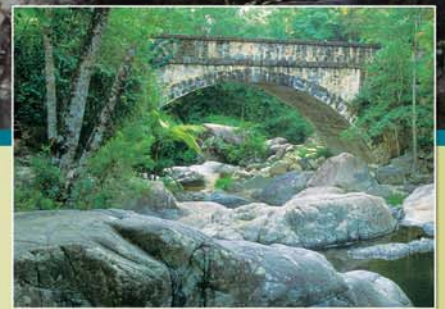




Sustainable Nature Based Tourism: Planning and Management

Report on Visitation and Use at
Paluma, Far North Queensland, 2009/2010



Julie Carmody and Bruce Prideaux



Australian Government
Department of the Environment,
Water, Heritage and the Arts



WET TROPICS
MANAGEMENT AUTHORITY



JAMES COOK
UNIVERSITY
AUSTRALIA



**Reef &
Rainforest**
RESEARCH CENTRE

Sustainable Nature Based Tourism: Planning and Management

Report on Visitation and Use at
Paluma, Far North Queensland, 2009/2010

Julie Carmody and Bruce Prideaux
School of Business, James Cook University, Cairns



Australian Government
Department of the Environment,
Water, Heritage and the Arts

Supported by the Australian Government's
Marine and Tropical Sciences Research Facility
Project 4.9.2 Sustainable Nature Based Tourism: Planning and Management

© James Cook University

ISBN 978-1-921359-96-5

This report should be cited as:

Carmody, J. and Prideaux, B. (2011) *Sustainable Nature Based Tourism: Planning and Management. Report on Visitation and Use at Paluma, Far North Queensland, 2009/2010*. Report to the Marine and Tropical Sciences Research Facility. Published by the Reef and Rainforest Research Centre Limited, Cairns (57pp.).

Published by the Reef and Rainforest Research Centre on behalf of the Australian Government's Marine and Tropical Sciences Research Facility.

The Australian Government's Marine and Tropical Sciences Research Facility (MTSRF) supports world-class, public good research. The MTSRF is a major initiative of the Australian Government, designed to ensure that Australia's environmental challenges are addressed in an innovative, collaborative and sustainable way. The MTSRF investment is managed by the Department of the Environment, Water, Heritage and the Arts (DEWHA), and is supplemented by substantial cash and in-kind investments from research providers and interested third parties. The Reef and Rainforest Research Centre Limited (RRRC) is contracted by DEWHA to provide program management and communications services for the MTSRF.

This publication is copyright. The *Copyright Act 1968* permits fair dealing for study, research, information or educational purposes subject to inclusion of a sufficient acknowledgement of the source.

The views and opinions expressed in this publication are those of the authors and do not necessarily reflect those of the Australian Government or the Minister for the Environment, Water, Heritage and the Arts or Minister for Climate Change and Water.

While reasonable effort has been made to ensure that the contents of this publication are factually correct, the Commonwealth does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication.

Cover photographs courtesy of David Souter (Little Crystal Creek, main image; view from McClelland's Lookout, centre image), Julie Carmody (playground, Paluma township) and Wet Tropics Management Authority (bridge over Little Crystal Creek).

This report is available for download from the Reef and Rainforest Research Centre Limited website:
http://www.rrrc.org.au/publications/research_reports.html



March 2011

Contents

List of Tables	ii
List of Figures.....	iii
Acronyms and Abbreviations.....	iii
Acknowledgements	iv
KEY FINDINGS.....	v
1. INTRODUCTION.....	1
1.1 Site Location and Description	1
1.2 Previous Research.....	2
1.3 Traffic Counter Data.....	3
2. METHODOLOGY	4
2.1 Survey Instrument	4
2.2 Survey Collection	5
2.3 Non-response and Observations	6
2.4 Limitations	7
3. FINDINGS	8
3.1 Respondent Profile.....	8
3.2 Perceptions of the Natural Environment	20
3.3 Perceptions and Use of the Site Facilities.....	22
3.4 Visitor Experience	31
3.5 Additional Comments	35
4. MANAGEMENT CONSIDERATIONS.....	37
5. REFERENCES	38
APPENDIX 1: SITE SURVEY INSTRUMENT.....	39
APPENDIX 2: SITE PHOTOGRAPHS	48

List of Tables

Table 1:	Components of the Paluma visitor survey.....	4
Table 2:	Paluma visitor survey collection times and details (N = 118)	5
Table 3:	Paluma visitor survey collection by date, time and location (N = 118)	6
Table 4:	Reasons given for not participating in the Paluma visitor survey (n = 25)	6
Table 5:	Origin of Paluma survey respondents (n = 114).....	8
Table 6:	Respondents' age and education (n = 117)	10
Table 7:	Composition of visitor travel parties to Paluma and surrounds (n = 84).....	11
Table 8:	Visitors' reported previous stop before visiting Paluma (n = 95)	12
Table 9:	Intention of survey respondents to visit other places within the region after Paluma (n = 110)	13
Table 10:	Comparative domestic and international visitors' motivations for visiting Paluma	15
Table 11:	Survey respondents' most cited reasons for visiting Paluma	16
Table 12:	Activities which survey respondents indicated were desirable as part of their visit to Paluma (n = 20)	18
Table 13:	Domestic and international visitors' perceptions of the natural environment at Paluma	20
Table 14:	Survey respondents' perceptions of the natural features at Paluma.....	21
Table 15:	Domestic and international visitors' perceptions of the site facilities at Paluma	22
Table 16:	Survey respondents' perceptions of the site facilities at Paluma	23
Table 17:	Facilities expected to be available at Paluma by survey respondents (n = 21)	26
Table 18:	Domestic and international survey respondents' perceptions of on-site signage at Paluma	28
Table 19:	Survey respondents' perceptions of on-site tourism information provided at Paluma	29
Table 20:	Survey respondents' suggested additional visitor information that could be made available at Paluma (n = 25)	30
Table 21:	Aspects that visitors considered enhanced or increased their enjoyment of Paluma (n = 44)	31
Table 22:	Aspects visitors considered took away or detracted from their enjoyment of Paluma (n = 19)	32
Table 23:	Domestic and international visitors' perceptions of other site visitors	33
Table 24:	Perceptions of other visitors at Paluma.....	34

List of Figures

Figure i:	Map of Paluma Range National Park, with visitor survey collection points highlighted	vi
Figure 1:	Counts of visitor numbers recorded at the Paluma Rainforest Track between May 2008 and October 2009	3
Figure 2:	Surveys collected at Paluma and surrounds by date and time (N = 118).....	5
Figure 3:	Occupations of Paluma survey respondents (n = 117)	9
Figure 4:	Age groups of Paluma survey respondents (N = 118)	9
Figure 5:	Levels of education attained by Paluma survey respondents (n = 117).....	10
Figure 6:	Modes of transport used by survey respondents to travel to Paluma and surrounds (n = 106)	11
Figure 7:	Survey respondents' frequency of visitation to protected natural areas (n = 115)	14
Figure 8:	Activities undertaken at Paluma as cited by survey respondents (N = 118) in response to a multiple-response survey question	17
Figure 9:	Approximate time spent at Paluma by both domestic and international visitors (n = 117).....	18
Figure 10:	Survey respondents' willingness to pay an access/entrance fee to visit Paluma (N = 118)	19
Figure 11:	Survey respondents' suggested uses of an on-site Park Ranger at Paluma in response to a multiple-response survey question (N = 118)	24
Figure 12:	Most popular site facilities at Paluma used by survey respondents, cited in response to a multiple-response survey question (N = 118)	25
Figure 13:	Sources of information consulted by survey respondents prior to visiting Paluma (N = 118)	27

Acronyms and Abbreviations

DERM	Queensland Department of Environment and Resource Management
MTSRF	Marine and Tropical Sciences Research Facility
N	Entire survey sample
n	Portion of survey sample
QPWS	Queensland Parks and Wildlife Service
WTMA	Wet Tropics Management Authority
WTWHA	Wet Tropics World Heritage Area

Acknowledgements

Funding for this research was provided by the Australian Government's Marine and Tropical Sciences Research Facility (MTSRF) and the Wet Tropics Management Authority.

We would like to thank the following people for their assistance. Those involved in the distribution and collection of surveys were Julie Carmody and Fay Falco-Mammone. Data entry was completed by Debbie Cobden.

We would also like to acknowledge the assistance of Max Chappell of the Wet Tropics Management Authority, and Andrew Millerd and Ross Domin of the Queensland Department of Environment and Resource Management.

Key Findings

The following key findings are based on a visitor survey (N = 118) undertaken at a number of sites in the Paluma section of the Wet Tropics World Heritage Area during September 2009. Where findings are reported as a mean, 1 represents the lowest level of agreement while 6 represents the highest level of agreement.

Respondent Profile

- The majority of respondents were domestic visitors (63.2%).
- The mean age of respondents was 33.5 years.

Travel Patterns

- Respondents travelled to Paluma mostly from Townsville (26.4%) and Little Crystal Creek (24.2%).
- After leaving Paluma, respondents indicated they would be travelling to Townsville (40.9%) and home (20.9%).
- The main sources of information used prior to visiting Paluma were word-of-mouth (39.5%) and a previous visit (37.7%).

Reasons for Visiting Paluma

- The main reason for visiting Paluma was to see natural features and scenery (mean = 4.94) and to experience nature (4.80).

Perceptions of the Natural Environment

- The natural environment was considered interesting (mean = 5.35), in good condition (5.27), appealing (5.26) and well managed (5.17).

Perceptions and Use of the Site Facilities

- The facilities provided at Paluma were considered to be in good condition (mean = 4.96).
- The presence of a ranger at Paluma is considered moderately important (mean = 4.02).

Perceptions of Signage

- On-site signage was considered relatively easy to find (mean = 4.81).
- The rules and safety information was easy to understand (mean = 4.87).
- Signage about the Aboriginal culture of the area could be improved (mean = 3.43).

Satisfaction with the Visitor Experience

- The peace and tranquillity (17.9%) of the site enhanced the visitor experience.
- Overall, satisfaction with Paluma as a visitor destination was very high.

MOUNT SPEC - PALUMA RANGE NATIONAL PARK

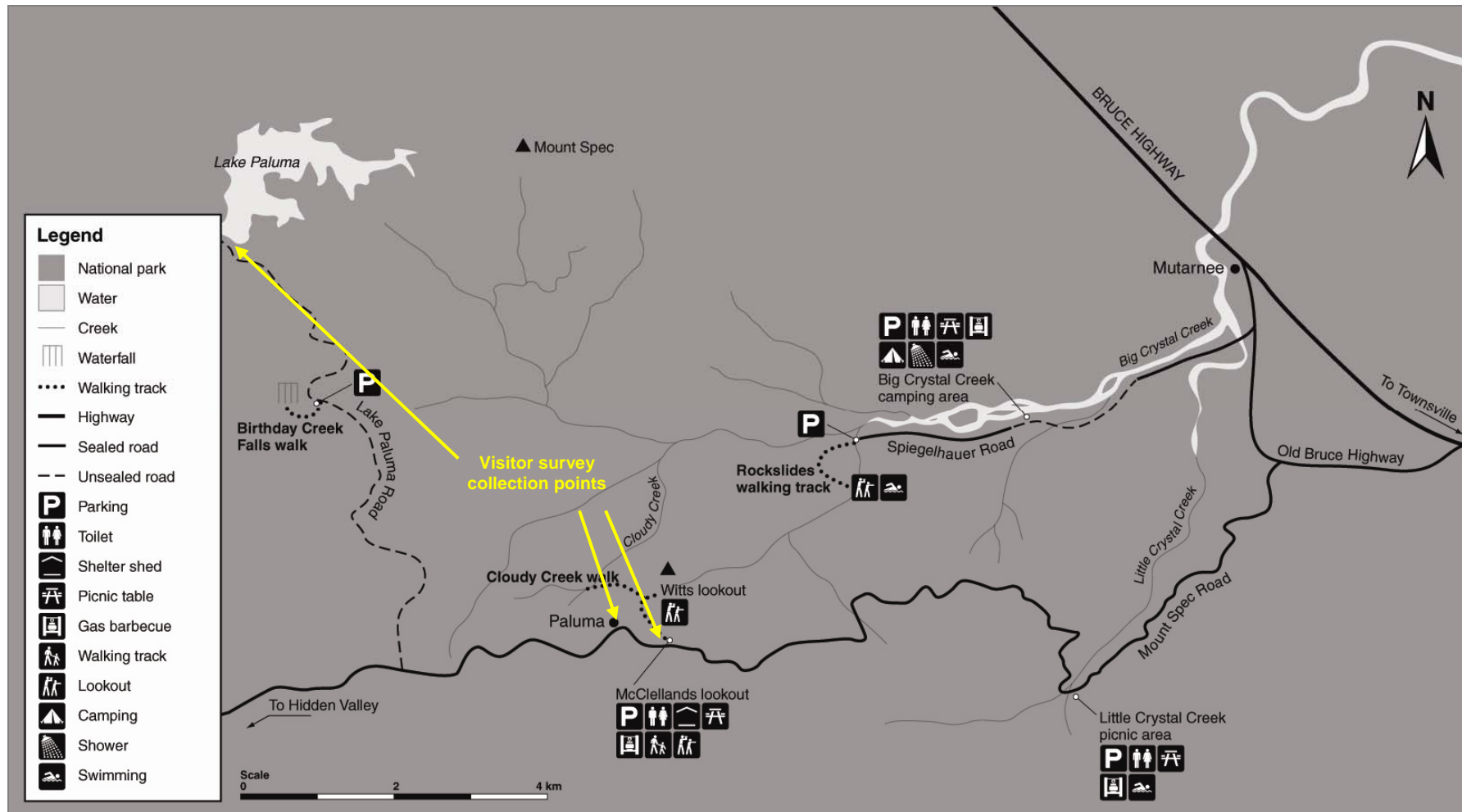


Figure i: Map of Paluma Range National Park, with visitor survey collection points highlighted.
Map courtesy of Queensland Parks and Wildlife Service, Department of Environment and Resource Management.

1. Introduction

This report is one of a series of ten that examine visitor activity at sites within Wet Tropics rainforests. The aim of the research was to provide a snapshot of visitor activity to inform management on how sites are used and investigate visitors' views on site management. Visitor data was collected using a self-completed visitor survey. Collectively the series of reports will provide an overall understanding of how visitors use the rainforest and provide managers with feedback that can be used for site management and future planning.

Responsibility for the management of the Wet Tropics rainforests is shared by the Wet Tropics Management Authority (WTMA) and the Queensland Department of Environment and Resource Management (DERM). The WTMA was established after listing of the Wet Tropics as a World Heritage site and is responsible for the planning of visitor sites across the Wet Tropics World Heritage Area (WTWHA). The Queensland Parks and Wildlife Service (QPWS), an agency of the DERM, has responsibility for the day to day management of site infrastructure including toilets, car parking, signage, viewing lookouts, boardwalks, walking trails and other recreational facilities. The Wet Tropics has a large number of visitor sites, some of which have high rates of visitation. A number of sites have relatively low visitation rates, but all offer unique nature-based visitor experiences.

1.1 Site Location and Description

Paluma is small mountaintop township located within the WTWHA. Located about sixty kilometres north of Townsville, access is gained via the Mt Spec Tourist Road from the Bruce Highway. With a permanent population of approximately 25 people (pers. comm., L. Venn, 19 September 2009) Paluma is surrounded by the World Heritage Area and has a much cooler climate than coastal cities and towns. Paluma has an international reputation as a birdwatching site and is the only site in the region where it is possible to find North Queensland's three species of bowerbirds (Golden Bowerbird, Tooth-billed Bowerbird and Satin Bowerbird). Other significant species include the Victoria's Riflebird and the Spotted Catbird. The rich biodiversity of the area makes it a popular area for researchers. The Paluma visitor area comprises the township, rainforest walks and a nearby lake built to supply water to Townsville.

Five major walks are located in the Paluma area:

- A 100 metre short walk from McClelland's Lookout that allows walkers to observe the east coast and nearby islands;
- A longer walk to Cloudy Clearing that commences at McClelland's Lookout and takes approximately two hours to complete;
- The Paluma Rainforest Walk (580 m), a circuit walk through rainforest south of the township;
- The Paluma Historical Walk (2 km), which takes walkers through the town and highlights ten historical marker signs; and
- The Birthday Creek Falls Track (500 m), located roughly halfway along the access road to Lake Paluma.

A short *Senses Trail* is located next to the Paluma Environmental Education Centre.

Accommodation in Paluma is limited to a small number of cottages, one motel and a camping ground at Lake Paluma. The campground is managed by the Townsville City Council.

The area's Traditional Owners are the Nywaigi Aboriginal people and in their language Paluma Range is called *Munan Gumburu*, meaning 'Misty Mountain'. Paluma was once known as Cloudy Clearing. The town developed after tin was discovered in the area in 1875 with mining peaking in 1905. Difficult access, high transport costs and low tin prices soon ended tin mining in the area. During the Great Depression of the 1930s, the road and bridge across Crystal Creek were built as part of an employment scheme. During World War II a number of military personnel were stationed in the area. Tourism is now the area's major source of income.

1.2 Previous Research

Two studies into visitor use of the Paluma area have been undertaken in the past. Manidis Roberts Consultants conducted visitor surveys during 1993 and 1994 and included Lake Paluma as part of the Mt Spec Conglomerate. Other sites included in the conglomerate were Little Crystal Creek, McClelland's Lookout, Birthday Creek Falls and Paluma township. A second study was conducted by Tourism Queensland in 2003 in association with Townsville Enterprise, Thuringowa City Council and the Paluma Collaborative Working Group. Surveying was undertaken in Paluma Township and at Little Crystal Creek, Big Crystal Creek, McClelland's Lookout, Lake Paluma and Hidden Valley.

Manidis Roberts (1994) estimated that in 1993 the Mt Spec Conglomerate received 127,398 visitors and 41,226 vehicles. Individual estimates of site visits were as follows:

- Little Crystal Creek: 78,340 visitors; 23,820 vehicles;
- McClelland's Lookout: 43,833 visitors; 13,185 vehicles; and
- Lake Paluma: 24,597 visitors; 8,127 vehicles.

Vehicle and visitor estimates for Paluma Township were also included in the Mt Spec Conglomerate. Results indicated that all survey respondents ($n = 271$) were free independent travellers travelling with family, friends or as a couple and mostly by private vehicle. More than seventy percent had come from Townsville and were North Queensland residents. Reasons for visiting the Paluma area were varied, although the highest ranked responses including 'being close to nature', 'a day out with family and friends', 'tranquillity' and 'seeing the WTWHA'. The area's rainforest, birdlife and tranquillity enhanced the visitor experience, however poorly maintained roads detracted from the experience.

Tourism Queensland (2003) conducted 271 visitor interviews during June and July in 2003 at Paluma township (53% of entire sample), McClelland's Lookout (13%), Little Crystal Creek (13%), Lake Paluma (9%), Hidden Valley (8%) and Big Crystal Creek (4%). The largest group by age was those aged 35-44 years (28%) followed by those aged 45-54 years (19%). The largest group based on travel party was couples travelling without children. A prior visit or word-of-mouth was the main source of information about Paluma used prior to visiting, with the decision to visit Paluma being made on the day or a few days earlier. The main purpose of the trip to Paluma was for leisure, with rest and relaxation, seeing the natural features and scenery, tropical rainforest and opportunities for short walks. The three main places visited were Paluma township, Little Crystal Creek and McClelland's Lookout. Most respondents had come from Townsville (71%) and were returning to Townsville (64%). Bushwalking, visiting the National Park/rainforest and drinking/eating at the town café were the main activities undertaken. The relaxing and tranquil nature of the area and the rainforest were appealing. High levels of satisfaction were recorded with the friendliness of locals, the cleanliness of the area, picnic facilities, personal safety and bushwalking tracks. Eighty-seven percent of respondents were satisfied or very satisfied with their overall experience in Paluma.

1.3 Traffic Counter Data

Traffic into Paluma is not monitored on a regular basis, and so limited information exists on total visitor numbers. However, visitor counter data is collected at the Paluma Rainforest Track. Figure 1 illustrates that the highest visitation periods were recorded in August 2009 (n = 990) and July 2008 (n = 952). The lowest period of visitation was recorded in March 2009 (n = 323).

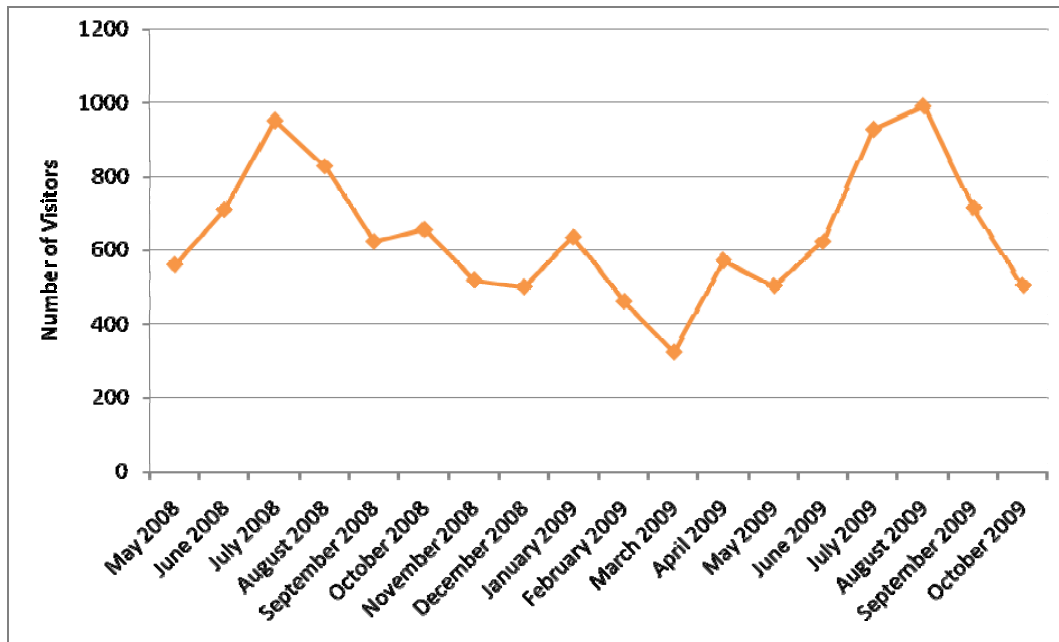


Figure 1: Counts of visitor numbers recorded at the Paluma Rainforest Track, between May 2008 and October 2009. Data courtesy of Queensland Parks and Wildlife Service, DERM.

2. Methodology

The aims of this report are to:

- Investigate visitor activities undertaken at Paluma and surrounds; and
- Identify visitors' views about aspects of the sites including their management.

Specific objectives of the research were to:

- Provide a snapshot profile of visitors to Paluma and Lake Paluma;
- Understand visitors' perceptions of the management of the sites;
- Understand visitors' perceptions of the area's natural environment;
- Gain an understanding of visitors' travel patterns within the Wet Tropics region; and
- Assess the suitability of the interpretative information provided at Paluma and surrounds.

A convenience sampling technique was used and data was analysed with the SPSS v17 statistical package.

This research complements earlier research (Carmody and Prideaux, 2008) that investigated how local residents used the Wet Tropics and their views on its management.

2.1 Survey Instrument

To collect data on a range of issues related to visitor expectations and experiences, a survey (Appendix 1) was developed in conjunction with officers from the WTMA. The survey instrument was based on a previous survey used in 2001/2002 which enabled some general comparisons to be made with earlier research. The self-completed survey contained 29 closed and open-ended questions and provided space for respondents to write additional comments. Open-ended questions were used because they can test specificity of knowledge more effectively (as shown by Whitmarsh, 2009), provide richer responses (Altinay and Paraskevas, 2008) and can minimise social desirability bias (Budeanu, 2007). Survey questions were grouped into eight sections commencing with demographic data. Table 1 outlines the components of the survey. Survey staff recorded site details including location, date, time of collection and weather conditions on the front cover of the survey instrument.

Table 1: Components of the Paluma visitor survey.

Section A	Background information	Place of residence, occupation, education, age, gender
Section B	Travel and transport	Organised tour or free and independent traveller, travel party, mode of transport, pre- and post-visit of site, experience of protected natural areas
Section C	Reasons for visiting	Motivations, activities, time spent at site, willingness to pay
Section D	Natural environment	Perceptions of the natural environment
Section E	Site facilities	Use of site facilities, expectations of facilities, perceptions of facilities, ranger presence
Section F	Information	Prior information search, perceptions of on-site information, additional information required
Section G	Visitor experience	Aspects of visit that enhanced and detracted from experience, perceptions of crowding
Additional comments		Open-ended to allow for any comments and feedback

2.2 Survey Collection

Surveying was carried out by two experienced researchers at three sites in the Paluma region: McClelland's Lookout, Lake Paluma and Paluma township. Researchers explained the purpose of the survey and the approximate time required for completion. A postcard or WTMA cassowary sticker was offered as a token of appreciation to those returning the survey. Table 2 outlines the schedule and collection of surveys in Paluma. Surveys were collected over four days in September between 9.00 am and 5.00 pm and included two weekdays and a weekend (Figure 1). The highest number of surveys was collected between 4.00 and 5.00 pm during the weekend.

Table 2: Paluma visitor survey collection times and details (N = 118).

Date	Day	Weather	Visitor Frequency	Percent of Total
17 September 2009	Thursday	Overcast	1	0.8
18 September 2009	Friday	Overcast and cool	5	4.2
19 September 2009	Saturday	Sunny and cool	61	51.7
20 September 2009	Sunday	Sunny and warm	51	43.2
Total			118	100.0

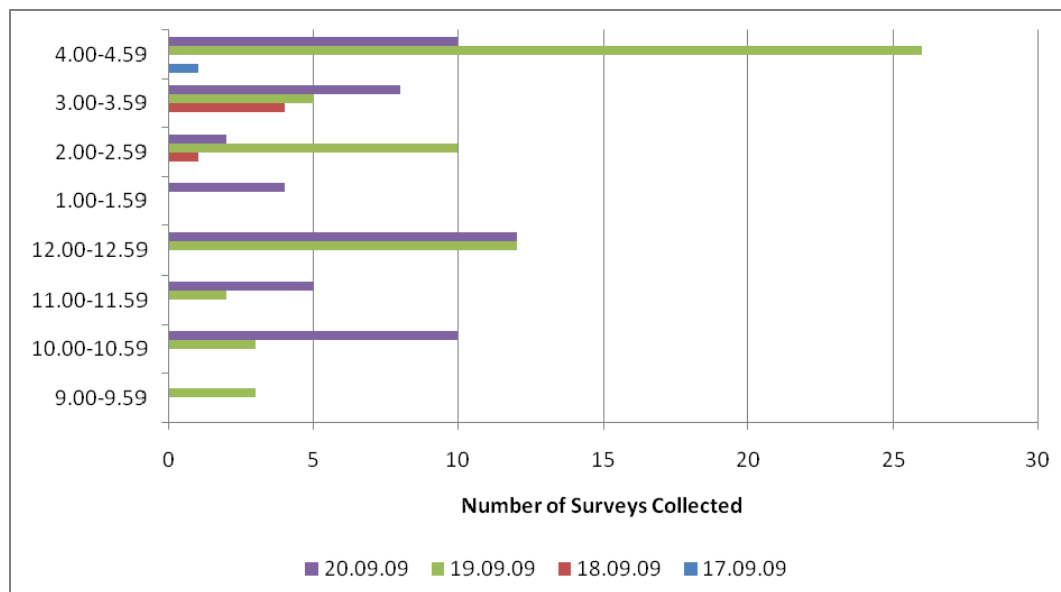


Figure 2: Surveys collected at Paluma and surrounds by date and time (N = 118).

Table 3 provides the breakdown of survey collection by date, time and location. At McClelland's Lookout the most successful collection times were between 12.00 and 1.00 pm and after 3.00 pm. The highest number of responses in Paluma township was received after 3.00 pm. Visitor numbers at Lake Paluma were low and consisted mainly of campers and day visitors having a barbeque picnic. Visitor numbers at this site peaked on the weekend.

Table 3: Paluma visitor survey collection by date, time and location (N = 118).

Site / Date	Time period								Total
	A.M.			P.M.					
	9:00-9:59	10:00-10:59	11:00-11:59	12:00-12:59	1:00-1:59	2:00-2:59	3:00-3:59	4:00-4:59	
McClelland's Lookout									
17/09/09	0	0	0	0	0	0	0	1	1
18/09/09	0	0	0	0	0	1	0	0	1
19/09/09	2	0	0	12	0	0	5	7	26
20/09/09	0	7	5	12	3	0	0	0	27
Paluma township									
17/09/09	0	0	0	0	0	0	0	0	0
18/09/09	0	0	0	0	0	0	4	0	4
19/09/09	0	1	2	0	0	0	0	18	21
20/09/09	0	3	0	0	1	2	8	10	24
Lake Paluma									
17/09/09	0	0	0	0	0	0	0	0	0
18/09/09	0	0	0	0	0	0	0	0	0
19/09/09	1	2	0	0	0	10	0	1	14
20/09/09	0	0	0	0	0	0	0	0	0
Total	3	13	7	24	4	13	17	37	118

2.3 Non-response

Refusals to complete the survey were recorded on-site and are presented in Table 4. Of the 143 people approached to complete the survey, 17.5% refused (n = 25), with a lack of time to complete the survey being the most common reason.

Table 4: Reasons given for not participating in the Paluma visitor survey (n = 25).

Reason for not participating in survey	Frequency (n)	Percentage of total number of people approached (n = 143)
No time	13	9.1
Partner can do it only	5	3.5
Language barrier	3	2.1
Not interested in participating	2	1.4
Do not like surveys	2	1.4
Non-Response	25	17.5

2.4 Limitations

There were some limitations associated with the research that should be considered prior to generalising the results:

- First, the survey was conducted using a convenience sampling approach and may not be representative of all visitor segments using the site;
- Second, the sample size was limited by time and budget constraints;
- Third, the survey was only available in English, resulting in a possible under-reporting of some nationalities visiting the site;
- Fourth, there was potential for social desirability bias occurring where respondents offered answers that are seen to be desirable or acceptable but may not reflect their true opinions. In most cases it is difficult to determine the level of social desirability for any given question; and
- Finally, while commercial tour operators hold permits to visit sites in the Paluma area, no organised tour groups were encountered during the survey period.

Understanding the Results

Both closed questions with specific response options and open-ended questions were used in the visitor survey. The advantage of closed questions is that it allows the researcher to investigate specific issues of interest while open-ended questions provide a good indication of top-of-mind responses and concerns of interviewees. Closed response questions generally asked respondents to use a six-point Likert scale. In the following discussion, the results of closed questions are reported as means and as the percentage breakdown by the six items on the Likert scale. Means are useful for ranking in order of importance while percentage breakdown gives a clearer indication of the strength of agreement or disagreement with a particular given statement. The following discussion should be read with these considerations in mind. It should also be noted that not every question was answered by all respondents, thus the 'n' values of tables and figures may vary. The 'n' value reports valid responses. The 'N' value reports the entire sample.



Paluma village signage (Photo: Julie Carmody)

3. Findings

The results presented in this report are from the Wet Tropics Visitor Site Level Survey distributed in September 2009 at Paluma township, McClelland's Lookout and Lake Paluma.

3.1 Respondent Profile

Slightly more females (51.7%) than males (48.3%) completed the survey (N = 118).

Place of Residence

Respondents' places of residence are provided in Table 5. More domestic visitors (63.6%) than international visitors (36.4%) were interviewed. The largest group of respondents were 'other' Queenslanders (50.0%) followed by North Americans (27.1%).

Table 5: Origin of Paluma survey respondents (n = 114).

	Frequency (n)	Percent (%)
DOMESTIC		
Other Queensland	57	50.0
New South Wales	5	4.4
North Queensland	4	3.5
Victoria	4	3.5
South Australia	2	1.8
Domestic Total	72	63.2
INTERNATIONAL		
North America	31	27.1
Europe	9	7.9
England / UK	2	1.8
International Total	42	36.8
Total Domestic and International	114	100.0

Occupation

The occupations of respondents are provided in Figure 3. The largest occupational group was students (45.3%) followed by retirees/semi-retirees (10.3%) and professionals (9.4%).

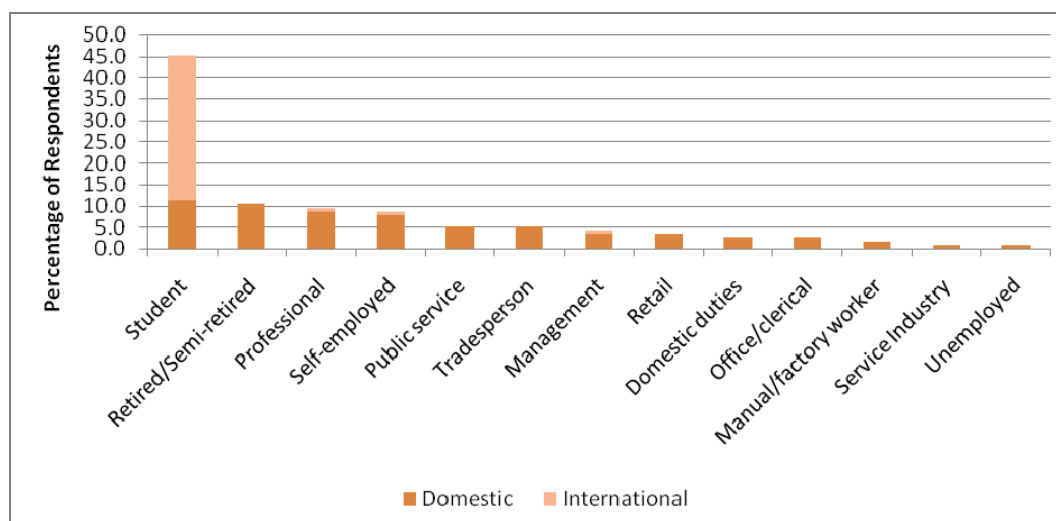


Figure 3: Occupations of Paluma survey respondents (n = 117).

Age

Figure 4 shows that almost half of all respondents were aged 20-29 years (48.3%) with 28.0% of these being international visitors. The mean age was 33.5 years, with a range of 16 to 79 years and a standard deviation of 16.0 years. Only one international respondent was aged over 40 years.

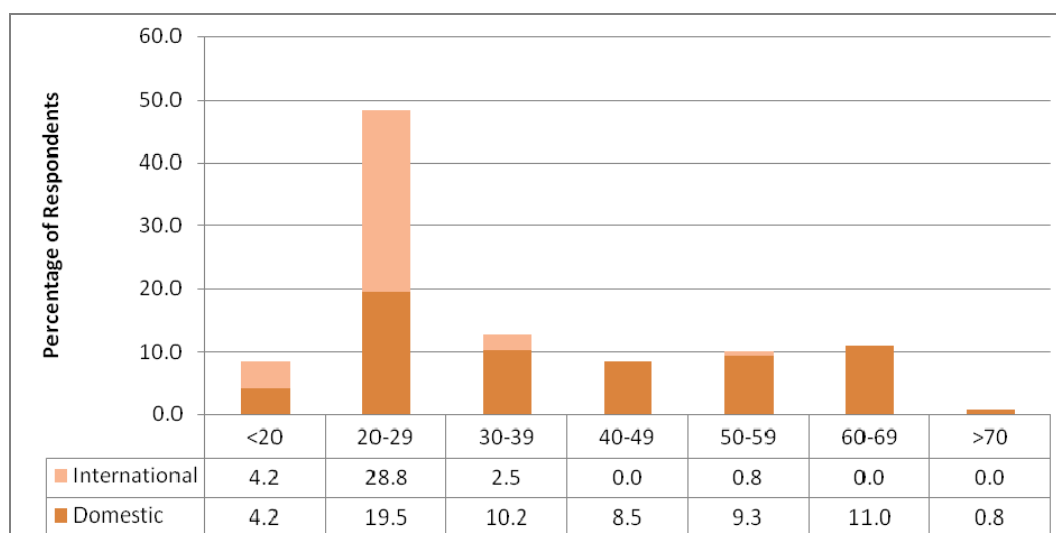


Figure 4: Age groups of Paluma survey respondents (N = 118).

Education

Figure 5 highlights survey respondents' education levels, where Tertiary A is defined as technical or further education, and Tertiary B is defined as a university qualification. For the entire sample, the largest group of respondents held a secondary education (40.1%) followed by those with a Tertiary B education (36.7%).

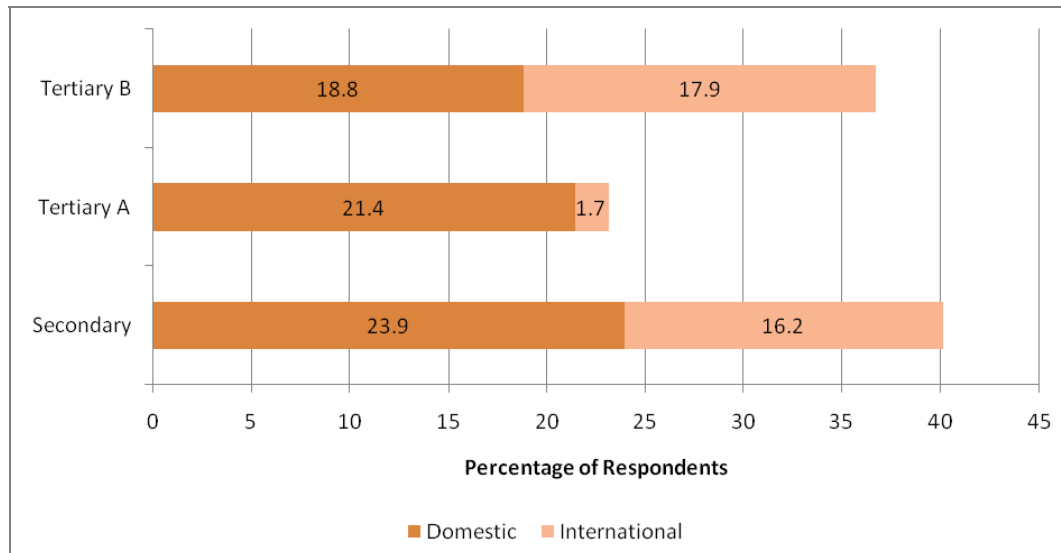


Figure 5: Levels of education attained by Paluma survey respondents (n = 117).

A cross-tabulation analysis of respondents' age and education is provided in Table 6. The largest group of respondents had a Tertiary B education and was aged 20-29 years (21.4%). The second largest group was also aged 20-29 years and had a secondary education (19.7%).

Table 6: Respondents' age and education (n = 117).

Age Group	Primary (%)	Secondary (%)	Tertiary A (%)	Tertiary B (%)
< 20 years	-	6.8	1.7	-
20-29 years	-	19.7	6.8	21.4
30-39 years	-	4.3	4.3	4.3
40-49 years	-	2.6	2.6	3.4
50-59 years	-	0.9	3.4	6.0
60-69 years	-	5.1	4.3	1.7
> 70 years	-	0.9	-	-
Total Respondents (n = 94)	-	40.2 (n = 47)	23.1 (n = 27)	36.8 (n = 43)
Domestic	-	23.9% (n = 28)	21.4% (n = 25)	18.8% (n = 22)
International	-	16.2% (n = 19)	1.7% (n = 2)	17.9% (n = 21)

Travel Party and Mode of Transport

Figure 6 shows more respondents reported travelling in private vehicles (56.6%) than rental vehicles (43.4%). International respondents accounted for 28.3% of hired vehicle transport while domestic respondents mostly travelled in private vehicles (47.2%).

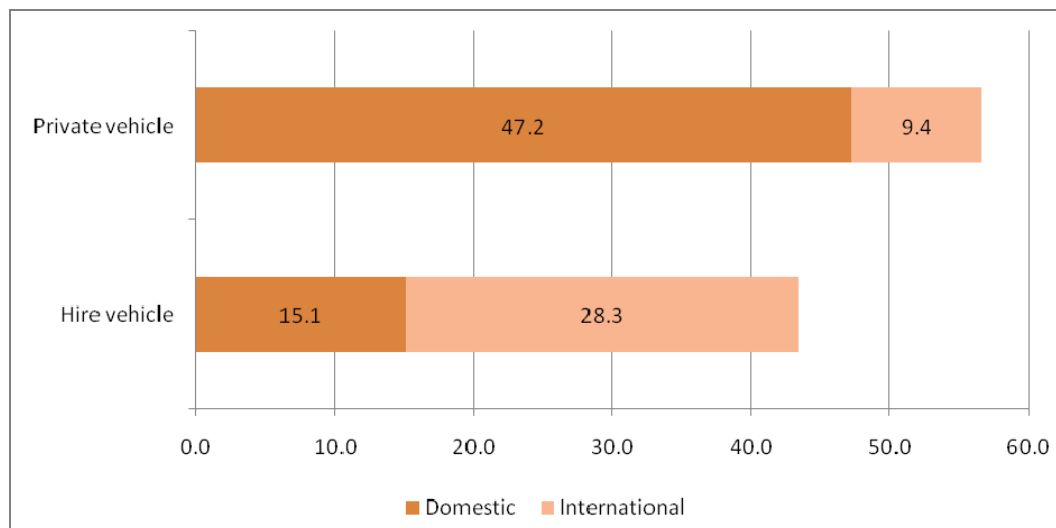


Figure 6: Modes of transport used by survey respondents to travel to Paluma and surrounds (n = 106).

Table 7 reports on travel party composition. The largest groups based on travel party were couples with no children (n = 33) and adults with no children (n = 11). Respondents who indicated they were in a group of ten or more adults were university students on a floral and faunal field trip.

Table 7: Composition of visitor travel parties to Paluma and surrounds (n = 84).

	1 adult	2 adults	3 adults	4 adults	5 adults	10+ adults
0 children	4	33	5	11	2	-
1 child	-	4	-	-	-	-
2 children	-	4	2	1	-	1
3 children	-	1	4	-	-	-
4 children	-	1	-	-	-	-
Adults per vehicle 4.43 ± SD 5.51 (range 1-30)						
Children per vehicle 0.46 ± SD 0.97 (range 0-4)						

Organised Tour Visitors

The only organised tour party encountered at Paluma during the survey period was a university fieldtrip group.

Travel Flow

Respondents were asked about their travel patterns on the day of the survey, including where they had been and where they intended to go after leaving Paluma. Results are outlined in Tables 8 and 9. Respondents had previously come from Townsville (26.4%) and Little Crystal Creek (24.2%).

Table 8: Visitors' reported previous stop before visiting Paluma (n = 95).

	Frequency (n)	Percent (%)
Towns		
Townsville	25	26.4
Paluma	8	8.4
Ingham	3	3.2
Whitsunday Islands	2	2.1
Rollingstone	2	2.1
Balgol Beach	2	2.1
Magnetic Island	2	2.1
Natural Attractions		
Little Crystal Creek	23	24.2
Jourama Falls	2	2.1
Other Attractions		
Nowhere/ first stop	14	14.7
Home	10	10.5
The Big Mango	1	1.1
Research Centre	1	1.1
Total	95	100.0

After leaving Paluma, respondents intended to travel to Townsville (40.9%), home (20.9%) and Little Crystal Creek (8.2%). Those who indicated they would be going to Paluma next (7.3%) were surveyed at McClelland's Lookout (n = 6) and Lake Paluma (n = 2).

Table 9: Intention of survey respondents to visit other places within the region after Paluma (n = 110).

	Frequency (n)	Percent (%)
Towns		
Townsville	45	40.9
Paluma	8	7.3
Rollingstone	5	4.5
Magnetic Island	4	3.6
Atherton Tablelands	2	1.8
Mt Isa	1	0.9
Bowen	1	0.9
Tully	1	0.9
Daintree	1	0.9
Natural Attractions		
Little Crystal Creek	9	8.2
Jourama Falls	3	2.8
Other Attractions		
Home	23	20.9
Hidden Valley	3	2.8
Bottleshop	2	1.8
Restaurant	1	0.9
Accommodation	1	0.9
Total	110	100.0

Visits to Protected Natural Areas

Respondents were asked about the frequency of their visits to protected natural areas to gauge their experiences in natural areas generally. Figure 7 indicates that 35.7% of all respondents visited natural areas more than five times per year whilst 47.0% indicated visiting between two and five times per year. Further analysis failed to identify significant differences between domestic and international visitors and their frequency of visitation to protected natural areas.

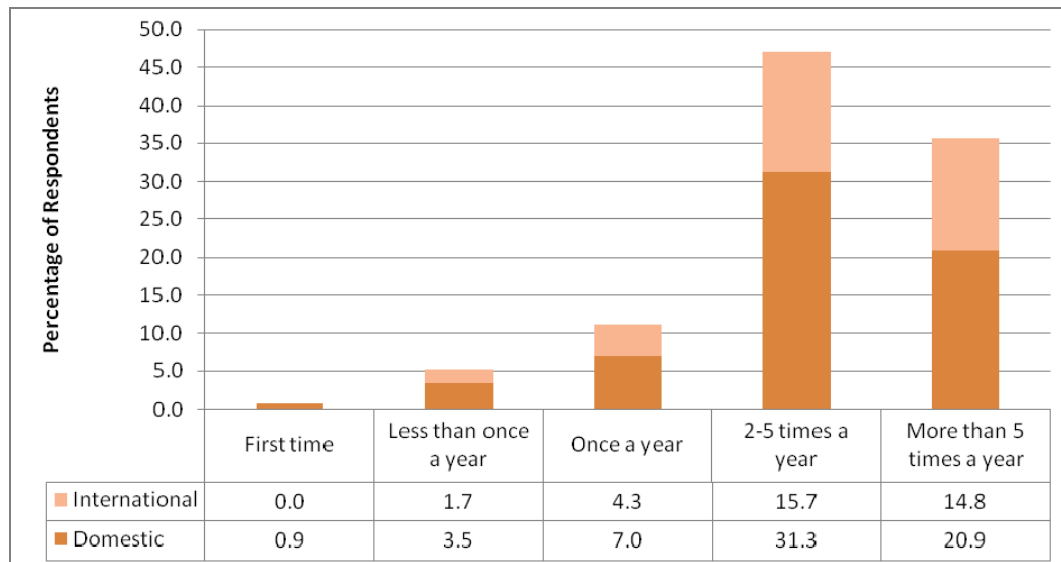


Figure 7: Survey respondents' frequency of visitation to protected natural areas (n = 115).

Reasons for Visiting Paluma

Respondents were asked to respond to a series of questions about their motivations for visiting Paluma. A six-point Likert scale of 1 (being 'not important') to 6 ('very important') was used. A mean of 4 or greater indicated that the motivation was mildly to very important. A mean of less than 3 indicated that the motivation was of little importance. Table 10 indicates the most important reason for visiting Paluma overall was to see natural features and scenery (mean = 4.94), be close to/experience nature (4.80) and to learn about native animals and plants (4.24). International visitors rated these three motivations as being more important, when compared to domestic visitors. Domestic visitors gave the highest scores for opportunities for tranquillity (mean = 4.82), rest and relaxation (4.72), outdoor exercise (4.19) and to socialise with family or friends (4.19).

Motivations that received a low score were opportunities for long walks (mean = 3.11) and to learn about Aboriginal culture (2.21). Seven respondents provided other reasons for visiting Paluma however these were not rated on the Likert scale: a class field trip (two responses) and one response each for the rainforest; family time; fun; the unique views and environment; camping and boating.

Table 10: Comparative domestic and international visitors' motivations for visiting Paluma.

Reasons for visiting Paluma	n	Overall Mean	Domestic visitors (mean)	International visitors (mean)
See natural features and scenery	117	4.94	4.80	5.19
Be close to/ experience nature	117	4.80	4.65	5.07
Learn about native animals and plants	118	4.24	3.60	5.35
Experience tranquillity	117	4.22	4.82	3.19
Rest and relax	118	3.87	4.72	2.40
Outdoor exercise	118	3.64	4.19	2.67
Opportunities for short walks	117	3.63	3.97	3.05
Because it is a National Park	115	3.62	3.68	3.51
Socialise with family or friends	118	3.58	4.19	2.51
Because it is a World Heritage Area	117	3.26	3.27	3.24
Opportunities for long walks	117	3.11	3.16	3.02
Learn about Aboriginal culture	117	2.21	2.41	1.83

The results outlined in Table 11 show the level of importance ascribed to each motive on a scale of 1 = 'not important' to 6 = 'very important'. Seeing the natural features and scenery was important to 88.9% of respondents. Learning about Aboriginal culture was not considered very important by 84.6% of the respondents. Visiting Paluma because it is a National Park or World Heritage Area was only considered moderately important by 27.0% and 25.6% of respondents respectively.

Table 11: Survey respondents' most cited reasons for visiting Paluma.

Reasons for visiting Paluma	Percentage of survey respondents					
	Not important	Slightly important	Moderately important	Important	Quite important	Very important
See natural features and scenery	0.9	0.9	9.4	24.8	20.5	43.6
Be close to/ experience nature	0.9	4.3	9.4	23.1	23.9	38.5
Experience tranquillity	9.4	6.8	15.4	19.7	17.9	30.8
Outdoor exercise	14.4	13.6	20.3	16.1	16.9	18.6
Rest and relax	13.6	11.9	22.0	10.2	11.0	31.4
Because it is a National Park	11.3	11.3	27.0	21.7	12.2	16.5
Opportunities for short walks	12.0	12.8	18.8	25.6	17.9	12.8
Because it is a World Heritage Area	17.9	15.4	25.6	17.9	10.3	12.8
Socialise with family or friends	22.9	8.5	16.9	16.9	9.3	25.4
Learn about native animals and plants	5.9	9.3	16.9	19.5	19.5	28.8
Opportunities for long walks	24.8	12.0	21.4	19.7	13.7	8.5
Learn about Aboriginal culture	43.6	16.2	24.8	9.4	3.4	2.6

Activities

Respondents were asked to indicate which activities they had undertaken at Paluma. Results are outlined in Figure 8. The most popular were observing the scenery (86.5%), birdwatching (66.1%), observing wildlife (60.2%) and taking short walks (60.1%). Further analysis indicates international visitors were more likely to take part in birdwatching ($p<0.05$), wildlife observation and a guided tour. Domestic visitors were more inclined to swim ($p<0.05$), use the café/restaurant and read the interpretive material.

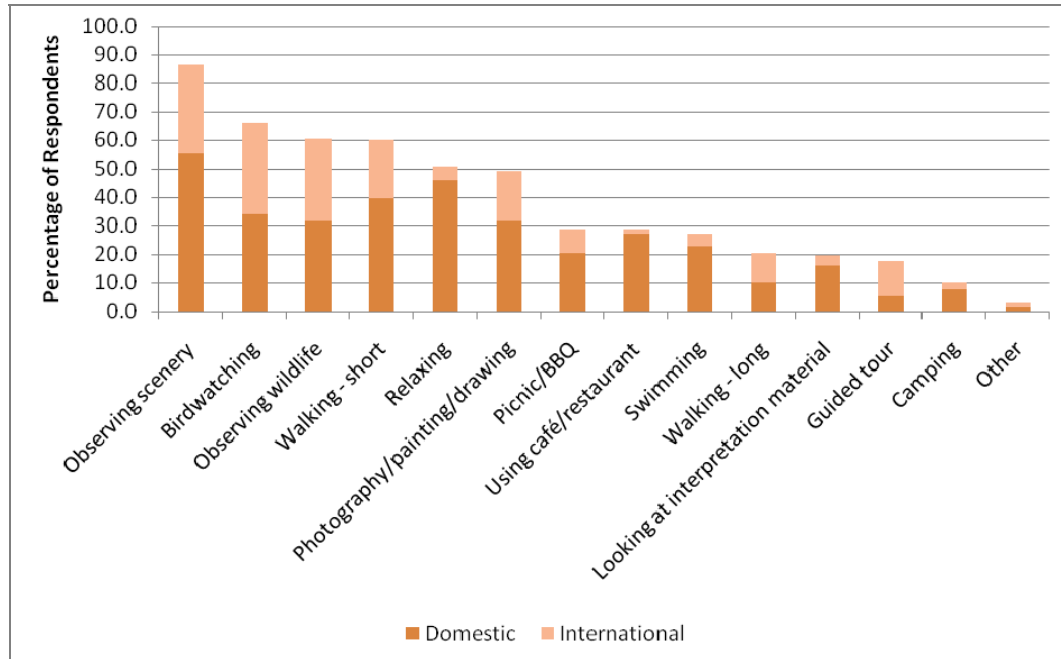


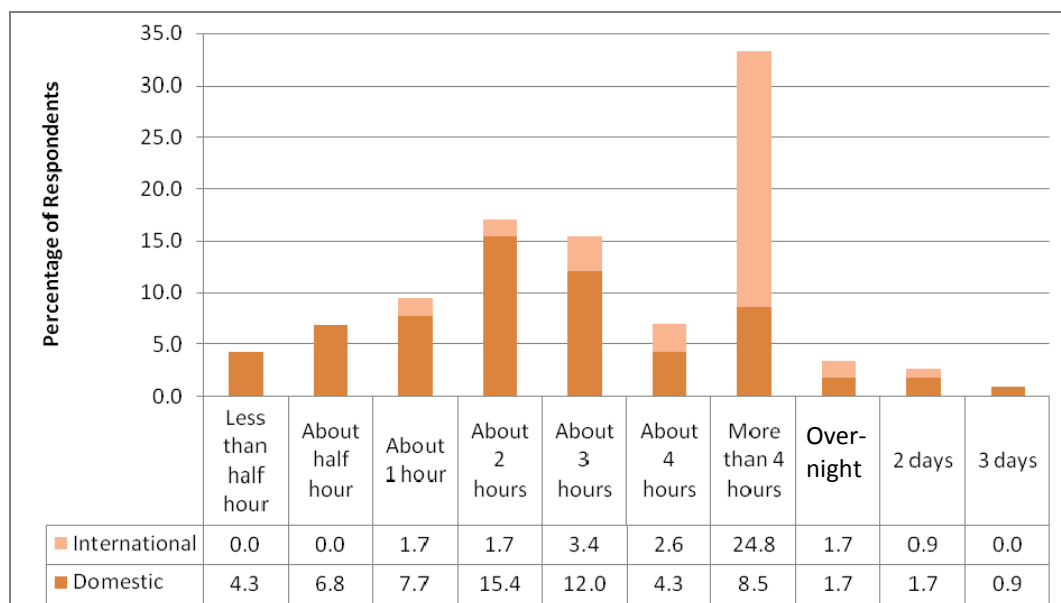
Figure 8: Activities undertaken at Paluma as cited by survey respondents (N = 118) in response to a multiple-response survey question.

An open-ended question was used to identify activities that respondents would have liked to have participated in during their visit. Twenty respondents (16.5% of the entire sample) indicated 22 desirable activities (Table 12). Responses from surveys collected in Paluma included swimming, camping and seeing wildlife, indicating a possible lack of awareness that camping grounds were available at Lake Paluma. Responses indicating the need for a shower or access to a campfire were collected at Lake Paluma.

Table 12: Activities which survey respondents indicated were desirable as part of their visit to Paluma (n = 20).

Activity	Frequency (n)	Percentage of responses
Swim	7	31.8
Shower	5	22.7
See wildlife	2	9.1
Have a campfire but no wood	2	9.1
Camp	2	9.1
Access information about site	1	4.5
Ran out of time	1	4.5
Shorter walk	1	4.5
Longer walk	1	4.5
Total	22	100.0

Most respondents spent two or more hours at Paluma (Figure 9). About one-third of respondents (33.3%) stayed for more than four hours, while 17.1% stayed for two hours and 15.4% stayed for three hours. Most of the international respondents who indicated a stay of more than four hours were university students on a field trip.

**Figure 9:** Approximate time spent at Paluma by both domestic and international visitors (n = 117).

Willingness to Pay

Currently, visitors to protected natural areas in Queensland are not charged an access/entry fee. Respondents were asked to indicate how much they would be prepared to pay if an entrance fee was introduced at Paluma.

Figure 10 shows 48.3% of respondents felt they should not pay a fee, while 34.6% were willing to pay between \$2 and less than \$5, and 15.4% indicated they were willing to pay up to \$9.

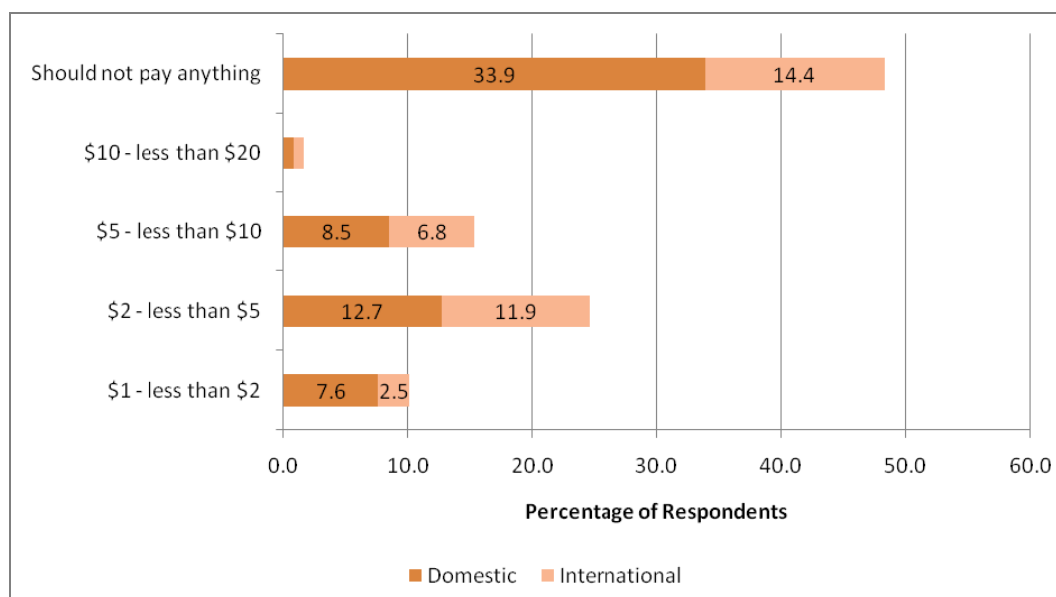


Figure 10: Survey respondents' willingness to pay an access/entrance fee to visit Paluma (N = 118).



3.2 Perceptions of the Natural Environment

A series of statements were used to gather respondents' views on the natural environment surrounding Paluma. Respondents were asked to indicate their views using a Likert scale where 1 = 'strongly disagree' and 6 = 'strongly agree'. The mean value of each statement is provided in Table 13. Overall, international respondents considered the natural environment was very interesting (mean = 5.63), while domestic visitors were more inclined to agree that the environment was in good condition (mean = 5.36).

Table 13: Domestic and international visitors' perceptions of the natural environment at Paluma.

Perceptions of the natural environment at Paluma	n	Overall Mean	Domestic visitors (mean)	International visitors (mean)
The natural environment at this site is interesting.	115	5.35	5.19	5.63
In terms of natural attractions and scenic beauty this site is appealing.	114	5.27	5.36	5.12
The condition of the natural environment at this site appears to be good.	114	5.17	5.19	5.13
The natural environment at this site is well managed.	116	5.26	5.15	5.46
I would like to spend more time exploring this natural environment.	116	5.10	4.93	5.41
I am concerned about the impacts of human activity on the natural environment at this site.	115	3.92	3.71	4.33
This site appears to be disturbed and impacted.	116	2.52	2.60	2.37

Levels of agreement/disagreement with statements about the natural features of the site measured as a percentage are summarised in Table 14. Almost all respondents agreed with the statement that the natural environment at Paluma was interesting (97.4%), in good condition (97.3%), appealing (95.7%) and well managed (94.7%).

Table 14: Survey respondents' perceptions of the natural features at Paluma.

Perceptions of the natural environment at Paluma	Percentage of survey respondents					
	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
The natural environment at this site is interesting.	-	1.7	0.9	10.4	34.8	52.2
The natural environment at this site is well managed.	0.9	0.9	3.5	10.4	43.9	40.4
The condition of the natural environment at this site appears to be good.	-	0.9	1.8	10.4	43.0	43.9
In terms of natural attractions and scenic beauty this site is appealing.	-	2.6	1.7	12.9	32.8	50.0
I would like to spend more time exploring this natural environment.	0.9	0.9	4.3	22.4	24.1	47.4
I am concerned about the impacts of human activity on the natural environment at this site.	10.4	13.9	11.3	21.8	22.6	20.0
This site appears to be disturbed and impacted.	30.2	29.3	15.5	12.9	7.8	4.3

3.3 Perceptions and Use of the Site Facilities

Survey respondents were asked to rate given statements about the facilities available at Paluma using a Likert scale of 1 = 'strongly disagree' to 6 = 'strongly agree'. Table 15 shows that respondents considered the overall condition of the facilities appeared to be good (mean = 4.96), and were adequate (4.87), well managed (4.84) and attractive (4.71), indicating some room for improvement. The presence of a ranger at the site was reasonably well supported (mean = 4.02) but more so by domestic respondents (4.14). International respondents were more inclined to perceive the facilities at Paluma to be in good condition (mean = 4.98) and adequate (4.95).

Table 15: Domestic and international visitors' perceptions of the site facilities at Paluma.

Perceptions of the site facilities at Paluma	n	Overall Mean	Domestic visitors (mean)	International visitors (mean)
The overall condition of the facilities at this site appears to be good.	113	4.96	4.96	4.98
The facilities at this site are adequate.	114	4.87	4.82	4.95
The facilities and infrastructure at this site are well managed.	113	4.84	4.85	4.83
This site is appealing in terms of the character and attractiveness of the facilities.	112	4.71	4.77	4.62
The presence of a ranger at sites like this is important to me.	114	4.02	4.14	3.81



Community recreation area in Paluma (Photo: Julie Carmody)

The percentages for agreement/disagreement with each statement are shown in Table 16. Low levels of disagreement were evident with statements referring to the condition (2.7%), management (7.1%), appeal (8.1%) and adequacy (5.3%) of Paluma's site facilities. The importance of a ranger at Paluma had reasonable support.

Table 16: Survey respondents' perceptions of the site facilities at Paluma.

Perceptions of the site facilities at Paluma	Percentage of survey respondents					
	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
The overall condition of the facilities at this site appears to be good.	-	2.7	-	23.0	46.9	27.4
The facilities and infrastructure at this site are well managed.	1.8	1.8	3.5	21.2	46.9	24.8
This site is appealing in terms of the character and attractiveness of the facilities.	0.9	1.8	5.4	26.8	47.3	17.9
The facilities at this site are adequate.	0.9	-	4.4	28.1	39.5	27.2
The presence of a ranger at sites like this is important to me.	7.9	11.4	15.8	21.9	21.9	21.1

Presence of a Ranger On-site

Respondents were asked to rate the services that an on-site ranger could provide. The provision of information/ education received the highest level of support (53.5%) followed by site maintenance (46.5%) and safety and security (42.1%) (Figure 11). The provision of guided walks was not supported (10.5%). Other reasons a ranger presence was considered important were to protect vegetation and wildlife (five responses); regular visits for general maintenance and monitoring (three responses); to manage public behaviour (two responses); and to provide firewood (one response). Suggestions were mostly put forward by domestic visitors.

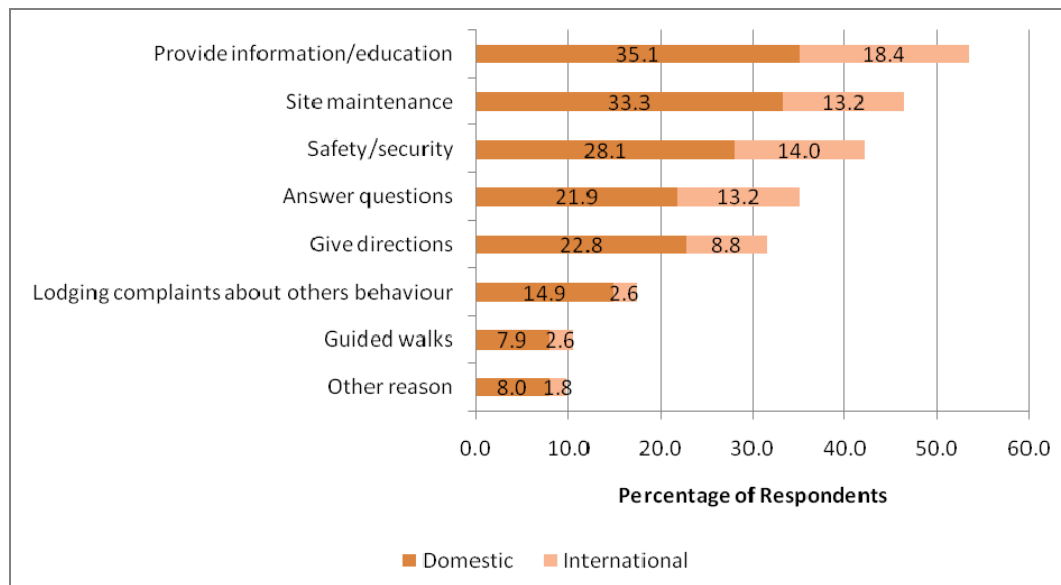


Figure 11: Survey respondents' suggested uses of an on-site Park Ranger at Paluma in response to a multiple-response survey question (N = 118).



Use of Site Facilities

A multiple-response format was used to ensure respondents had the opportunity to indicate the facilities they had used during their visit to Paluma. Results outlined in Figure 12 indicate that the most popular facilities were the walking tracks (84.7%), amenities (70.4%) and lookout (66.1%). Facilities that were used during respondents' visits were not necessarily well used, such as the barbeque which was not working at the Village Green during the survey period. Shelter sheds were available at all of the survey collection points but were used by only 14.4% of respondents possibly due to the sunny weather experienced during the survey period. Most respondents who made use of the restaurant/café (31.4%) were surveyed at McClelland's Lookout.

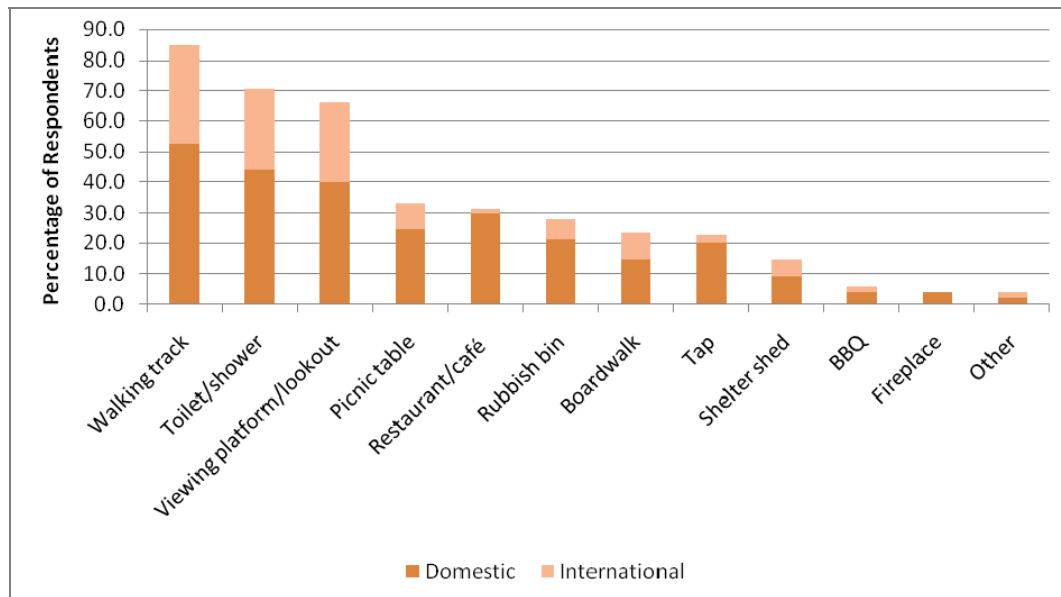


Figure 12: Most popular site facilities at Paluma used by survey respondents, cited in response to a multiple-response survey question (N = 118).

Expected Site Facilities

Respondents were asked to indicate if there were facilities that they would have liked to have seen available to visitors at Paluma. Twenty-one respondents (17.8% of the sample) responded to this question, providing 23 responses (Table 17). Showers at Lake Paluma received the highest number of responses (6) followed by a rubbish bin at all three survey sites.

Table 17: Facilities expected to be available at Paluma by survey respondents (n = 21).

Expectation	Survey site			Total (n)
	McClelland's Lookout	Paluma township	Lake Paluma	
Showers	1	-	5	6
Rubbish bin	1	2	1	4
Canteen	1	1	-	2
Souvenir shop/craft/coffee shop	1	1	-	2
A working barbeque	-	2	-	2
Pontoons/canoe hire	-	-	2	2
Firewood	1	-	1	2
Signage	-	1	-	1
Water tap	-	1	-	1
Campground	1	-	-	1
Total Responses	6	8	9	23*

* Note: Multiple responses were given by some individual respondents.

Information about Paluma

Survey respondents were asked to indicate the sources they had used to gain information about Paluma prior to their visit. Figure 13 shows the main information sources used were word-of-mouth (39.5%) and a previous visit (37.7%).

Two visitor information centres were mentioned as a source of information – Cardwell and Ayr. Other sources of information included the National Park website, local knowledge or touring with a local person, and information in the hotel. International students indicated their source of information prior to visiting Paluma was a university. The majority (87.9%, n = 80) indicated that the information they used was accurate. Only two respondents stated that information was inaccurate including a Hema map cited as having inaccurate on roads and the availability of showers.

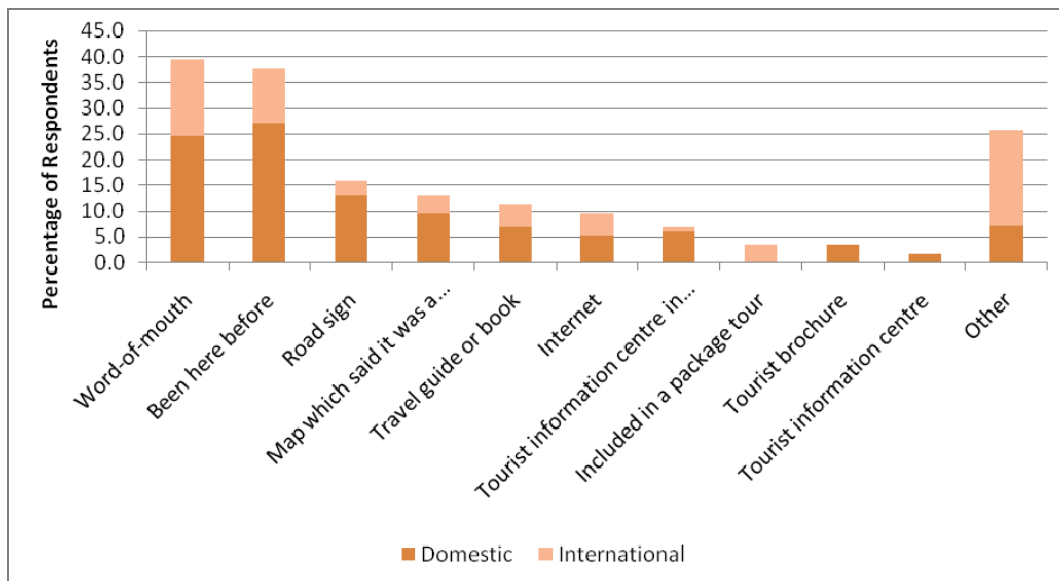


Figure 13: Sources of information consulted by survey respondents prior to visiting Paluma (N = 118).

On-site Signage

Interpretative and directional signs are important features of the infrastructure at any visitor site. Visitors were asked to comment on statements regarding on-site signage and interpretation using a Likert scale of 1 = 'strongly disagree' to 6 = 'strongly agree'. At Paluma, less than half of all respondents (48.6%, $n = 53$) referred to the interpretative information available at any of the survey sites. Domestic visitors were more likely to refer to on-site signage.

Visitors were asked to comment on aspects of the on-site signs and interpretation based on a Likert scale of 1 = 'strongly disagree' to 6 = 'strongly agree'. Table 18 highlights respondents' views on the quality of information provided at the site. Results suggest that signs, maps and directions were easy to find (mean = 4.81) and were helpful for directions (4.60); rules and safety information was easy to understand (4.87); and signage addressed interests and concerns (4.56). Statements regarding Aboriginal cultural information received relatively poor ratings: that cultural information was considered interesting scored a mean of only 3.43, while agreement that cultural information assisted visitors to appreciate cultural significance scored a mean of 3.23.

Table 18: Domestic and international survey respondents' perceptions of on-site signage at Paluma.

Perceptions of on-site information at Paluma	n	Overall Mean	Domestic visitors (mean)	International visitors (mean)
Signs, maps and directions				
Were easy to find	110	4.81	4.76	4.89
Helped me to find my way around	110	4.60	4.56	4.68
The rules and safety information				
Were easy to understand	108	4.87	4.88	4.85
Addressed my interests and concerns	107	4.56	4.62	4.45
The information about natural features and values				
Was interesting and informative	107	4.71	4.71	4.70
Helped me to better appreciate the special natural features of the area.	106	4.68	4.67	4.70
The Aboriginal cultural information				
Was interesting and informative	89	3.43	3.39	3.50
Helped me to understand the significance of this area for rainforest Aboriginal people	90	3.23	3.27	3.17

Table 19 outlines the percentage of responses for each level of agreement/disagreement to statements about on-site information at Paluma. Responses indicate that signs, maps and directions were easy to find (91.8%) and were helpful (84.5%). Information about the natural features and values of Paluma was considered interesting and informative (90.7%) and assisted visitors to appreciate the environment (91.5%). Responses to questions relating to Aboriginal cultural issues received moderate levels of support including interesting information (52.8%) and the significance of the area for rainforest Aboriginal people (47.8%).

Table 19: Survey respondents' perceptions of on-site tourism information provided at Paluma.

Perceptions of on-site information at Paluma	Percentage of survey respondents					
	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
Signs, maps and directions						
Were easy to find	1.8	2.8	3.6	24.5	39.1	28.2
Helped me to find my way around	1.8	2.8	10.9	24.5	38.2	21.8
The rules and safety information						
Were easy to understand	1.9	0.9	1.9	25.0	44.4	25.9
Addressed my interests and concerns	1.8	4.7	4.7	31.8	38.3	18.7
The information about natural features and values						
Was interesting and informative	0.9	3.7	4.7	25.2	44.9	20.6
Helped me to better appreciate the special natural features of the area.	1.9	2.8	3.8	30.2	39.6	21.7
The Aboriginal cultural information						
Was interesting and informative	14.6	15.7	16.9	24.7	21.3	6.8
Helped me to understand the significance of this area for rainforest Aboriginal people	18.9	15.5	17.8	25.6	15.5	6.7

Using an open-ended question, survey respondents were asked for suggestions on additional interpretative information they would like to see at Paluma. Twenty-five respondents (21.2% of the sample) provided 28 responses with the results outlined in Table 20. Responses indicate that there is support for more extensive information about Aboriginal culture (seven responses), walking track signage (four responses) and more interpretative signage discussing natural features and wildlife (four responses).

Table 20: Survey respondents' suggested additional visitor information that could be made available at Paluma (n = 25).

	Domestic (n)	International (n)	Overall (n)
Aboriginal culture information	4	3	7
Walking track signage	3	1	4
More information about natural features and wildlife	2	2	4
Discovery dates and by who; simple heritage information and age of environment	3	0	3
Rainforest information/ wildlife information	0	2	2
Sign to say which islands are out there from lookout	2	0	2
Walking trail maps/ topographic maps	0	1	1
Birdlife information	1	0	1
Where/ how to sight a cassowary	0	1	1
More plant identification	0	1	1
Elevation (ASL) at lookout	1	0	1
Information on what is out towards Mt Fox	1	0	1
Total Responses	17	11	28*

* Note: Multiple responses were given by some individual respondents.



3.4 Visitor Experience

Visitors were asked to comment on aspects of their visit that enhanced or increased their enjoyment of the site. An open-ended question was used and 67 responses were received from 44 respondents (37.3% of the sample). Results were grouped into four categories: 'natural', 'facilities', 'psycho-social' and 'others' (Table 21). The peace and tranquillity of Paluma received the most responses (12 responses). Other significant responses were the view (six responses), lookouts (four responses) and the unspoilt nature of the site (four responses).

Table 21: Aspects that visitors considered enhanced or increased their enjoyment of Paluma (n = 44).

	Frequency (n)	Percentage (%)
Natural		
View	6	9.0
Unspoilt nature of the site	4	6.0
The wildlife	3	4.4
Viewing bird species	2	3.0
The lake/ clear water	2	3.0
Seeing echidna	2	3.0
Climate difference to heat in Townsville	1	1.5
Great weather	1	1.5
Rainforest	1	1.5
Fresh air	1	1.5
Facilities		
Lookouts helping for a better view & photo	4	6.0
The walking track – so natural	3	4.4
Facilities are adequate	2	3.0
Information about the site	2	3.0
Site is clean	2	3.0
Picnic shelters	1	1.5
Psycho-social		
Peace and tranquillity	12	17.9
Few other tourists	3	4.4
Socialising/friend's company	3	4.4
Very relaxed	2	3.0
Isolation/remote/undeveloped	2	3.0
Beautiful place	2	3.0
Staff were very helpful	2	3.0
Swimming	1	1.5
Everything was well planned and thought out	1	1.5
Safe	1	1.5
Other		
Tour guide information	1	1.5
Total Responses	67*	100.0

* Note: Multiple responses were given by some individual respondents.

Respondents were also asked for their views on aspects of Paluma that detracted from their enjoyment. Table 22 indicates a low response rate (15.2% of the sample) to this section of the survey. Comments were divided into four categories generally paralleling the categories used to indicate the aspects of the site that respondents found appealing: 'nature', 'facilities', 'psycho-social' and 'other'. Respondents expressed concerns about other noisy people (4 responses) and a lack of road maintenance (3 responses), both referring to Lake Paluma.

Table 22: Aspects visitors considered took away or detracted from their enjoyment of Paluma (n = 19).

	Frequency (n)	Percentage (%)
Natural		
Biting insects – need a sign to warn people to use repellent	2	10.5
The weather	1	5.3
Facilities		
Road could be maintained better with less potholes	3	15.7
Litter on track	2	10.5
BBQ not working	1	5.3
Desperately needs a permanent ranger	1	5.3
Psycho-social		
Noisy people	4	21.0
Other		
This unnecessarily long survey	2	10.5
Travel to food site	1	5.3
Toilet paper/ some litter	1	5.3
Lack of information	1	5.3
Total Responses	19	100.0

The conclusions that can be drawn from the results reported in Tables 21 and 22 are that respondents found Paluma to be an enjoyable site with few problems.

Other Visitors

The behaviour of other visitors at a site can affect the level of enjoyment an individual derives from visiting that site. In circumstances where overcrowding occurs the overall level of enjoyment could be expected to fall. However, the link between perceived crowding and satisfaction is weak and is dependent on personal norms, situational variables and site infrastructure (West, 1981; Stankey and McCool, 1984; Kalisch and Klaphake, 2007). A series of statements were presented in the survey and respondents were asked to comment using a Likert scale of 1 = 'strongly disagree' to 6 = 'strongly agree'. Table 23 highlights respondents' views on the behaviour of other visitors. Respondents generally considered that other visitors to Paluma were environmentally responsible (mean = 4.09); that there were not too many people at the site (mean = 1.89); that the presence of other people did not prevent them from doing what they wanted to do (mean = 1.78); and that the behaviour of other visitors did not detract from their enjoyment (mean = 1.77). Results indicate that the site is well managed for the level of visitation that it receives.

Table 23: Domestic and international visitors' perceptions of other site visitors.

Perceptions of other site visitors at Paluma	n	Overall Mean	Domestic visitors (mean)	International visitors (mean)
The behaviour of other visitors at this site has been on the whole environmentally responsible.	112	4.06	4.10	4.00
There were too many people at this site today.	114	1.89	1.77	2.10
The presence of other people at this site prevented me from doing what I wanted to.	114	1.78	1.69	1.95
The behaviour of some visitors at this site detracted from my enjoyment of this site.	111	1.77	1.63	2.00

Table 24 provides respondents' levels of agreement/disagreement with statements relating to perceptions of other visitors at the site. Crowding is not an issue at Paluma with only 8.8% of respondents agreeing there were too many others at the site they visited, and only 7.9% reporting that other people prevented them from doing what they wanted. There was a high level of disagreement with the statement that other visitors detracted from a respondent's enjoyment (90.1%).

Table 24: Perceptions of other visitors at Paluma.

Perceptions of other site visitors at Paluma	Percentage of survey respondents					
	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
The behaviour of other visitors at this site has been on the whole environmentally responsible.	16.1	10.7	7.1	11.6	25.9	28.6
There were too many people at this site today.	49.1	27.2	14.9	4.4	3.5	0.9
The presence of other people at this site prevented me from doing what I wanted to.	54.4	26.3	11.4	5.3	-	2.6
The behaviour of some visitors at this site detracted from my enjoyment of this site.	60.4	20.7	9.0	5.4	0.9	3.6

3.5 Additional Comments

The survey instrument provided respondents with the opportunity to record comments on any aspect of their visit. Comments were received from fifteen respondents at Paluma survey sites (12.7% of the overall sample). Most comments were positive and focused on the natural environment, with some suggestions for improved facilities.

Date	Survey Site	Comment
17 September 2009	McClelland's Lookout	<p>'We believed you had to pay to stay here and rang Townsville Council to acquire a permit and paid \$20/night. If we don't have to pay to stay, we would like a refund. \$20 is <u>too</u> much to stay here overnight. \$8 would be normal and paid to an honour box [...]</p> <p>[Authors' note: This survey respondent was confused by the question relating to willingness-to-pay for day visitor access]</p> <p><i>Other Queensland visitor, female, 63 years</i></p>
19 September 2009	Paluma Township	<p>'The absence of a ranger over the past years has been detrimental to the area and seen the closure of walking tracks.'</p> <p><i>North Queensland visitor, male, 66 years</i></p>
19 September 2009	Lake Paluma	<p>'A1.'</p> <p><i>Other Queensland visitor, male, 69 years</i></p>
19 September 2009	McClelland's Lookout	<p>'I strongly believe that aboriginal history/involvement in the area should be incorporated into the whole story, not separated. I'm afraid I just 'turn off' when I see specific aboriginal info, and I don't think I'm alone.'</p> <p><i>Australian visitor, male, 57 years</i></p>
19 September 2009	McClelland's Lookout	<p>'If only one ranger is posted here – could he be the lone ranger?'</p> <p><i>North Queensland visitor, male, 52 years</i></p>
19 September 2009	Paluma township	<p>'Thoroughly enjoyed our day – not looking forward to the windy road down.'</p> <p><i>Other Queensland visitor, female, 69 years</i></p>
19 September 2009	Lake Paluma	<p>'Lovely site – just a shame about some other visitors and their behaviour.'</p> <p><i>North Queensland visitor, female, 26 years</i></p>
19 September 2009	Lake Paluma	<p>'Lake Paluma is a beautiful campsite. I would come here again.'</p> <p><i>North Queensland visitor, female, 25 years</i></p>
19 September 2009	Lake Paluma	<p>'Some people disturbed my meditating and birdwatching this morning. Their dispute was very loud and disturbed the birds and animals.'</p> <p><i>Belgian visitor, male, 32 years</i></p>

Date	Survey Site	Comment
19 September 2009	McClelland's Lookout	'A beautiful area. The [QPWS] website could be a bit more informative. Information good, but not enough of it.' <i>North Queensland visitor, female, 52 years</i>
19 September 2009	Paluma township	'More environmental education opportunities would be nice.' <i>German visitor, female, 23 years</i>
20 September 2009	McClelland's Lookout	'Improve carpark facilities and amenities, but leave site as natural as possible with the addition of information boards so parents can share the knowledge with kids.' <i>Australian visitor, female, 43 years</i>
20 September 2009	McClelland's Lookout	'Please, no more accommodation so there will not be so many people at this lovely place.' <i>Other Queensland visitor, female, 45 years</i>
20 September 2009	Paluma township	'Absolutely beautiful. There were so many different environments to see in such a small area. It was well maintained without the facilities being too intrusive on the natural beauty. Fantastic.' <i>USA visitor, female, 21 years</i>



4. Management Considerations

Results of the Paluma visitor survey suggest management consideration is given to the following matters:

- Regular monitoring of the standard of the road into Lake Paluma.
- Some interpretative signage promoting the Aboriginal culture needs upgrading.
- There is demand for the installation of shower facilities at Lake Paluma campgrounds.
- There is support for the presence of a Ranger.
- The barbeque and picnic facilities at the McClelland's Lookout clearing are under-utilised. It is suggested that information about the availability of these facilities be included on the DERM website.
- The site's World Heritage status was not a major 'pull' factor for visiting the site. This finding highlights the need for a more vigorous and coordinated strategy to promote the Wet Tropics' World Heritage status. One element of this strategy may be to encourage destination marketing collateral to include the World heritage logo
- Install a visitor counter (similar to toilet counter) at the entrance to McClelland's Lookout to develop a more detailed picture of visitor numbers and daily visitor patterns. Data of this nature, combined with the results of this survey will give managers a better understand of how the site is used on a daily, weekly and monthly basis.



Crimson Rosella at McClelland's Lookout (Photo: Julie Carmody)

5. References

- Altinay**, L. and Paraskevas, A. (2008) *Planning Research in Hospitality and Tourism*. Oxford: Butterworth-Heinemann.
- Budeanu**, A. (2007) Sustainable Tourism Behaviour – a Discussion of Opportunities for Change. *International Journal of Consumer Studies* 31: 499-508.
- Carmody**, J. and Prideaux, B. (2008) *Community attitudes, knowledge, perceptions and use of the Wet Tropics of Queensland World Heritage Area in 2007*. Report to the Marine and Tropical Sciences Research Facility. Cairns: Reef and Rainforest Research Centre.
- Kalisch**, D. and Klaphake, A. (2007) Visitors' satisfaction and perception of crowding in a German National Park: A case study on the island of Hallig Hooge. *Forest Snow and Landscape Research* 81(1-2): 109-122.
- Manidis Roberts Consultants** (1994) *Data Summary 1993 Visitor Use Survey: Wet Tropics World Heritage Area*. Report to Wet Tropics Management Authority, Cairns.
- Stankey**, G.H. and McCool, S.F. (1984) Carrying capacity in recreational settings: Evaluation, appraisal and application. *Leisure Sciences* 6(4): 453-473.
- Tourism Queensland** (2003) *Paluma Range Visitor Survey: Final Report*. Tourism Queensland Research Department.
- West**, A. (1981) Recreational carrying capacity. In: J. Pigram (1983) *Outdoor recreation and resource management*. London: Croom Helm Ltd.
- Whitmarsh**, L. (2009) What's in a name? Commonalities and differences in public understanding of "climate change" and "global warming". *Public Understanding of Science* 18: 401-420.

Appendix 1: Site Survey Instrument



Visitor Site Survey in the Wet Tropics World Heritage Area

Interviewer:

Survey Location:

Survey Date: Time:

Weather: ☐ Sunny ☐ Overcast ☐ Raining ☐ Hot ☐ Warm ☐ Cool

Other Comments: (e.g. windy, smoky, mist)

.....

Dear Visitor,

We are researchers from James Cook University, School of Business – Tourism, and on behalf of the Wet Tropics Management Authority we are exploring visitors' expectations and experiences of this Wet Tropics site. We would be very grateful if you would participate in the study by completing this questionnaire.

Your participation will help to improve visitor services and the continued management of sites by understanding visitors' needs and views.

The questionnaire is **voluntary** and all **responses remain completely anonymous**.

The questionnaire will take approximately **15 minutes** to complete.

Thank you very much for your participation.

If you would like any more information about this project please contact the project manager. If you would like to discuss any ethical matters regarding this project please contact the Ethics Administrator. This project has Human Ethics approval H3100 from James Cook University.

**PLEASE DETACH AND RETAIN THIS INFORMATION
PAGE ONLY FOR YOUR FUTURE REFERENCE**

Project Manager:

Dr Julie Carmody
School of Business – Tourism
James Cook University
Cairns, QLD 4870

T: (07) 4042 1535
E: Julie.Carmody@jcu.edu.au

Ethics Administrator:

Ms Tina Langford
Research Office
James Cook University
Townsville, QLD 4810

T: (07) 4781 4342
E: Tina.Langford@jcu.edu.au

HOW TO COMPLETE THIS QUESTIONNAIRE – Where questions require a ‘Yes’ or ‘No’ answer, or multiple response, please put a tick ‘✓’ in the checkbox beside the appropriate response.

Where a scale question is provided (e.g. scale from 1 to 6) please circle the response which best applies.

SECTION A: BACKGROUND INFORMATION

1. **Where do you normally live?** ☐ Within Australia Postcode:
☐ Overseas Country:
2. **How long have you lived there?** Years
3. Which of these best describes your **occupation**?
☐ Self-employed ☐ Professional ☐ Retail ☐ Domestic duties
☐ Management ☐ Office/clerical ☐ Public service ☐ Manual/factory work
☐ Service industry ☐ Tradesperson ☐ Student ☐ Retired/semi-retired
☐ Other

4. What is the highest level of **formal education** you have completed so far?
☐ Primary (1-7 years of education)
☐ Secondary (8-12 years of education)
☐ Tertiary A (Technical or further education institution)
☐ Tertiary B (University)
5. **What is your age?** years
6. **Gender:** ☐ Male ☐ Female

SECTION B: TRANSPORT AND TRAVEL

7. Are you with an **organised tour**? ☐ Yes
☐ No (Go to Question 8)
 If you answered ‘Yes’, what is the name of the tour company?

 Approx. number of people on your tour:
8. If you travelled in a **private or hired vehicle**, how many people including yourself are in your vehicle?
 Adults Children ☐ Private vehicle ☐ Hired vehicle

9. In your travels today, where did you **previously visit** before coming to this site?
(e.g. township, visitor site)

.....

10. In your travels today, where do you plan to go **after leaving this site**?

.....

11. How often do you **visit natural areas** like this (e.g. National Parks)?

- ☐ This is my first time
☐ Less than once a year
☐ Once a year
☐ Between 2 and 5 times a year
☐ More than 5 times a year

SECTION C: REASONS FOR VISITING

12. Please indicate how important the following **reasons** were for you **visiting this site** today.

	Not important	Slightly important	Moderately important	Important	Quite important	Very important
See natural features and scenery	1	2	3	4	5	6
Be close to / experience nature	1	2	3	4	5	6
Social with family or friends	1	2	3	4	5	6
Rest and relax	1	2	3	4	5	6
Experience tranquility	1	2	3	4	5	6
Outdoor exercise	1	2	3	4	5	6
Opportunities for short walks	1	2	3	4	5	6
Opportunities for long walks	1	2	3	4	5	6
Because it is a World Heritage Area	1	2	3	4	5	6
Because it is a National Park	1	2	3	4	5	6
Learn about native animals and plants	1	2	3	4	5	6
Learn about Aboriginal culture	1	2	3	4	5	6
Other (please specify)	1	2	3	4	5	6

13. What **activities** did you engage in at this site today?

- | | |
|---|---|
| <input type="checkbox"/> Observing scenery | <input type="checkbox"/> Walking – short (1 hour or less) |
| <input type="checkbox"/> Bird watching | <input type="checkbox"/> Walking – long (1-6 hours) |
| <input type="checkbox"/> Observe wildlife | <input type="checkbox"/> Swimming |
| <input type="checkbox"/> Photography / painting / drawing | <input type="checkbox"/> Guided tour |
| <input type="checkbox"/> Picnic / barbeque (BBQ) | <input type="checkbox"/> Looking at interpretation material |
| <input type="checkbox"/> Using café / restaurant | <input type="checkbox"/> Relaxing |
| <input type="checkbox"/> Camping | <input type="checkbox"/> Other (please specify): |

.....

14. Were there particular things you wanted to do today at this site which you were unable to do?

- ☐ Yes
☐ No

If you answered 'Yes', please specify:

.....

15. How **long** have you spent at this site today?

- | | |
|--|--|
| <input type="checkbox"/> Less than half an hour | <input type="checkbox"/> About 3 hours |
| <input type="checkbox"/> About half an hour | <input type="checkbox"/> About 4 hours |
| <input type="checkbox"/> About 1 hour | <input type="checkbox"/> More than 4 hours |
| <input type="checkbox"/> About 2 hours | <input type="checkbox"/> Overnight |
| <input type="checkbox"/> Days (please specify) | |

16. If an **entrance fee** were introduced to access this site today, how much would you be willing to pay?

- ☐ \$1 – less than \$2 (AUD)
☐ \$2 – less than \$5 (AUD)
☐ \$5 – less than \$10 (AUD)
☐ \$10 – less than \$20 (AUD)
☐ I do not think I should pay anything to access this site as a day visitor.

SECTION D: NATURAL ENVIRONMENT

17. The following statements are about the **natural features** of this site. Please rate the extent to which you agree or disagree with each statement.

	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
The natural environment at this site is interesting.	1	2	3	4	5	6
I would like to spend more time exploring this natural environment.	1	2	3	4	5	6
In terms of natural attractions and scenic beauty this site is appealing.	1	2	3	4	5	6
The condition of the natural environment at this site appears to be good.	1	2	3	4	5	6
The natural environment at this site is well managed.	1	2	3	4	5	6
I am concerned about the impacts of human activity on the natural environment at this site.	1	2	3	4	5	6
This site appears to be disturbed and impacted.	1	2	3	4	5	6

SECTION E: SITE FACILITIES

18. What facilities have you used at this site today? (Tick as many as applicable)

☐ Picnic table

☐ Walking track

☐ Shelter shed

☐ Boardwalk

☐ Restaurant / café

☐ Viewing platform / lookout

☐ Rubbish bin

☐ Fire place

☐ Toilet / showers

☐ Barbeque

☐ Tap

☐ Other (please specify)

19. Were there particular **facilities at this site you were expecting** to find which were not available?

☐ Yes

☐ No

If you answered 'Yes', please specify:

.....

.....

20. Please rate the extent to which you agree or disagree with each of the following statements about the **facilities and management** at this site.

	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
The site is appealing in terms of the character and attractiveness of the facilities.	1	2	3	4	5	6
The facilities at this site are adequate.	1	2	3	4	5	6
The overall condition of the facilities at this site appears to be good.	1	2	3	4	5	6
The facilities and infrastructure at this site are well managed.	1	2	3	4	5	6
The presence of a ranger at sites like this is important to me.	1	2	3	4	5	6

21. If you **agreed the presence of a ranger was important**, what are the reasons for this?

☐ To provide information / education

☐ To give directions

☐ To answer questions

☐ For lodging complaints about others' behavior

☐ To take us on guided walks

☐ For site maintenance

☐ For safety / security

☐ Other (please specify)

.....

SECTION F: INFORMATION

22. How did you **find out about this site**?

- | | |
|---|---|
| <input type="checkbox"/> Have been here before | <input type="checkbox"/> Travel guide or book |
| <input type="checkbox"/> Road sign | <input type="checkbox"/> From the web |
| <input type="checkbox"/> Word of mouth | <input type="checkbox"/> The trip here was included in a package tour |
| <input type="checkbox"/> Map which said it was a tourist site | <input type="checkbox"/> Tourist brochure (which one?) |
| | |
| <input type="checkbox"/> Tourist information centre in North Queensland | <input type="checkbox"/> Tourist information centre (other) |
| | |
| <input type="checkbox"/> Other (please specify): | |

23. If you obtained **prior information** about this site, was the information accurate?

- ☐ Yes
☐ No

If you answered 'No', please specify:

.....

24. Did you refer to any of the information available at this site today? ☐ Yes
☐ No

25. Please rate the extent to which you agree or disagree with the following statements about **information available** at this site.

	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
Signs, maps and directions...						
were easy to find	1	2	3	4	5	6
helped me to find my way around	1	2	3	4	5	6
The rules and safety information...						
were easy to understand	1	2	3	4	5	6
addressed my interests and concerns	1	2	3	4	5	6
The information about natural features and values...						
was interesting and informative	1	2	3	4	5	6
helped me to better appreciate the special natural values of the area	1	2	3	4	5	6
The Aboriginal cultural information...						
was interesting and informative	1	2	3	4	5	6
helped me to understand the significance of this area for Rainforest Aboriginal people	1	2	3	4	5	6

26. If you were to visit this site again, is there any **additional information** you would like?

☐ Yes

☐ No

If you answered 'Yes', please specify:

.....

.....

SECTION G: VISITOR EXPERIENCE

27. Were there any particular aspects of your visit that **increased / enhanced your enjoyment** of this site?

☐ Yes

☐ No

If you answered 'Yes', please specify:

.....

.....

28. Were there any particular aspects of your visit that **took away / detracted from your enjoyment** of this site?

☐ Yes

☐ No

If you answered 'Yes', please specify:

.....

.....

29. Please rate how strongly you agree or disagree with the following statements about **other visitors at this site** today.

	Strongly disagree	Somewhat disagree	Mildly disagree	Mildly agree	Somewhat agree	Strongly agree
There were too many people at this site today.	1	2	3	4	5	6
The presence of other people at this site prevented me from doing what I wanted to do.	1	2	3	4	5	6
The behavior of other visitors at this site has been on the whole environmentally responsible.	1	2	3	4	5	6
The behavior of some visitors at this site detracted from my enjoyment of this site.	1	2	3	4	5	6

ADDITIONAL COMMENTS:

.....

.....

.....

.....

.....

.....

.....

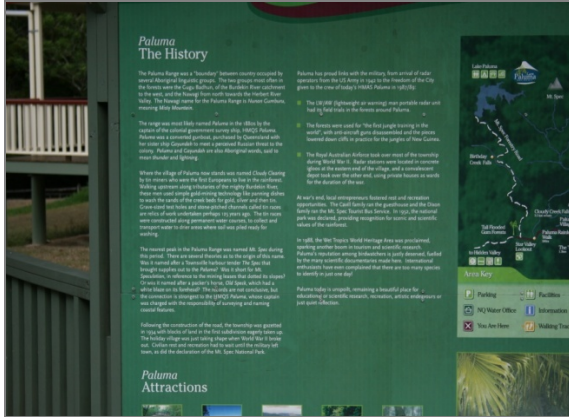
.....

.....

THANK YOU VERY MUCH FOR YOUR PARTICIPATION

Appendix 2: Site Photographs

Paluma visitor signage



Photographs by Julie Carmody

Paluma visitor facilities



Photographs by Julie Carmody