserve which includes part of the South East Queensland Horse Riding Trail Network, and a return prepaid envelope. The survey asked : a) if the respondent used their local park/reserve, and if so, how often, b) the main activities they undertake in the park/reserve, c) if a range of different recreational activities affect them and, if so, why , and d) demographic data.

A total of 386 surveys were returned resulting in 9.3% response rate. Similar proportions of males and females responded to the survey and there were no differences among respondents using parks/reserves and those who do not use them. People responding to the survey were mostly mature age with 81% over 44 years old, which differs from census 2011 data for the same localities. However, users of parks/reserves included more people between 35 to 65 years old than non-users. Just over two-thirds of respondents use their local park/reserve. Although usage varied among parks/reserves, nearly all respondents used their local park/reserve (except for Nerang National Park for which only 41% of respondents used it). Common activities undertaken in the parks/reserves were: bushwalking (62% of users), mountain bike riding (7%), picnicking (7%), sightseeing (6%), running (4.6%), dog walking (3.5%), photography (3.5%) and horse riding (2.7%).

Generally attitudes towards bushwalking, running and picnicking were neutral or positive; mountain biking, horse riding and dog walking were mostly neutral; although some people felt negatively affected, and some positively affected. Around 60% of respondents were negatively affected by trail bike riding and four wheel driving, with only 5% positively affected.

The activities considered to have few environmental and/or social impacts were bushwalking, running, and picnicking, while mountain biking, horse riding and dog walking were considered by around one fifth of respondents to have impacts. In contrast, trail bike riding and four wheel driving were considered to have impacts by over half of all respondents, with many listing multiple impacts.

Overall, off-site impacts of the activities on the Horse Trail Network and surrounding parks/reserves were low. Common social impacts reported by non-users included noise, traffic and startling people. Furthermore, non-users also mentioned environmental impacts including damage to plants and animals and frightening wildlife.

Similar trends regarding the activities conducted in parks, and attitudes about them were found for each group surveyed: park visitors, stakeholder organisations and local communities. Many of those surveyed reported they were positively or neutrally affected by non-motorised activities in local parks/reserves including horse riding and dog walking, but most reported they were negatively or strongly negatively affected by motorised activities in the parks/reserves. An exception to this was the attitude of recreation organisations and conservation organisations to mountain biking and horse riding, with conservation organisations often listing these activities as negatively affecting them.

Background

A number of areas of State Forest and other Reserves within South East Queensland have been, or are in the process of being transferred to National Park as an outcome of the South East Queensland Forests Agreement (SEQFA). Although currently the Queensland government is revising this process, most recreational activities will continue to be permitted within these parks and reserves based on what is considered appropriate and sustainable for each protected area (DERM, 2008a). Within the guidelines established by the Nature Conservation Act 1992, horse riding is permitted by regulatory notice in nominated areas of conservation parks, resources reserves, and forest reserves (DERM, 2008b) (Table 1).

Table 1. Permitted activities in Queensland Parks and Wildlife Service managed areas based on their current status (DERM, 2008b).

Status	Bush Walking	Vehicles	Horse riding	Dog-walking (guide dogs excepted)	Grazing	Bee Keeping
National park (scientific)	**X**	**X**	**X**	**X**	**X**	**X**
National park	Ok	Ok on roads	**X**	**X**	**X**	**X**
National park (recovery)	Ok	Ok on roads	**X**	**X**	**X**	**X**
Conservation park	Ok	Ok on roads	Ok, by regulatory notice	**X**	**X**	Ok under permit
Resources reserve	Ok	Ok on roads	Ok, by regulatory notice	**X**	**X**	Ok under permit
Forest Reserve	Ok	Ok on roads	Ok by regulatory notice	Ok by regulatory notice	Ok under permit	Ok under permit

Ok = may occur, where permitted **X**= No, cannot occur on this tenure

In South East Queensland, horse riding is a popular activity, including within State Forests (Pickering, 2008). Some of these State Forests have been traditionally used for horse riding, and the Queensland Government proposes to continue to provide access for this activity on some formed management roads traversing the newly created parks. Horse riding trails are designated on narrow strips of forest reserve when the surrounding area is transferred to National Park (DERM, 2011). The Queensland Government created the South East Queensland Horse Riding Trail network (SEQ-HTN) in 2007 in recognition that horse riding has long been a part of the state's lifestyle and character. The SEQ-HTN is a network of existing formed management roads located within Forest Reserves that traverse some of the new national parks and conservation parks (DERM, 2011). The SEQ-HTN consists of approximately 547 km of trails within five areas: Noosa, Mapleton, Kenilworth, Caboolture-Bellthorpe, Western Brisbane and the Gold Coast. There are also approximately 340 km of trails within State Forest and forest plantations adjacent to the SEQ-HTN, and over 470 km of trails on other lands. In these trails, activities that are often permitted include horse riding,

mountain bike riding and bushwalking. Equestrian activities are restricted outside the SEQ-HTN in declared national parks (DERM, 2011).

As part of the establishment of the new National Parks, the Queensland Government established a long-term (20-year) scientific monitoring program to assess the social and biophysical impacts of the SEQ-HTN, and review its operation (DERM, 2011). A primary aim of the social component of the scientific monitoring program is to understand visitor, stakeholder organisation, and community attitudes and perceptions towards the Horse Trail Network in South East Queensland (SEQ). To do this, the former Department of Environment and Resource Management issued a tender, for the provision of scientific and technical services, to develop and test a program to monitor social impacts of the SEQ-HTN. Griffith University was awarded that tender.

This report is the third of three reports examining perceptions and attitudes about the Horse Trail Network and parks in general. The first report included park user's perceptions and attitudes about the Horse Trail Network (Rossi, Pickering & Byrne, 2013a). The second report described stakeholder organisations' perceptions of the Horse Trail Network, including different types of recreational activities (Rossi, Pickering & Byrne, 2013b).

The protocols and survey instruments used for all three surveys were carefully designed for current and future monitoring of the attitudes and perceptions of park visitors, stakeholder organisations and the broader community to the Horse Trail Network.

Aims of this report

This report outlines the results of a survey of the local communities around six parks/reserves that contain parts of the Horse Riding Trail Network. It addresses the potential for off-site impacts of the South East Queensland Horse Riding Trail Network on local communities.

This document specifically reports on:

- How many local residents use the parks/reserves, how often and what are the main activities they undertake in the parks/reserves
- The attitudes of local communities about different recreational activities in the SEQ-HTN and surrounding parks/reserves including if they think activities have social and/or environmental impacts.

Methods

To obtain information about attitudes of communities living close to the SEQ-HTN, a postal survey of 5000 local households was used. Postal surveys are a common and practical method for surveying local communities allowing large numbers of households to be given the opportunity to reply to issues of local concern (Veal, 2011). Limitations of these types of surveys include low response rates and a potential for higher participation of those who feel strongly about the issues surveyed (Veal, 2011) and/or of older members of the community (who may have more time to respond, and are more likely to respond to a postal survey than one using social media).

The first stage of this survey involved selecting households to survey.

How were households in the local communities around the parks/reserves selected?

In this report we assessed the attitudes of the local communities around the SEQ-HTN and associated park/reserves. These 'community catchments' are the main region from which local people access protected areas and/or contain people who may be directly affected by them (Bentrupperbäumer & Reser, 2006). To identify the local communities for the SEQ-HTN we used the same six parks/reserves used for the on ground visitor survey detailed in the first report (Rossi, Pickering & Byrne, 2013a). These parks/reserves are geographically spread across South East Queensland. Therefore, local communities were surveyed around North and South D'Aguilar National Park, Tewantin National Park, Mapleton Forest Reserve, Glass House Mountain National Park and Nerang National Park.

A map was produced using a Geographic Information System (GIS) denoting a five kilometre buffer around the main entrances where visitor surveys were conducted in each of these six parks/reserves, based on the distance that people travel to local amenities (which is usually five kilometres or less)(Haugen & Vilhelmson, 2013)(Figure 1). A GIS shape-file of the locality boundaries (e.g. suburbs in cities), as provided by the Department of Natural Resources and Mines, was used to select the specific localities to be surveyed for each local community. All localities contained and intersected by the five kilometres buffer areas around each park/reserve were surveyed (Figure 1).

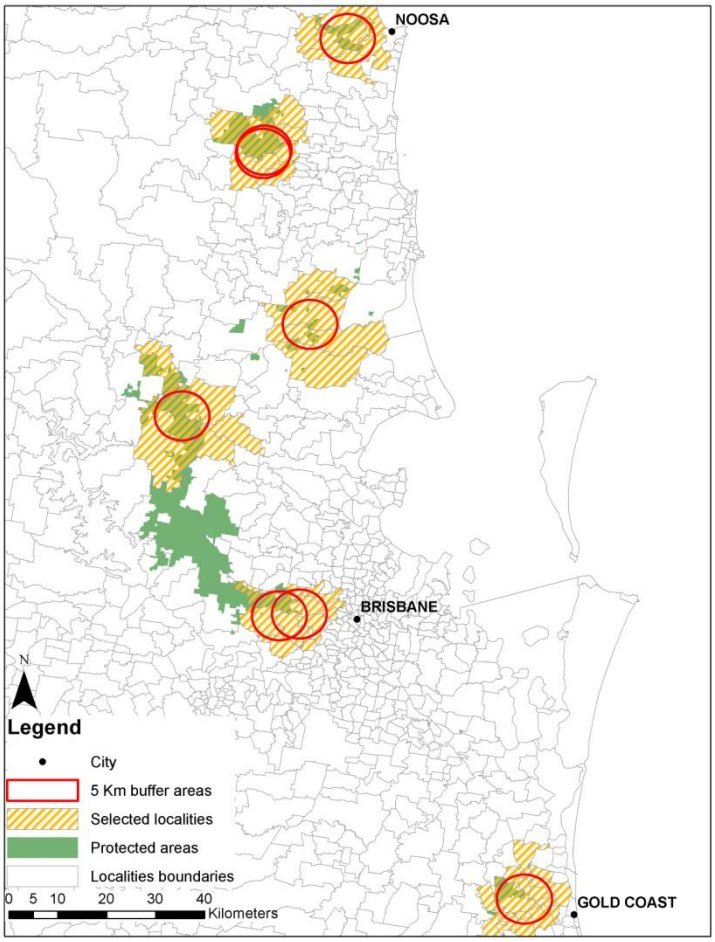

Figure 1. Buffer areas of five km (circles) centred around the main visitor entrance(s) for the six park/reserve and the resulting localities used to survey each local community.

To check that these suburbs include many of those who visit the parks/reserves, we generated a map using the data provided from an extensive in-park survey of visitors (Figure 3). This confirmed that most park users are locals who live near the parks, within the localities identified using five kilometres buffer areas. The next step was to select residences (residential households) within these community catchments to survey.

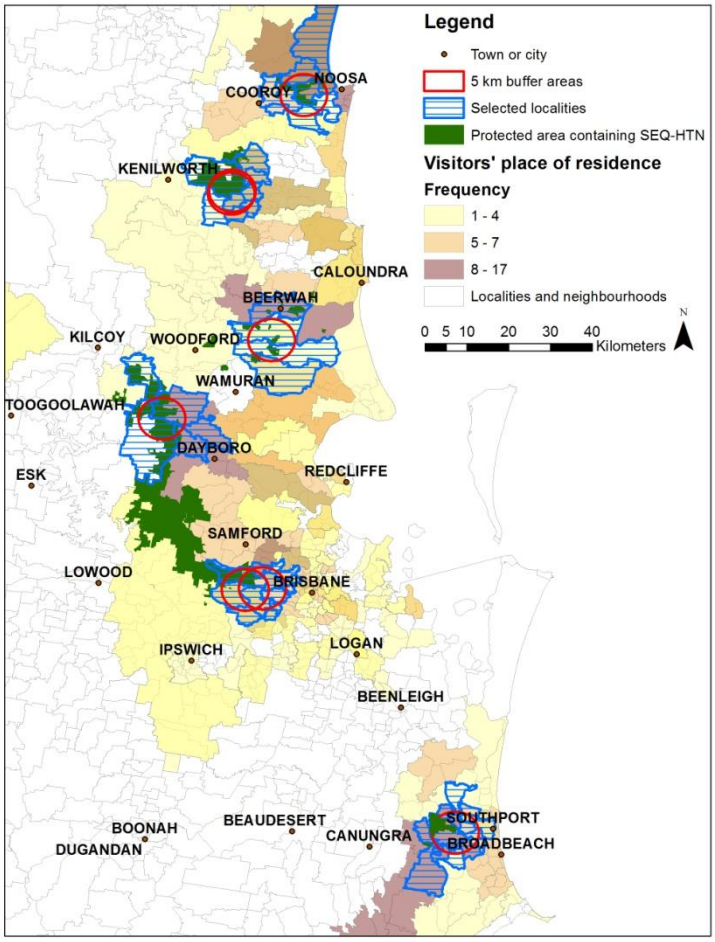

Figure 2. Map showing the postcodes of park users based on an in-park survey, and how this relates to the localities selected for the survey of local communities.

Address database and residents selection

A commercial database of residential address (households) was purchased from CustomLists.net in December 2012. This database contained the addresses of more than 1.3 million people including: a) contact name, b) phone number and c) postal address. From this database, all addresses within the selected localities around the seven parks/reserves (81,239 households) were extracted and imported into the Statistical Package for Social Science (SPSS® V19). To ensure that all households in these localities were equally likely to be selected for surveying we used a stratified random selection process (Veal, 2011) so that just over 6% of all households were sent a survey (Table 2). Consequently more surveys were sent to localities with higher numbers of households than those with fewer households. For example, there are ~ 9,207 households in the localities around Tewantin National Park which represents ~11% of the total number of households around all parks/reserves (e.g. ~81,239 households). Thus, ~11% of survey packages (567) were sent to those living in the community catchment around Tewantin National Park (Table 2). This methodology ensures

that every residence in these community catchments has the same probability of being surveyed.

Table 2. Number of residential addresses/households in each of the local communities around the different parks/reserves and the number surveys sent to each local community.

	National Park or Forest Reserve					
	Tewantin	Mapleton	Glass House Mt.	North D'Aguilar	South D'Aguilar	Nerang
Households in localities adjacent to each park/reserve	9,207	1,766	4,387	668	24,712	40,499
Surveys per park/reserve	567	109	270	41	1,521	2,493

Data collection

For each of the 5000 households selected, a survey package was posted to a named resident at that household. Using a resident's name has been found to increase the response rates for postal surveys (Dillman, 2007). The survey package contained an introductory letter (Appendix I), an information sheet including consent to participate in the survey (Appendix II), the questionnaire (Appendix III) and a reply-paid envelope. All survey packages were posted in the first week of January 2013. People had the option to use the printed questionnaire with the reply-paid envelope or an on-line version of the questionnaire using Survey Monkey® (a commercial on-line survey engine). The questionnaire used for surveying each community catchment was prepared to be relevant to the specific park/reserve being surveyed. Therefore, questionnaires sent to Tewantin community catchment asked questions about Tewantin National Park (e.g. How often do you visit Tewantin National Park?).

Data transcription and analysis

Nearly all the surveys returned were in hard copy with only 30 surveys completed electronically. Data from each completed survey were entered into Excel initially, cross checked for accuracy, and then transferred to the Statistical Package for Social Science (SPSS®) version 19 for further analysis including calculating descriptive analyses (frequencies, case summaries and cross tabulations). This included comparing the demographics and attitudes of those people who use the SEQ-HTN and associated parks, with those who do not use these areas.

Results

Who participated in the survey?

A total of 830 out of 5000 survey packages were returned to sender because the person listed as living at the address supplied in the commercial database was no longer at that address (a ~16% error in the database). This resulted in a ~16% reduction in the sample size (4170 residents contacted). A total of 388 people responded to the questionnaire resulting in 9.3% response rate (Figure 3). Of these respondents, two were excluded from further analysis because the questionnaires were incomplete. Therefore a total of 386 complete surveys were analysed. The response rate varied among different local communities, with a higher proportion of surveys returned by people living close to North D'Aguilar National Park (18.3%) than Nerang National Park (5.8%)(Table3).

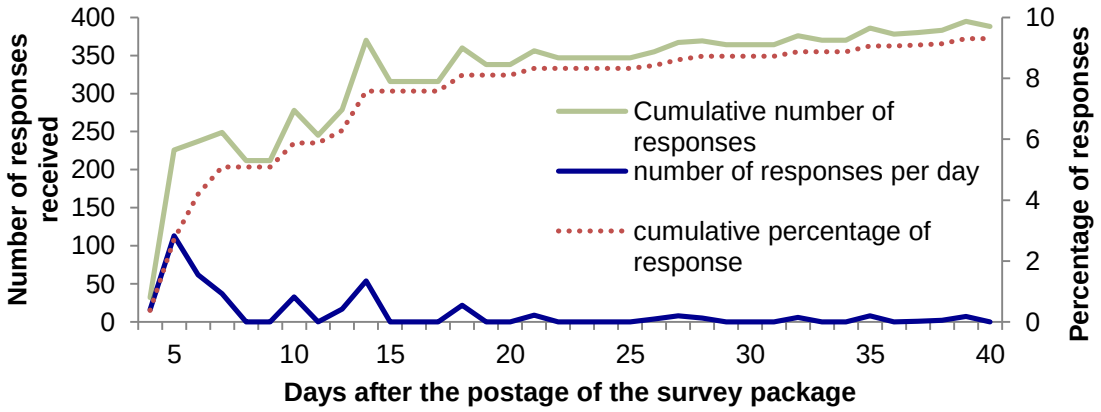

Figure 3. Number of responses and the cumulative number of responses per day over the first 35 days after the survey packages were posted. The dot line represents the cumulative percentage of surveys returned.

Table 3. The proportion of surveys returned based on the numbers sent out to the catchment communities around each park/reserve.

	Tewantin	Mapleton	Glass House Mt.	North D'Aguilar	South D'Aguilar	Nerang
# surveys sent	567	109	270	41	1521	2493
# surveys answered	59	20	22	10	128	147
% surveys answered	10.4%	18.3%	8.1%	24.3%	8.4%	5.8%

Just over two thirds (68%) of those who responded use their local park/reserve (Figure 4). There were differences in the proportion of users vs. non users among parks/reserves, with over half of respondents who live close to Nerang National Park, not visiting the Park, while for the other parks/reserves nearly all respondents used their local park/reserve (Figure 4).

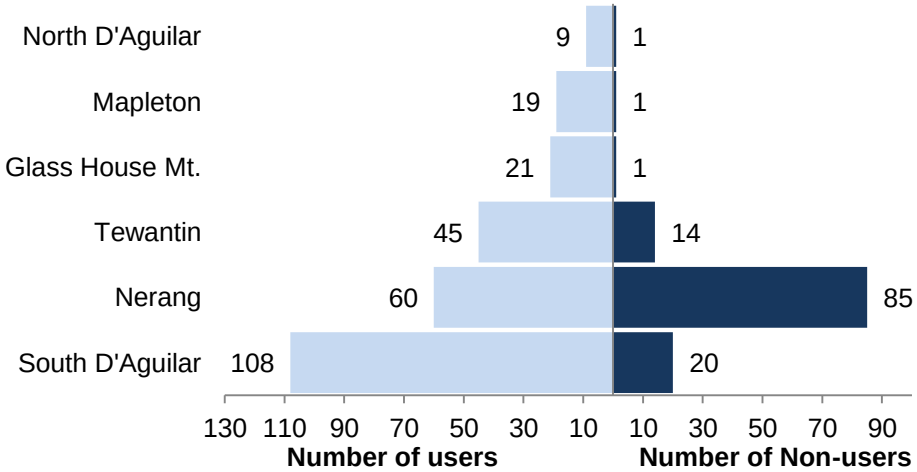

Figure 4. Number of respondents per park/reserve, including the numbers who use the park/reserve.

Similar numbers of men and women responded to the surveys (49.3% males), and this applied to both those who use the parks/reserves and those who do not (Figure 5). Most respondents (213) had completed tertiary education and/or had university degrees, around

one third (130) had finished secondary school or had vocational or technical education with only 38 respondents not finishing secondary school. Differences were found in the level of education between users and non-users. People who use the parks/reserves tended to have a higher level of education (160 users) than non-user (53 respondents).

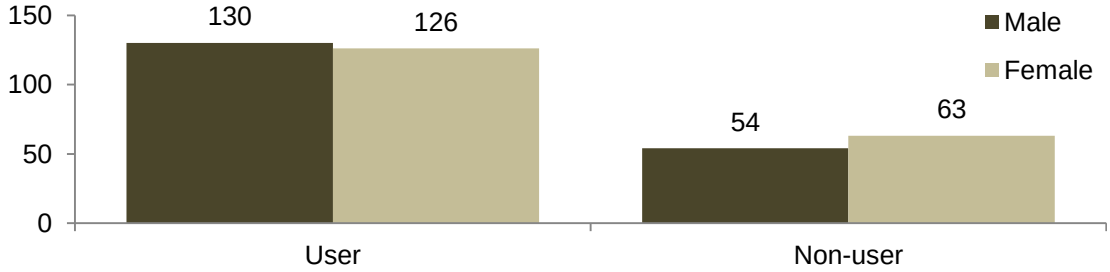

Figure 5. Numbers of male and female users and non-users of the parks/reserves based on a survey of the local communities (373 responses to this question).

The largest number of respondents (34%) was over 65 years old (21% users, 13.2% non-users), with few respondents under 35 years old (4.4%) (Figure 6). This differs to the age distribution of the population in the sampled areas, indicating a higher percentage of older people responded to the survey (Figure 7). There were differences in the age distribution between those who use the parks/reserves and those who do not. Park/reserve users included a much higher proportion of people in the 35 to 65 age group (65%) than for non-users (2.6%).

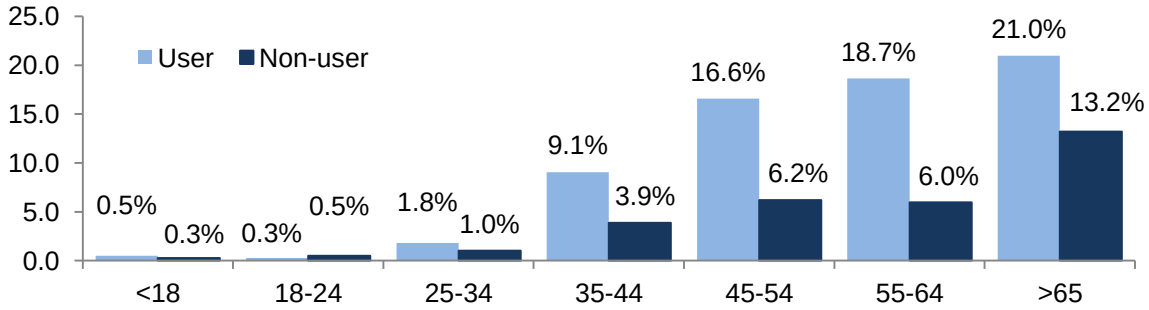

Figure 6. Age distribution of users and non-users of the parks/reserves based on a survey of the local communities.

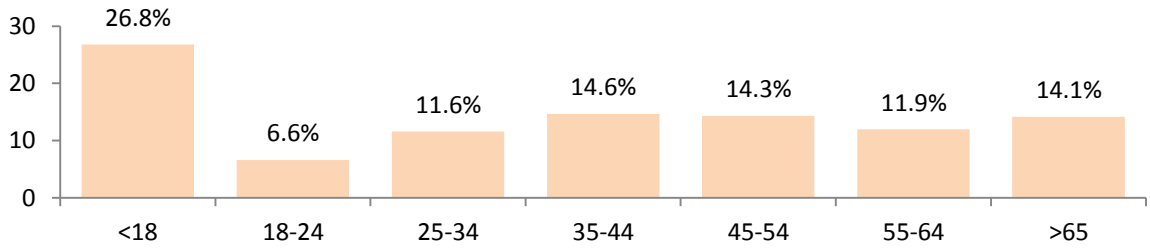

Figure 7. Age distribution of the population in the local community catchments (ABS 2011).

Among those who use their local park/reserve, similar numbers use them every week, more than 5 times a year, or only 2-5 times a year, while just under a third of users, 31%, use the park once a year or less (Figure 8).

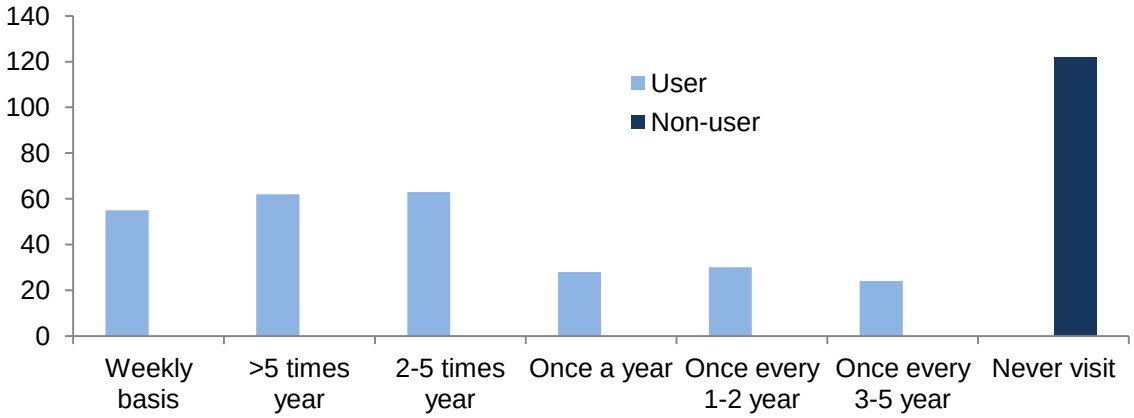

Figure 8. Number of people who use parks/reserves at different frequencies based on a survey of local communities.

Some people (14%) use the parks/reserves frequently (weekly) with another 16% using them more than five times per year (Figure 9). The frequency which people visit their local park/reserve varied, with D'Aguilar National Park (south section), Tewantin National Park, Glass House Mountains National Park and Mapleton National Park the most frequently visited (Figure 9). The situation for Nerang National Park was different with almost 60% of respondents never using the Park.

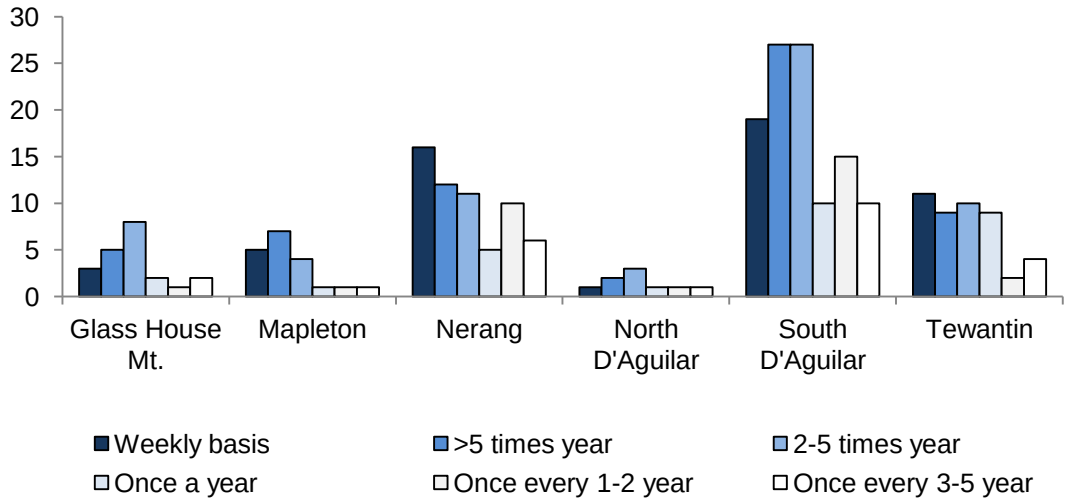

Figure 9. Frequency of visits to the different parks/reserves based on a survey of local communities.

What do users do in the parks/reserves?

When asked 'what is the main activity you normally undertake in *[local park/reserve name]* by far the most common activity listed was bushwalking (62%) (Figure 10). Other activities listed were: mountain bike riding (7%), picnicking (7%), sightseeing (6%), running (4.6%), dog walking (3.5%), photography (3.5%), horse riding (2.7%) with 2 people listing trail bike riding. Also four wheel driving, bird watching, meditation and swimming were listed by only one each. Although trail bike riding was given as the main activity undertaken by one user each in Nerang National Park and North D'Aguilar National Park, and four wheel driving by one user

for Tewantin National Park, these activities are illegal in Nerang National Park and Tewantin National Park.

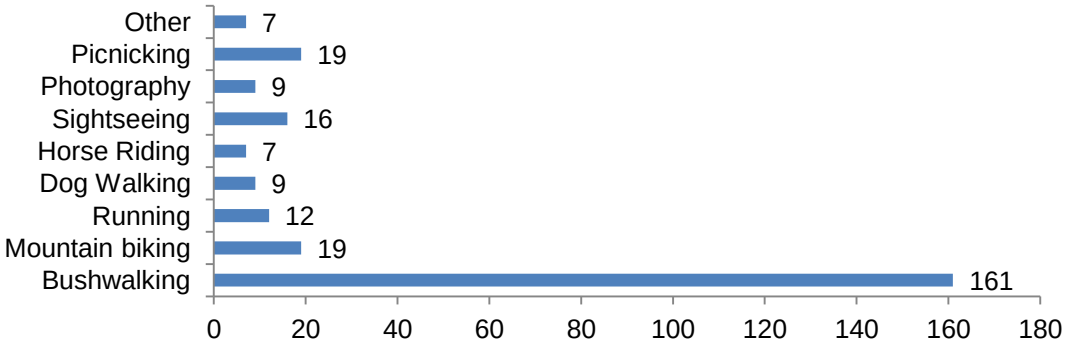

Figure 10. The main activities undertaken by users of local parks/reserves based on a survey of local communities (259 of the 262 users answered this question).

To quantify the number of 'visits' per year per activity by the local communities, the frequency of use per respondent was weighted as followed: *weekly use = 54, >5 times a year = 12, 2-5 times a year = 5, once a year = 1, once every 1-2 years = 0.5, once every 3-5 years = 0.25*. Based on use frequency, bushwalking remained to be the main activity followed by mountain biking with more than 500 visits per year (Figure 11). Activities such as running, dog walking and horse riding were also popular, although listed by only 28 respondents, the frequency of visit per year rose to >210 (Figure 11).

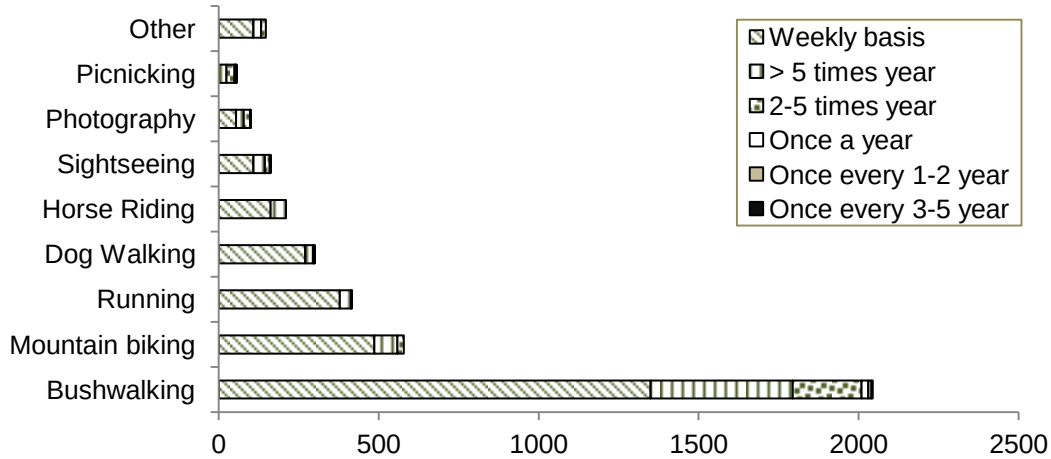

Figure 11. Activities conducted in parks/reserves weighted by the frequency of visits based on a survey of local communities, where weekly use = 54, >5 times a year = 12, 2-5 times a year = 5, once a year = 1, once every 1-2 years = 0.5, once every 3-5 years = 0.25.

Are users affected by other recreational activities?

When asked to identify how positively or negatively different activities in the park/reserve impact upon them, the main activities listed as having a negative effect were trail bike riding and four wheel driving (Figure 12). The activities with the highest average positive responses were bushwalking, running and picnicking, with mountain biking, horse riding and dog walking on average having no effect. In general non-users were less positively or negatively affected by any activity than users.

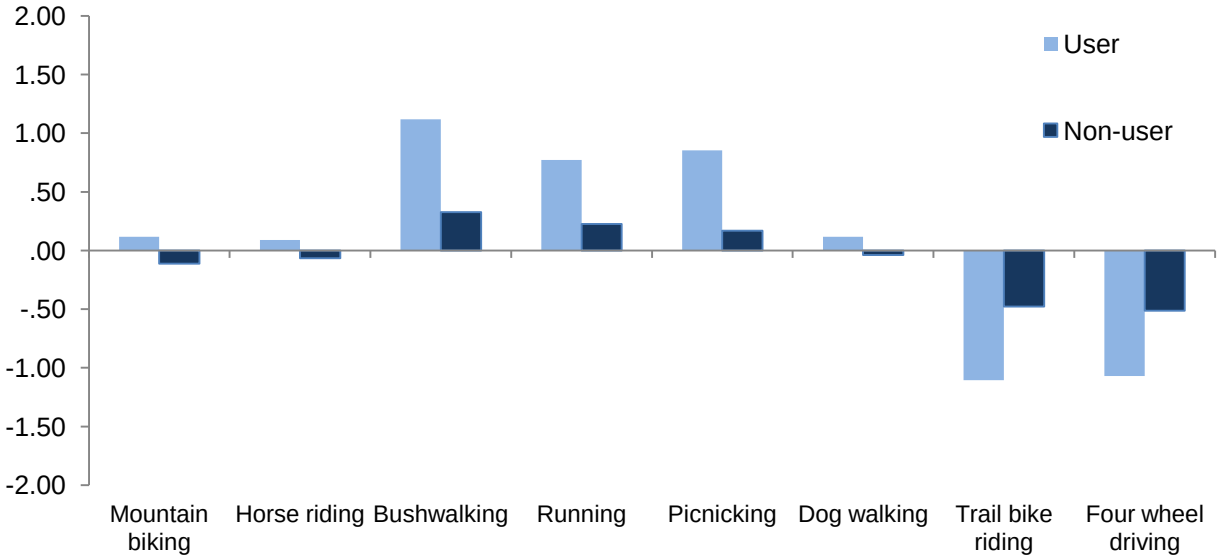

Figure 12. The positive or negative impacts of different activities in park/reserve on users and non-users, with data given as the mean of a 5 point likert scale question with values ranging from strongly positive (2), neutral (0) to strongly negative (-2).

Although some respondents reported they were negatively or positively affected by non-motorised activities, often half or more reported there was no effect (Table 4). Bushwalking was an exception, with most respondents feeling positively or strongly positively affected by this activity. The response to motorized activities was the reverse with most respondents negatively or strongly negatively affected by trail bike riding and four wheel driving (Table 4). Two thirds of respondents considered that horse riding had no effect on them. However, there were a few respondents who felt that horse riding had a strongly negative effect, and a few that it had a strongly positive effect (Table 4).

Table 4. Attitudes of respondents about other activities in their local park/reserve. The Table summarises the number of people who reported feeling negatively, neutrally or positively affected by these activities.

	Strongly negative	Negative	Neutral	Positive	Strongly positive	Total
Mountain biking	36	36	205	39	43	359
Horse riding	22	32	236	42	25	357
Bushwalking	2	2	155	74	126	359
Running	3	8	194	65	83	353
Picnicking	4	11	175	79	87	356
Dog walking	33	38	197	46	41	355
Trail bike riding	145	74	127	9	9	364
Four wheel driving	147	62	134	11	7	361

The seven horse riders' who used their local park/reserve had positive attitudes about all other activities apart from trail bike riding and four wheel driving which they considered to strongly negatively affect their experience, with only one horse rider considering that they did not affect them (Table 5).

Table 5. Attitudes of horse riders about other activities in the parks/reserves. The table summarises the number of horse riders who felt negatively, neutrally or positively affected by other activities in the parks/reserves.

	Strongly negative	Negative	Neutral	Positive	Strongly positive
Mountain biking	0	0	3	1	2
Horse riding	0	0	2	1	4
Bushwalking	0	0	5	1	1
Running	0	0	5	2	0
Picnicking	0	0	3	4	0
Dog walking	0	1	2	4	0
Trail bike riding	4	3	0	0	0
Four wheel driving	4	2	1	0	0

The potential for conflict among people undertaking different activities in the parks/reserves was analysed. There was no conflict between horse riders and mountain bikers, with both user groups having similar positive attitudes based on the survey of the local community (Table 6). This contrasts to the results from the surveys of visitors in the parks/reserves outlined in the first report, where asymmetric conflict was found with horse riders negatively affected by mountain bikers but not vice versa (Rossi, Pickering & Byrne, 2013a). Asymmetric conflicts were found for park users from the survey of local communities with bushwalkers slightly negatively affected by mountain biking (-0.13), bushwalkers slightly negatively affected by horse riders (-0.12), picnickers slightly negatively affected by mountain bikers (-0.29) and picnickers slightly negatively affected by dog walkers (-0.19).

Table 6. Users and non-users attitudes about the effect of other activities in the parks/reserves on them. Values represent the mean of a likert scale question ranging from strongly positive (2), neutral (0) to strongly negative (-2).

	Mountain biking	Horse riding	Bushwalking	Running	Picnicking	Dog walking	Trail bike riding	Four wheel driving
Bushwalkers	-0.13	-0.12	1.19	0.69	0.90	0.09	-1.27	-1.23
Mountain bikers	1.79	0.47	1.37	1.26	0.89	0.24	-0.68	-0.89
Picnickers	-0.29	0.13	0.88	0.56	1.12	-0.19	-1.06	-0.94
Sightseeing	-0.33	0.33	0.73	0.33	0.53	-0.40	-0.75	-0.60
Runners	0.75	0.25	1.25	1.67	0.50	0.33	-1.08	-1.00
Dog walkers	0.44	0.67	1.22	1.22	0.56	1.44	-1.22	-1.22
Photographers	0.22	0.22	1.22	1.11	1.22	-0.33	-1.00	-1.22
Horse riders	0.83	1.29	0.43	0.29	0.57	0.43	-1.57	-1.43

Why do some activities affect people?

Respondents were asked to specify why activities affected them. A range of social and environmental impacts were listed and there was an option to add other impacts. These impacts included traffic, frightening wildlife, damage to plants and animals, too much noise, leaving animal waste, startling people, creating litter and the potential for collisions or injury.

The activities listed were mountain biking, horse riding, bushwalking, running, picnicking, dog walking, trail bike riding and four wheel driving.

Mountain bike riding

A total of 21% (81 respondents) considered that mountain biking had environmental and/or social impacts. Mountain biking was often considered to have safety issues such as the potential for collisions and injury (16%). Other social impacts listed included startling people (10%), traffic (8.6%) and noise issues (7.2%). Environmental impacts of mountain biking listed by respondents included damage to plants or animals (16%) and scaring wildlife (12%)(Figure 13).

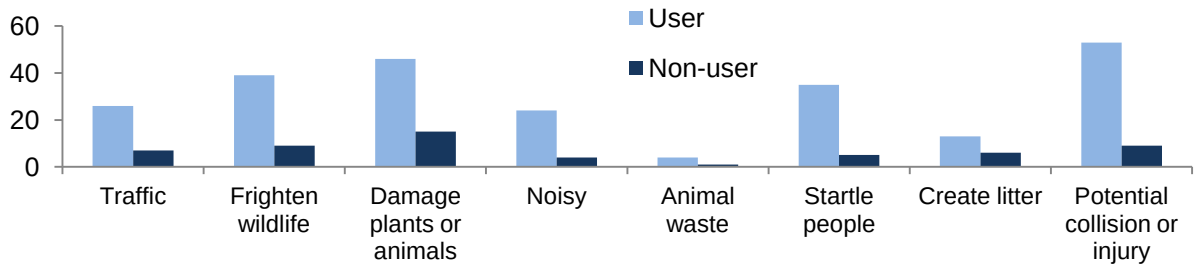

Figure 13. Environmental and social impacts of mountain biking listed by users and non-users of local parks/reserves.

Horse riding

Horse riding was considered by 62 respondents (16%) to have environmental and/or social impacts. Horse riding environmental impacts included leaving animal waste (12%), damaging plants or animals (9.8%), frightening wildlife (5.2%) and creating litter (2.9%). Social impacts included the potential for collisions or injury (6.7%), startling people (4.4%) and traffic (2.9%) (Figure 14).

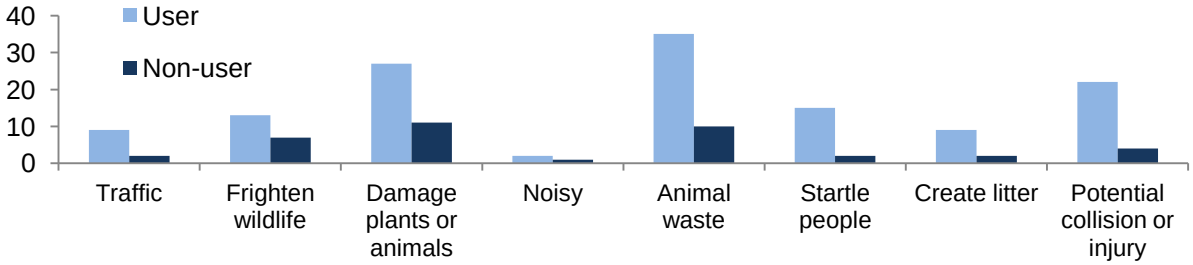

Figure 14. Environmental and social impacts of horse riding listed by users and non-users of local parks/reserves.

Dog walking

Dog walking was considered by 20% (77 respondents) of people to have environmental and/or social impacts. Social impacts include the potential for collisions or injury (2.8%), startling people (6.7%), noise (2.6%) and traffic (1.3%). Environmental impacts included animal waste (17%), frightening wildlife (13%), damage to plants or animals (10%), and litter (4.4%)(Figure 15).

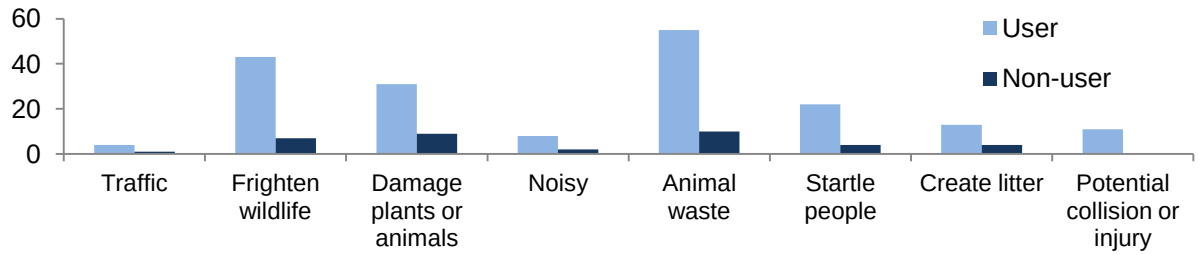

Figure 15. Environmental and social impacts of dog walking listed by users and non-users of local parks/reserves.

Trail bike riding

More people considered trail bike riding to have impacts than for any of the non-motorized activities (221 people, 57%). Overall 71% of users (188 respondents) but only 27% of non-users (33 people) considered trail biking riding to have impacts. Social impacts listed included noise (49%), potential collisions or injury (45%), traffic (31%) and startling people (30%). Environmental impacts included frightening wildlife (43%), damaging plants or animals (43%), and litter (12%) (Figure 16).

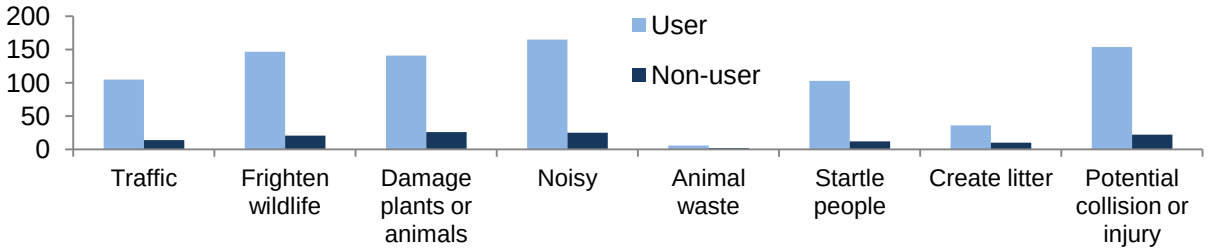

Figure 16. Environmental and social impacts of trail bike riding listed by users and non-users of local parks/reserves.

Four wheel driving

Four wheel driving was considered by 54% of respondents (209 people) to have environmental and/or social impacts. Patterns of impacts reported for this activity are similar to those for trail bike riding. Mostly users (67%, 176 people) reported impacts of this activity but only 27% (33 people) non-users reported impacts. The most commonly listed environmental impacts were damage plants or animals (45%), frightening wildlife (42%) and creating litter (15%). Social impacts such as potential collisions or injury (43%), startle people (24%), traffic (34%), and noise (41%) were also often listed for four wheel driving (Figure 17).

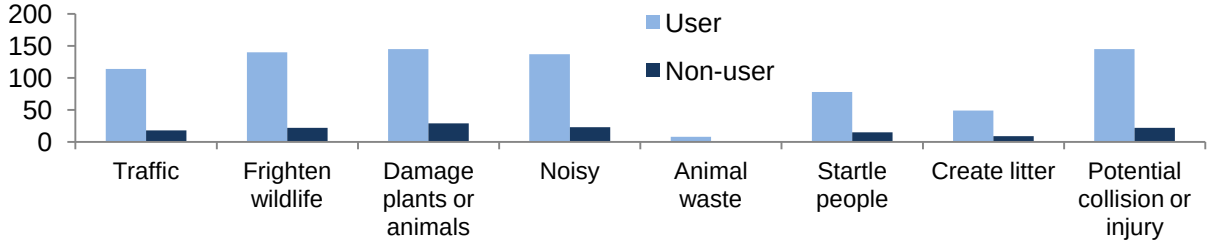

Figure 17. Environmental and social impacts of four wheel driving listed by users and non-users of local parks/reserves.

Although, other activities conducted in the parks such as bushwalking, running or picnicking affected respondents mostly neutrally and positively, few people considered these activities to have any social or environmental impact.

Bushwalking

Just nine people considered that bushwalking had environmental and/or social impacts. Environmental impacts included damaging plants or animals (6 people), frightening wildlife (3) and litter (3). Social impacts included the potential for collisions or injury (2 people), startling people (2), noise (1) and traffic (3) (Figure 18).

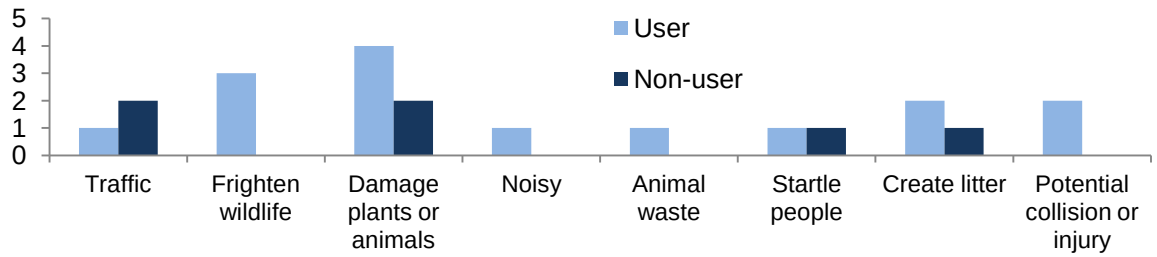

Figure 18. Environmental and social impacts of bushwalking listed by users and non-users of local parks/reserves.

Running

Users and non-users (14 respondents) of the parks/reserves considered this activity to have environmental and/or social impacts. Running was mostly considered by a few users to have safety issues with seven people listing the potential for collisions or injury and two people listing noise as impacts. Social impacts reported by non-users were startling people (7), and traffic (4). Running was also considered by users and non-users to damage plants or animals (7) and create litter (4). Also users reported frighten wildlife (3) as another environmental impact of runners (Figure 19).

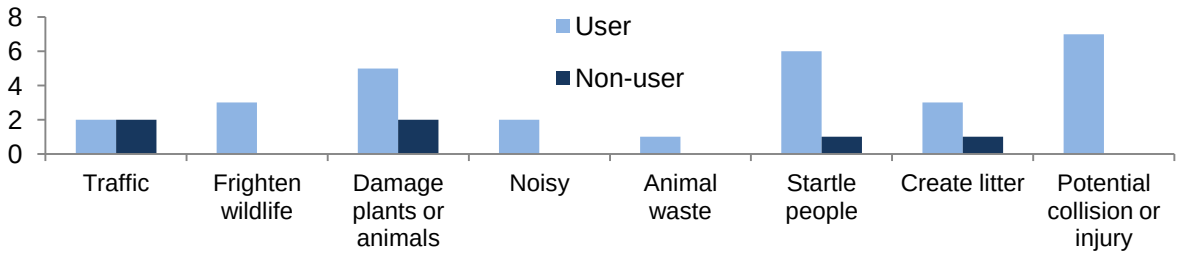

Figure 19. Environmental and social impacts of running listed by users and non-users of local parks/reserves.

Picnicking

Users and non-users (22 respondents) of parks and reserves considered picnicking to have some environmental and/or social impacts. The most commonly listed impact was littering (20) with a few people also listing damaging plants or animals (10) and frightening wildlife (7). There were a few people who also listed impacts such as traffic (3), noise (2), leaving animal waste (2), startling people (1) and safety issues (2) (Figure 20).

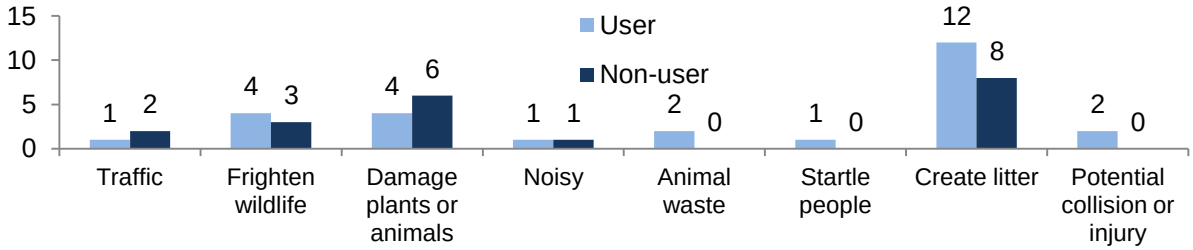

Figure 20. Environmental and social impacts of picnicking listed by users and non-users of local parks/reserves.

In this report, off-site impacts of the SEQ-HTN are based on how activities conducted in the SEQ-HTN affected the non-users of parks/reserves of the local communities. Overall, the off-site impacts of the SEQ-HTN in the local community were low. A high proportion of non-users of parks/reserves were negatively affected by motorised activities and very few considered other activities such as mountain bike riding, horse riding and dog walking as slightly negatively affecting them.

The social off-site impacts reported by non-users of park/reserves included ‘make too much noise’, ‘traffic’ and ‘startle people’, while off-site environmental impacts included ‘damage plants and animals’, ‘frighten wildlife’ and ‘create litter’. Although most of these off-site impacts were considered for motorised activities such as trail bike riding and four wheel driving, other activities such as mountain bike riding, horse riding and dog walking were perceived as also responsible for these off-site impacts.

Conclusions

Local communities

A survey instrument suitable for current and long term monitoring of the social issues in relation to local communities associated with the SEQ-HTN has been developed and tested. The instrument appears to be reliable and can furnish usable data about the attitudes of local communities to the SEQ-HTN and associated parks and reserves. Repeated use of the survey instrument is recommended to allow assessment of local community and neighbours’ perceptions about the SEQ-HTN over time.

Most of the respondents from local communities around parks/reserves with SEQ-HTN were highly educated and most were over 44 years old, which differs to the overall population in the areas around the parks. The parks are used by two thirds of residents, mainly for bushwalking, although there was variation in usage among parks/reserves.

Attitudes towards other activities in the SEQ-HTN and surrounding parks/reserves were:

- Most respondents tend to have slightly positive or neutral attitudes to most non-motorised activities.
- Motorised activities negatively affected nearly all respondents.
- The few horse riders who used the park SEQ-HTN, did not report conflicts with nearly all non-motorised activities, but were negatively affected by motorised activities.

- While most respondents had a neutral attitude to horse riding- a few had negative attitudes (15%) and a few positive (19%)
- Activities considered having the largest number of social and environmental impacts were trail bike riding and four wheel driving.

Overall, off-site impacts of the activities conducted in the Horse Trail Network and surrounding parks and reserves were low. However, impacts were reported particularly for motorised activities such as trail bike riding and four wheel driving both by users and non-users. Other activities such as mountain bike riding, horse riding and dog walking were perceived to be responsible for some impacts. Common social off-site impacts from these activities reported by non-users were 'make too much noise', 'traffic' and 'startle people'. Furthermore, non-users also mentioned environmental impacts including 'damage plants and animals' and 'frighten wildlife'.

Comparing the results from park visitors, stakeholder organisations and local communities surveys

The main results from the three surveys including sampling characteristics, activities conducted in parks/reserves and attitudes about activities have been compared (Figure 21). There were differences in the response rates and demographics of those who responded to the in-park visitor survey compared to the local communities' survey. Although nearly all those asked to participate in the in-park survey did so (79%) only 9.3% of households close to the parks/reserves responded. As a result there were strong demographic differences between these two surveys, with most in-park users male between the ages of 25-54 years, while for the local communities survey there were similar numbers of males and females who responded, and most were >44 years old (Figure 21). Among stakeholder organisations, there were more recreation-based than conservation-based organisations using these parks/reserves, and hence surveyed (Rossi, Pickering & Byrne, 2013a).

In terms of activities undertaken on the SEQ-HTN and in adjacent parks/reserves, mountain biking and bushwalking were often popular, although usage patterns varied among parks/reserves, and between those who responded to the in-park survey and the local communities' survey. Based on the in-park survey, the most popular activities on the SEQ-HTN were mountain bike riding (44%) and bushwalking (33%), while among those who responded to the local communities' survey the most common activity in their local park/reserves was bushwalking (62%). Among stakeholder organisations, the most common events organised included mountain biking, bushwalking, camping and bird watching (Figure 21).

Attitudes about activities on the SEQ-HTN and in adjacent parks/reserves were generally similar among the three surveys. The majority of those responding to the surveys reported that most non-motorised activities in local parks/reserves affected them either positively or neutrally, while motorised activities affected them negatively (Figure 21). An exception to this was between the attitude of recreation organisations and conservation organisations to mountain biking and horse riding, with conservation organisations often listing these activities as negatively affecting them.

Across all three surveys, nearly everyone perceived motorised activities as having a range of social and environmental impacts (Figure 21). Common impacts listed by many respondents were noise, the potential for collisions or injury, damage to plants or animals, frightening

wildlife and startling people. Although for most people in the three groups non-motorised activities did not have a negatively effect on them, some impacts were listed for all activities, but not often.

Horse riding, although permitted on the SEQ-HTN, does not appear to be a common activity. Few horse riders were observed during the in-park survey, there were only 5 of those surveyed undertaking this activity and only 7 of those in the local communities survey who's main activities in the parks/reserves was horse riding. Horse riders were negatively affected by motorised activities (Figure 21). Most of park users considered that horse riding did not affect them, although as mentioned, there were a few users with strongly positively and strongly negative attitudes to horse riding (Figure 21). Among the stakeholder organisations, one bushwalking organisation and three conservation based organisations reported horse riding as negatively affecting their events in parks/reserves.

Based on these results it appears that many park visitors and those living close to the parks/reserves have few issues with non-motorised activities currently authorised on the SEQ-HTN. In the case of stakeholder organisations, conservation-based organisations were either neutral or not supportive of the Horse Trail Network while most recreation-based organisations were positive about the Horse Trail Network (Rossi, Pickering & Byrne, 2013a).

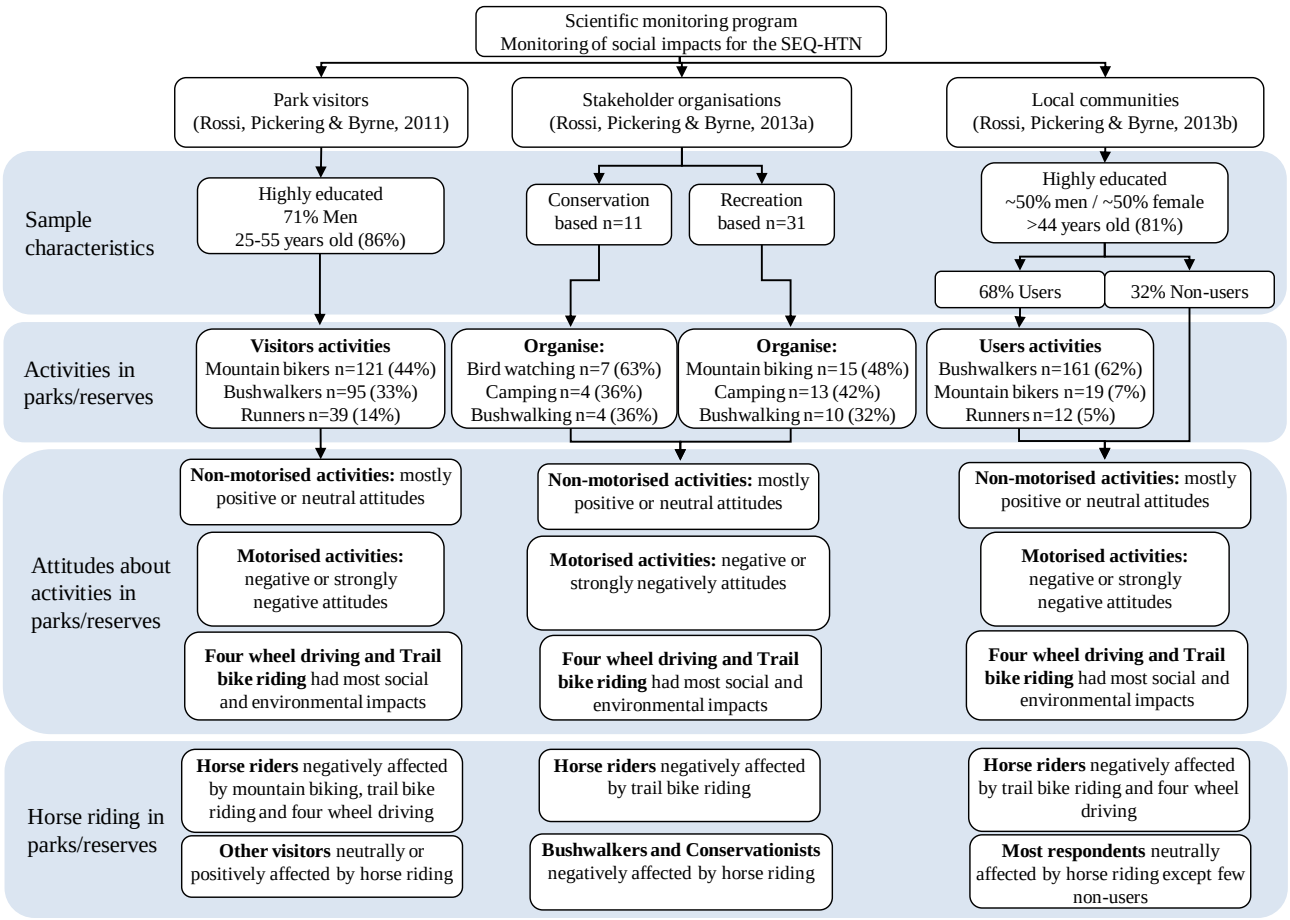

Figure 21. Main results of the survey of park/reserve visitors, stakeholder organisations and local communities including sampling characteristics, activities conducted in parks/reserves, and attitudes about activities conducted in parks/reserves.

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APPENDIX I. Introductory letter sent to selected address around parks in South East Queensland.

School of Environment
Environmental Futures Centre

Gold Coast Campus
Parklands Drive
Queensland, Australia 4222
Telephone +61 (0)7 5552 8463
Facsimile +61 (0)7 5552 7785
s.rossi@griffith.edu.au

Room 4.20
Building G24
Campus Gold Coast Campus

January 17, 2013

Dear national park neighbour,

My name is Sebastian Rossi. I am a PhD candidate at Griffith University, Gold Coast, Australia. I am investigating the attitudes and perception of the broader community to the change in status of some areas of South East Queensland from State Forest to a conservation status under the Nature Conservation Act 1992.

I would like you to take part in this important research because I want to learn more about how national park neighbours perceive park activities, and whether conflict occurs in this National Park. I am contacting all people who are living within the National Park catchment area (as determined by the average distance that park users travel).

This important study will help the Department of National Parks, Recreation, Sports and Racing to better manage National Parks and Forest Reserves in South East Queensland. Parks can only be managed properly if we know how their users and neighbours feel about those parks. By participating in this study you will help us to manage the park based on community perceptions and aspirations. **To participate please fill in the questionnaire and return it using the reply-paid envelope provided or you can use the link to the on-line version of the survey provided at the top of the questionnaire.**

Thank you for your time and consideration. It's only with the generous help of people like you that our research can be successful.

Yours sincerely,

Sebastian Rossi

PhD candidate and Co-investigator

APPENDIX II. Information sheet including the inform of consent to participate in the survey.

School of Environment
Environmental Futures Centre
Gold Coast Campus
Parklands Drive
Queensland, Australia 4222

Change in Status of Protected Areas

Who is conducting the research?

You are being asked to participate in a research study conducted by Dr. Catherine Pickering (PhD), Dr. Jason Byrne (PhD) and Sebastian Rossi (PhD candidate) from the School of Environment at Griffith University.

Why is the research being conducted?

The research is being conducted as part of a larger project examining the change in status of protected areas. The research is examining perceptions and attitudes of visitors, incorporated organisations, and local communities about the transition of some areas in South East Queensland from State Forest to a conservation status under the Nature Conservation Act 1992 such as National Park. This transition includes a multiple-use trail network, also known as Horse Trail Network.

Why are you being asked to participate?

We are asking you to take part in the research because we are seeking to learn more about community attitudes towards national parks, community perceptions of park activities, and about whether conflict occurs in these parks. Your participation is strictly voluntary.

What will we ask you to do?

You are being asked to complete a questionnaire, which should take on average no longer than 5 minutes of your time. The questionnaire can be filled either in a paper version which you will then return to the research team in a reply-paid envelope or online. You will give your consent to participate in this research simply by completing the survey and returning it to the researchers.

Is participation voluntary?

Participation is voluntary. You can choose whether to be in this study or not. If you volunteer to be in this study, it is possible to withdraw at any time during the completion of the questionnaire without consequences of any kind. You may also refuse to answer any questions you do not want to answer and still remain in the study, although we may not use incomplete questionnaires in our analysis. Once the questionnaire has returned it will not be possible to withdraw from the study, because your identity is completely anonymous.

On what basis will we screen participants?

All people living within the park catchment (as determined by spatial analysis) will be contacted. The contact is made through Griffith University's Post Service. We have provided the Post Service with addressed envelopes, which they are distributing on our behalf.

Expected benefits of the research

The research will be beneficial to you because survey results will inform park planning and recreational programs undertaken by park management agencies.

Risks to you

Participating in the survey will not pose any risks to you. We will not gather personal information or any other data that could be traced back to you.

Will you be paid to participate?

You will **not** receive payment for completing the survey.

Your confidentiality and privacy

No information will be included in the survey or in publication of the results that would reveal your identity. Any information that is obtained in connection with this study and that could be identified with you will remain strictly confidential and will be disclosed only with your permission or as required by law. Reports based on the data gathered in the survey will be provided to the department formerly known as Department of Environment and Resource Management to assist them with their park planning. When the results of this research are published and / or discussed in conferences, there will not be any discussion of information that could be traced back to you.

More Information

You may also contact either of the Principle Investigators by the end of December 2013 to obtain a summary of the overall research. Results will be later published in 2014 in a Griffith University research monograph and are expected to be published in English-language peer-reviewed academic journals.

If you have any questions or concerns about the nature of the research, please contact Dr Catherine Pickering: Principal Investigator, in the Environmental Futures Centre, School of Environment at Griffith University, Room 3.08 (G24) Science 1 Building, 07-5552 8059, c.pickering@griffith.edu.au, Dr Jason Byrne: investigator, in the Environmental Futures Centre, School of Environment at Griffith University, Room 3.06 (G31) Arts and Education 2 Building, 07-555 27723, jason.byrne@griffith.edu.au, or Sebastian Rossi: PhD candidate, in the Environmental Futures Centre, School of Environment at Griffith University, Room 4.20 (G24) Science 1 Building, phone: 07-5552 8463, fax: 55527785, s.rossi@griffith.edu.au.

Free to withdraw from the study

You may withdraw your consent and discontinue participation without penalty prior to returning the survey to the researcher. You are not waiving any legal claims, rights or remedies because of the participation in this research study.

Griffith University conducts research in accordance with the National Statement on Ethical Conduct in Human Research. If potential participants have any concerns or complaints about the ethical conduct of the research project they should contact the Manager, Research Ethics on 3735 5585 or research-ethics@griffith.edu.au.

APPENDIX III. Survey instrument sent to selected address around parks in South East Queensland.

You can complete this survey on-line by visiting:
www.surveymonkey.com/s/GriffithUni_Tewantin

Griffith UNIVERSITY

About Tewantin National Park

1. Are you a neighbour of Tewantin National Park?
Yes ☐ No ☐

2. How often do you visit Tewantin National Park?
(Please, tick one box only)

On a weekly basis ……. ☐
More than 5 times a year … ☐
2 to 5 times a year ……. ☐
Once a year …… ☐
Once every 1 to 2 years ….. ☐
Once every 3 to 5 years ….. ☐
Never…….. ☐**>Go to question 4**

3. What is the main activity you normally undertake in Tewantin National Park?
Main activity _ *(e.g. photography, bushwalking, tree planting)*

4. Identify how positively or negatively the following activities conducted in Tewantin National Park impact upon you. (*Please, tick only one box per activity*

	Strongly positive	Positive	Neutral/ Don't affect	Negative	Strongly negative
Mountain bike riding	☐	☐	☐	☐	☐
Horse riding	☐	☐	☐	☐	☐
Hiking/bushwalking	☐	☐	☐	☐	☐
Running / jogging	☐	☐	☐	☐	☐
Picnicking	☐	☐	☐	☐	☐
Dog walking	☐	☐	☐	☐	☐
Trail bike riding *(motorbike)*	☐	☐	☐	☐	☐
Four wheel driving (4WD)	☐	☐	☐	☐	☐
Other *(Please specify)* ……	☐	☐	☐	☐	☐

5. **For any activity you selected as negative or strongly negative in Question 4, why does it affect you?** *(Please, tick as many as apply)*

Activity name	Traffic	Frighten wildlife	Damage plants or animals	Make too much noise	Leave animal wastes	Startle people	Create litter	Potential collisions or Injury	Other: *(specify)* ……
Mountain bike riding	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Horse riding	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Hiking/bushwalking	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Running / jogging	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Picnicking	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Dog walking	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Trail bike riding *(motorbike)*	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Four wheel driving (4WD)	☐	☐	☐	☐	☐	☐	☐	☐	☐……
Other *(Please specify)* …….	☐	☐	☐	☐	☐	☐	☐	☐	☐……

6. **Do you agree, feel neutral or disagree with the following statements?** *(Please, tick one box per statement only)*

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
I feel like Tewantin National Park is a part of me.	☐	☐	☐	☐	☐
Tewantin National Park is the best place for what I like to do.	☐	☐	☐	☐	☐
Tewantin National Park is very special to me.	☐	☐	☐	☐	☐
No other place can compare to Tewantin National Park.	☐	☐	☐	☐	☐
I identify strongly with Tewantin National Park.	☐	☐	☐	☐	☐
I get more satisfaction out of visiting Tewantin National Park than from visiting any other park.	☐	☐	☐	☐	☐
I am very attached to Tewantin National Park.	☐	☐	☐	☐	☐
Doing what I do in Tewantin National Park is more important to me than doing it in any other place.	☐	☐	☐	☐	☐
Visiting Tewantin National Park says a lot about who I am.	☐	☐	☐	☐	☐
The things I do in Tewantin National Park I would enjoy just as much at another site.	☐	☐	☐	☐	☐
Tewantin National Park means a lot to me.	☐	☐	☐	☐	☐
I wouldn't substitute any other area/place for doing the types of things I do in Tewantin National Park.	☐	☐	☐	☐	☐

A few questions about yourself

7. Are you? Male ☐ Female ☐

8. In which age group do you belong? *(Please, tick one box only)*

Under 18…... ☐
18 – 24…….. ☐
25 - 34 …….. ☐
35 – 44 ……. ☐
45 – 54…….. ☐
55 – 64…….. ☐
65 and over... ☐

9. What is the highest level of education you have completed? *(Please, tick one box only)*

Primary/some secondary…….. ☐
Completed secondary…….. ☐
Vocational/technical…… ☐
Tertiary/university…….. ☐

10. Including yourself, how many people live in your house? *(Please write in numbers below)*

Number of adults (18 and over) _ _ _ _ _ (number)
No. of children (aged 5 - 17) _ _ _ _ _ (number)
No. of children (aged 4 or under) _ _ _ _ _ (number

11. Which best describes your household? *(Please, tick one box only)*

Living by myself …….. ☐
Adult couple (18 yrs and older) …….. ☐
Young family (with children under 6 yrs) …….. ☐
Mid-life family (with children 6 - 17 yrs) …….. ☐
Mature couple, with adult children at home .. ☐
Mature couple, no children at home ……. ☐
Living with friends and/or relatives…….. ☐
Other (please specify)…..…….. ☐

_ _

12. To help us determine the distance you live from the Park, what is the closest street intersection to your home?

																AND														

(please write in CAPITAL letters the street name 1) *(please write in CAPITAL letters the street name 2)*

Postcode: | | | | | Suburb: | | | | | | | | | | | | | | | | | |

(please write in CAPITAL letters your suburb's name)

Thank you very much for your time and participation

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