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ECONOMICS, ECOLOGY AND THE ENVIRONMENT

Working Paper No. 169

A Case Study of an NGO's Ecotourism Efforts: Findings Based on a Survey of Visitors to its Tropical Nature Reserve

by

Clem Tisdell

August 2010

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[1] A draft chapter for C.A. Tisdell and C. Wilson *The Economics of Nature Based Tourism and Conservation* to be published by Edward Elgar.

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A Case Study of an NGO's Ecotourism Efforts: Findings Based on a Survey of Visitors to its Tropical Nature Reserve

ABSTRACT

This article outlines the efforts of a small NGO, the Mareeba Wetland Foundation, to conserve nature and conduct tourism at its Mareeba Tropical Savanna Wetland Reserve in northern Queensland. It provides background about the establishment of the reserve and its nature and draws on the results from a survey of visitors to this reserve. It provides a socio-economic profile of visitors, their frequency of visits to it and their knowledge of it prior to visiting. This knowledge is found, on the whole, to be poor. The way in which visitors decided to visit the reserve is also considered as are indicators of the economic surplus obtained from visits. Because for most visitors their visit was an experiential good, doubts are raised about the traditional method of estimating the visitors' surplus in these circumstances and also about the applicability of the travel cost method to estimating the demand for visits. A further difficulty noted (in relation to the applicability of the travel cost method) was the high frequency of multiple purpose journeys. The extent to which visitors learned about nature and nature conservation and obtained information about the Mareeba Wetland Foundation and its programmes is also evaluated. Views were solicited from respondents about the role which they believe NGOs should play in nature conservation and about public versus private provision of facilities and services in national parks. Significant implications are drawn about political failures in catering for nature conservation. Doubts are raised about the purist view that ecotourism needs to be conducted under virtually natural conditions if it is to make an optimal contribution to the conservation of biodiversity.

Keywords: Conservation NGOs, consumers' surplus, ecotourism, experiential goods, Mareeba Tropical Savanna and Wetland Reserve, Mareeba Wetlands Foundation, national parks, public economics.

JEL Classifications: Q2, Q5, L83, H30.

A Case Study of an NGO's Ecotourism Efforts: Findings Based on a Survey of Visitors to its Tropical Nature Reserve

1. Introduction

Non-government organizations (NGOs) have been active in recent times in acquiring and securing land for the purpose of conserving wildlife. Such organizations have gone beyond politically advocating nature conservation to become active practitioners of it. In Australia relatively large organizations doing this include the Australian Nature Conservancy and the Bush Heritage Trust. There are many such NGOs of varying sizes in Australia and globally, and they differ in their wildlife conservation strategies and practices. Some modify the environments they acquire to benefit wildlife whereas others do not. Some foster tourism to their conservation sites whereas others do not.

The involvement of NGOs directly in nature conservation implies that an effective demand exists for the provision of nature conservation which is not satisfied by the state nor by private initiatives. Those NGOs which focus on the non-use conservation of wildlife (and which do not, for example, foster tourist or recreational visits to their sites) basically provide pure public goods. For example, they add to the existence and bequest value of wildlife species. Those conservation NGOs that encourage visits by tourists and recreationists to their sites provide mixed goods. They 'produce' public goods as well as quasi-private goods as in the case of the non-consumptive use of their sites for tourism visits. The Mareeba Wetland Foundation is an NGO that falls into the latter category and which concentrates on wildlife conservation at the Mareeba Tropical Savanna and Wetland Reserve on the Atherton Tablelands in northern Queensland. We conducted a survey of visitors to this reserve in 2004 in order to determine the reaction of its visitors to the conservation efforts undertaken by the Mareeba Wetland Foundation at this site. It was hoped that this survey would (amongst other things) provide a basis for comparisons with the results from our surveys at state-managed conservation sites, for example, Jourama Falls.

In this paper, after providing some background on the Mareeba Wetland Foundation and its reserve, the nature of the survey, and the socio-economic profile of its respondents are outlined. Subsequently, the discussion covers the frequency of visits to the reserve by respondents and their knowledge of the reserve; the stated cost of their visit and its value; the activities engaged in by respondents, their assessment of attractions at the reserve and their learning experiences; their knowledge of the Mareeba Wetland Foundation and its mission; and their attitudes to state provision of protected areas and associated facilities compared to their supply by NGOs. A discussion of the results concludes this article.

2. Some Background on the Mareeba Wetland Foundation's Reserve

The Mareeba Tropical Savanna and Wetland Reserve of the Mareeba Wetland Foundation (a non-profit community-based organization, see The Mareeba Wetland Foundation, no date) is approximately 2,000 hectares (5,000 acres) in size. It is located in the tropics near the township of Mareeba on the Atherton Tablelands of northern Queensland and is relatively easy to reach by road from Cairns and involves a drive of about one hour going west. It is also not too distant from Port Douglas, another significant tourist destination in northern Queensland. The reserve was opened to the public in September 1999.

Prior to the site becoming available to the Foundation, it consisted of degraded public land. Originally it was utilized as a reserve for travelling livestock and subsequently, leased for cattle grazing. In addition, the site was (and still is) used for the release of leftover water from the Mareeba-Dimbullah Irrigation Area. This has helped create its wetlands and has added to its potential for their development for nature conservation.

The Mareeba Wetland Foundation was established in 1996 and in 1998, it started work at this site to alter its landscape. This resulted in eight gravity-fed wetlands with a total size of approximately 32 hectares. The largest of these is Clancy's Lagoon, the establishment of which involved a considerable amount of earthwork. This lagoon is in close proximity to the Visitors' Centre which overlooks it. It forms part of a panoramic view from this centre which is the focal point of the reserve. The reserve's wetlands are

surrounded by sclerophyll woodlands and grasslands (see Wildfowl and Wetlands Trust, 2008).

Facilities and services available at the site include the impressive building of the Visitor's Centre which can be used for multiple purposes. It provides meals and snacks for visitors, educational materials and souvenirs, and centralises the administration of the reserve. Guided tours within the reserve can be booked at this centre. The Jabiru Safari Lodge caters for visitors who wish to stay at the reserve overnight (Anon, no date).

The aim of the management of the reserve is to cover its running costs from sales of commercial services. Revenue is obtained from an entry fee ('a conservation levy'), sales of food and other items at the visitors' centre, fees paid for guided tours within the reserve, boat hire (boats can be hired to travel on Clancy's Lagoon), and accommodation fees as well as some other sources. Grants and donations are sought to cover the costs of development, that is mostly capital costs.

Whether or not the Mareeba Tropical Savanna and Wetland Reserve covers, or more than covers, the cost of providing its services by its sales to visitors is not known by us. However, it relies for its operation on a combination of volunteers and paid employees, and its long-term economic viability seems to depend on adequate donations and grants. As observed elsewhere (Tisdell, 1999, Ch. 14), ecotourism developments are not necessarily profitable and indeed, in some circumstances, revenues from the provision of ecotourism services fail to cover the cost of their provision. Nevertheless, the social economic benefit obtained from the supply of ecotourism facilities and services may far exceed the economic gains that can be appropriated by providers of these because the conservation of nature usually results in positive environmental spillovers and the provision of pure public goods.

Tim and Gwynneth Nevard have been the prime-movers in the establishment and development of the Mareeba Wetland Reserve. They realized the potential for its development after migrating from South Africa. To a considerable extent, the nature of the development of the reserve seems to have been influenced by their African

experiences. It has been stated that the Mareeba Tropical Savanna and Wetland Reserve "was inspired by the World Heritage and Ramsar listed Keoladeo National Park (Bharatpur Bird Sanctuary). In 1994, Tim Nevard conceived that surplus water from the Mareeba-Dimbullah Irrigation Area could be utilised to create a series of gravity-fed wetlands set within the tropical savannah" (Wildfowl and Wetlands Trust, 2008).

Apart from its other activities, the reserve is engaged in a captive breeding-and-release programme to bolster the wild populations of the endangered Gouldian Finch. In addition, a selection of local Australian wildlife species is held near the Visitor's Centre and can be viewed by visitors.

An interesting development was that in December 2004, the Mareeba Wetland Foundation and Bush Heritage signed an agreement to cooperate in the conservation of the Mareeba Wetlands. As a result, Bush Heritage volunteers may work at the reserve. Furthermore, Bush Heritage hopes to obtain knowledge about how tourism may be successfully developed in its reserves (Cowell, 2005).

It can be seen, therefore, that the reserve supplies a mixture of private and public goods. It also differs in its nature to nearly all protected areas managed by state governments in Australia. These, particularly in Queensland, supply few private goods and do not engage to a significant extent in landscape modification. It is worth noting that landscape modifications can make a positive contribution to the conservation of biodiversity. This occurs when, for example, the modifications favour endangered species albeit at the expense of more abundant species.

With this background in mind, it is opportune to consider our survey of visitors to the Mareeba Tropical Savanna and Wetlands Reserve and the implications of their responses to our questionnaire.

3. The Nature of the Survey and the Socio-economic Profile of the Respondents

Our written questionnaire was distributed to visitors to the Visitor's Centre of the reserve by its staff in 2004 (see the appendix to this article). Visitors had the option of

either completing it and returning it to the front desk of the Visitor's Centre or returning it by post to us, the researchers undertaking the survey. Possibly because of problems in regularly distributing forms, only 70 completed questionnaires were received. Therefore, caution is required in generalizing from the results even though we have no reason to believe that they are unrepresentative of the views of visitors to this reserve.

In the sample of 70 respondents, 43 (60%) were Australian residents and 28 (40%) were overseas residents. This indicates that a visit to this reserve is a relatively popular activity for tourists from overseas. Most of the overseas visitors came from Europe, New Zealand and North America (USA and Canada). No Asian visitors were recorded. A large percentage (one-third) of the respondents were retired. Most respondents (84.3%) said they are more oriented towards nature conservation than economic development.

The age distribution of the respondents is shown in Figure 1. The modal age group was 61-70 and most respondents were over 40 years in age. Thus, the reserve appears to be very popular with those in the older-age groups.

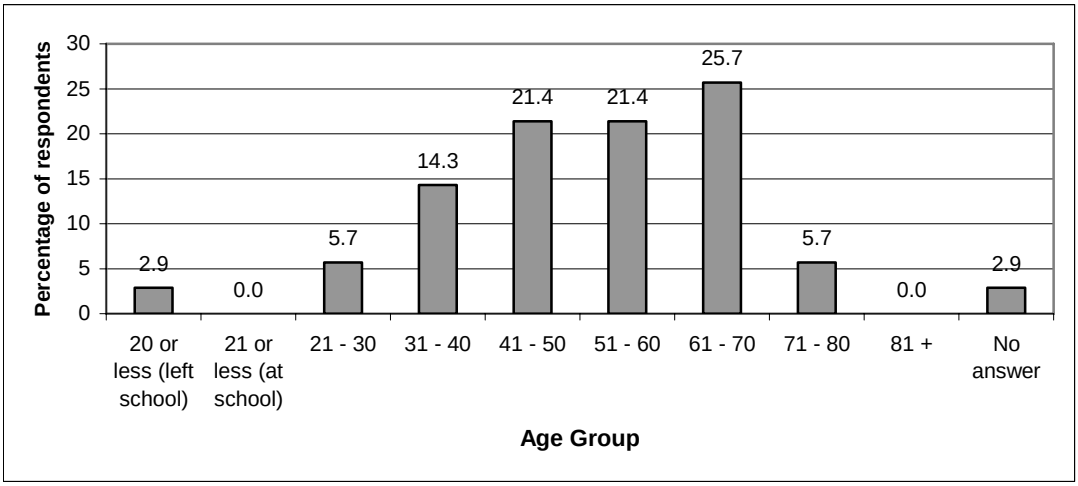

Figure 1 *The distribution of respondents by their age.*

The respondents were very well educated. Just over two-thirds had completed a university degree or equivalent. Hence, the educational qualifications of respondents were well in excess of that of the general public. The distribution of those qualifications is shown in Figure 2.

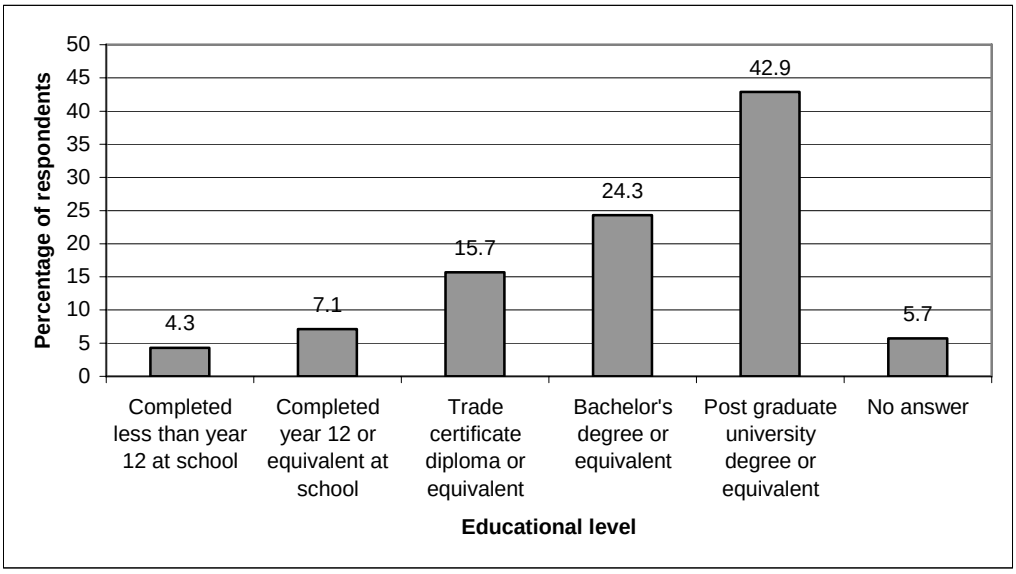

Figure 2 *The distribution of respondents by their highest level of educational qualifications.*

Most of the respondents appeared to be comparatively well-off financially. The distribution of their stated levels of family income is shown in Figure 3. Almost 75% of respondents reported that they had an annual family income of AUD 60,000 or more and 30 % said that they had an annual family income in excess of AUD 100,000. It can be concluded that the respondents were older than the general population, more educated and wealthier.

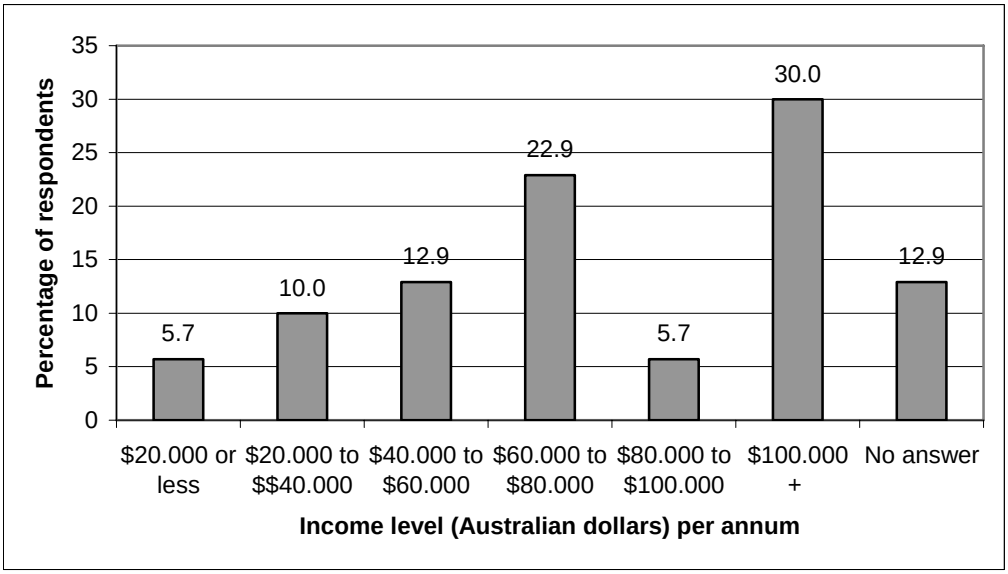

Figure 3 *The distribution of stated family annual income before tax of respondents.*

4. Frequency of Visits to the Reserve by Respondents and their Prior Knowledge of it

Most of the respondents (60, 85.7%) had not visited the Mareeba Wetlands Reserve previously, nine (12.9%) said they had visited it and one did not respond. The sample, therefore, consisted mainly of first-time visitors. The majority of respondents (77%) rated their knowledge of this reserve as being poor or non-existent prior to their visit. The distribution of their responses is shown in Figure 4. In this case, as was found from our survey conducted at Jourama Falls (see Working Paper 164 in this series), the assumption usually made in neoclassical economics that visitors are well informed is not satisfied.

Figure 4 *The distribution of the stated knowledge of respondents of Mareeba Wetland Reserve prior to their visit.*

Most of the respondents (82.9%) were from outside the Cairns region and were on holidays. The majority of the respondents from outside the Cairns region said that they did not know of this reserve before coming to the Cairns region but a minority did. This accords with the findings in Working Paper 164 in this series, namely tourists visiting a holiday area vary significantly in their prior knowledge of tourist attractions in an area and in the extent to which they seek knowledge of these before their visit.

5. The Mode of Transport, Nature of the Trip (Single or Multiple Purpose), and the Cost and Value of Visits to the Reserve

All 70 respondents travelled to the reserve by private transport. The majority of the respondents undertook a multiple purpose journey, which would (of course) pose difficulties for applying the travel cost method as a means of providing a valuation of the reserve. Almost two-thirds (64.3%) of respondents said that they intended to visit other tourist attractions on the day of their visit to the reserve whereas just over one-third (34.3%) said that this was the only tourist attraction they would visit. A majority of respondents (71.4%) visited other tourist attractions on the previous day, and on the next day 60 % were planning to go to other tourist attractions, about a third were not and 7.1% did not respond to the relevant question. For the majority of visitors to this wetland reserve, their visit was clearly a part of a multiple-purpose journey. Consequently, using the travel cost method to value their visit would be problematic. Furthermore, the cost of some visits to this reserve are low because they are an 'add-on' to the general journey, as was found for many visits to Jourama Falls (see Working Paper 164 in this series).

Respondents were asked "How much do you estimate you spent specifically to visit this reserve? Or if travelling in a party, how much did your party spend to specifically visit this site?" Most respondents (60%) said that they spent $40 or less and the modal level of expenditure was $20 or less. The distribution is shown in Figure 5 from which it can be seen that the range of stated costs of visits is quite high. One would, other things being equal, expect the higher amounts to be generated by those undertaking a single purpose visit.

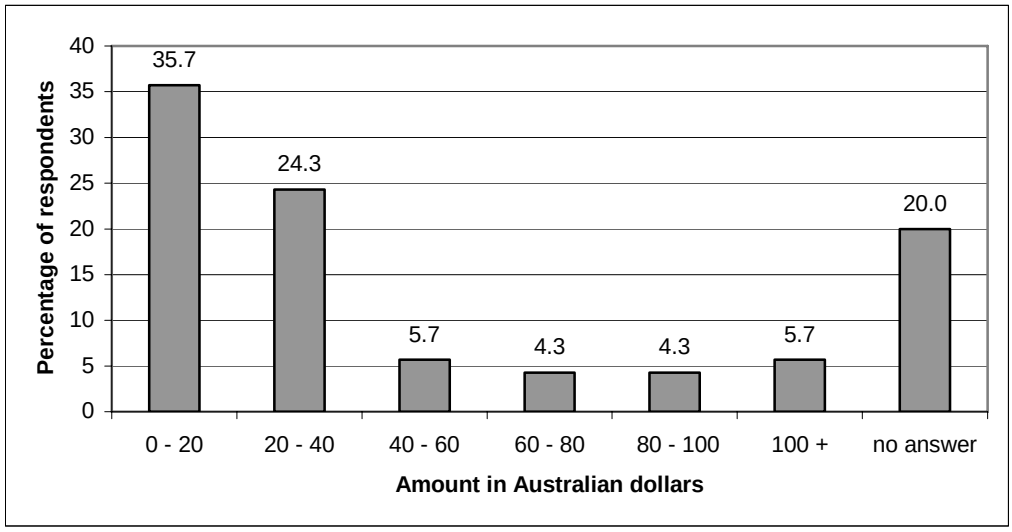

Figure 5 *The distribution of estimates by respondents of how much they (or their party) spent specifically to visit Mareeba Wetland Reserve.*

While 20% of respondents said that they had travelled more than an extra 100 km to visit the wetland reserve, approximately 30 % said that the visit added 20 km or less to their intended journey. The distribution of stated extra kilometres travelled in order to visit the Mareeba Wetland Reserve is shown in Table 1.

Table 1 *The distribution of extra distances that respondents said they travelled just to visit the Mareeba Wetland Reserve.*

Km	Number of respondents	%
0	3	4.3
0 – 5	1	1.4
5 – 10	2	2.9
10 – 20	15	21.4
20 - 40	9	12.9
40 – 100	14	20.0
100 – 200	13	18.6
>200	1	1.4
No answer	12	17.1
Total	**70**	**100.0**

Those surveyed were asked “How much more do you think you would have been prepared to spend on travel to specifically visit Mareeba Wetland Reserve before giving up your recent visit?” A series of discrete alternative percentage increases (indicated in Figure 6) were given for selection. The results are shown in Figure 6. From the

distribution shown, it appears that the majority of respondents received an economic surplus from their visit. Nevertheless, the responses of a quarter of those surveyed indicated that they obtained no economic surplus from their visit. Furthermore, just over 20% of those surveyed did not respond to this question. However, as explained later in this section, difficulties arise in using the above to measure economic surplus in the case of experiential commodities, as most visits were in this case. Furthermore, some strategic bias may have been present in the answers.

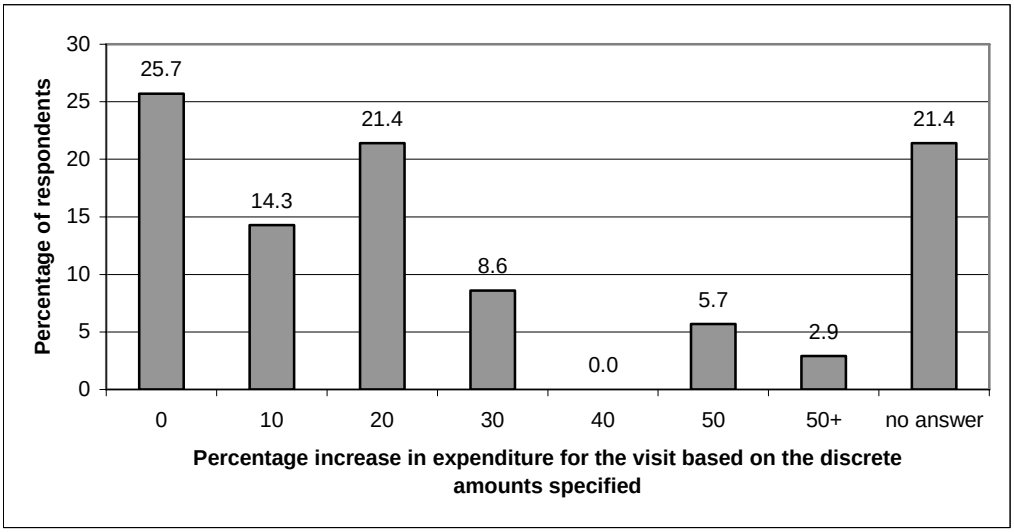

Figure 6 *The distribution of the extra amount respondents said they would have been prepared to spend to specifically visit Mareeba Wetland Reserve before giving up their recent visit.*

The majority of respondents did not stay in the Mareeba area or nearby to take advantage of visiting the reserve. The majority of visitors were involved either in day journeys or journeys involving visits to several scattered locations, that is, itinerant travel. Consequently, the economic impacts of the reserve on the local area were less than if this had not been the case.

Those surveyed were asked "Do you think the current Reserve Conservation Levy [an entrance fee] at Mareeba Wetland Reserve is too high, too low, or about right?" The majority (71.4%) of visitors surveyed said that it is about right, 11.4% said it was too low, 7.4% thought it was too high and 10 % did not respond. The following were some of the comments from those saying it is too low: "We would pay more but maybe the

general public wouldn't" and "Perhaps a small percentage higher would be appropriate". Comments from those who thought the entry fee too high included the following:

1. "Too high if persons visiting are only looking at the centre and not going for walks or tours".
2. "Not much to show for the price".
3. "Cost for children seems a bit high".
4. "Closing time is too early for the price".

Despite these differences in assessments, indications are that visiting this reserve was a valuable experience for the vast majority of respondents. The majority of respondents (85.9%) rated their experience in visiting this reserve as either excellent or very good. Only a handful of respondents said it was mediocre or poor. The distribution of responses (to Question 26a) is shown in Table 2.

Table 2 *Distribution of the ratings of respondents of their experience in visiting Mareeba Wetland Reserve*

Rating	**Frequency**	**Relative Frequency %**
Excellent	33	47.1
Very good	27	38.6
Good	7	10.0
Mediocre	1	1.4
Poor	1	1.4
Very poor	0	0.0
No answer	1	1.4
Total	**70**	**100.0**

In addition, those in the sample were asked if they would recommend a visit to the reserve to their friends or contacts. Most (95.7%) said yes, one (1.4%) was unsure, another said no and one person did not respond. The distribution of answers to this question and the preceding one suggest that a greater proportion of respondents obtained a positive economic surplus from their visit to the reserve than revealed by answers to the question asking how much further they would have been prepared to travel in order to visit the reserve.

The above observations raise some important empirical and theoretical issues, for instance, whether the demand to consume an experiential good (tourist's visits to a reserve, in this case) can be used to determine the economic surplus obtained by consumers from consuming (visiting) it. Prior to consuming the good, consumers' demand to consume an experiential good (sometimes called an experience good) is based on limited knowledge which can be quite poor (see, for example, Anon, 2010; Nelson, 1970; Tisdell, 2007). Therefore, their willingness to pay to consume the good prior to their consuming it may not be an accurate reflection of their subsequent satisfaction from its consumption. Furthermore, once the experiential good has been consumed, consumers may have little or no desire to consume it again even if they obtained much satisfaction from having experienced it on the first occasion. In the case of a tourist attraction, one visit to it may suffice for a life-time even though the attraction is highly rated by visitors. This is often true of other experiential goods, such as novels and movies. Therefore, willingness to pay after the event may also not give an accurate indication of the satisfaction obtained by consumers when they first experience the good. Therefore, a number of thorny empirical and theoretical issues arise.

Note that experiential goods differ in character to those for which desires are repetitive, for example, the demand for many types of food. Factors such as novelty, diversity and surprise appear to be important in generating demand for experiential goods. Furthermore, observe that while visits to tourist attractions are often experiential in nature, regular recreational visits to attractions are not usually of the same character. Therefore, while the travel cost method of estimating consumers' surplus may be applicable in the latter case, it is less likely to be relevant in the former case. This type of distinction appears to have been given inadequate attention in the relevant literature.

6. Participation in Activities at the Reserve, Assessments of these and of its Attractions, and Learning Experiences.

In declining level of participation, most sampled visitors relaxed at the Visitor Centre, walked on trails, took a guided boat trip on Clancy's Lagoon, joined the Twilight Safari or went canoeing on Clancy's Lagoon. Most respondents who engaged in these

activities record them as excellent or good but walking on the reserve's trails was not rated as highly as the other activities.

Those surveyed were asked to rate various attractions at the reserve as very important, important or unimportant from their point of view. The distribution of responses is shown in Table 3. It can be seen that birds (other than wild animals) was rated the most important attraction, followed by the availability of information, wild animals and guided tours. Birds are often important attractions for visits to Australian natural areas, for example, Lamington National Park.

Table 3 *Distribution in percentages of the ratings by respondents of specified attractions at Mareeba Wetland Reserve*

Attraction	Very important	Important	Unimportant	No answer	Total
Birds	91.4	4.3	0.0	4.3	100.0
Wild animals	42.9	38.6	8.6	10.0	100.0
Information	68.6	17.1	1.4	12.9	100.0
Availability of guided tours	41.4	35.7	14.3	8.6	100.0
Availability of snacks	18.6	47.1	27.1	7.1	100.0
Availability of gift items	5.7	21.4	60.0	12.9	100.0
Other (maps, plants, forest, staff)	7.1	4.3	2.9	85.7	100.0

One of the conditions sometimes prescribed for the occurrence of ecotourism is that tourists/visitors to a nature-based tourist site should learn about nature and nature conservation during their visit (Tisdell, 1996; Wen and Tisdell, 2001; Wight, 1993). This condition appears to be satisfied to a significant extent by visitors to the Mareeba Wetland Reserve.

Almost half those surveyed (48.6%) said that they learnt much about wildlife and nature conservation as a result of their visit, 45.7% said they learnt a little and three (4.3%) said they learnt almost nothing. One person did not respond to this question. The

majority of respondents (68.5%) said they would have liked to have learnt more about wildlife and nature conservation in the reserve. The remainder of the sample were either unsure about whether they wanted to learn more or did not answer the question. Some of the comments received were:

- Would have liked to have been able to identify and learn more about common birds, particularly migrating birds.
- Information around the lagoon would have been helpful.
- More spoken and written interpretations in the centre, e.g. slides, videos.
- Guides and centre employees are very helpful and enthusiastic.

7. Knowledge of the Mareeba Wetland Foundation, its Programmes and Evaluations of these

Those surveyed were asked whether they were aware that the Mareeba Wetland Reserve is established and managed by a non-profit voluntary organisation (that is a non-government organisation). Most of those surveyed (88.6%) said yes, 10% said no and one person did not respond. In relation to the contribution of the Mareeba Wetland Foundation's to conservation of Australian's tropical wildlife, 74.3% of those surveyed said that it is important. No-one said it was not significant but two individuals in the sample did not respond.

The majority (62.9%) of those sampled said they were aware of specific wildlife conservation programmes undertaken by the Mareeba Wetlands Foundation. On the other hand, 28.6% of those surveyed said they were unaware of such programmes and 8.6% did not respond. Some of the specific programmes mentioned were:

- Conservation of Gouldian Finches. A captive breeding and release programme for these endangered finches is in operation at this site.
- Restoration of freshwater crocodiles. These are being introduced into Clancy's Lagoon.
- Release site for native wild animals.
- Vegetation management.

- Use of surplus irrigation water (run-off) for lagoon preservation.
- Re-establishment of native flora which previously was overgrazed by livestock.

8. Views about Conservation Facilities and Services in National Parks

National parks and several protected areas in Queensland are owned and managed by the state, as is the case in many other parts of the world. In Queensland, the Queensland Parks and Wildlife service (QPWS) is the main public authority managing these areas. The facilities and services available in these areas mostly differ from those available at the Mareeba Wetland Reserve. Therefore, we decided to seek the views of those sampled about available facilities and services in national parks as well as the role they foresee for NGOs in the conservation of Australia's wildlife.

Most of those sampled (81.4%) said that they had visited national parks or protected areas in Queensland but 12.5% had not and 9.7% did not respond. Although 70% of the sampled visitors said they would like to see more facilities of the type provided at the Mareeba Wetland Reserve available within Queensland national parks, this was fewer than the number that had visited national parks in Queensland. In response to the further question asking what additional facilities and services would you like to have in national parks, the following responses were obtained:

- Interpretive tours
- Conducted tours
- Guided walks
- Visitor centres with helpful staff that provide maps/information
- Promotion of ecotourism
- Increased signage information
- Bird lists
- More bush camping sites
- Accommodation

Nevertheless, the majority (55.7%) were opposed to commercial provision within national parks of facilities or services that could be purchased by visitors, such as limited accommodation. Nevertheless, 24.3% favoured this commercial possibility,

14.3% were unsure of it and 5.7% did not respond. While opposition to commercial development by those surveyed was not as frequent in this Mareeba sample as in that for Lamington National Park (see Chapter 6 in forthcoming book) and that for the Jourama Falls Section of Paluma Range National Park (see Chapter7 in forthcoming book), it was substantial. Comments received from those objecting to commercial developments in national parks were as follows:

- Once it starts, where does it stop?
- Must be strictly controlled
- Facilities should be kept to the minimum
- Parks should be free from commercialised tourist attractions and shopping
- Commercialism seems to take away from the appreciation of nature within the park; becomes more of a sight-seeing place than a nature lover's place.

Those in favour of commercial provision often qualified their answer. The following comments were received from them:

- Good idea if kept to appropriate scale
- As long as it keeps within the limits of the environment
- If limited to fitting in with appropriate guidelines for conservation/management etc.
- As long as it is not commercialised
- The management of the ecosystem must come first
- As long as the facility has a little or no detrimental affect on the geology or environment

The concerns that respondents had about commercial provision of facilities and services in national parks was further elucidated by their responses to an additional question. They were asked whether their support would be greater for the private commercial supply of facilities and services for tourists/visitors in national parks if any of the conditions listed in column one of Table 4 applied. Respondents could indicate more than one condition. From the distribution of responses shown in Table 4, it can be seen that the most frequently mentioned provision was that nature conservation not be compromised, followed by the condition that the area for private development is very limited, and the requirement that fees are charged by the government to private

operators. An offset policy (the condition that the private developer buys extra land and adds it to the national park) was least frequently selected as a condition that would make for greater support by respondents of private commercial provision of services and facilitators in national parks. A similar outcome was observed from the survey conducted in the Jourama Falls Section of Paluma Range National Park (see Chapter 7 in forthcoming book). Respondents were encouraged to add comments and the following were received:

- Profit shouldn't be the primary goal but difficult to assess and to control if privatization occurs.
- Only if fees go towards nature conservation projects.
- Do not favour private development – prefer parks financed by taxes.
- Private commercialisation should be kept to a minimum.
- Don't support any move that will lead to National Parks becoming the preserve of the rich.
- Costs remain at a reasonable level so as to be affordable to lower-income earners.

These comments reflect amongst other things, income distribution concerns and the primacy of nature conservation as a goal for national parks.

Table 4 *Percentage of respondents saying that their support for private commercial supply of facilities and services for tourists/visitors in national parks would be greater if the conditions listed in column one are satisfied.*

Conditions	**%**
Nature conservation is not compromised	84.3
The area for private development is very limited	65.7
Fees are charged by the government to private operators	61.4
Private developer buys extra land and rents it to the national park	50.0
No answer	8.6

In Australia, non-government organisations have become more active in recent decades in purchasing land and contributing directly to wildlife conservation. Therefore, those surveyed were asked: "Are you in favour of greater involvement of non-government organizations in the conservation of Australia's tropical wildlife and less government

involvement? Answers to this question were mixed and subject to qualifications, as is evident from the comments received. Of those surveyed 47.2% said yes, 11.4% said no, 34.3% were unsure and 7.1% did not answer. Many of those who said yes, in fact, had qualifications attached to their answer. They provided the following comments:

- To enhance the work done by the government rather than replace it.
- Raises profile of conservation.
- Yes, greater involvement and others such as aboriginals and coral community should have a role. No Central Govt involvement, they have responsibilities that they should keep.
- As long as control is not left to private developers.
- Government cannot do everything.
- Non-govt orgs can achieve a lot more due to the absence of the bureaucracy.
- Private individuals are often more committed.
- Private organisations can help animals such as the Gouldian finch.
- Government management of wildlife areas seems poor.

Those opposed to the idea commented as follows:

- It should be the government's role to conserve the environment for all Australians. It should not be the responsibility of under funded non-government organisations.
- Non govt involvement should be limited to contributing private land to the public/state.
- Government organisation provides stability.
- Government control is essential to limit the pressures for development and exploitation.

9. Conclusion

The Mareeba Wetland Foundation has engaged in nature conservation activities that are unlikely to have been performed by the state. It is, therefore, playing a supplementary (complimentary) role in conserving Australia's tropical wildlife. The performance of the Foundation depends to a significant extent on tourists/visitors coming to its Mareeba Tropical Savanna and Wetland Reserve. This can (but need not) add to its financial

viability, and its tourists/visitors help to disseminate its mission(cf Tisdell, 1999, Ch. 14).

Our survey of its visitors (despite its limitations as already noted) indicates that they are very well educated, financially well-off, and tend to belong to older age groups, compared, for example, to visitors to Jourama Falls (see Chapter 7 in forthcoming book). Most of those sampled were first-time visitors to the reserve and the vast majority said that their knowledge of it prior to their visit was poor or non-existent. Thus, for most respondents, their visit was an experiential good. It was shown that this creates problems for the estimation of the economic surplus obtained by visitors. These limitations have not been adequately appreciated in the literature and are not taken into account when the travel cost method is applied. Furthermore, most respondents did not know this attraction existed prior to their visiting the Cairns region. This adds support to the hypothesis that decisions about visits to tourist attractions involve a multi-stage process of the type identified in behavioural economics by the term ‘mental accounting’.

The question arises of the extent to which activities undertaken at Mareeba Wetland Reserve satisfy the principles usually ascribed to ecotourism. The educational principle is satisfied, because nearly all visitors surveyed said that they learnt something about wildlife and nature conservation as a result of their visit to the reserve and almost half said they learnt a lot. Nevertheless, just over two-thirds of those surveyed said that they would have liked to have learnt more. This could be because these visitors are very well educated and have a greater demand for knowledge than most citizens.

Most of the visitors surveyed were aware of the mission of the reserve and knew of its nature conservation programmes. About three-quarters of respondents rated the reserve’s contribution to the conservation of Australian tropical wildlife as very important and another 23% rated it as important. They nearly all agreed that the Mareeba Wetland Foundation plays a positive role in helping to conserve Australian tropical wildlife. In order, to do this, the foundation has adopted a policy of targeted human interference with the natural processes and existing landforms. Consequently, its nature conservation programme is (up to a point) a human managed activity, as has been the case in some national parks, such as Kruger National Park in South Africa.

Because landforms and uses have been altered by humans on the land set aside for the Mareeba Savanna and Wetland Reserve and therefore, are not natural, purists might argue tourism conducted in these conditions cannot be ecotourism. Nevertheless, the tourism conducted there is careful of the environment, results in learning about nature and nature conservation and human interventions at this site have made (and continue to make) a positive contribution to biodiversity conservation which would not have occurred otherwise. Hence, the main goals of ecotourism appear to be met. It is a fallacy to believe that natural environmental conditions always provide the most effective means for conserving biodiversity.

The majority (70%) of those surveyed said that they would like to see some of the services and facilities available at the Mareeba Wetland Reserve supplied in national parks. But most (55.7%) were opposed to their supply by commercial private bodies. Even those who favoured this possibility tended to qualify their answers: they often indicated that the extent of private commercial activity should be curtailed.

Again, most respondents seemed to be in favour of greater involvement of NGOs in the conservation of Australia's tropical wildlife but not less government involvement. At least, this seems to be so when their comments are taken into account. For most respondents, NGOs are regarded as being able to play a useful role in supplementing or complementing nature conservation efforts by government. It was believed that their efforts ought not substitute for government efforts. This suggests that, on the whole, respondents had a strong ethic in favour of nature conservation because they demanded policies that would result in an increase in the extent of nature conservation. This observation raises a significant public policy issue.

Economic theory suggests that because of market failures, nature conservation is likely to be under supplied as a result of individual decisions and therefore, government intervention to supply it can potentially increase economic welfare if the Kaldor-Hicks or potential Paretian improvement criterion is applied, that is, the principle that an economic policy is desirable if the gainers from its implementation could compensate the losers for any losses and be better off than before the adoption of the policy (Tisdell and Hartley, 2008, p.22). For example, if nature conservation is regarded as a pure

public good, efforts to increase its supply ought to be on a sufficient scale to ensure that the sum of the marginal evaluations of individuals of greater provision of nature conservation equals its extra cost (Tisdell, 2005, Section 3.4; 2009, Section 3.3.4). In practice, however, governments may fail to ensure the supply of this much nature conservation because of the institutional framework in which they operate. For example, in democratic systems in which governments rely on votes for their office, they may only take account of the demands of the median voter (or voters around the centre of the distribution of demand) in allocating funds for nature conservation. Consequently, the demands of these voters who have a higher than normal demand for nature conservation are not fully met and the Kaldor-Hicks principle is unlikely to be fulfilled. Although this group of nature-lovers would be prepared to pay extra taxes for more nature conservation and although the sum of their marginal valuation for greater conservation exceeds its extra cost, public finance systems do not satisfy their desires. As a result, this group is likely to provide financial support to NGOs to supplement government conservation efforts. Nevertheless, given free-rider problems, there is still likely to be an under supply of effort to conserve nature if this is judged by applying the Kaldor-Hicks principle.

The above-mentioned political situation is akin to the failure of majority voting to ensure Paretian optimality as was pointed out by Buchanan and Tulloch (1962) and as is outlined by Tisdell (2005, Section 3.9). Political and administrative systems (the nature of institutional structures, which often differ between jurisdictions) play an important role in determining the financing and supply of commodities by government bodies, as emphasised, for example, by Downs (1957). Clearly, as underlined by Tisdell (2009, Section 3.3.4) in relation to environmental conservation, political factors play an important role in determining the supply of resources for nature conservation.

10. Acknowledgements

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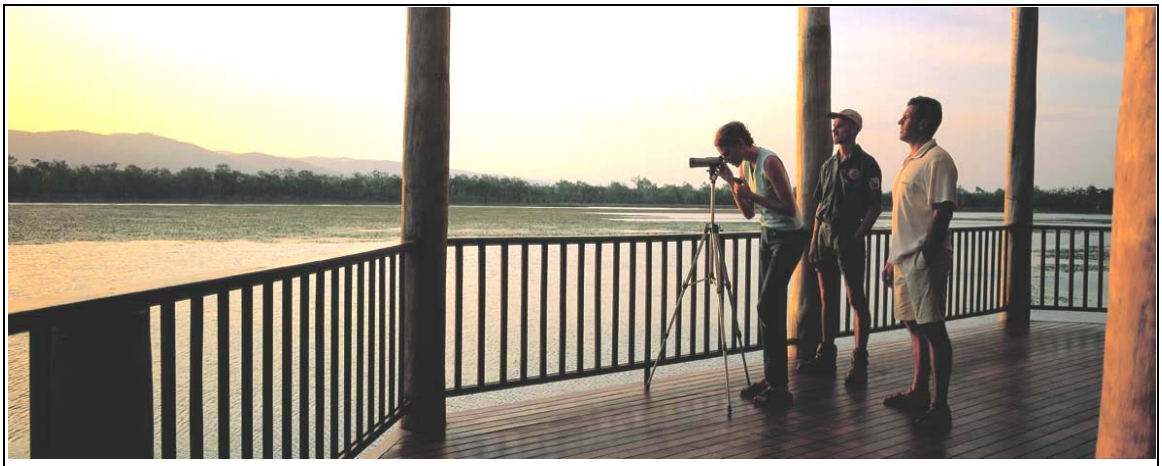
APPENDIX

Questionnaire used for the Survey of Visitors to Mareeba Tropical Savanna and Wetland Reserve



VISITORS' SURVEY AT MAREEBA TROPICAL SAVANNA AND WETLAND RESERVE

Researchers (Clem Tisdell and Clevo Wilson) at The University of Queensland are conducting independent research on the management and valuation of Australia's tropical wildlife. Please assist their research by completing this survey form and posting it within the next few days in the self-addressed (postage paid) envelope provided. Alternatively if it is completed while at the Reserve, it can be sealed in the envelope provided and left at the front desk of the Visitor Centre. Your answers will help with the better management and valuation of Australia's tropical wildlife.

Your answers will be appreciated and will be **CONFIDENTIAL**. One form should be completed by each independent visitor. If you are travelling jointly with another person or persons ('a party'), **only one** form per party should be completed.

Thank you

Clem Tisdell and Clevo Wilson

A: BACKGROUND

1. Name (optional): .....

2. Town or Nearest Town of Residence: ..... State: .....
Country: ..... Postal Code (if resident in Australia): .....

3. How many persons are in your party? (include yourself) Adults:…Children: ……

4. Occupation of adults in your party:
(1)..... (2) ..... (3) ……..

5. Do you believe you are more oriented towards nature conservation than economic development? ❑ Yes ❑ No ❑ Unsure

6. Have you visited Mareeba Tropical Savanna and Wetland Reserve***** before?
❑ Yes ❑ No
If 'Yes', how many times have you previously visited it? ……

***This will be abbreviated elsewhere to Mareeba Wetland Reserve**

7. **T**ick the box that best represents your knowledge of Mareeba Wetland Reserve **before** your visit.

❑ Non-existent ❑ Poor ❑ Good ❑ Very Good ❑ Excellent

8. Are you on holidays **and** from outside the Cairns region? ❑ Yes ❑ No

Please tick any of the following that apply in your case: (More than one should apply)

- ❑ I only decided to visit Mareeba Wetland Reserve **after** coming on holidays to this region
- ❑ I decided to visit Mareeba Wetland Reserve **before** coming on this holiday
- ❑ I usually only decide on most attractions to visit in a holiday area/region **after** I arrive in that region
- ❑ I generally decide on most attractions to visit in a holiday area **before** I arrive in that region
- ❑ Usually **most** of my information about attractions to visit in a tourist region is obtained **after** I arrive there
- ❑ Usually **most** of my information about attractions to visit in a tourist region is obtained **before** I arrive there
- ❑ Normally I gather approximately equal amounts of information about attractions in a tourist region **before and during** my visit to it

9. If from outside the Cairns region, did you know of Mareeba Wetland Reserve before you visited the Cairns region? ❑ Yes ❑ No ❑ Not applicable

10. How did you find out about the existence of Mareeba Wetland Reserve?

- ❑ Internet website
- ❑ Word of mouth
- ❑ Information Centre
- ❑ Local attractions booklet eg. "Discover the Tablelands"
- ❑ Brochure at motel, restaurant etc.
- ❑ Travel book/guide
- ❑ Unsure
- ❑ Other (please specify) .....

11. (a) How did you travel to Mareeba Wetland Reserve?

❑ By private transport eg. motor car ❑ By public transport eg. tour bus

(b) Date of visit to site: ..... / ..... / ..... (*dd*) (*mm*) (*yyyy*) **(c)** Hours of stay at site .....

12. Are you a member of the Mareeba Wetland Foundation? ❑ Yes ❑ No

(a) If **Yes**, what decided you to join this Foundation?
Please comment: .....

(b) How many years have you been a member? .....

(c) If **No**, why have you not become a member of this Foundation?
Please comment: .....

(d) Do you intend to join? ❑ Yes ❑ No ❑ Unsure

13. On the night before you visited Mareeba Wetland Reserve in what town (or near what town) did you stay? .....

14. On the night following your visit to Mareeba Wetland Reserve in (or near) what town do you plan to stay or did you stay? .....

15. It is planned to provide fully private secluded accommodation in the Reserve with en suite facilities. Would you be interested in the possibility of an overnight stay in such accommodation? ❑ Yes ❑ No ❑ Unsure

16. On the day you visited Mareeba Wetland Reserve, did you visit any other tourist attractions or do you plan to do so? ❑ Yes ❑ No If **Yes**, list these

(1) ..... (2) ..... (3) .....

17. On the day prior to your visit to this Reserve, did you visit any tourist attractions? .....

❑ Yes ❑ No If **Yes**, list these

(1) ..... (2) ..... (3) .....

18. On the day after your visit to Mareeba Wetland Reserve did you visit or do you plan to visit any tourist attractions?

❑ Yes ❑ No If **Yes**, list the most important ones:

(1) ..... (2) ..... (3) .....

B: COST OF VISIT

19. (a) How much do you estimate you spent **specifically** to visit this Reserve? Or if travelling in a party, how much did your party spend to specifically visit this site? **(**Do not include the Reserve Conservation Levy) …… AUS$

(b) How much **extra** travel in total did you undertake just to visit Mareeba Wetland Reserve? ..... kilometres

20. How much more do you think you (or if in a party, your whole party) would have been prepared to spend on travel (the maximum **extra** amount) to specifically visit Mareeba Wetland Reserve before giving up your recent visit? Tick appropriate box or fill in.

❑ No more ❑ 20% more
❑ 10% more ❑ 30% more If higher, what percentage ..... %

21. Did you stay in the Mareeba area or nearby in the Cairns Highlands (Atherton Tablelands) (if on holidays) for any extra nights so as to take advantage of visiting Mareeba Wetland Reserve? ❑ Yes ❑ No.....

If *Yes, how many extra nights*

22. Do you think the current Reserve Conservation Levy at Mareeba Wetland Reserve is:

❑ Too high ❑ Too low ❑ About right

Any comments: .....

.....

C: ATTRACTIONS AT MAREEBA WETLAND RESERVE

23. Tick main activities engaged during your visit to the Reserve and rate these:

		Your Rating		
Activities	Excellent	Good	Poor	
Relaxed at Visitor Centre	❑	❑	❑	❑
Boat trip on Clancy's Lagoon	❑	❑	❑	❑
Joined Twilight Safari	❑	❑	❑	❑
Walked on trails	❑	❑	❑	❑
Went canoeing	❑	❑	❑	❑
Other please specify:				
.....	❑	❑	❑	❑
.....	❑	❑	❑	❑

24. Do you have any suggestions for improving facilities or services here?
❑ Yes ..... ❑ No
If Yes, please specify
a) .....
b) .....

25. How do you rate the importance of the following as attractions at the Mareeba Wetland Reserve from your point of view?

	Very Important	Important	Unimportant
Birds	❑	❑	❑
Wild animals (other than Birds)	❑	❑	❑
Availability of guided tours	❑	❑	❑
Availability of snacks	❑	❑	❑
Availability of gift items	❑	❑	❑
Information	❑	❑	❑
Other please specify:			
…….	❑	❑	❑
…….	❑	❑	❑

26. (a) How do you rate your experience in visiting this Reserve?
❑ Excellent ❑ Very Good ❑ Good ❑ Mediocre ❑ Poor ❑ Very Poor

(b) Would you recommend a visit to friends and other contacts?
❑ Yes ❑ No❑ Unsure

(c) How much did you learn about wildlife and nature conservation as a result of your visit to this Reserve? ❑ Much ❑ A little ❑ Almost nothing

(d) Would you have liked to have learnt more about wildlife and nature conservation of this Reserve? ❑ Yes ❑ No ❑ Unsure

Any comments: .....
.....

D: ORGANISATION AND MISSION

27. Are you aware that Mareeba Wetland Reserve is established and managed by a non-profit voluntary organisation (that is a non-government organisation)?
❑ Yes ❑ No

28. How would you rate Mareeba Wetland Foundation's contribution to the conservation of Australian tropical wildlife?
❑ Very Important ❑ Important ❑ Not Significant

29. Are you aware of any specific wildlife conservation programmes undertaken by the Mareeba Wetlands Foundation? ❑ Yes ❑ No

If Yes, please indicate these programmes:
(1) .....
(2) .....

30. Do you agree with the statement that "Mareeba Tropical Savanna and Wetland Reserve is involved in nationally significant nature conservation"?

❑ Yes ❑ No ❑ Unsure

31. Have you ever visited any national parks or protected areas managed by the Queensland Parks and Wildlife Service (QPWS)? ❑ Yes ❑ No

32. Would you like to see more facilities/services of the type provided at Mareeba Wetlands available within Queensland's National Parks? ❑Yes ❑ No

Any comments: .....
.....

If Yes, what facilities would you like to be available in these national parks?
(1) ..... (3) .....
(2) ..... (4) .....

33. Would you object to private commercial provision within national parks of facilities or services which could be purchased by visitors, such as limited accommodation (eg. cabins, guided wildlife tours, some shopping possibilities)?
❑ Yes ❑ No ❑ Unsure

Any comments: .....
.....

34. My support will be greater (or my opposition will be less) to the private commercial supply of facilities and services for tourists/visitors in national parks if the following apply (tick as appropriate). You can tick more than one box.

- ❑ Nature conservation is not compromised
- ❑ The area for private development is very limited
- ❑ Private developer buys extra land and adds it to the national park to compensate for any tourist/visitor development
- ❑ Fees are charged by the government to private operators/developers in national parks in Queensland and these are used for improvements in national parks

Any comments: .....

35. Are you in favour of the greater involvement of non-government organisations in the conservation of Australia's tropical wildlife and less government involvement?

❑ Yes ❑No ❑ Unsure

Why? :.....

E: BACKGROUND INFORMATION (only to be used for general processing of responses)

36. Gender of person filling out the form? ❑ Male ❑ Female

37. To what age group do you belong?

❑ 20 or less (left school)	❑ 20 or less (at school)	❑ 21-30
❑ 31-40	❑ 41-50	❑ 51-60
❑ 61-70	❑ 71-80	❑ 81+

38. Indicate your highest educational qualification:

- ❑ Completed less than Year 12 at school or equivalent
- ❑ Completed Year 12 or equivalent at school
- ❑ Trade certificate diploma or equivalent
- ❑ Bachelor's degree or equivalent
- ❑ Post-graduate university degree or equivalent

39. Your approximate family income before tax per annum in Australian dollars
Note: *This is* ***confidential*** *and is for* ***scientific research only***

- ❑ Less than $20,000
- ❑ $20,000 to $40,000
- ❑ $40,000 to $60,000
- ❑ $60,000 to $80,000
- ❑ $80,000 to $100,000
- ❑ $100,000 and over

THANK YOU FOR YOUR CO-OPERATION

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