ISSN 1327-8231

ECONOMICS, ECOLOGY AND THE ENVIRONMENT

Working Paper No. 76

Visitor Profiles and Environmental Attributes, especially of Birds, Attracting Visitors to Lamington National Park: Tourist Attitudes and Economic Issues

by

Clem Tisdell and Clevo Wilson

March 2003

THE UNIVERSITY OF QUEENSLAND

ISSN 1327-8231

WORKING PAPERS ON
ECONOMICS, ECOLOGY AND THE ENVIRONMENT

Working Paper No. 76

Visitor Profiles and Environmental Attributes, especially of Birds, Attracting Visitors to Lamington National Park: Tourist Attitudes and Economic Issues

by

Clem Tisdell* and Clevo Wilson*

March 2003

* School of Economics, The University of Queensland, Brisbane 4072 Australia.
Email: c.tisdell@economics.uq.edu.au

WORKING PAPERS IN THE SERIES, *Economics, Ecology and the Environment* are published by the School of Economics, University of Queensland, 4072, Australia, as follow up to the Australian Centre for International Agricultural Research Project 40 of which Professor Clem Tisdell was the Project Leader. Views expressed in these working papers are those of their authors and not necessarily of any of the organisations associated with the Project. They should not be reproduced in whole or in part without the written permission of the Project Leader. It is planned to publish contributions to this series over the next few years.

Research for ACIAR project 40, *Economic impact and rural adjustments to nature conservation (biodiversity) programmes: A case study of Xishuangbanna Dai Autonomous Prefecture, Yunnan, China* was sponsored by the Australian Centre for International Agricultural Research (ACIAR), GPO Box 1571, Canberra, ACT, 2601, Australia.

The research for ACIAR project 40 has led in part, to the research being carried out in this current series.

For more information write to Professor Clem Tisdell, School of Economics, University of Queensland, Brisbane 4072, Australia. Email
c.tisdell@economics.uq.edu.au

Visitor profiles and environmental attributes, especially of birds, attracting visitors to Lamington National Park: Tourist attitudes and economic issues

Table of Contents

List of Tables

List of Figures

Visitor profiles and environmental attributes, especially of birds, attracting visitors to Lamington National Park: Tourist attitudes and economic issues

1. Abstract

Uses a sample of 622 day and overnight visitors to the O' Reilly's/Green Mountains site of Lamington National Park, Queensland, Australia, to identify their socio-economic and other pertinent characteristics and the main reasons and attributes that attract them to the site. Particular attention is given to birds and their attributes as attractions. The primary economic injection accruing locally as a result of visits is examined and the difference that the presence of birds makes to local expenditure by visitors is explored. The extent of support for and objection to the introduction of a fee for entering Lamington National Park is estimated. The many suggestions received from visitors for environmental improvements at this site are discussed. It is suggested that unless a way can be found to regulate the number of visitors to this site and obtain extra funds to finance improvements at this site, the magnitude of many of these problems will grow. This will necessitate a fresh look at the desirability or otherwise for charging entry fees to Lamington National Park.

Keywords: Birds and tourism, economic impact, ecotourism, entry fees, Lamington National Park, recreational parks, tourism economics, wildlife-based tourism

2. Introduction

Lamington National Park (LNP), located in the hinterland of the Gold Coast in southeast Queensland, Australia (see for example Leonard, 2000), is an important natural tourist attraction, both for Australians and overseas visitors. It is well known for its rainforests and is World Heritage listed as part of the Central Eastern Rainforest Reserves of Australia (CERRA). The national park receives both day visitors and those staying for one or more nights. Overnight tourists may stay within the park area in the privately provided lodge accommodation at O'Reilly's Rainforest Retreat located in the Green Mountains area or at Binna Burra Mountain Lodge located at Binna Burra or camp near these sites on grounds provided by the Queensland Parks and Wildlife Service (QPWS) at both sites and by private operators at Binna Burra. A limited amount of private accommodation is also available within a short driving distance of the national park. The location of the park is shown in Figure 1 and the Binna Burra and O'Reilly's/Green Mountains sites are marked.

Figure 1. Generalized location maps of Lamington National Park (LNP)

Source: Based on the Joint Tourism Committee (2000) regional map of Southeast Queensland published in 'The Guide'.

Note: National park area is shaded in grey and private properties within the park are shown in white. Main roads are shown by solid lines.

It has two main entrances – one leads to Binna Burra and the other to Green Mountains. According to vehicle counters, QPWS recorded 108,551 vehicles entering at Binna Burra

in 2001 and 77,209 at Green Mountains[1]. It is the most frequently visited national park in Queensland (Moon and Moon, 2000) and is one of the first national parks to be declared in Queensland being established in 1915 (Jarrott, 1995). This property is unusual in the Queensland setting because two areas of private (one at Binna Burra and the other, O'Reilly's at Green Mountains) land within the boundaries of the park have been developed by private enterprises as the base for tourist businesses. The emphasis of both main businesses is on ecotourism (cf. Wheeler and Lawton, 2001) and they rely heavily on the use and attributes of the surrounding National Park for their economic viability and sustainability of their business. Most visitors to Lamington NP come to the areas where the parcels of private property within the national park and the national park adjoin one another. Many day visitors, for example, who mainly visit the attractions of O'Reilly's use the adjoining Green Mountains car park partly located on QPWS property (see Figure 2). Given our limited resources, we decided to concentrate on surveying visitors to the O'Reilly's/Green Mountains site.

We surveyed visitors to the O'Reilly's/Green Mountains site in the period October, 2001 to March, 2002 using a structured questionnaire (see Appendix I) so as to obtain both a sample of overnight visitors (tourists) and day visitors, and received 622 usable responses. This includes data collected from the pilot study. One purpose of the survey was to provide a socio-economic profile of visitors, and identify their reasons for visiting this site and the comparative importance to them of the attributes of LNP attracting them to this site. Particular attention was given to birds and their attributes as attractions.

We noted that Jones and Buckley (2001), drawing in part on Wheatley (1998), do not list LNP as a main or secondary location for bird-watching in Australia. Nevertheless, bird-watching is a significant attraction to LNP, both for generalist visitors and specialist bird-watchers. For example, Birding Tours Worldwide (2003), which is published in America, promotes O'Reilly's as one of the important birding locations for their tours in Australia. LNP is also promoted by the O'Reilly's Rainforest Retreat and the Binna Burra Mountain Lodge tourist operators as a bird-watching destination.

This study is partly designed to measure the relative importance of birds and their attributes as factors influencing visitors travel to LNP. Although birds are the most visible, brightly hued (especially parrots and wrens) and vocal form of Australian animal wildlife, particularly by day, little assessment has been done of their relative importance as attractions to Australia's protected areas having multiple natural attributes, such as LNP. Even less attention has been given to the assessment of the characteristics of birds that tourists find appealing in such a natural setting. This case study helps to rectify the situation.

This exercise also enables local economic impacts of visitors to the O'Reilly's/Green mountains site to be estimated generally and predictions to be made of the difference that the presence of birds makes to visitation rates, and duration of stays at this site, along with economic consequences of their presence. It is known that bird-watchers often make substantial financial contributions to the localities they visit (cf. Kerlinger and Brett,

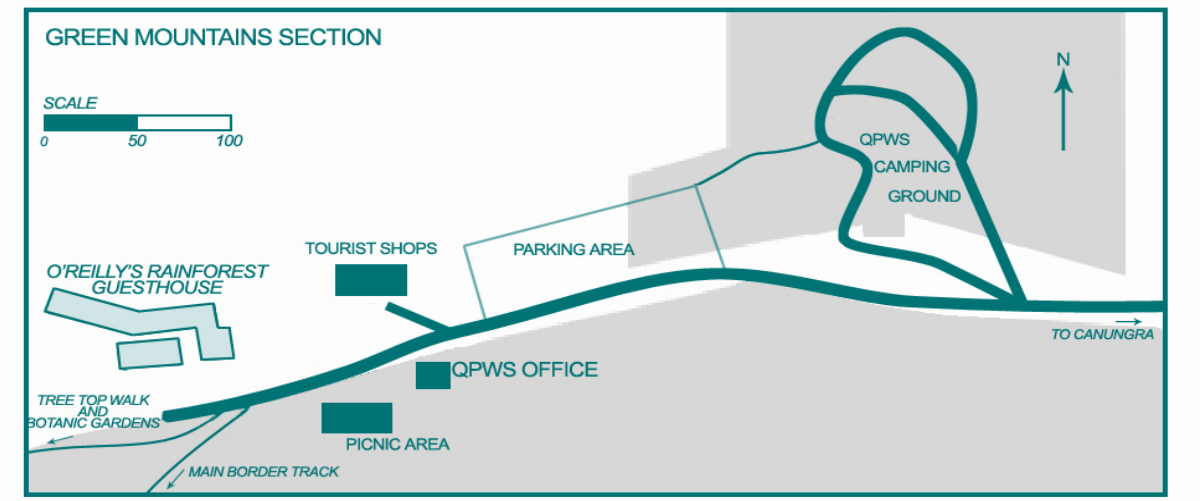
[1] Unpublished data supplied in personal communication by QPWS rangers in 2003.

1995, US Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, 1996). Information is also provided on the willingness of individuals to pay for entry to LNP as well as the time that respondents allocated to different activities in LNP. The question of whether entry fees should be charged is especially important in the present climate of park agencies moving towards greater commercialization (Figgis, 2000).

3. The nature of the survey and the socio-economic profile of respondents

Potential respondents were given the structured questionnaire in the period October, 2001 to March, 2002 in as random a fashion as possible. Approximately 225 (with a 34% response rate) were distributed by O'Reilly's Rainforest Retreat to their guests and a further 1,536 (with a 35% response rate) were handed out at or near the Green Mountains Car Park that adjoins O'Reilly's (see Figure 2) so as to ensure that a selection of day visitors were included in the sample as well as some visitors from the nearby QPWS camping ground. Potential respondents were provided with a postage-paid return envelope as well as the survey form. One form per family, party, or an individual travelling on his/her own were distributed. In total, the respondents were accompanied by 1,937 adults and 364 children. So the total size of the parties together was 2,301 with an average party size of 3.85[2].

Figure 2. Site map showing Green Mountains Section of LNP and O'Reilly's property



Source: Based on QPWS (2001) information brochure on Lamington National Park.
Note: Grey shading shows national parks property and white area shows private property.

While the response rate may seem quite low, such response rates are not unusual for surveys of this nature. In fact, responses are frequently in the low 30s (cf. Jakobsson and Dragun, 1996).

[2] These figures do not include pilot survey data. There were 23 pilot forms completed and 599 non-pilot. The pilot survey collected slightly less data than the post pilot survey.

There were 622 completed forms (pilot plus post pilot ones). The majority of respondents were day visitors or did not stay at or near this site (385 or 62%), whereas 237 (38%) did. Of those staying overnight at this site or nearby, the majority (148)[3] or 62% stayed at O'Reilly's Rainforest Retreat, 47 (20%) stayed at the QPWS camping ground and 42 (18%) had accommodation nearby.

In terms of frequency of visits by those in the whole sample, the relative frequency distribution was of a U-shape, as can be seen from Table 1. Visitors either tended to be on their first visit or to have visited more than three times. This U-shape is evident for both day and overnight visitors. This may indicate a high degree of visitor 'loyalty' to this site.

Table 1. Number of sampled visitors classified by frequency and relative frequency of their visits and whether they are day or overnight visitors to O' Reilly's/Green Mountains, Lamington National Park

Number of visits	**Day visitors**		**Overnight visitors**		**Total**	
	Number	**%**	**Number**	**%**	**Number**	**%**
First time visitors	176	(59, 46)	124	(41.3, 52.1)	299	(100, 48.1)
Second time Visitors	29	(52, 7.5)	27	(48.2, 11.4)	56	(100, 9)
Third time Visitors	33	(62.3, 8.5)	20	(37.7, 8.5)	53	(100, 8.5)
More than three times	144	(68. 5, 37)	66	(31.4, 28)	210	(100, 33.7)
No response	03	(75, 0.78)	01	-	04	(0, 0.6)
Total	**385**	**(61.3, 100)**	**237**	**(38.1, 100)**	**622**	**(100, 100)**

The modal age of respondents was in the 50-60 years range and more than 80% of respondents were over 30 years of age. At least two-thirds of the sample had tertiary educational qualifications with 15% having postgraduate degrees (see Table 2). The educational background of respondents was well above the average in the Australian population. Furthermore, the family annual income of respondents was relatively high as can be seen from Table 3. This is partly explained by the presence of a high proportion of ecotourists, especially bird-watchers who are in general well educated and have above average incomes (Sekercioglu, 2002; Ceballos-Lascurain, 1996). According to Cordell and Herbert (2002) the income of an average bird-watcher in the USA is US $50,000 and about a third of the birdwatchers have at least a college degree. Apart from being well educated, bird-watchers also have a high degree of ecological knowledge and a high awareness of conservation issues (Cordell and Herbert, 2002). But the results in our sample are not solely explained by the presence of specialist bird-watchers since they constitute only a fraction of the sample. The results suggest that most ecotourists (nature

[3] Three of the O'Reilly's Rainforest Retreat visitors also stayed at the QPWS camping grounds for part of their visit.

lovers) have similar characteristics to bird-watchers. Most visitors were nature lovers with 59% expressing strong or very strong support for nature conservation.

Table 2. Frequency and relative frequency of levels of education of the sampled visitors to LNP (O'Reilly's/Green Mountains site)

Education level	Number	Relative Frequency (%)
Primary only	15	2.4
Some secondary schooling	24	3.8
Completed year 10	56	9.0
Completed year 12	74	11.9
Trade certificate	70	11.2
Diploma	56	9.0
Tertiary education	293	47.2
No response	34	5.5
Total	**622**	**100**

Table 3. Levels of income in Australian dollars among the sampled visitors to LNP (O'Reilly's/Green Mountains site) – frequency and relative frequency

Income range	Number	Relative Frequency (%)
Below $20,000	55*	8.84
$20,001-30,000	64	10.28
$30,001-40,000	76	12.20
$40,001-50,000	69	11.09
$50,001-60,000	69	11.09
$60,001 and above	192	30.86
No response	97	15.60
Total	**622**	**100**

Note: Includes 2 pensioners and 1 retired person

Of the respondents 499 (80.22%) were from Australia, 121 from overseas (19.45%) and 2 (0.32)% did not answer this question. Of those responding, more than 68% of the Australian visitors were from Queensland. This is largely explained by proximity factors. A visit to O' Reilly's is a convenient day trip from southeast Queensland (e.g. Brisbane and the Gold Coast). The composition of visitors is shown in Table 4. Because of the language barrier, Japanese in all probability were under represented in our sample. British Commonwealth countries, the USA and Germany top the list of visitors to this site. As can be seen from Table 4, Green Mountains is very popular with tourists from the UK.

Table 4. Nationality and state of origin of Australian visitors to O'Reilly's/Green Mountains, LNP

Overseas visitors	No	Relative frequency (%)	Australian visitors	No	Relative frequency (%)
UK	41	33	QLD	339	68
USA	19	15	NSW	82	16
Germany	18	14	VIC	29	06
NZ	10	08	ACT	00	0
Canada	09	07	SA	14	03
Ireland	04	03	WA	09	02
Japan	03	02	TAS	03	0.6
Other*	17	14	NT	02	0.4
			NR+	21	04
Total	**121**	**100**	**Total**	**499**	**100**

* Includes two respondents who did not indicate their nationality. + No response
Note: Two respondents did not indicate their nationality.

As could be expected the relative frequency of day visitors was larger among Australian visitors than among foreign visitors and vice versa for overnight visitors. This is shown in Table 5.

Table 5. Composition of sampled visitors to O'Reilly's/Green Mountains, LNP by duration of stay and nationality – frequency and relative frequency

	Day Visitors		Overnight Visitors		Total	
Nationality	Number	Relative frequency (%)	Number	Relative frequency (%)	Number	Relative frequency
Australia	332	(66.5, 82.2)	167	(33.4, 70.4)	499	(100, 80.2)
Overseas	51	(42.1, 17.8)	70	(57.8, 29.5)	121	(100, 19.4)
No response	02	(100, 0.52)	-	-	02	(100, 0.3)
Total	**385**	**(61.9, 100)**	**237**	**(38.1, 100)**	**622**	**(100, 100)**

Only 20% (124) of the respondents said that they are members of any nature conservation group, 75% (464) said they are not and 34 (5%) did not answer this question. Nevertheless, 59% (the majority), as can be seen in Table 6 were extremely strong or strong advocates of nature conservation. This may indicate that most 'free ride' by not being a member of any nature conservation organization and rely on the government in that regard to provide for nature conservation. It was also found that those who are members of one nature conservation group often belonged to several.

Table 6. Frequency and relative frequency of attitudes of sampled visitors towards nature conservation

	Number	Relative Frequency
Extremely strong advocate	126	20.55
Strong advocate	237	38.70
Moderate advocate	192	30.90
Neutral towards this subject	25	04.11
More oriented towards development	6	1.00
No response	29	4.75
Total	**622**	**100**

4. Stated reasons for visiting O'Reilly's/Green Mountains site and activities engaged in

Respondents were asked an open-ended question, "What is your main reason for visiting this site this time"? Their responses are summarised in Table 7. The most frequently mentioned reasons were (1) bush-walking (2) the appeal of the rainforest (3) sightseeing (4) accompanying visitors (5) having a picnic day out with children/family (6) bird-watching (7) relaxation.

Table 7. Main reason given by sampled visitors for visiting O' Reilly's/Green Mountains, LNP – frequency and relative frequency

	Day Visitors		Overnight Visitors		Total	
	Number	%	Number	%	Number	%
Bush-walking	86	(68.8,22.5	39	(31.2, 16.5)	125	(100, 20.2)
Rainforest	49	(59, 12.8)	34	(41, 14.3)	83	(100, 13.4)
Sightseeing	41	(71.4,	16	(28.6, 6.8)	57	(100, 9)
Show to visitors	50	(86.2,	8	(13.8, 3.4)	58	(100, 9.4)
Picnic with family	34	(91.9, 8.9)	3	(8.1, 1.3)	37	(100, 6)
Bird-watching	23	(50, 6)	23	(50, 9.7)	46	(100, 7.4)
Relaxation	13	(35.1, 3.4)	24	(64.9, 10.1)	37	(100, 6)
Holiday	8	(17.8, 2.1)	37	(82.2, 15.6)	45	(100, 7.3)
Heard from others	11	(50, 2.9)	11	(50, 4.6)	22	(100, 3.5)
Treetop walk	33	(91.7, 8.6)	3	(8.3, 1.3)	36	(100, 5.8)
Camping	0	(0,0)	12	(100, 5.1)	12	(100, 1.9)
Education/field trip	2	(20, 0.5)	8	(80, 3.4)	10	(100, 1.6)
Four wheel drive	4	(100, 1)	0	(0,0)	4	(100, 0.6)
Other reasons	13	(48.1, 3.4)	14	(51.9, 5.9)	27	(100, 4.4)
Not Responded	18	(77.3, 4.4)	5	(22.7, 2.1)	23	(100, 3.5)
Total	**385**	**(61.8,**	**237**	**(38.2, 100)**	**622**	**(100, 100)**

A more structured question was asked to assess the importance of various features at the O' Reilly's/Green Mountains site. It was presented in the following way: "We are trying to assess the importance of a number of features at this site and we would like your input. It would help us if you could say whether the following features of this site were 'very important', 'important' or 'unimportant' reasons for your decision to visit it".

The pattern of responses is reported in Table 8. Using the weighting indicated, the presence of rainforest, followed by the presence of birds and getting close to nature are the main factors attracting visitors to this site. World Heritage listing comes relatively low on the list. This shows that mere listing of properties as World Heritage sites does not necessarily increase tourist visitation numbers significantly as argued by Tisdell and Wilson (2002). Clearly birds are one of the most important attractions.

Table 8. Importance to visitors of features at the O'Reilly's/Green Mountains' site – frequency and relative frequencies of responses

	Very Important		Important		Unimportant		N/r		Total	Weighted Average*
	No	%	No	%	No	%	No	%		
Good picnic spot	99	16	230	37	268	43	25	4	622	0.69
Bring visitors	154	26	198	33	212	35	35	6	599*	0.85
Cool Green spot	188	30	294	47	123	20	17	3	622	1.07
World Heritage listed	278	45	202	32	131	21	11	2	622	1.22
Place to get away from routine	318	51	220	35	67	11	17	3	622	1.37
Good starting point for walks	331	53	218	35	58	9	15	2	622	1.41
Considerable biodiversity present	332	53	225	36	43	7	22	4	622	1.42
Rare ecosystem	344	55	217	35	41	7	20	3	622	1.45
Getting close to nature	450	72	148	24	19	3	5	1	622	1.68
The presence of birds	471	76	134	22	15	2	2	0	622	1.74
The presence of rainforest	553	89	67	11	1	0	1	0	622	1.89

* Does not include pilot survey data. N/r = No response. The method of weighting is: 0 for unimportant, 1 for important and 2 for very important

In terms of the day's activities (the day on which they received their survey form), most respondents (85%) were involved in travelling to and from the park and those involved spent on average 3.1 hours in that activity. At least 77% of respondents completed O'Reilly's boardwalk and they spent on average 0.69 hours in this activity. Sixty one percent (61%) of respondents said that they engaged in bush-walking in the National Park spending on average 3.43 hours. In addition, 59% of the respondents visited O'Reilly's Botanic Gardens spending on average around 0.67 hours. Although only 23% said they engaged in bird-watching using specialist equipment, they spent a considerable amount of time on average in this activity. The number of hours devoted to this activity is 1.84 hours. Full details of the time spent in various activities are shown in Tables 9 and 10. It can be seen that while considerable use is made of QPWS facilities, facilities such as the boardwalk, supplied privately by O'Reilly's, are also widely used by visitors.

Tables 9. Number and relative frequency of visitors reporting engagement in various activities on the day of receipt of their questionnaire during their visit to O'Reilly's/Green Mountains, LNP

	Yes	%	No	%	N/r	%	Total
Traveling to and from LNP by motor vehicle	528	85	48	8	46	7	622
Board walk	461	77	83	14	55	9	599*
Bush-walking in national park	365	61	163	27	71	12	599*
Botanic Garden	354	59	180	30	65	11	599*
Photography generally	355	57	193	31	74	12	622
Picnicking and enjoying picnic facilities	209	34	325	52	88	14	622
Travelling in and around LNP by motor vehicle	207	33	321	52	94	15	622
Bird-watching using specialist equipment	145	23	386	62	91	15	622

* Pilot results are not included. N/r = No response

Table 10. Time spent on various activities as reported by visitors to O' Reilly's/Green Mountains, LNP on the day of survey

Activity	Number indicating time	Average hours
Bushwalking in National Park	246	3.43
Traveling to and from LNP by motor vehicle	455	3.1
Birdwatching using specialist equipment	77	1.84
Traveling in and around LNP by motor vehicle	162	1.5
Picknicking and enjoying picnic facilities	158	1.3
Photography generally	208	0.97
Boardwalk	294	0.69
Botanic Gardens	232	0.67

Note: Average hours spent has been calculated using only those who indicated the time spent.

Table 11 (a cross tabulation matrix) indicates the association of factors (cf. Bryman and Cramer, 1997) considered to provide an important or very important reason for visiting O'Reilly's/Green Mountains (see Table 7). Visual inspection suggests that two clusters of visitors are present. Those who said the site is 'important' or 'very important' for a picnic or as a place to bring visitors put less stress on ecological factors than those who said the site is 'important' or 'very important' for watching birds, nature, biodiversity, ecosystems or those who came for the World Heritage values. This may be explained by the presence of ecotourists, especially bird-watchers who's ecological knowledge is better than most generalists (Cordell and Herbert, 2002). The 'green' rating occupies a somewhat intermediate position. Strong positive associations exists between responses in relation to the rainforest, birds, nature, biodiversity and rare ecosystem.

Table 11. Cross tabulation of relative frequencies in percent with which respondents rated specified factors as important or very important in their decision to visit O'Reilly's/Green Mountains, LNP

	Rainforest	Birds	Picnic	Green	Visitors	Nature	Walks	Biodiversity	Ecosystem	Heritage	Getaway
Rainforest	100	80	36	45	49	78	63	65	68	62	60
Birds	79	100	41	47	52	69	56	64	63	61	55
Picnic	19	22	100	49	45	23	28	27	29	30	30
Green	35	38	71	100	58	40	44	43	43	46	49
Visitors	28	30	49	43	100	30	32	31	31	33	34
Nature	75	68	42	50	52	100	71	67	67	63	63
Walks	56	51	47	51	50	65	100	63	60	55	56
Biodiversity	59	59	47	49	49	63	64	100	81	65	51
Ecosystem	61	58	49	50	49	63	61	82	100	73	55
Heritage	48	49	44	46	45	51	48	56	62	100	49
Getaway	52	49	48	55	52	56	55	49	52	54	100

5. Particular attributes/aspects of birds as an attraction to the O'Reilly's/Green Mountains site

It was found, as reported above, that the birds at O'Reilly's/Green Mountains site are one of its most important attractions. The presence of birds was in fact ranked only second to the rainforest. Given their importance, it is useful to consider the attributes of birds that visitors consider to be important. A list of attributes was provided and respondents were approached with the following statement: "We would like to assess the value of birdlife at this site. Please help us by indicating the importance to you (in terms of whether they are 'very important', 'important', or 'unimportant') of the following attributes of birdlife at this site". The responses are summarised in Table 12. Using an index of importance it was found that hearing birds was to be the most important attribute followed closely by a large variety or diversity of birds as well as seeing lots of birds. For this group as a whole, seeing brightly coloured birds and having close physical contact with birds was of least importance. At the O'Reilly's site, crimson rosellas and king parrots (brightly coloured) and to a lesser extent regent and satin bower birds (males are brightly hued) are regularly fed by tourists. There is also close physical contact with these birds as well as brush turkeys and some other species of rainforest birds.

Table 12. Importance to visitors of various attributes of birdlife at O'Reilly's/Green Mountains site – frequency and relative frequency of responses

	Very important		Important		Unimportant		No response		Total	Index of importance*
	No	%	No	%	No	%	No	%		
Close physical contact with birds	218	35	217	35	176	28	11	2	622	1.05
Brightly coloured birds	200	32	257	41	146	23	19	3	622	1.05
Presence of rare birds	324	52	217	35	66	11	15	2	622	1.39
Seeing lots of birds	351	56	245	39	20	3	6	1	622	1.51
Large variety or diversity of birds	353	57	236	38	27	4	6	1	622	1.52
Hearing birds	375	60	231	37	14	2	2	0	622	1.57

* Index of importance has been calculated using the following weights: Very important 2; Important 1; Unimportant 0.

Two clusters of individuals seem to be represented as can be inferred from the cross tabulation matrix shown in Table 13. Those who found close physical contact with birds or those who thought that brightly coloured birds were important attributes at this site were less likely than others to rate the seeing of lots of birds, hearing birds, large variety of birds and the presence of rare birds as important. This pattern is consistent with the presence of bird-watchers who according to Sekercioglu (2002) look for a wide variety of species.

Table 13. Cross tabulation of relative frequencies in percent with which respondents rated specified attributes of birds as important or very important for their visit to the survey site

	Seeing lots of birds	Hearing birds	Large variety of birds	Presence of rare birds	Physical contact with birds	Brightly coloured birds
Seeing lots of birds	100	83	79	73	66	71
Hearing birds	85	100	80	75	63	68
Large variety of birds	78	78	100	84	62	67
Presence of rare birds	66	67	77	100	59	61
Physical contact with birds	48	45	46	48	100	66
Brightly coloured birds	55	51	52	52	69	100

It was found overall that respondents placed greater value on greater diversity of species of birds at this site than a large numbers of birds, though marked differences are not apparent from Table 13. Respondents were also asked, "If you had to choose between (a) seeing lots of birds at this site, and (b) seeing half as many birds, but more varied species,

what do you think you would prefer"? Sixty seven percent (417) opted for diversity, 27 % (167) opted for quantity and 6% (38) did not answer.

Bower birds and parrots (including rosellas) were most frequently mentioned as birds most appreciated at this site. Overall, 85% of respondents said that it was very important to protect birds at this site, 12% said that it is important, less than 0.5% said it is unimportant and 2% did not answer this question.

The importance of birds as an attraction to this site is evident by the fact that 16% (99) of the respondents said that they would not visit this site in the absence of birds and that a further 27% would reduce the frequency of their visits. In all a reduction of visits by at least 43% of current respondents could be anticipated. Taking into account non-responses, the actual reductions in visits would be slightly higher. The absence of birds would, therefore, reduce the value of the site substantially and, as discussed below, would have a significantly negative local economic impact. Conversely, it can be said that the current presence of birds is very important in generating visits to this site and adds significantly to its tourist value and its local economic impacts.

Only 37% of respondents said that they had obtained information about birdlife and its role in the ecosystem during their visit to this site, 60% said they did not and 3% did not answer. For these visitors as a whole, most had little added educational value from birds from their visit. Hence, one of the criteria for ecotourism was only partially achieved. However, only 31% of respondents said they would have liked more information in this regard, 58% would <u>not</u> have liked more information and 11% did not respond. It appears that there is a need for provision of extra information about birdlife at this site for at least one third of the visitors, but not all. However, the majority did not want such extra information. Some of these may already have been well informed. Furthermore, not all individuals seek extra knowledge, especially if they are on holiday or in leisure-mode.

In the sample, 24% of the visitors rated their knowledge of birds as being below the general average, 59% thought it was average, 13% (78) thought it was above average and 4% did not respond. Of the group stating their knowledge to be 'above avearge', 48 (61%) considered themselves to be bird-watching specialists or hobbyists. Most of these specialists had specialist gear with them on this trip. Forty listed their equipment, but eight did not respond. The gear mentioned is listed in Table 14.

Table 14. Specialist bird-watching gear carried by bird-watching specialists on their visit to LNP as reported by respondents – frequency of responses

Gear	Number of respondents
Specialist binoculars	36
Bird field guide	35
Special camera	15
Telescope	8
Tape recorder	1
GPS	1
Video with special zoom	1

Note: The various gear which the respondents said they were carrying during their visit to LNP are not mutually exclusive.

6. Economic impacts and economic issues

Respondents were asked how much they spent (within 60 kilometres of O'Reilly's/Green Mountains) on the day of receipt of the survey form. It is not always easy to work out the exact amounts visitors spent within this area. For example, O'Reilly's as well as the guesthouses just outside the national park offer a range of accommodation charging different rates. Furthermore, there are special offers from time to time and pensioners, children and regular patrons are offered concessions. There are also company and family guests for whom expenditures have already been pre-paid. Hence, such visitors' true expenditures are not captured accurately. The QPWS camping rates are low (Aus $4 dollars per adult and Aus $16 per family of up to 6) and it appears that most of these campers bring their food and other requirements from home. Hence, the expenditures from this site are low.

Therefore, it can be assumed that the amounts visitors said they spent per day per person within a 60 kilometre radius of O'Reilly's/Green Mountains are only minimum expenditures. As can be seen from Table 15, those visitors staying at O'Reilly's Rainforest Retreat, as expected, spent the highest amount locally, followed by those staying overnight at guesthouses just outside the national park. The QPWS campers' expenditures were much lower followed by that of day trippers. While these figures may be lower bounds of the real expenditures because of the issues mentioned earlier, they seem to provide an accurate indication of relative expenditures.

Table 15. Average expenditures per person per day within a 60 kilometre radius of O'Reilly's/Green Mountains site as reported by respondents

	Day trippers Aus $	**O'Reilly's guests Aus $**	**QPWS campers Aus $**	**Those staying just outside the national park Aus $**
Australian visitors	17	141	19	59
Overseas visitors	31	101*	32	71
Total Aus $	**48**	**242**	**51**	**130**

***** It appears that overseas visitors have spent less than Australian visitors. This is because most overseas visitors said that they were on organized package tours and hence were unable to say exactly how much it cost them per day to stay at O' Reilly's.

While it is difficult to estimate accurately the local primary income consequences of birds being absent from this site, from the self-stated reduction in visits mentioned earlier, expenditure at or within a 60 kilometre radius of this site would be likely to be reduced by around 30-40 % if birds were absent. The percentage reduction in the initial level of expenditure locally would probably be similar to the inferred relative reduction in the number of visits to this site. The main point, however, is that the expected reduction is sizeable.

7. Attitudes to charging entry fees to LNP

As mentioned earlier, respondents were asked if visitors should pay to visit LNP. Of these visitors, 67% said 'no', 29% said 'yes' and 5% gave no response. Respondents were asked to give two reasons why visitors should or should not pay to visit LNP. Some respondents gave two reasons, others just one and some gave no reason at all. Table 16 summarises all the reasons given and states their relative frequency. However, there was more support for the 'user-pays principle' if the visitors could be assured that the money would be spent at the site. For instance, 64% said they would be more willing to pay if the money collected is spent to improve park facilities and facilitate conservation at this site, 26% said they would not be more willing in this case and 10% did not reply. Since QPWS earnings often go back to government consolidated revenue, this may be a barrier to the acceptance of payments by Queenslanders for entrance to national parks and protected areas. However, one of the main reasons given by respondents to charges was the equity idea that the park should be available to all, irrespective of their ability to pay.

Table 16. Reasons given by respondents for supporting or opposing a fee to enter LNP – frequency of responses

Reasons for wanting to pay	**Number**
Maintenance	73
Conservation	52
User pays/ pay for benefits	38
Improvements	26
Patrons care more if they pay	9
To reduce numbers	7
Reasons for not wanting to pay	
To make park more accessible to all	157
Nature should be free	117
Pay taxes/ Government should pay	84

In response to the question, "How much do you think a visiting adult should be charged per visit"?, 113 Australians said 'nothing' while only 12 foreigners said nothing. However, 334 (more than half the sample) did suggest a charge. These suggestions are summarised in Table 17. The average entry charge suggested by Australians was Aus $2.70 while foreigners suggested an average charge of Aus $6.00.

Table 17. Entry fees as suggested by sampled visitors per adult to visit LNP – frequency and relative frequency in percentages in brackets

Fee (Aus $)	**Australians**		**Foreigners**		**Total**	
0	113	(22.64)	12	(9.91)	125	(20.15)
1	31	(6.21)	3	(2.47)	34	(5.46)
2	95	(19.03)	9	(7.43)	104	(16.76)
3	20	(4.00)	8	(6.61)	28	(4.50)
4	6	(1.20)	1	(0.82)	7	(01.28)
5	73	(14.63)	24	(19.83)	97	(15.63)
6	3	(0.60)	0	(0)	3	(0.48)
7	9	(1.80)	3	(2.47)	12	(1.92)
8	1	(0.20)	2	(1.65)	3	(0.48)
9	0	(0)	0	(0)	0	(0)
10	18	(3.60)	18	(14.87)	36	(5.80)
15	1	(0.20)	3	(2.47)	4	(0.63)
20	1	(0.20)	5	(4.13)	6	(0.96)
Other*	128	(25.66)	33	(27.27)	161	(25.96)
Total	**499**	**100**	**121**	**100**	**620**[+]	**100**

Note: * Includes non responses and non numerical responses.
+ There were two respondents who did not state their nationality.

In response to the question, "What is the <u>maximum</u> amount that you would pay per visit?", 102 respondents said 'nothing', and 157 did not answer. Some of the answers

probably show 'strategic' bias. The responses are summarised in Table 18. In general, the sums are higher than in Table 17. For Australians, the most frequently suggested maximum amount was Aus $5.00 and for foreigners the mode was Aus $10. The average maximum entry fee suggested by Australians was Aus $5 and for foreigners it was Aus $12. Therefore, on average the maximum amount for entry that foreigners were willing to pay was more than twice that of Australians.

Since entry to this park is free, the amounts in Table 18 should represent the economic surplus of visitors. In this case, the economic surplus is the difference between the maximum a visitor is willing to pay and the actual amount paid for a visit. However, particularly in the case of Australians strategic bias may well be present. Willingness to pay may be understated to avert the possibility of introduction of fees or to influence fees to be set at low levels if intriduced.

Table 18. Maximum amounts sampled visitors are willing to pay per person to enter LNP – frequency, and relative frequency in percentages in brackets

Fee (Aus $)	Australians		Foreigners		Total	
0	92	(18.40)	9	(7.42)	101	(16.30)
1	16	(3.20)	0	(0)	16	(2.60)
2	62	(12.40)	6	(4.95)	68	(10.96)
3	15	(03)	3	(2.46)	18	(2.90)
4	7	(01.40)	2	(1.64)	9	(1.45)
5	98	(19.60)	12	(9.92)	110	(17.75)
6	2	(0.40)	00	(0)	2	(0.32)
7	3	(0.60)	2	(1.64)	5	(0.80)
8	4	(0.80)	2	(1.64)	6	(0.96)
9	1	(0.20)	0	(0)	1	(0.16)
10	55	(11.00)	23	(19)	78	(12.58)
15	4	(0.80)	7	(5.80)	11	(1.77)
20+	10	(2.00)	17	(14.00)	27	(4.35)
Other*	130	(26.02)	38	(31.40)	168	(27.10)
Total	**499**	**100**	**121**	**100**	**620**$^{+}$	**100**

Note: * Includes no response and non-numerical responses. All can be considered as non-responses.
+ There were two respondents who did not state their nationality.

It can be seen from Table 17 that a much larger proportion of Australians than foreigners thought that visitors to LNP ought not have to pay an entry fee and suggested on average as entry fee less than half that recommended by foreigners. These differences are also evident in Table 18. One average the maximum amount that foreigners would be prepared to pay to visit LNP was more than twice that of Australians. The reasons for the differences could involve the following (1) greater incidence of strategic bias in the answers given by Australians (2) a favourable exchange rate for foreign visitors from high income countries which increases their purchasing power (this reduces the real cost of entry to the park in terms of their home currency) (3) higher income levels on average of overseas visitors than Australian visitors, (4) the presence of entry fees to national

parks in the home countries of many visitors leading to social acceptability of the practice, and (5) a view held by many Australians that they already pay sufficient taxes to cover national park activities and that they should be government supplied and financed.

8. Scope for environmental improvement and better provision of information

Complaints by visitors are often a useful pointer for improvements in the management of tourism sites. As mentioned earlier, 194 respondents said they would have liked to have more information provided at this site and when asked what type of information, they gave the answers summarised in Table 19. Actually, however, some of the information requested would have been available at QPWS office at this site, but many respondents were unaware of this.

Table 19. Types of information sampled visitors said they need at this site in LNP – frequency

Type of information	Number
General brochure	49
Brochure on birds	62
Brochure/Maps on walks	17
Brochure on flora and/or fauna	40
Signage on walks	23
Other	45

Note: 166 out of 622 respondents indicated between 1 and 3 types of information they would have liked to have. The table summarizes all these responses.

In response to the question, 'do you think the environment could be improved at this site', 33% of respondents said, 'yes', 48% said, 'no', and 19% did not answer. Between one and three improvements were suggested by 185 of the 203 respondents. These suggested environmental improvements and the frequency with which they are mentioned and listed in Table 20. Some respondents objected to the feeding of birds. A number of the site problems mentioned, such as crowding and parking problems, are likely to increase as visitation rates increase. Some of the suggested environmental changes apply to the private facilities of O'Reilly's, whereas others affect the QPWS. Most call for extra funds.

In the absence of charges and the earmarking of funds obtained from fees for the LNP area, it is likely to be difficult or impossible for QPWS to deal fully with these problems.

Table 20. Environmental improvements suggested by respondents for O'Reilly's/Green Mountains, LNP – frequency mentioned

Improvement	Number
Improve/Increase walking tracks	24
General signage	22
Reduce/Stop bird feeding	21
Improve litter management	20
Keep number of people at any one time under control	15
Better amenities: toilets, showers, drinking fountains	14
Improve access to LNP (roads, etc)	14
Improve Botanic Gardens	13
More shelters	13
Increase forest area	13
More/Improved picnic facilities	11
Improve parking	10
Reduce commercial development	10
Keep number of vehicles under control	9
Improve board walk	8
Improve/Increase camping facilities	7
Make more elderly/handicap friendly	6
Encourage visitors to be quiet	4
Other improvements	67

Note: 185 respondents from the 203 who said that the environment could be improved provided between 1 and 3 suggested improvements. A total of 301 suggested improvements were recorded.

9. Concluding comments

The majority of visitors to O'Reilly's/Green Mountains site are repeat visitors. On the whole they are very well educated, they have higher incomes than the Australian average, with a higher representation of persons in older age groups than in the general population. In our sample, those in the 50-60 age group in fact formed the largest group, but all age groups over 30 are well represented. While most visitors are from Australia, primarily Queensland, overseas visitors are well represented. In our sample their population was substantially higher than the annual number of overseas visitors to Australia in proportion to its population. In an open-ended question respondents were asked to state their main reason for visiting this site. While bush-walking was mentioned most frequently, other frequent reasons stated were the rainforest, sightseeing, accompanying visitors, picnic or a day out with children and family and bird-watching.

In a more structured question, out of 11 features of the O'Reilly's/Green Mountains site, the three most important features to visitors were stated to be the presence of the rainforest, birds and its role as a place to get close to nature. It was found that those who stressed the importance of the site as a place for a picnic or to bring visitors put much less stress on the importance of ecological factors of the site than others and vice versa. Hence, two distinct clusters of visitors seem to be present. Activities reported to be frequently completed at this site were bush-walking and visits to O'Reilly's boardwalk

and botanical gardens. About 23% of the sample reported engaging in bird-watching using specialist equipment.

Birds proved to be one of the greatest attractions of this site. On the whole, hearing birds at the site was rated by respondents as their most important attribute, followed closely by the diversity of bird species on site and the presence of lots of birds. Somewhat surprisingly, the occurrence of brightly coloured birds and physical contact with birds (such as occurs with the feeding of rosellas and king parrots at this site) on average had a much lower rating. However, there was once again evidence of two clusters of ratings. Those who thought the presence of brightly coloured birds and physical contact with birds to be 'important' or 'very important' on average placed less importance on hearing birds, seeing lots of birds, the presence of a large variety of birds and the presence of rare birds. On the other hand, the second group placed less emphasis on brightly coloured and having physical contact with birds and laid more emphasis on other attributes mentioned above. Furthermore, questioning revealed that visitors preferred greater variety of bird species in comparison to a large numbers of birds. The importance of birds at this site is underlined by the fact that 43% of respondents said that they would not have visited this site or would have reduced the frequency of their visits if birds were absent. It was confirmed that this would significantly reduce expenditure by visitors at this site or within 60 kilometres radius of it.

Estimates of daily local expenditure of visitors were made. While it is not easy to work out the exact expenditures of various visitors to O'Reilly's/Green Mountains because of various rates and deals that prevail, it seems safe to draw some qualititative conclusions. Per capita daily expenditure by those staying at O'Reilly's Rainforest Retreat is highest. By comparison, those using accommodation close to the national park spent on average a little under half as much, whereas those staying at QPWS camping ground had a very modest daily expenditure which was only a little higher than that of day visitors. Because of the various issues involved in calculating the daily expenditures, it is assumed that the expenditures stated by visitors are only minimum estimates.

A large number of desirable environmental improvements at this site were suggested by respondents, some of which relate to O'Reilly's private facilities and others to those of QPWS. Since visitation rates to this site can be expected to grow in the long term, several of these problems are likely to become more pressing (for e.g. crowding, shortages of car-spaces, shelters, toilets and shower facilities). The problem of limiting visitors, for example, by an entry or a parking fee, and of funding infrastructure will become more acute. Conflict between equity in access and the quality of amenities can be expected to deepen. In these circumstances, the introduction of charges may have to be seriously considered by QPWS bearing in mind that it is likely to be socially more acceptable if visitors can be assured that funds are being used (or significantly used) to improve facilities utilised by visitors to this site and to support associated conservation activities in LNP.

Overall, the study reveals that birds are one of the most important features attracting visitors to this site. The importance of birds at this site does not seem to have been

emphasized in previous literature dealing with Australian birds (e.g. Jones and Buckley, 2001). A substantial proportion of visitors are in fact specialist birdwatchers. There is also evidence that visitors who consider birds to be an important feature of this site fall into two clusters. One group is primarily interested in seeing brightly coloured birds and having physical contact with them and have relatively little interest in their ecological attributes. The second group shows much less interest in brightly coloured birds and having physical contact with them. They display a preference for hearing birds, the existence of a large variety of birds and presence of rare birds. The latter group seems to be more ecologically oriented than the former. To some extent, these groups are in conflict. Some of the latter group raised objections to the hand feeding of wild birds at O'Reilly's by visitors. Furthermore, some wilderness/naturalist advocates in our sample objected to a commercial area within the national park, even though this located area is on private land.

Payment of entry to national parks and protected areas tends to be a controversial political issue in Queensland. The majority of respondents indicated their opposition to the levying of a fee to enter LNP. Nevertheless, most said they would be more willing to pay such a fee if they could be assured that the funds would be used to improve facilities and conservation at this site. Although, there was strong opposition to fees, many respondents were prepared to suggest an entry fee for adults and also indicated the maximum fee they would be willing to pay. Foreigners were willing to pay larger amounts for both these categories than Australians. Because of the likely presence of strategic behaviour, the figures proposed by respondents are in all probability underestimates.

Significant environmental problems are emerging at the O'Reilly's/Green Mountains site and they will become more serious as the number of visitors increases. One way to address these problems would be by the imposition of entry fees, especially if a proportion of funds were directed to investment at the site. However, our survey reveals that such fees are opposed by many Australians, mainly on equity grounds. It may also be feasible to provide a third main entry point in addition to the present two sites. Presently many of the naturalists in our sample would like such a site to be free of nearby commercial development

10. Acknowledgements

We wish to thank the Cooperative Research Centre and the School of Economics, The University of Queensland, Australia for providing some financial support for this study. Peter O'Reilly kindly made several suggestions that improved our draft questionnaire. We would also like to thank Dr Darryl Jones for his suggestions about the design of our questionnaire. We are also thankful to the O'Reilly's management and staff, especially Cathy Smout, for making arrangements to distribute survey forms among the guesthouse visitors and for QPWS rangers at Green Mountains and Binna Burra for providing us with the necessary secondary data on visitor/vehicle numbers. We appreciate their cooperation very much. Special thanks to Craig Mosley for the excellent job he did in

preparing the maps showing LNP. We would also like to thank Alex Park and Chandra Dulare for research assistance. The usual *caveat* applies.

11. References

Birding Tours Worldwide. 2003. *News - Field Guides*, Field Guides Incorporated, Texas, USA.

Bryman, A and Cramer, D. 1997. *Quantitative Data Analysis with SPSS for Windows*, Routledge, London, UK.

Ceballos-Lascurain, H. 1996. *Tourism, Ecotourism and Protected Areas*. Gland, Switzerland: IUCN Publication Services Unit.

Cordell, H. K. and Herbert, N. G. 2002. The popularity of birding is still growing, *Birding* 34: 54-59.

Figgis, P. 2000. The double-edged sword: tourism and national parks, *Habitat Australia*. 28: 24-32.

Jakobsson K. M. and Dragun, A. K. 1996. *Contingent Valuation and Endangered Species: Methodological Issues and Appreciation*, Edward Elgar, Cheltenham, UK.

Jarrott, J. K. 1990 *History of Lamington National Park*, J. K. Jarrott and The National Parks Association of Queensland Inc, Brisbane, Australia.

Jones, D. N. and Buckley, R. 2001. *Bird-watching Tourism in Australia*, CRC for Sustainable Tourism, Griffith University, Gold Coast Campus, Brisbane, Australia.

Joint Tourism Committee, 2000. Regional map of Southeast Queensland, *The Guide*. 31: 24.

Leonard, C. 2000. *Key Guide to Australia's National Parks*, 2nd edition., Envirobook, Annoidale, NSW, Australia.

Moon, R. and Moon, V. (eds). 2000. *Discover Australia – National Parks*, Global Book Publishing Pty Ltd, NSW, Australia.

Kerlinger, P. and Brett, J. 1995. Hawk mountain sanctuary: a case study of birder visitation and birding economics. In: *Wildlife and Recreationists: Coexistence Through Management and Research*, ed. R.L Knight and K.J Gutzwiller, pp. 271-280, Washington DC, USA: Island Press.

Queensland National Parks and Wildlife, 2001. Visitor information – Lamington National Park, Brisbane, Queensland, Australia.

Sekercioglu, C. H. 2002. Impacts of birdwatching on human and avian communities, *Environmental Conservation*. 29: 282-289.

Tisdell, C. and Wilson, C. 2002. World heritage listing of Australian natural sites: tourism stimulus and its economic value, *Economic Analysis and Policy*. 32: 27-49.

United States Department of the Interior, Fish and Wildlife Service and US Department of Commerce, Bureau of the Census, 1996. *National Survey of Fishing, Hunting and Wildlife-associated Recreation* [www document].
URL http://www.census.gov/prod/3/97pubs/fhw96nat.pdf.

Weaver, D. and Lawton, L. 2001. *Attributes and Behaviour of Ecolodge Patrons in LNP*, CRC for Sustainable Tourism, Griffith University, Gold Coat Campus, Brisbane, Australia.

Wheatley, N. 1998. *Where to Watch Birds in Australia and Oceania*, Princeton University Press, Princeton, NJ, USA

PREVIOUS WORKING PAPERS IN THE SERIES

ECONOMICS, ECOLOGY AND THE ENVIRONMENT

1. Governance, Property Rights and Sustainable Resource Use: Analysis with Indian Ocean Rim Examples by Clem Tisdell and Kartik Roy, November 1996.
2. Protection of the Environment in Transitional Economies: Strategies and Practices by Clem Tisdell, November 1996.
3. Good Governance in Sustainable Development: The Impact of Institutions by K.C.Roy and C.A.Tisdell, November 1996.
4. Sustainability Issues and Socio-Economic Change in the Jingpo Communities of China: Governance, Culture and Land Rights by Ren Zhuge and Clem Tisdell, November 1996.
5. Sustainable Development and Environmental Conservation: Major Regional Issues with Asian Illustrations by Clem Tisdell, November 1996.
6. Integrated Regional Environmental Studies: The Role of Environmental Economics by Clem Tisdell, December 1996.
7. Poverty and Its Alleviation in Yunnan Province China: Sources, Policies and Solutions by Ren Zhuge and Clem Tisdell, December 1996.
8. Deforestation and Capital Accumulation: Lessons from the Upper Kerinci Region, Indonesia by Dradjad H. Wibowo, Clement a. Tisdell and R. Neil Byron, January 1997.
9. Sectoral Change, Urbanisation and South Asia's Environment in Global Context by Clem Tisdell, April 1997.
10. China's Environmental Problems with Particular Attention to its Energy Supply and Air Quality by Clem Tisdell, April 1997.
11. Weak and Strong Conditions for Sustainable Development: Clarification of concepts and their Policy Application by Clem Tisdell, April 1997.
12. Economic Policy Instruments and Environmental Sustainability: A Second Look at Marketable or Tradeable Pollution or Environmental-Use Permits by Clem Tisdell, April 1997.
13. Agricultural Sustainability in Marginal Areas: Principles, Policies and Examples form Asia by Clem Tisdell, April 1997.
14. Impact on the Poor of Changing Rural Environments and Technologies: Evidence from India and Bangladesh by Clem Tisdell, May 1997.
15. Tourism Economics and its Application to Regional Development by Clem Tisdell, May 1997.
16. Brunei's Quest for Sustainable Development: Diversification and Other Strategies by Clem Tisdell, August 1997.
17. A Review of Reports on Optimal Australian Dugong Populations and Proposed Action/Conservation Plans: An Economic Perspective by Clem Tisdell, October 1997.
18. Compensation for the taking of Resources Interests: Practices in Relations to the Wet Tropics and Fraser Island, General Principles and their Relevance to the Extension of Dugong Protected Areas by Clem Tisdell, October 1997.

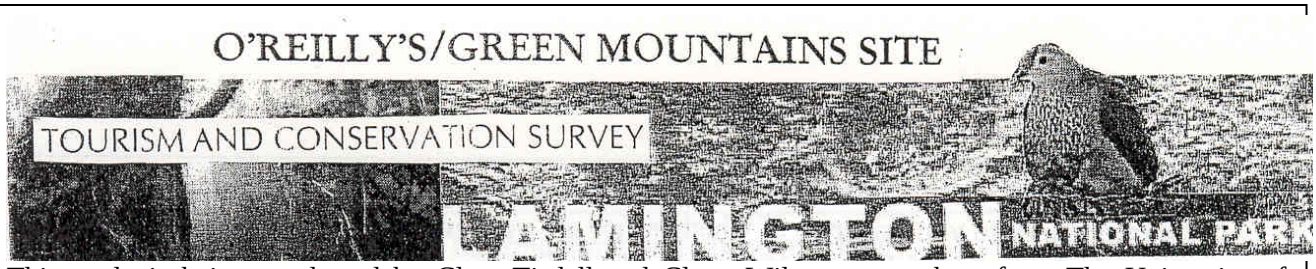
19. Deforestation Mechanisms: A Survey by D.H. Wibowo and R.N. Byron, November 1997.
20. Ecotourism: Aspects of its Sustainability and Compatibility by Clem Tisdell, November 1997.
21. A Report Prepared for the Queensland Commercial Fisherman's Organisation by Gavin Ramsay, Clem Tisdell and Steve Harrison (Dept of Economics); David Pullar and Samantha Sun (Dept of Geographical Sciences and Planning) in conjunction with Ian Tibbetts (The School of Marine Science), January 1998.
22. Co-Evolutions in Asia, Markets and Globalization by Clem Tisdell, January 1998.
23. Asia's Livestock Industries: Changes and Environmental Consequences by Clem Tisdell, January 1998.
24. Socio-Economics of Pearl Culture: Industry Changes and Comparisons Focussing on Australia and French Polynesia by Clem Tisdell and Bernard Poirine, August 1998.
25. Asia's (Especially China's) Livestock Industries: Changes and Environmental Consequences by Clem Tisdell, August 1998.
26. Ecotourism: Aspects of its Sustainability and Compatibility with Conservation, Social and Other Objectives, September 1998.
27. Wider Dimensions of Tourism Economics: A Review of Impact Analyses, International Aspects, Development Issues, Sustainability and Environmental Aspects of Tourism, October 1998.
28. Basic Economics of Tourism: An Overview, November 1998.
29. Protecting the Environment in Transitional Situations, November 1998.
30. Australian Environmental Issues: An Overview by Clem Tisdell, December 1998.
31. Trends and Developments in India's Livestock Industries by Clem Tisdell and Jyothi Gali, February 1999.
32. Sea Turtles as a Non-Consumptive Tourism Resource in Australia by Clevo Wilson and Clem Tisdell, August 1999.
33. Transitional Economics and Economics Globalization: Social and Environmental Consequences by Clem Tisdell, August 1999.
34. Co-evolution, Agricultural Practices and Sustainability: Some Major Social and Ecological Issues by Clem Tisdell, August, 1999.
35. Technology Transfer from Publicly Funded Research for improved Water Management: Analysis and Australian Examples by Clem Tisdell, August 1999.
36. Safety and Socio-Economic Issues Raised by Modern Biotechnology by Dayuan Xue and Clem Tisdell, August 1999.
37. Valuing Ecological Functions of Biodiversity in Changbaishan Mountain Biosphere Reserve in Northeast China by Dayuan Xue and Clem Tisdell, March 2000.
38. Neglected Features of the Safe Minimum Standard: Socio-economics and Institutional Dimension by Irmi Seidl and Clem Tisdell, March 2000.
39. Free Trade, Globalisation, the Environment and Sustainability: Major Issues and the Position of WTO by Clem Tisdell, March 2000.
40. Globalisation and the WTO: Attitudes Expressed by Pressure Groups and by Less Developed Countries by Clem Tisdell, May 2000.
41. Sustainability: The Economic Bottom Line by Clem Tisdell, May 2000.

42. Trade and Environment: Evidence from China's Manufacturing Sector by Joseph C. H. Chai, June 2000.
43. Trends and Development in India's Livestock Industry by Clem Tisdell and Jyothi Gali, August 2000.
44. Tourism and Conservation of Sea Turtles by Clem Tisdell and Clevo Wilson, August 2000.
45. Developing Ecotourism for the Survival of Sea Turtles by Clem Tisdell and Clevo Wilson, August 2000.
46. Globalisation, WTO and Sustainable Development by Clem Tisdell, August 2000.
47. Environmental Impact of China's Accession to WTO in the Manufacturing Sector by Joseph Chai, August 2000.
48. Effects of Cartagena Biosafety Protocol on Trade in GMOs, WTO Implications, and Consequences for China (English version) by Dayuan Xue and Clem Tisdell, August 2000.
49. Effects of Cartagena Biosafety Protocol on Trade in GMOs, WTO Implications, and Consequences for China (Chinese version) by Dayuan Xue and Clem Tisdell, August 2000.
50. The Winnipeg Principles, WTO and Sustainable Development: Proposed Policies for Reconciling Trade and the Environment by Clem Tisdell, September 2000.
51. Resources Management within Nature Reserves in China by Dayuan Xue, October 2000.
52. Economics, Educational and Conservation Benefits of Sea Turtle Based Ecotourism: A Study Focused on Mon Repos by Clem Tisdell and Clevo Wilson, October 2000.
53. Why Farmers Continue to use Pesticides despite Environmental, Health and Sustainability Costs by Clevo Wilson and Clem Tisdell, November 2000.
54. Wildlife-based Tourism and Increased Tourist Support for Nature Conservation Financially and Otherwise: Evidence from Sea Turtle Ecotourism at Mon Repos by Clem Tisdell and Clevo Wilson, November 2000.
55. A Study of the Impact of Ecotourism on Environmental Education and Conservation: The Case of Turtle Watching at an Australian Site by Clem Tisdell and Clevo Wilson, December 2000.
56. Environmental Regulations of Land-use and Public Compensation: Principles with Swiss and Australian Examples by Irmi Seidl, Clem Tisdell and Steve Harrison.
57. Analysis of Property Values, Local Government Finances and Reservation of Land for National Parks and Similar Purposes by Clem Tisdell and Leonie Pearson, March 2001.
58. Alternative Specifications and Extensions of the Economic Threshold Concept and the Control of Livestock Pests by Rex Davis and Clem Tisdell, May 2001.
59. Conserving Asian Elephants: Economic Issues Illustrated by Sri Lankan Concerns by Ranjith Bandara and Clem Tisdell, June 2001.
60. World Heritage Listing of Australian Natural Sites: Tourism Stimulus and its Economic Value by Clem Tisdell and Clevo Wilson, September 2001.
61. Aquaculture, Environmental Spillovers and Sustainable Development: Links and Policy Choices by Clem Tisdell, October 2001.

62. Competition, Evolution and Optimisation: Comparisons of Models in Economics and Ecology by Clem Tisdell, October 2001.
63. Aquaculture Economics and Marketing: An Overview by Clem Tisdell, October 2001.
64. Conservation and Economic Benefits of Wildlife-Based Marine tourism: Sea Turtles and Whales as Case Studies by Clevo Wilson and Clem Tisdell, February 2002.
65. Asian Elephants as Agricultural Pests: Damages, Economics of Control and Compensation in Sri Lanka by Ranjith Bandara and Clem Tisdell, February 2002.
66. Rural and Urban Attitudes to the Conservation of Asian Elephants in Sri Lanka: Empirical Evidence by Ranjith Bandara and Clem Tisdell, May 2002.
67. Willingness to Pay for Conservation of the Asian Elephant in Sri Lanka: A Contingent Valuation Study by Ranjith Bandara and Clem Tisdell, May 2002.
68. Bioeconomic Analysis of Aquaculture's Impact on Wild Stocks and Biodiversity by Clem Tisdell, May 2002.
69. Will Bangladesh's Economic Growth Solve its Environmental Problems? by Clem Tisdell, May 2002.
70. Socioeconomic Causes of loss of Genetic Diversity: Analysis and Assessment by Clem Tisdell, June 2002.
71. Empirical Evidence Showing The Relationships Between Three Approaches For Pollution Control by Clevo Wilson, August 2002.
72. Energy-Use, the Environment and Development: Observations with Reference to China and India by Clem Tisdell and Kartik Roy, September 2002.
73. Willingness of Sri Lankan Farmers to Pay for a Scheme to Conserve Elephants: An Empirical Analysis by Ranjith Bandara and Clem Tisdell, January 2003.
74. The Public's Knowledge of and Support for Conservation of Australia's Tree-kangaroos by Clem Tisdell and Clevo Wilson, February 2003.
75. Ecotourism/Wildlife-based Tourism as Contributor to Nature Conservation with Reference to Vanni, Sri Lanka by Clem Tisdell, March 2003.

APPENDIX

Copy of Form for Tourism and Conservation Survey at O’Reilly’s/Green Mountains Site, Lamington National Park



This study is being conducted by Clem Tisdell and Clevo Wilson, researchers from The University of Queensland and we would like your help. We need information about nature conservation at this site. Could you spare a little while to answer some of our questions? Your answers will be confidential and used only for scientific purposes. **Please post the completed survey forms without delay in the self addressed envelope provided (postage prepaid). Thank you for your anticipated help.**

Date of receipt of survey form by you …… …….. ……
Day Month Year

Please fill out in relation to day of receipt

1. Is this your first visit to this site? **Yes** ❑ **No** ❑

2. **If No**, how many times have you visited previously? **Approximate number** ☐

3. What is your **main** reason for visiting this site this time?

……

4. How many persons are travelling with you? **Number of adults** ☐ **Number of children** ☐

5. Does your visit here involve an overnight stay at this site or nearby? **Yes** ❑ **No** ❑

If No go to 7.

6. **If Yes**, where are you staying?

❑ O'Reilly's Rainforest Guesthouse ❑ QPWS Camping Ground

❑ Elsewhere (please specify) ……

7. Is visiting O'Reilly's the main purpose for you being here? **Yes** ❑ **No** ❑

If No, what is your main purpose? (1) …….

8. We are trying to assess the importance of a number of features at this site and we would like your input. It would help us if you could say whether the following features of this site were **very important**, **important** or **unimportant** reasons for your decision to visit it.

Reason	Very Important	Important	Unimportant
The presence of the rainforest	❑	❑	❑
The presence of birds	❑	❑	❑
Good picnic spot	❑	❑	❑
Cool green spot	❑	❑	❑
Bring visitors	❑	❑	❑
Getting close to nature	❑	❑	❑
Good starting point for walks	❑	❑	❑
Considerable biodiversity present	❑	❑	❑
Rare ecosystem	❑	❑	❑
World Heritage listed	❑	❑	❑
A place to get away from routine	❑	❑	❑
Other (specify) …….	❑	❑	❑

9. We would like to assess the value of birdlife at this site. Please help us by indicating the importance to you (in terms of whether they are **very important**, **important** or **unimportant**) of the following attributes of birdlife at this site.

Attributes	Very Important	Important	Unimportant
Seeing lots of birds	❑	❑	❑
Hearing birds	❑	❑	❑
Large variety or diversity of birds	❑	❑	❑
Presence of rare birds	❑	❑	❑
Close physical contact with birds e.g. Crimson Rosellas/King Parrots	❑	❑	❑
Brightly coloured birds	❑	❑	❑
Others (specify)…….	❑	❑	❑

10. If you had to choose between

(a) seeing lots of birds at this site, and

(b) seeing half as many birds but more varied species,

what do you think you would prefer? **(a) ❑ or (b) ❑**

11. Please list the species of birds (or types of birds) that you most appreciate at this site.

(a) …… (b) …… (c) …….

(d) …… (e) ……(f) …….

12. From your point of view do you consider the protection of birds at this site

❑ **Very important** ❑ **Important** ❑ **Unimportant**

13. If there were no birds at this site, would you still visit ? **Yes ❑ No ❑**

If Yes, would you reduce the frequency of your visits? **Yes ❑ No ❑**

If Yes, by 25%, 50% or 75%? ☐

14. (a) Do you think that visitors should pay to visit Lamington National Park? **Yes ❑ No ❑**

Why (1) ……. (2) …….

(b) Would you be more willing to pay if money collected is spent to improve park facilities and conservation at this site? **Yes ❑ No ❑**

(c) How much do you think a visiting adult should be charged per visit? Aus $ ……

(d) What is the maximum amount that you would pay per visit? Aus $ ……

15. Did you obtain any information about birdlife here and its role in the ecosystem?

Yes ❑ No ❑

16. Would you have liked more information to have been provided? **Yes** ❑ **No** ❑
If Yes, what type of information?

(1) …… (2) …… (3) ……

17. Are you a member of any nature conservation organizations? **Yes** ❑ **No** ❑
If Yes, please state names of organizations

(1) …… (2) …… (3) ……

18. How would you rate your attitudes towards nature conservation?

❑ Extremely strong advocate ❑ Strong advocate
❑ Moderate advocate ❑ Neutral towards this subject
❑ More oriented towards development than conservation

19. Will you engage in any of the following activities today in connection with your visit to this site? If possible, indicate how many hours or fractions thereof will be spent today in these activities

Activity	**Yes/No**	**Hours**
Travelling to and from Lamington NP by motor vehicle	**Yes** ❑ **No** ❑	……..
Travelling **in and around** Lamington NP by motor vehicle	**Yes** ❑ **No** ❑	……..
Picnicking and enjoying the picnic facilities	**Yes** ❑ **No** ❑	……..
Photography generally	**Yes** ❑ **No** ❑	……..
Board Walk	**Yes** ❑ **No** ❑	……..
Botanic Gardens	**Yes** ❑ **No** ❑	……..
Bushwalking in National Park	**Yes** ❑ **No** ❑	……..
Birdwatching using specialist equipment such as binoculars, field guides, special camera(s)	**Yes** ❑ **No** ❑	……..
Other important activities at site (please specify) ……..	**Yes** ❑ **No** ❑	……..

20. Do you consider your knowledge of birds to be

❑ Below the general average ❑ Average ❑ Above average?

[If **<u>not</u> above average**, go to 23]

21. **If above average**, do you consider yourself to be a birdwatching specialist or hobbyist?
Yes ❑ **No** ❑

22. **If Yes**,

(a) Do you have specialist birdwatching gear with you **on this trip** such as

❑ Bird field guide ❑ Specialist binoculars
❑ Special camera ❑ Telescope
❑ Other special equipment (please specify latter)……

(b) What most attracts you to visit this site? (i)…… (ii) ……

23. Do you think the environment could be improved at this site? **Yes** ❑ **No** ❑

If Yes, what are your suggested improvements?

(a) …… (b) ……. (c) …….

24. How much did **you or (if accompanied) your party spend** on the date of receipt of this form at this site or **within 60 kilometres of it** (e.g. at Canungra or Tamborine? [Please include food, refreshments, souvenirs, petrol, accommodation costs and so on. Do not include money spent outside this area e.g. petrol purchased before leaving home if you live more than 60 kilometres away].

Australian dollars (approx) …….. on day of receipt of form

Background Information (only used for general processing of responses)

1. Name (optional) ……

2. Home Town [ ] Postcode [ ] Country [ ]

3. Place of overnight stay before visiting this site

   Town [ ] Distance in **kilometres** from O'Reilly's [ ]

4. How did you travel to O'Reilly's? Car ❑ Bus ❑ Other …….

5. Male ❑ Female ❑

6. To what age group do you belong?

   School going ❑ <20 left school ❑ 20 – 30 ❑
   30 – 40 ❑ 40 – 50 ❑ 50 – 60 ❑
   60 + ❑

7. Indicate your highest educational qualification

   Primary only ❑ Some secondary schooling ❑ Completed year 10 secondary ❑
   Completed year 12 ❑ Trade certificate ❑ Diploma ❑
   Degree ❑ Post-graduate degree ❑ Any other ……..

8. Your family income level per annum in Australian dollars?
   Note: This is **confidential** and for **scientific research only**

   Below AUD$20,000 ❑ AUD$20,001 - 30,000 ❑ AUD$30,001 - 40,000 ❑
   AUD$40,001 - 50,000 ❑ AUD$50,001 - 60,000 ❑ AUD$60,001 and above ❑

9. In what country were you born? ……

10. If born outside Australia, and live in Australia, how many years have you lived here?
    …….. years

THANK YOU FOR YOUR COOPERATION

Contact details of researchers: Professor Clem Tisdell Tel: (07) 33656306
Dr Clevo Wilson Tel: (07) 33656645