



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

ECONOMICS, ECOLOGY AND THE ENVIRONMENT

Working Paper No. 79

**Attitudes to entry fees to national parks:
Results and policy implications from a
Queensland case study**

by

Clem Tisdell and Clevo Wilson

June 2003



THE UNIVERSITY OF QUEENSLAND

ISSN 1327-8231

**WORKING PAPERS ON
ECONOMICS, ECOLOGY AND THE ENVIRONMENT**

Working Paper No. 79

**Attitudes to entry fees to national parks: Results and policy
implications from a Queensland case study**

by

Clem Tisdell^{*} and Clevo Wilson[†]

June 2003

© All rights reserved

^{*} School of Economics, The University of Queensland, Brisbane QLD 4072, Australia.
E-mail: c.tisdell@economics.uq.edu.au

[†] School of Economics and Finance, Queensland University of Technology, 2 George Street, GPO Box 2434, Brisbane QLD 4001, Australia. E-mail: clevo.wilson@qut.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

Attitudes to entry fees to national parks: Results and policy implications from a Queensland case study

Abstract

Examines visitor attitudes and whether visitors are willing to pay to enter Lamington National Park and under what circumstances they would do so. First a sample of visitors is asked a general (normative) question as to whether visitors should pay to visit Lamington National Park and in another question (positive) they are asked whether they would be more willing to pay if the money collected would be invested in the park to improve visitor facilities and for conservation work. The results show that visitors are more willing to accept the 'user-pays' principle if the money will be used for the benefit of the national park and its visitors. It was found that foreigners are more in support for a 'user-pay' fee than Australians, and among Australians, those visitors from Queensland are the least willing to accept the idea of a user-pay fee to enter the park. The results indicate that if visitors can be shown the benefits (both for visitors and for conservation) of charging an entry fee, then visitors are more likely to support such a concept than when they are unaware of the benefits of a user-fee. The study shows that on average foreigners are willing to pay more than Australians. Finally, the regression results identify significant factors influencing visitors' attitudes and suggested amounts to visit the national park.

Keywords: Entry fees, national parks, overseas and Australian visitors, attitudes to 'user-pays' principle, Lamington National Park, policy implications, conservation benefits

Attitudes to entry fees to national parks: Results and policy implications from a Queensland case study

1. Introduction

There has been much discussion, and it continues, about the introduction of charges to enter national parks in Australia and the possibility of charging entry fees to those that have free access at present (cf. ANZECC, 2000; Herath, 2000; Driml and Common, 1995; Scoccimarro, 1992). This is especially so when ‘protected areas are under increasing pressure to provide economic justification for their existence’ (Walpole *et al.*, 2001) and to ‘reduce dependency on government funds’ (Azahari, 2001). Furthermore, public protests have arisen about the introduction of entry fees to some national parks (cf. *The Daily Telegraph*, 2000; *Sydney Morning Herald*, 1999; *Sun Herald* (Sydney), 1998). Australian public opinion remains divided on the desirability of user-fees (Herath, 2000).

Australian national parks are unusual in the sense that many are free for visitors unlike those in some developed countries such as the USA and Canada³. Even developing countries charge visitors to enter its national parks and the fees are often quite high. Entry fees are important sources of income in some developing countries (Peters, 1998) and some developing countries also discriminate between local and foreign visitors in their fees (cf. Shultz *et al.*, 1998).

In Australia, a single fee is charged for both Australian and overseas visitors if there is a fee. The extent of charging entry fees in Australia, where charges are in place, varies from State to State and also among different parks within the same State. Tasmania, for example, has some entry charge for almost all its national parks, while Queensland does not charge except for approximately five national parks/conservation parks, and that too for interpretive services (ANZECC, 2000). This, too, for certain parks, depends on the

³ It must be mentioned that in both developed and developing countries there are some national parks that do not charge an entry fee. In Britain national parks only charge for facilities such as car parks and camping. However, local government charges a fee for certain county parks and so does the Royal Society for the Protection of Birds (RSPB) to enter its nature reserves. In New Zealand, entry to national parks is free (ANZECC, 2000).

time of day and season. A good example is the Mon Repos Conservation Park in Bundaberg. During the sea turtle nesting season a fee is imposed for sea turtle viewing (entry is free during the day), the revenue used for sea turtle conservation work. All other States impose fees for several parks, and in the Australian Capital Territory a charge has been under consideration for its only national park (Hansard, 1997) and one nature reserve (Tidbinbilla) imposes a vehicle fee. Queensland also provides park information to the public free of charge (ANZECC, 2000).

In the light of the debate about the introduction of at least a minimal entry fee to national parks in Australia, it is important to determine visitors' attitudes and whether they support a user fee or not, especially since there are many potential conservation benefits to be derived from money collected from entry fees (Walpole *et al.*, 2001; Machado, 2000). This is especially important when current funding for national parks is inadequate and where necessary conservation work remains under funded by the respective State and Federal Governments and nature-based tourism is rapidly expanding (cf. Scoccimarro, 1992). Protected areas are also under pressure to provide economic justification for their existence (Walpole *et al.*, 2001). Furthermore, it is also necessary to examine factors influencing visitors' attitudes towards entry fees at national parks to see under what conditions they would find a user-fee acceptable. It is also useful from a policy perspective to determine factors influencing visitors' suggested amounts to visit LNP since equity issues are involved. To answer some of these issues, a study was conducted in the Green Mountains section of Lamington National Park (LNP), Queensland, and responses from 622 Australian and foreign visitors were obtained.

In the study, we examined whether visitors think that visitors should pay to visit LNP. The results reveal that the majority of visitors are willing to pay if they can be assured that their payments would be reinvested in the park to improve visitor facilities and undertake conservation activities. On the other hand, if there is no such scheme, fewer visitors feel that visitors should pay to visit the park. We also examined various factors influencing visitors' attitudes to entry fees and suggested amounts to visit LNP. One of the interesting findings is that Australians are less willing to support the idea of a 'user-

fee' to visit LNP and the largest relative percentage is from Queensland. The average amount Australians are willing to pay, especially Queenslanders, is also less than the amount overseas visitors are willing to pay.

The paper discusses the survey findings, the results of the regression analyses and the policy implications stemming from it especially the potential conservation benefits if the extra money collected from an entrance fee could be utilized for conservation work (Machado, 2000). The results from the study indicate that imposition of entry fees to visit national parks are more acceptable to visitors if revenue collected is dedicated for improvement of visitor facilities and for conservation work in the park charging fees. In such cases, visitors are more likely to support an entry fee and are more willing to suggest larger amounts than otherwise for park entry (cf. Walpole *et al.*, 2001). Enhanced wildlife research and conservation projects, purchasing land to establish corridors between fragmented national parks and increased visitor education in wildlife and nature conservation could be some of the work that could be financed from revenue raised from such fees which could supplement current QPWS funding. Public funding may still be necessary because in many instances park management costs cannot be recovered from entrance fees alone (cf. Walpole *et al.*, 2001). It must be mentioned here that the question of whether national parks should be self-financing and the appropriate fees to be charged is a complex issue because national parks provide mixed goods and not just private goods. The welfare economics involved in determining an optimal fee for visitors may also be very complicated. Although charging a 'monopoly price' should result in maximizing net revenue, it may also not be socially optimal. Furthermore, it is financially unattractive to introduce an entrance fee to all national parks because of the overhead costs involved in collecting such a fee. The purpose of this paper is not to determine an optimal price for visitors or to examine the welfare effects of such a price. Such an exercise is beyond the scope of this paper. The paper only examines visitors' attitudes and suggested entry fees to visit LNP in order to examine the factors that influence visitors' suggested amounts to visit LNP.

2. Background to Lamington National Park and its tourism activities

LNP is located approximately 110 km south of Brisbane and overlooks the country's busiest holiday coast (*Readers Digest*, 2000). It is located in the hinterland mountains of the Gold Coast in southeast, Queensland, Australia. The park was World Heritage listed in 1994 as part of the Central Eastern Rainforest Reserves of Australia (CERRA)⁴. LNP is approximately 20,600ha in size and is the heart of the CEERA World Heritage area (Queensland Parks and Wildlife Service, 2001). The CEERA World Heritage Area consists of 44 disjointed national parks and reserves (Pugh, 2001) straddling both Queensland and New South Wales. LNP was declared a national park in 1915 (Jarrot, 1990) and is one of Australia's oldest national parks⁵. LNP comprises of a wide range of vegetation and habitats including large tracts of subtropical rainforest, stands of Antarctic beech (a temperate rainforest species), wet eucalypt forest, dry heaths surrounded by malee eucalypts, grass-tree and other dry vegetation (QPWS, 2001; Moon and Moon, 2000). This vegetation provides an important habitat for a diverse range of wildlife, including rare species. Birdlife is abundant and some threatened species such as the Albert's lyrebird, rufous scrub bird, eastern bristlebird and the Coxen's fig parrot are found in the park. The uncommon mammals include the endangered southern tiger quoll (Moon and Moon, 2000). The park is also an important habitat for a wide range of reptiles, insects and fishes.

The rainforest setting, abundant wildlife, especially birds, walking tracks/picnic facilities and the panoramic views attract a wide range of visitors to the park. Tourists visit the national park for a wide variety of reasons including family outings, entertaining visitors and viewing wildlife, including birds, mammals, frogs and insects (e.g. glowworms). Bush-walking is also a popular activity and some visitors are attracted by the park's World Heritage values. It is the most popular national park in Queensland (Moon and Moon, 2000) and is visited by close to a half a million visitors a year judging by the

⁴ The national parks that come under CERRA on the NSW-side were World Heritage listed in 1986.

⁵ The first established national park in Australia is the Royal National Park which was established in 1879 and Queensland's first national park was Witches Falls which was declared in 1908 which now comes under Tamborine National Park.

recorded number of vehicles entering the park⁶. The majority of the visitors are, basically attracted to two sections of the park, namely the Binna Burra and the Green Mountains sections. This subtropical rainforest property is unusual in that two private properties, namely, O'Reilly's Guesthouse (in the Green Mountains section) and Binna Burra Mountain Lodge (in the Binna Burra section) provide accommodation facilities within the boundaries of the park and are well advertised in the media and the internet. The location of the two private accommodation lodges inside the LNP is shown in Figure 1.

Figure 1
Map showing Lamington National Park and its environs



Source: Based on Moon and Moon (2000) and based on the Joint Tourism Committee (2000) regional map of Southeast Queensland published in 'The Guide'. Location of marked national parks on the map are only approximate.

The emphasis of both the private operators of the lodges is on ecotourism (cf. Weaver and Lawton, 2001) and their properties are heavily complemented by the attributes of the

⁶ According to QPWS statistics, 108,551 vehicles entered Binna Burra in 2001 and 77, 209 entered Green Mountains.

national park for their business operations. Picnic facilities are also provided by the two private lodge operators and Queensland Parks and Wildlife Service (QPWS). Visitors to LNP are both day and overnight visitors. Overnight visitors may stay within the park in the lodges provided by the two private operators or at the camping sites maintained by QPWS and a private operator in the case of Binna Burra or in limited private accommodation available within a short driving distance of the national park.

3. Current charges and fees for entry to National Parks in Australia

Although national parks in Australia are often free to visitors, many impose entry charges, apart from the charges for the use of camping sites. However, entrance fees to national parks vary a great deal from State to State and also depend on the mode of transport. While Tasmania charges a fee to enter almost all of its national parks, Queensland does not charge any fees except for five national/conservation parks and that too for interpretive services (ANZECC, 2000). Here, too, there are some exemptions. A good example is Mon Repos Conservation Park. At Mon Repos, charges apply only at certain times of the day during the sea turtle nesting season. In certain cases, tour operators pay QPWS to bring large groups of tourists to view attractions of national parks such as glowworms at Springbrook National Park (Natural Bridge section). The money enables the park to employ extra rangers and improve facilities. New South Wales charges entry fees to at least 10 percent of its national parks (NSW National Parks and Wildlife Service, 2002) and Victoria charges entry fees to national parks as well. South Australia and Western Australia also have charges. Northern Territory charges for its wildlife parks (e.g. Kakadu and Uluru) while the rest of its national parks are free. Even Australian Capital Territory has discussed the possibility of introducing a fee for the entry to its only national park (cf. Hansard, 1997). It is interesting to note that national parks bordering Queensland charge a fee (e.g. Border Rangers National Park) while those on the Queensland side (e.g. Lamington National Park) do not have an entry fee (see Figure 1).

Introduction of fees is always a controversial issue (cf. *The Daily Telegraph*, 2000; *Sydney Morning Herald*, 1999) since there is a belief among some Australians that entry

to national parks should be free because they already pay taxes and that nature should be freely accessible to all (Herath, 2000). On the other hand, some form of entry fees can raise money to undertake conservation work as well as improve visitor facilities. Funding available to most national parks has always been limited and hence, they remain under-resourced and under-staffed especially at a time when nature-based tourism is growing rapidly in Australia. The question of whether entry fees should be charged is especially important in the current context when park agencies are moving in the direction of greater commercialization of national parks (Figgis, 2000).

It is widely believed that the introduction of a fee, unless large, will not significantly reduce visitor numbers, especially in the long-term since the demand for visits is relatively inelastic (cf. Herath, 2000; Shultz *et al.*, 1998). This may, however, vary from park to park and entry fee increases could lead to substitution effects. However, many studies support the view that the demand for national parks in general is inelastic (cf. Azahari, 2001; Bennett, 1996; Knapman and Stoeckl, 1995; Beal 1995). Furthermore, a cursory look at visitor numbers in Victoria (cf. Parks Victoria, 2002) where a fee has been in place for some time suggests that fees have not had a major impact on visitor numbers. Visitor numbers continued to increase in Victoria's national parks even after the introduction of fees. However, the composition of visitors (e.g. more foreign than Australian visitors, higher income visitors than low income visitors or older visitors than younger visitors) may have changed. Shultz *et al.* (1998) point out that demand by foreigners for visiting national parks in Costa Rica is less elastic or less sensitive to price than is demand among residents. In Malaysia, a study in the Bako national park found that a large majority (72 percent) of visitors interviewed would return to the park even if the entrance fee is increased from RM3 to RM10 (Azahari, 2001). If the demand for visits to national parks is inelastic then it follows that charging fees, unless substantial, will be ineffective in controlling visitor numbers and would limit its use as a 'visitor control' instrument. On the other hand, if entrance fees are increased substantially, then in all probability foreigners and high income groups will be the main visitors and there is the danger that national parks would become luxury or snobbish goods.

According to many authors (cf. Azahari, 2001; Herath, 2000; ANZECC, 2000; Shultz *et al.*, 1998; Cullen, 1985) the use of entrance fees for national parks and protected areas is often felt to be justified on grounds of: (a) providing better visitor facilities (b) reducing visitor numbers and hence reducing environmental effects (c) removing subsidized competition with privately owned protected areas (d) achieving efficiency in revenue collection (d) creating positive attitudes towards protected areas (e) and helping recover costs some of the parks maintenance costs and reduce dependency on government funds.

On the other hand, the imposition of fees could have major implications for political support from the public for nature conservation. Herath (2000) argues that entry fees could create adverse distributional consequences, that public resources should allow equal access to all socio-economic groups, conservation of natural resources is a community service obligation and that such entrance fees amount to a double tax. However, increasing funding for national parks is important to improve visitor facilities as well as to undertake necessary conservation work for which these parks were created. If entry charges are one way of generating some of this funding which is in addition to current funding then, it is important to demonstrate the benefits of charging entry fees in terms of conservation work undertaken and improvement of public facilities in the parks where charges occur. A national parks policy statement could dent public antagonism towards the introduction of fees. Some States (e.g. WA, NT, NSW) already do this as a part of justifying their decision to levy fees to enter some national parks. The park entry fees could be used to purchase land to establish corridors between fragmented national parks and nature reserves (cf. Figure 1 showing disjointed national parks). Visitor educational programs could also be strengthened resulting in significant conservation benefits (Tisdell and Wilson 2000). It is clear from various arguments put forward that entrance fees, in addition to current funding, while generating revenue, should also at the same time maintain and improve the infrastructure, services and protection of parks. Therefore, it is necessary to obtain the views of park managers (Shultz *et al.*, 1998) and most importantly those of visitors. This is because, if visitors are in favour of park entrance fees, it has been argued that such fees can raise money for park management and their conservation (cf. Machado, 2000; Bowker *et al.*, 1999; Peter, 1998). Furthermore,

several studies have shown that visitors are in favour of fees only if the money generated is used for park management and conservation work (cf. Walpole *et al.* 2001; Machado, 2000; Peters, 1998).

In order to determine the attitudes of visitors, a survey was conducted in LNP (Green Mountains section) to determine whether visitors are in favour of a fee to enter LNP. The first question asked visitors whether they think visitors should pay to visit LNP, which at present like most national parks in Queensland, is free of charge. This question was followed by asking whether they would be more willing to pay if money collected is spent to improve national park facilities and conservation at this site instead of the money going into government coffers. The visitors were also asked how much a visiting adult should be charged per visit and the maximum amount that they would pay per visit. The latter questions were included to determine how much visitors think an adult visitor should be charged and the maximum amounts they would pay per visit. Before the results of the survey are reported and analysed, the manner in which the survey was conducted is explained and the profile of visitors is discussed.

4. Survey and profile of visitors

Using our limited resources, we surveyed visitors to the O'Reilly's/Green Mountains section of the LNP (see Figure 1) during the period October, 2001 to March, 2002 using a structured questionnaire to obtain an adequate sample size of, both overnight and day visitors. We were successful in obtaining 622 useable surveys from both the pilot and post-pilot surveys. The study, in addition to collecting a variety of different information from visitors to the Green Mountains/O'Reilly's, also gathered socio-economic data to determine the profile of visitors and to determine whether visitors are in favour of an entry fee and if so under what conditions they would do so. Necessary data was also collected to determine the factors that influence visitors supporting entry fees to LNP and to determine how much they think an adult visitor should pay and the maximum amounts they think they should pay.

Visitors were given the structured questionnaire with a pre-paid self-addressed envelope randomly by the authors, a research assistant and O'Reilly's guesthouse staff. Survey forms were distributed, both at the O'Reilly's guesthouse (approximately 225 with a 34 percent response rate) and among visitors at or close to the Green Mountains' car park that is adjacent to the O'Reilly's guesthouse. The number distributed was 1,536 with a 35 percent response rate. Hence, the random distribution covered visitors to O'Reilly's/Green Mountains site. One survey form per family or individuals travelling on their own were distributed. The response rate which may seem low is not unusual for surveys of this nature (Jakobsson and Dragun, 1996).

There were visitors from 17 countries and most of them apart from Australia were from UK, other European countries, USA and Canada with fewer visitors from Asia as can be seen from Table 1.

Table 1

Nationality of surveyed visitors and state of origin of Australians to O'Reilly's/Green Mountains, LNP

Overseas visitors	No	Relative frequency (%)	Australian visitors	No	Relative frequency (%)
UK	41	34	QLD	339	68
USA	19	16	NSW	82	16
Germany	18	15	VIC	29	06
NZ	10	09	ACT	00	0
Canada	09	07	SA	14	03
Ireland	04	03	WA	09	02
Japan	03	02	TAS	03	0.6
Switzerland	03	02	NT	02	0.4
Other	14	12	NR+	21	04
Total	121	100	Total	499	100

* Nationalities included in the 'other' category were from Singapore, Belgium, France, New Jersey, Israel, Norway, Netherlands and Sweden. + Did not indicate their State of origin.

Note: Two respondents did not indicate their nationality.

The low number of Asians recorded may be due partly to Asian visitors not responding due to language barriers. The majority of surveyed visitors to the site were, as expected, from Australia (80.22 percent) with the largest number coming from Queensland (68 percent), followed by New South Wales (16 percent). Most of the visitors were day visitors or did not stay at or close to the site (62 percent) while the rest (38 percent) did.

The largest number of the visitors were first time visitors followed by those who have visited O'Reilly's more than thrice indicating a U-shaped relative frequency distribution.

The educational attainment of the respondents was high with close to 70 percent having tertiary qualifications while more than 30 percent had an income of more than Aus \$60,000. Most of the respondents belonged to the 50-60 years age group and more than 80 percent of the respondents were over 30 years of age. More than half of the respondents were female (51 percent) while 46 percent were male and the rest 3 percent did not indicate their gender.

The survey revealed that only 20 percent of the respondents were members of any nature conservation group, while 75 percent said they were not and 5 percent did not answer this question. However, a majority (59 percent) said that they were extremely or strong advocates of nature conservation, another 36 percent said they were moderate advocates and 4 percent said that they were neutral towards this subject. A small number (1 percent) said they are more oriented towards development and 5 percent did not answer this question.

5. Visitors' attitudes and suggested entry fees to visit Lamington National Park

Since there is much discussion regarding the imposition of entry fees to national parks and its effects, both positive and negative, in Australia and elsewhere, the study was partly designed to examine whether visitors are supportive of an entry fee to visit LNP and under what circumstances they would support such a scheme. The study also asked visitors how much an adult should be charged per visit, and the maximum amount they would be prepared to pay per visit. The study was also designed to identify factors that influence visitors' responses and the amounts they think visitors should pay and the maximum amounts that they are willing to pay per visit.

In order to determine whether visitors should pay to visit LNP, we first asked visitors the following question:

*Do you think that visitors should pay to visit Lamington
National Park?*

Yes ☐ No ☐

The sampled visitors were then asked to give one or two reasons for choosing ‘yes’ or ‘no’. The majority of the visitors (67 percent) said that visitors should not pay to visit LNP while 29 percent said visitors should pay and the rest (4 percent) did not answer this question.

The relative frequency with which foreigners thought that visitors should pay substantially exceeded that for Australians. Only 27 percent of Australians thought that visitors should pay to visit LNP while it was 40 percent for foreigners (Table 2). Furthermore, the relative frequency of Queensland respondents in favour of payment for entry to LNP (25 percent) was considerably less than that of respondents from other States (32 percent), taking into account only the sample for which the State of origin of Australians is identifiable. Reasons for the lowest relative responses of Queenslanders could include the fact that they already pay taxes that help to finance QPWS. Because entry fees to national parks/conservation areas are infrequent in Queensland, this unfamiliarity may also have influenced responses.

Table 2
**Responses by nationality and State to the question “do you think that visitors
should pay to visit Lamington National Park?”**

	Yes	%	No	%	No Response	%	Total
All (Australians and Foreigners)	184	29	412	67	26	04	622*
Foreigners	48	40	63	52	10	08	121
Australian	136	27	348	70	15	03	499
(a) Queenslanders	83	25	252	74	04	01	339
(b) Other States in Australia	45	32	86	62	08	06	139
(c) Australian, but State not known	08	38	10	48	03	14	21

* Two respondents did not indicate their nationality or their State.

Visitors gave a variety of reasons why visitors should or should not pay to visit LNP. Many who did not favour a payment said that the park should be open to all, nature should not be charged and that they already pay taxes and hence government should pay for its maintenance. Some respondents also mentioned that they were unable to pay because their incomes were low or they were pensioners. The reasons for supporting payment included the need to pay for park maintenance and for conservation work, the need to pay in order to make improvements to the national park, the view that patrons care more if a payment has to be made and that would be useful to reduce numbers of visitors.

In addition to asking visitors about whether visitors should pay to visit LNP, we asked the visitors how much they think a visiting adult should be charged per visit. The question was framed as follows:

*How much do you think a visiting adult should
be charged per visit?*

Aus \$.....

The majority of the respondents answered this question, out of which 20 percent said they would pay a zero (0) amount or gave a protest bid such as 'we don't want to pay anything since it is the responsibility of the State to provide it free of charge'. Interestingly, the largest relative percentage of visitors who said visitors should pay a zero amount or gave a protest bid were Australian (22.6 percent) compared to 10 percent for foreigners. Of those who suggested there should be a payment, the majority of the visitors (17 percent) suggested Aus \$2 and most of them were Australians. The average entry charge suggested by Australians was Aus \$2.62 while foreigners suggested an average charge of Aus \$6.00 which is more than twice the amount suggested by Australians. One of the reasons for this could be due to the favourable exchange rates enjoyed by visitors and the higher incomes of those visitors from North America and Europe, especially Britain. The breakdown of payments is shown in Table 3. Of the Australians, the largest relative percentage who suggested a zero amount or a protest bid were once again from

Queensland (see Table 3). The average entry fee suggested by Queenslanders was Aus \$2.29 while those from other States suggested an average charge of Aus \$3.13.

Table 3
Normative entry fees as suggested by sampled visitors from various States in Australia per adult to visit LNP – frequency and relative frequency in percentages in brackets

Fee (Aus \$)	QLD		Other States		Australian, but State not known		Australians (Total)		Foreigners	
0	86	(25.4)	26	(18.7)	1	(4.8)	113	(22.6)	12	(9.9)
1	18	(5.3)	12	(8.6)	1	(4.8)	31	(6.2)	3	(2.4)
2	65	(19.2)	25	(18.0)	5	(23.8)	95	(19.0)	9	(7.4)
3	15	(4.4)	4	(2.9)	1	(4.8)	20	(4.0)	8	(6.6)
4	4	(1.2)	1	(0.7)	1	(4.8)	6	(1.2)	1	(0.8)
5	46	(13.6)	26	(18.7)	1	(4.8)	73	(14.6)	24	(19.8)
6	1	(0.3)	1	(0.7)	1	(4.8)	3	(0.6)	0	(0.0)
7	3	(0.9)	5	(3.6)	1	(4.8)	9	(1.8)	3	(2.4)
8	1	(0.3)	0	(0.0)	0	(0.0)	1	(0.2)	2	(1.6)
9	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)	0	(0.0)
10	8	(2.4)	7	(5.0)	3	(14.3)	18	(3.6)	18	(14.8)
15	1	(0.3)	0	(0.0)	0	(0.0)	1	(0.2)	3	(2.4)
20	0	(0.0)	1	(0.7)	0	(0.0)	1	(0.2)	5	(4.1)
Other*	91	(26.8)	31	(22.3)	6	(28.6)	128	(25.6)	33	(27.2)
Total	339	(100)	139	(100)	21	(100)	499	100	121	100
Average Aus \$	2.29	-	3.13	-	4.4	-	2.62	-	6.03	-

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

One of the reasons that could be given for many Queenslanders suggesting that visitors should not pay anything compared to those from other States is that national parks in Queensland are at present free of charge and they want them to remain that way for visitors. Some of the reasons cited by respondents for objecting to an entry fee for visitors are based mainly on grounds that nature should be free. Furthermore, many were of the view that they already pay taxes and hence government should pay for national park maintenance. As pointed out by Herath (2000), visitors seem to consider an entrance fee as a sort of a second tax.

Furthermore, we also asked a question to determine the maximum amount the respondents would be willing to pay. The question was framed as follows:

What is the maximum amount that you would pay per visit?

Aus \$.....

Of the respondents who answered this question, only 16 percent said ‘nothing’ and more than 91 percent of them were Australian. In general, the maximum amounts visitors were willing to pay were higher than in the previous question “how much do you think a visiting adult should be charged per visit?”. The amount Australians (20 percent) frequently suggested was approximately Aus \$5.00 while foreigners (19 percent) were willing to pay Aus \$10.00. The average entry fee suggested by Australians was Aus \$4.30 while foreigners suggested an average charge of Aus \$9.56. These figures demonstrate that on average foreigners are willing to pay twice as much as an average Australian. Table 4 shows the breakdown of maximum amounts visitors were willing to pay.

Table 4**Maximum entry fees that respondents say they are willing to pay per adult to visit LNP – frequency and relative frequency in percentages in brackets**

Fee (Aus \$)	QLD		Other States		Australian, but State not known		Australians (Total)		Foreigners	
0	72	(21.2)	19	(13.7)	1	(4.8)	92	(18.4)	9	(7.4)
1	8	(2.4)	6	(4.3)	2	(9.5)	16	(3.2)	0	(0.0)
2	49	(14.5)	11	(7.9)	2	(9.5)	62	(12.4)	6	(4.9)
3	14	(4.1)	1	(0.7)	0	(0.0)	15	(3.0)	3	(2.4)
4	5	(1.5)	1	(0.7)	1	(4.8)	7	(01.4)	2	(1.6)
5	67	(19.8)	31	(22.3)	0	(0.0)	98	(19.6)	12	(9.9)
6	0	(0.0)	2	(1.4)	0	(0.0)	2	(0.4)	0	(0.0)
7	1	(0.3)	1	(0.7)	1	(4.8)	3	(0.6)	2	(1.6)
8	3	(0.9)	1	(0.7)	0	(0.0)	4	(0.8)	2	(1.6)
9	0	(0.0)	0	(0.0)	1	(4.8)	1	(0.2)	0	(0.0)
10	38	(11.2)	15	(10.8)	2	(9.5)	55	(11.0)	23	(19.0)
15	2	(0.6)	2	(1.4)	0	(0.0)	4	(0.8)	7	(5.8)
20	8	(2.4)	1	(0.7)	1	(4.8)	10	(2.0)	17	(14.0)
Other*	72	(21.2)	48	(34.5)	10	(47.6)	130	(26.0)	38	(31.4)
Total	339	(100)	139	(28)	21	100	499	100	121	100
Average Aus \$	4.13	-	4.58	-	6	-	4.30	-	9.56	-

Note: * Includes non responses and non numerical responses.

+ There were two respondents who did not state their nationality.

Percentages are in parenthesis

The breakdown of the amounts Australians and foreigners are willing to pay shows that the largest relative percentage of Queenslanders (21 percent) do not want to pay anything, while only 14 percent from other States do not want to pay a zero amount. The most frequently suggested amount by Australians was Aus \$ 5 which was also the frequently suggested amount by visitors from other States (22.3 percent). The average entrance fee suggested by Queenslanders was Aus \$4.13 while those from other States suggested an average charge of Aus \$4.58. The average amounts Queenslanders and those from other States are willing to pay are much larger than the amounts suggested for the question “how much do you think a visiting adult should be charged per visit (Table 4).

From the data obtained from the visitors (Tables 3 and 4), on average, a foreign visitor is in favour of a user-fee of more than twice that of an average Australian visitor. One of the main reasons could be that entry to many national parks in Australia, especially

Queensland, is free of charge and hence a significant percentage of Australians compared to foreigners, especially Queenslanders, would like to pay as little as possible to enter Australian national parks because they already pay taxes to the Queensland State Government. This is especially so when many Australian visitors stated that they already pay taxes and hence entry to national parks should remain free. It must, however, be pointed out that it is necessary to be cautious in interpreting the results since there could be some degree of strategic bias involved because there is no incentive for Australians, especially for Queenslanders to support a user-fee principle to enter LNP.

Because QPWS earnings go back into a Government Consolidated Revenue and because this money is not assured of being used to improve park facilities and for conservation related work, we included a positive question involving the respondents' own willingness to pay. This was to determine whether the respondent would be more willing to pay if the revenue collected from an entrance fee was reinvested to improve visitor facilities and for conservation work at this site. The question was framed in the following manner:

*Would you be more willing to pay if money collected is spent
to improve park facilities and conservation at this site?*

Yes ☐ No ☐

The answers to this question showed a marked difference to the first question where the visitors were asked a normative question which was “do you think that visitors should pay to visit LNP?”. For instance, 64 percent of the respondents said they would be willing to pay if the money is used for the benefit of the park, while only 26 percent said they were not willing to pay and the rest (10 percent) did not answer this question (see Table 5). A higher proportion of foreigners as in the previous two questions were willing to pay than Australians. Of the Australians, who did not want to pay, the largest percentage came from Queensland, as in the case of the question “do you think that visitors should pay to visit LNP?” (see Table 2).

Table 5

Responses by nationality and State to the question “would you be more willing to pay if money collected is spent to improve park facilities and conservation at this site?”

	Yes	%	No	%	No Response	%	Total
All (Australians and Foreigners)	387	64	156	26	56	10	599*+
Foreigners	89	78	16	14	09	08	114+
Australian	296	61	140	29	47	10	483+
Queenslanders	199	60	101	30	33	10	333+
Other States in Australia	87	67	34	26	09	07	130+
Australian, but State not known	10	50	05	25	05	25	20+

* Two respondents did not indicate their nationality or their State. + Does not include pilot survey data because this question was not included.

As Table 5 shows, although proportionately more Australians are still unwilling to pay compared to foreigners, there is a substantial increase in their willingness to pay when a positive question is asked involving them and if the money were to be used to develop park facilities and undertake conservation work. As can be seen from Table 5 more Australians, including Queenslanders are also in favour of paying a user-fee if the money collected is spent to improve park facilities and conservation in the park than when such a scheme is not in place as shown in Table 2. The responses suggest that there is more public support for charging a park entrance fee if the money generated is spent for the improvement of park facilities and for conservation work. This is consistent with the findings of Machado (2000), and with interviews conducted among tourists by Stateline Queensland (2003) regarding the proposed increase in the ferry fee by the Douglas Shire in Far North Queensland to fund purchasing private rainforests from June, 2003.

6. Significant factors influencing visitors’ suggested amounts to visit Lamington National Park

Given the data collected from the survey, it is possible by using regression analyses to examine some of the variables that may significantly influence visitors’ attitudes and suggested entry fees to visit LNP. A multinomial logit regression model is used for this purpose. As is clear from the discussion in the previous section, four questions were asked from visitors to determine visitors’ attitudes and suggested entry fees. They are all

used to examine factors influencing visitors' attitudes and suggested entry fees to visit LNP and act as a 'double check' on the results of the logit analyses identifying factors influencing visitors' attitudes and suggested entry fees. Since the responses obtained from the question "do you think that visitors should pay to visit Lamington National Park" were in the form of 'yes' and 'no' answers they were coded 1 and 0 respectively. For the second regression analysis the data obtained from the question "how much do you think a visiting adult should be charged per visit?" are coded 1 for a 'suggested positive payment' and 0 for a 'zero payment or a protest bid'⁷ reply. A similar coding is used for the dependent variables in other two logit analyses. While the dependent variables are different which are based on the four questions asked, the same independent variables are used for the four regression analyses.

In order to estimate the four multinomial logit regressions, the following model is used:

$$\ln\left(\frac{P_i}{1-P_i}\right) = \beta_1 + \beta_2 Age + \beta_3 Gen + \beta_4 Inc + \beta_5 Edu + \beta_6 Nat + \beta_7 Att + \beta_8 Rfv + \beta_9 Ntr + \mu_i \quad (1)$$

where P_i is the probability of saying 'yes' and $(1-P_i)$ is the probability of saying 'no'. Each of the explanatory variables in the above equation is described in Table 6. The independent variables considered were income, age, education, gender, nationality, strong advocate of nature conservation or not, first time visitor or not and number of visitors accompanying the respondent. These variables were selected because it is believed to be likely factors that could affect visitors' decisions about whether they should pay to visit LNP or not. Table 6 also shows the expected signs and direction of each of the expected relationships of each variable. The random disturbance term in equation (1) is μ_i .

⁷ A protest bid refers to a respondent who is not willing to pay to enter the national park. For example, a respondent saying that he or she is unwilling to pay because it is the responsibility of the State to provide free access to national parks.

Table 6**Definitions, coded variables and hypotheses of the logit regression analyses**

Variable	Definitions and coding of variables	Hypothesis
Age	Age coded from 1-7 at intervals of 10 years. One represents the lowest and seven represents the highest (e.g. 3 = 21-30 and 6 = 51- 60).	$B_{Age} > 0$
Gen	Male (0)/Female (1)	$B_{Gen} > 0$
Inc	Income coded from 1-6 at intervals of Aus \$10,000. One is the lowest and 6 is the highest (e.g. 2 = Aus \$ 20,001-30,00 and 6 = Aus \$61,000 and above).	$B_{Inc} > 0$
Edu	Education coded 0-1 where 0 represents primary and secondary education and 1 represents tertiary education.	$B_{Edu} > 0$
Nat	Nationality coded as Australian (0)/Foreign (1)	$B_{Nat} > 0$
Att	Respondents' attitudes toward nature conservation coded from 0-4. Those who were more oriented towards development were coded 1 and those who stated they were strong advocates were coded 4.	$B_{Att} > 0$
Rfv	Respondents' first visit coded as 1, otherwise, 0	$B_{Rfv} > 0$
Ntr	Number of persons travelling with the respondent	$B_{Ntr} > 0$

The first logit regression analysis was conducted to determine the likely factors that influence visitors' response as to whether visitors should pay an entry fee or not to visit LNP. The results are shown in Table 7. The results suggest that age, income, nationality and being a strong advocate of nature conservation were significant factors in visitors' determining whether visitors should pay to visit LNP or not. Interestingly, foreigners were more likely to suggest that visitors should pay than Australians and so were the visitors with higher incomes and older visitors. Strong advocates of nature conservation were also more likely to suggest that visitors should pay an entry fee if they were asked to do so. The variables showing the number of visitors accompanying the respondent, and gender were insignificant. Furthermore, the variable showing whether visitors were first time visitors to Green Mountains site or not was also insignificant. Level of education was found not to be significant and it appears that the evidence from other studies is mixed. The education variable was also found to be insignificant by Shultz *et al.* (1998) in a study done in Costa Rica to determine who would be most likely to pay for entrance fees to national parks while it was significant in a study conducted by Bowker *et al.* (1999).

Table 7

Logit results showing factors influencing survey respondents' attitudes about whether visitors should pay or not to visit Lamington National Park

Independent variable	Coefficient	Standard error	T-value	Mean
Respondents' age	0.13	0.07	1.67*	4.95
Respondents' gender	0.31	0.21	1.4	1.50
Respondents' income	0.22	0.06	3.40**	4.16
Respondents' education	0.03	0.24	0.14	0.71
Respondents' nationality	0.59	0.28	2.09**	1.17
Respondents' attitudes towards nature conservation	0.35	0.12	2.89**	2.73
Respondents' first visit	0.03	0.20	0.149	-1.53
Number of persons travelling with the respondent	0.03	0.02	1.48	3.56
Constant	-4.85	0.81	-5.96	-

Note: ** and * indicate 1 percent and 10 percent levels of significance, respectively, for a two tailed test. Number of observations = 496

The second regression analysis was conducted to determine the likely factors that influence visitors' suggested normative entry fees. The results are shown in Table 8. Income, nationality and first time visitors were factors influencing visitors suggesting entry fees. Interestingly, those with higher incomes, foreigners and first time visitors were more likely to suggest payments than those who were not. The rest of the variables were insignificant. Respondents' 'attitudes' to nature conservation and age, although significant in the first are not significant in the second regression as can be seen in Table 8.

Table 8
Logit results showing factors influencing visitors suggested
normative entry fees to visit Lamington National Park

Independent variable	Coefficient	Standard error	T-value	Mean
Respondents' age	-0.02	0.09	-0.32	4.90
Respondents' gender	0.04	0.24	0.19	1.4
Respondents' income	0.14	0.07	1.99**	4.18
Respondents' education	-0.36	0.27	-1.31	0.70
Respondents' nationality	0.99	0.44	2.22**	1.17
Respondents' attitudes towards nature conservation	0.07	0.13	0.54	2.75
Respondents' first visit	0.41	0.25	1.66*	-2.05
Number of persons travelling with the respondent	0.01	0.02	0.59	3.60
Constant	-0.70	0.89	-0.78	-

Note: ** and * indicate 1 percent and 10 percent levels of significance, respectively, for a two tailed test. Number of observations = 397

In the third regression analysis using data for the question “what is the maximum amount that you would pay per visit”, the influencing factors are only income and nationality. Those with higher incomes and foreigners are more likely to indicate that they are willing to pay positive maximum amounts to enter LNP than those with lower incomes and Australians. The results are shown in Table 9.

Table 9
Logit results for the question:
“what is the maximum amount that you would pay per visit ?”

Independent variable	Coefficient	Standard error	T-value	Mean
Respondents' age	-0.50	0.09	-0.51	4.90
Respondents' gender	-0.28	0.26	-1.07	1.47
Respondents' income	0.16	0.07	2.10**	4.16
Respondents' education	-0.34	0.30	-1.14	0.70
Respondents' nationality	0.92	0.51	1.81*	1.16
Respondents' attitudes towards nature conservation	-0.04	0.14	-0.02	2.72
Respondents' first visit	0.33	0.26	1.23	-2.08
Number of persons travelling with the respondent	0.00	0.02	0.24	3.76
Constant	0.59	0.99	0.60	-

Note: ** and * indicate 1 percent and 10 percent levels of significance, respectively, for a two tailed test. Number of observations = 391

In the fourth regression analysis where the question “would you be more willing to pay if money collected is spent to improve park facilities and conservation at this site” was used as the dependent variable, and once again only income and nationality are significant while the rest of the variables are insignificant. The results are shown in Table 10.

Table 10

Logit results for the question:

“would you be more willing to pay to visit Lamington National Park when the money collected is spent to improve park facilities and conservation at the site?”

Independent variable	Coefficient	Standard error	T-value	Mean
Respondents' age	0.05	0.07	0.72	4.9
Respondents' gender	0.04	0.20	0.22	1.5
Respondents' income	0.12	0.06	1.96*	4.15
Respondents' education	-0.15	0.23	-0.67	0.71
Respondents' nationality	0.94	0.35	2.66**	1.16
Respondents' attitudes towards nature conservation	0.10	0.11	0.92	2.73
Respondents' first visit	0.01	0.19	0.08	-1.6
Number of persons travelling with the respondent	0.01	0.02	0.51	3.69
Constant	-1.30	0.76	-1.71	-

Note: ** and * indicate 1 percent and 5 percent levels of significance, respectively, for a two tailed test. Number of observations = 478

It is interesting to note that education in all the four regression analyses are insignificant and three regressions even have negative correlations. It is possible to provide at least one explanation for this. A separate logit analysis conducted (results not reported in the paper) using the survey data between education and attitudes to nature conservation show that those who are more educated are more likely to support nature conservation. This result indicates that although those with more education are likely to support nature conservation they may not necessarily support a user-fee entry system for national parks. Visitors seem to object to this method of financing national parks, and they feel they should be free to the public and financed by taxes. Hence, the reason why more educated visitors are less likely to support a user-fee entry scheme to LNP even if some of the money would be utilized for conservation work as in the case of results shown in Table 10.

It is also interesting to note that in all the four regressions, income and nationality are the only two regressions that are significant and they are all significant at either 1 percent or 5 percent level of significance except in the case of nationality (significant at 10 percent) as shown in Table 9. These results indicate that nationality and income are important factors in influencing visitors' attitudes to user-fees and decision making processes in their willingness to pay for entry to national parks such as LNP.

All the significant variables have the expected signs, but the coefficients in some of the significant variables are small. For instance in the first regression (Table 7), age has a coefficient of 0.13 and income has 0.22. In the second regression (Table 8) the income coefficient is only 0.14. In the other two regressions, too, the income coefficient is small. On the hand the coefficient for nationality is quite large for all the four regression.

In the next section we discuss the policy implications of the regression results as well as the survey data.

7. Policy implications of the survey and regression results

As was pointed out earlier, Queensland is one of the fewer states in Australia where only a few national/conservation parks (5) charge an entry fee and that too for interpretive services. ACT also does not charge a fee at present to enter its only national park, but imposes a vehicle fee to visit the Tidbinbilla nature reserve. All other States charge some entry fees and in some States almost all national parks levy some entry fee. The survey and the results of the first regression analysis are interesting because it clearly demonstrates that foreigners are more likely to think that visitors should pay to visit LNP than Australians. There are many possible reasons as to why more foreigners than Australians thought that visitors should pay to visit LNP. Some of these are: (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.

The regression results also indicate that higher income groups are more likely to suggest that visitors should pay than lower income groups. An important implication arising from this result is that a charge could disadvantage lower income groups and pensioners if adequate safety nets are not provided. This is especially so because relatively more foreigners than Australians thought that visitors should pay. One major benefit of recreational visits is education resulting from such experience which in turn is an important factor aiding conservation. Furthermore, entrance fees in such a situation, if large, could make the national park a luxury or a snobbish good.

Furthermore, the regression results demonstrated that strong advocates of nature conservation are more likely to think that visitors should pay to visit than those who are neutral towards nature conservation or those who are more oriented towards development than conservation. The results imply that it is those visitors who are already convinced of nature conservation who think that visitors should pay than those who are neutral towards nature conservation. This implies that if a charge is imposed only those who are already interested in nature would be more willing to visit than those who are yet to be convinced of nature conservation. A fee, in other words, could lock out those who are less inclined towards nature conservation unless concessions are put in place. The number of persons accompanying the respondent was also not found to be significant. Education variable is insignificant. This was unexpected, but similar studies have come up with mixed results. A separate logit analysis conducted (results not reported) between education and attitudes to nature conservation show that those who are more educated are more likely to support nature conservation. This result indicates that although those with more education are likely to support nature conservation they may not necessarily support a user-fee entry system to national parks. Hence the reason why more educated visitors are less likely to support a user-fee entry scheme to LNP even if some of the money would be utilized for conservation work as in the case of results shown in Table 10.

In the second regression analysis those visitors with higher incomes, foreigners and first time visitors are more likely to suggest a positive payment that visitors should be charged for entry per visit. One variable that is not significant from the first regression is the variable showing attitudes to conservation. It shows that visitors who are strong advocates are not always willing to suggest an entrance fee which visitors should pay.

The results of the third and the fourth regression analyses are also interesting. Once again income and nationality were found to be significant factors. These variables were also significant in the first two regression analyses in addition to the visitors being strong advocates of nature (first regression) and first time visitors (second regression). The survey data (Table 5) also show that more foreigners and Australians, including Queenslanders, were more willing to pay an entry fee if the money collected would be used to improve visitor facilities and conservation work. This result ensures that an entrance fee will not deter visitors with high incomes and foreigners. This means that it will be necessary to provide concessions for those who are unable to pay or unwilling to pay for reasons such as those with low incomes and pensioners, regular visitors and those living close to the park if an entry fee is considered.

Furthermore, although a higher proportion of foreigners thought that visitors should pay a fee, it does not mean that foreigners should be charged more than locals as happens in some other countries, including developing countries. Although the main reason cited for this is that locals contribute to the establishment and maintenance of parks through taxes (cf. Shultz et al. 1998), it could affect public relations and furthermore foreigners in any case, in most instances spend more money per capita in the local area than Australians (Tisdell and Wilson, 2003). A higher entry fee could affect the amount of money available for spending in the local areas. In a multicultural country such as Australia determining who is a foreigner or not could affect the privacy of visitors and cause inconvenience. Tourist operators could also object to a two-tier entry fee.

The survey results shown in Table 2 are interesting in that when visitors are asked a normative question such as whether they “think that visitors should pay to visit LNP”, a

large percentage of visitors, especially Australians say that visitors should not pay to enter LNP. On the other hand when they are asked a positive question such as “ would you be more willing to pay if money collected is spent to improve park facilities and conservation at this site”, then a larger percentage of visitors are willing to pay than in the previous question, including more Australians, especially Queenslanders (Table 2 and 5). Furthermore, the survey results demonstrate that visitors’ maximum willingness to pay per visit is higher for both Australian and foreigners than when visitors are asked “ how much do you think a visiting adult should be charged per visit”. The survey results have several policy implications. It suggests that there will be less public opposition to the introduction of a fee when visitors think the proceeds from an entry fee is used to develop visitor facilities and for conservation work (cf. Stateline Queensland, 2003) and that it is possible to achieve conservation objectives as well with the money collected from an entrance fee (cf. Machado, 2000). Such a move could cater to both increased recreational needs as well as achieve conservation objectives. Since control of visitor numbers may not be possible because of the inelastic demand and because of public opposition for such a move (cf. EPA, 2001) one way is to enlarge the existing national parks and join them with isolated nature reserves, State forests and fragmented World Heritage listed national parks on the Queensland side. At present some Queensland national parks such as LNP are already connected with those in New South Wales such as the Border Ranges national park (see Figure 1).

There are many fragmented national parks in the scenic rim area which are currently heavily used for recreational purposes which may not be able to sustain themselves without intensive management, especially with increasing demands from a growing nature-based tourism industry. Problems will no doubt increase if the parks remain fragmented. Furthermore, they may not be viable for biological conservation purposes in the long term if corridors between these fragmented forests are not created (cf. Saunders and Hobbs, 1991). Amalgamation of all the remaining forests in the scenic rim area into one park could achieve both biological/conservation needs and also cater to increased recreational needs from tourism. Creation of corridors and joining fragmented national parks is not only consistent with current QPWS policy (cf. EPA, 2001), but will also

achieve other conservation objectives such as is evident from the Coxen fig parrot recovery report (NSW National Parks and Wildlife Service, 2002). The Coxen's fig parrot, *Cyclopsitta diophthalma coxeni* is one of Australia's rarest birds and is critically endangered (Hanging Parrot and Fig Parrot International Conservatory, 2002) and has been recorded only from parts of northern NSW and SE Queensland, including LNP. One of the objectives of the recovery plan for the fig parrot is to 'increase the extent, quality and connectivity' of its habitat (NSW National Parks and Wildlife Service, 2002). This would not only benefit the Coxen's Fig Parrot and other wildlife, but also other threatened birds such as Albert's lyrebird (*Menura alberti*), white-eared monarch (*Monarcha leucotis*) and eastern bristlebird (*Dasyornis brachypterus*) and mammals such as the southern tiger quoll (*Dasyurus maculatus maculatus*) whose numbers have declined due to clearing of forests and contact with humans. However, it must be pointed out that although visitors are more willing to pay to visit LNP if the money collected is used to develop visitor facilities and for conservation work, it is not clear whether they would be willing to pay entrance fees to fund the development of park facilities and conservation work in nearby or more distant national parks or establish corridors. A question of this nature was not asked in this survey.

8. Conclusions

The annual number of vehicles (approximately 150,000 after excluding guesthouse and QPWS vehicles that enter LNP) suggests that a vehicle charge of around Aus \$10 per vehicle could result in the collection of 1.5 million dollars a year. In such a case, a charge, in addition to current funding, becomes financially quite attractive. If the benefits could be demonstrated, then the 'user-pays' principle could become acceptable to most visitors and also at the same time obtain the political support of the public. The money generated from an entrance fee could be used to improve park facilities and for conservation work as pointed out by Machado (2000). Revenue from such a fee could also be used to improve visitor interpretive facilities and educational programs (although some visitors may not need or want such programs) that could further strengthen conservation objectives. The money could also be used to purchase land/forests as has been planned by the Douglas Shire in Far North Queensland from the first of July, 2003

(Stateline Queensland, 2003). The survey data, including the regression results, show that foreigners could contribute much needed money in the form of entry fees to undertake conservation work in the national park. However, in the event of an introduction of a fee, not only do equity concerns have to be taken into account, but it is also necessary to seek the support of the public. In certain instances (e.g. time of day) and some national parks, including LNP, an entrance fee could also increase overhead costs such as having to employ more rangers for this work and for safe-keeping of money, especially in the evenings in national parks such as at Springbrook. In certain national parks, especially those with low visitation rates, a user-fee is financially unattractive because of the overhead costs involved in collecting such a fee. Furthermore, it must be pointed out that some revenue collected may have to go into a Government Consolidated Revenue or be reallocated by QPWS to be used in national parks that do not get sufficient number of visitors to be used to develop visitor facilities and for conservation work. Otherwise, there is the danger of creating a two-tier national park's system. Another issue that has to be considered is the feasibility of introducing an entrance fee when two private properties are located inside the national park whose tourism operations attract a significant volume of visitors. These are some of the issues that have to be considered in the event of an entrance fee being proposed.

However, if some of these issues could be addressed then the money collected from an entrance fee could be used to bring about better conservation outcomes of the type suggested by Machado (2000). In the case of LNP and the surrounding national parks and nature reserves, the fragmented forests, many of which are world heritage listed, could be connected. This could bring about better biological/conservation outcomes by protecting threatened species such as the Coxen's fig parrot and also at the same time cater to the recreational needs of tourists, especially the growing number of nature-based visitors. Although more visitors were willing to pay to visit LNP if the money collected would be used to develop visitor facilities and for conservation work, it is not clear if they would have the same attitudes if the money collected were to be used for visitor facility development and conservation work in neighbouring national parks and to establish corridors between parks. This is an area that needs further investigation.

Acknowledgements

We wish to thank the Co-operative 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 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. Special thanks to Craig Mosley for the excellent job he did in preparing the map showing LNP and its environs. We would also like to thank Hemanath Swarna, Alex Park and Chandra Dulare for research assistance. The usual *caveat* applies.

Notes

- 1 It must be mentioned that in both developed and developing countries there are some national parks that do not charge an entry fee. In Britain national parks only charge for facilities such as car parks and camping. However, local government charges a fee for certain country parks and so does the Royal Society for the Protection of Birds (RSPB) to enter its nature reserves. In New Zealand, entry to national parks is free (ANZECC, 2000)
- 2 The national parks that come under CERRA on the NSW-side were World Heritage listed in 1986.
- 3 The first established national park in Australia is the Royal National Park, which was established in 1879 and Queensland's first national park was Witches Falls which was declared in 1908 which now comes under Tamborine National Park.
- 4 According to QPWS statistics, 108,551 vehicles entered Binna Burra in 2001 and 77,209 entered Green Mountains.

- 5 A protest bid refers to a respondent who is not willing to pay to enter the national park. For example, a respondent saying that he or she is unwilling to pay because it is the responsibility of the State to provide free access to national parks.

References

- Azahari, O (2001), "The perception of visitors of the new entrance fees to national parks and wildlife centers", *Hornbill*, 5, nn-nn. Internet site: <http://www.mered.org.uk/Hornbill/Azahari.htm>
- Australian and New Zealand Environment and Conservation Council. 2000, *Benchmarking and Best Practice Program. User-Pays revenue*, Draft Report, prepared by ANZECC Working Group on National Parks and Protected Areas Management, Canberra.
- Beal, D. (1995), "Estimating the elasticity of demand for camping visits to a national park in south-east Queensland by the travel cost method", *Australian Leisure*, 7 (3): 21-26.
- Bennett, J. (1996), *Estimating the recreation use values of national parks*, paper presented to the annual Conference of the Australian Agricultural and Resource Economics Society, Melbourne.
- Bowker, J.M, Cordell, H.K and Cassandra, Y. J. (1999), "User fees for recreation services on public lands: A national assessment", *Journal of Park and Recreation Administration*, 17 (3): 1-14
- Cullen, R. (1985), "Rationing recreation use of public land, *Journal of Environmental Management*, 21 (1): 213-224.
- Driml, S., and Common, M. (1995), "Economic and financial benefits of tourism in major protected areas", *Australian Journal of Environmental Management*, 2(2): 19-29.
- Environmental Protection Agency (2001), *Maintaining natural integrity, cultural values and natural landscapes is the highest priority of national park management*, The State of Queensland Environmental Protection Agency, Brisbane, Queensland
- Figgis, P. (2000), "The double-edged sword: tourism and national parks", *Habitat Australia*, 28: 24-32.

- Hanging Parrot and Fig Parrot International Conservatory, (2002), *Preservation so that the future may see*, <http://www.gfs.org.za/link/hpnc/index.shtm>.
- Hansard, (1997), *Week 7*, 26 June, pp. 2211.
- Herath, G. (2000), "Issues surrounding entrance fees as a suitable mechanism for financing natural areas in Australia", *International Journal of Wilderness*, 6(2): 35-39.
- Jakobsson, K. M. and Dragun, A. K. (1996), *Contingent valuation and endangered species: methodological issues and appreciation*, Edward Elgar, Cheltenham, United Kingdom.
- Jarrott, J. K. (1990), *History of Lamington National Park*, J. K. Jarrott and The National Parks Association of Queensland Inc, Brisbane, Australia.
- Knapman, B and Stoeckl, N. (1995), "Recreation user fees: An Australian empirical investigation", *Tourism Economics*, 1 (1): 5-15.
- Machado, K. B. (2000), Funding conservation programs through the use of entrance fees: the case of Galapagos National Park, Ecuador, PhD. Dissertation, Cornell University.
- Moon, R. and Moon, V. (eds). (2000), *Discover Australia – National Parks*, Global Book Publishing Pty Ltd, NSW, Australia.
- Moran, D. (1994), "Contingent valuation and biodiversity: measuring the user surplus of Kenyan protected areas", *Biodiversity and Conservation*, 3: 663-684.
- NSW National Parks and Wildlife Service, (2002), *Coxen's Fig Parrot *Cyclopsitta diophthalma coxeni* (Gould) Recovery Plan*, NSW National Parks & Wildlife Service, Hurstville NSW.
- NSW National Parks and Wildlife Service, (2002), *Daily vehicle entry fees*, <http://www.npws.nsw.gov.au/help/dayp.html>.
- Parks Victoria, (2002), *Parks Victoria visitor statistics*, http://www.parkweb.vic.gov.au/1process_content.cfm?section=44&page=2.
- Peters, J. (1998), "Sharing national park entrance fees: forging new partnerships in Madagascar", *Society and Natural Resources*, 11(5): 517-530.
- Pugh, D. (2001), *Central Eastern Rainforests Reserves of Australia*, http://www.nefa.org.au/wh_cerra1.html.

- Queensland Parks and Wildlife Service, (2001), *Visitor information – Lamington National Park*, Brisbane, Queensland, Australia.
- Readers Digest, (2000), *Wild Australia*, Reader's Digest (Australia) Pty, Limited.
- Saunders D. A. and Hobbs R. J. (1991), *Nature Conservation: The Role of Corridors*. Survey Beatty, Chipping Norton, New South Wales, Australia.
- Shultz, S., Pinazzo, J and Cifuentes, M. (1998), "Opportunities and limitations of contingent valuation surveys to determine national park entrance fees: evidence from Costa Rica", *Environment and Development Economics*, 3: 131-149.
- Scoccimarro, M. (1992), *An Analysis of User-Pays for Queensland National Parks: A Case Study of Green Mountains*, thesis submitted in partial fulfillment of the requirements for the Bachelor of Economics with Honours, School of Economics, The University of Queensland, Brisbane, Australia.
- Stateline Queensland (2003), *And one Council's controversial plan to protect the Daintree rainforest*, <http://www.abc.net.au/stateline/qld/content/2003/s829475.htm>
- Sun Herald* (Sydney), (1998), "Kosciuszko park fees rise", December 27.
- Sydney Morning Herald*, (1999), "Entry fee for national parks", November 16.
- The Daily Telegraph*, (2000), "\$6 just to take a walk in the park", August 17.
- Tisdell, C. and Wilson, C. (2003), "Visitor profiles and environmental attributes, especially of birds, attracting visitors to Lamington National Park: tourist attitudes and economic issues", *Economics, Ecology and the Environment*, Working Papers No. 76, School of Economics, The University of Queensland, March.
- Tisdell, C. and Wilson, C. (2000), "A study of the impact of ecotourism on environmental education and conservation: The case of turtle watching at an Australian site", *Economics, Ecology and the Environment*, Working Papers No. 55, School of Economics, The University of Queensland, December.
- Walpole, M. J, Goodwin, H. J and Ward, K. G. R. (2001), "Pricing policy for tourism in protected areas: lessons from Komodo National Park, Indonesia", *Conservation Biology*, 15(1), 218-227
- Weaver, D. and Lawton, L. (2001). *Attributes and Behaviour of Ecotourism Patrons in LNP*, CRC for Sustainable Tourism, Griffith University, Gold Coast Campus, Brisbane, Australia.

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 from 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.
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.
77. Wildlife Damage, Insurance/Compensation for Farmers and Conservation: Sri Lankan Elephants as a Case by Ranjith Bandara and Clem Tisdell, May 2003.
78. Open-Cycle Hatcheries, Tourism and Conservation of Sea Turtles: Economic and Ecological Analysis by Clem Tisdell and Clevo Wilson, May 2003.