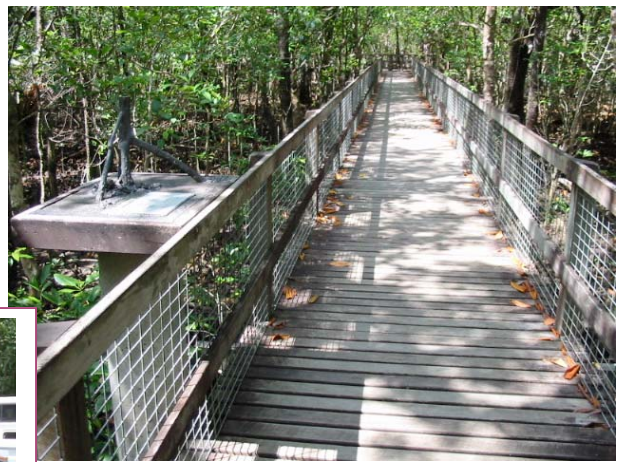


# Marrdja Boardwalk

## *Site Level Data Report*

### *2001/2002*



**Joan M Bentrupperbäumer**



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November 2002

For this research:

- |   |       |
|---|-------|
| ▪ James Cook University Ethics Approval No.               | H1272 |
| ▪ Queensland National Parks & Wildlife Service Permit No. | FNQ06 |
| ▪ Wet Tropics Management Authority Contract No.           | 654   |

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# Terms of Reference

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## Visitor Use Survey

The following Terms of Reference have been extracted directly from the WTMA/Rainforest CRC Contract document.

### Background

Measurement of visitation to the WTWHA extends far beyond the estimation of visitor numbers. The collection of basic visitor numbers provides baseline information only. Further visitor specific information is required to provide managers with an understanding of patterns of visitor use, behaviour, perceptions, attitudes, expectations and satisfaction. A comprehensive understanding of these visitor aspects is critical to effective visitor management including minimisation of biophysical impacts and maximising benefits to the land manager, visitor and community.

WTMA commissioned Manidis Roberts Consultants in 1993 to conduct an extensive visitor survey with the aim of providing baseline information for comparison with future visitor use surveys. The Manidis Roberts 1993/1994 visitor survey was conducted over 56 sites and although not comprehensive provided an important first step in visitor monitoring within the WTWHA. The MR survey approach include 3 key elements:

- traffic counts
- site observations
- visitor interviews

A number of subsequent visitor use surveys have taken place throughout the WTWHA, and although they have not taken place in as many sites as the Manidis Roberts 1993/1994 survey, they have been far more comprehensive and complex in order to investigate the variety and complexity of issues identified by management agencies.

### Aims:

- To collect, compare and review site-based visitor information against previous survey exercises, including aspects of the MR survey
- To update WTMA's visitor survey system to achieve improved administrative efficiency and capture of key site-based visitor information which will aid land managers and the tourism industry in making informed management decisions
- To contribute to measuring psychosocial indicators for State of Wet Tropics reporting processes
- To provide an integral input or tool for the 'Visitor Monitoring System (VMS) for the Wet Tropics World Heritage Area', a project which is also being undertaken by Rainforest CRC during 2001 to 2002.

(Ref: *WTMA Contract # 654 , 2001*)

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## About the Author

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Dr Joan M Bentrupperbäumer is a Senior Research Fellow and Project Leader with the Rainforest CRC and Lecturer at TESAG and the School of Psychology, James Cook University, Cairns. Her research interests include human-natural environment transactions using social, psychological and biophysical perspectives. Her research approach incorporates an interdisciplinary perspective on reciprocal relationships indigenous and nonindigenous people have with the natural/built/social/cultural environment in the WTWHA and the implications of such relationships for environmental management, tourism and local communities in the region. A particular emphasis in the research is placed on the 'real world' application of results in terms of planning for, managing, monitoring and reporting on the State of the Wet Tropics, and developing practical mechanisms and strategies to mitigate impacts on those features of the WTWHA inherent to its World Heritage status.

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## Acknowledgments

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The success of this research project, which was undertaken across ten sites within the Wet Tropics World Heritage Area, has very much depended on the many people involved in various research related tasks. In particular I would like to acknowledge my colleague Dr Joseph Reser who has worked together with me over a number of years now developing and refining the analytical framework, survey instruments, and methodologies for this multidisciplinary research on impacts of visitation and use in protected areas. Together we have finalised a report which brings together the results from the ten site level reports, and discusses in detail the analytical framework, methodologies and procedures which were used to undertake this research (Bentrupperbäumer & Reser, 2002a). I would also like to specially acknowledge my research assistant Sue-Ellen O'Farrell who has made a major contribution to this research by assisting me in every aspect of the administration of the project.

In addition I wish to acknowledge all of those listed below who were involved in various aspects of this research.

### *A. Data Processors*

Bronwyn Guy, Joshua Guy, Charmayne Paul, Sue-Ellen O'Farrell, Lucas Talbot, Sunny Pegararo and Jenny Butler.

### *B. Field Assistants across the region*

Kristie Ashden, Rosanna Brown, Shannon Bros, Megan Campbell, Margit Cianelli, Campbell Clarke, Laurel Cooper, Cheryl Cornelius, Leyla Demis, Mathew Earle, Heidi Freiburger, Malcolm Frost, Michelle George, Paula Gilbard, Bronwyn Guy, Joshua Guy, Kristen Haaland, Alicia Hill, Steve Lawrence, Denise Lievore, Lisa Martin, Rik Morgan, Sue-Ellen O'Farrell, Nicole Parise, Charmayne Paul, Sunny Pegararo, Romina Rader, Quinn Ramsden, Hilde Slaatten, Mathew Sutherland, Lucas Talbot, Colin Tonks, Ben Trupperbäumer, Steve Turton, Roger Wilkinson, Robyn Wilson, Cleo Wilson.

### *C. Field Assistants at Murrumbidgee*

Robyn Wilson, Roger Wilkinsen & Joan Bentrupperbaumer (Field Supervisors), Laurel Cooper, Roma Rader, Denise Lievore, Lucas Talbot, Hilde Slaatten, Nicole Parise, Josh Guy.  
Rik Morgan (Traffic Counter)

### *D. Research Colleagues*

Dr. Robyn Wilson, Assoc. Prof. Steve Turton and Dr Miriam Goosem

### *E. WTMA Personnel*

Max Chappell, Campbell Clarke, Dr Steve Goosem and Ellen Weber.

### Funding:

*This research (Site-Level Visitor Survey across ten WTWHA sites) together with the WTWHA Community Survey (Contract # 654) has been funded by the Wet Tropics Management Authority (20%), the Rainforest CRC (26%), and James Cook University (In-kind infrastructure and services - 54%).*

# Table of Contents

Terms of Reference .....	3
About the Author & Acknowledgements .....	4
This Research .....	6
This Report .....	7
Site Location & Description .....	9
Site Management .....	11
Executive Summary .....	12



## Section One: *Psychological & Behavioural*

<b>Visitor Survey 2001 &amp; 2002</b> .....	<b>17</b>
• Descriptive Analyses of Survey .....	18
• Additional Comments on Survey.....	44
• Comments to Field Assistants.....	47
• Behavioural Observations.....	48



## Section Two: *Infrastructure/Built Environment*

<b>Infrastructure Inventory and Profile 2002</b> .....	<b>49</b>
• Site Inventory.....	51
• Activity Nodes.....	52
• Site Information and Signage.....	53



## Section Three: *Social Setting*

<b>Vehicle and Visitor Monitoring 2002</b> .....	<b>57</b>
• Vehicle and Visitor Records.....	59
• Traffic Counter Data.....	66



## Section Four: *Management Considerations*

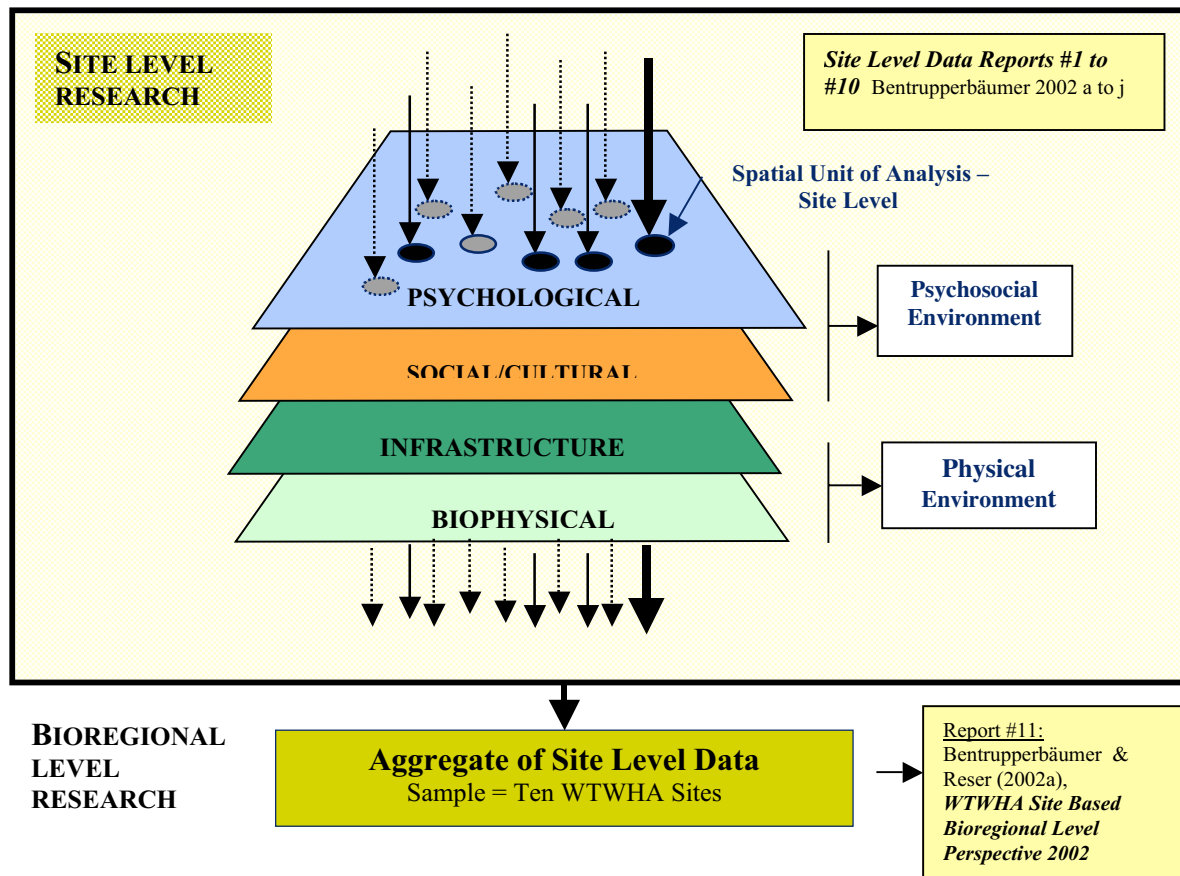
• Presentation.....	76
• Opportunities.....	78
• Specific Problems.....	79

References .....	81
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## This Research

Natural resource managers are increasingly aware that the real issue and challenge for them is people management. In a protected area context this requires an informed understanding of the nature and quality of the interaction between people and environment. The multilayered and multidisciplinary site-level approach applied in this research is one that provides such an understanding and has evolved from, built upon and refined earlier research endeavours (Bentrupperbäumer & Reser 2000). The conceptual and methodological framework which assesses and documents this interactive process and which was applied in this research is outlined in Figure 1. This framework differentiates between four primary research layers or domains, one for each of the four key site-level ‘environments’ within the setting: *social and psychological* (psychosocial), *natural and built* (physical) (Reser & Bentrupperbäumer, 2001). Research projects representative of each of these ‘environments’ were conducted simultaneously at the site, which provided a comprehensive and realistic context for measuring, monitoring and reporting on the *impacts* of visitation and use at recreational settings in the Wet Tropics World Heritage Area.

From a management perspective, this site-level research approach provides specific site and situation level data which can directly inform site level decision-making and practice, as well as monitoring and reporting (see Site Level Reports #1 to #10, Bentrupperbäumer 2002 a to j). In addition, this site-level sampling allows for an accurate and meaningful aggregate picture of what is happening at a bioregional or World Heritage Area level, as long as data collection sites and data collection are representative (see Report #11, Bentrupperbäumer & Reser 2002a, *WTWHA Bioregional Level Perspective 2002* ). Given that reporting on the State of the Wet Tropics is a statutory requirement, the standardised conceptual and methodological framework used across the ten WTWHA sites and the subsequent information provided by research such as this is critical for continued monitoring and reporting change over time.

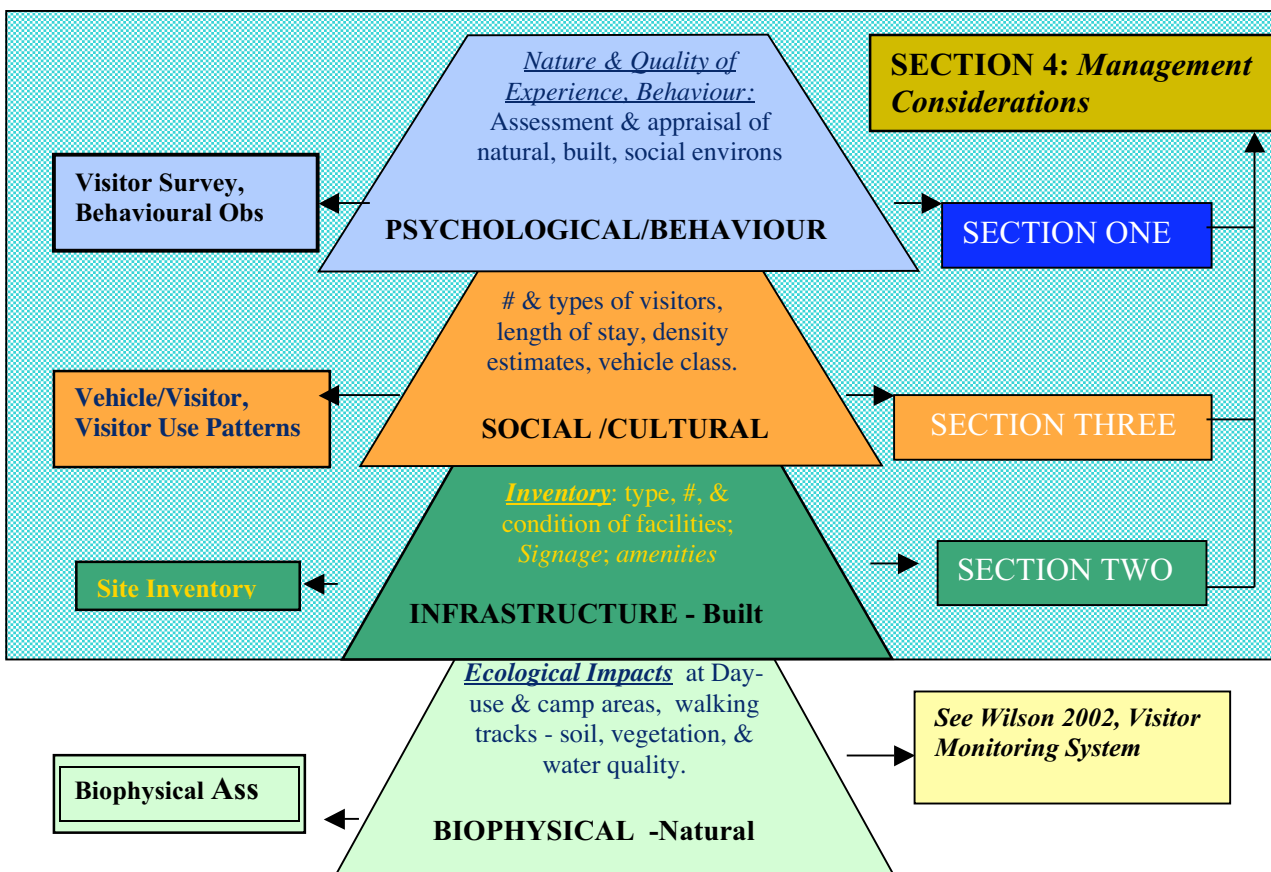


**Figure 1:** Diagrammatic representation of the research layers, domains and report outputs for this research .

# This Report

This report is one of ten site-level reports which presents a comprehensive set of data analyses for the strategic sample of research tasks undertaken across three of the four research domains outlined in Figure 1. The research covered in this report was undertaken at the Queensland Parks and Wildlife Service and Wet Tropics World Heritage site, **Marrdja**, during 2001 and 2002. Since the primary objective of this report is to provide key site-level data of relevance to all levels of management, from on-ground to policy, planning, monitoring and reporting, details of methodology are not included here. This information is available in a separate but accompanying report (Report #11, Bentrupperbäumer & Reser, 2002a). When *comparative data* from previous studies are available they are included in each relevant section. When such data is from studies other than the authors, methodology and specific measures are often different. The layout of this report, which compliments the research domains presented in Figure 1, is outlined in Figure 2 and the discussion that follows.

## SITE LEVEL REPORT



**Figure 2:** Diagrammatic representation of the report layout and report sections.

The layout of this report is in four sections. The first three sections present data which reflect the strategic sampling across three research domains, while the fourth section addresses key management considerations. The data in this report is presented in some considerable detail the purpose of which is to allow for the identification in future monitoring of changes in the system over time, however subtle. It also provides management agencies with the detail required for State of Environment reporting and planning, policy and on-ground management decision making.

## Data Sections

### Section 1: *Psychological and Behavioural*

In the first section, general descriptive analyses of the two stages of data collection undertaken at this site in September, 2001 and April, 2002, are presented. Data collected includes:

- a) *visitor survey* provides information on visitor profile, reasons for visiting, appraisal of the natural, built, social environment, and signage, visitor activity, prior information sources used, experience and satisfaction. Comparable survey items from Manidis Roberts (1993/1994) are also included.
- b) *behavioural observations*, and
- c) *general comments* by visitors, field assistants and field supervisors.

### Section 2: *Infrastructure/Built Environment*

The second section presents an *inventory of site facilities and infrastructure*, including all *signage*, which was undertaken by the author during the same data collection periods. An inventory from previous research (Bentrupperbäumer & Reser 2000) is included for comparison as is signage information from SitePlan (1993).

### Section 3: *Social Setting/Visitor Use Patterns*

The third section presents information on the social setting of the site including visitor use patterns. While the research undertaken in this section does not encompass the full meaning of *social*, the information nevertheless provides an overview of visitor use patterns including number and type of visitors accessing the site, length of stay at the site, pattern of use over time, vehicle type, etc. This information was obtained and is presented in two ways.

- a) The first is observer-based information which outlines vehicle and visitor data obtained over 4 x 8 hour observation periods during September 2001 and April 2002.
- b) The second is instrument-based information obtained from the traffic counter which provides monthly, weekly, daily records of vehicle numbers, and visitor numbers calculated from visitor counts in vehicles and Questionnaire item # 8 in the visitor survey. The traffic counter was installed for a continuous period of 12 months from mid September 2001. Traffic counter data from Manidis Roberts (1993/1994), the WTMA Traffic Counter Program (1993-1997), and Bentrupperbäumer & Reser (2000) are included for comparison.

## Integrative Section

### Section 4: *Management Considerations*

The fourth section of this report addresses management considerations that have emerged through the integration of the data across the above three research domains. These considerations cover topics such as: presentation, protection, opportunities, problems and issues, threatening processes, layout and design, indicators and monitoring.



## Site Location & Description

---

**M**arrdja Botanical Walk is situated within the Daintree National Park, north of the township of Mossman. The Marrdja Botanical Walk is a Wet Tropics World Heritage site and occurs in the northern coastal section of Australia's Wet Tropics of Queensland World Heritage Area (WTWHA), which extends from Cooktown southwards to Paluma, encompassing an area of 894,420 hectares (Figure 3).

### Natural Environment

At this lowland tropical rainforest site a complex mosaic of forest types are evident. The rainforest is dominated by primitive and rare species of plants, some of which can only be found on the lowlands of Cape Tribulation (Thomas, 1994). Plants that represent all of the stages of the evolution can be found here (WTMA, 2000). The mangrove swamp area is dominated by varied flora including particular types of ferns, orchids and the Ant Plant (WTMA, 1996). The area around Marrdja is of a warm climate, and due to Marrdja's positioning (close to Thonton Peak), the site receives a high annual rainfall. While such an environment is home to varied wildlife, unfortunately wild pigs live at the site, evidenced by the diggings on the forest floor.

### Indigenous and Nonindigenous Cultural Environment

The Kuku Yalanj tribe have traditionally occupied the Daintree region. The Kuku Yalanji lived off abundant food supplied by the rainforest seasonally, as well as a diet of cassowary, fish, snake, and scrub wallaby. The Kuku Yalanji mythology is strong in this region, with a belief that the environment was created by the Rainbow Serpent (Kurriyala) (WTMA, 2000). In the mid 1890s, the Kuku Yalanji tribe had been severely decimated due the expansion of European settlement (PDA, n.d.). Due to the discovery of gold, tin mining, mineral explorations, and the development of the timber industry in the region, many members of the Kuku Yalanji were forced into missions at Bloomfield, Mossman Gorge, and Daintree River (WTMA, 2000).

### Built Environment

Marrdja Botanical Walk has been designed for day usage only, providing visitors with the following facilities: car park area, a walking track composed of boardwalk and concrete sections, and toilets. No camping, picnic tables or seating facilities are available. Signage is evident throughout the site. The layout of the site is presented in Figure 4. See Section 2 for details of infrastructure/built environment.

### Opportunities

**Recreational** The main activity-based recreational opportunity available at this site is the walking track (see Section 1 for details). There are two walking tracks present. One is a circuit walk which leads through the rainforest and mangrove forests to the edge of Olive and Noah Creeks and back to the car park. The other is a small additional loop off the main boardwalk. The walks are classified as *Pathway 1* (Wet Tropics Walking Strategy, 2001). The current status of these walks is outlined in detail in Section 2. Visitor comments relevant to these tracks are presented in Section 1. Other recreational opportunities available include: photography and bird/wildlife watching.

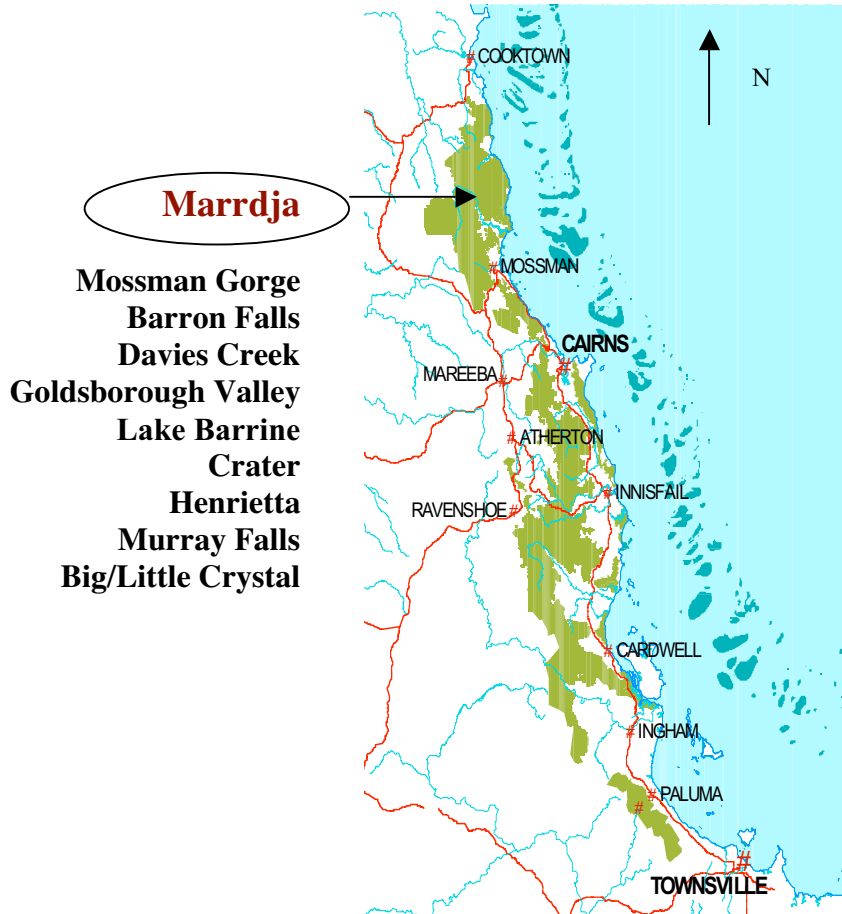
**Experiential** In addition to the activity-based recreational opportunities outlined above, Marrdja provides important experiential opportunities including: nature appreciation and experience such as observing scenery and wildlife encounters. During most times throughout the day solitude is not an experience achievable at this site due to continuous movement of people to and through the site.

**Educational** Marrdja also provides for educational opportunities both through the many tour guides who include this site in their tours and the extensive interpretation signage present along the boardwalk.

### Visitation

Compared to other sites in the Wet Tropics, Marrdja Boardwalk experiences relatively low to medium levels of visitation with approximately 68,000 visitors per year (Mossman Gorge > 400,00 visitors per year). This visitation is lowest in February (418 vehicles) and highest in July (2436 vehicles), and is spread evenly across the weekdays and weekends.

# Site Map



## Wet Tropics World Heritage Area of Australia

**Figure 3:** Location of Murrdja within the Wet Tropics World Heritage Area. (Source WTMA)



**Figure 4:** Murrdja Site Map (Source: WTMA)

## Site Management

---

### Queensland Parks and Wildlife Service/Environmental Protection Agency

The Queensland Parks and Wildlife Service/Environmental Protection Agency (QPWS/EPA) is responsible for the on-ground day-to-day management and upkeep of Marrdja site.

According to the management principles for Queensland's National Parks:

*A national park is to be managed to –*

- (a) *As the cardinal principle, “provide, to the greatest possible extent, for the permanent preservation of the area’s natural condition and the protection of the area’s cultural resources and values; and*
- (b) *Present the area’s cultural and natural resources, and their values; and*
- (c) *Ensure that the only use of the area is nature-based and ecologically sustainable.”*

(The State of Queensland, EPA, 2001, p.7)

In the context of *sustaining recreational and tourism opportunities* the following principles were identified in the Master Plan for Queensland's Park System (The State of Queensland, EPA, 2001):

*A range of opportunities will be provided for visitors to enjoy parks, and interpretative programs will enhance visitor awareness, appreciation and protection of natural and cultural heritage.*

*The park system will be managed to provide visitors with facilities that are safe and are located, designed, constructed and maintained to meet appropriate safety standards, and with information that will provide visitor awareness of the hazards present in parks and the levels of skill and competence required to cope with the risks they may face.*

### Wet Tropics Management Authority

The Primary Goal for the Wet Tropics World Heritage Area is to implement Australia's international duty to *“protect, conserve, present, rehabilitate and transmit to future generations the Wet Tropics World Heritage Area, within the meaning of the World Heritage Convention.”*

#### Site Specific Management Intent

Marrdja site is classified as a Zone D site by the WTMA's zoning scheme. This zoning system is based on a “distance from disturbance” model. The WTMA management intent for this zone type is described below:

*“To accommodate developed visitor facilities to enable visitors to appreciate and enjoy the Area. To ensure that the impact of visitor infrastructure is managed to minimize the effect on the integrity of the Area”* (Wet Tropics Management Authority, 1997 p.33).

In addition, the Wet Tropics Management Authority's (WTMA) Visitor Opportunity Class system describes Marrdja as a Visitor Facility Node (Class 4). The criteria for this category of site, as defined by the WTMA (1997 p.94), are detailed below:

- An area where a visitor may expect opportunities for presentation, intensive social interaction, and where management presence may be obvious;
- Accessible by vehicle along presentation roads;
- Having developed visitor facilities such as formal car parks, toilets, picnic facilities and camping areas;
- Providing access to a range of recreation opportunities;
- Having the potential for further development of visitor facilities.

## Executive Summary

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### Section One : *Psychological & Behavioural*

#### Visitor Survey & Behavioural Observations 2001 & 2002

---

### Visitor Survey Analyses

The following key findings are based on the visitor survey being undertaken over four days in September 2001 and April 2002, and a respondent number of 231.

#### Visitor Profile

- Marrdja Boardwalk is an *important non local use site*. The majority of visitors are from overseas and many visitors who are Australian live outside the WTWHA bioregion.
- It is a site most frequently used by people between *20 and 29 years of age* who travel in a *hired car*.

#### Prior Information Sources used

- Most people know of Marrdja because of *word of mouth*. *Road signs* and *travel guide or book* are also important sources of information. Very few visitors to Marrdja use *the web, information centres and leaflets*.

#### Reasons for Visiting

- The primary reasons given for why people visit Marrdja were to *see the natural features and scenery*. *To experience the Wet Tropics* was also highly rated.

#### Visitor Appraisal of Natural Environment

- Visitors find the *natural features* of Marrdja to be *very interesting, appealing* and *in good condition*.
- Of the *natural features* that a small percentage of visitors reported expecting to find at Marrdja but were unable to, the majority were *fauna related*.

#### Time Spent and Activities Engaged in

- Visitors spend just enough time at Marrdja to undertake the *short walk* along the boardwalk – *half to one hour*. Very few visitors spend more than one hour at the site.
- Other activities undertaken at Marrdja include photography and birdwatching.

#### Visitor Appraisal of Signage

- Of the information types available at the site *natural/ecological information* received the highest assessment.
- Most visitors agreed that *rules and regulations* at Marrdja were *easy to determine* and enabled them to *identify acceptable activity*.
- *Natural and ecological information* followed by *cultural / historical information* were the types of additional information most frequently sought by visitors.

### Visitor Appraisal of Built Environment

- Overall, visitors were very satisfied with the *condition of the facilities* at Marrdja.
- The most frequently requested additional facility was for *rubbish bins* – currently, none exist at Marrdja.
- Of those visitors who agreed that the presence of a ranger at the site was important, *to provide information / education* and to *answer questions* were the reasons most frequently provided.

### Visitor Knowledge of Management Agencies

- Visitors on the whole were *unfamiliar* with the agency responsible for managing Marrdja.
- In contrast to others study sites, the World Heritage status of Marrdja was *known* to the majority of visitors.

### Visitor Appraisal of Social Environment

- *Experienced crowding* and *the behaviour of others* does not appear to be a problem for the majority of visitors to Marrdja.

### Experience & Satisfaction

- *Visitor satisfaction* of Marrdja was *high*. Most visitors strongly agreed that they enjoyed their visit to Marrdja and that it was well worth the money.
- Aspects of Marrdja that *enhanced the enjoyment* of the visit were related to the *natural features* and the *facilities* at the site.

## Comments

Visitors mainly commented on the *negative aspects* of the site.

- The most frequently reported negative comment was in regards to the *number of visitors* present at the site. Tour groups were described as being *too big*.
- Comments related to improvement of *facilities* included:
  - more safety information,
  - more information on flora and fauna,
  - rubbish bins being made available.
- The *damage caused by wild pigs* was also frequently commented on.

## Behavioural Observations

From the behaviours recorded at Marrdja in September 2001 and April 2002, the following behaviours were the most frequently observed.

### • Inappropriate Behaviour

The inappropriate behaviours recorded at Marrdja varied. Littering and undesignated parking are two examples of such behaviour.



## Section Two:

### *Infrastructure Inventory and Profile*

## Key Findings

---

### **Site Infrastructure Inventory & Assessment**

- Marrdja contains one distinct activity node – the *Walking Track*.
- Within this activity node a variety of *infrastructure* has been established.

#### **Circuit Walking Track**

- The infrastructure is good throughout the length of walking track.
- There was no evidence of litter along the track.
- Some eroded areas caused from stepping off the main boardwalk are evident though these are relatively minimal.

#### **Comparison with previous inventory (1998)**

- The walking track has been upgraded and extended to a circuit track.
- Toilet facilities have been installed.
- Car Park area is still in need of better management.

### **Site Information and Signage**

- A total of **24 sign structures** containing **32 separate sets of information** relevant to Marrdja were recorded at the site itself.
- Half of these signs (50%) were in the *interpretive* category – natural, ecological, evolutionary.
- *Visitor advice* was mainly in the form of identifying parking locations.
- One *corporate identity* sign identifying the area as Wet Tropics was situated at the edge of the car park. While there was no separate National Parks sign this information was incorporated in the Marrdja Boardwalk sign.
- No *foreign language* signage was present at this site.



## Section Three:

### *Vehicle and Visitor Monitoring*

## Key Findings

---

### Vehicle and Visitor Records

- Most common vehicle type accessing Marrdja Boardwalk was the *car* (41%).
- The highest number of people at the site at one time was **87** (1150 hours 7<sup>th</sup> April 2002).
- The highest number of vehicles at the site at one time was **13** (1150 hours 7<sup>th</sup> April 2002).
- The busiest periods at Marrdja occurred at midday and in the mid afternoon (1200 and 1500 hours).
- On average, people stayed at Marrdja for **52 minutes** (just under an hour).

### Traffic Counter Data (based on best estimates from *through* traffic data)

- A total of **13,332 vehicles** and **68,393 people** visited Marrdja in the 11 months - September 2001 to August 2002 .
- On average, **1,111 vehicles** and **5,668 people** visited this site *each month*, range 418 to 2,436 vehicles.
- **July** received the *highest number of visitors*.
- On average, **256 vehicles** and **1,315 people** visited Marrdja *each week*, range 82 to 668 vehicles.
- **Daily** vehicle numbers ranged from **8 to 126**.
- Average *weekday* vehicle number was **35 per day**.
- Average *weekend* vehicle number was **33 per day**.



## Section Four:

### *Management Considerations*

## Key Findings

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### **Presentation**

- The majority of visitors to Marrdja are well aware of its World Heritage Area status.
- Indigenous cultural attributes of the site are not presented in the context of interpretive signage.
- Natural attributes are well presented in terms of appeal, condition and management of the natural environment as well as in interpretive signage.
- Management identity of the site is not well presented but their performance in terms of managing the built environment is highly regarded as evidenced in visitor appraisal of the condition and management of the built environment.
- Given the reliance on prior knowledge about the site, word of mouth, road signs and maps, presentation of relevant and critical WHA and management information needs to occur at the site.
- Site layout and design, infrastructure and facilities are legible and functional.

### **Opportunities**

- Marrdja is providing for and facilitating activity-based recreational opportunities in a reasonable way.
- Experienced-based opportunities are very important for visitors and are reasonably well accommodated for at this site.

### **Specific Problems and Issues**

- Principal behaviour management problems relate to visitors violating regulations such as bring dogs to the site.
  - Inappropriate behaviour most evident included littering and some undesignated area use.
-



# Section One

## *Psychological & Behavioural*

### **Visitor Survey & Behavioural Observations 2001 & 2002**



# S E C T I O N O N E

- 
- Descriptive Analyses of Survey
  - Additional Comments on Survey
  - Comments to Field Assistants
  - Behavioural Observations
-


# Visitor Survey of the Wet Tropics Region in North Queensland Dry (Stage 1) and Wet (Stage 2) Season 2001/02

## GENERAL DESCRIPTIVE DATA ANALYSES

Survey Location: **Marrdja Botanical Walk – Daintree National Park**

	Stage 1	Stage 2
<b>Survey Dates</b>	11 <sup>th</sup> & 12 <sup>th</sup> October 2001	6 <sup>th</sup> April & 7 <sup>th</sup> April 2002
<b>Survey Times</b>	0830 to 1700 each day	0830 to 1700 each day
<b>Weather</b>	79.8% Sunny 16.1% Overcast 0.0% Raining 0.8% Hot 3.2% Warm 0.0% Cool	35.5% Sunny 59.8% Overcast 3.7% Raining 0.0% Hot 0.9% Warm 0.0% Cool

This visitor survey was undertaken over two periods, September 2001 and April 2002. For clarity of presentation the data analysis/results corresponding to these data collection periods are represented in two colours, grey and green, and for the combined, dark red:

 **Stage 1: September 2001**

 **Stage 2: April 2002**

In addition, where comparative data is available from Manidis Roberts 1993 and 1994 data collection periods this is included in the relevant section and is represented in yellow.

 **Comparative Data** (*Manidis Roberts 1993/1994*)

- Primary data analysis for this section of the report has been undertaken by Bronwyn Guy, James Cook University.

## Questionnaire Response Profile

Murrinja Boardwalk is a low to medium use site (68,000 visitors per year – 2001/2002), with many visitors belonging to tour groups. Nevertheless, independent visitors also make up a large proportion of visitors. It was therefore possible during the survey distribution period to approach every independent visitor to the site as well as a considerable number of tour group visitors. Over four days of field work 497 people were approached to take part in this survey. Of the 250 (50.3%) who agreed to participate, 231 surveys were successfully completed and analysed. The results presented in this section are therefore representative of those using Murrinja Boardwalk at the time during which the field work was undertaken. The following tables outline the details of respondent participation and survey distribution.

### a) Type of Questionnaire Distributed & Returned

A total of 231 questionnaires made up this data set, the majority of which were completed on site. Fifteen percent were take-homes and mailed back.

	Stage 1: 2001		Stage 2: 2002		Combined	
	n	Percentage	n	Percentage	n	Percentage
On-Site	99	79.8%	97	90.7%	196	84.8%
Take-Home	25	20.2%	10	9.3%	35	15.2%
<b>Total</b>	<b>124</b>	<b>100%</b>	<b>107</b>	<b>100%</b>	<b>231</b>	<b>100%</b>

### b) Status of Questionnaire Returns

Of the 250 questionnaires returned, 7.6% were rejected for the following reasons: they were over 50% incomplete, respondents were too young, or they were posted back well after data entry and analysis had been completed.

	Stage 1: 2001		Stage 2: 2002		Combined	
	n	Percentage	n	Percentage	n	Percentage
<b>Analysed:</b> Completed	124	91.8%	107	93.0%	231	92.4%
<b>Rejected:</b> Incomplete, under age, returned too late etc.	11	8.2%	8	7.0%	19	7.6%
<b>Total</b>	<b>135</b>	<b>100%</b>	<b>115</b>	<b>100%</b>	<b>250</b>	<b>100%</b>

### c) Non-Response Information

Of the 497 people approached over four days of survey distribution, 55.1% would either not take part or failed to return the survey. The vast majority of non responses were surveys distributed to tour groups who failed to return them. During Stage 2 many tour groups cited ‘tight schedule’ as the reason for clients not completing the survey. Twenty-nine tour groups were approached during this period. Field assistants found visitors on the whole to be co operative, interested in the research, and willing to participate. Of difficulty at a site like this is obtaining tour group participation.

Reasons	Stage 1: 2001		Stage 2: 2002		Combined	
	n	Percentage total # people approached (310)	n	Percentage total # people approached (187)	N	Percentage total # people approached (497)
Take-homes not returned (majority given to tour groups)	143	46.1	49	26.2	192	38.6%
Filled in other/same survey	1	0.3%			1	0.2%
Language Difficulties	17	5.5%	15	8%	32	6.4%
Had small children	1	0.3%	2	1%	3	0.6%
No Time	2	0.6%	5	2.7%	7	1.4%
Not Interested	11	3.5%	1	0.5%	12	2.4%
<b>Non-Response</b>	<b>175</b>	<b>56.3%</b>	<b>72</b>	<b>38.4%</b>	<b>247</b>	<b>55.1%</b>

## a) Background Information

## Key Findings

### Stage 1: September 2001 *Visitor Profile*

During this first data collection stage,

- The majority of visitors (respondents) to Marrdja were from *overseas*. Of the Australian visitors, most were *national* visitors, i.e., they lived outside the Wet Tropics bioregion;
- *English* was the major ethnic group;
- The highest level of education achieved by the majority of visitors was *Tertiary B (University)*;
- While the average age of visitors was *36 years*, the majority were in the *20-29 age class*;
- More females participated in this survey than males.

### Stage 2: April 2002 *Visitor Profile*

Some variations in the visitor profile was evident in this second data collection stage.

- The majority of visitors (respondents) to Marrdja were from *overseas*. Of the Australian visitors, most were *national* visitors, i.e., they lived outside the Wet Tropics bioregion. Nevertheless there was an increase local visitation during this stage;
- *English* remained the major ethnic group;
- The highest level of education achieved by the majority of visitors was *Tertiary B (University)*;
- The average age of visitors declined slightly to *33 years*, with the majority still in the *20-29 age class*;
- Slightly more females than males participated in this survey.

### Combined Seasonal Data & General Comments

For the combined data set, the visitor profile was as follows:

- The majority of visitors to Marrdja were from *overseas (71.7%)*. There were significantly more overseas visitors at the site than local and national Australian visitors [Chi-Square (df = 1) = 11.37, n = 217], and significantly more local visitors in April 2002 (wet) compared to September 2001 (dry). Of the overseas visitors, the majority came from the *UK (33.3%)*, followed by *USA (16%)*;
- Of the Australian visitors, the majority were *national (73.6%)*, i.e., living outside the Wet Tropics bioregion.
- A third of visitors (majority) described their ethnic background as *English (29.8%)*.

1. *This visitor profile suggests that Marrdja is an important site for overseas visitors.*
2. *It is also a site that is used most frequently by visitors between 20-29 years of age who have a University education.*
3. *Of the overseas visitors Marrdja is most popular with English/UK citizens and Americans.*

## a) Background Information

### QUESTIONS & RESULTS

#### 1. Where do you live?

STAGE 1: (September/October 2001)				STAGE 2: (March/April 2002)			
<b>n = 123</b>				<b>n = 107</b>			
<b>Australia</b>		<b>28.5%</b>		<b>Australia</b>		<b>28.0%</b>	
Locals		n = 2 (7.1%) (n = 28 responses)		Locals		n = 11 (45.83%) (n = 24 responses)	
Cairns & District		n = 2		Cairns & District Tableland & District		n = 8 n = 1	
Babinda & Gordonvale		n = 2		Babinda & Gordonvale		n = 2	
Non-Locals n = 26 (92.9%)				Non-Locals n = 13 (54.17%)			
<b>Overseas</b>		<b>71.5%</b>		<b>Overseas</b>		<b>72.0%</b>	
Austria n = 2		Germany n = 11		Scotland n = 4		Canada n = 5	
Belgium n = 2		Holland n = 10		South Africa n = 1		Denmark n = 2	
Canada n = 4		Ireland n = 2		Sweden n = 4		France n = 4	
Catalonia n = 1		Italy n = 1		Switzerland n = 3		Ireland n = 2	
Denmark n = 1		New Zealand n = 3		UK n = 28		Japan n = 3	
				USA n = 11		Singapore n = 1	
						Spain n = 1	
						USA n = 15	
						Finland n = 1	
						India n = 1	
						Netherlands n = 2	
						Sweden n = 1	
<b>Comparative Data 1993:</b>				1. Conglomerate Commercial Operator <b>Australian = 23.7% (Local = 0%); Overseas = 76.3% n = 42</b>			
				2. Conglomerate Independent <b>Australian = 72.7% (Local = 31.8%); Overseas = 27.3% n = 22</b>			

#### 2. How long have you lived there?

Period of Residence: <b>n = 123</b>	Period of Residence: <b>n = 98</b>
$\bar{X} = 31.2$ years $\pm$ SD 15.4 (range 0-63)	$\bar{X} = 23.06$ years $\pm$ SD 15.92 (range 0.1-75)
$\leq 10$ years = 9.0% $> 10$ years = 91.0%	$\leq 10$ years = 46.66% $> 10$ years = 53.34%

#### 3. How would you describe your ethnic background?

<b>n = 122</b>				<b>n = 106</b>			
<b>Nonindigenous</b>		<b>Other 20.2%</b>		<b>Nonindigenous</b>		<b>Other 16.3%</b>	
Australian	18.8%	Austrian	1.6%	Australian	16.0%	Danish	1.9%
Indigenous Australian	0.8%	Belgian	1.6%	Indigenous Australian	2.8%	Dutch	2.8%
American	8.2%	Danish	0.8%	American	16.0%	Dutch / Jewish	1.0%
Canadian	3.3%	<b>Dutch 8.2%</b>		Canadian	4.7%	Finish	1.0%
Swedish	0.8%	New Zealand	2.4%	Swedish	1.8%	German / American	1.0%
Swiss	4.1%	South African	0.8%	German	5.6%	Indian	1.0%
Scottish	3.3%	Swiss / Finish	0.8%	French	2.8%	Irish / English	1.0%
German	9.0%	Non Indig / Italian	0.8%	Italian	1.0%	Irish / Scottish / English	1.0%
French	0.8%	Scottish / Welsh	0.8%	<b>English 28.3%</b>		Indian / Non Indig	1.0%
Italian	1.6%	English / Irish	0.8%	Irish	3.7%	Norwegian	1.0%
<b>English 27.0%</b>		German / English	0.8%	Scottish	1.0%	Welsh	1.9%
Irish	1.6%	American / Polish/				Welsh / English	1.9%
		Dutch	0.8%				

#### 4. What is the highest level of formal education you have completed so far?

<b>n = 120</b>			<b>n = 106</b>		
Primary (1-8 years of education)		3.3%	Primary (1-8 years of education)		1.9%
Secondary (9-12 years of education)		15.3%	<b>Secondary (9-12 years of education)</b>		<b>20.8%</b>
<b>Tertiary A (Technical or further educ institution)</b>		<b>28.3%</b>	Tertiary A (Tech or further educ institution)		14.2%
<b>Tertiary B (University)</b>		<b>55.8%</b>	<b>Tertiary B (University)</b>		<b>63.2%</b>

#### 5. Age

<b>n = 123</b>	<b>n = 97</b>
$\bar{X} = 35.91$ years $\pm$ SD 13.74 (range 12-70)	$\bar{X} = 33.25$ years $\pm$ SD 13.79 (range 12-64)
Age Categories:	Age Categories:
< 20 years = 2.5%	< 20 years = 7.2%
<b>20-29 years = 38.5%</b>	<b>20-29 years = 45.3%</b>
30-39 years = 23.8%	30-39 years = 16.5%
40-49 years = 11.5%	40-49 years = 8.2%
50-59 years = 14.8%	50-59 years = 20.6%
> 60 years = 7.4%	> 60 years = 2.0%
<b>Comparative Data 1993: NA</b>	

#### 6. Gender

<b>n = 123</b>	Male 45.5%	Female 54.5%	<b>n = 105</b>	Male 48.6%	Female 51.4%
<b>Comparative Data 1993: NA</b>					

## ***b) Transport & Travel Group***

## ***Key Findings***

### Stage 1: September 2001 *Travel Profile*

During this first data collection stage,

- *Half of the visitors* surveyed were with an ***organised tour (13 tours)***, which contained on average ***11.6 people per tour***;
- On average there were ***2.8 people*** in each of the remaining ‘independent’ vehicles;
- The major group profile of people visiting the site was ***two adults***;
- The majority of independent visitors travelled in ***hired*** vehicles;
- The ***most*** important source of prior information about Marrdja used by the visitors was “***word of mouth***”, followed by ***travel guide or book***. Only a very small percentage of visitors had been to Marrdja before.

### Stage 2: April 2002 *Travel Profile*

A number of differences were evident in this second data collection stage.

- A lower number of visitors to Marrdja were with an ***organised tour (11 tours)***, which contained on average 12.14 per tour;
- There was a very slight increase in the average number of people per independent vehicle to ***2.9***;
- The major group profile of people was again ***two adults***;
- The majority of independent visitors travelled in ***hired*** vehicles;
- The ***two most*** important sources of prior information about Marrdja were “***word of mouth***” and “***trip included in package tour***”. The information source not used was “***from the web***”.

### Combined Seasonal Data & General Comments

For the combined data set, the visitor profile is as follows:

- Just under half the visitors to Marrdja were with ***organised tours (44.6%)***;
- On average, there were ***2.9 people*** in each independent vehicle;
- Most independent visitors (53.5%) travelled in ***hired*** vehicles;
- “***Word of mouth***” appeared to be the most important source of prior information about the Marrdja used by visitors (25.9%). The information source used the least was “***the web***”(2.6%).

1. *Despite this data collection occurring over two school holiday periods, few family groups visited Marrdja. The major group profile of visitors was ***two adults***.*
2. *Most visitors know of Marrdja by “***word of mouth***” and only a very small percentage use the web, tourist information centres or leaflets. This is noteworthy given that the site ***attracts a considerable number of overseas visitors***.*

## b) Transport & Travel Group

### QUESTIONS & RESULTS

7a. Are you with an organised tour?			
<b>n = 123</b>	Yes 49.6%	No 50.4%	
	Adventure Company	n = 8	
	Billy Tea Bush Safaris	n = 2	
	Cape Tribulation Adventure Safaris	n = 7	
	Deluxe Safaris	n = 6	
	Foaming Fury	n = 11	
	Gary's Safaris	n = 7	
	Greyhound	n = 1	
	Jungle Tours	n = 1	
	Reef & Rainforest Connection	n = 3	
	Suncoast Safaris	n = 1	
	Trek North	n = 3	
	Wet Tropics Safaris	n = 5	
	Wilderness Express	n = 1	
<b>n = 107</b>	Yes 39.3%	No 60.7%	
	Adventure company	n = 7	
	APT & Southern World	n = 1	
	Billy Tea Bush Safari	n = 2	
	Daintree Valley Tour	n = 2	
	Down Under Tours	n = 2	
	Foaming Fury	n = 6	
	Garry's Safaris	n = 6	
	Jungle Tours	n = 5	
	Oz Tours	n = 2	
	Reef & Rainforest Connection	n = 5	
	Trek North	n = 4	

7b. Number on the tour?	
<b>n = 59</b>	$\bar{X} = 11.66 \pm SD 5.25$ (range 2-21)
<b>n = 42</b>	$\bar{X} = 12.14 \pm SD 5.53$ (range 3-20)

8. If you travelled in a private or hired vehicle, how many people including yourself are in your vehicle?			
<b>n = 61</b>	People per Vehicle $\bar{X} = 2.79 \pm SD 1.07$ (range 2-7)		
	Adults per vehicle $\bar{X} = 2.46$ (n = 150)		
	Children per vehicle $\bar{X} = 0.33$ (n = 20)		
Private vehicle 47.5%	<b>Hired Vehicle 52.5%</b>		
<b>n = 60</b>	People per Vehicle $\bar{X} = 2.92 \pm SD 1.14$ (range 1-6)		
	Total # People = 175		
	Adults per vehicle $\bar{X} = 2.62$ (n=157)		
	Children per vehicle $\bar{X} = 0.30$ (n = 18)		
Private vehicle 45.5%	<b>Hired Vehicle 54.5%</b>		
<b>Comparative Data 1993:</b>			
2. Conglomerate Independent Data Set		People per vehicle = 2.5	n = 22
Private vehicle = 72.7%;		Hired vehicle = 27.3%;	

9. How did you obtain prior information about this site?			
<b>n = 121</b>	n	%	
	Have been here before	3	2.5%
	Road sign	15	12.4%
	<b>Word of mouth</b>	35	<b>28.9%</b>
	Map which said it was a tourist site	24	19.8%
	Tourist information centre in Nth Qld	10	8.3%
	Tourist information centre	10	8.3%
	Tourist leaflet	9	7.4%
	<b>Travel guide or book</b>	29	<b>24.0%</b>
	From the web	6	5.0%
	Trip included in a package tour	22	18.2%
	Other		
	Involved with building boardwalk	1	0.8%
	Youth Hostel	1	0.8%
	Driving Past	1	0.8%
	Organised from the UK	2	1.6%
	Tour guide suggested a visit	1	0.8%
<b>n = 107</b>	n	%	
	Have been here before	15	14.0%
	<b>Road sign</b>	20	<b>18.7%</b>
	<b>Word of mouth</b>	24	<b>22.4%</b>
	Map which said it was a tourist site	15	14.0%
	Tourist information centre in Nth Qld	9	8.4%
	Tourist inform	10	9.3%
	Tourist leaflet	5	4.7%
	Travel guide or book	14	13.1%
	From the web	0	0.0%
	Trip included in a package tour	21	19.6%
	Other	8	7.4%
	Came with relative / partner/ group of locals	2	1.8%
	Tour Guide	2	1.8%
	Travel agent	2	1.8%
	Research trip	1	0.9%
	Newspaper article	1	0.9%
<b>Specify:</b>			
Tourist inform centre: Cairns, Hotel			
Tourist leaflet: Daintree NP, Deluxe Safari, Gary's Safari, Port Douglas camp site;			
Travel guide or book : Lonely Planet, Quest, Rough Guide, Take a Hike, Sydney Ostaustachen, Tropical North Queensland.			
<b>Specify:</b>			
Tourist inform centre: Cairns, Melbourne, Port Douglas, STA – Sydney.			
Travel guide or book : Lonely Planet, Qantas holiday guide, Rough guide.			

## c) Reasons for Visiting

## Key Findings

### Stage 1: September 2001

During this first data collection stage,

- The most important reason given for why people visit Marrdja was *experiential*, followed by *educational*-based reasons. *Activity-based* reasons were least important;
- To *see the natural features and scenery* was the most important reason given with 57% of visitors rating this as *very important*;
- This was followed by two other experiential reason - *be close to/experience nature, experience the Wet Tropics*;
- The educational reason, *learn about native animals and plants*, was the fourth highest rated reason with over 57% considering it *quite to very important*;
- Activity-based reasons evidenced the lowest ratings.

### Stage 2: April 2002

During this second data collection stage, slight variations in responses were evident.

- The most important reason for why people visit Marrdja was again *experiential*;
- To *see the natural features and scenery* was the most important reason given;
- This was followed by two other experiential reasons - *experience the Wet Tropics* and *be close to/experience nature*;
- The educational reason, *learn about animals and plants*, was rated higher than the activity-based reasons, but *learn about Aboriginal culture* was the least important with a third of visitors considering this as *not important*.

### Combined Seasonal Data & General Comments

- The most important reason given for visiting the site was rated *very important* by 54.9% of visitors, *see natural features & scenery*. Visitors rated the experiential reasons *significantly higher* than activity reasons [ $t(223) = 11.15$ ;  $p = 0.00$ ], and educational reasons [ $t(225) = -7.70$ ;  $p = 0.001$ ];
- *Socialise with family & friends* was the least important reason given and was rated *not important* by 34.6% of visitors. There was no significant difference in visitor rating of educational reasons and activity reasons.

1. *The primary reasons given for why people visit Marrdja were to see the natural features, be close to/experience nature, and experience the Wet Tropics.*
2. *Surprisingly activity-based reasons were not important for most people despite the main purpose of the site being a boardwalk.*
3. *Learning about the cultural features of the site does not appear to be a consideration for visitors.*



**c) Reasons for Visiting**

**QUESTIONS & RESULTS**

10. We would like to know how important the following <u>reasons</u> were for you visiting this site today.									
		1 = Not important		2 = Slightly important		3 = Moderately important		4 = Important	
		4 = Important		5 = Quite important		6 = Very important			
		Not Important				Very Important			
		n	1	2	3	4	5	6	$\bar{X}$ *
a) Learn about native animals and plants <i>(Educational)</i>	120	2.5%	2.5%	20.8%	16.7%	25.0%	32.5%	4.57	
	104	2.9%	8.7%	19.2%	22.1%	20.2%	26.9%	4.29	
b) Learn about Aboriginal culture <i>(Educational)</i>	118	19.5%	16.1%	27.1%	15.3%	11.9%	10.2%	3.14	
	102	29.4%	15.7%	16.7%	15.7%	16.7%	5.9%	2.92	
c) See natural features and scenery <i>(Experiential)</i>	121	0.0%	0.8%	3.3%	9.1%	29.8%	57.0%	5.39	
	105	0.0%	1.0%	3.8%	7.6%	35.2%	52.4%	5.34	
d) Be close to/experience nature <i>(Experiential)</i>	121	0.0%	2.5%	5.0%	11.6%	39.7%	41.3%	5.12	
	104	1.0%	1.0%	2.9%	19.2%	29.8%	46.2%	5.14	
e) Socialise with family/friends <i>(Experiential)</i>	117	38.5%	22.2%	17.1%	7.7%	8.5%	6.0%	2.44	
	100	30.0%	13.0%	24.0%	13.0%	8.0%	12.0%	2.92	
f) Rest and relax <i>(Experiential)</i>	118	21.2%	12.7%	23.7%	20.3%	13.6%	8.5%	3.18	
	101	18.8%	14.9%	23.8%	14.9%	10.9%	16.8%	3.35	
g) Experience tranquility <i>(Experiential)</i>	115	5.2%	10.4%	19.1%	24.3%	21.7%	19.1%	4.04	
	100	8.0%	10.0%	20.0%	19.0%	19.0%	24.0%	4.03	
h) Experience the Wet Tropics <i>(Experiential)</i>	121	0.8%	2.5%	2.5%	20.7%	31.4%	42.1%	5.06	
	102	0.0%	1.0%	6.9%	16.7%	26.5%	49.0%	5.16	
i) Outdoor exercise <i>(Activity)</i>	119	10.9%	18.5%	18.5%	12.6%	26.9%	12.6%	3.64	
	102	12.7%	18.6%	18.6%	18.6%	14.7%	16.7%	3.54	
j) Opportunities for short walks <i>(Activity)</i>	120	10.8%	10.0%	15.8%	25.8%	23.3%	14.2%	3.83	
	102	9.8%	8.8%	20.6%	21.6%	23.5%	15.7%	3.87	
k) Opportunities for long walks <i>(Activity)</i>	120	22.5%	20.0%	21.7%	11.7%	14.2%	10.0%	3.05	
	101	23.8%	11.9%	19.8%	20.8%	13.9%	9.9%	3.19	
l) Other	122	4.1%	0.8%	0%	0%	0.8%	4.1%	NA = 90.2%	
	105	0%	0%	0%	0%	0%	5.7%	NA = 94.3%	
Specify other reasons:  <i>Reasons provided have been placed into three major categories. Those that are related to activity, experience, education. The fourth category is "other".</i>	7	<u>Activity:</u> Have Fun	n 1	<u>Experiential:</u> Listen to nature Break from work	n 1 1	<u>Educational:</u> Interests in tour sites for university See parts of Australia	n 1 2	<u>Other:</u> Part of tour 1	
	5	<u>Activity:</u> Safety of track Work	n 1 1	<u>Experiential:</u> Rainforest See Cassowaries	n 1 1	<u>Educational:</u>  <u>Other:</u> Accidental additional part of Cape Trib visit	n  1		

$\bar{X}$  = The mean of the categories are presented despite this being ordinal data and the precautions necessary in interpreting this data.

## d) Natural Environment

## Key Findings

### Stage 1: September 2001 *Visitor Appraisal*

During this first data collection stage,

- Overall, *visitor appraisal* of the positive aspects of the natural environment at Marrdja was **high**;
- In particular, the majority of visitors found the natural environment to be **interesting, well managed** and in **good condition**;
- Over **78%** of visitors **somewhat to strongly agreed** that the natural environment was **appealing**;
- Over half of visitors indicated **some concern** about the **impacts of human activity** on the natural environment at Marrdja;
- Twenty percent of visitors were expecting other natural features at the site all of which were wildlife related.

### Stage 2: April 2002 *Visitor Appraisal*

During this second data collection stage, only slight variations in some responses were evident.

- Again, *visitor appraisal* of the positive aspects of the natural environment was **high**;
- The majority of visitors (67%) **strongly agreed** that Marrdja was **interesting**;
- In terms of the condition of the natural environment, **90.6%** **somewhat to strongly agreed** that it **appeared to be good**;
- Over **85%** of visitors **somewhat to strongly agreed** that the natural environment was **well managed**;
- Visitors were again **slightly concerned** about the **impacts of human activity** on the natural environment, but did not consider the site to be disturbed or impacted.

### Combined Seasonal Data & General Comments

For the combined data set,

- Aspects of the natural environment that were most highly rated were the **interest factor** ( $\bar{X} = 5.50$ ), **condition** ( $\bar{X} = 5.31$ ), and **appeal of natural attractions and scenic beauty** ( $\bar{X} = 5.25$ ).
- Few visitors (16%) appeared to have any particular expectations of what they would find or encounter.

- 
1. *These results suggest that, overall visitors find the natural features of Marrdja to be very interesting, and in good condition.*
  2. *Of the natural features that the small number of visitors reported expecting to find at Marrdja but were unable to, all were fauna-related.*

**d) Natural Environment**

**QUESTIONS & RESULTS**

**11. The following statements are about the natural features of this site. Please rate the extent to which you agree or disagree with each statement by circling the number that best reflects your level of agreement /disagreement.**

**1 = Strongly Disagree    2 = Somewhat Disagree    3 = Mildly Disagree  
4 = Mildly Agree        5 = Somewhat Agree        6 = Strongly Agree**

	n	Strongly Disagree					Strongly Agree		$\bar{X}^*$
		1	2	3	4	5	6		
a) The natural environment at this site is interesting.	123	0.0%	0.0%	1.6%	8.9%	29.3%	<b>60.2%</b>	<b>5.48</b>	
	106	0.0%	1.9%	0.0%	9.4%	21.7%	<b>67.0%</b>	<b>5.52</b>	
b) I would like to spend more time exploring this natural environment.	123	0.0%	0.8%	6.5%	22.0%	31.7%	39.0%	5.02	
	105	1.9%	1.0%	11.4%	19.0%	32.4%	34.3%	4.82	
c) In terms of natural attractions and scenic beauty this site is appealing.	123	0.0%	0.8%	1.6%	19.5%	31.7%	46.3%	<b>5.21</b>	
	106	0.0%	0.9%	2.8%	13.2%	32.1%	<b>50.9%</b>	<b>5.29</b>	
d) The condition of the natural environment at this site appears to be good.	123	0.0%	0.8%	1.6%	8.1%	47.2%	42.3%	<b>5.28</b>	
	106	0.0%	2.8%	0.9%	5.7%	40.6%	<b>50.0%</b>	<b>5.34</b>	
e) The natural environment at this site is well managed.	122	0.0%	0.8%	1.6%	9.8%	46.7%	41.0%	<b>5.25</b>	
	104	0.0%	1.0%	2.9%	10.6%	39.4%	46.2%	<b>5.27</b>	
f) I am concerned about the impacts of human activity on the natural environment at this site.	120	5.8%	10.0%	16.7%	21.7%	21.7%	24.2%	4.16	
	104	11.5%	17.3%	16.3%	14.4%	22.1%	18.3%	3.73	
g) This site appears to be disturbed and impacted.	121	32.2%	30.6%	18.2%	14.0%	1.7%	3.3%	2.32	
	106	24.5%	37.7%	17.0%	11.3%	5.7%	3.8%	2.47	

**12. At this site were there any natural features you were expecting to find which were not present?**

<b>n = 120</b>		Yes	20.0%	No	80.0%	<b>n = 99</b>		Yes	11.1%	No	88.9%
<b>If yes, please specify:</b>  <i>Responses provided have been placed into three major categories. Those related to <b>natural/biological</b> features, <b>natural/physical</b> features, and the <b>built/structural</b> features of the environment.</i>	23	<u>Natural/Biological:</u>	n	<u>Natural/Physical</u>	n	<u>Built/Structural</u>	n				
		Animals	11								
		Crocodiles / Reptiles	6								
		Bird life	3								
		Monkeys	1								
		Tree Kangaroo	1								
		Flowers	1								
	10	<u>Natural/Biological:</u>	n	<u>Natural/Physical</u>	n	<u>Built/Structural</u>	n				
		Animals	1			Translation of the main topics – guided signs	1				
		Bird life	3								
		Snakes	(1)								
		Bats	2								
		Crocodiles	1								
		Flora	1								

## e) Time Spent and Activities

## Key Findings

### Stage 1: September 2001 *Activity Profile*

During this first data collection stage,

- The majority of visitors, **76.4%**, spent between ***half and one hour*** at the site;
- Besides ***observing scenery***, the activity most visitors engaged in was taking the ***short walk***;
- ***Photography*** was also an activity the majority of visitors engaged in;
- Of those visitors who would have liked to engage in other activities, to ***see more wildlife*** was the most frequently identified.

### Stage 2: April 2002 *Activity Profile*

During this second data collection stage, the responses changed slightly.

- Again, the majority of visitors, **79.5%**, spent between ***half to one hour*** at the site;
- Besides ***observing scenery***, most visitors took the ***short walk*** along the boardwalk;
- ***Photography*** was also a popular activity with over half the visitors;
- Of those visitors who would have liked to engage in other activities, many identified activities that were ***related to wildlife***.

### Combined Seasonal Data & General Comments

1. *These results suggest that, overall visitors spend just enough time at Marrdja which allows them to do the short walk along the boardwalk – **half to one hour**. Very few visitors spend more than one hour at the site(12%).*
2. *Only 24% of visitors spend time looking at **interpretation material**.*
4. *Photography and bird watching are activities undertaken by 53% and 37% of visitors.*

**e) Time Spent and Activities**

**QUESTIONS & RESULTS**

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

<i>n</i> = 123				<i>n</i> = 107			
	%		%		%		%
less than 1/2 hour	9.8%	About 3 hours	0.8%	less than 1/2 hour	10.3%	About 3 hours	0.9%
<b>About 1/2 hour</b>	<b>30.9%</b>	About 4 hours	8.1%	<b>About 1/2 hour</b>	<b>34.6%</b>	About 4 hours	0.9%
<b>About 1 hour</b>	<b>45.5%</b>	Overnight	0.8%	<b>About 1 hour</b>	<b>44.9%</b>	Overnight	4.7%
About 2 hours	4.1%			About 2 hours	3.7%		

**Comparative Data 1993:** Conglomerate Commercial Operator:  
 Drive through = 21.4%, <1/2 hr = 16.7%, ~<1 hr = 31.0%, 1-<2hrs = 14.3%; 2-<4hrs = 2.3%, 4+ hrs = 14.3 n = 42

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

<i>n</i> = 120				<i>n</i> = 105			
Activities:	%	Activities:	%	Activities:	%	Activities:	%
<b>Observing scenery</b>	<b>87.5%</b>	<b>Observing scenery</b>	<b>93.3%</b>	<b>Observing scenery</b>	<b>93.3%</b>	<b>Observing scenery</b>	<b>93.3%</b>
Bird watching	40.8%	Bird watching	31.4%	Bird watching	31.4%	Bird watching	31.4%
Observe other wildlife	52.5%	Observe other wildlife	59.0%	Observe other wildlife	59.0%	Observe other wildlife	59.0%
Photography/painting/drawing	53.8%	Photography/painting/drawing	52.4%	Photography/painting/drawing	52.4%	Photography/painting/drawing	52.4%
Picnic/barbeque	6.7%	Picnic/barbeque	1.9%	Picnic/barbeque	1.9%	Picnic/barbeque	1.9%
Using café/restaurant	-	Using café/restaurant	0.0%	Using café/restaurant	0.0%	Using café/restaurant	0.0%
Camping	1.7%	Camping	1.0%	Camping	1.0%	Camping	1.0%
<b>Walking – Short (1 hr or less)</b>	<b>80.0%</b>	<b>Walking – Short (1 hr or less)</b>	<b>74.3%</b>	<b>Walking – Short (1 hr or less)</b>	<b>74.3%</b>	<b>Walking – Short (1 hr or less)</b>	<b>74.3%</b>
Walking – Long (1-6 hours)	4.2%	Walking – Long (1-6 hours)	3.8%	Walking – Long (1-6 hours)	3.8%	Walking – Long (1-6 hours)	3.8%
Swimming	5.0%	Swimming	1.9%	Swimming	1.9%	Swimming	1.9%
Guided tour	37.5%	Guided tour	33.3%	Guided tour	33.3%	Guided tour	33.3%
Looking at interpretation material	31.7%	Looking at interpretation material	15.2%	Looking at interpretation material	15.2%	Looking at interpretation material	15.2%
Relaxing	25.8%	Relaxing	17.1%	Relaxing	17.1%	Relaxing	17.1%
<i>Other</i>		<i>Other</i>	2.7%	<i>Other</i>	2.7%	<i>Other</i>	2.7%
		<i>Bathroom</i>	0.9%	<i>Bathroom</i>	0.9%	<i>Bathroom</i>	0.9%
		<i>Learning</i>	0.9%	<i>Learning</i>	0.9%	<i>Learning</i>	0.9%
		<i>Work</i>	0.9%	<i>Work</i>	0.9%	<i>Work</i>	0.9%

**Comparative Data 1993:** NA

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

<i>n</i> = 117		Yes 12.0%		No 88.0%		N = 92		Yes = 13.0%		No = 87.0%	
<b>If yes, please specify:</b>  <i>Responses provided have been placed into five major categories. Those activities related to natural, built, or social environment, and rules/regulations.</i>	<b><i>n</i> = 15</b>	<b>n</b>		<b>Built Environ</b>	<b>n</b>	<b>Social Environ</b>	<b>n</b>				
	Natural Environ			More info on birds	1	Needed more time	3				
	Bird watching	4		More seats to observe w'lfe	1	<b>Rules/regulation</b>					
	See wildlife	3 (1)		Learn about tropical forest	1	Walk off the boardwalk	1				
	See crocodiles	1									
	<b><i>n</i> = 11</b>	<b>n</b>		<b>Built Environ</b>	<b>n</b>	<b>Social Environ</b>	<b>n</b>				
Natural Environ			More info on trees and plants	(1)	Have coffee	1					
Bird watching	1		Read the signs / boards	2	Long walk	2					
See Wildlife	3 (1)										
Swim	1										
See the canopy	1										

## f) Information

## Key Findings

### Stage 1: September 2001 *Information/Signage Use*

During this first data collection stage,

- While most visitors somewhat to strongly agreed that *directive signage* was easy to locate, slightly fewer agreed that such signage enabled them to find their way round Marrdja;
- Most visitors were able to determine the *rules and regulations* and identify what was *acceptable activity*;
- *Thirty percent* of visitors disagreed that *safety* information was *easy to locate* and *28.4%* disagreed that it was *understandable*;
- Visitor appraisal of the *natural / ecological* information was, compared with the other information types, rated the highest.

### Stage 2: April 2002 *Information/Signage Use*

During this second data collection stage, visitor assessment of all information was lower.

- Visitor appraisal of the *directive signage* at Marrdja was slightly lower for this data collection stage compared to the first. Such signage was considered less easy to locate and wayfinding more difficult;
- Overall, visitor appraisal of the *rules and regulations* at Marrdja was slightly lower for this data collection stage compared to the first;
- A higher number of people disagreed that *safety* information was easy to locate (53.4%), and that it was understandable (47.6%);
- Visitor assessment of the *natural / ecological* information was slightly higher for this data collection stage compared to the first and highest compared to all other information types.

### Combined Seasonal Data & General Comments

- While overall most visitors found the directional signage at Marrdja easy to locate ( $\bar{X} = 4.90$ ), but wayfinding ability as determined by presentation of information on the maps did not receive as high an assessment ( $\bar{X} = 4.53$ );
- While most visitors agreed that *rules and regulations* at Marrdja were *easy to determine* and enabled them to *identify acceptable activity*, there is a concern about the 50 and 56 visitors respectively (27% & 30%) who disagreed;
- Also of concern are the 77 visitors (41.7%) who disagreed that *safety* information was *easily located* and the 66 visitors (37.4%) who disagreed that what was available was *easy to understand*;
- The *natural/ecological* information received the highest assessment of all information types.

**f) Information**

**QUESTIONS & RESULTS**

<b>16. Did you refer to any of the information available at this site today?</b>	<i>N</i> = 120	<b>Yes</b>	<b>65.8%</b>	No	34.2%
	<i>N</i> = 103	<b>Yes</b>	<b>66.0%</b>	No	34.0%

**17. Please rate the extent to which you agree or disagree with the following statements about information that may be available at this site by circling one number.**

	n	Strongly Disagree			Strongly Agree			$\bar{X}$
		1	2	3	4	5	6	
<i>All of the signs from (a) to (f) were present at Marrdja (see Section 2 for details).</i>								
a) The <b>maps and directions</b> at this site:	103	1.9%	1.9%	11.7%	13.6%	26.2%	44.7%	<b>4.94</b>
i) were easy to <b>locate</b>	96	3.1%	2.1%	9.4%	15.6%	30.2%	39.6%	<b>4.86</b>
ii) helped me to <b>find</b> my way round	96	4.2%	2.1%	16.7%	21.9%	21.9%	33.3%	4.55
	87	3.4%	8.0%	11.5%	20.7%	24.1%	32.2%	<b>4.51</b>
b) The <b>rules and regulations</b> at this site:	99	11.1%	5.1%	6.1%	21.2%	24.2%	32.3%	4.39
i) were easy to <b>determine</b>	91	8.8%	8.8%	13.2%	19.8%	18.7%	30.8%	<b>4.23</b>
ii) enabled me to <b>clearly identify</b> acceptable activities	101	7.9%	9.9%	8.9%	15.8%	27.7%	29.7%	4.35
	88	10.2%	9.1%	13.6%	23.9%	17.0%	26.1%	<b>4.07</b>
c) The <b>safety information</b> at this site:	97	13.4%	9.3%	8.2%	19.6%	22.7%	26.8%	4.09
i) was easy to <b>locate</b>	88	19.3%	13.6%	20.5%	13.6%	14.8%	18.2%	<b>3.45</b>
ii) was easy to <b>understand</b>	95	11.6%	8.4%	8.4%	16.8%	26.3%	28.4%	4.23
	82	15.9%	12.2%	19.5%	15.9%	14.6%	22.0%	<b>3.67</b>
d) The <b>natural/ecological information</b> at this site:	107	0.9%	0.0%	3.7%	18.7%	42.1%	34.6%	<b>5.05</b>
i) was <b>interesting</b>	97	1.0%	1.0%	2.1%	20.6%	34.0%	41.2%	<b>5.09</b>
ii) was clearly <b>presented</b>	108	0.0%	0.0%	7.4%	17.6%	41.7%	33.3%	<b>5.01</b>
iii) helped me better <b>understand</b> the ecological processes of this area	95	1.1%	1.1%	1.1%	21.1%	27.4%	48.4%	<b>5.18</b>
	107	0.0%	0.9%	6.5%	24.3%	36.4%	31.8%	<b>4.92</b>
	96	1.0%	1.0%	5.2%	18.8%	32.3%	41.7%	<b>5.05</b>
f) The <b>indigenous cultural information</b> at this site:	93	10.8%	2.2%	24.7%	23.7%	20.4%	18.3%	3.96
i) was <b>interesting</b>	81	19.8%	12.3%	12.3%	22.2%	19.8%	13.6%	<b>3.51</b>
ii) was clearly <b>presented</b>	93	7.5%	5.4%	18.3%	19.4%	31.2%	18.3%	4.16
	81	21.0%	11.1%	11.1%	23.5%	21.0%	12.3%	<b>3.49</b>
ii) helped me <b>understand</b> the significance of this area for indigenous Australians	94	8.5%	4.3%	23.4%	24.5%	23.4%	16.0%	3.98
	80	18.8%	15.0%	15.0%	22.5%	12.5%	16.3%	<b>3.44</b>

## g) Site Facilities & Management Issues

## Key Findings

### Stage 1: September 2001

### Visitor Appraisal

During this first data collection stage,

- The **boardwalk** at Marrdja and associated facilities (lookout) were the **most frequently** used of all facilities present. Most visitors also used the toilet facilities. The only requested additional facility was **a rubbish bin**;
- The overall **condition** of facilities was rated the highest followed by management and adequacy;
- The appeal of facilities was rated slightly lower;
- Over half the visitors (61%) **agreed** that the presence of a **ranger** at the site was important;
- Of those who did agree to the ranger's presence, the reasons most frequently identified were to **provide information/education** and **to answer questions**.

### Stage 2: April 2002

### Visitor Appraisal

During this second data collection stage, visitor appraisal of facilities varied slightly.

- The **Marrdja boardwalk** and associated facilities were again the **most frequently** used of all facilities present. The most frequently requested additional facility was **a rubbish bin**;
- The overall **condition** of facilities was rated the highest followed by adequacy and management;
- The appeal of facilities was rated higher compared to the first data collection period;
- Over half the visitors (61.3%) **agreed** that the presence of a **ranger** at the site was important;
- The reasons most frequently identified were to **provide information/education** and **to answer questions**.

### Combined Seasonal Data & General Comments

- Understandably, the **boardwalk** and associated facilities were the most frequently used facilities;
- The facility most often requested was **rubbish bins** – currently none exists at the site;
- **Condition of facilities** received the highest rating ( $\bar{X} = 5.12$ ), with 96% of visitors agreeing that the condition was good, 40% strongly agreeing;
- Of the 61% of visitors for whom the presence of a ranger was important, the majority identified **providing information/education** as the reason.

- 
1. *Clearly the **boardwalk** was the most popular facility at this site.*
  2. *Overall, visitors were very satisfied with the **condition and management of facilities** at Marrdja.*



### g) Site Facilities & Management Issues

### QUESTIONS & RESULTS

19. What facilities have you used at this site today?								
<b>n = 122</b>	%		%	<b>n = 101</b>	%		%	
Picnic table	7.4%		<b>Walking track</b>	61.5%	Picnic table	3.0%	<b>Walking track</b>	58.4%
Shelter shed	4.1%		<b>Boardwalk</b>	84.4%	Shelter shed	2.0%	<b>Boardwalk</b>	86.1%
Restaurant/café	4.9%	<b>Viewing platform/lookout</b>	61.5%	Restaurant/café	1.0%	<b>Viewing platform/lookout</b>	62.4%	
Rubbish bin	9.8%		Fire place	-	Rubbish bin	5.0%	Fire place	-
Toilet	39.3%		Barbeque	2.5%	Toilet/showers	35.6%	Barbeque	1.0%
Tap	7.4%	Other (seating on b'walk)	1.7%	Tap	7.9%	Other (carpark)	1.0%	
<b>Comparative Data 1993: NA</b>								

20. Were there particular facilities at this site you were expecting to find which were not available?											
<b>n = 117</b>	Yes	1.7%	No	98.3%	<b>N = 94</b>	Yes	10.6%	No	89.4%		
<b>If yes, please specify:</b>											
<b>n = 2</b>	Rubbish Bins	n	2		<b>n = 9</b>	Better rest points	n	1	Rubbish bins	n	3
						Café	n	2	Soap in the toilets	n	1
						Picnic tables	n	1 (1)	Drinking water	n	1

21. Please rate the extent to which you agree or disagree with each of the following statement about the <u>facilities</u> and <u>management</u> at this site by circling one number for each statement.									
	n	Strongly Disagree	1	2	3	4	5	Strongly Agree	$\bar{X}$
a) This site is <b>appealing</b> in terms of the character and attractiveness of the facilities.	116	1.7%	1.7%	6.9%	26.7%	32.8%	30.2%	4.78	
	100	1.0%	3.0%	5.0%	17.0%	32.0%	42.0%	<b>5.02</b>	
b) The facilities at this site are <b>adequate</b> .	116	0.0%	0.9%	6.0%	28.4%	34.5%	30.2%	4.87	
	100	0.0%	4.0%	3.0%	16.0%	37.0%	40.0%	<b>5.06</b>	
c) The overall <b>condition</b> of the facilities at this site appears to be good.	115	0.0%	0.9%	2.6%	24.3%	35.7%	36.5%	5.04	
	100	1.0%	1.0%	1.0%	16.0%	35.0%	46.0%	<b>5.21</b>	
d) The facilities and infrastructure at this site are <b>well managed</b> .	114	0.0%	0.9%	3.5%	24.6%	36.8%	34.2%	5.00	
	99	0.0%	3.0%	2.0%	16.2%	44.4%	34.3%	<b>5.05</b>	
e) The presence of a <b>ranger</b> at sites like this is important to me.	115	10.4%	10.4%	18.3%	25.2%	15.7%	20.0%	3.85	
	101	13.9%	8.9%	15.8%	25.7%	16.8%	18.8%	3.79	

22. If you agreed the presence of a ranger was important, what are the reasons for this?								
<b>n = 115</b>	n	%	<b>n = 102</b>	n	%			
<b>To provide information/education</b>	60	<b>52.2%</b>	<b>To provide information/education</b>	49	<b>48.5%</b>			
<b>To answer questions</b>	53	<b>46.1%</b>	<b>To answer questions</b>	47	<b>46.1%</b>			
To take us on guided walks	23	20.0%	To take us on guided walks	25	24.5%			
<b>For safety/security</b>	37	<b>32.2%</b>	<b>For safety/security</b>	26	<b>25.5%</b>			
To give directions	24	20.9%	To give directions	16	15.7%			
For lodging complaints about other behaviour	10	8.7%	For lodging complaints about other behaviour	6	5.9%			
<b>For site maintenance</b>	35	<b>30.4%</b>	<b>For site maintenance</b>	36	<b>35.3%</b>			
Other			Other					
To ensure no damage to site by guests	1	0.8%	Help in emergency	1	0.9%			
			Enforce preservation	1	0.9%			
			Make sure area is looked after	1	0.9%			

**g) Site Facilities & Management Issues Cont'd****Key Findings****Stage 1: September 2001**

During this first data collection stage,

- Forty percent of visitors identified Murrumbidgee as having special significance. The most frequent unprompted response was because it was a **World Heritage Area** and **ancient rainforest**;
- The majority of visitors, **71.9%** either **did not know** or **answered incorrectly** when asked who was the management agency responsible for Murrumbidgee;
- Of those who did identify an agency only **23%** identified **National Parks** (with its various labels) as the management agency, **5.1%** identified **Wet Tropics**;
- When provided with a choice, **one third** of visitors labelled Murrumbidgee a **National Park**, and **27.3%** identified it as a **National Park and World Heritage Area**;
- Most visitors preferred sites with **limited developed facilities**.

**Stage 2: April 2002**

During this second data collection stage, visitor responses changed slightly.

- Slightly more visitors considered Murrumbidgee to have special significance. The most frequent unprompted response was because it was a **World Heritage Area**;
- Again the majority of visitors, **76.5%**, either **did not know** or **answered incorrectly** when asked who was the management agency responsible for Murrumbidgee;
- Of those who did identify an agency, **22.8%** identified **National Parks** (with its various labels) as the management agency, and just **1%** identified **Wet Tropics**;
- When provided with a choice, **one quarter** of visitors labelled Murrumbidgee a **National Park**, **31.7%** identified it as a **National Park and World Heritage Area**, and **23.1%** as a **World Heritage Area**;
- Again, most visitors preferred sites with **limited facilities**.

**Combined Seasonal Data & General Comments**

- The vast majority of visitors (76%) either **did not know** or provided an **incorrect answer** when asked who manages Murrumbidgee;
- When given a choice the majority believed the site to be managed by **National Parks** or **National Parks & World Heritage**.

- 
1. *Visitors remain unfamiliar with the agency responsible for managing this site.*
  2. *The World Heritage status is also not known to the vast majority of the visitors.*
  3. *These results clearly suggest that the role of different land management agencies is not understood.*

**g) Site Facilities & Management Issues cont'd**

**QUESTIONS & RESULTS**

<b>23. Does this area you have visited today have any special status or significance that you are aware of ?</b>									
<b>n = 112</b> Yes 40.2% No 59.8%					<b>n = 99</b> Yes 43.4% No 56.6%				
<b>If yes, please specify:</b>									
<b>N = 51</b>		n		n		<b>n = 34</b>		n	
Ancient/biggest Rainforest		10(1)		Being aware of		National Park		3 (1)	
Precious/Mangroves		1(2)		interdependence of nature		WHA		11 (1)	
Diversity of vegetation		1		Needs to be preserved		Mangroves		3 (2)	
Endangered/Rare Rainforest		1(2)		Education of WT		Rainforest		6	
Indigenous habitat/walk track		1(1)		WHA		Ecological Wonderland		1	
Waterfall, river, ocean		1(1)		NP		Botanical endemics		1	
				WT beauty					
								Wet Tropics	
								Bird life (cassowary)	
								Natural	
								Flora	
								Tourist attraction	
								Primitive plants	
								Preservation of plants	

<b>24. What agency or department do you think manages this site?</b>					
<b>n = 117</b>			<b>n = 105</b>		
<b>Management Agency or Department:</b>			<b>Management Agency or Department:</b>		
<b>National Parks/Parks &amp; Wildlife/QPWS</b>			<b>National Parks</b>		
Daintree National Parks			Qld. Parks & Wildlife		
DNR			World Heritage		
EPA			Daintree National Park		
Forestry			Government		
State government			The State		
Rangers			DNR		
Wet Tropics			Department of Land		
World Heritage			DPI		
Cultural & Environmental			Environment		
			Federal Government		
			Natural & Environmental Department		
			National Trust		
			Rangers		
			Wet Tropics		
			Aust. Park Commission		
			Cape Tribulation		
<b>Unanswered /Don't Know</b>			<b>Unanswered /Don't Know</b>		

<b>25. Which of the following labels applies to this site?</b>					
<b>n = 104</b>			<b>n = 104</b>		
<b>National Park (NP)</b>			<b>National Park (NP)</b>		
State Forestry (SF)			State Forestry (SF)		
<b>World Heritage Area (WHA)</b>			<b>World Heritage Area (WHA)</b>		
Don't know			Don't know		

<b>26. Which of the following natural areas do you most prefer visiting?</b>			
<b>n = 116</b>		<b>n = 103</b>	
<b>Natural area with:</b>		<b>Natural area with:</b>	
no facilities (eg. no toilets, no designated camp ground)		no facilities (eg. no toilets, no designated camp ground)	
few facilities (eg. rough walking tracks)		few facilities (eg. rough walking tracks)	
<b>limited facilities (eg. walking tracks evident , some directional signage)</b>		<b>limited facilities (eg. walking tracks evident , some directional signage)</b>	
fairly well developed facilities (eg. well marked tracks, extensive signage)		fairly well developed facilities (eg. well marked tracks, extensive signage)	
very well developed facilities (eg. camp grounds, visitor centre)		very well developed facilities (eg. camp grounds, visitor centre)	
don't know/don't care		don't know/don't care	

## ***h) Other Visitors & Experience***

## ***Key Findings***

### **Stage 1: September 2001**

During this first data collection stage,

- While the majority of visitors ***did not agree*** that there were ***too many other people*** at Marrdja, nevertheless 21% considered the site to be crowded;
- They also ***did not agree*** that the people who were there ***impacted on their own behaviour or experience*** of the site;
- While most visitors agreed that other visitors at the site were on the whole environmentally responsible, a quarter disagreed;
- In terms of their experience of Marrdja, visitors rated their ***enjoyment*** of the site ***highest*** with many strongly disagreeing that there were disappointing aspects;
- Most visitors ***somewhat to strongly agreed*** that their visit was ***well worth the money spent***.

### **Stage 2: April 2002**

During this second data collection stage, visitor responses changed slightly.

- Most visitors ***did not think*** there were ***too many people*** Marrdja, and more strongly disagreed with this – 43.1% compared to 35.6%;
- Most visitors ***did not feel*** that the people who were at Marrdja ***impacted on their own behaviour or experience*** of the site;
- Most visitors agreed that other visitors were on the whole environmentally responsible;
- Visitors rated their ***enjoyment*** of the site ***highest*** with many strongly disagreeing that there were disappointing aspects;
- Most visitors ***somewhat to strongly agreed*** that their visit was ***well worth the money spent***.

### **Combined Seasonal Data & General Comments**

- The majority of visitors were not concerned about the number, presence, or behaviour of other visitors at Marrdja;
- Visitor experience of the site was highest in terms of ***enjoyment*** and ***worth the money***.

1. ***Experienced crowding***, as measured by number, presence and behaviour of others, does not appear to be a problem at Marrdja despite the restriction of the boardwalk.
2. ***Reported visitor satisfaction***, as measured by enjoyment, worth the money, disappointment, was moderately high.

***h) Other visitors*****QUESTIONS & RESULTS**

**27. The following statements are about other visitors at this site today. Please rate how strongly you agree or disagree with each statement by circling one number for each statement.**

	n	Strongly Disagree			Strongly Agree			$\bar{X}$
		1	2	3	4	5	6	
a) There were too many people at this site today.	118	35.6%	28.0%	14.4%	13.6%	4.2%	4.2%	2.36
	102	43.1%	26.5%	11.8%	8.8%	6.9%	2.9%	2.19
b) The presence of other people at this site prevented me from doing what I wanted to.	118	51.7%	23.7%	10.2%	11.9%	0.8%	1.7%	1.92
	101	51.5%	29.7%	6.9%	6.9%	2.0%	3.0%	1.87
c) The behaviour of other visitors at this site has been on the whole environmentally responsible.	114	14.0%	7.0%	3.5%	12.3%	36.0%	27.2%	4.31
	96	19.8%	6.3%	6.3%	6.3%	32.3%	29.2%	4.13
d) The behaviour of some visitors at this site detracted from my enjoyment of this site.	116	56.9%	23.3%	9.5%	5.2%	5.2%	0.0%	1.78
	99	57.6%	29.3%	6.1%	7.1%	0.0%	0.0%	1.63

***i) Experience*****QUESTIONS & RESULTS**

**28. The following statements are about your experience of this site. Please rate the extent to which you agree or disagree with each statement by circling one number.**

	n	Strongly Disagree			Strongly Agree			$\bar{X}$
		1	2	3	4	5	6	
a) I experienced a real sense of involvement and connection with this place.	115	1.7%	11.3%	11.3%	44.3%	17.4%	13.9%	4.06
	98	2.0%	7.1%	11.2%	39.8%	21.4%	18.4%	4.27
b) For me visiting this site has been a special experience.	117	1.7%	6.0%	6.8%	31.6%	26.5%	27.4%	4.57
	99	3.0%	4.0%	12.1%	30.3%	24.2%	26.3%	4.47
c) I thoroughly enjoyed my visit to this site today.	117	0.9%	0.9%	1.7%	17.9%	37.6%	41.0%	5.14
	98	0.0%	0.0%	3.1%	20.4%	38.8%	37.8%	5.11
d) It was well worth the money I spent to come to this site.	108	3.7%	0.9%	2.8%	20.4%	36.1%	36.1%	4.93
	88	1.1%	1.1%	3.4%	22.7%	30.7%	40.9%	5.03
e) I was disappointed with some aspects of this site.	112	39.3%	24.1%	18.8%	11.6%	2.7%	3.6%	2.25
	96	45.8%	25.0%	13.5%	11.5%	4.2%	0.0%	2.03

**j) Environmental Issues****Key Findings****Stage 1: September 2001** *Visitor Perception of Benefits & Impacts*

During this first data collection stage,

- In terms of benefits of this natural area, **conservation of plants and animals** was considered the **most important** with 79.7% of visitors rating this the highest (six) on the importance scale;
- This was followed by **education about the environment**, and **clean air** and **scenic beauty** (equal) – the second, and third most important benefits;
- **Economic benefits from tourism** was rated the **lowest**;
- The rank ordering of the educational benefits were: about the environment, Aboriginal and nonindigenous cultural heritage;
- Due to problems with the items on visitor perception of quality/status of the biophysical indicators of impact, this data was not considered reliable for this data collection period.

**Stage 2: April 2002** *Visitor Perception of Benefits & Impacts*

During this second data collection stage, visitor responses differed slightly.

- In terms of benefits of this natural area, **conservation of plants and animals** was again considered the **most important** benefit;
- This was followed closely by **education about the environment, scenic beauty and clean air**, - the second, third and fourth most important benefits;
- **Economic benefits from tourism** was again rated the **lowest**;
- In general, visitor **perception** of the impacts on the environment and infrastructure at Marrdja (using various **biophysical indicators**) was in the **low/medium** range;
- Of these indicators, **deliberate human impacts on infrastructure** (graffiti, vandalism) was rated the **lowest**;
- Presence of **soil erosion** were rated **highest**.

**Combined Seasonal Data & General Comments**

- The **three most important** benefits of the natural area were **conservation of plants & animals** ( $\bar{X} = 5.78$ ), **education about the environment** ( $\bar{X} = 5.61$ ), and **scenic beauty** ( $\bar{X} = 5.52$ ); The least important was economic benefits from tourism ( $\bar{X} = 3.74$ );
- While still low, presence of **soil erosion** and damaged vegetation were nevertheless rated **highest** of the bioindicators of impact on the environment.

*1. In addition to the ecological services and educational benefits of the natural environment, visitors also considered an aesthetic benefit to be of importance- scenic beauty.*

*2. Visitor perception of the bio/physical indicators of impacts appears to be aligned with those established through intensive on-ground assessment undertaken by the researchers at the same time (see Wilson, 2002).*

## j) Environmental Issues

## Questions &amp; Results

<i>Please indicate how important you consider each of the following benefits of this natural area are.</i>								
		not important			important			$\bar{X}$
		1	2	3	4	5	6	
conservation of plants and animals	118	0%	0%	0%	4.2%	16.1%	79.7%	5.75
	103	1%	0%	1%	1%	7%	90.0%	5.81
education about Aboriginal cultural heritage	114	5.3%	5.3%	8.8%	24.6%	20.2%	36.0%	4.57
	101	5.0%	7.9%	10.9%	19.8%	27.7%	28.7%	4.44
education nonindigenous cultural heritage	114	6.1%	7.9%	10.5%	23.7%	22.8%	28.9%	4.36
	101	5.0%	10.9%	12.9%	27.7%	24.8%	18.8%	4.13
education about the environment	118	0%	0.8%	0%	7.6%	21.2%	70.3%	5.6
	102	0%	0%	0%	7.8%	22.5%	69.6%	5.62
scenic beauty	118	0%	0.8%	0%	8.5%	22.9%	67.8%	5.57
	102	0%	1.0%	2.9%	7.8%	24.5%	63.7%	5.47
places for recreation & relaxation	117	3.4%	8.5%	17.1%	27.4%	16.2%	27.4%	4.26
	101	4.0%	11.9%	19.8%	23.8%	22.8%	17.8%	4.03
economic benefits from tourism	116	14.7%	9.5%	13.8%	25.0%	19.0%	18.1%	3.78
	101	8.9%	12.9%	20.8%	25.7%	20.8%	10.9%	3.69
Clean water	117	0.9%	0.9%	3.4%	17.9%	19.7%	57.3%	5.26
	103	1.0%	4.9%	2.9%	12.6%	33.0%	45.6%	5.09
clean air	118	0%	0%	0%	10.2%	22.9%	66.9%	5.57
	102	1.0%	0%	1.0%	9.8%	30.4%	57.8%	5.42

<i>Please rate your perception of the quality/status of the following aspects (where applicable) at the site.</i>									
<i>For this item April 2002 data only is presented due to problems with response format in the September 2001 survey.</i>	n	low					high		$\bar{X}$
		1	2	3	4	5	6		
soil condition – evidence of erosion, top-soil loss	91	13.2%	25.3%	19.8%	22.0%	7.7%	12.1%	3.22	
water quality- evidence of pollution	91	28.6%	37.4%	7.7%	18.7%	3.3%	4.4%	2.44	
presence of weeds	90	18.9%	36.7%	11.1%	17.8%	7.8%	7.8%	2.82	
condition of vegetation (eg. trampling, breakage, ring-barking, fire scars)	86	25.6%	29.1%	17.4%	17.4%	3.5%	7.0%	2.65	
native wildlife behaviour - evidence of scavenging, tameness)	89	25.8%	30.3%	15.7%	15.7%	7.9%	4.5%	2.63	
deliberate human impacts on infrastructure - evidence of graffiti, vandalism	93	59.1%	25.8%	5.4%	1.1%	4.3%	4.3%	1.78	
presence of feral and/or domestic animals - evidence of cane toads, pigs, dogs	93	32.3%	14.0%	9.7%	15.1%	10.8%	18.3%	3.13	

## ***k) Environmental Threats***

## ***Key Findings***

For this analysis the combined data sets are presented.

### **Combined Seasonal Data & General Comments**

### ***Visitor Perception of Threats***

- ***Threats*** to the well being of the environment that were identified by visitors were placed into ***nine key*** categories;
- Of these categories, the ***most frequently reported threats*** were those related to ***over use of the site***, of which ***too many visitors & human presence*** were identified most frequently;
- ***People behaviour at the site*** was the second most frequently identified threat with ***polluting/littering*** receiving the highest number of responses.
- General or Global Issues – ***climate change/global warming*** – was the third most frequently reported threat;
- When looking at the ***threats*** identified ***first***, visitors most frequently reported threats within the category of ***overuse*** (51.9%), in particular ***too many tourists, visitors, overcrowding***.

- 
1. ***Visitors clearly link threats to the well being of the environment at Marrdja with on-site people behaviour and overuse;***
  2. ***In particular, littering and too many people using the site were considered the most important threats.***



**k) Environmental Threats**

**QUESTION & RESULTS**

	87	First		Second		Third		Totals		
		n	%	n	%	n	%	n	%	
<p><i>What do you consider to be the three most important threats to the well-being of the environment at this site?</i></p> <p><b>This is an open-ended question format so all responses were not pre-empted. The categories presented are the result of a post-hoc analysis of these open-ended responses.</b></p>		<b>Natural Hazards/Diasters</b>								
		Bushfires	2	1	1	3	7		N = 19 4.8%	
		Floods			2		3			
		Drought	1							
		Weather			1	1	2			
		Cyclone								
		Earth Quake/Natural disasters	1	1	1		4	7		
		<b>Access</b>								
		Advertising/access too easy							N = 17 4.3%	
		Speed/Traffic, motor bikes, cars, coaches	3	2	5	2	2	14		
		Adhoc parking								
		Motor bike trails/vehicular damage/fumes	1			2		3		
		<b>People Behaviour on site</b>								
		Firewood gathering							N = 96 24.2%	
		Pollution/polluting/ Littering/garbage	12	11	13	11	3	10		60
		Disturbing /encroaching W'life	2							2
		Vandalism/deliberate destruction			1	2		2		5
		Mis/overuse of fires								
		Irresponsib campers/picnicers/visitors/tours	1		1	4				6
		Walking off tracks/boardwalk		1	3	1	1	1		7
		Alcohol drinking/drunken behaviour								
	Unnatural noise/noise level			2	2			2		
	Not environ friendly/misuse/irresponsib	4	1	3	1	1	4	14		
	<b>Animals/plants</b>									
	Domestic animals/pets								N = 49 12.3%	
	Pigs /introduced flora/feral animals	7	6	6	14	7	3	43		
	Dingoes									
	Taming/feeding wildlife									
	Plant/animal disease									
	Logging, tree cutting, felling, lopping					2		2		
	Weeds/ exotics			3	1			4		
	<b>Rules/Regulations</b>									
	too many forbidden rules /over regulation									
	Law enforcement rules									
	Swimming in prohibited area									
	<b>Over use</b>									
	Too many tourists,visitors,overcrowded	10	26	3	6	1	5	51	N = 141 35.5%	
	Unauthorised/Large tour groups/tourism	8		6		2		16		
	Misuse/overuse/exposure	1	2			1	2	6		
	Humans/Human presence/human impact	14	16	10	3	8		51		
	Overdevelopment/exploitation/commercial	4	2	5	2	4		17		
	<b>Facilities</b>									
	Too many facilities								N = 4 1.0%	
	Poor facilities/signage					1		1		
	Poor waste disposal/bins too small		1			1		2		
	Septic not coping/sewage									
	Fireplaces									
	Too many tracks/boardwalk				1			1		
	Walk not kept in good condition									
	<b>Management Issues</b>									
	Rangers, overmanaged, forestry								N = 18 4.5%	
	Absence of ranger				1			1		
	Not enough money/underfunding	1			2	1		4		
	No supervision /no control over visitors									
	Lack of/mis/poor management/conservation	2	2	4	2	2	1	13		
	Maintain firewood supply									
	Politically correct management									
	Having to pay to come here									
	Entry fee/maintain cheap fees									
	<b>General/Global</b>									
	Politicians					1		1	N = 53 13.4%	
	Apathy/lack concern/ lack education	1		2	1	1	1	6		
	Damage to water quality /chemicals	4		1		1		6		
	Real Estate		1					1		
	Settlement/Urbanisation/Economics			2		1		3		
	Climate Change/Air Pollution/Acid Rain	5	1	6	3	5	2	22		
	Farming /Land use change/Progress/industry	3		2		2		7		
	Logging/Fragmentation/Erosion		1	1	3	1	1	7		
	<b>Other</b>									
	No significant threats								1	
	Don't care about threats									
	Don't know		1							

## l) Additional Open-ended Items

## Key Findings

### Stage 1: September 2001

During this first data collection stage,

- **Additional information** requirements were predominantly related to *natural and ecological* information followed by *cultural and historical* information;
- While a number of issues were identified as **enhancing visitor enjoyment**, most were related to *natural features* of the site and the *tour guide. Information* at the site was also important;
- The most frequently reported aspects of the visit that **detracted from visitor experience** were related to *lack of wildlife, evidence of pigs*, and the *facilities* at the site.

### Stage 2: April 2002

During this second data collection stage, visitor responses differed slightly.

- **Additional information** requirements were again predominantly related to *natural and ecological* information followed by *cultural and historical* information;
- Issues most frequently identified with **enhancing visitor enjoyment** were related to *natural features* – wildlife, birds;
- The most frequently reported aspects of the visit that **detracted from visitor experience** were those to do with the *behaviour of other people*.

### Combined Seasonal Data & General Comments

1. *Natural, ecological, cultural and historical information* were the types of *additional information* most frequently sought by visitors.
2. The *natural features* at Marrdja were what enhanced visitor enjoyment of their visit.
3. *Behaviour of other visitors* detracted from visitor enjoyment of Marrdja.

**k) Additional Open-Ended Items**

**Questions & Results**

**18. If you were to visit this site again what additional information would you like?**  
*Responses provided have been placed into five major categories. Information related to maps/orientation, natura/ecological information, cultural/historical information and general information.*

N = 33		Of the 15 respondents to this questions, 2 indicated that they were not interested in info; 1 = more signs would ruin the ambience			
<b>Maps/Orientation</b>	n	<b>Natural/Ecological/Geological</b>	n	<b>Maps/Orientation</b>	n
Route info	2	Environmental / ecological / evolutionary info	1	By going on a guide, we had everything we needed	1
Walks with more info	1	Wildlife/plants/birds/fish/insects	11(1)		
Clear directions	1	What one should see	(1)		
		What humans could eat/use	1	<b>Rules/Regulations/Safety</b>	
<b>Rules/Regulations/Safety</b>		<b>Cultural/Historical Information</b>		<b>General:</b>	
<b>General:</b>		Indigenous culture/ occupation/history/significance /activity in area	5		
				<b>Natural/Ecological</b>	
				Environmental / Ecological	1 (1)
				Geological formation / Historical	1
				Wildlife / Plants/ Insects at site	5
				<b>Cultural/Historical Information</b>	
				Indigenous culture/ occupation/ significance/ activity in area	5

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

<b>n = 111</b>	Yes	41.1%	No	58.0%	<b>n = 97</b>	Yes	39.2%	No	60.8%
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*If yes, please specify:*

<b>Natural:</b>	n	<b>PsychoSocial/Experiential:</b>	n	<b>Natural:</b>	n	<b>PsychoSocial/Experiential:</b>	n
Rainforest/mangrove/ vines ferns/diversity/	9	Alone/quite	1	Bird life (cassowaries)	4	Learning experience	3 (1)
Boyds Dragon/python	7	Just to see it	1	Wild life (bats, fish, spiders)	8 (2)	Family / Friends	1
Natural environ/scenery	2	Quite/peaceful	4	Plants	1 (2)		
Birds	2	Total experience	1	The land	2	<b>Other:</b>	
<b>Facilities:</b>		<b>Other:</b>		<b>Facilities:</b>		Tour guide	8
Boardwalk	3	Great guide	10	Boardwalk	6		
Informative /Good signs/ info/models	9	Being guided in small groups	1	Information of history / signage	3 (1)		
				Well presented	1		

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

<b>n = 110</b>	Yes	14.5%	No	85.5%	<b>n = 97</b>	Yes	16.5%	No	83.5%
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*If yes, please specify:*

<b>Natural/Biophysical:</b>	n	<b>Other:</b>	n		n		n
Lack wildlife	2	Bad tour	1	All of the fences	1	Swamp land	2
pigs	2	Large tour group	1	Large tourist groups (too loud)	4	Using a machine to clean the leaves	1
		Too many people	1	People (running around, disturbing wildlife)	2	Pig Traces	1
<b>PsychoSocial:</b>		<b>Facilities:</b>		Insects	2	Leeches	1
noisy people	1	Not enough seats	1	Disagree with the information on the earth being millions of years old	1	Not enough wildlife to see	2
		Track	2				
		More wildlife info	1				
		Longer walk	1				

## Comments on Questionnaire

## Key Findings

The following are key findings in the comments made by visitors to Marrdja.

### Stage 1: September 2001

- The majority of comments reflected visitors' negative experiences at Marrdja. The most frequently reported negative comments were in regards to the **number of visitors** at the site. Tour groups were described as being **too big** (20+ people).
- Visitors also requested more information. Specifically, **safety information** and more information on **flora and fauna**.
- Comments that suggested improvements to the site focused on:
  - **rubbish bins** being made available,
  - more **safety information**.
- The positive comments focused on the **information signs**, **boardwalk** and the **rainforest** that is unique to Marrdja.
- The majority of the positive comments were made by overseas visitors.

### Stage 2: April 2002

- The majority of visitor comments focused on the damage evident at the site, specifically, wild pig damage.
- The information presented at the site was favourably commented on, however some respondents requested that there be more information on specific trees and fauna.
- The majority of the positive comments focused on the beauty of the area. Most of these comments were made by overseas visitors.

**Murrdja:**            October 2001

## ADDITIONAL COMMENTS MADE BY RESPONDENTS ON QUESTIONNAIRE

The following are comments made by some respondents who completed the questionnaire at Murrdja.

---

<u>Date</u>	<u>Comments on site.</u>
10.10.01	Due to wild pigs, the site appears to be disturbed. I would like additional bush tucker information. I am aware of the special status of the ancient rainforest. Good weather enhanced my enjoyment of this site. <i>(Australian visitor, female, 33 years).</i>
10.10.01	I was expecting rubbish bins to be available at this site. I saw no safety information or rules and regulations at this site. <i>(Australian visitor, male, age: ?).</i>
11.10.01	Tour groups sizes were of obscene amounts: 20+ with bloke up front! What is the point?! <i>(Australian visitor, male, 40 years).</i>
11.10.01	Visual degradation: highly "painted" buses, "low" environmental. <i>(American visitor, male, 40 years).</i>
11.10.01	The signs, boardwalks and quality enhanced my enjoyment of the site. Just perfect. <i>(Dutch visitor, male, 35 years).</i>
12.10.01	In terms of awareness of the significance of Murrdja, I have become aware of the interdependence of nature. I have been travelling in this country for almost three weeks now. This was one of the most impressive sites. To underline this I would use four German keywords: Form, Farbe, Licht, Laute. <i>(German visitor, male, 63 years).</i>
12.10.01	Great experience, thoroughly enjoyed it, very user-friendly: even disabled/wheelchair accessible. <i>(Australian visitor, female, 57 years).</i>
12.10.01	In terms of use of signage: no maps, safety information or rules were located. You should ask about the number and frequency/distribution of signs. There were a lot at the beginning and few at the end. But with the tree identification tags the pattern was reversed. Information on indigenous animals would also be good to have on signs. More tree identifications and nearer actual tree, eg. signs about plant evolution placed near actual plant. Some information on signs identified things I didn't see on the sign. Also bats are mammals, so the pollination sign should read "bats and other mammals, birds and insects". Frogs and cane toads are the natural features I expected to see, but were not present. I am aware of the rare and ancient plants being of significance. The spectacled flying foxes enhanced my enjoyment of the site. The presence of too many tour groups detracted from my enjoyment of this site. The mould on trees in the latter third looked unhealthy. I would have liked to see porous concrete pavers on walkways. I felt like there was so much more I could have been told to help me appreciate what I was seeing. <i>(American visitor, female, 22 years).</i>
12.10.01	The presence of too many people detracted from my enjoyment of the site. Overall the rainforest was a very enjoyable experience. <i>(Canadian visitor, female, 23 years).</i>

**Marrdja:** April 2002

## ADDITIONAL COMMENTS MADE BY RESPONDENTS ON QUESTIONNAIRE

The following are comments made by some respondents who completed the questionnaire at Marrdja.

---

<u>Date</u>	Comments on site.
06.04.02	Present information from creation theory as well as evolution theory. <i>(American visitor, female, 51 years)</i>
06.04.02	It is a pity that the feral animals can cause so much damage to this beautiful area. <i>(Australian visitor, female, 24 years)</i>
06.04.02	This site is actually quite nice and in excellent condition. I think that it is easy to follow the trail so I don't foresee too much threat from human visitors. This is the only site where I have seen evidence of feral pigs. Our tour guide explained the damage the feral pigs can cause. <i>(American visitor, female, 21 years)</i>
06.04.02	I was delighted with my visit, even though it was a short one! I only wish there would have been more time allowed on my tour to read all of the information available along the trail. I will go away with a very favourable impression! <i>(German – American visitor, female, 58 years)</i>
06.04.02	French people need French commentary on the different sites – Thank you! <i>(French visitor, female, 47 years)</i>
07.04.02	Once pointed out to us, the impact of feral pigs was clear. Warning signs for Cassowaries nearly are positive – perhaps a lower compulsory (cant read) would complement (can't read) (and the speed bumps). <i>(UK visitor, male, 50 years)</i>
07.04.02	CTR- More info re: when specific plants bloom; age of specific trees and how long this type of tree has been in existence e.g. black palm. <i>(Canadian – Australian visitor, female, 45 years)</i>

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**Comments to Field Assistants****Key Findings**

The following comments were reported to the field assistants at Marrdja.

**Stage 1: October 2001**

- All of the visitors who made positive comments about the site were either from interstate or overseas.
- Most of the comments were described as being ‘enjoyable’ with emphasis on the boardwalk and the area in general.

**Stage 2: April 2002**

- No additional comments were recorded during this data collection period.

**ADDITIONAL COMMENTS MADE BY RESPONDENTS TO FIELD ASSISTANTS****SITE : Marrdja October 2001**

The following are comments made by 14 visitors to the field assistants at Marrdja.

<b>Date</b>	<b>Comments</b>
12.10.01	Couple from Melbourne - travelling around – think it’s great up here. <i>(Australian visitor, male, 23 years)</i>
12.10.01	Group of four on holiday from U.K. Saw bat colony; enjoyed walk and wanted to know where longer walks are. <i>(English visitors: female, 25 years; male, 24 years; female, male, age 26; male, 28)</i>
12.10.01	Couple from Victoria – enjoying holiday. <i>(Australian visitors: female, 25; male, 23 years)</i>
12.10.01	Couple from Victoria – enjoying holiday. <i>(Dutch visitors, male, 24 years; female, 26 years)</i>
12.10.01	Couple from W.A. – very impressed about boardwalk. <i>(Australian visitors: female, 46 years; female, 49 years; male, 53 years)</i>
12.10.01	Overseas visitors – “enjoyable”. <i>(American visitors: male, 32 years; female, 23 years)</i>

**SITE : Marrdja April 2002**

No additional comments were recorded during this data collection period.

**BEHAVIOURAL EVENTS****Key Findings**Combined Data Sets

From the behaviours recorded at Murrumbidgee in September 2001 and April 2002, inappropriate visitor behaviour was most frequently reported and included littering and undesignated parking.

**BEHAVIOURAL EVENTS**

The following are critical incidental observations of behavioural events made opportunistically by field assistants during the period of administration of surveys and counts of vehicles/visitors.

<b>Behavioural Topic</b>	<b>Comment : SEPTEMBER 2001</b>	<b>Comment: April 2002</b>
<b>Domestic Animals</b>	11.10.01 <ul style="list-style-type: none"> <li>Dog escaped from vehicle: ranger looking for it. 15.00 hrs.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Deliberate Damage to Plants</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	07.04.02 <ul style="list-style-type: none"> <li>Short-cutting off track to toilet. 12.55 hrs.</li> </ul>
<b>Undesignated Area Use</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	06.04.02 <ul style="list-style-type: none"> <li>One landcruiser station wagon found alternate parking on side of road because of "buses only" sign.</li> </ul>
<b>Speeding</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Risk Activity</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Aggressive Behaviour</b>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Other</b>	11.10.01 <ul style="list-style-type: none"> <li><b>Loud music:</b> People in ute playing loud music. 15.10 hrs.</li> </ul>	06.04.02 <ul style="list-style-type: none"> <li><b>Littering:</b> Lettuce scraps near exit of track.</li> </ul>



## Section Two

### *Infrastructure Inventory and Profile*



# S E C T I O N T W O

- 
- Site Infrastructure Inventory
  - Site Information and Signage
-

**MARRDJA**



**Figure 1:** Murrinja site map (Source: WTMA Handbook for Tour Guides).

## Site Infrastructure Inventory

The following table is a summary version of the inventory of features/facilities recorded by the author at the site first in 1998 (yellow shading) and again in 2002. Details of signage and facilities are presented in the following pages.

<b>MARRDJA</b>		Wet Tropics Site No. : 18 Management Agency: EPA/QPWS		
Site Parameters		Dates Assessed: April 1998 & April 2002		
Annual vehicle/visitor #	<b>1998</b> Vehicle s /Visitors = data unavailable	<b>2002</b> Vehicle s = 13,329; Visitors = 68,000		
Site Access:	Road	Road		
Road Type:	Sealed	Sealed		
Road Conditions:	Good	Good		
Facilities / Infrastructure	Car Park		Trail – circuit boardwalk	
	1998	2002	1998	2002
Landscaping:	Hard	Hard	Hard	Hard
Signage:	<i>Along edges</i>	<i>Along edges</i>		
Corporate Identity	1	1	Absent	Absent
Visitor Orientation	2	5	4	4
Visitor Advice	1	6	2	Absent
Regulatory	3	Absent	Absent	Absent
Interpretive	Absent	Absent	14 + 32 tree ids	16
Foreign Language	Absent	Absent	Absent	Absent
Capacity / Description:	Gravel, defined by bollards	No single vehicle demarcation, designated bus area	Boardwalk & cement path	Boardwalk & cement path
Amenities / Utilities				
Toilets:	Absent	Absent	Absent	Composting
Showers:	Absent	Absent	Absent	Absent
Bins:	Absent	Absent	Absent	Absent
Water:	Absent	Absent	Absent	Basins in toilets
Power:	Absent	Absent	Absent	Absent
Telephone:	Absent	Absent	Absent	Absent
Other	Absent	Absent	Absent	Absent
Appeal				
Attractiveness:				
Naturalness (within)	Nil	Nil	High	High
Naturalness (surroundings)	High	Medium	High	High
Nuisance insects	Low	Low	Low	Low (sandflies)
Built environment	Medium	Medium	Medium	High
Shade	5-30%	40%	90%	90%
Noise (human origin):	High - cars & people on road	High - cars & people	High - people	High - people
Biophysical				
Landform:	Level		Level	
Altitude:	Coastal		Coastal	
Vegetation:	Rainforest		Rainforest – Mangrove	
Geology:	Alluvial		Alluvial, swamp & tidal	
Water body:	Absent		Noah and Oliver Creek adjacent	
Impact Assessment				
Condition Indicators:				
Litter (visual impact)	Low	Medium	Low	Nil
Litter (amount)	< 20 items	> 20 items	<5 items	Nil
Litter (type)	Paper, cig butts,	Paper, cig butts, plastic	Paper	-
Waste Management	Nil	Nil	Nil	Nil
Wear on facilities	Low	Medium (bollards)	Medium	low
Vandalism / graffiti	Low	Low	-	Nil
Environmental Indicators:				
Soil erosion	Medium	Medium	low -around track	nil
Exotic weeds	Medium	Medium-grass	nil	nil
Exotic ornamentals	Nil	Nil	nil	nil
Vegetation	No mutilation, breakage	No mutilation, low breakage	Low breakage, med mutilation	Low breakage, low mutilation
Wildlife	No evidence of habituation	No evidence of habituation	No evidence of habituation	No evidence of habituation
Additional Notes	<b>1998:</b> Car park capacity is often exceeded - high number of vehicles parked in undesignated areas along the road. <b>2002:</b> No change		<b>1998:</b> Construction underway for extension of boardwalk. <b>2002:</b> The boardwalk has been upgraded since 1998 from a one way track to a looped track.	
<b>2002:</b> Many aspects of the site have been changed/upgraded since 1998, including the boardwalk, addition of toilet facilities, and some changes to signage.				

## Site Infrastructure Inventory

## Details

### A. Car Park

**Parking Area:** One parking area services the main attraction of the site, the walking track/boardwalk. This car park is unsealed and separated from the pathway and entrance to the walking track by timber bollards. No designated single vehicle parking bays are present but sections for cars along the edges and buses in central area are defined. Many vehicles park along the roadside when car park is full. Parking becomes a concern in terms of conflict and safety when vehicles park haphazardly along road edge or in wrong area.



### B. Walking Track - Boardwalk

**Amenities Area:** Toilet block (composting) is set back into the forest edge on the south side of the car park. Access is via a timber walkway. These facilities are sign posted at the edge of the car park. Disabled access is possible.

**Circuit Track:** This track is highly structured the entire length. The tread area is constructed from cement in some sections and timber in others. Across the mangrove area the timber boardwalk is elevated above the forest floor and enclosed with mesh, steel and timber. Wheel chair access is possible along this track as steps are not present. There are a number of areas which allow for passing and/or stopping to observe a particular feature of the forest. Interpretive signage is present at the beginning of the track and through the mangrove section of the boardwalk.



Toilet Block



Boardwalk through mangrove section

## Site Information and Signage

The information and signage for the two activity nodes of the site (car park and walking track), were grouped, as best as possible, according the Department of Natural Resource's five broad sign categories. The inventory includes numbers of actual sign structures and total information types according to these categories and within each of the activity nodes. Assessment of information content was not undertaken in this research.

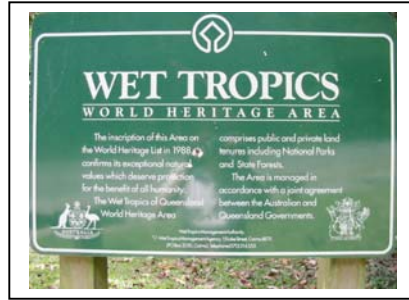
### Key Findings

- A total of **24 sign structures** containing **32 separate sets of information** relevant to Marrdja were recorded at the site itself.
- Half of these signs (50%) were in the **interpretive** category – natural, ecological, evolutionary.
- *Visitor advice* was mainly in the form of identifying parking locations.
- One **corporate identity** sign identifying the area as Wet Tropics was situated at the edge of the car park. While there was no separate National Parks sign this information was incorporated in the Marrdja Boardwalk sign.
- No **foreign language** signage was present at this site.

**Table 1:** Number and type of signs at Marrdja.

Sign Category	Car Park	Track	TOTAL
Interpretive		15	15
Visitor orientation	5	5	10
Visitor advice	6 (buses only)		6
Regulatory			
Corporate Identity	1 (Wet Tropics)		1
<b>TOTAL Information Types</b>	<b>12</b>	<b>20</b>	<b>32</b>
<b># Sign Structures</b>	<b>6</b>	<b>18</b>	<b>24</b>

## Car Park Area Signage



## Walking Track Signage

## Interpretive & Orientation Signage





**Walking Track Signage**

*Orientation Signage*







## Section Three

### *Vehicle and Visitor Monitoring*



# S E C T I O N T H R E E

- 
- Vehicle and Visitor Records
  - Traffic Counter Data
-

### Murrumbidgee: Summary Table of Visitor and Vehicle Data

	Visitors					Vehicles				
	Major Type	# in 8hrs	# per vehicle	Highest # at one time	Time: hours	Major Type	# in 8hrs	Highest # at one time	Time : hours	Average Length of Stay
29 Sept 2001	Couples 46%	259	4.39	78	1515	Cars 43%	59	12	1515	55 mins
30 Sept		243	4.76	70	1210		51	10	1545	46 mins
6 April 2002	Families/ Small Group 48%	260	6.34	84	1445	Cars (39%) 4WD (23%)	41	9	1115 and 1445	47 mins
7 April		181	5.03	87	1150 to 1205		36	13	1150 to 1205	59 mins

Note: Data based on four x eight hour observations of vehicles and visitor occupancy in September 2001 and April 2002.

### Murrumbidgee: Summary Table of Traffic Counter Data

	Visitors					Vehicles		
	Average	Highest #	Time Of Highest	Lowest #	Time Of Lowest	Average	Highest #	Lowest #
<b>Yearly</b>	<b>68,393</b>					<b>13,332</b>		
<b>Monthly</b>	5,668	12,501	July 2002	2,101	February 2002	1,111	2,436	418
<b>Weekly</b>	1,315	3,427	July 2002, Week 1	421	February 2002, Week 4	256	668	82
<b>Daily : Weekdays</b>	176	685	11 <sup>th</sup> July 2002	38	25 <sup>th</sup> December 2001	35	126	8
<b>Daily: Weekends</b>	170	503	6 <sup>th</sup> July 2002	38	12 <sup>th</sup> May 2002	33	98	8

Note: Data based on the continuous recording of traffic using the traffic counter/metro count system from September 2001 to October 2002.

## Vehicle and Visitor Records

## Key Findings

Data for these records were established from eight hours of continuous observations of vehicles and vehicle occupancy during each day of the survey distribution periods, Stage 1 (11<sup>th</sup> & 12<sup>th</sup> October 2001) and Stage 2 (6<sup>th</sup> & 7<sup>th</sup> April 2002). This is the first time this type of data has been collected at Murrudja and so previous data is unavailable for comparative purposes.

### Stage 1: 11<sup>th</sup> and 12<sup>th</sup> October 2001

#### *Pattern of access to and use of Murrudja*

#### Figure 1

##### General

- **Vehicle Type:** The majority of vehicles using the site over the two days of observation were *cars (43%)* and *4WD (25%)*.
- **Visitor Category:** Murrudja appears to be favoured by independent visitors with couples making up the major visitor category over these two days (46%).
- A total of 26 tours visited Murrudja during these two days (12 tours Day 1, 14 tours Day 2).

##### Day 1 (11<sup>th</sup> October 2001 - Saturday)

- A total of **259 people** in **59 vehicles** visited Murrudja during this eight hour observation period.
- There were **two distinct peaks** in visitor numbers around **1230 and 1515 hours**;
- The highest number of visitors at the site at any one time was **78 at 1515 hours**. At any one time visitor numbers remained above 20 for most of the day.
- The highest number of vehicles at the site at any one time was **12 at 1515 hours**. For most of the day number of vehicles at the site remained below 10.

##### Day 2 (12<sup>th</sup> October 2001 - Sunday)

- A total of **243 people** in **51 vehicles** visited Murrudja during this eight hour observation period.
- There were **two distinct peaks** in visitor numbers around **1215 and 1545 hours**;
- The highest number of visitors at the site at any one time was **70 at 1210 hours**. For most of the day the number of visitors at the site at any one time remained above 20.
- The highest number of vehicles at the site at any one time was **10 at 1545 hours**. For all of the day number of vehicles at the site remained below 10.

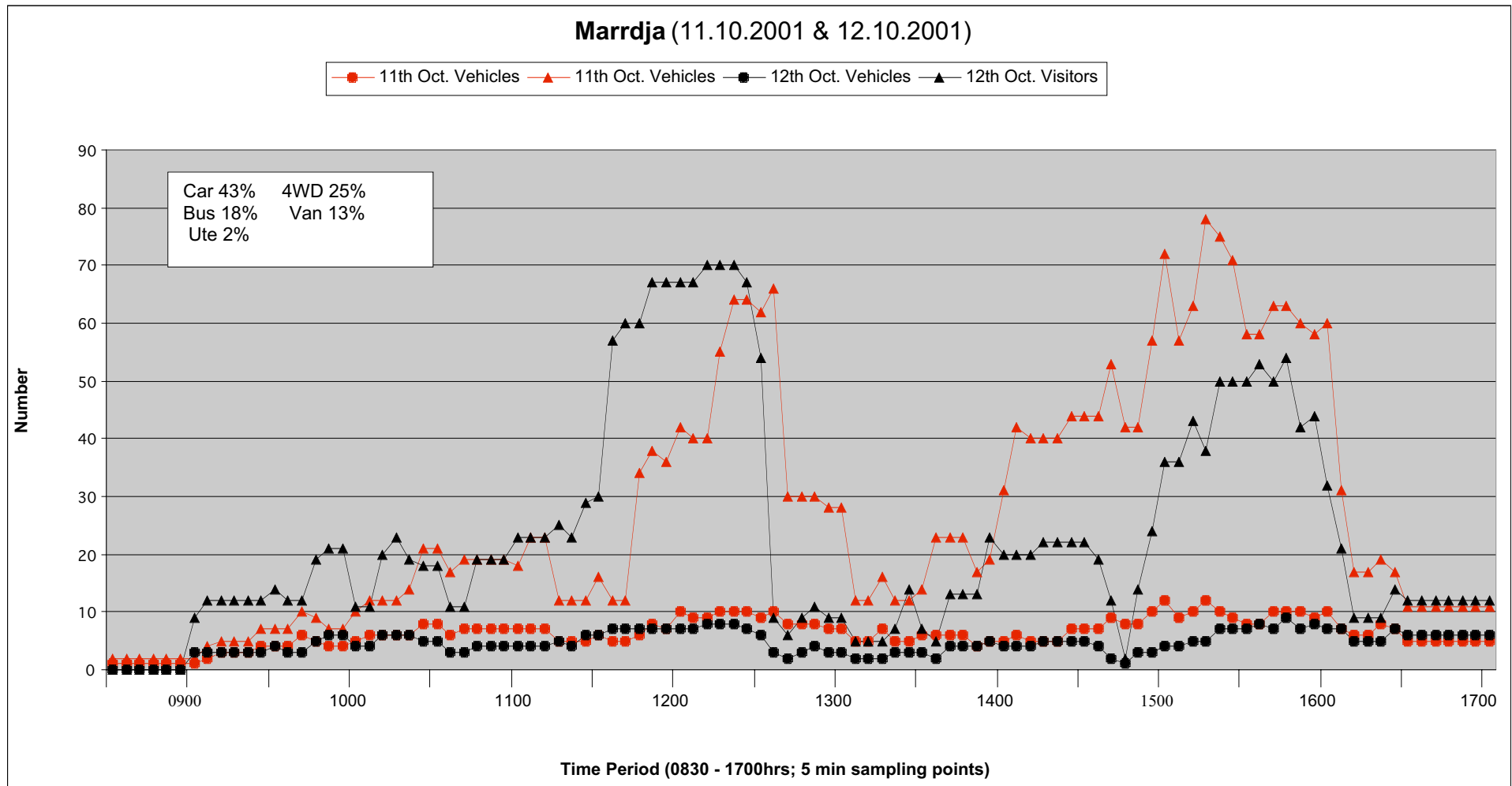
#### *Length of Stay*

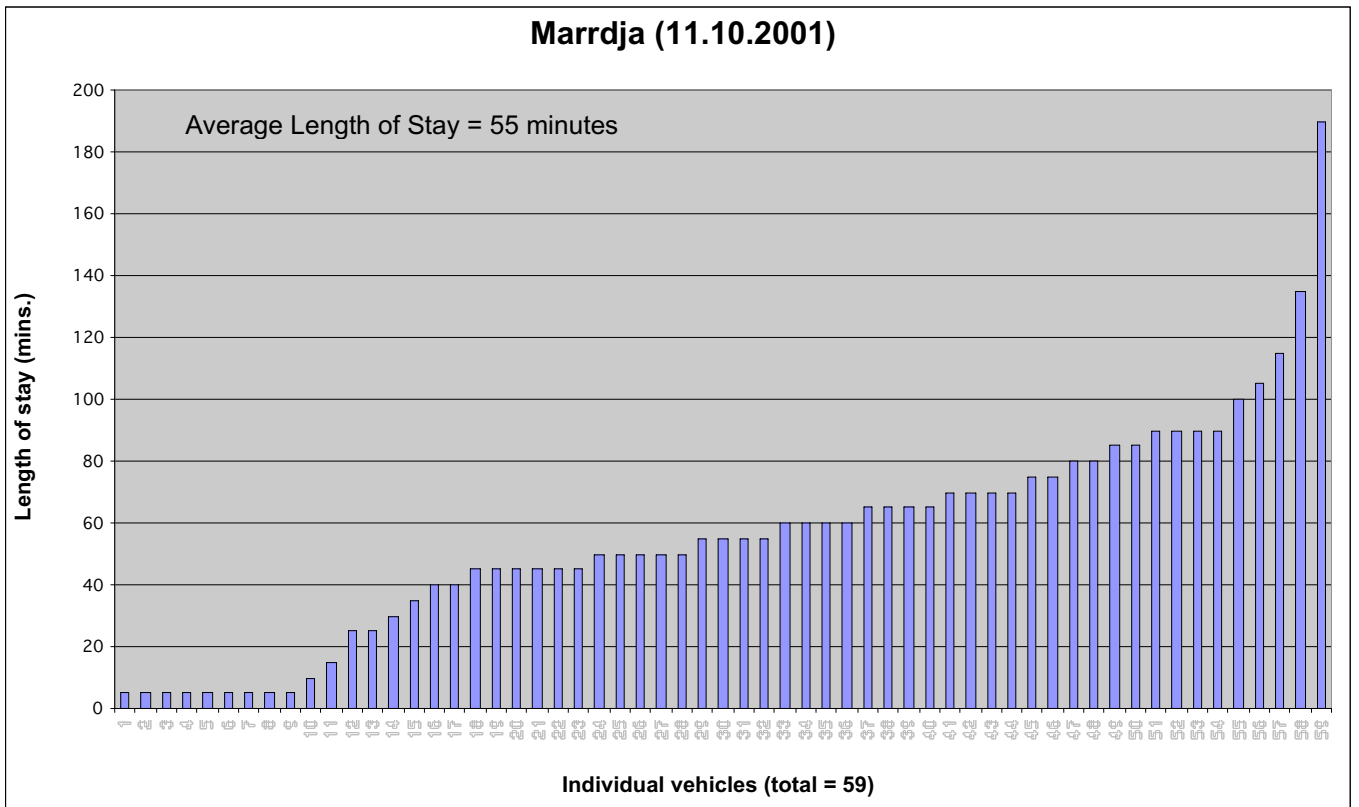
#### Figures 2 and 3

- There were more vehicles observed at the site on Day 1 (59 vehicles) compared to Day 2 (51 vehicles), and there were more people (259 visitors Day 1, 243 visitors Day 2).
- The average length of stay was **55 minutes** on Day 1, and **46 minutes** on Day 2.

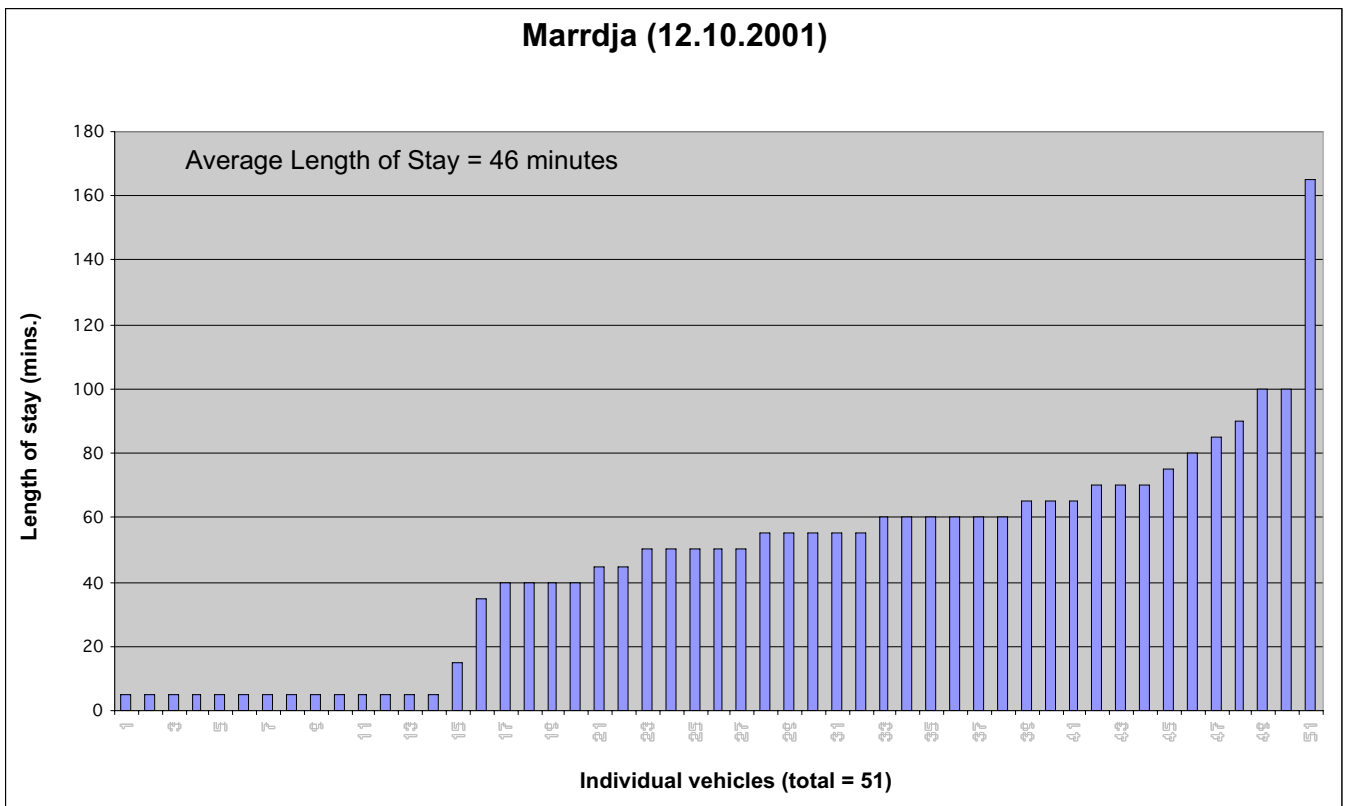
## VEHICLE AND VISITOR COUNT DATA: MARRDJA

**Figure 1:** Records for Vehicles and Visitors at Marrdja.





**Figure 2:** Length of stay of each vehicle at Marrdja on Day 1 - 11.10.2001.



**Figure 3:** Length of stay of each vehicle at Marrdja on Day 2 - 12.10.2001.

## Vehicle and Visitor Records

## Key Findings

### Stage 2: 6<sup>th</sup> and 7<sup>th</sup> April 2002

#### *Pattern of access to and use of Marrdja*

#### Figure 4

##### General

- **Vehicle Type:** The majority of vehicles using the site over the two days of observation were *cars (39%)* and *4WD (23%)*.
- **Visitor Category:** Marrdja appears to be favoured by independent visitors with families/small groups making up the major visitor category over these two days (48%).
- A total of 19 tours visited Marrdja during these two days (16 tours Day 1, 3 tours Day 2).

##### Day 1 (6<sup>th</sup> April 2002 - Saturday)

- A total of **260 people** in **41 vehicles** visited Marrdja during this eight hour observation period.
- There were **two distinct peaks** in visitor numbers around **1200 and 1445 hours**;
- The highest number of visitors at the site at any one time was **84 at 1445 hours**. The second peak there were 75 visitors at Marrdja at the same time (1155 hours). At any one time visitor numbers remained above 30 for most of the day.
- The highest number of vehicles at the site at any one time was **9 at 1115 and 1445 hours**. For most of the day number of vehicles at the site remained below 10.

##### Day 2 (7<sup>th</sup> April 2002 - Sunday)

- A total of **181 people** in **36 vehicles** visited Marrdja during this eight hour observation period.
- There was **one distinct peak** in visitor numbers from **1150 to 1205 hours**;
- The highest number of visitors at the site at any one time was **87 from 1150 to 1205 hours**. For most of the day the number of visitors at the site at any one time remained above 20.
- The highest number of vehicles at the site at any one time was **13 from 1150 to 1205 hours**. For all of the day number of vehicles at the site remained below 10.

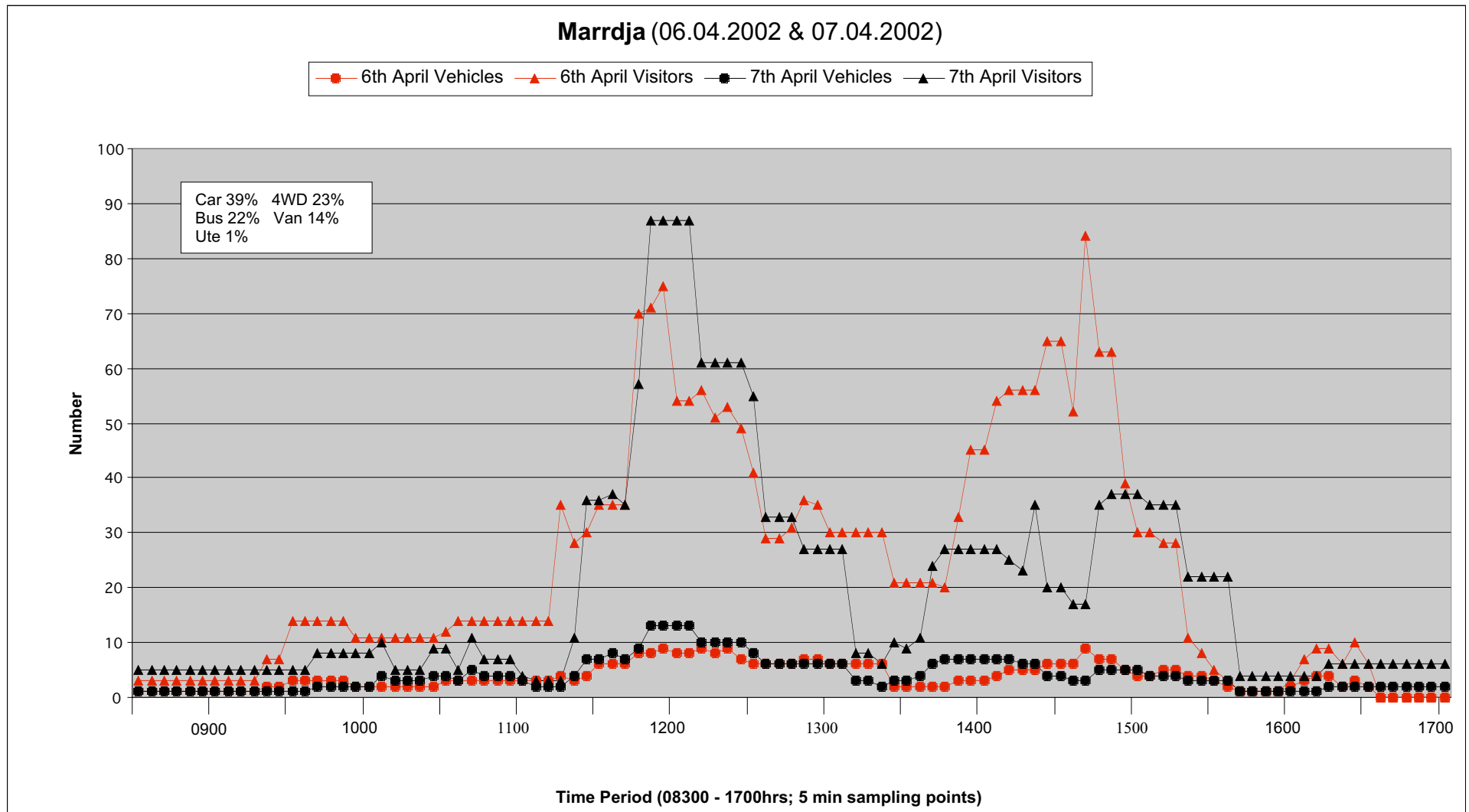
#### *Length of Stay*

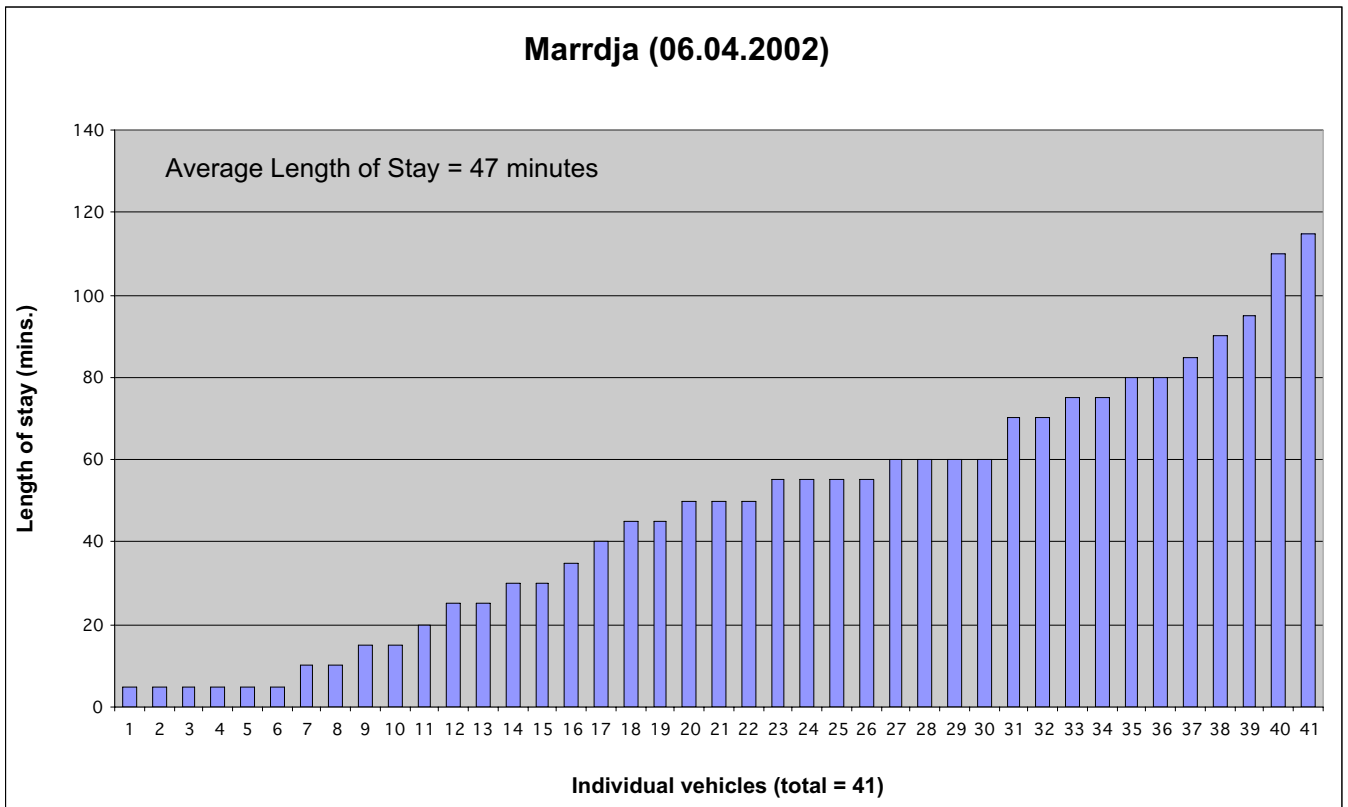
#### Figures 5 and 6

- There were more vehicles observed at the site on Day 1 (41 vehicles) compared to Day 2 (36 vehicles), and there were more people (260 visitors Day 1, 181 visitors Day 2).
- The average length of stay was **47 minutes** on Day 1, and **59 minutes** on Day 2.

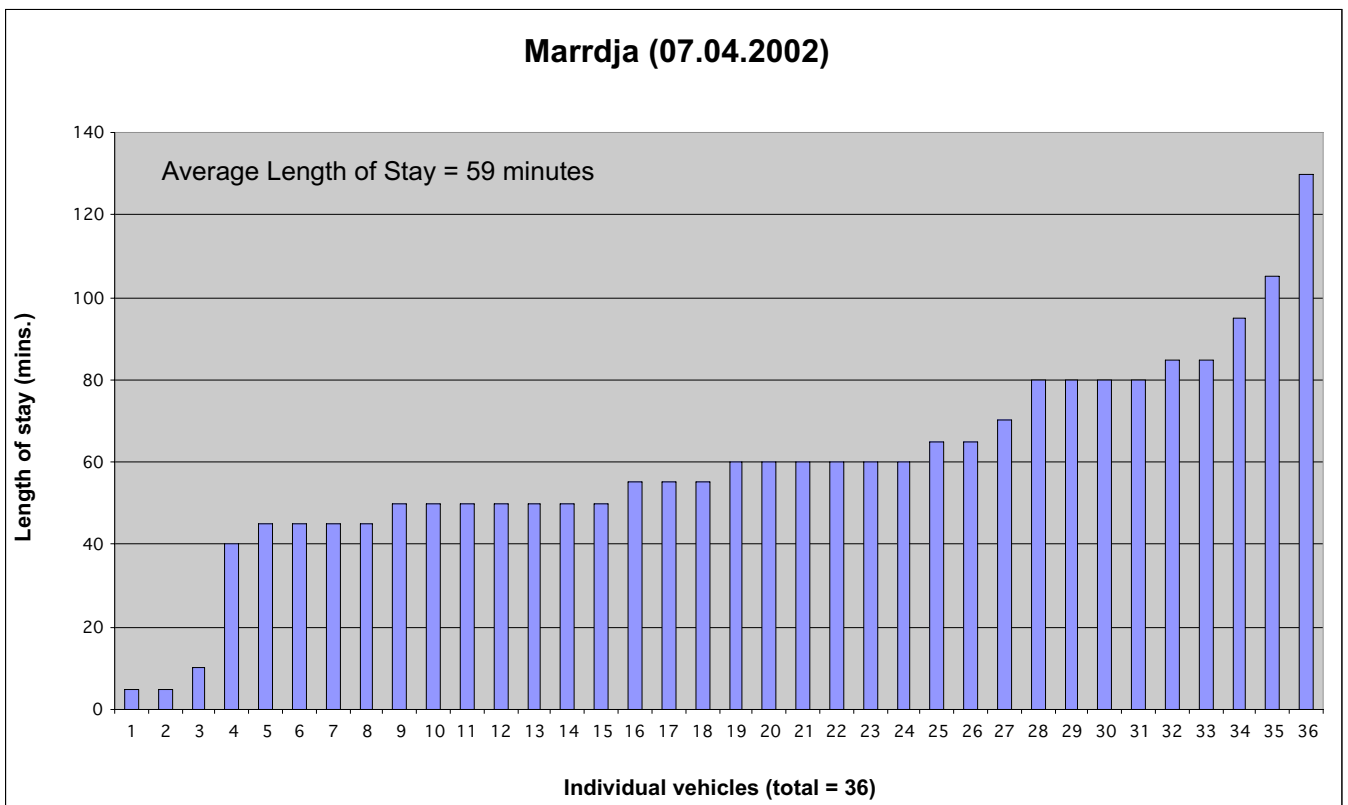
## VEHICLE AND VISITOR COUNT DATA: MARRDJA

**Figure 4:** Records for Vehicles and Visitors at Marrdja.





**Figure 5:** Length of stay of each vehicle at Marrdja on Day 1 - 06.04.2002.



**Figure 6:** Length of stay of each vehicle at Marrdja on Day 2 - 07.04.2002.



## Comparative Traffic Counter Data

## Marrdja 1999

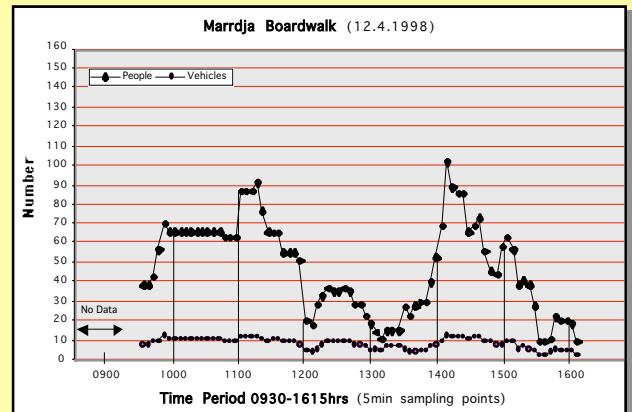
The following information has been extracted from the report "Impacts of visitation & use" (Bentrupperb umer & Reser, 2000) and was established from data recorded in 1999.

### Number of vehicles & visitors

Even though Marrdja is located on the side of the main road to Cape Tribulation, during the 5.5 hour observation period the majority of vehicles (92%) stopped here. This averaged out at 11.1 vehicles per hour and 61 visitors per hour actually stopping and visiting this site.

### Pattern of Use

The vehicle numbers at Marrdja were fairly consistent at around 10 throughout the observation period. Slight fluctuations occurred between 1200 and 1400 hrs, with a drop off in numbers evident after 1500 hrs. Despite this consistency in vehicle numbers, visitors numbers fluctuated greatly during the observation period with the lowest numbers evident at around 1200 hrs, 1330 hrs and 1530 hrs. The high peaks in visitor numbers reflect tour groups.



### Length of Stay

Interestingly, people were staying longer at Marrdja than at Cape Tribulation (55 mins). This appears to reflect the smaller percentage of visitors staying for less than 5 mins at this site, and more people staying for longer periods of time, a possible consequence of length of the boardwalk.

## Traffic Counter Data

## Key Findings

The traffic counter was installed at Marrdja for 12 months (September 2001 – September 2002). The following key findings are associated with this data set. Because the counter could only be placed where it would also capture ‘through’ traffic, this current Marrdja data set is based on ‘best estimates’. See Bentrupperbäumer and Reser (2002a) for details of how these figures were established.

### Yearly Estimates = 13,332 vehicles and 68,393 visitors

#### Monthly Records:

#### Figure 7

- On average **1,111 vehicles** (range = 418 – 2,436) and **5,668 people** (range = 2,101 – 12,501) visited Marrdja each month.
- **July 2002** received the highest visitation rate during in which **2,436 vehicles** and **12,501 people** visited Marrdja.
- The quietest months were December, January, February and March in which months vehicles numbers were just below 700.

#### Weekly Records:

#### Figure 8

- On average 256 **vehicles** (range = 82 – 668) and **1,315 people** (range = 421 – 3,427) visit Marrdja each week.
- There were two weeks when vehicular traffic levels were above 600; July weeks 1 and 2.
- The quietest week was February Week 4, in which only 82 vehicles and 421 visitors visited Marrdja.
- The highest number of vehicles and visitors was in **July 2002, Week 1**, during which week 668 **vehicles and 3,427 visitors** used this site.

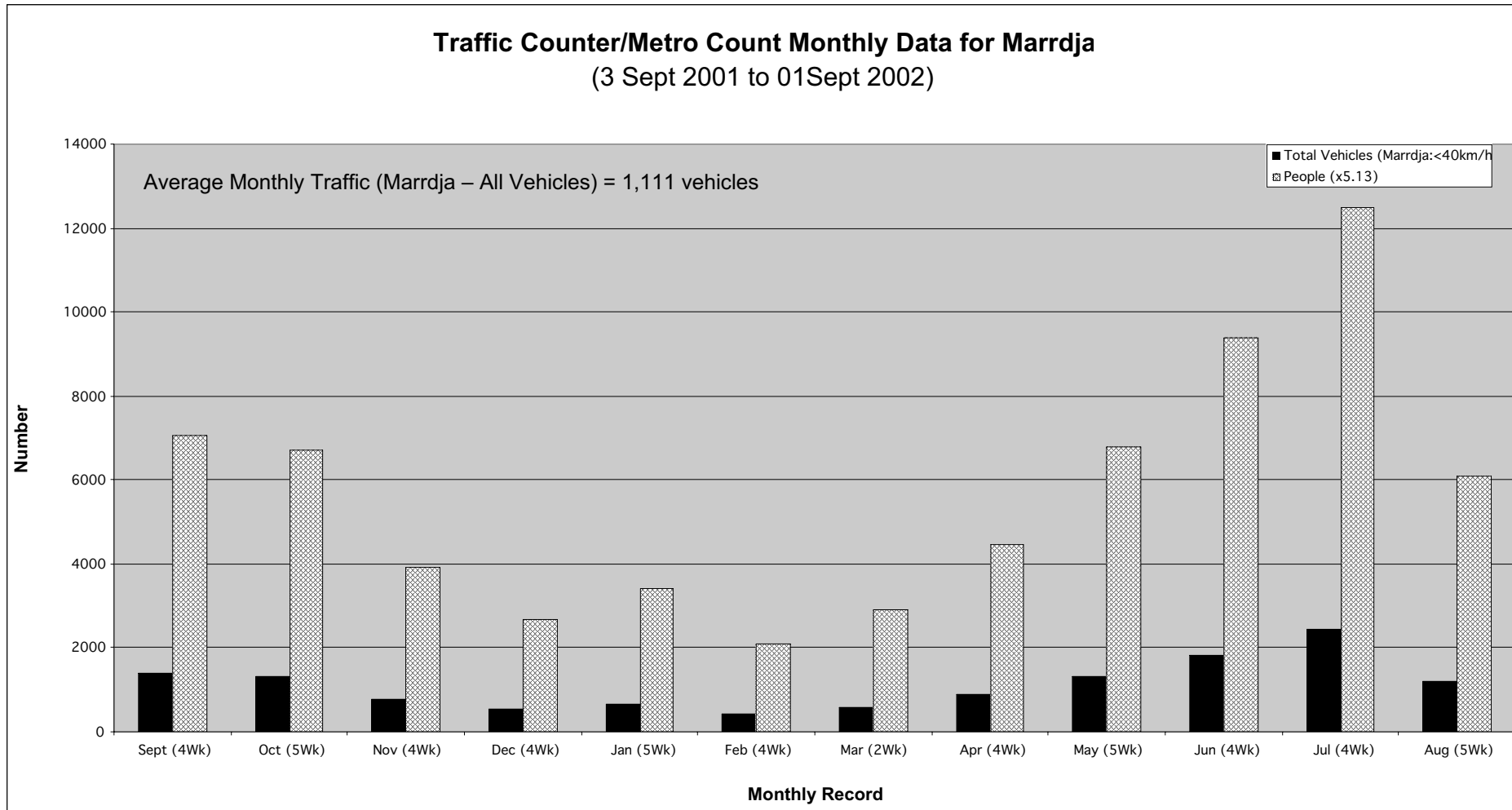
#### Daily Records:

#### Figure 9 and Table 1

- On average, **34 vehicles** (range = 8 – 126) and **174 people** (range = 38– 685) visit Marrdja each day. **Average weekday use = 176 vehicles per day;**
- Weekends are slightly quieter than weekdays with both Saturday and Sunday recording, on average, 33 vehicles (range 8 – 98), and 170 people (highest number = 503 people on 6<sup>th</sup> July 2002). **Average weekend use = 33 vehicles per day.**

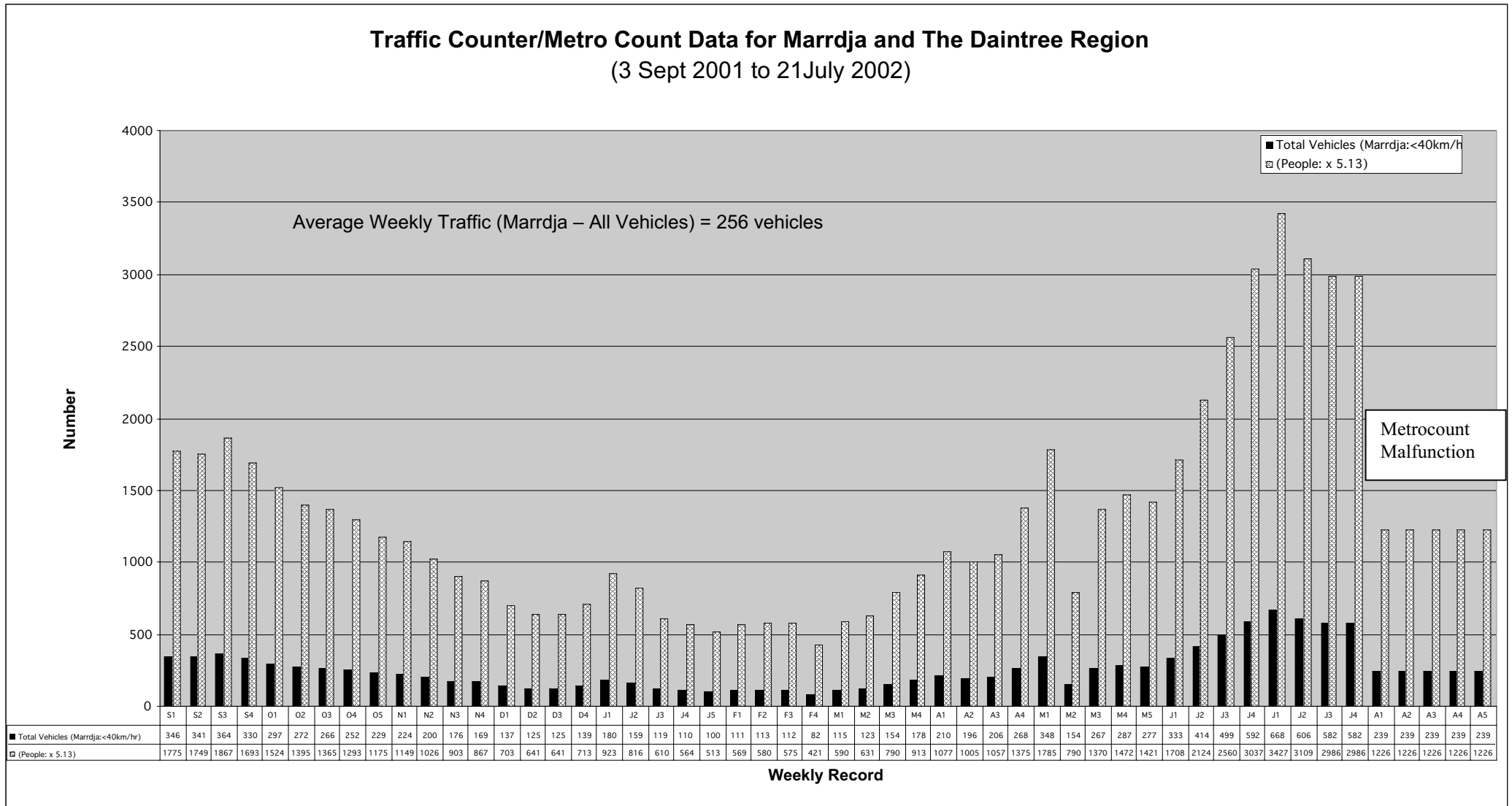
### TRAFFIC COUNTER/METRO COUNT DATA: MARRDJA

**Figure 7:** Monthly Records for Vehicles.



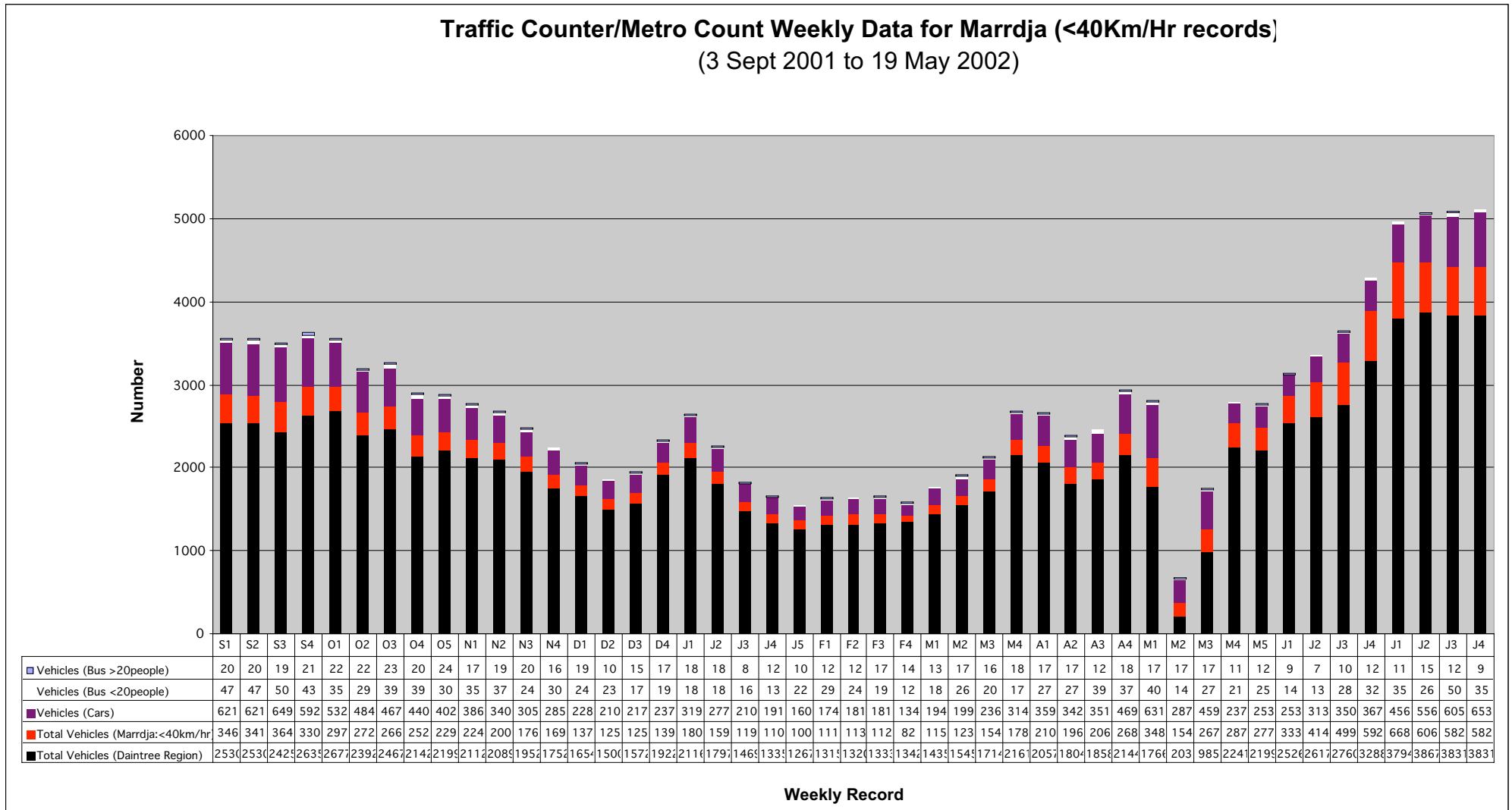
## TRAFFIC COUNTER/METRO COUNT DATA: MARRDJA

**Figure 8:** Weekly Records for Vehicles.



## TRAFFIC COUNTER/METRO COUNT DATA: MARRDJA

**Figure 9:** Weekly Records for Vehicles.



## TRAFFIC COUNTER/METRO COUNT DATA FOR MARRDJA

**Table 1:** Daily Records of Total Vehicles (all vehicle types) and Visitors.

SEPTEMBER 2001 Data highlighted in yellow are daily averages for this month.														
2001	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 3-9Sept	52	267	66	336	46	236	48	246	41	208	45	231	48	246
Wk2 10-16Sept	52	267	66	336	46	236	48	246	41	208	45	231	43	218
Wk 3 17-23Sept	53	269	67	344	55	282	52	264	38	192	42	213	57	292
*Wk 4 24-30Sept	50	254	64	328	37	187	44	226	43	221	48	246	44	226
OCTOBER 2001														
2001	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
*Wk 1 1-7Oct	36	182	65	333	45	231	48	246	41	210	31	159	31	159
Wk 2 8-14Oct	37	187	35	180	49	251	49	249	34	172	33	167	35	180
Wk 3 15-21Oct	40	203	47	239	29	149	32	164	44	226	40	203	34	172
Wk 4 22-28Oct	37	190	43	221	36	182	32	162	31	156	49	251	24	123
Wk 5 29-4 Nov	28	144	40	205	34	172	34	172	26	131	29	149	38	192
NOVEMBER 2001														
2001	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 5-11Nov	46	236	34	172	28	141	24	121	22	113	33	169	37	190
Wk 2 12-18Nov	40	203	23	115	22	113	28	144	31	156	26	133	30	154
Wk 3 19-25Nov	20	103	23	118	31	159	23	118	18	90	27	139	34	174
Wk 4 26-2Dec	27	136	31	156	24	123	24	123	27	139	20	103	16	80
DECEMBER 2001 Blue = Public Holidays														
2001	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 3-9Dec	19	95	22	113	23	115	18	92	20	103	22	113	13	67
Wk 2 10-16Dec	19	97	16	82	15	74	14	69	19	95	24	123	18	92
*Wk 3 17-23Dec	20	103	15	77	20	103	18	90	18	92	16	82	18	92
*Wk 4 24-30Dec	18	90	8	38	20	103	23	115	24	123	21	108	25	126

JANUARY 2002														
Blue = Public Holidays														
2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
*Wk 1 31-6Jan	22	110	25	128	27	139	29	149	32	162	25	128	20	103
*Wk 2 7-13Jan	20	103	20	103	29	146	25	128	29	149	17	87	19	95
*Wk 3 14-20Jan	19	97	22	113	12	59	18	92	12	62	20	103	16	82
*Wk 4 21-27Jan	16	82	18	92	11	56	15	74	17	87	15	77	18	90
Wk 5 28-3Feb	19	97	16	80	13	64	17	87	10	49	13	67	12	59
FEBRUARY 2002														
2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 4-10Feb	14	69	19	97	12	59	14	72	12	59	20	100	20	100
Wk 2 11-17Feb	12	62	20	103	11	54	21	105	18	90	18	90	13	64
Wk 3 18-24Feb	17	87	18	90	11	54	15	77	12	59	15	74	24	123
Wk 4 25-3Mar	10	51	17	87	14	69	12	62	10	51	9	44	10	49
MARCH 2002 Data highlighted in yellow are the daily averages for this month.														
2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 4-10Mar	11	54	14	69	20	100	18	92	12	59	20	103	20	103
Wk 2 11-17Mar	18	92	14	72	23	115	23	118	13	67	13	67	19	95
Wk 3 18-24Mar	25	126	23	118	28	144	21	108	12	59	21	105	24	123
Wk 4 25-31Mar	16	82	19	95	23	118	21	108	29	146	36	182	34	174
APRIL 2002														
Blue = Public Holidays														
2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
*Wk 1 1-7Apr	29	149	27	136	25	126	35	177	31	156	34	172	29	146
Wk2 8-14Apr	29	149	25	128	30	151	27	139	37	190	18	90	30	151
Wk3 15-21Apr	27	136	32	164	26	131	33	167	24	123	37	187	27	136
Wk4 22-28Apr	33	169	40	203	31	159	38	195	38	192	52	264	36	182

**MAY 2002** Blue = Public Holidays

2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 29-5May	35	177	48	244	39	200	49	251	49	249	55	282	73	372
Wk 2 6-12May	49	251	40	203	24	123	14	69	10	51	9	44	8	38
Wk 3 13-19May	26	131	49	251	40	205	32	164	41	208	31	156	48	246
Wk 4 20-26May	42	215	48	246	39	200	50	257	31	159	40	205	37	190
Wk 5 27-02Jun	51	259	38	192	45	231	31	159	34	172	42	213	36	185

**JUNE 2002** Blue = Public Holidays

2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 03-09Jun	43	218	44	226	44	223	41	208	53	269	49	249	59	303
Wk2 10-16Jun	39	198	56	285	85	436	60	305	48	244	68	349	58	298
Wk3 17-23Jun	71	364	69	351	60	308	85	433	69	354	75	385	70	357
Wk4 24-30Jun	92	472	102	521	79	405	77	395	76	387	83	426	83	426

**JULY 2002** Data highlighted in yellow are the daily averages for this month.  
Data highlighted in green are the daily averages for the entire data set.

2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 01-07Jul	111	569	95	487	105	539	93	475	84	431	98	503	82	421
Wk2 08-14Jul	90	462	97	495	126	646	134	685	93	477	33	169	33	170
Wk3 15-21Jul	101	518	96	492	116	595	114	585	89	457	33	169	33	170
Wk4 22-28Jul	101	518	96	492	116	595	114	585	89	457	33	169	33	170

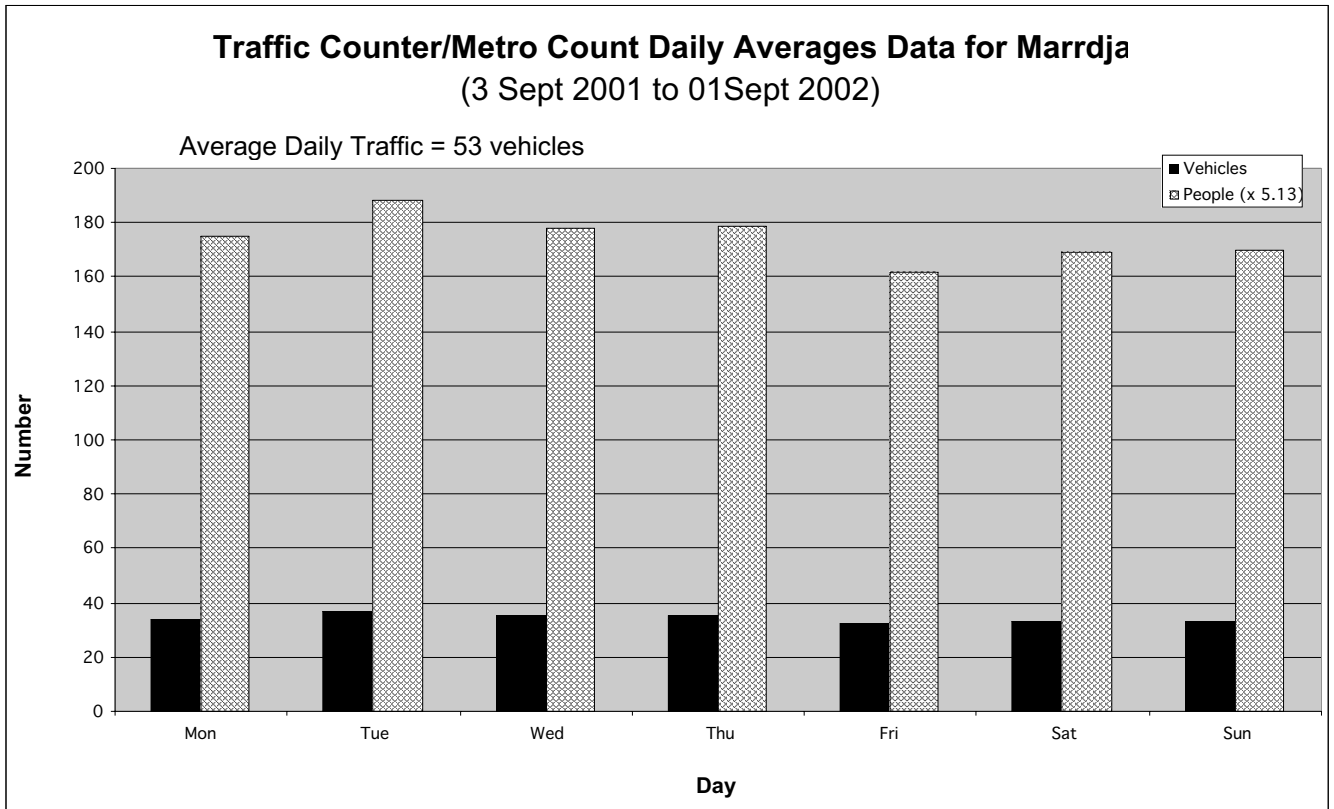
**AUGUST 2002** Data highlighted in green are the daily averages for the entire data set. Metro count system malfunctioned.

2002	MON		TUE		WED		THU		FRI		SAT		SUN	
	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People	Vehicles	People
Wk 1 29-04Aug	34	175	37	188	35	178	35	179	32	162	33	169	33	170
Wk2 05-11Aug	34	175	37	188	35	178	35	179	32	162	33	169	33	170
Wk3 12-18Aug	34	175	37	188	35	178	35	179	32	162	33	169	33	170
Wk4 19-25Aug	34	175	37	188	35	178	35	179	32	162	33	169	33	170
Wk5 26-01Sept	34	175	37	188	35	178	35	179	32	162	33	169	33	170

<b>AVERAGES</b>	34	175	37	188	35	178	35	179	32	162	33	169	33	170
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**Note:** \* These dates indicate school holidays;  
People estimates are based on vehicle numbers x 5.13, the average number of people in vehicles established from questionnaire, item # 8.  
Data highlighted in green or yellow were not included in the overall averages.





**Figure 10:** Average daily vehicle and visitor numbers for Marrdja.



## Section Four

### *Management Considerations*



- 
- Presentation
  - Opportunities
  - Specific Problems & Issues
-

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## *Presentation*

- **Significance**                    *WHA Status, Natural & Cultural Attributes, Historical Context*
  - **Management Agency**   *Identity and Presence, Conservation and Protection*
  - **Information**                    *Sources and Signage*
  - **Structural Features**   *Layout and Design, Infrastructure and Facilities*
- 

*The Wet Tropics Management Authority (WTMA) was established to manage the area to meet Government commitments under the World Heritage Convention which are specifically to protect, conserve, **present**, transmit to future generations, and rehabilitate the Wet Tropics WHA (WTMA, 2000, pg.4).*

Presentation in the context of a World Heritage property and with respect to WTWHA visitor sites encompasses the significance and meaning of World Heritage status, the nature of the natural and cultural attributes as ‘heritage values’ for which an area has been listed, and the historical context of the site, including its natural history and history of human use, association and meaning. Presentation also encompasses a number of other management responsibilities, including maintenance, communication, site design, amenity provision, and identification of those authorities and agencies responsible for the management of the site. While many of these considerations are often subsumed under the term ‘interpretation’, the term presentation is used here along with subheadings to more directly address the specific mandate and multiple responsibilities of a World Heritage management authority.

### ● **Significance:**                    *WHA Status, Natural and Cultural Attributes*

**WHA Status**                    Unlike most other sites in the WTWHA, over half (58 percent) of visitors surveyed at Marrdja were aware that it was a WTWHA site (Section 1 Visitor Survey pgs 34- 35). This is especially noteworthy in that 72 percent of visitors surveyed were from overseas. In contrast, sites in the wet tropics which experience high local visitation rates present considerably lower ‘awareness’ figures. This suggests a possible link between place of residence and knowledge of WHA status. However, it also must be noted that Marrdja has a clearly presented and prominently located Wet Tropics World Heritage Area sign adjacent to the car park. In many of the other sites surveyed such signage is absent (Section 2 Sign Inventory pgs 53-54). In addition, many visitors to Marrdja are on guided tours (Section 1 Visitor Survey pgs 22-23), and consequently tour operators may be informing their clients on the World Heritage status of Marrdja during their tour.

**Natural and Cultural Attributes**                    A principal aspect of presentation of a WTWHA site is natural and cultural heritage interpretation. Most of the interpretive material available to visitors at Marrdja presents the natural attributes of the site, in particular the history and evolution of the rainforests in the Daintree region (Section 2 Sign Inventory pgs 54-55). Many visitors identified this information as enhancing their visit to Marrdja, while others requested more natural and ecological information (Section 1 Visitor Survey pgs 42-43). On the other hand, cultural heritage interpretation is minimal (Section 2 Site Inventory pgs 53-55). Additional information visitors would like to see included cultural and historical information, in particular indigenous occupation and significance of the area.

### ● **Management Agency:**                    *Identity and Presence, Conservation and Protection*

**Identity & Presence**                    A related presentation issue is level of visitor and other user awareness of the management agency responsible for management of the site. It is a concern that 84 percent of visitors did not know who the management agency responsible for Marrdja was (Section 1 Visitor Survey pg 34-35). This may be due to the lack of signage specifically identifying this as a National Park site (Section 1 pg 22-23; Section 2 Sign Inventory pgs 53-54), and tour guides not informing visitors about this. This lack of awareness and/or confusion amongst

visitors has clear implications for the nonreporting of critical incidents or damage, the provision of any type of feedback to managers, the public representation of agencies, and management performance monitoring.

**Conservation & Protection** Clearly visitors and other users appear to be impressed with the overall management and condition of Murrumbidgee as indicated by direct and indirect item responses relating to their appraisal of the condition and management of the natural and built environments (Section 1 Visitor Survey pgs 26-27; 32-33). While the majority of visitors strongly agreed that the natural environment appeared to be in good condition, comments made by visitors highlight their awareness of the presence and impact of feral pigs on the natural environment at Murrumbidgee (Section 1 Visitor Survey pgs 26-27; 43-46). This concern surfaces again when visitors' rate the presence of feral animals and plants as an environmental threat (Section 1 Visitor Survey pg 41). In addition, their perceptions of the quality/status of biophysical and structural indicators of impact (Section 1 Visitor Survey pg 38-39) were closely aligned with those of the researchers who had undertaken a comprehensive assessment at the site at the same time (Section 2 Site Inventory, pg 56-57; Wilson 2002).



## Information

### *Sources and Signage*

**Sources** Presentation of the WTWHA and the decision to visit sites such as Murrumbidgee is closely linked to and influenced by the way in which relevant information is accessed or sourced. Clearly the high non-local use of this site would explain the high use of information sources such as word of mouth, road signs, travel guides and books, and the trip being included in a package tour by this respondent group (Section 1 Visitor Survey, pg 22-23). The high use of such sources indicates that Murrumbidgee is a well publicised tourist attraction, particularly in travel centres or books for tourists.

**Signage** Another important presentation issue and management responsibility at sites such as Murrumbidgee is the provision of signage that clearly identifies rules and regulations, safety issues, and directions. Here at Murrumbidgee such signage is mainly directional which is evident in the car park and on the walking track / boardwalk (Section 2 Sign Inventory pgs 53-55). In addition, visitor appraisal of various aspects of such signage was moderately high (Section 1 Visitor Survey pgs 30-31), and their overall condition was found to be good (Section 2 Sign Inventory pg 51-55).



## Structural Features

### *Layout and Design, Infrastructure and Facilities*

**Layout and Design** The current site layout and design at Murrumbidgee appears to be legible, functional and sensible (Section 2 Site Inventory pg 56-57), and is able to mitigate potential use conflicts and distribute visitors along the boardwalk in a way which minimises crowding. The circuit nature of the track and the carefully considered timing of the tour groups ensures a continuous flow of visitors along boardwalk.

**Infrastructure and Facilities** The infrastructure and facilities at Murrumbidgee appears to not only provide for most of the visitor needs but in addition are highly regarded as indicated by direct and indirect item responses relating to visitor appraisal of the adequacy, appeal, condition and management of the built environment (Section 1 Visitor Survey pgs 32-33). All facilities present are well used (Section 1 Visitor Survey pgs 32-33). The infrastructure, particularly the boardwalk and interpretive signage present at Murrumbidgee was commented on by some visitors as enhancing and increasing their enjoyment of the site. It appears that the built-natural environment association is working well at Murrumbidgee.

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## Opportunities

● **Recreational**

**Activity-based Opportunities**

● **Experiential**

**Experience-based Opportunities**

● **Educational**

**Knowledge-based Opportunities**

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Opportunities in the context of protected area visitor sites have traditionally been seen to encompass a spectrum of activity-based recreation prospects within which experience-based opportunities have been embedded. Knowledge-based considerations have on the whole been absent. Here in this discussion this concept has been broadened to profile and highlight the importance of experience-based and knowledge-based opportunities in addition to activity-based opportunities at sites such as Murrumbidgee as separate but interlinked entities. The term opportunities along with the subheadings thus allow for a more direct linking of management considerations to specific visitor needs in terms of opportunities sought, available and utilised.

● **Recreational**

*Activity-based*

**Activity-based** The activity-based recreational opportunities available at Murrumbidgee are limited compared to other WTWHA sites due to the nature of the environment, and location and layout of facilities. The main activity available is a short walk along the boardwalk. The site does not cater for longer bush walks or wilderness adventure activities, nor does it provide for picnics. This makes it an ideal spot for tour group short stopovers. The activities reported by respondents (Section 1 Visitor Survey pgs 28-29; 32-33) indicate that the site was providing for and facilitating those activities which most visitors were seeking in a reasonable way.

● **Experiential**

*Experience-based*

**Experience-based** Experience-based opportunities at Murrumbidgee include nature watching, as well as the opportunity of encountering, experiencing, and appreciating the WTWHA. Such opportunities were identified by visitors as being the most important in terms of their reasons for visiting this site (Section 1 Visitor Survey pg 24-25), and were significantly more important than activity-based reasons. Visitors rated their experience at Murrumbidgee as being highly enjoyable and well worth the money. This would suggest that the environment at Murrumbidgee (both natural and structural) is as visitors expected.

● **Educational**

*Knowledge-based Opportunities*

**Knowledge-based** Knowledge-based opportunities at Murrumbidgee are well integrated with the main structural feature of the site, the boardwalk. The knowledge-based opportunities at Murrumbidgee are clearly linked to the natural attributes of the site, particularly the evolutionary history and geological aspects. The immediate availability and accessibility of a variety of forest types, and the diversity of flora and fauna present provide endless knowledge-based opportunities. While the information presented at Murrumbidgee appears to enhance visitor enjoyment of the site as indicated by visitor comments (Section 1 Visitor Survey pgs 43-46), nevertheless visitors requested that there be additional information on wildlife and plants and cultural and historical information (Section 1 Visitor Survey pg 43).

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## *Specific Problems and Issues*



### **Issues**

### *Use/User Conflicts, Inappropriate Behaviour, Crowding and Overuse*

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Murrumbidgee does not appear to present any substantial problems or issues. It is a well-managed, well-maintained site which has a moderate but manageable volume of visitation and use (Section 3 Traffic Information pg 66). Nevertheless there are some minor issues and concerns that are related to visitor behaviour and use of the site that require consideration.



### **Problems & Issues**

### *Use/User Conflicts, Inappropriate Behaviour, Crowding and Overuse*

**Use/user conflict** Overall, use/user conflict appears to be fairly minimal at this site as evident in the visitor assessment of the behaviour of others (Section 1 Visitor Survey pg 36-37). This is largely due to site layout and design (Section 2 Site Inventory pg 50-51), and due in part to the moderate levels of visitation despite the organised tours which frequent the site (Section 3 Traffic Information pg 66).

**Inappropriate Behaviours** Inappropriate behaviours varied at Murrumbidgee, and although, as single events they do not present a major problem to the natural environment and to other people, the cumulative effect can be considerable over time. With regards to the natural environment, behaviours such as littering, the presence of domestic animals and taking short cuts off the track were observed (Section 1 Behavioural Observations pg 48). Visitors also reported people running around the site, disturbing the wildlife and being too loud, which were reported to have impacts on those who were wanting a more tranquil experience at Murrumbidgee (Section 1 Visitor Survey pg 43).

**Crowding and Overuse** It is also noteworthy that some visitors commented on the large tour groups and crowds that were present at Murrumbidgee. Visitors commented that crowds and tours detracted from their enjoyment of the site (Section 1 Visitor Survey pgs 43-45).





## References

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- Accom Port Douglas (APD). (n.d.). *Accommodation Port Douglas: Aboriginal History*. Retrieved November 21, 2002 from: <http://www.accomportdouglas.com.au/aboriginal.htm>
- Bentrupperbäumer, J. M. & Reser, J. P (2000) *Impacts of Visitation and Use: Psychosocial and Biophysical Windows on Visitation and Use in the Wet Tropics World Heritage Area*. Cooperative Research Centre for Tropical Rainforest Ecology and Management: Cairns (pp 285).
- Bentrupperbäumer, J. M. & Reser, J (2002a) *Measuring and Monitoring the Impacts of Visitation and Use in the Wet Tropics World Heritage Area: A Site Based Bioregional Perspective*. Rainforest Cooperative Research Centre: Cairns.
- Manidis Roberts Consultants (1993) *Data Summary 1993 Wet Season Visitor Use Survey Wet Tropics World Heritage Area*. Report to Wet Tropics Management Agency: Cairns.
- Manidis Roberts Consultants (1994) *Data Summary 1994 Visitor Use Survey Wet Tropics World Heritage Area*. Report to Wet Tropics Management Agency: Cairns.
- Queensland Department of Environment and Heritage & Department of Primary Industries. (1993). *Shades of Green. Exploring Queensland's Rainforests*. Queensland Government Document: Brisbane.
- Queensland Government: Environmental Protection Agency. (2001). *Master Plan for Queensland's Parks System*. Queensland Government: Brisbane.
- Ritchie, R. (1995) *North Queensland Wet Tropics*. Rainforest Publishing: Millers Point.
- SitePlan (1993) *Wet Tropics Visitor Facilities Audit*. Report to Wet Tropics Management Agency: Cairns.
- Wilson, R. (2002) *Wet Tropics World Heritage Area Visitor Monitoring System*. Rainforest Cooperative Research Centre: Cairns. *In preparation*.
- WTMA (1994 -1997) *Traffic Counter Program Data Sets*. Excel data files provided by the Wet Tropics Management Authority: Cairns.
- WTMA (1996). *Wet Tropics in Profile: A Reference Guide to the Wet Tropics of Queensland World Heritage Area*. Wet Tropics Management Authority: Cairns.
- WTMA (1997) *Protection through Partnerships: Policies for the Implementation of the Wet Tropics Plan*. Wet Tropics Management Authority: Cairns.
- WTMA (1999). *Wet Tropics World Heritage Area*. Retrieved November 21, 2002 from: <http://www.wettropics.gov.au/>
- WTMA (2000). *A Handbook for Tour Guides Daintree River to Cape Tribulation*. Wet Tropics Management Authority: Cairns.

## ***WTWHA Reports 2001/2002***

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The reports produced by the Rainforest CRC Project 4.1 research team for the 2001 and 2002 Wet Tropics World Heritage Area site surveys and the Wet Tropics World Heritage Area community survey are listed below.

### **WTWHA Site Level Data Reports:**

- Bentrupperbäumer, J. M. (2002a) *Murray Falls: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002b) *Davies Creek: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002c) *Barron Falls: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002d) *The Crater: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002e) *Lake Barrine: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002f) *Marrdja: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002g) *Big Crystal: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002h) *Goldsborough: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002i) *Henrietta Creek: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. (2002j) *Mossman Gorge: Site Level Data Report 2001/2002*. Rainforest Cooperative Research Centre: Cairns.
- Bentrupperbäumer, J. M. & Reser, J.P. (2002a) *Measuring and Monitoring the Impacts of Visitation and Use in the Wet Tropics World Heritage Area: A Site Based Bioregional Perspective*. Rainforest Cooperative Research Centre: Cairns.  
 - Attachment: *Research Procedural Manual: Measuring and Monitoring the Impacts of Visitation and Use in the Wet Tropics World Heritage Area*. Rainforest Cooperative Research Centre: Cairns.

### **WTWHA Community Survey Reports:**

- Bentrupperbäumer, J. M. & Reser, J.P. (2002b) *The Role of the Wet Tropics in the Life of the Community: A Wet Tropics World Heritage Area Community Survey 2001/2002*. Rainforest Cooperative Research Centre: Cairns.  
 - Attachment: *Research Procedural Manual: Wet Tropics World Heritage Area Community Survey 2001/2002*. Rainforest Cooperative Research Centre: Cairns.