

## **Viable yet Protected for Future Generations? An Examination of the Extensive Forest-Based Tourism Market**

*Viável mas Protegido para Gerações Futuras? Um estudo sobre o Amplo Mercado de Turismo Baseado em Florestas*

*¿Viable sí, pero Protegido para las Generaciones Futuras? Un Estudio sobre el Amplo Mercado del Turismo Basado en las Florestas*

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### **Abstract**

This article focuses on forest tourism and rainforests in particular, and explores their potential to contribute to the global tourism industry. The specific objectives of the study were to develop a profile, including motivations, of tourists visiting the Wet Tropics rainforest of Australia and to identify previous patterns of forest visitation in both Australia and other global destinations. A survey of 1,408 visitors conducted at a number of Wet Tropics rainforest sites in the tropical north region of Australia found that over 37% of the sample had previously visited forests while on holidays indicating that forest-based tourism is a major component to the nature-based market. Countries and forested sites in South-East Asia were the most popular as holiday attractions with over 13% of respondents having visited these sites. This was followed by countries of the South Pacific, North America, South America, Central America, Africa, South Asia and China, the Caribbean and Europe. While overall this is a promising result, forest-based tourism faces a number of pressures including urban settlement, extractive industries and in the near future climate change.

**Keywords:** forests; rainforests; nature-based tourism; Tropical North Queensland; Wet Tropics rainforest.

### **Resumo**

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Este artigo enfoca o turismo de florestas e florestas tropicais em particular e explora seu potencial em contribuir para a indústria de turismo global. Os objetivos específicos deste estudo foram: desenvolver um perfil, incluindo as motivações, dos turistas que visitam a *Wet Tropics*, floresta tropical da Austrália e identificar padrões anteriores de visitação de florestas tanto na Austrália quanto em outros destinos globais. Uma pesquisa com 1.408 visitantes conduzida em vários locais com florestas tropicais *Wet Tropics* na região tropical norte da Austrália concluiu que mais de 37% da amostra já tinham visitado previamente as florestas quando estavam em férias indicando que o turismo baseado em florestas é um componente essencial ao mercado baseado na natureza. Países e locais com florestas no sudeste da Ásia eram as atrações mais populares nas férias com mais de 13% de pesquisados tendo visitado estes locais. Isto foi seguido por países do Pacífico sul, América do norte, América do Sul, América Central, África, sul da Ásia e China, Caribe e Europa. Enquanto, de maneira geral, este é um resultado promissor, o turismo baseado em florestas enfrenta um número de pressões, como assentamento urbano, indústrias de extração e em um futuro próximo: mudanças climáticas.

**Palavras-chave:** florestas, florestas tropicais; turismo baseado em florestas; Queensland do norte tropical; floresta tropical *Wet tropics*.

### **Resumen**

*Este artículo enfoca el turismo en florestas, sobretudo en florestas tropicales y, explora su potencial a la hora de contribuir dentro de la industria turística global. Los objetivos específicos de este estudio fueron: desarrollar un perfil, incluyendo las motivaciones, de los turistas que visitan la *Wet Tropics*, la floresta tropical de Australia e identificar patrones anteriores de visita de florestas tanto en Australia como en otros destinos globales. Un estudio con 1.408 visitantes llevado a cabo en varios lugares con florestas tropicales *Wet Tropics* en la región tropical norte de Australia concluyó que más del 37% de la muestra ya había visitado antes las florestas durante sus vacaciones indicando que el turismo basado en florestas es un componente esencial en el mercado basado en la naturaleza. Países y lugares con florestas en el sudeste de Asia eran las atracciones más populares en las vacaciones ya que más del 13% de los entrevistados había visitado estos lugares. Este porcentaje se mantuvo similar en países del Pacífico sur, América del norte, América del sur, América central, África, el sur de Asia y China, Caribe y Europa. Mientras que, en general este es un resultado prometedor, el turismo basado en florestas enfrenta un gran número de presiones, como el asentamiento urbano, las industrias de extracción y en un futuro próximo, el cambio*

*climático.*

**Palabras-clave:** *florestas; florestas tropicales; turismo basado en florestas; Queensland del norte tropical, floresta tropical Wet tropics.*

## **1. Introduction**

Interest in nature-based tourism including marine, wildlife and more recently forests has emerged as a major motivation for travel (Wunder, 1999) and is recognized by marketers and investors as a major pull factor in developing a competitive position in both domestic and international tourism. Unfortunately, many nations have failed to realize the tourism potential of their forests and the ecosystems they contain as a tourism resource and have sanctioned wide-scale clearing for cropping, grazing, mining and timber. The Amazon basin is one example of a forest region that has significant scope for tourism development but has instead suffered from extensive clearing in recent decades (Williams, 2006). Other examples can be found in the tropical rainforest regions of Indonesia, Malaysia, Papua New Guinea, Vietnam, Burma and many parts of Africa. As world oil supplies decline there is likely to be increasing pressure to clear native forests for biofuel production (Koh and Wilcove, 2007). Increasing demand for food is another factor that has put pressure on forests (MacKenzie, 2008). Clearly, forests are under threat on multiple fronts yet their value as a resource left in-situ is only now becoming apparent. The value of forests in terms of ecosystems services, including absorption of carbon, catchment protection and production of oxygen, is one example of the often unrecognized value of undisturbed forests. For example, in a study of the northern boreal forests, Pearce (2006) found that their contribution to global ecosystem services was estimated US\$250 billion per year or about US\$160 per hectare. Sustainably managed

tourism is another industry that can be promoted as a forest-friendly industry capable of producing substantial economic returns while causing little damage to the resource (Nantha and Tisdell, 2009).

Research into forest tourism has only recently begun to attract serious attention by tourism researchers. One consequence of limited research in the past is a lack of understanding of the opportunities for development of forest-based tourism. This lack of understanding leads to a lack of investment in forest-based tourism simply because the potential economic contribution is largely unknown (Laarman and Gregersen, 1996). A further consequence of limited research has been the failure to build a strong case for the retention of old growth forests, preferably in the form of protected areas, as a tourism resource. One of the first steps required to build a case for retaining remaining forests as a tourism resource is to develop data on the global demand for forest experiences. In keeping with this need for data, the objectives of the exploratory research presented in this article were to develop a profile, including motivations, of tourists visiting the Wet Tropics rainforest of Australia and to identify previous patterns of forest visitation in both Australia and other global destinations. Knowledge of this type is vital if the public sector, including protected area managers, is to endorse tourism use of forests. The following discussion reviews the literature related to rainforest tourism followed by a brief overview of the study area.

## **2. Review of Relevant Literature**

Interest in forest tourism, particularly rainforests, is relatively new and for this reason the literature has yet to explore a range of issues related to how rainforests may be used by the tourism industry (Hall, 2000). The following discussion briefly examines the status of research into rainforests in general finding that most of the output relates to issues that are

associated with local communities and how they have become involved in tourism activities related to rainforests. The paper then focuses on research into tourism activity in the Wet Tropics rainforest of north east Australia.

In parts of Asia and Malaysia in particular, there has been a growing interest in building ecotourism experiences in rainforest areas (Chin, Moore, Wallington and Dowling, 2000). Borneo for example has a number of rainforest attractions and there is growing interest in wildlife tourism focused on the region's unique assemblage of mammals ranging from monkeys to elephants (Bennett and Dahaban, 1995). The culture of rainforest dwellers such as the Iban people of Sarawak has also attracted the attention of the tourism industry (Zeppel, 1998). However, rainforests in both Indonesia and Borneo face pressures from logging, oil palm development and illegal hunting (Robertson and van Schaik, 2001). Illegal hunting, for example, poses a greater threat to large forest fauna than timber harvesting in many rainforest systems (Auzel and Wilkie, 2000). In a recent paper on illegal hunting of animals in Sabah's rainforests Saikim *et al.* (2011) found that tourism is able to provide sustainable livelihoods for local communities and in this way is an effective strategy to reduce illegal hunting.

In Central America, Costa Rica has become a rainforest hotspot with the nation's rainforests now the central selling proposition for the nation's tourism industry (Hearne and Salinas, 2002). In their study of the preferences of foreign tourists in relation to the level of development in Costa Rican national parks, Hearne and Salinas (2002) found that respondents preferred improved infrastructure but were also willing to accept restrictions on access to sensitive areas. While often promoted as a mechanism for local community development, a study by Stem, Lassoire, Lee and Deshler (2003) found that some towns in Costa Rica were in danger of becoming economically vulnerable because of an over emphasis on ecotourism development. One solution advocated by Stem *et al.* (2003) was for ecotourism to be

recognized as a component of a broader conservation strategy.

In South America, there is an emerging focus on rainforest tourism activity especially in the Amazonian region (Ohl-Schacherer et al., 2008). In particular, attention has focused on ecotourism (Gouvea Kassicieh and Figueira, 2008; Wallace and Pierce, 1996) and how this aspect of tourism may be developed as a form of community-based tourism (Jamal and Stronza, 2009). Interest in community participation has been a focus of a number of studies. For example, in a study of the participation-income-conservation link in the Cuyabeno Wildlife Reserve in the Ecuadorian Amazon region, Wunder (1999) found that the size of individual incomes is determined by the degree of tourism specialization, appeal of the site and level of conservation of the site. Rodgerize and Prideaux (2012), in a study of the backpacker tourism in the Brazilian Amazon rainforests, found that small scale tourism ventures based on jungle lodges had the potential to reduce hunting and slash and burn agricultural by providing employment of local communities in the tourism industry.

Other issues that have emerged in relation to rainforest tourism include the role of Community Based Ecotourism (CBET) as a vehicle for providing local communities with an opportunity to use their rainforests as a tourism resource (Sakata, 2011), the need for empowerment as a precondition to encouraging local communities to engage in tourism development (Mendoza-Ramos, 2012), problems associated with governance (Guaigu, 2012) and local community development of rainforest tourism ventures and the significance of remoteness as an inhibiting factor in facilitating community development of ecotourism products based on rainforests (Harwood, 2011). In her study of a small CBET project in Papua New Guinea, Sakata (2011), for example, noted that many projects of this nature had been initiated in rainforest areas including Papua New Guinea, Borneo and Central America. While acknowledging problems with the CBET approach Sakata did note that if efficiently

implemented, projects of this nature can provide local communities with a stable alternative source of income.

In his study of empowerment of indigenous communities active in ecotourism related projects in the Mayan Peninsula rainforests, Mendoza-Ramos (2012) noted that measures designed to increase empowerment of local communities resulted in better outcomes for locals including higher incomes. Guaigu's (2012) research into governance in Papua New Guinea found that as distance from the national capital increased the national government's ability to impose desired standards weakened. A direct consequence of this situation was that the national government has a restricted ability to enforce desired policies and codes and in the more distant ecotourism ventures there was no surety that government standards were adhered to.

In Australia, the Wet Tropics rainforest, located on the north east coast, has a growing reputation as a biodiversity hotspot, largely due to its protection first as a national park and later as a World Heritage listed site (Carmody and Prideaux, 2010). In a study of forest tourism in Western Australia, Carlsen and Wood (2004) found that in the state's Southern Forest Region, tourism generated AUD\$61.9 million in direct expenditure and accounted for between 10-14% of the total tourism generated income in the region. Clearly, tourism is able to generate significant income for regions that seek to develop their forests as important tourism attractions.

### **3. Tourism in the Wet Tropics Rainforest of Australia**

In recent decades the Wet Tropics rainforests of north Queensland have become, along with the nearby Great Barrier Reef, the major tourism attractions of the region they are located in. The main domestic and international gateway to the Wet Tropics region is Cairns, a relatively small tourism-dependent city with a population of approximate 140,000 persons.

The 9,000 square kilometres rainforest (Driml and Common, 1996) contains the majority of Australia's remaining tropical rainforest (see Figure 1). As with many other rainforests, this unique and biologically diverse ecosystem has been exploited by activities including farming, grazing, timber milling and human settlement. Following pressure from the environmental lobby, the Wet Tropics rainforest bioregion was inscribed on the World Heritage register in 1988. The listing was made on the basis of the forest's outstanding universal values: (1) it contains superlative natural phenomena; (2) it is an outstanding example representing the major stages of Earth's history; (3) it is an outstanding example representing ongoing ecological and biological processes and; (4) it contains the most important and significant habitats for in-situ conservation of biological diversity (WTMA, 2007).

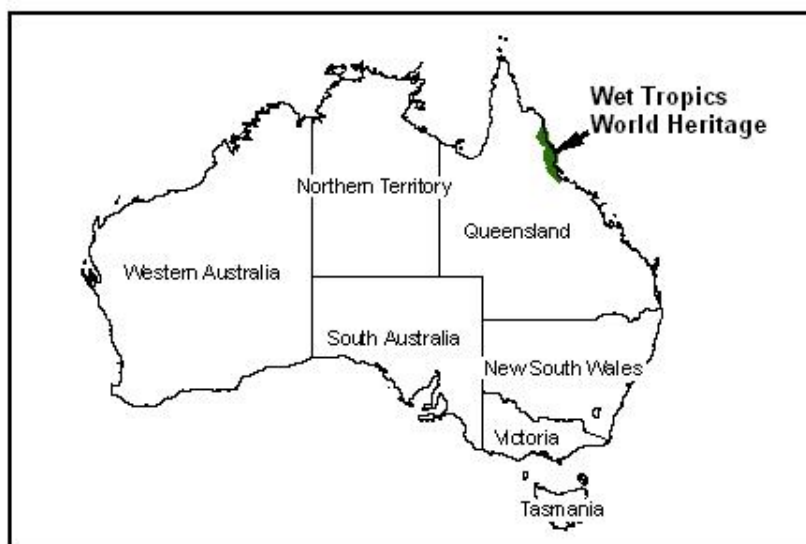


Figure 1 - The Wet Tropics World Heritage Area (map courtesy of the WTMA)

Following its listing as a World Heritage site, the area has developed as a major tourism attraction and currently has 180 recognized visitor sites, with more than half of these containing visitor infrastructure (Bentrupperbaumer, O'Farrell and Reser, 2004). Overall the

Tropical North Queensland region receives an estimated 2.5 million visitors annually (Tourism Tropical North Queensland, 2008a; 2008b), many of whom visited the region because of its nature-based assets including the rainforest (Coghlan and Prideaux, 2008; Falco-Mammone, Coghlan and Prideaux, 2006; Prideaux *et al.*, 2006). In research into the economic value of the Wet Tropics rainforest, Prideaux and Falco-Mammone (2007) estimated that the rainforest generated tourism expenditure of AUD\$426 million in 2006 excluding any multiplier effects that may apply.

The region has attracted significant scientific research interest with a more modest body of work on the region's tourism industry. Research into aspects of the region's tourism industry has included monitoring studies of visitor sites (Bentrupperbaumer, 2002a; 2002b; Bentrupperbaumer *et al.*, 2004; McNamara and Prideaux 2010), the planning of walking tracks (McNamara and Prideaux, 2011), visitor profiles (King and Prideaux, 2010) and the possible impact of climate change in the future (Prideaux, Coughlin and McNamara 2010). Other studies have investigated the economic contribution of tourism in the Wet Tropics rainforest including Driml and Common (1996), Driml (1997), and Prideaux and Falco-Mammone (2007).

Previous research (Prideaux, Whyte, and Sibtain 2010) into overall motives for visiting the study region, undertaken at Cairns Airport, established the significance of the Wet Tropics rainforest and the nearby Great Barrier Reef as the region's main natural attractions. This is reflected in the marketing campaigns mounted by the region's tourism industry which focus heavily on the reef and rainforest as the region's key nature based iconic tourism attractions. In their study of the reasons tourists visit the study region, Prideaux *et al.* (2010) found that the Great Barrier Reef was the most significant motivation (mean = 4.26, on a scale of 1 to 5)

for visiting the destination, followed in second position by the Wet Tropics rainforest (mean = 3.90).

Despite promising developments in specific regions including Costa Rica, Sabah (Malaysia) and the Wet Tropics rainforest in Australia, rainforest tourism remains a relatively small sector of the global tourism industry. In part, this is a reflection of the location of most rainforests in relatively remote areas and often in underdeveloped countries. This lack of development of rainforest tourism opportunities is disappointing because rainforest tourism has the potential to become one of the major selling points for tourism activity in the regions where rainforests are located, as demonstrated by Prideaux and Falco-Mammone (2007).

It is apparent that the literature has yet to seriously engage in reporting issues associated with rainforest tourism, perhaps with the exception of tourism development associated with CBET and to a lesser extent the development of rainforest tourism in Australia's Wet Tropics Rainforests. To date most of the focus of rainforest tourism research has been on supply side issues and there is relatively little research that focuses on the characteristics of the visitors including their motives for visiting rainforests. The following discussion commences with the objectives of the research and the methodology used. After discussing the results of the research, observations are made about the potential for rainforests to be further developed as a tourism resource.

#### **4. Objectives and Methods**

The objectives of this research were two-fold and based on the need to develop a greater understanding of the rainforest visitors, specifically patterns of repeat visitation. The first objective was to develop a profile, including motivations, of tourists visiting the Wet Tropics

rainforest, and the second was to identify previous patterns of rainforest visitation in both Australia and elsewhere. To develop a large and representative cross-section of respondents, visitors to the rainforest were surveyed at multiple sites over a 12-month period using a three page survey instrument (see McGuirk and O'Neill, 2010; Neuman, 2005).

The survey instrument contained a series of basic socio-demographic questions including age, origin and occupation as well as specific questions about accommodation, transport, travelling party, length of stay, information sources used, budget details of previous visits to rainforest areas. Dependent variables included respondents' motivations for visiting the region measured via a 5 point Likert scale and overall trip satisfaction identified by using a 10-point Likert scale. The survey was run for a 12-month period between January and December 2007 yielding 1,408 valid responses with a 80% response rate. Prior to undertaking the survey, the instrument was piloted and several amendments made to clarify questions. Adoption of a 12 month timeframe enabled the researchers to develop a baseline that can be used for monitoring future changes in visitation patterns.

Surveys were distributed through two means. The first used local tour operators, and the second using professional survey staff at selected rainforest visitor sites. The aim of using tour operators was to collect data from rainforest tour participants. After a series of meetings were held to outline the aim of the research, ten operators offered their support over the 12-months. This support was in the form of providing tour staff to administer the survey. Each operator was provided with instructions on how to approach visitors and asked to provide up to 20 visitor surveys each month. They were also supplied with copies of the survey, folders, pens, information sheets for visitors and complimentary postcards to hand out to respondents. Completed surveys were collected from the operators every month by a member of the research team. Trained staff also surveyed non tour visitors to the rainforest. Three popular

visitor sites, Mossman Gorge, Daintree Discovery Centre and Marddja Boardwalk, were used to undertake on-site surveying two days each month.

As with any survey of this nature, the investigators faced a number of limitations. First, the survey was distributed using a random distribution system; however there was no certainty that results would mirror the demographic characteristics of all visitors who have visited the area during the study period. Thus, some sectors in the tourist population may be over represented and others under represented depending on the individuals receiving the survey. Secondly, the survey instrument was only available in English effectively excluding visitors not articulate in English. An accurate estimation of the percentage of non English speaking visitors who may have visited the rainforest during the survey period is not available. Moreover, when developing the survey instrument used in this research, the authors were mindful of the phenomenon known as Social Desirability Bias. This phenomenon is described by Thompson and Phua (2005) as the tendency for respondents to reply in a way that will be viewed favorably by others. Generally, this takes the form of over reporting perceived 'good' behavior or underreporting perceived 'bad' behavior. In the circumstances of this research, it may be expected that perceived 'bad' behaviour by visitors in the rainforest will be under-reported and 'good' behaviour over-reported. It is methodologically difficult to quantify the level of possible over reporting of 'bad' behaviour particularly when the socio-demographic variables of respondents are very wide as is the case in this research.

## **5. Profile of Respondents**

Slightly more females (52.7%) than males (47.3%) responded to the survey. Australian visitors made up the largest proportion of respondents (59.8%), followed by those from the UK and Ireland (14.0%), Europe (11.0%) and North America (8.9%). Analysis of respondents'

ages revealed an even spread between younger and older respondents: 20-29 years (21.1%), 30-39 years, (20.1%), 50-59 years (19.5%), 40-49 years (17.3%;) and over 60 years (18.1%). The majority of respondents were travelling as a couple (55.8%), followed by those travelling with friends (13.8%), as a family with children (13.6%), with relatives (6.7%), alone (5.1%) or as a tour group (4.8%). A large proportion of respondents were on their first visit to the region (65.8%). Therefore, the characteristic survey respondent was a young to middle aged, Australian female, visiting the rainforest for the first time and accompanied by a partner.

## 6. Visitor Motivations

Determining the relative position of visitor motives for visiting a specific destination is a key element in destination management and an issue that is usually given a high priority by Destination Marketing Organizations. To identify the importance of the Wet Tropic Rainforests as a key motivation for visiting the destination *vis a vis* other motives, respondents were asked to rate the significance of twenty possible motivations for visiting the study region using a 5 point Likert scale where 5 indicated the item was very important (see Figure 2). The motivations included in the survey were based on the findings of previous research (Bentrupperbäumer and Reser, 2000; Prideaux *et al.*, 2010) as well as discussions with key stakeholders for this research including the Wet Tropics Management Authority, tour operators and Tourism Tropical North Queensland. The top eight motivations were visiting the rainforest (mean = 4.38), visiting the Great Barrier Reef (4.31), experiencing the natural environment (4.12), resting and relaxing (4.02), seeing Australian wildlife (3.94), climate (3.79), visiting the beaches (3.61), and snorkeling and diving (3.50). When the results for rainforest visitors were compared to overall motives for visiting the region (Prideaux and Falco-Mammone, 2007), rainforest visitors returned a higher level of interest in visiting the

rainforest, clearly indicating the importance of the rainforest as a motivation for visiting the region for this visitor subset.

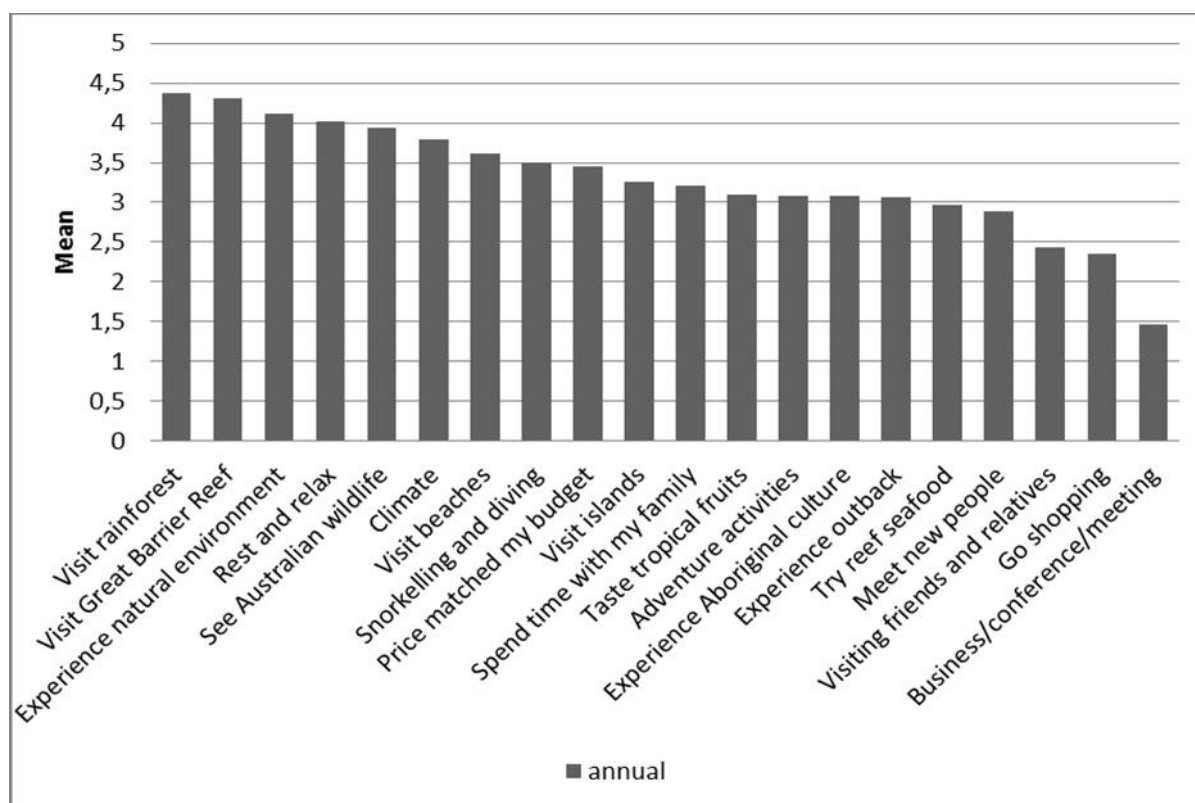


Figure 2 - Motivations of all respondents visiting the Wet Tropics rainforest (expressed as a mean of the overall sample: n = 1,408)

The motivations of the subset of respondents who had visited forests in other countries (n = 528) were similar to the eight motivations identified above as being the most important for all respondents to the survey, with only slight variations in their individual means. While further research may well pursue a comparison of motivations for travel to a number of forest sites, this study can only use the motivations of travel to one rainforest site (Wet Tropics rainforest) and use that as a proxy for likely motivations to other visited forest sites in the past. In this way, it is possible to commence building a picture of push factors (similarities, differences and so on) for nature-based, specifically forest-based, tourism markets across the globe.

Figure 3 below explores the top eight motivations for travel to Tropical North Queensland and the regions visited by respondents in earlier holidays.

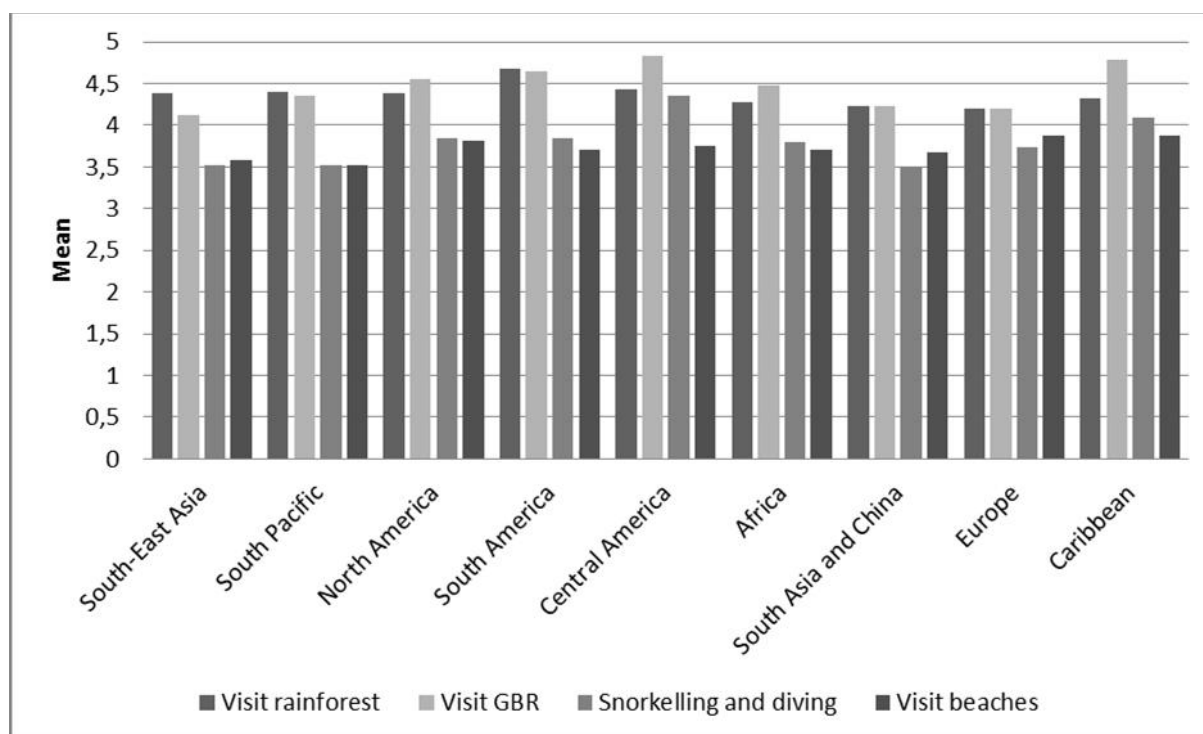


Figure 3 - Comparing the motivations for travel to Tropical North Queensland with other forest regions visited by respondents (expressed as a percentage of the overall sample: n = 1,408)

It is clear that visitors who had previously visited forests in North America, Central America, Africa and the Caribbean were most motivated by the Great Barrier Reef to visit the region. On the other hand, visitors who had been to forests in South-East Asia, the South Pacific and South America were most motivated by the rainforest to visit Tropical North Queensland. Moreover, respondents that had been to forests in North America, Central America, Africa and the Caribbean were more highly motivated by snorkeling and diving and visiting the beaches in their decision to visit the region, in comparison to those who had visited the South Pacific

and South-East Asia in the past. This tentatively indicates the strong pull factor of forest-based attractions in countries in South-East Asia, South America and the South Pacific. Whereas in the other locations – North and Central America, Africa and the Caribbean – it is highly likely that other attractions (such as the reef or cultural sites) were more motivating pull factors to travel to these destinations than the forest-based attractions.

### **7. Previous Patterns of Rainforest Visitation**

One of the objectives of the survey was to examine respondent's patterns of forest visitation in other parts of the world. Just over 37% (n = 528) had visited other forest areas during previous holidays. The most popular region was South-East Asia (13.2% of respondents) including Borneo in Malaysia, Thailand, Indonesia and Cambodia. This was followed by countries in the South Pacific (8.9%) such as New Zealand, Fiji and Vanuatu. North America, including the US and Canada, was the third most popular region to visit forests areas (7.3% of respondents). South America (4.3%) and Central America (4.0%) were also popular locations (particularly the Amazon and Costa Rica), followed by Africa (3.1%), South Asia (2.2%), the Caribbean (1.8%) and Europe (1.1%).

A comparison of the regions and countries visited by respondents and basic socio-demographic characteristics revealed a number of trends. For instance, some slight differences occurred when exploring the countries and regions visited and their gender. Figure 4 illustrates this comparison.

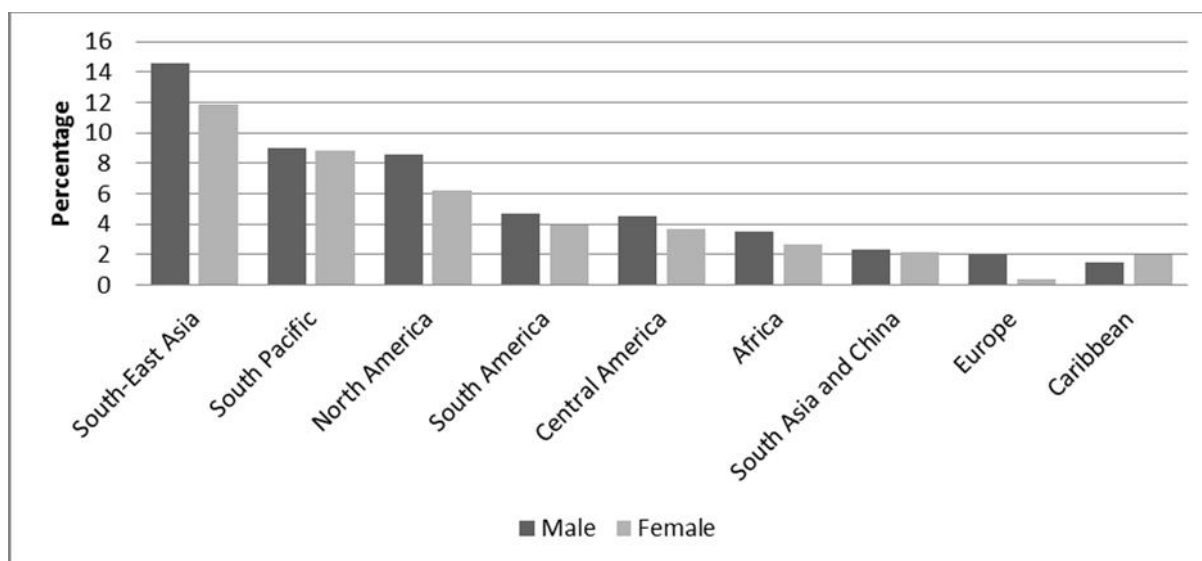


Figure 4: Comparing other forest regions visited by respondents and their gender (expressed as a percentage of the overall sample: n = 1,408)

Figure 4 shows that males were much more likely to have visited other forests abroad prior to their trip to the Wet Tropics rainforest. The Caribbean was the only site where females had visited only slightly more often than their male counterparts.

Analysis of the origin of respondents and their past travelling patterns to forested areas revealed some interesting trends. Figure 5 compares the origin of respondents (domestic/international) and the locations of past holidays involving nature-based forest visits and experiences. Domestic visitors were more likely to visit forested regions either in Australia or in countries that were within the Asian and South Pacific regions. International respondents were more likely to have visited forests in North, South and Central America and the Caribbean.

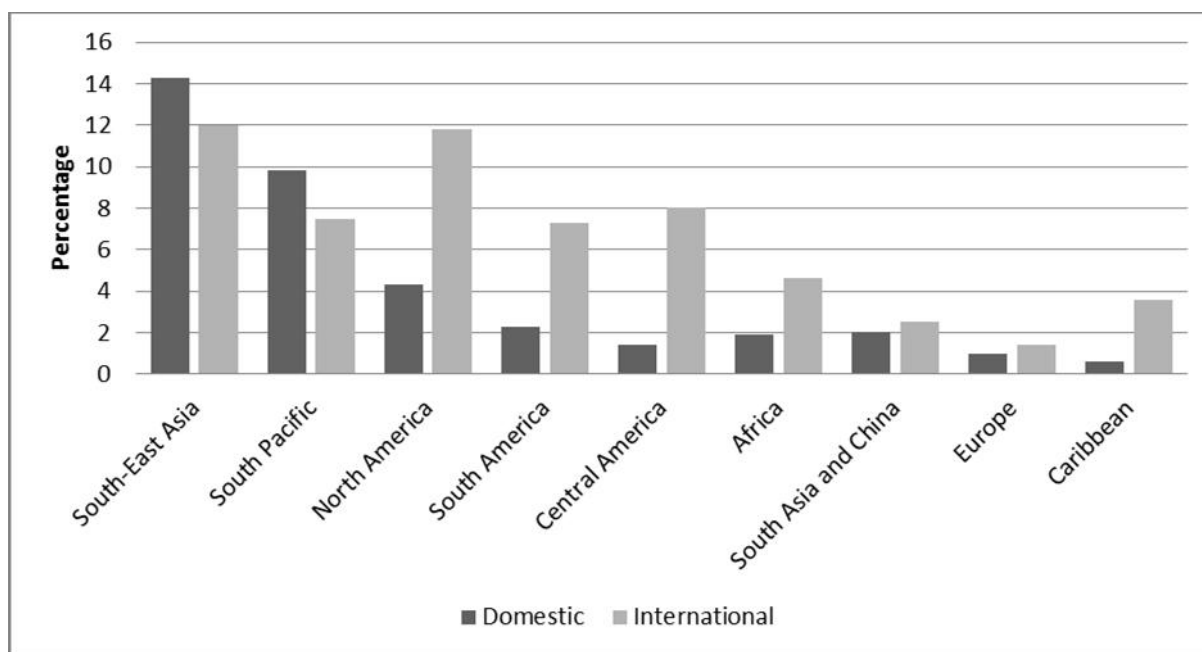


Figure 5: Comparing other forest regions visited by respondents and their origin (expressed as a percentage of the overall sample: n = 1,408)

In exploring the origin of respondents in greater depth, another story begins to unfold. For instance, the majority of respondents who had visited forest sites in North America were significantly more likely to be from North America as well as from Australia (see Figure 5), although the latter group exhibited a lower visitation rate ( $\chi^2=2.243$ ,  $p<0.05$ ). Likewise, visitors to South American forests were significantly more likely to be from North America and from Europe ( $\chi^2=61.699$ ,  $p<0.05$ ). Travellers to Central America forests were also significantly most likely to be from North America, and to a much lesser extent from Europe ( $\chi^2=1.462$ ,  $p<0.05$ ). North Americans again were significantly more likely to be the largest group of visitors to experience forest sites in the Caribbean, followed by those from the UK and Ireland ( $\chi^2=30.177$ ,  $p<0.05$ ). As for the South Pacific, visitors were most significantly likely to be from New Zealand or Australia ( $\chi^2=64.838$ ,  $p<0.05$ ). Interestingly for South-East Asia, visitors were significantly more likely to be from Scandinavia, Europe or Australia

( $\chi^2=19.392$ ,  $p<0.05$ ). Similarly, visitors to forest sites in Africa were significantly more likely to be from Europe and Scandinavia ( $\chi^2=66.807$ ,  $p<0.05$ ). Lastly, visitors to forest sites in Europe were significantly more likely to have originated from Europe and Scandinavia ( $\chi^2=10.062$ ,  $p<0.05$ ). These results indicate that proximity of the forest to the generating region may be a significant factor but there is also a propensity for respondents to visit forests in the regions that they visit.

The age groups of respondents and forest locations cited reveals much about this nature-based tourism market. Those who travelled to North America were evenly spread across the age groups, with those aged over 60 years the highest percentage of respondents. Similarly, for those travelling to forest sites in South America, respondents were evenly spread in terms of their ages. Those aged 50-59 years especially made up the age group with the highest number of respondents visiting South America in the past. Those travelling to Central America were predominately aged either over 60 years or under 20 years. For visitors to forest sites in the Caribbean, ages were very evenly spread but those aged 40-49 years had the highest percentage of respondents. Moreover, those aged 30-39 years were the largest group of visitors travelling to forest-based sites in Africa. Lastly, in comparing the age groups of those respondents who have visited forests in Europe, those aged less than 29 years were particularly likely to have travelled to these sites.

Forest sites in the South Pacific, South-East Asia and South Asia (including China) were the most popular amongst surveyed visitors, and as such have been further interrogated according to the age group of respondents. Figure 6 below compares the age of respondents and the visitation patterns for these three regions.

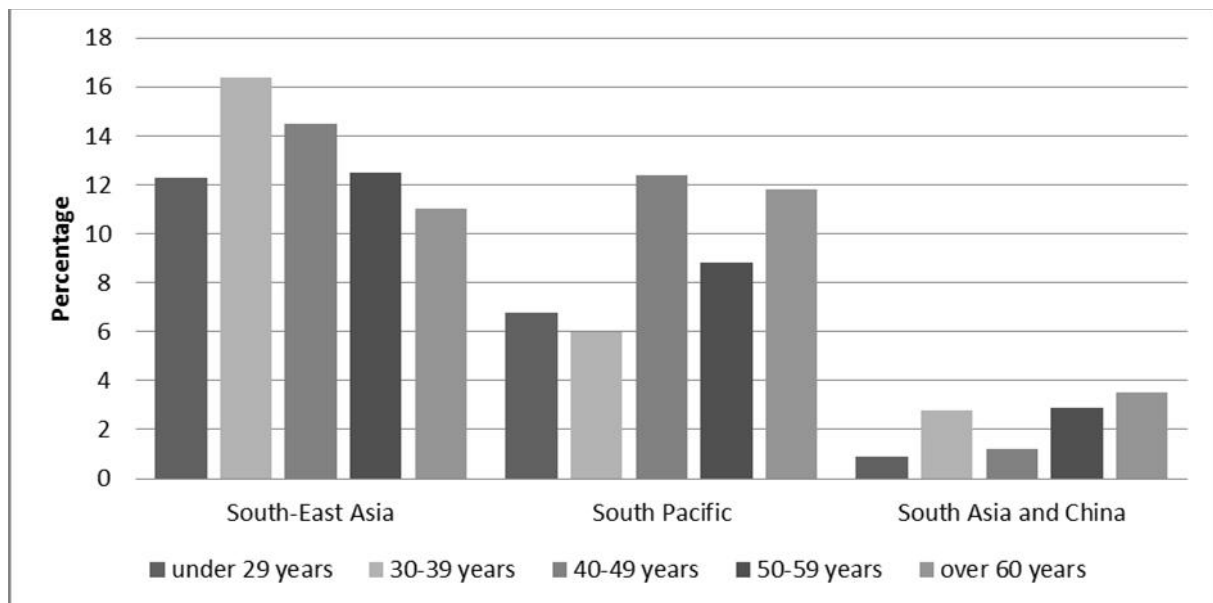


Figure 6: Comparing the forest region visited by respondents and their age (expressed as percentage of overall sample: n = 1,408)

Figure 6 shows that the younger to middle aged market preferred to visit the forests of South-East Asia, particularly Borneo, Laos, Cambodia, Thailand and the Philippines. By comparison, visitors who participate in forest-based activities in the South Pacific tend to be middle aged or older. This pattern was also observed for respondents who had visited South Asia and China. This finding indicates that age is not seen by respondents as a limitation in visiting forests.

## 8. Conclusions

In the research reported in this article, visitors to the Wet Tropics rainforest were surveyed over a 12-month period to establish their motives for visiting the area and their pattern of previous visitation to forest sites. Results show that respondents ranked the rainforest ahead of all other destination attractions as their main motive for visiting the region. This is a significant finding and highlights the ability of well managed and sensitively developed

forests such as the Wet Tropics rainforest to attract significant numbers of tourists. The results also indicate that many respondents exhibit an identifiable pattern of repeat visitation to forests over multiple holiday trips and in multiple destinations indicating the possible existence of a collecting behavior similar to that noted by King and Prideaux (2010) who found that the Wet Tropics Rainforest's status as a World Heritage site attracted a significant number of visitors who 'collect' World Heritage sites. .

Over 37% of respondents had visited forests overseas on past holidays. From this data, we were able to identify some key, popular regions for visitors, and identify characteristics of this global nature-based tourism market. Locations that were prominent in the results included Borneo in Malaysia, New Zealand, Thailand, the Amazon and Costa Rica. Overall, South-East Asia, the South Pacific and North America were all favoured regions by respondents. Australian visitors in particular had visited forests in locations in South-East Asia and the South Pacific, while their international counterparts had visited sites in North, South and Central America, and the Caribbean particularly.

The findings of this research also support the contention that forests are a valuable tourism resource, attract multiple visits and as such may be capable of delivering higher levels of economic returns. To date, the data on the estimated value of forests is very limited but as the work by Prideaux and Falco-Mammone (2007) and Carlsen and Wood (2005) has indicated this can be quite significant in terms of total tourist spending in destinations where forests are present. This observation supports the view that there is a strong case for firstly retaining remaining forests as a tourism resource and secondly developing these areas as major visitor sites.

The research also highlights that there are significant gaps in our understanding of the tourism potential of rainforests indicating the need for further research and debate in the tourism

literature, by the tourism industry and by policy makers. As Font and Tribe (2000) suggested, the growth in nature-based tourism in recent decades has been remarkable however future tourism development must be in a form that does not damage the natural environment upon which it depends (Collins, 1999; Williams, 1998). However while further growth is entirely possible the opportunity for growth may be precluded in forests that are not protected and are made available for other purposes. Given the rapid rate of destruction of rainforests globally research into the issue of protection and how a viable rainforest tourism industry can be established and maintained has become urgent.

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