

Improving benefits from tourism to communities in Australia's tropical savannas

Romy Greiner, Natalie Stoeckl, Colin Mayocchi

CSIRO Sustainable Ecosystems, Davies Laboratory, Private Mail Bag,
PO Aitkenvale, Townsville, Queensland 4814, Australia

Abstract: Communities in Australia's tropical savannas depend upon the region's natural resources for income and employment. Historically, this dependence has focused on 'productive' industries: mining, grazing and, in the case of coastal communities, fishing. More recently, the importance of tourism to communities has increased with growing numbers of domestic and international visitors to savanna destinations. Tourism can offer new development options and provide an avenue for decreasing welfare dependency in remote populations. Yet tourism does not necessarily benefit all, and in some cases it may even decrease net welfare of remote host communities. It is, therefore, important to manage tourism so as to ensure that it makes a long-term contribution to the ecologically sustainable development of savanna regions. To do that, one needs to understand the impact which tourism has upon communities. This paper presents a model of tourism impact in the Carpentaria shire of North West Queensland, Australia. Data from an in-progress empirical research project are analysed in the context of the model and a methodology for making qualitative predictions about the likely impact of changes to the visitor mix on sectors of the regional economy and on recreational fishing effort is developed. To the extent that policy influences the visitor mix, such a method provides a way of considering some of the ramifications of policy on the regional community in an important step towards developing plans which improve the community benefits of tourism.

Keywords: *Tourism development, Modelling, Destination management*

1. INTRODUCTION

Tourism is one of the fastest growing sectors of the Australian economy. In Queensland, for example, takings from accommodation grew almost 25% in the five years prior to September 2002. The story is no different in the shire of Carpentaria, where takings from hotels, motels, guest houses and serviced apartments increased by almost 40% between the September quarter 2000 and the same quarter 2002 (ABS 2002b).

During 2000 almost 60,000 tourists passed through the shire¹, and on census night, 2001, 820 of the 1349 enumerated in Karumba were visiting from outside the shire (ABS, 2002c). When compared to regions like Cairns, for example, the absolute numbers seem small. Yet the local impact of tourism is significant, primarily because visitor numbers are large relative to the population base.

From an economic perspective, tourism tends to complement, rather than crowd out, existing industries, thereby adding to and broadening the revenue base of local businesses and communities

(Collins, 1996). Further, industries involved in tourism (such as retail, accommodation, café's and restaurants) have relatively large income and employment multipliers - dollars earned in a local café will tend to generate more regional income and employment than an equal number of dollars earned in a local mine. Driml (1987), found that the output multiplier for 'Island Resorts' was 1.848 and the Bureau of Tourism Research (1999) estimates that the total employment generated by tourism is double that of direct employment. For, perhaps, at least some of these reasons tourism is occasionally looked to as a potential financial 'saviour' of declining regional communities.

Yet tourism does not generate unambiguous benefits to all. First, large national or state-wide multipliers do not automatically translate into large regional multipliers. When local businesses earn tourism dollars, they generally re-spend some (eg. paying staff). The more that is re-spent in the local community, the more the community benefits (and the higher the multiplier). But small communities often 'import' many goods and services from outside the region. Hence, small, regional communities tend to have smaller multipliers than cities and/or larger regions.

Second, not all visitors make the same financial 'contribution' to a region. Tourists on relatively high incomes *may*, for example, spend more than

¹ 4% of the 1.3 m domestic visitors and 1% the 777,000 international visitors to Tropical North Queensland (BTR, 2000a and 2000b; Tourism Queensland, 2002).

their poorer counterparts. Similarly, 'young' tourists may spend money on different items than 'old' tourists. Consequently, different regions, which attract different visitor types may accrue quite different financial benefits (in aggregate and distributional terms).

Third, visitors may make a financial contribution to the region through their local purchases, but they are also users of local resources – be they natural, institutional or 'man-made'. In some cases, the financial contribution which tourists make to the region may be of less value to the community than the resources they withdraw.

In the Shire of Carpentaria the resident population is faced with water restrictions (during the dry season) to ensure that water is freely available to tourists. Tourists who spend much of their time catching fish (which are freely available) from the local river. Anecdotal evidence suggests that fish stocks are in decline, and congestion in some areas may be lowering the recreational use values of local residents. The indigenous community has no involvement at all in the tourist industry except for local government employees maintaining public tourist infrastructure (despite the fact that more than 60% of the population is indigenous), and some sectors of the community have begun to ask whether the net benefits of tourism are, in fact, positive.

This poses a clear challenge for the Carpentaria shire – and for the savanna region as a whole – namely to manage tourism so as to maximize net community benefits (where net 'community' benefits encapsulate all costs and benefits associated with tourism, be they social, environmental, economic or otherwise).

This paper uses a conceptual model of tourism development to analyze data from an in-progress research project². The entire project aims to consider ways in which to manage tourism in the Shire so as to increase *community* benefits. The research reported here relates to the first part of the project – that which assesses the community benefits of different visitor segments in terms of environmental, social and economic impacts. It is organized as follows.

Section 2 presents a conceptual model for the current research in the context of existing tourism models. Section 3 explains project methodology, and section 4 presents a statistical snapshot of tourism in the shire, using the conceptual model to interpret and analyse the empirical data. By

² Funded by the Cooperative Research Centre for Tropical Savannas and the Commonwealth Scientific and Industrial Research Organisation.

combining the model and data, a framework is developed; one which facilitates an evaluation of the way in which changes to the visitor mix affect different sectors of the regional community.

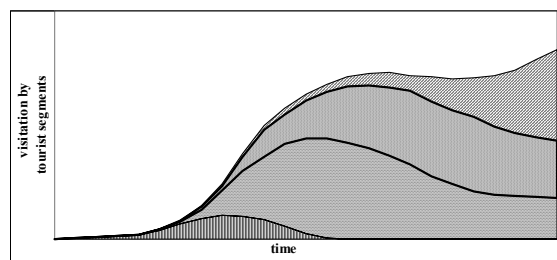
2. MODELS OF TOURISM DEVELOPMENT

Butler (1980) developed the 'life-cycle' model of tourism to show – and explain – the way in which tourism changes with time. He noted that tourism (at a particular destination) often starts with the arrival of just a few 'adventurous' individuals; individuals who are typically followed by larger and larger numbers of 'less adventurous' tourists.

In general, the early 'explorers' have inherently different likes, dislikes, and behaviour patterns than those traveling en-masse. They are drawn to the region by different attributes; travel in different ways; and seek different facilities. Regional tourism therefore tends to develop dynamically and interactively. The early adventurers leads to small-scale development of tourist-related businesses and the additional services attract other visitors. But the presence of more visitors makes the region less attractive to the early adventurers, hence that part of the market declines.

Whether total visitor numbers increase, decrease, or remain the same over time, will depend upon whether the emergent visitor segments are larger, smaller, or of similar size to the declining segments. Figure 1 illustrates this process representing different visitor segments with different shades.

Figure 1: Life-cycle model of a destination with different visitor segments (after Butler, 1980)



The main point here is that there are various driving forces at play at different times. These forces, in combination with the natural attractions and the constraints to further tourism development, change the nature of the tourism destination, both in terms of the tourism product offered by the destination and the types of people who visit the destination.

Gunn (1994) developed a descriptive model to explain how some of these forces interact to shape tourism development. In this model, ‘supply-side’ forces are represented by attractions, transportation, information, promotion and services. How well the forces function depends on organisation, leadership, finance, labour, entrepreneurship, community, competition, government policies, natural resources, and cultural resources – some of which can be influenced by those seeking to manage tourism.

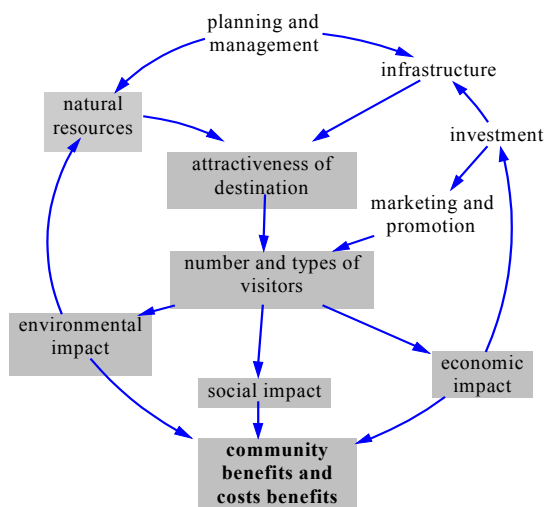
In contrast to these *descriptive* models of tourism development, Walker et al (1998) developed a quantitative framework for the *ex ante* investigation of tourism development at a destination. They captured the dynamics of a tourist destination conceptually and numerically in the development of a Tourism Futures Simulator. This simulation model explains potential future development of a destination on the basis of external forces (eg. currency exchange rates) and endogenous factors (eg. attractiveness of the destination). It also reveals the implications of attracting different types of tourists to a destination.

The tourism model presented here (Figure 2) does not have the numerical predictive capacity of the Walker model, but it does provide a guide to planning, investment and management. Further, it explicitly considers tourism development as a part of a broader strategy for ecologically sustainable development – emphasising the fact that the ‘community benefits’ of tourism are jointly determined by the environmental, social and economic impacts of visitors to the region.

The model recognizes the dynamic and interactive relationships between visitor numbers, visitor types, and the attractiveness of destinations, together with the (reciprocal) effects which the number and type of visitors have upon the environment, the economy and the community. It also highlights the fact that to understand tourism, one must understand why tourists visit the destination, how they impact on the community and how that impact shapes the future tourist product. The sensitivity of visitors to changes in the tourist product and the resulting change in the attractiveness of the destination also need to be explored to gauge potential shifts in tourist numbers and composition of the tourist market.

The research reported in this paper focuses on the shaded part of the model shown in Figure 2; that which explains the community benefits of tourism in terms of environmental, social and economic impacts – the magnitude of which is affected by the number and the type of visitors to the region.

Figure 2: Conceptual model of tourism development and community benefits



Further research is scheduled for the later part of the project, which aims to consider the remaining parts of the model, examining: (1) the way in which changes in the tourist product (with associated changes in the environment, economy and community) affect the attractiveness of the destination; and (2) ways in which the number and types of visitors (and hence the community benefits of tourism) can be influenced by planning, management, infrastructure, investment and marketing.

3. METHODOLOGY

Data for this investigation were collected in a survey of visitors to Karumba and Normanton. The primary purpose of the survey was to ‘profile’ the visitors in terms of their social, economic and demographic characteristics, including age, place of residence, type of travel party and income. It also collected information on length of stay, type of accommodation, expectations, activities, inclination to participate in a range of potential new tourist activities / facilities and on willingness to make a financial contribution to the region.

Survey data were collected during face-to-face interviews so as to maximise response rate. Interviews were conducted at accommodation places so as to ensure that the sample adequately represented the visitor population. To allow for seasonal variability, sampling was scheduled for four one-week blocks scattered over a 12 month period. Data presented in this paper were collected during the first two periods (July 2002 and September 2002). Hence, the analysis is preliminary. Additional surveys are scheduled for February and April 2003.

4. RESULTS

The preliminary sample consists of 377 travel parties, representing about 2% of estimated annual visitors. Of those surveyed, 249 travel parties (66%) were staying in caravan parks and 128 in other accommodation venues. Table 1 shows the distribution of the sample across visitor 'segments', which are commonly used in tourism statistics.

Table 1: Number of groups surveyed by Visitor segments

Visitor Segments	No of groups surveyed	Average length of stay (days)
Retired couples	157	68
Couples	64	36
Family groups with children < 16 years old	51	12
Groups of friends or relatives	45	13
Singles	22	10
Other visitor segments	38	17
Total	377	42

Tourism in the Carpentaria shire is dominated by retired couples. They are not only the largest visitor segment, but they also tend to stay for longer. Non-retired couples were also prominent in terms of number surveyed and average length of stay. Families with young children, groups of friends/relatives and singles were also well-represented among those surveyed. Other visitor segments (such as those on business, families with older children, tour groups, etc), were present, but in relatively small numbers (<10 sample points). Until the sample size increases as subsequent surveys are added, little can be said of those segments. The remainder of this paper therefore concentrates on the 'top 5' visitor segments.

The primary aim of this paper is to consider the way in which different visitor segments benefit the *community* through different environmental, social and economic impacts. Therefore each visitor segment is considered separately, looking at the way in which the visitors interact with and affect the community.

Mean values of key variables were calculated and a post hoc (pair-wise) comparison of means was conducted to highlight similarities and differences between the visitor segments. In the interpretation of results, the term 'significantly different' indicates that the difference between mean values for the relevant visitor segments was statistically significant at the 5% level (using the Tukey HSD test for unequal sample sizes). 'Similar' indicates

that the difference was not statistically significant. Full details are provided in the appendix

Overall, visitors to the Carpentaria shire were away from their usual place of residence for at least one month and spent between 29 and 51% of that time in the shire, staying in Karumba longer than in Normanton. The vast majority of visitors were Australian residents, were very satisfied with their experience and were willing to recommend the destination to family and friends.

In the survey, respondents were asked to indicate their expectations of the destination. Specifically, visitors were shown a list of items (like 'business', 'family', 'fishing', 'landscape', 'Aboriginal heritage', etc), and asked to indicate all those which acted as 'drawcards'. Responses were coded by awarding a value of zero if the item was not ticked as a drawcard, 1 if the item was ticked, and 2 if the item as selected as the 'most important' drawcard.

Overall, '*Fishing*' had the highest mean score (1.16 out of a maximum of 2 across all groups). It was the single most important reason for all visitors segments, except singles. Second most important was '*Weather and climate*' (0.77). This featured particularly well with retirees. '*Looking*' (mean score 0.49) was the most important reason for single travelers to visit the region. All other 'drawcards' featured poorly across visitor segments and cultural heritage aspects were of no concern to any visitor group.

Visitors were asked to indicate how frequently they engaged in various recreational and non-recreational activities. Of particular interest here are those activities which use local resources (such as fishing), or which contribute to local resources (such as spending money).

Across all visitor segments, the most frequent activity was fishing. On average, visitors went fishing on at least 6 out of 10 days. Families and groups went fishing most often, followed by retired and non-retired couples. Singles showed little fishing activity.

Singles are much less likely to stay in caravan parks and/or grocery shop than retired couples, and more likely to eat out and/or go out for a drink. However, the distribution of responses from 'singles' was greater than for any other group, thus illustrating the diversity of their expenditure patterns.

5. DISCUSSION

Despite the abundance of wildlife and landscape, preliminary data indicates that it is fishing that brings tourists to the destination. Based on the

conceptual model that underpins the research, two lessons emerge; (1) In the short to medium term it is paramount for the continued success of tourism to manage the recreational fisheries. Few visitors – except singles – are drawn by much other than fishing, and a collapse in fishing stocks could do great harm to the tourism industry. (2) If properly managed, longer-term a diversification of the tourist market could generate larger regional economic benefits, a broader distribution of benefits, and less reliance on just one of the region's otherwise plentiful natural resources.

By sheer weight of numbers, retired couples have a greater impact on the Carpentaria shire than any other visitor group. Yet that may not always be so. Tourism models emphasize the dynamic nature of tourism, highlighting the fact that the visitor mix is prone to change with time. Different visitor segments use regional resources differently, and choose to spend their money differently. Consequently, one expects the *community benefits* of tourism (at an aggregate and at a distributional level) to change in response to changes in the visitor mix. The conceptual model presented here, coupled with the empirical data set, allows one to make an assessment so the impact of such changes.

For example, if the visitor mix were to change from one which is almost entirely dominated by retirees, to one which is dominated by singles, then one would expect lesser demands on the fishing resources, less revenue for caravan parks and grocery stores, and more revenue for restaurants and bars. In contrast, a change in favour of more 'groups' would have a similar impact on the revenues of grocery stores and bars, a lesser (negative) impact on the revenue of caravan parks, but may place greater strain on fishing resources.

This information can be used to great advantage when developing long-term strategies for tourism development. More specifically, in consultation with the community, one can use the information to identify a desirable visitor 'mix' (eg. one that maximizes the community benefits of tourism). One can then consider ways of increasing the attractiveness of the region to those 'desired' visitors. This defines the challenge for part two of the research project, namely to identify a suite of policies that help the tourism industry develop and mature in a way that increases *community benefits*.

6. CONCLUSIONS

This paper uses a conceptual model of tourism development to analyse data from an in-progress research project. The analysis allows one to make

qualitative predictions about some of the likely impacts of changes to the visitor mix on the *community benefits* of tourism - predictions which may prove useful when attempting to assess the attractiveness (or otherwise) of policies which themselves affect the attractiveness of the destination to different visitor segments.

7. ACKNOWLEDGEMENTS

The research presented in this paper was jointly funded by the Cooperative Research Centre for Tropical Savannas and CSIRO.

8. REFERENCES

- Australian Bureau of Statistics, Tourism Satellite Account 2000-21. Publication No 5249.0, Australian Bureau of Statistics, Canberra. 2002a.
- Australian Bureau of Statistics *Tourist accommodation small area data: Queensland, September Quarter, 2002*, ABS Catalogue No. 6535.3.40.001, 2002b.
- Australian Bureau of Statistics, *Basic Community Profile* - for collection districts CD 3020201 – 3030211. Catalogue No. 2001.0, 2002c.
- Bureau of Tourism Research, *Tourism's economic contribution. 1996 – 97*. Bureau of Tourism Research, Canberra, 1999.
- Butler, R.W. The concept of a tourist area cycle of evolution: Implications for Management of Resources. *Canadian Geographer* 24:5-12, 1980.
- Collins, G. Tourism in the Tropical Savannas. Pp 62-67, in, Ash, A. (ed), *The Future of Tropical Savannas: An Australian Perspective*. CSIRO Publishing, Collingwood, 1996.
- Driml, S. *Economic Impacts of Activities on the Great Barrier Reef*, Great Barrier Reef Marine Park Authority, Townsville, 1987.
- Gunn, C.A. *Tourism Planning: Basics, Concepts, Cases*. Third Edition. Taylor and Francis, Washington D.C., 1994.
- Preece, N., van Oosterzee, P., and James, D., "Two way Track. Biodiversity Conservation and Ecotourism: an investigation of linkages, mutual benefits and future opportunities", study commissioned by the Biodiversity Unit in the Environmental Strategies Directorate of the Commonwealth Department of the Environment, Sport and Territories. Available at http://www.environment.gov.au/life/general_info/biodivser_5/two_con.html
- Walker, P.A., Greiner, R., McDonald, D. and Lyne, V. The Tourism Futures Simulator: A Systems Thinking Approach. *Environmental Modelling and Software* 14(1): 59-67, 1998.

APPENDIX: KEY CHARACTERISTICS OF VISITOR SEGMENTS (MEAN VALUES)

	Couples	Families	Groups	Retired couples	Singles
General descriptors:					
Number of adults in travel party	2.0 ^b	2.1 ^b	4.9 ^c	2 ^b	1.0 ^a
Number of children	0 ^a	2.1 ^c	0.7 ^b	0 ^a	0 ^a
Days in Karumba	33.5 ^{ab}	11.3 ^b	12.8 ^b	63.9 ^a	9.0 ^b
Days in Normanton	2.4 ^a	0.4 ^a	0.5 ^a	4.1 ^a	1.0 ^a
Length of trip (days)	85.4 ^{ab}	31.8 ^b	45.8 ^{ab}	133.1 ^a	70.8 ^{ab}
Proportion of trip duration spent in Carpentaria Shire (%)	42	37	29	51	14
Number of previous visits to the region	1.5 ^a	1.4 ^a	1.8 ^a	1.9 ^a	0.5 ^b
Average age (years)	46 ^b	25.4 ^d	37 ^c	62.9 ^a	28.9 ^d
Average household income (\$ pa)	59,615 ^a	71,276 ^a	54,621 ^a	28,687 ^b	43,392 ^{ab}
Proportion of groups from Queensland (%)	60.9 ^{bc}	90.2 ^a	80.0 ^{ab}	24.2 ^d	36.4 ^{cd}
Proportion of groups from elsewhere in Australia (%)	32.8 ^b	7.8 ^c	11.1 ^c	71.3 ^a	50.0 ^{ab}
Proportion of groups from overseas (%)	6.3 ^a	2.0 ^a	8.9 ^a	4.5 ^a	13.6 ^a
Overall Satisfaction with region (1 = extremely dissatisfied; 5 = extremely satisfied)	4.33 ^a	4.59 ^a	4.44 ^a	4.39 ^a	4.14 ^a
Proportion who would return to the region (%)	91.4 ^a	100.0 ^a	90.7 ^a	90.3 ^a	93.8 ^a
Proportion who would recommend Normanton (%)	74.5 ^a	82.9 ^a	81.3 ^a	70.9 ^a	58.3 ^a
Proportion who would recommend Karumba (%)	98.4 ^a	100.0 ^a	95.2 ^a	98.7 ^a	95.0 ^a
Proportion staying in caravan parks (%)	64.1 ^b	43.1 ^{bc}	22.2 ^c	96.2 ^a	27.3 ^c
Average importance of item as 'drawcard': 0 = not important; 1 = important; 2 = most important					
Business or work	0.27 ^{bc}	0.16 ^{abc}	0.13 ^{abc}	0.03 ^{ab}	0.23 ^{abc}
Family	0.08 ^b	0.39 ^a	0.11 ^{ab}	0.07 ^b	0.09 ^{ab}
Fishing	1.09 ^a	1.31 ^a	1.47 ^a	1.18 ^a	0.18 ^b
Seafood	0.28 ^a	0.31 ^a	0.24 ^a	0.24 ^a	0.14 ^a
Sealed road	0.33 ^a	0.29 ^a	0.13 ^a	0.35 ^a	0.09 ^a
Wildlife	0.27 ^a	0.16 ^a	0.18 ^a	0.28 ^a	0.18 ^a
Landscape	0.28 ^a	0.20 ^a	0.16 ^a	0.27 ^a	0.18 ^a
European culture and heritage	0.00 ^a	0.04 ^a	0.04 ^a	0.06 ^a	0.00 ^a
Aboriginal culture and heritage	0.00 ^a	0.04 ^a	0.11 ^a	0.06 ^a	0.00 ^a
Weather and climate	0.55 ^a	0.55 ^a	0.33 ^a	1.13 ^b	0.27 ^a
Looking	0.50 ^a	0.33 ^a	0.24 ^a	0.50 ^a	1.36 ^b
Friends	0.25 ^a	0.24 ^a	0.20 ^a	0.32 ^a	0.27 ^a
Average number of times per day visitors engage in activities:					
Charter fishing	0.05 ^a	0.03 ^a	0.02 ^a	0.02 ^a	0.06 ^a
Boat fishing (own boat)	0.35 ^a	0.49 ^a	0.59 ^a	0.39 ^a	0.05 ^b
Beach or river-bank fishing	0.18 ^b	0.29 ^{bc}	0.19 ^b	0.18 ^b	0.07 ^{ab}
<i>Fishing (all of above)</i>	0.58	0.81	0.80	0.59	0.18
Grocery shopping	0.40 ^a	0.26 ^a	0.29 ^a	0.58 ^b	0.26 ^a
Going out for drink	0.47 ^a	0.51 ^a	0.65 ^a	0.26 ^b	0.50 ^{ab}
Eating out	0.33 ^{ab}	0.37 ^b	0.35 ^{ab}	0.22 ^a	0.43 ^{ab}
Purchasing souvenirs	0.12 ^a	0.16 ^a	0.11 ^a	0.11 ^a	0.13 ^a

a, b, c, d indicate similarity of visitor segments against criteria based on post-hoc (pair-wise) comparison using Tukey HSD test. 'Similar' means have been assigned the same alphabetic superscript. Eg. for the variable 'days spent in Karumba' there was no statistically significant difference between the retired and non-retired couples (63.9 and 33.5 days, respectively). Hence, they 'share' the superscript 'a'. Similarly, there was no statistically significant difference between the number of days which non-retired couples and families spent in Karumba (33.5 and 11.3) – so they 'share' the superscript 'b'. But there is a large difference between families and retired couples (63.9 versus 11.3) – hence no common superscript.