

TOURISM AND THE ECONOMIC VALUATION OF PARKS AND PROTECTED AREAS

Watarrka National Park, Northern Territory



Pascal Tremblay and Dean Carson

SUSTAINABLE
TOURISM



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Abstract

This report provides an estimate of the economic value of Watarrka National Park (WNP) to the Northern Territory's Centre region. Its importance lies in assessing what tourist expenditures would be lost to the Centre if WNP did not exist.

While the objective of the research was to apply the Carlsen and Wood's economic model for protected areas to WNP, to estimate the contribution of the park to the region through tourism, this report was not based on primary data collection but on building a reasoned argument about the contribution of WNP to regional tourism expenditures. The report also aimed at providing a broad picture of past and existing markets, and contrasts some of the secondary data sources available to comment on improved estimates of traffic and visitation by tourists.

It was found that funding agencies responsible for WNP would be justified to spend \$2.84m to maintain the value of the natural, cultural and infrastructure assets which generate this activity, and perhaps more as the value of WNP will strategically increase in the context of proposed developments in the region. Recommendations related to the necessity to monitor adequately the tourism-related positioning of that park, its relationships to other protected areas and its contribution to the local economy is also made.

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Summary

As noted in the STCRC report, *Assessment of the Economic Value of Recreation and Tourism in Western Australia's National Parks, Marine Parks and Forests*, these assets 'make a significant contribution to the economies of regions in which they are situated and to neighbouring towns through direct tourist expenditure.' (Carlsen & Wood 2004). In this report the Centre of the Northern Territory has been selected as the region of reference by providing an estimate of the economic value of Watarrka National Park (WNP).

The objective of the research was to apply the Carlsen and Wood (2004) approach to WNP to estimate the contribution of the park to the region through tourism. It also aimed to provide a broad picture of past and existing markets, and contrast some of the secondary data sources available to comment on improved estimates of traffic and visitation by tourists. The method therefore assesses what tourist expenditures would be lost to the Central Region if WNP did not exist (with its natural, cultural and man-made resources).

Carlsen and Wood's model is based on two main factors:

1. The attribution factor in the Carlsen and Wood (2004) method measures the match between main motives to visit the region and activities or attributes of the protected area. Primary data is not available for this variable but for reasons such as local supply-side constraints and the location of WNP, it has been assumed that an attribution factor of 100% would be justified as WNP fits perfectly well with the expectations of visitors as to what the Central tourism region has to offer, whether travellers stay a night in WNP or not.
2. The substitution factor aims at assessing the extent to which a protected area played a decisive role in explaining the presence of visitors in the region. A park might be at the centre of large tourists expenditures because of its convenience but have played little role in attracting visitors at the margin in the region. Primary data was not collected and secondary data does not exist for the substitution factor either in the case of WNP. The latter is usually tested in the Carlsen and Wood (2004) approach through a scenario question asking respondents whether they would have still visited the region, the State, the country, gone overseas or stayed at home if the park did not exist. This provides a proportion (the substitution factor) to be attributed completely to the park in the economic assessment. The value derived from logical argument and triangulation (rather than primary data) suggests an overall value of 7%.

This detailed report undertakes a number of separate but connected tasks related to the economic valuation of tourism in WNP, and provides some supplementary information about tourism in and around WNP which had never been compiled and integrated before. The first section of the report describes generally the components of the report, the data sources on which the analysis is based as well as the assumptions and filtering decisions that have supported the production of statistics.

Chapter 2 of this report undertakes a brief descriptive analysis of tourism markets in the WNP region using the Commercial Accommodation Survey (CAS) and Northern Territory Travel Monitor (NTTM). Included in this chapter are visitation data originating from the Parks and Wildlife services is overviewed.

Chapter 2 contributes a basic descriptive analysis of visitors to the WNP region in the years 1998–2004 using the CAS data which reflects the trips and personal attributes of people surveyed while staying in commercial accommodation in the Centre of the NT – not necessarily in the WNP region. When useful, the NTTM data is contrasted with the secondary data of the WNP-specific visitor surveys.

While the NTTM also produces a household survey which focuses on travel involving no commercial accommodation, most variables of interest are available in the CAS only, and its degree of reliability make it a rich source of general visitor information. The majority of available statistics from the CAS are analysed, with the exception of expenditures data, which have often proved to be problematic on the sub-regional scale and are only associated with the location of surveying. The sub-sample used for this component is based on CAS respondents who (a) were interviewed while in the Centre and (b) indicated that they had visited WNP during their stay in the Top End on the trip of interview.

Chapter 2 differentiates between Top End tourists who decide to pay a visit to WNP and those who choose not to, also using the CAS data. The broader set of relevant respondents are those captured within the limits of the Centre (region 4) and two filters are created to make that distinction:

- Filter 1: whether respondents mention having visited WNP at the time of interview; and
- Filter 2: whether respondents intend to visit that region.

Using that distinction, Chapter 2 both examines the propensity to visit WNP on a variable per variable basis (allowing comparisons between visitors with various attributes), and, reverses the perspective and examines whether Centre respondents who are WNP-visitors differ significantly from non-visitors on a per variable basis, where comparisons tests (for categorical data or means for interval data) are undertaken.

Chapter 3 undertakes the evaluation of the economic value of tourism in WNP emulating that applied by Carlsen and Wood to protected areas in Western Australia but setting various assumptions based on the secondary data gathered in Chapter 2. Attention is given to the role played by WNP for tourism in the Centre as well as its contribution to the NT tourism allowing for this distinction to be examined.

Objectives of Study

While the objective of the research was to apply the Carlsen and Wood approach to WNP to estimate the contribution of the park to the region through tourism, it also aimed at providing a broad picture of past and existing markets, and contrast some of the secondary data sources available to comment on improved estimates of traffic and visitation by tourists.

Methodology

The research plan was conceptually based on the combination of existing sources of information related to WNP, mainly:

- Historical data about visitation in WNP, provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and The Arts).
- Basic visitor survey materials (collected) March and June 2005, provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and The Arts) and compiled by the Strategic Research Unit (Northern Territory Tourist Commission - NTTC).
- Historical data (1998-2004) originating from the Commercial Accommodation Survey (CAS) of the Northern Territory Travel Monitor (NTTM) produced by the NTTC. The latter includes indicators of visit to WNP and of intention to visit WNP, which can be combined with other visitor survey information to assess those markets.

There are benefits in integrating and analysing the NTTM data with that originating from the park. The former is based on a set of comprehensive surveys, has been collected consistently and its structure has been stable (in terms of definitions of variables of interest, geographical spread and divisions, depth of the survey in small and remote locations, etc.). It is one of the most reliable sources of information (of that type) about tourism in Northern Territory regions for the past decade. While the survey had been discontinued during 2005 to make place for new instruments addressing contemporary data needs, the 1998 to 2004 data collections provide a dynamic account of many of the variables of interest for the Carlsen and Wood approach to be applicable and include a level of details not usually available about visitor attributes and changes over time. This project aimed in part at assessing whether the combined information sources would be sufficient (when integrated) to allow the Carlsen and Wood approach without supplementary or dedicated primary data collection.

Key Findings

Computations lead to a value of \$40.55m for total direct and attributed expenditures. This leads to an estimated retained value in the Centre of \$2.84m, which represents the injections in the regional economy that would not have taken place if WNP did not exist. Funding agencies responsible for WNP would be justified to spend as much to maintain the value of the natural, cultural and infrastructure assets which generate this activity through tourism. It would also be possible to argue that the value of WNP will strategically increase in the context of proposed developments in the region. This also implies increased value in monitoring adequately the positioning of that park and its contribution to the local economy.

Future Action

It was found that funding agencies responsible for WNP would be justified to spend as much to maintain the value of the natural, cultural and infrastructure assets which generate this activity through tourism as the value of WNP will strategically increase in the context of proposed developments in the region. This also implies increased value in adequately monitoring the positioning of that park and its contribution to the local economy.

Recommendations appear in the report as to the needed primary data and complementary information that would be needed to provide empirically grounded estimates to monitor WNP's performance over time.

Chapter 1

TOURISM IN WATARRKA - THE ECONOMIC VALUATION OF PARKS AND PROTECTED AREAS

Economic Values and Protected Areas

While this report focuses on tourism and the economic contribution Watarrka National Park (WNP) makes to the regional economy through this activity, the general principles for the analysis need to be placed in the appropriate context. Economic evaluations of protected areas can serve many purposes and reflect a large number of objectives, themselves supported by specific methodologies addressing those questions. As most such exercises establish ‘economic values and valuations’, it is critical to pay attention to the objectives of the exercise, to assess the match between the method and the purposes outlined and to assess the structural assumptions of models in that context.

It is accepted that Watarrka, like all protected areas, embodies many values held by diverse stakeholders extracting dissimilar uses (and ‘non-use values’) for the material and immaterial resources it incorporates. A typical economic categorisation is displayed in Figure 1.

Figure 1: A typical economic categorisation of protected areas

Use			Non-use	
Direct use	Indirect use	Option	Bequest	Existence
Recreation	Ecosystem services	Future information	Use and non-use values for legacy	Biodiversity
Sustainable harvesting	Climate stabilisation	Future uses (indirect & direct)		Ritual or spiritual values
Wildlife harvesting	Flood control			Culture, heritage
Fuelwood	Groundwater recharge			Community values
Grazing	Carbon sequestering			Landscape
Agriculture	Habitat			
Gene harvesting	Nutrient retention			
Education	Natural disaster prevention			
Research	Watershed protection			
	Natural services			

Source: WCPA (2000:8)

Additionally Watarrka, like many parks located in the Northern Territory (NT), is different to many protected areas in a global context in terms of its Aboriginal resident presence, its Aboriginal historical context, and the evolving management relationships existing between its Aboriginal custodians (the Luritja people) and the Parks and Wildlife Commission of the Northern Territory (PWCNT). As *The Territory Parks and Wildlife Conservation Act* is in the process of preparing management plans for joint managed parks established by negotiation under the *Parks and Reserves (Framework for the Future) Act*, this will ultimately have an impact on strategic developments in the region. In particular, the latter entails specific considerations for the nomination of the MacDonnell Ranges as a World Heritage Area and the possibility of creating a Greater Central Australian National Park (incorporating Finke Gorge and Watarrka) as well as a number of contextual issues which cannot be addressed in this report.

The present section briefly discusses the growing impetus placed on parks and other protected areas to give greater consideration to tourism-related uses in their management and to measure these values so as to explore how these can contribute to improve parks finance. A rhetorical struggle has existed in the parks management literature between conservation interests, the requirements of tourism planning and the increasingly acknowledged need to consider new ways of using some tourism-related commercial activities to support park

resourcing (Dharmaratne, Sang & Walling 2000; Driml & Common 1995; Eagles 1995; Eagles & McCool 2002). In that process, it has been suggested that protected area managers place greater attention (and often to give a higher priority) to tourism for a number of diverse reasons:

- The actual and potential impacts of tourism on people, ecology and landscape within parks lead to potential conflicts with conservation objectives.
- The political visibility of tourism and the realisation that many local community groups (otherwise antagonistic to the limitations placed on their uses) accept the existence of parks because they either make a living from it or believe that their main stake in some protected areas is through tourism-like recreation activities which they can benefit from as users.
- The relatively large importance of protected areas in the attractions portfolio of tourism for countries such as Australia, Canada, New Zealand, South Africa, the USA, etc. has implicated Destination Management Organisations in raising questions about product mix development, infrastructure support and access, fit with destination images, marketing coordination, etc.
- In destinations where pressures on the ecological and cultural integrity of the protected areas are rising or becoming more intricate, resource needs for dealing with landscape management responsibilities, developing visitor amenities integrated with that landscape, and managing visitor safety have risen. This has in some cases happened in the context of increasing gaps between increasing tourism sector expectations and declining protected areas operational budgets.

It has become timely to undertake economic evaluations of the tourism contribution of protected areas so as to establish whether different types of parks (and the jurisdictions managing them) adequately invest in the resources which allow them to maintain both their ecological and socio-economic goals. The present section of this report fills two functions. It contextualises the role of tourism in park valuations research and provides arguments which support the Carlsen and Wood (2004) approach, adapted in a study of Kakadu National Park (Tremblay 2006) and in this report. It also briefly discusses different approaches and the difficulties and limitations associated in undertaking comparisons between empirical results originating from different reports or empirical studies of parks in Australia and elsewhere.

To avoid excessively replicating grounds already covered, it is useful to start from the published work of Carlsen and Wood (2004) and quote a number of statements they make describing the rationale for their original Western Australia study and the general approach discussed in Carlsen and Wood (2004: 1-2):

- ‘This study aims to measure the economic value of protected natural environments through direct tourism expenditures in regions that are recognised for their unique natural attractions.’
- ‘Information about the economic value of protected natural areas is often necessary to justify expenditure of public funds on management of such areas. The direct tourism expenditure measurements carried out as part of this study is intended to provide a tool for future economic assessments of natural environments in order to manage and allocate resources to these areas to ensure the sustainability of the natural resource base for tourism and recreation.’
- ‘The economic returns generated from the sustainable management of tourism in natural areas can be maintained over a long period of time for the benefit of a wide range of users and stakeholders. Investment in resources and infrastructure that support and encourage tourism and recreation in natural areas therefore provide opportunities for significant benefits to state and regional economies.’
- ‘The contribution of natural area tourism to Western Australia’s economy, however, has had little recognition and is under-valued. This is partly due to the fact that tourism and recreation to these areas has not previously been assessed or measured in an objective systematic way. The agencies responsible for the management and marketing of these natural areas, [...], are constantly seeking the levels of recognition and resources to support and sustain these areas. By providing more accurate values for tourism activities occurring in natural environments, there is the opportunity to reverse market failure by providing decision makers with information on the real cost of alternative actions. Particularly in a climate where public funds are finite, these measures can be utilised to support decision-making in the area of resource commitment and budget allocation to promote the sustainable management of natural areas.’

Carlsen and Woods (2004) also quote Union (1998) in the same context as above and raise important questions about the nature of contemporary treatment of protected areas by funding agencies:

‘The absence of systematic large-scale gathering of economic data from parks means that key parts of the economy are overlooked. The absence of adequate statistics causes an information blind spot; these natural places are valued, on a financial basis, at a zero price. This leads to excessive destruction of natural areas, implying that present economic performance in many countries will be reduced, and future economic performance will be severely curtailed.’ (Union 1998).

It is clear from the nature of many recent writings surrounding these issues that researchers or proponents of economic evaluations of protected areas have found it difficult to systematically incorporate tourism in their work. It might be that tourism-related economic contributions to the value of parks have been considered non-significant (in specific locations) or problematic elsewhere, either on methodological or on political grounds.

Yet a number of well-known (if sometimes controversial) methods have emerged over the years to measure the value of non-productive, recreational or tourism-based activity. Methods have changed to reflect the growing importance of organised tourism markets and other commercial-business influences on parks. Historically, clients, users and visitors of protected areas in many jurisdictions were considered to be 'recreationists' originating from surrounding regions (for instance in the USA where average parks were largely assumed to be used by urban areas surrounding them rather than faraway travellers). Methods were devised to calculate the direct and indirect impacts of recreation-related economic transfers between relevant urban centres and protected area regions with methods (such as the travel costs approach or alternative contingent valuations) devised to indirectly signal willingness-to-pay for recreation against alternative uses.

In the last 30 years, as some protected areas started to acquire iconic status and become 'attractions' in their own right, increasing numbers of tourists from diverse and faraway origins were drawn towards them and parks became necessary players in the destination choice and planning processes of many tourist markets (Uysal, McDonald & Martin 1994). Park managers nowadays need to consider and differentiate the values of the park associated with the traditional set of recreational opportunities for locals (including parks inhabitants, neighbouring communities, local recreationists, and other more distant communities supporting their existence values, etc.) from those connected with their status as 'attractions components' of a tourism sector, which is often akin to coordinating different management paradigms. While tourism uses can also claim strong relevance to the regional economy, they tend to lead to some suspicion from conservation interests – and park managers have in the past been more closely associated with ecological concerns. Importantly for the rationale of the present study, their ability to convincingly demonstrate the urgency of many such environmental concerns has meant that parks have had a greater ability to justify using scarce resources for these management activities than to maintain their value for tourism purposes.

Recently, most analysts reflecting on the contemporary dilemmas of protected area tourism resourcing seem to have suggested that non-tourism uses and values would have much to gain from greater ability to finance protected area operations and strategies from clever and appropriate tourism-related developments, whenever possible politically, socially and culturally (Eagles 2003).

But it is unclear that this message has universally trickled down to park managers making decisions about protected areas' resource use in the medium-term nor to many of the funding agencies in charge of deciding how much and where to re-invest to achieve long-term goals associated with parks. This directs the attention towards some needed re-thinking and adjustments in methods used to assess the relative economic contributions originating from diverse stakeholder-users, as Carlsen and Wood (2004) have argued.

Traditionally, the approach designed to evaluate the economic value of composite assets and resources (such as protected areas) has been referred to as 'the total economic value' framework, repeatedly endorsed by researchers associated with the IUCN (WCPA 1998, 2000). This broad approach is relevant for decisions linked with:

- Establishing the rationale for the park (if the latter is based on a public goods market failure existence);
- Deciding on the geographical spread and scope of a park considered to be a public good.

The general idea developed by early resource economists was to find a way to measure and aggregate all 'use values' and 'non-use values' associated with the decision to conserve a piece of land into a 'park', i.e. keeping it in a relatively pristine state as opposed to other 'states' where various uses (such as logging, mining, grazing, selling real estate, etc.) could be considered. Such an evaluation is in theory aimed at determining whether, from a public interest perspective, this is the 'best' state for that given piece of land (and assess its optimal size). By definition, a protected area (conceived as a public/merit good) needs to be contrasted with alternative states and the uses and values that would be generated by these alternatives, a highly speculative exercise by nature.

Economists have therefore developed a comprehensive set of principles associated with such cost-benefit measurement exercises, which place the emphasis on the relative merit of an option relatively to all other alternatives. For protected areas, the emphasis is necessarily on the multiple opportunity costs of a use-choice and the justifiable attribution of the benefits to a given state of use of the land relative to others. In parallel, extensive but more controversial methods have also been devised to estimate non-use values – the realm of which is beyond this study – but which remain critical components of the primary total economic value justification of most protected areas.

Tourism and Parks' Finances

In the contemporary literature concerned with parks funding, the focus shifts towards the financial aspects associated with managing the asset and the purpose is modified to that extent. The purpose of measuring the benefits and contribution of a protected area through tourism is undertaken here in the context of a needed re-investment to maintain the asset and with the perspective of uncovering funding responsibilities associated with maintaining it. For that reason, economic evaluation studies need to refocus. They do not require constituting complete appraisals of a park's multiple values to all groups of stakeholders (at a point in time) but to assess the benefits to the regional economy originating from a specific type of user referred to as 'tourists' or 'visitors'.

These users share certain attributes with respect to the type of use they make of WNP, and are explicitly supported by the tourism industrial system, often the most important link with the economic benefits to the region. This is the explicit purpose and context endorsed in this report for assessing the contribution of WNP through tourism only.

In the past, the rationale for parks funding was very much 'needs-based'. Protected areas' ability to receive funding was connected to their strategic and operational needs. A critical shift has occurred in the recent past, due in part to funding organisations asking them to consider alternative financial sources and from tourism sector political pressures to be incorporated in the funding mix. Whatever the reasons and the mix, the need to measure contributions through tourism has come to the fore, and nowadays requires scrutiny (Eagle 2003: 32).

This has led to a number of studies, reports and claims about the contributions of protected areas to regional economies through tourism, a much needed redirection but based on studies lacking in methodological consistency. Not surprisingly, the tendency has been to make rough, exaggerated claims about a specific park's importance based on incomplete data and larger-than-life assumptions. In doing so, the basic opportunity cost principles that need to be considered for such assessments to be credible were forgotten, at the expense of making purely political or public relations claims about the contribution of parks. Carlsen and Wood (2004) developed their approach in large part in response to this situation and to establish broadly acceptable ground rules about legitimate attribution which ought to be incorporated for a public finance and funding perspective.

The driving force behind tourism economic evaluations of protected areas is nowadays explicitly connected to the need to re-invest in a park's resources to support its capacity to achieve its primary obligations and meet its operational requirements. In that context, the fundamental principles of applied economic valuation must be recognised and methods to assess tourism activity measurement deemed acceptable to those involved in funding decisions. The main contribution of the Carlsen and Wood (2004) approach is the endorsement it has received from the funding authorities who explicitly view protected areas as a public asset to be supported in that same sense.

Three Core Issues Affecting Comparability in Tourism Economic Valuations

As was suggested previously, it is not possible to find a universal theoretical framework of a set of principles applying to protected areas evaluation in the strict context of tourism. The brief overview of past studies which follows is organised to be contrasted to the Carlsen and Wood approach. From a methodological viewpoint, the Carlsen and Wood approach strikes a good balance in taking explicitly into account the net economic contribution of a protected area through tourism and developing a methodology which recognises that this must be combined with imperfect data sources. This approach is broadly suitable for the sake of evaluating the tourism contribution of NT protected areas to specified regional economies, to compare it with other protected areas and with other tourism resources. The results emerging from using that methodology do not lend themselves to simple or direct comparisons (of economic contributions) with studies of other parks where different approaches have been used. It is critical to ascertain that several past studies in Australia and elsewhere with broadly similar outlooks (but potentially different objectives) can be found. It must also be stated that the economic values which have been calculated and propagated in the literature are deemed excessive in the context of the present methods. A succinct discussion of the major methodological differences found in these various approaches and their implications is provided below.

A number of issues are relevant in assessing comparability between models and contexts of various studies. It must be recognised that alternative approaches can be useful for different objectives, and these can range between providing a better theoretical understanding of different impacts of tourist injections linked with a protected area to promoting the frequently under-estimated contributions of parks through tourism in a public relations context.

The objectives of this sub-section encompass two elements. First, they aim at providing a justification for the use of the Carlsen and Wood method in the context of economic valuation of protected areas with respect to tourism values from a comparative public finance perspective. Second, they provide a basic guide into differences between models, with a cautionary note about illegitimate comparisons with other studies that use different methodological precepts.

There are three themes on which this framework can be built:

1. Whether a study is focussed on direct expenditures only, or aims at providing a picture of indirect and induced effects, as often encountered in tourism impact studies;
2. How tourist expenditures are attributed, i.e. whether all expenses in a protected area are assumed to be the direct result of the existence of the park;
3. How the region-space (or jurisdiction) of reference is chosen, for the sake of measuring tourism impacts on a 'region'.

Indirect and Induced Effects

The established tradition in tourism economic studies to examine the indirect impacts of any type of tourist

injections, on a geographically bounded regional economy, stems from long-standing attempts by economists to following claims:

- The desirability of tourist expenditures depends on their contributions in the economy, beyond direct spending into the traditional hospitality and transport sectors, and;
- An appropriate assessment of tourism contributions requires a detailed examination of whether significant leakages exist in distinct regions which shrink the economic benefits from tourism.

The rationale for the inclusion of indirect and induced impacts when looking at a broad economy is well documented and arises from the perceived need to understand how various types of expenditures affect the economy, which tourist segments provide the greatest contributions to particular destinations and which destinations would most benefit from attracting particular tourist groups.

The usefulness of inter-sector or inter-industry methods for the purposes mentioned previously is not questioned but it must be made clear that these models were never devised to provide a systematic tool to evaluate alternatives. Cost-benefit analysis and its multiple complementary valuation tools remains the general framework under which public finance choices need to be addressed, and this might or might not incorporate considerations of indirect or inter-industry effects.

Studies which examine tourism economic impacts and provide values of direct, indirect and induced effects have great academic interest but their value is limited. It is clear that they often provide a picture of regional processes but are rarely used to undertake comparisons with the indirect and induced effects of alternative investment choices (Bellerose & Tremblay 1985). Also, given the heterogeneity of methods used to account for indirect and induced impacts, the excessive data requirements and the confounding effect of subtle technical differences on results interpretation, the latter are costly and imprecise. They can often blur the picture rather than clarify it.

Historically, applications of models with a focus on establishing indirect/induced costs were developed and productively adapted to the 'recreation context' of protected areas. Their aim has often been to connect a number of population centres to a park (with techniques such as the travel costs method) to establish willingness to pay for that park and examine actual expenses in or around it, and their eventual diffusion in the region. When data on tourist flows and expenditures is adequate, inter-industry linkages become valuable primarily as long as the following assumptions can be sustained:

- the majority of tourists travel at the destination because of/for the protected area;
- the majority of tourists are independent travellers, and/or their real expenditures at destination and during the journey can be measured and differentiated.

Furthermore, the focus in studies involving impacts has been entirely on the benefits through the travel and hospitality services supply generated by this activity, with economic displacements being rarely considered. It has been argued that in the case of large-scale strategically organised tourism, inter-industry models can over-estimate the positive contribution of tourism by not taking into account the displacement of other sectors and not carefully examining the macro-economic implications of tourism growth outside tourism (Dwyer, Forsyth, Madden & Spurr 2000).

While defensible to better understand regional recreation, the general approach described above and its assumptions do not hold well in the context of contemporary organised and industrialised tourism. In the latter case, it is difficult to establish clear connections between the itineraries of diverse tourist market segments and the park-entity whose value is measured in that context. In other words, it is problematic to 'attribute' all tourist expenditures to the existence of a specific tourism attraction in the context of modern organised destinations marketing (this aspect is explored further as the next theme below). The models described above do not take an investment perspective; their focus is on monetary flows and linkages. They do not for instance consider possible alterations to the park-asset base or to the recreationists' experiences (possibly because of congestion) in a way compatible with marginal analysis, and can not be used to assess the desirable levels of re-investment.

The United States park system has developed an approach making some of these assumptions more tenable for the sake of making comparisons between parks. Its strength is in the consistency of the approach (including standardised visitor surveys and methodologies across the park system) but it remains unclear whether the latter are in actual fact used for the sake of allocating funding between them (Stynes 1999; Stynes & Propst 1993).

In that context, the Carlsen and Wood model advances a practical approach focussing strictly and entirely on direct expenditures and does not include debatable and mystifying indirect calculations requiring costly computations. The result-values it produces can be considered 'conservative' in not including indirect and induced impacts but much greater care can be then placed on attribution. Other approaches, by construction, place the emphasis on supplementary rounds of economic flows (however reliable and up-to-date the model), while they are basically fed by the same (usually rudimentary) type of direct tourists' expenditures data. For the sake of public finance analysis involving comparisons with alternative investments for a government, the direct expenditures approach is more straightforward and open to scrutiny.

Attribution

Another dimension critical in differentiating between approaches and reports on the economic contribution of parks through tourism is the method used to assign tourist expenditures to the presence or existence of selected protected areas. In the past, a large number of studies surveyed were satisfied with taking the total expenditures in the park as the direct contribution of that protected area without querying what and where tourists would have spent their money if the parks' activities and facilities had not been available, in other words assuming that these expenditures constituted net contributions. Some past research produced large and most likely exaggerated estimates because tourists' presence (and expenditures) in and around a park are not necessarily caused by the existence of the analysed area and might equally well have been spent on alternative local attractions. Not attempting to establish the role of the park in that sense disregards fundamental opportunity costs and benefits principles that need to support such analysis.

It is conceivable that for some tourists:

- the park was incidental to their main itinerary and they would have been equally satisfied with spending on accommodation, transport, food and incidentals in a facility next door;
- the park was valuable but there are a number of local substitutes (public parks or private attractions) which could have provided the same services and played the same role in the current trip; or
- the park was an important reason justifying a detour (presence in a region), possibly extended stay in the region or could have been the main rationale for being in the broad destination in the first place.

If data is available, economic theory suggests that the opportunity contribution of the park is the value-surplus created in contrast to the best alternative scenario associated with a situation where the park does not exist. The comments above suggest that ideally, the attribution process ought to query the visitors' motives to be in a location and assess the fit of the park in the travellers overall plan and possibly the importance of the protected area in the decision to visit the region.

The methodology supported by Carlsen and Wood tries to ensure that this is done. It is conservative and safe in trying to attribute to the protected area a justifiable but reasonable proportion of the total expenditures associated with the park. To do so, Carlsen and Wood developed two criteria to address that specific issue, referred to as attribution factor and substitution factor. In comparative terms to other studies where the issue is altogether avoided, this constitutes a relatively sophisticated assessment of the genuine role of the protected area to tourists' spending in a selected region by evaluating:

- the match between the visitors' interests and the activities offered by the protected area; and
- a self-assessment by the respondents as to the importance of that area in the decision to visit the region.

In contrast, the tradition in US economic studies of parks has been typically to assume that most visitors are recreationists who undertake local/regional short stay trips for specific recreational purposes in such areas, and use total trips expenditures to evaluate the direct contribution of those visitors. As this assumption has been recently challenged, some downwards adjustments were made. Nowadays, US surveys typically differentiate between spending in the park as a direct contribution (therefore attributed the total expenditures in the park as direct for such core attractors) and add an indirect component – a proportion of the expenditures originating outside the park (Stynes 1999). The latter is typically based on data on the number of attractions visited in a given trip (when this data is included in surveys) and the relative time spent in each attraction (if data allows). This remains a relatively large attribution and the implicit assumption they must necessarily make is that if the park did not exist, none of the calculated local-regional spending would have taken place. Although constituting an improvement on basic-full attribution overall, such a method ought to be considered relatively simplistic and leads to unrealistic results, especially in the context of contemporary travel characterised by a mix of tours-based travel and independent itinerary tourism.

Region-space of Reference

Another issue which can create distortions and misinterpretations is the reference domain, space or jurisdiction for which economic calculations are made. This problem occurs universally when cost-benefit evaluations are undertaken and in the present case is intertwined with the discussion about attribution factors. The difficulty originates from the vagueness associated with the interpretation of the 'region' being analysed and occurs for two inter-related reasons:

1. The fact that the substitution factor assesses the relative importance of the protected area to the presence in the 'region' creates some complications. As the relative size, diversity and prominence of the region in the travel itinerary impacts on the substitution factor, its delimitation is significant. It is clear for instance that the relative importance of Watarrka (for identified visitors found in the park) in choosing to visit Australia, the NT, the Centre of the NT region, or the Watarrka region itself increases relatively as the region of reference narrows. Furthermore it is unclear whether all survey respondents have sufficient ability and knowledge to clearly differentiate these regions and had a clear role in choosing their final itinerary.
2. Given the public finance nature of the economic assessment, the reference audience also matters on

political grounds. Public finance decisions reflect the perspective of an authority in charge of supplying mixed public and merit goods. Assuming that the funding agency in charge of a protected area is also responsible for economic welfare and employment in the relevant region (as in Carlsen and Wood 2004), the viewpoint of interest is likely to be in general the jurisdiction of that agency. Yet, for comparative and analytical purposes, the contribution of a protected area to a sub-regional economy might equally be of interest and the interpretation and implications between two similar exercises – but for differing geographical spaces – could vary considerably.

The above considerations are important and can explain seemingly odd results. They suggest that one must be careful while comparing protected areas located centrally or remotely, and of varying size (and featuring differing degrees of landscape diversity) as these could produce different degrees and types of economic benefits which need to be interpreted in the appropriate context.

Another consideration is the difference between evaluating a single protected area rather than a parks system. It is worth considering the possibility that from the respondents' viewpoint, it might be difficult to isolate the attraction power of individual parks against that of a region encompassing many, possibly similar protected areas. The presence of substitutes affects considerably the interpretation (and comparability) of the results directed at various protected areas. A relatively lonely park (in the sense of being without close and immediate substitutes geographically or in terms of landscape equivalent) is likely to produce much larger 'attributable benefits' in a given region than a hypothetical similar protected area surrounded by equally attractive parks (in an otherwise comparable region). From a tourism economic contribution viewpoint, a simple interpretation would be to suggest that the former park deserves more support but in reality a park agency would need to consider the spatial, economic and cognitive (for the tourists) connections between the various parks.

Tourism Value Contributions – Alternative Approaches

Although a survey of the general issue can be found in Carlsen and Wood (2004), it is useful to undertake a broad methodological comparison between a selection of previous park studies often cited in Australia and to place it in the context of the dimensions discussed previously. This is undertaken in the following to provide examples of non-comparable methods and the difficulties encountered in their application.

An early study of the Grand Teton National Park (Merrifield & Gerking 1982) provides a typical example of applied economics to a protected area focussing on 'total economic value' in the traditional sense. In that study, net value was estimated by subtracting displaced economic activity (such as grazing, real estate, etc.) from the recreation-based valuation. This process provides a straight description of displacement opportunity costs, compatible with the purpose of justifying the existence of the park against alternative uses. As is typical of the American tradition in that field, visitors are assumed to be recreationists motivated primarily by their visit to that park, the latter constituting a set of 'recreational resources'. It is unclear whether adjustments were made to reflect the actual attribution of the park in the visitors' travel journeys. What is clear is that in that study, the calculation of the value of opportunity uses constituted a negotiated political process, heavy in assumptions and guesstimating. While the research was not specifically about tourism values, it is clear that little attention was given at the time to the presence or absence of alternative recreation venues and attribution.

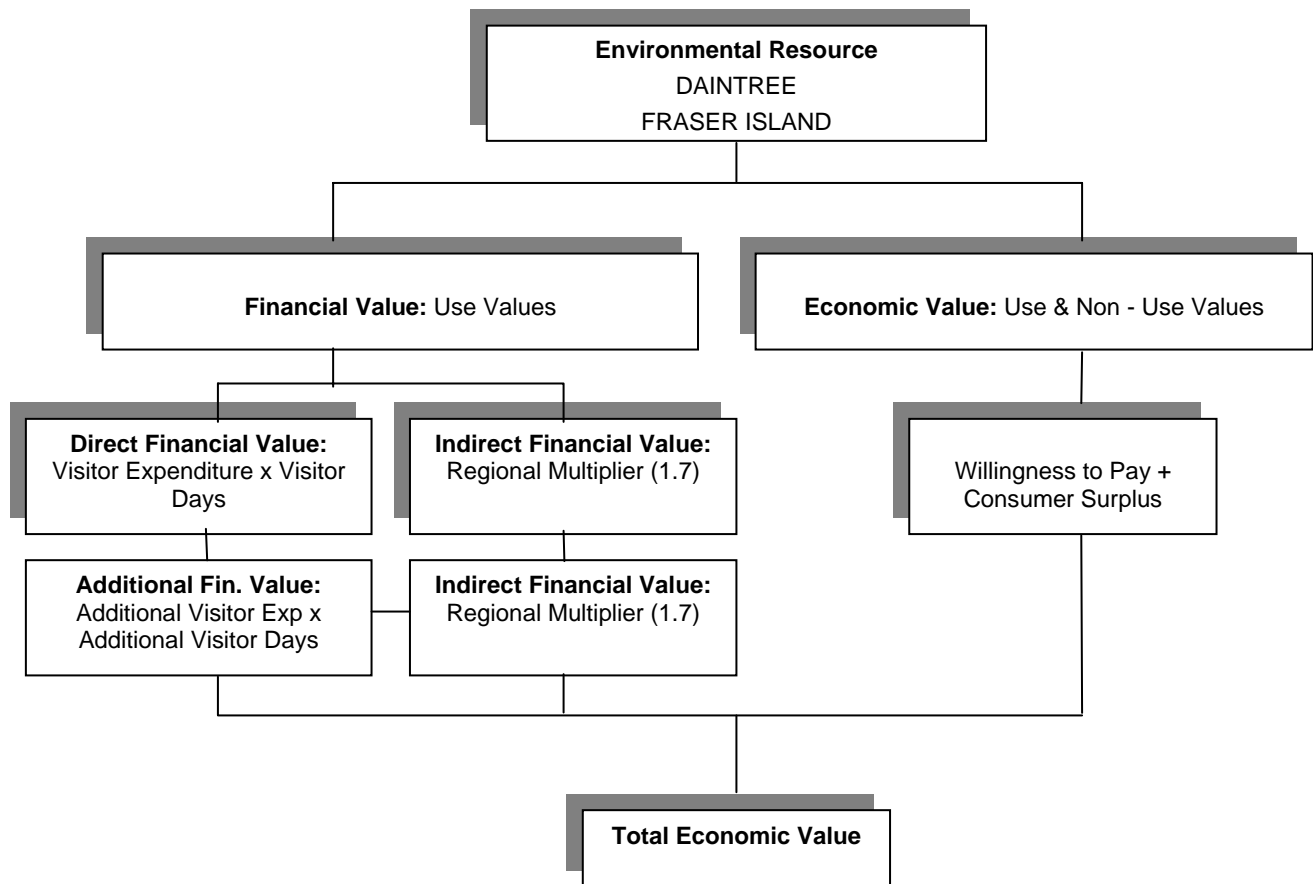
Another more recent study (see Figure 2) largely based on secondary data and extrapolations focused on 'total tourism and recreation values' and was applied to two areas of Queensland: the Daintree region and Fraser Island (AUSTROP 2002). While the report is entitled 'total economic values' it states that 'the calculation... are those values generated exclusively from tourism and recreation and exclusive of all other revenues' (p.6). The study incorporates the direct revenue generated from visitor expenditures within each region plus the additional visitor expenditure in nearby areas (spent in the process of visiting each region). The study also considers the financial values defined as the indirect revenue generated throughout the regional economy (p.7).

In that study, all expenditures within the location are included, as well as the additional revenue created in adjacent regions to each of the protected areas, assuming this is revenue attributed to visiting each region. In that model, both expenditures in location and surrounding the protected areas is totally attributed to the presence of the parks. Additionally, indirect and induced impacts originating from input and output analysis (based on pre-existing multipliers originating from alternative similar regions and hoped to apply to the studied areas). In the Fraser Island case, the treatment of the expenditures themselves was based on a prior Travel Cost Study (Hundloe, McDonald & Blamey 1990), subject to the same full attribution conditions. For the Cape Tribulation area, an established multiplier developed by Driml (1997), which had been used to estimate the flow on effects of visitor expenditure in the Wet Tropics World Heritage Area on the Cairns and Townsville regions, was utilised.

Beyond important concerns related to the applicability of a multiplier associated with urban centres to a more remote region, it is clear that the general approach used in this report was extremely 'liberal' in its attribution and its methods to calculate indirect impacts. All expenditures are fully attributed to the presence of the natural asset, a strong hypothesis for attractions based on a circuit involving multiple substitutes. The report concludes with the provision of a number of inter-related estimates for the two economic values of the regions which

display very large magnitudes indeed.

Figure 2: Total economic values framework for Daintree Region and Fraser Island



(Reproduced from AUSTROP 2002: p7)

Driml and Common (1995) provided early suggestions that ‘the economic benefits of nature-based tourism in selected Australian locales far exceed the government expenditures to manage the site’ by contrasting direct generated tourism expenditures (data from 1991/92) to the management budgets for five iconic Australian protected areas (Great Barrier Reef, Wet Tropics, Uluru National Park, Kakadu National Park, and Tasmanian Wilderness). Although the method was crude (based on secondary data estimates) and attribution of expenditures to tourists most likely excessive, the magnitudes of the value convincingly show that re-investment in those areas is deficient.

In later work, Driml (2002) uses the travel-cost method to evaluate the economic value of the Wet Tropics World Heritage. She reviews in particular authors who have addressed the criticism that travel cost approaches overestimates tourist expenditures because of the question of treatment of ‘multiple destination trips’ in the context of the travel cost approach and consumer surplus measurement. It had been argued that these can be addressed properly only if costly extensive primary data collection is available. It was noted that it is problematic to attribute visitor expenditures excessively, especially when it is known that the latter often state a variety of real motivations (for their presence in the broader region), such as being on their way to visit friends and relatives, combining with business or on their way elsewhere (Driml 2002). In the past, Knapman and Stanley (1991) and Stoeckl (1994) had addressed such concerns by having park visitors nominate alternative important destinations and the relative time spent at each, leaving the analysts to apportion the importance of the protected area to the total trip on that basis. This constitutes a welcome improvement relative to full attribution but remains short of assessing the importance of the park in the decision to visit the destination.

In a different type of study, Wescott (1994) devised three indicators and analysed time series of visitors to a number of national parks in Victoria. Through historical analysis, they tried to assess whether the status of ‘national park’ seem to significantly contribute to regional visitation. While they address ‘attribution’ directly by concentrating on the net tourism impacts of a park (or group of), they focus entirely on the status of the area – a question interesting in itself but different from that raised by the Carlsen and Wood method. The latter focuses on the recreational and tourism amenities of a set of resources available for recreational purposes (or uses) and

the survey they use (as the one found in this study) embodies that approach.

In Canada, a number of organisations joined together to develop a uniform and relatively sophisticated method to evaluate the economic impacts of parks and protected areas (DCH 2003), for the sake of comparability and credibility. The full model entails more than recreation values and considers such things as environmental services and social benefits, although the report recognised that measurement techniques and access to relevant data in some of the latter areas were much less reliable in general. The method attempts to differentiate between personal benefits to users (using consumer surplus concepts) and business or commercial benefits which businesses and the surrounding community receive from spending resulting from the establishment, development or operation of a park or protected area and considers as well societal benefits (including existence, option and environmental services uses).

The study discusses quite well some of the issues related to attribution, measurement of indirect impacts and choice of the relevant regional entity and proposes that data availability ought to be the basis to choose between a number of more or less refined versions of that general model (broken down into ‘Crude’, ‘Approximate’ and ‘State-of-the-Art’ approaches). For instance, where data is poor, full attribution might be acceptable, with appropriate cautionary notes and justification based on the remoteness and peripheral nature of a protected area. The more central and important the park, the greater the need for adequate data and the more attention can be given to the attribution method, which is based on the knowledge of the origins of visitors, their spending and the role of the park in explaining their presence in the region. Also, the model in general takes a ‘province’ as the region of reference, which can be a slight handicap as Canadian provinces vary greatly in terms of relative sizes, geographically, economically and as tourism attractors.

The studies reported previously were selected because they reflect various degrees of technical sophistication found in the literature range, recognising also that some of these methods have been suggested but not applied (due to data deficiencies). Table 1 includes a number of reports surveyed and contrasts them with the Carlsen and Wood approach with respect to the three basic dimensions discussed in the previous section. In many studies, insufficient information is provided on some of the technical dimensions which is indicated in the report with a ‘?’. It is likely that this applies in particular to a crude measurement approach and that the economic values measured in such studies belong to the speculative rather than conservative realm.

Table 1: Attribution type, indirect/induced and region of difference attributes in tourism economic contribution studies compared with those of the Carlsen and Wood approach

STUDY – tourism economic contribution	Attribution type	Indirect/ Induced	Region of reference
Carlsen and Wood (2004)	Restricted – conservative	No	State
Hassal and Associates (2001)	?	Yes/no	?
The New South Wales National Parks and Wildlife Service – Montague Island Nature Reserve	?		local government area
Driml and Common (1995) – five Australian World Heritage Areas: 1. Great Barrier Reef 2. Wet Tropics 3. Uluru National Park 4. Kakadu National Park 5. Tasmanian Wilderness	Secondary data – full attribution of expenditures in park + one day in and out of park	No	Funding area
Ulph and Reynolds (1981) – Warrumbungles NSW	Secondary data – looks like full attribution	Yes	Local area
Tourism & Recreation Values of the Daintree and Fraser Island (2002)	Estimates of very secondary data; include all + 2 days in broad region	Yes; very rough multipliers	whatever
Knapman et al. (1990) that analysed the regional economic impacts of Kakadu tourism on sectors of the NT economy	?	Yes	NT
Kinhill/ABARE 1998 – Forests of South East Queensland	Secondary data – looks like full attribution	No	South-east Queensland
CANADA model	Various possible levels	Flexible – Included if useful	Whole province

Table 1 shows that the Carlsen and Wood approach is conservative (by design) overall and that although it does not match the flexibility and sophistication of the Department of Canadian Heritage model (2003), it provides a more credible and relatively practical way of supporting public finance decisions related to protected areas. The economic values uncovered by this approach are useful for the purposes of public finance analysis and can not be compared with models aiming at examining multiple rounds of impacts in the economy, nor with those that disregard proper opportunity costs principles associated with tourists movements and decisions, and assume that all expenditures can be attributed the presence of a park, irrespective of tourists' true motivations and perceptions of substitutes.

The Context of Watarrka National Park

Overview

The application of many of the models described in the previous sections assume that a park or protected area is a 'public good' or 'public space' and that its public 'uses' can be chosen or modified (depending on the decisions of appropriate bodies in charge) in ways that reflect the perceived public interest.

Tourism in Territory Parks

The Territory Park System is the primary drawcard for tourism in the NT. Total park visits to NT parks and reserves in 2003 numbered 1.312 million compared with 937,000 in 1993. Of the 95 parks and reserves that make up the NT park system, Watarrka has had the most significant increase in visitor numbers over the period. (NT Parks and Wildlife Tourism Issue Paper 2003).

Core Principles Relevant to Tourism Interest

In October 2002 the NT government announced a proposal for the development of an improved and enhanced parks system in the NT. From a tourism perspective the core principles are:

- resolution of native title claims and land claims under the *Aboriginal Land Rights (Northern Territory) Act* ('the Land Rights Act') over certain NT parks and reserves by negotiation rather than litigation;
- grant of titles over certain NT parks and reserves to Aboriginal entities;
- grant of titles to be conditional upon the immediate lease back of the granted land, and other Aboriginal land to the Territory for use as parks to be managed jointly with traditional Aboriginal owners;
- existing tourism operator concessions to be protected;
- NT parks and reserves to remain accessible to all Territorians and visitors on a no entry fee, no entry permit basis; and
- 'business as usual' on NT parks and reserves until completion of the negotiations regarding the proposal.

(Office of Indigenous Policy 2003)

Watarrka National Park and Leaseback Area Indigenous Land Use Agreement (ILUA)

The Watarrka National Park and Leaseback Area Indigenous Land Use Agreement (ILUA) was made between the Central Land Council and the NT of Australia to clarify the future title and management of the Watarrka National Park and Leaseback Area.

This ILUA is one of 31 agreements signed over parks and reserves in the NT. The agreements were developed following the High Court's decision in *Western Australia vs. Ward*, which found that the Keep River National Park had not been properly established. In response, the NT government pursued ILUAs and joint management agreements to resolve tenure disputes and management of the parks. These agreements were negotiated from 2002 to 2005, during which time the *Parks and Reserves (Framework for the Future) Act 2003 (NT)* was also passed. These arrangements aim to settle all native title issues in NT national park areas.

Details of ILUA

Registered with the National Native Title Tribunal on the Register of Indigenous Land Use Agreements on 3 October 2005, this is a certified Area Agreement under the *Native Title Act 1993 (Cth)*.

The ILUA area is located 330 km southwest of Alice Springs, not far from Hermannsburg. The extract of the ILUA from the Register of Indigenous Land Use Agreements describes the area covered by the agreement as follows: 'The Park means all that parcel of land near Temple Downs in the NT of Australia containing an area of

105,600 hectares more or less being the whole of NT Portion 2214 more particularly delineated on Survey Plan CP4527 lodged with the Surveyor General, Darwin.' The ILUA area falls within the Central Remote Regional Council ATSI region.

The Watarrka National Park and Leaseback Area is listed under Schedule 2 of the *Parks and Reserves (Framework for the Future) Act 2003 (NT)*. This means that the tenure of the ILUA land is changed to 'park freehold title' and is granted to a Park Land Trust (section 9). The land is then leased back to the NT government for a minimum period of 99 years. The Act also stipulates the implementation of a joint management agreement.

Under the ILUA, the parties consent to the granting of Park freehold title in accordance with the Act (as above), and, the grant of a lease over the Park to the NT. The NT government and the Central Land Council also agree to the execution of a joint management plan for the Watarrka National Park and Leaseback Area. The parties consent to any action permitted in accordance with the lease and under the Joint Management Plan, regardless of whether these actions are 'future acts'.

The parties agree that the right to negotiate provisions of the *Native Title Act 1993 (Cth)* do not apply, as the alternative consultation provisions are to be followed instead.

The purpose of the ILUA is to satisfy the conditions set out in s.10(1)(b) of the *Parks and Reserves (Framework for the Future) Act 2003 (NT)* (regarding the grant of fee simple title), and to otherwise deal with native title issues in respect of the scheduling of the park as Aboriginal land under the ALRA, the lease of the park to the NT government, the execution of the Joint Management Deed and actions taken in accordance with the Plan of Management for the Park (National Native Title Tribunal, Extract from the Register of Indigenous Land Use Agreements for DI2004/035 (as at 14 November 2005, www.atns.net.au/biogs/A002689b.htm).

Location and Access

Watarrka National Park is one of Australia's most important natural areas and contains some of the Territory's most remarkable arid landscapes. It contains the western end of the George Gill Range. Kings Canyon features ancient sandstone walls, sculptured by the elements, rising up 100m to a plateau of rocky domes.

Located 330 km southwest of Alice Springs, WNP is a three hour drive from Ayers Rock Resort or three and a half hours from the heart of Alice Springs. It can be reached via a number of routes:

- via the Stuart Highway, Lasseter Highway and Luritja Road (sealed roads);
- via Larapinta Drive through the West MacDonnell National Park. A Mereenie Loop pass is required to travel this route and is available from the Alice Springs Tourist Information Centre, Glen Helen Resort and King's Canyon Resort.
- via the Stuart Highway, Ernest Giles Road (4WD essential) and Luritja Road.

(Parks and Wildlife Service of the NT, 2005)

Visitors

The Park is accessible all year round, however visitors usually favour the cooler months between April and September. Of all Territory managed parks, Watarrka receives more visitors than any other, with numbers expected to increase markedly (Preface to Plan of Management) due to such developments as the sealing of the Mereenie Loop.

There are a number of walking tracks in the park, ranging in length from 2–22 km:

- The Kings Creek Walk: A 1.3 km one way walk (requiring an hour to complete); meandering up Kings Creek to a lookout point. This walk is suitable for families and wheelchairs for the first 700 m.
- The Kings Canyon Walk: A 6 km return walk taking 3–4 hours. After an initial climb the walk offers spectacular views from the Canyon rim. Along the way are weathered buttressed domes of the 'lost city' and the 'Garden of Eden'; a sheltered valley with permanent waterholes and lush vegetation. This walk is suitable for fit and experienced walkers.
- Kathleen Springs Walk: A 2.6 km, 1.5 hr return walk into a delightful spring-fed waterhole, suitable for families and accessible to wheelchairs.
- The Giles Track: A 22 km overnight walk traversing the top of the range from Kathleen Springs to Kings Canyon with an entrance/exit point at Reedy Creek/Lilla. For monitoring and safety reasons visitors intending to do this walk must contact the Rangers before departing.

Basic first aid equipment and emergency water is available from the emergency first aid boxes as the top of the canyon and there are also four Emergency Radio Call Devices located along the Kings Canyon Rim Walk.

Natural Resources

While its unique geology is a key factor behind its biological diversity, the WNP has habitats which support a fantastic range of species as well as containing suitable habitats for a number of animal species that no longer occur in the area. The program which was established to protect Australia's most threatened species, the Mala or

Rufous Hare-wallaby is just one example of a special conservation program for fauna at WNP which contributes another dimension to visitor enjoyment of the park.

This scenic landscape of rugged ranges, rock holes and gorges also acts as a refuge for many plant species, making WNP an important floral conservation area as well.

Kings Canyon Resort

The Kings Canyon Resort opened in 1992, developed on land excised from the Park about 7 km from the Canyon. The resort offers accommodation ranging from camping to fully serviced rooms. It is often described as an oasis in the desert that has a strong appeal to those travellers looking for a soft adventure or eco-style holiday. The resort is a wilderness retreat that has been built to blend in with the surrounding environment.

The resort, along with the development of visitor services at Kings Creek Station just outside the Park, has had a major impact on visitor experiences of Watarrka and significantly relieved visitor management pressure.

Pre-park History

Development of WNP began in 1983 and the park was formally declared in 1989. The park has undergone significant change since its early days. In 1985 about 20,000 people visited King's Canyon. Having travelled over rough unsealed roads most visitors would camp in the bush at the Canyon's base. Facilities were minimal and visitors were by necessity, self-sufficient. For the two rangers housed in caravans, visitor orientation and safety were the primary concerns. Around this time however, roadworks were in progress to make the park more accessible and plans were afoot to realise the area's potential as a park of major standing.

In 2002, about 280,000 people visited the park. The dramatic increase in visits made to WNP can be attributed to improved access and amenities. The Luritja Road linking Watarrka and Uluru was completely sealed in 1995 resulting in an increased proportion of visits originating from Uluru/Ayers Rock Resort. In the same year the Mereenie Loop Road was upgraded and opened to tourist traffic, providing alternative access between Watarrka and Alice Springs via the West MacDonnell National Park. Consequences of improved access also include a higher proportion of day visits and visitors travelling by coach.

Aboriginal Ownership

Watarrka is the Luritja Aboriginal name of the Umbrella Bush (*Acacia ligulata*). A dense stand of this plant grows at the entrance to Kings Canyon, a place of great cultural significance for its Aboriginal custodians.

The cultural element is a core part of this park. The Parks and Wildlife Commission is serious about consulting and involving the custodians in every aspect of the WNP's management and accommodating their aspirations and interests (Vatskialis, K. in Preface of Parks and Wildlife Commission of the Northern Territory 2002).

The first ten year Plan of Management for the WNP came into effect in February 1991. It set the scene for the park's establishment and early growth. During the time it was in effect, tourism opportunities, visitor enjoyment and safety have all been enhanced. Conservation of the WNP's biodiversity has progressed through programs focusing on the monitoring and management of fire, removal of feral animals and control of weeds. Cultural resource management has included comprehensive mapping of art sites and protection of key resources.

The first Plan of Management placed a strong emphasis on Aboriginal involvement in the WNP's management. This included the incorporation of a cultural dimension in the experience of every visitor and facilitation of Aboriginal enterprise. This is an ongoing objective. The Parks and Wildlife Commission acknowledges the Aboriginal custodian's frustration at not being able to realise all aspirations they hold for themselves in relation to the WNP and will continue to look forward to a future of respect and cooperation between all parties.

The Future of Watarrka

As with most parks and reserves in the NT, the objectives of conservation, tourism and traditional ownership within WNP can often be conflicting.

Overall Methodology

This detailed report undertakes a number of separate but connected tasks related to the economic valuation of tourism in WNP, and provides some supplementary information about tourism in and around WNP, which had never been compiled and integrated before. This section generally describes the components of the report, the data sources on which the analysis is based as well as the assumptions and filtering decisions that have supported the production of statistics. While the objective of the research was to apply the Carlsen and Wood approach to WNP to estimate the contribution of the park to the region through tourism, it also aimed at providing a broad

picture of past and existing markets, and contrast some of the secondary data sources available to comment on improved estimates of traffic and visitation by tourists.

The research plan was conceptually based on the combination of existing sources (3) of information related to WNP, mainly:

1. Historical data about visitation in WNP, provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and The Arts).
2. Basic visitor survey materials (collected) March and June 2005, provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and The Arts) and compiled by the Strategic Research Unit (Northern Territory Tourist Commission - NTTC).
3. Historical data (1998-2004) originating from the Commercial Accommodation Survey (CAS) of the Northern Territory Travel Monitor (NTTM) produced by the NTTC. The latter includes indicators of visit to WNP and of intention to visit WNP, which can be combined with other visitor survey information to assess those markets.

There are benefits in integrating and analysing the NTTM data with that originating from the park. The former is based on a set of comprehensive surveys, has been collected consistently and its structure has been stable (in terms of definitions of variables of interest, geographical spread and divisions, depth of the survey in small and remote locations, etc.). It is one of the most reliable sources of information (of that type) about tourism in NT regions for the past decade. While the survey had been discontinued during 2005 to make place for new instruments addressing contemporary data needs, the 1998 to 2004 data collections provide a dynamic account of many of the variables of interest for the Carlsen and Wood approach to be applicable and include a level of details not usually available about visitor attributes and changes over time. This project aimed in part at assessing whether the combined information sources would be sufficient (when integrated) to allow the Carlsen and Wood approach without supplementary or dedicated primary data collection.

Chapter 2 of this report undertakes a brief descriptive analysis of tourism markets in the WNP region using the CAS/NTTM. Visitation data originating from the Parks and Wildlife services is overviewed (source 1 above).

Chapter 2 contributes a basic descriptive analysis of visitors to the WNP region in the years 1998–2004 using the CAS data which reflects the trips and personal attributes of people surveyed while staying in commercial accommodation in the Centre of the NT – not necessarily in the WNP region (source 3 above). When useful, the NTTM data is contrasted with the secondary data of the WNP-specific visitor surveys (source 2 above).

While the NTTM also produces a household survey which focuses on travel involving no commercial accommodation, most variables of interest are available in the CAS only, and its degree of reliability make it a rich source of general visitor information. The majority of available statistics from the CAS are analysed, with the exception of expenditures data, which have often proved to be problematic on the sub-regional scale and are only associated with the location of surveying. The sub-sample used for this component is based on CAS respondents who (a) were interviewed while in the Centre and (b) indicated that they had visited WNP during their stay in the Top End on the trip of interview.

Chapter 2 also differentiates between Top End tourists who decide to pay a visit to WNP and those who choose not to, also using the CAS data. The broader set of relevant respondents are those captured within the limits of the Centre (region 4) and two filters are created to make that distinction:

1. *Filter 1*: whether respondents mention having visited WNP at the time of interview; or
2. *Filter 2*: whether respondents intend to visit that region

Using that distinction, Chapter 2 both examines the propensity to visit WNP on a variable per variable basis (allowing comparisons between visitors with various attributes), and reverses the perspective and examines whether Centre respondents who are WNP-visitors differ significantly from non-visitors on a per variable basis, where comparisons tests (for categorical data or means for interval data) are undertaken.

Chapter 3 undertakes the evaluation of the economic value of tourism in WNP emulating that applied by Carlsen and Wood (2004) to protected areas in Western Australia but setting various assumptions based on the secondary data gathered in Chapter 2. Attention is given to the role played by WNP for tourism in the Centre as well as its contribution to the NT tourism allowing for this distinction to be examined.

Chapter 2

ANALYSIS OF WATARRKA FROM AVAILABLE SECONDARY DATA

Methodological Considerations

This chapter provides descriptive information about typical Watarrka visitors and combines WNP-specific data with that originating from the NTTM. This is done in the following way:

- In the first descriptive section, the basic time series is provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and the Arts). The reliability of this time series cannot be easily assessed as no other source had collected that data before. The series are complemented by a basic comparison with TRA data for the whole of the Centre region.
- Secondly, the propensity of Centre visitors to visit WNP or not visit, is examined against a number of visitor attributes. The procedure restricts the analysis to the CAS sample by filtering for all respondents interviewed in the Centre (region 4), and finding out whether they indicated they 'have visited' WNP at the time of interview or 'intended to visit' WNP at that time. This allows comparisons of propensity to visit WNP according to various visitor characteristics.
- Thirdly, for the sake of providing more in-depth information about other demographics, travel motivations and behaviour, places visited and activities (and other variables incorporated with NTTM), a basic descriptive analysis is undertaken using only CAS data (which reflects the trip and personal attributes of people surveyed while staying in commercial accommodation in the NT).

The reasons for not including the HHS data in the analysis are:

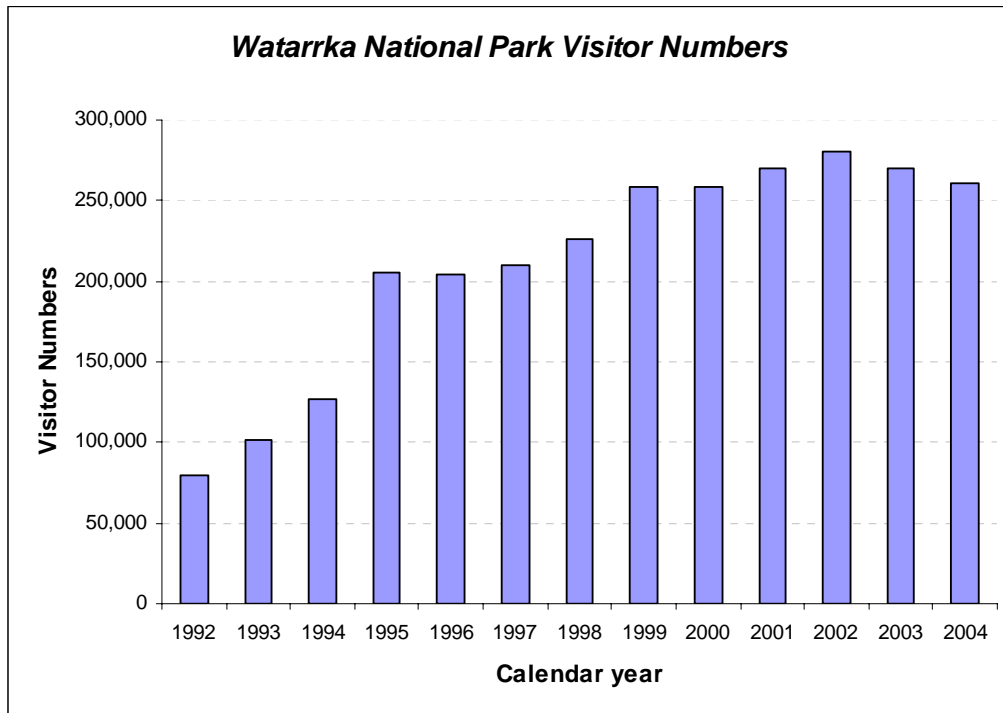
- The HHS sample size is considerably smaller and reliability has never been tested in terms of the more elaborate questions included. The reliability of the HHS might also have become questionable because sampling weights have not been tested since the establishment of the NTTM. It is likely that reliability is improved by sticking to the CAS component of the sample.
- Many variables of interests to WNP and to the NTTM exist only in CAS – or would need to be interpreted differently if there was an attempt to aggregate both surveys. In fact, the HHS is so much more rudimentary than the CAS that there would be little information that could be examined if the former had to be considered.
- It is believed, from prior experience with the surveys, that the CAS provides a sufficient overview of tourists in a region such as Watarrka and allows for better historical comparisons, as its structure has been fairly consistent.
- HHS visitors associated with sub-region 12 include [i] those who happen to visit friends and relatives located in the NT (at the time of survey) and would have spent some time in WNP but would have remained only in free accommodation in their entire NT trip as well as [ii] NT residents who visited WNP in an NT trip which involved only free accommodation for the entire NT leg of the trip. This sub-sample is relatively small and atypical of the tourists of interest to the clients for this report.
- CAS includes a sufficient number of VFR (Visiting Friends and Relatives) visitors, which are by definition those contributing most (among the total VFR visitors population) by staying in commercial accommodation at least once during their trip. HHS VFR tourists in general do less (activities) and spend less. Not including HHS does not have a major impact on descriptive statistics involving activities, visits, expenditures, tours and use of commercial services in general.
- CAS is based on immediate and direct knowledge of respondents during the trip, while HHS relies on indirect recall provided by a proxy. The information extracted originates from the memory of some respondents (own trip in last 4 weeks) or a proxy when the answers apply to visits from friends and relatives who stayed at the residence being surveyed (who never used commercial accommodation in the NT). As the person(s) travelling is/are likely to not be the respondent, the dependability of that survey is in general reduced relative to that of CAS.

Watarrka National Park Visitation Data

The descriptive analysis found in this section relies on time series provided by the Parks and Wildlife Service (Department of Natural Resources, Environment and the Arts). The reliability of this time series cannot be assessed as no other source has collected the data before.

Time series representing visitor numbers to WNP show that the yearly increases have been quite steady until 2002 and there have been similar declines since (see Figure 3).

Figure 3: Watarrka National Park visitor numbers – overall yearly view



Basic seasonality patterns can be derived from the monthly data and aggregated over the years to provide an overall cumulative picture (see Figure 4).

Figure 4: Watarrka National Park visitor numbers - monthly split for 1992-2004 data

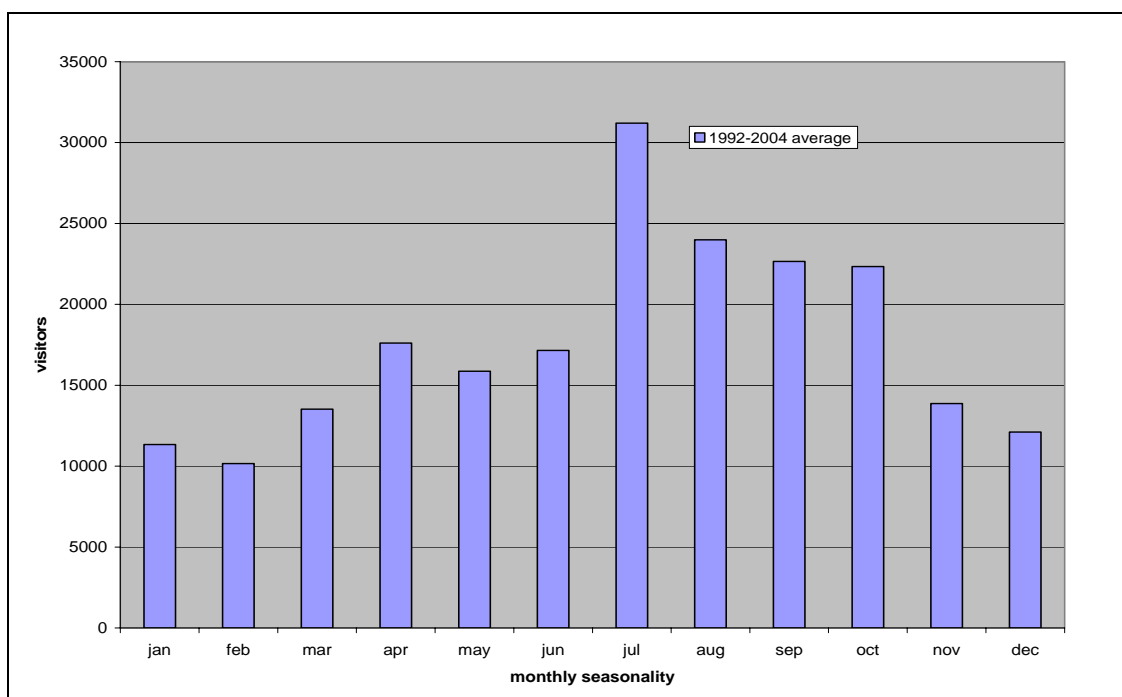
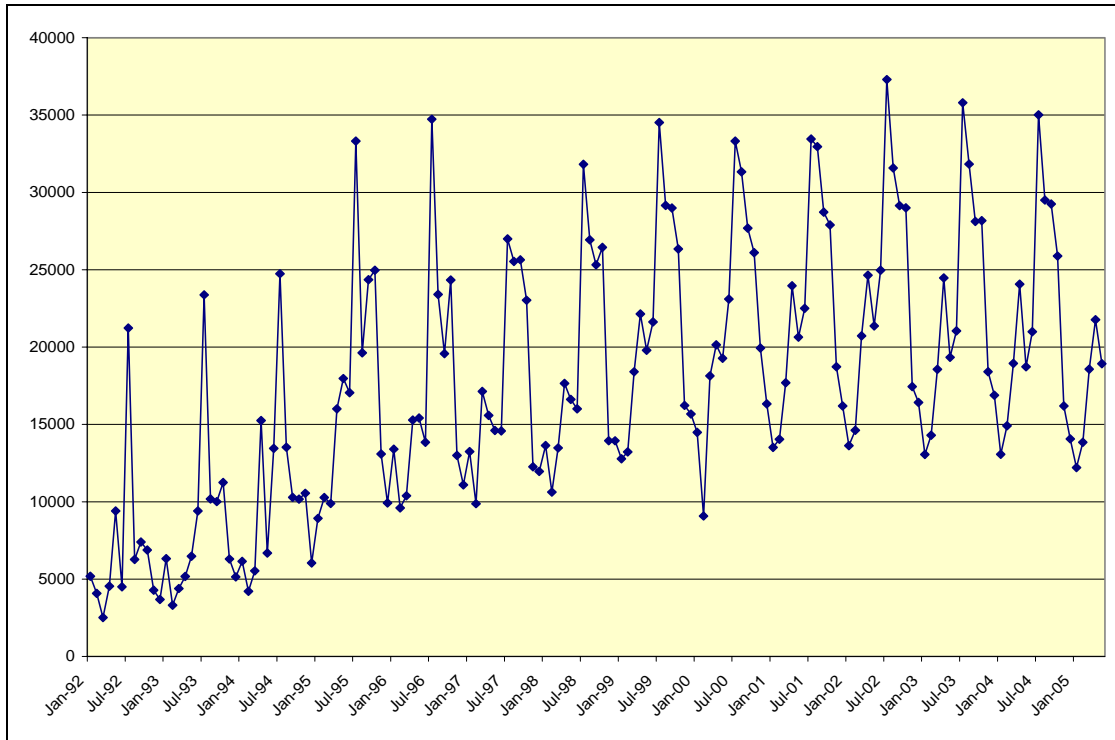


Figure 5 provides an alternative time series view.

Figure 5: Watarrka National Park visitor numbers – time series monthly data



The data has been re-organised by quarters (for further comparisons with NTTM data often presented as such) and the following figures reflect the evolution of visitation by quarters (see Figures 6 & 7).

Figure 6: Watarrka National Park visitor numbers – seasonal evolution: view by quarters

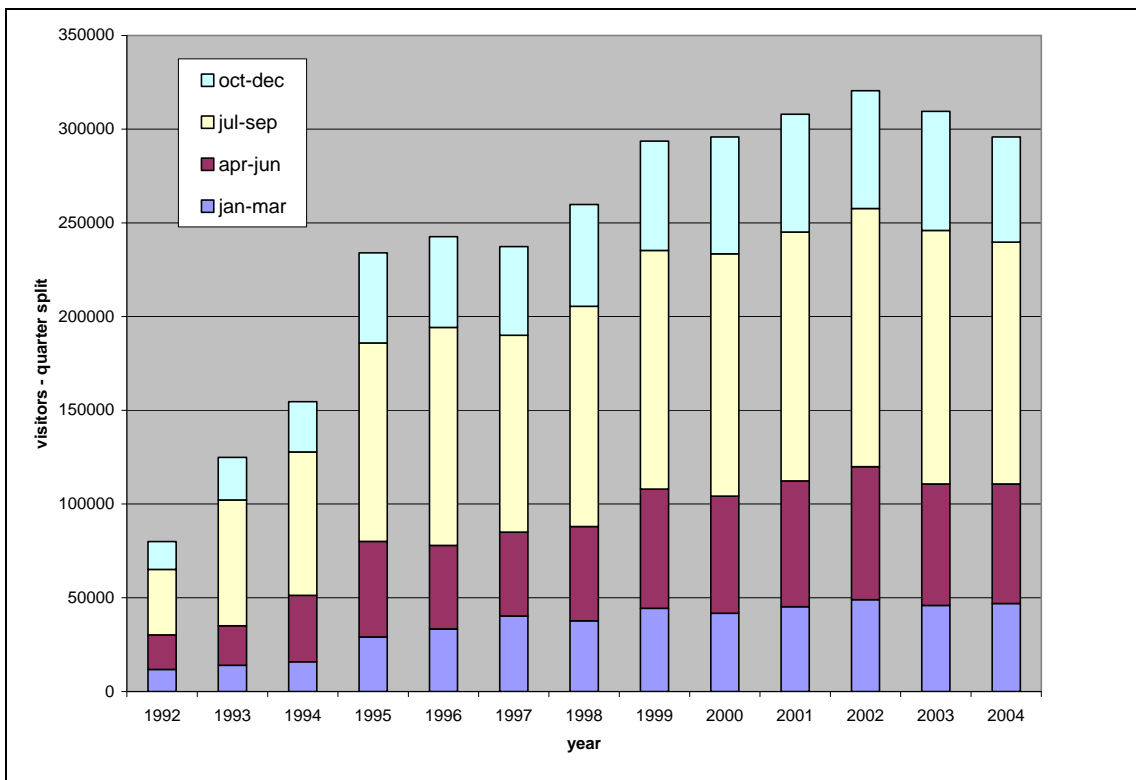
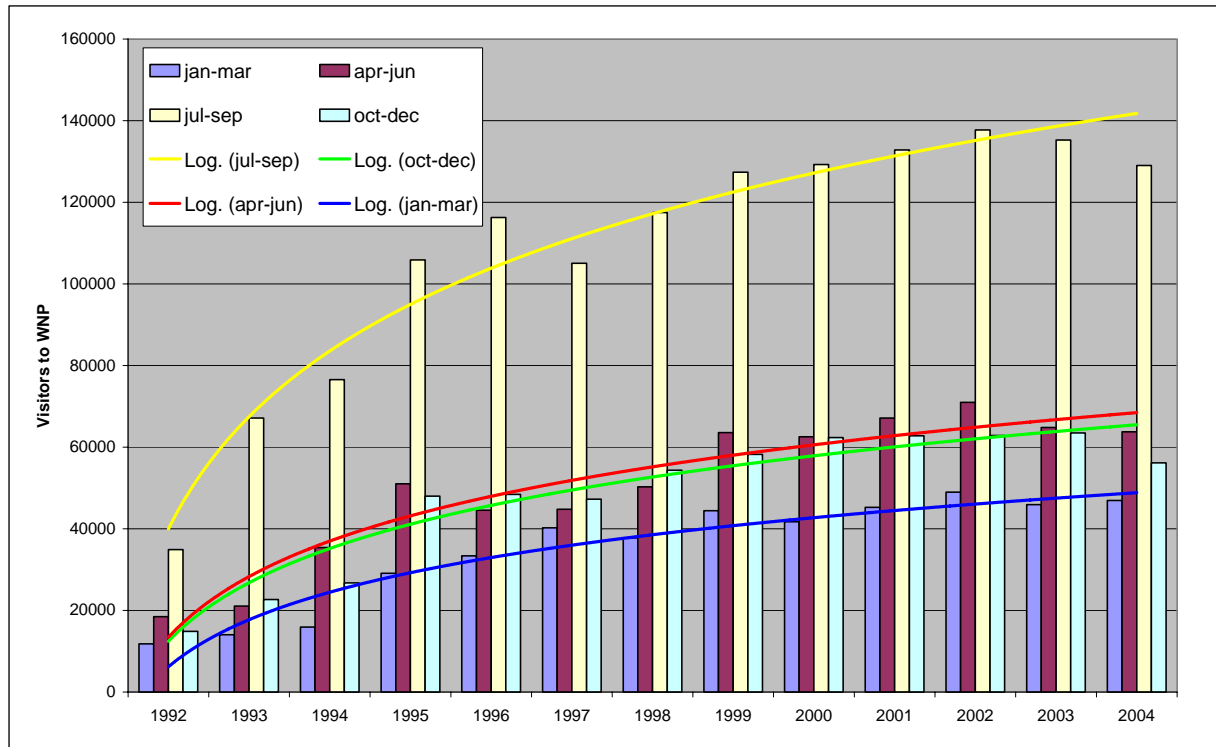
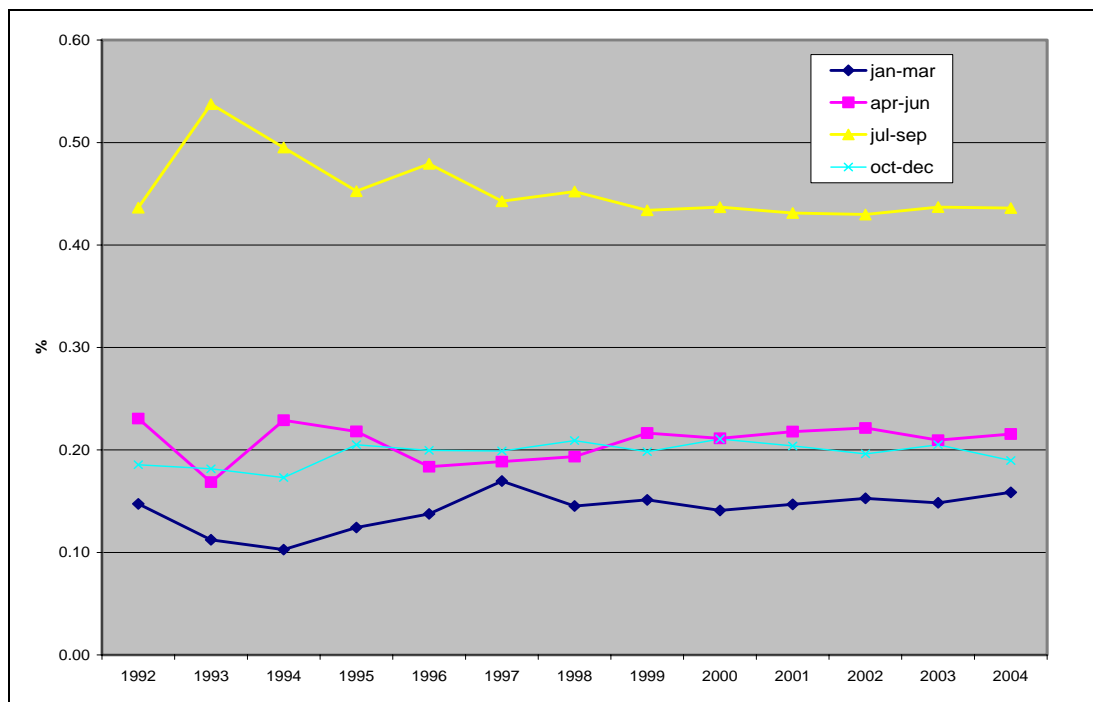


Figure 7: Watarrka National Park visitor numbers – quarterly split for 1992-2004 data: with logarithmic trends



As can be seen in Figure 7, much of the recent decline can be attributed to the high season. The shoulder seasons have also performed less well since 2002 but the low season has not been obviously affected. It also shows that overall, the relative changes in each quarter over the years has been relatively steady, suggesting that visitation at WNP has been driven by structural developments and that a steady proportion of regional visitors access the park. This is verified in Figure 8, which presents the relative seasonal shares as per the same time series and shows that they have been very stable since late 1990s. This contrasts considerably with visitation in protected areas in the Top End where seasonality is greater (in relative terms) and seasonal splits reflect significant changes in the international-domestic markets cycles (Tremblay 2006).

Figure 8: Watarrka National Park proportion of visitation for each quarter over the years 1992-2004



The data in Figure 8 can be contrasted to basic figures originating from Tourism Research Australia based on combining the visitor statistics from the NVS and the IVS for the whole of the Centre region (including Alice Springs, Petermann and Tanami). Figure 9 features numbers of visitors in the region who stayed at least one night in the Centre and Figure 10 includes respondents across all travel purposes.

Figure 9: Overnight visitors to the Centre by origin – all purposes (TRA) 1999-2004

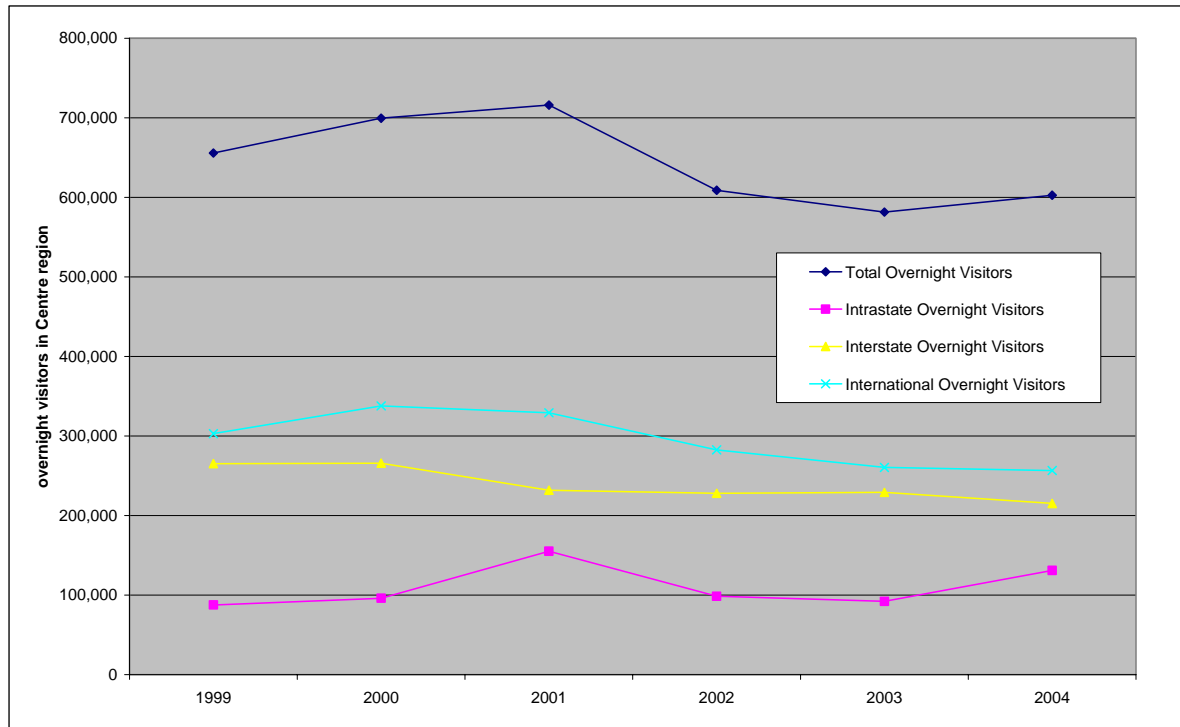
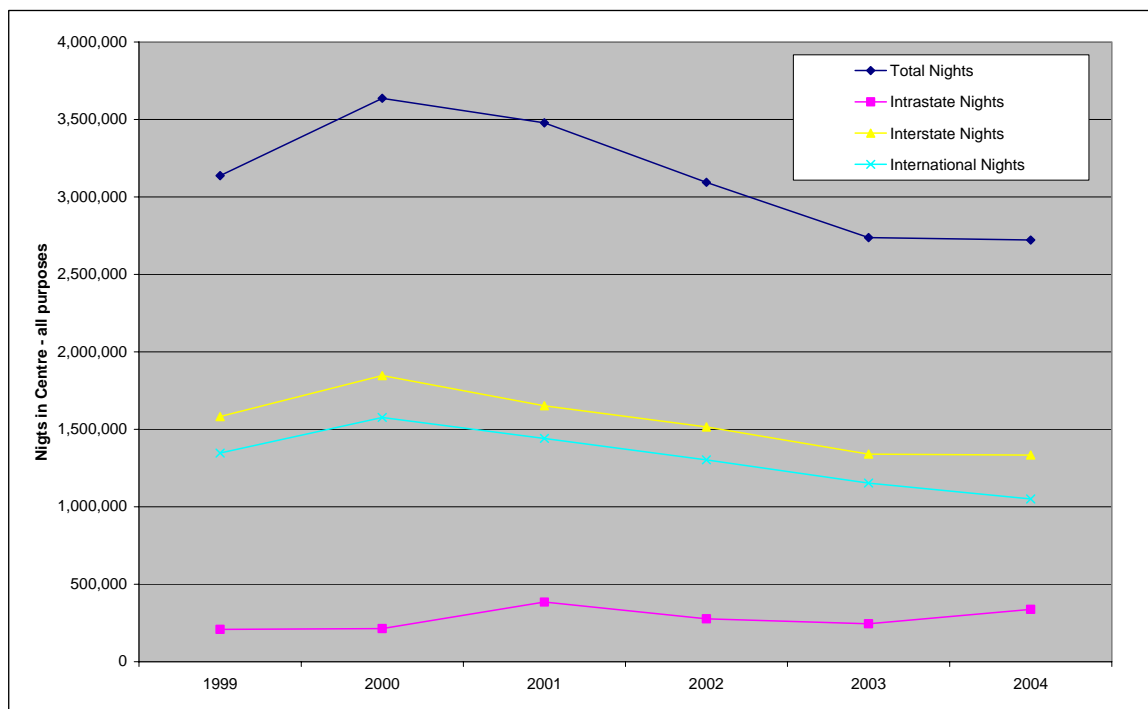


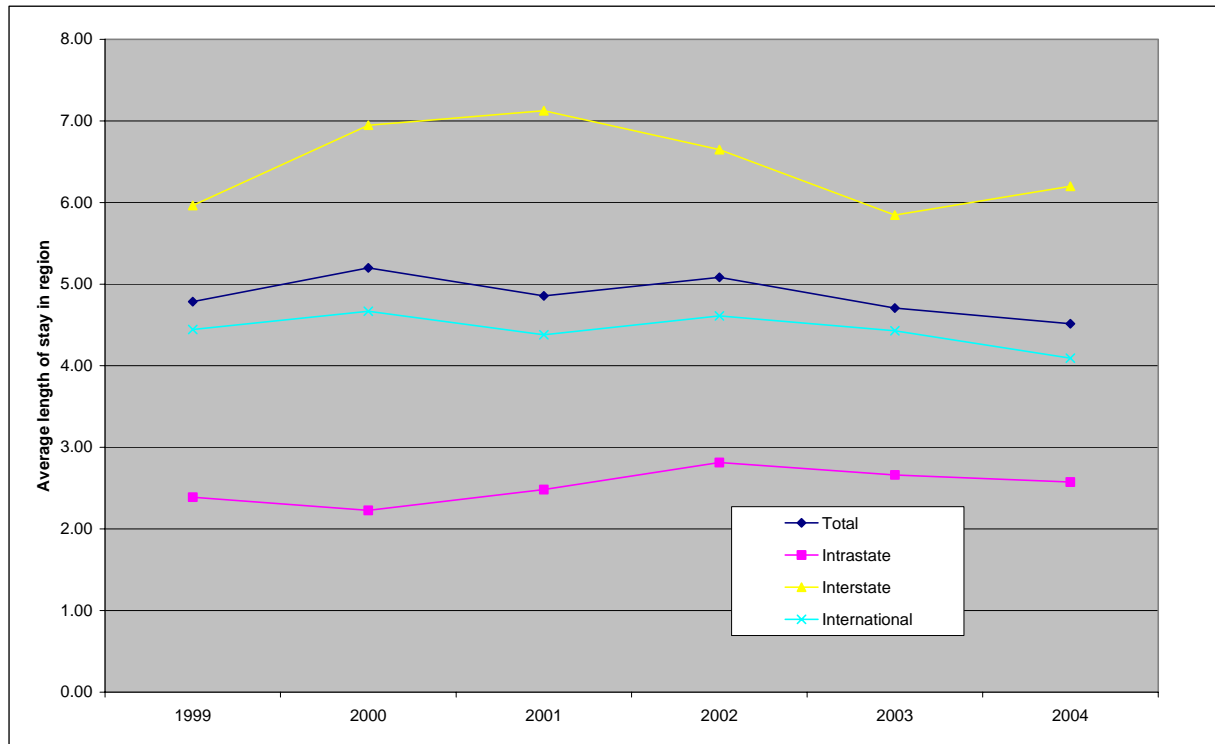
Figure 10: Nights in the Centre by origin– all purposes (TRA) 1999-2004



These figures show that the whole region displayed a drop in visitors from 2000 to 2002 and an equivalent drop in nights extending to 2003.

This translates into length of stay statistics for the whole Centre region showing in which segments the decline occurred (see Figure 11).

Figure 11: Average length of stay in the Centre region by origin (TRA) 1999-2004 (percentage)



As the data above includes all travellers for all motive and it is suspected that the majority of visitors to WNP would have been in the region for holiday purposes, similar data is produced below showing changes in holiday visitor presence and nights in the Centre region. Because few Territorians visit the Centre for holiday purposes, the TRA data indicates a low sample size for the intrastate segment and the latter is therefore not included.

Figure 12: Overnight visitors to the Centre – holiday only (TRA) 1999-2004

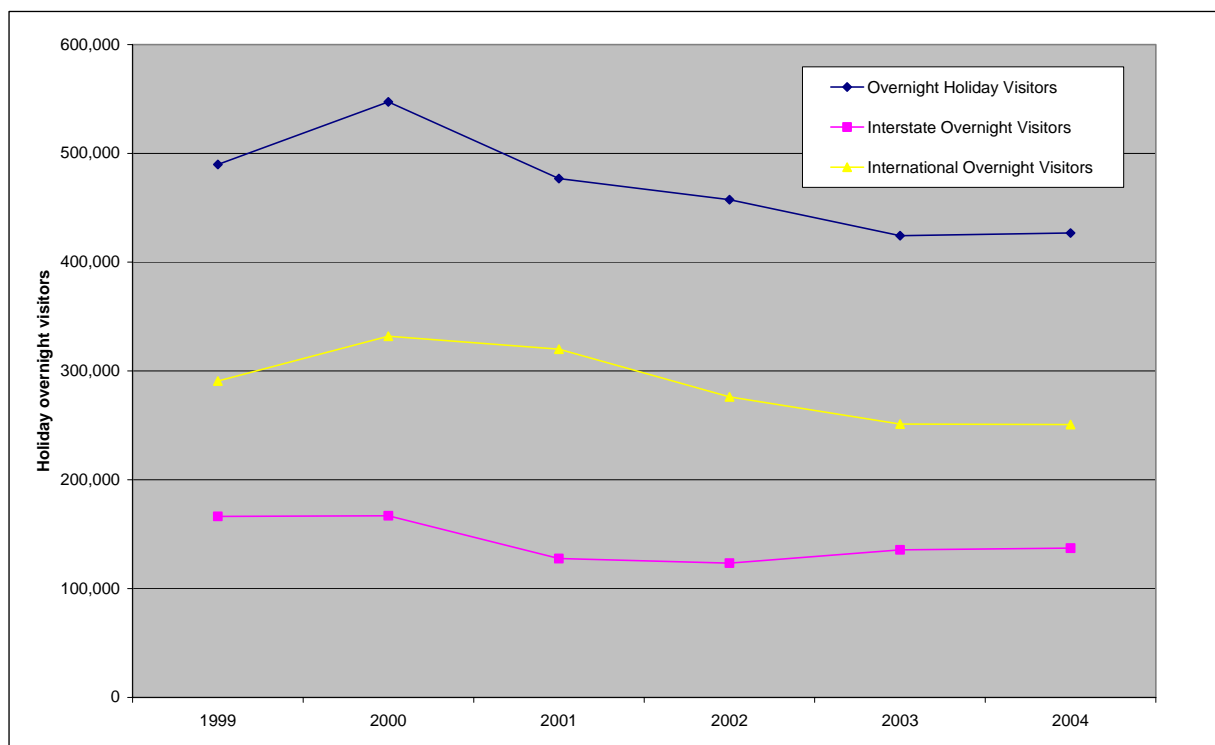
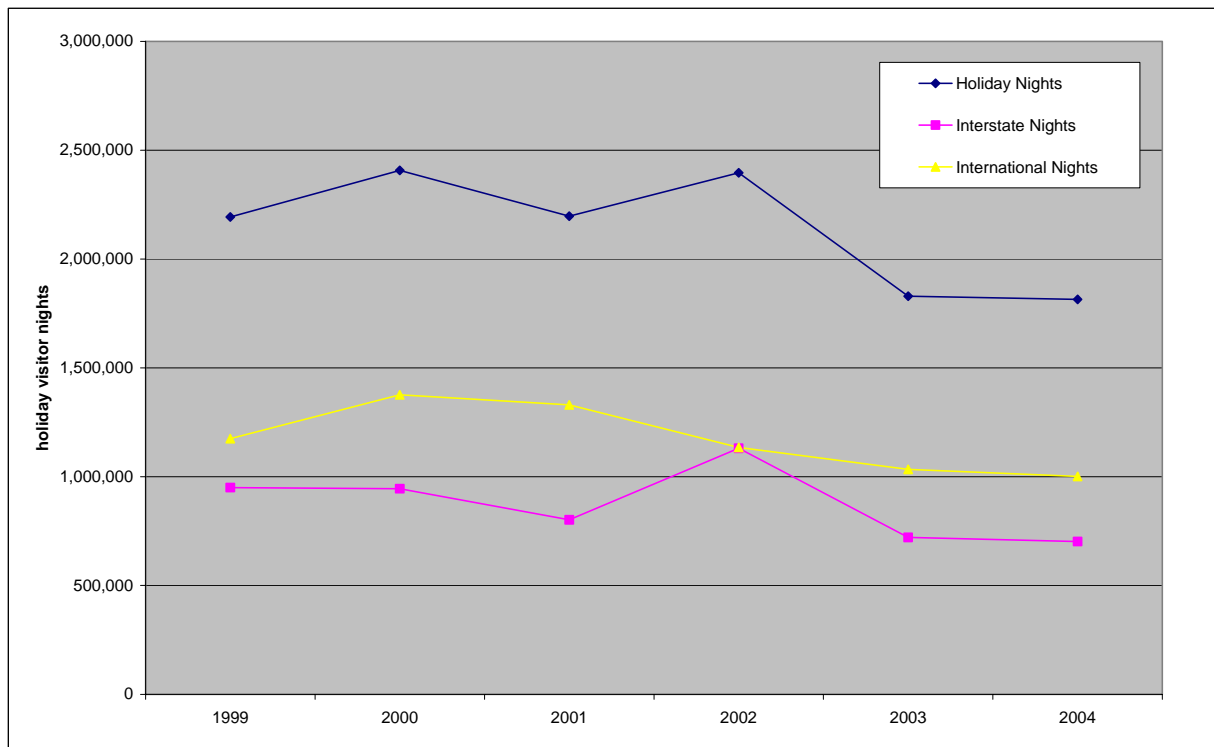


Figure 13: Nights in the Centre – holiday only (TRA) 1999-2004



These figures confirm that the whole region displayed a visitation drop from 2000 to 2003 and some erratic patterns but declining nights overall. Nights have remained stable in 2004. Statistics for length of stay for holiday purpose visitors is shown in Figure 14.

Figure 14: Average length of stay for holiday visitors only (TRA) 1999-2004



Figure 14 is useful in providing a clearer picture of length of stay for holiday visitor behaviour in the Centre region. It shows the following:

- international holiday visitors display an extremely stable pattern – with an average of 4 nights for the whole region, and
- interstate visitors' length of stay in the region has declined, after irregularly long durations calculated for 2001 and 2002. The latter are not explained by TRA and might be due to a combination of external events, calibration issues linked with the survey and statistical anomalies.

Combining the WNP data supplied by the Parks and Wildlife Service and the holiday visitor data above supplied by TRA, a preliminary indicator of the propensity to visit WNP can be derived (see Figures 15 & 16). Further data of this type (based on the CAS/NTTM) is provided in the next section. It can be assumed that almost all visitors to WNP have spent at least one night in the Centre region.

Figure 15: WNP yearly visitor estimates contrasted to total holiday visitors in the Centre region (TRA) 1999-2004

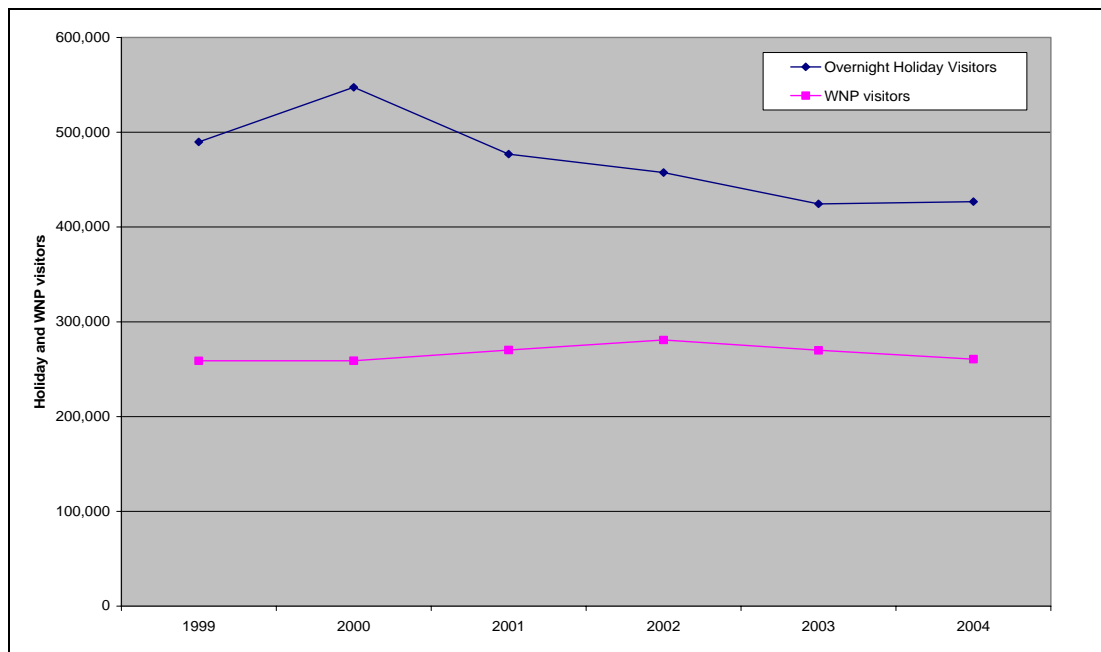
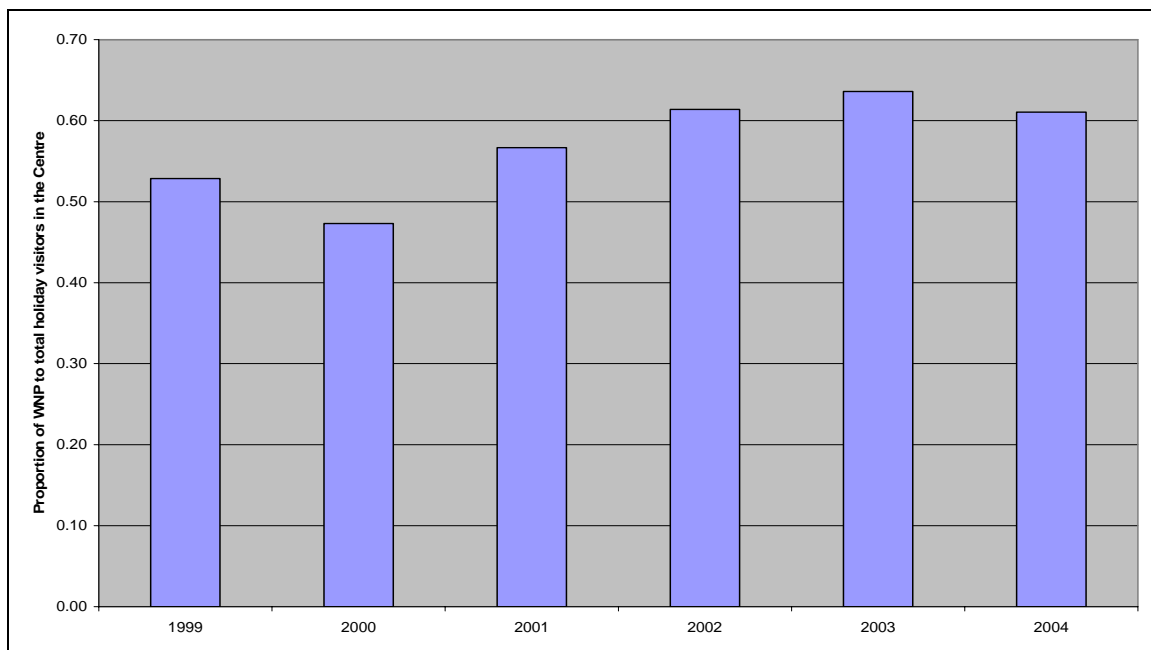


Figure 16: Proportion of WNP yearly visitor to total holiday visitors in the Centre region (TRA) (1999-2004) (percentage)



Given the assumptions made previously, the latter figures suggest that more than half (stabilised at around 60%) holiday visitors to the Centre region include WNP in their visit. Numbers visiting WNP have been resilient despite vagaries in total Centre visitation.

Analysis of the Propensity to Visit Watarrka National Park Using Commercial Accommodation Survey (CAS) Data

This section serves two purposes – it provides background information about the CAS sample, and it is used to make historical comparisons of the propensity for Centre visitors over the 1998-2004 period to visit WNP. As the following section relies specifically on sub-samples of CAS visitors, which indicated they visited WNP, it is useful to first examine the proportion of Centre visitors who actually visited WNP, their distribution across main sub-markets and changes over the seven years period.

The two main variables operating as filters in the specification of the ‘WNP visitors’ sub-samples are:

1. *Filter 1* – binary variable indicating ‘have visited WNP’ at time of survey;
2. *Filter 2* – binary variable indicating ‘have visited or intend to visit Watarrka’ [providing the most likely maximum set of WNP visitors – although it is possible for some respondents who did not intend to visit (or were not aware they would) to end up spending time in WNP anyway].

When analysing demographics in the following section, the first filter is also used to select the sub-sample. The analysis below provides a picture of the actual importance of WNP visitation for Centre visitors sampled through the CAS.

Watarrka National Park Visitation by Origin-Segments

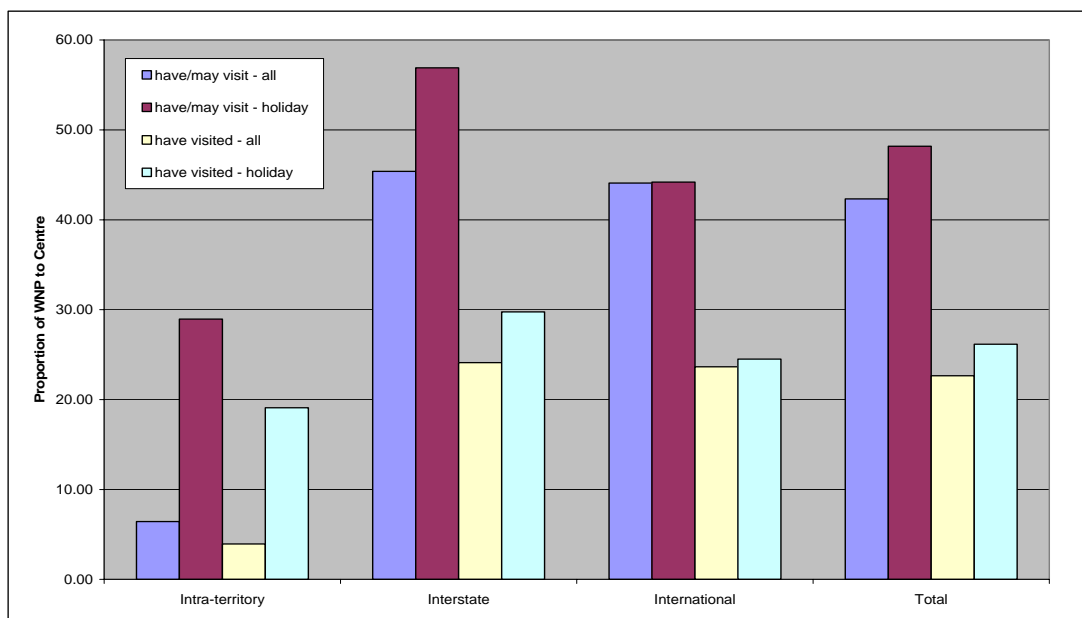
Figure 17 shows the proportion of each Centre visitor origin-segment that visited or intended to visit WNP. Finding a medium position between the two filters, it is possible to suggest that according to the CAS, between 30% and 40% of all international visitors to the Centre visit WNP, at least 40% of all interstate visitors and between 10-15% of Territorian trips within the Centre have involved WNP (at some stage of a given itinerary) during the 1998-2004 period.

The seemingly larger propensity associated with the Interstate visitors rather than with the International market stems from a number of possibilities (explored further in subsequent figures):

- longer duration of stay in the region by Interstate means they are more likely to include WNP in the tour or circuit;
- increased likelihood of self-drive also contributes to propensity to stop in WNP;
- greater knowledge of the place and exposure to media which has featured WNP (for instance, the movie ‘Priscilla Queen of the Desert’).

As the Intra-Territory and Interstate markets include a number of VFR, business and other primary motives, the proportions of WNP visitors are positively affected for these two origins market when the focus is exclusively on holiday/pleasure only trip purpose. As this variable will constitute a chief intervening variable in much of the possible questions of interest, the analysis below will be based exclusively on the holiday/pleasure market.

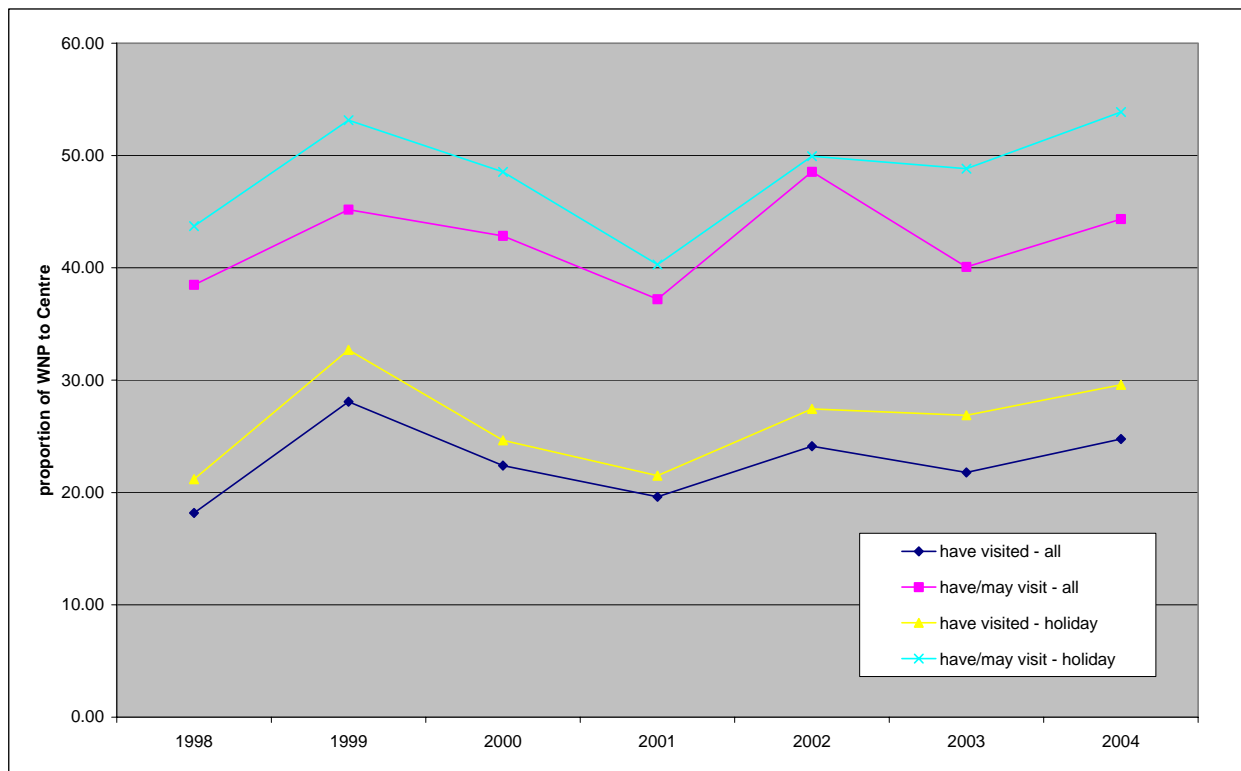
Figure 17: Propensity to visit WNP by Centre visitors (1998-2004 average) (percentage)



For the whole sample of Centre travellers from the NTTM, the proportion of WNP visitors from 1998 seems to be relatively stable (ranging from 40-58% in 1998 to 35-45% in 2004). The upper boundary declined slightly, indicating that the proportion of respondents associated with business, VFR and other motives visiting WNP has decreased. For those Centre visitors with holiday/pleasure motives, the proportion visiting WNP has been fairly stable, with a decline from 1999 to 2001 but with overall recovery since.

Figure 18 displays the same group proportions over the years. As stated above, the true value probably lies between the two filters ('have visited' and 'have/may visit') and the NTTM data suggests that there has been some variations over the years but with some increase overall, with around 45-50% of Centre holiday visitors including WNP in their itinerary.

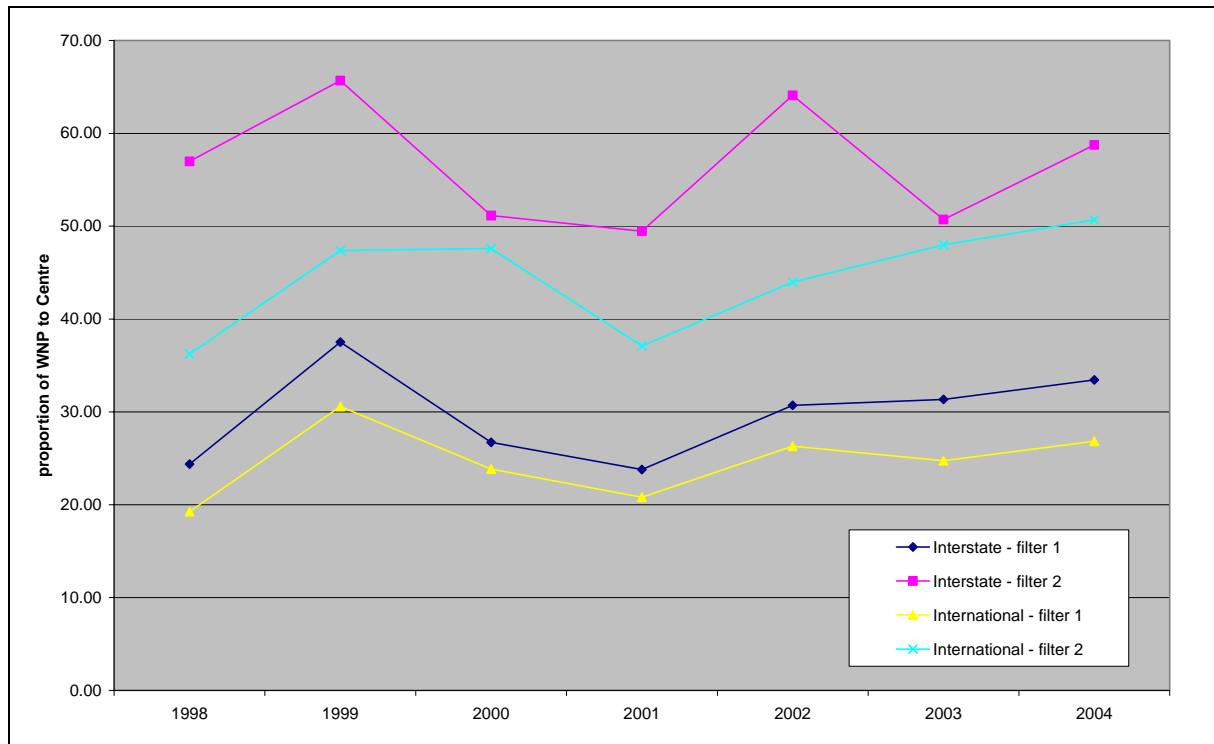
Figure 18: Propensity to visit WNP by Centre visitors 1998-2004 (percentage)



Watarrka National Park Visitation - origin-segments and trip motive

This section examines interstate and international visitors to the Centre separately. It will focus on the proportion of Centre holiday respondents who visited WNP. Considering interstate and international visitors as separate segments is meaningful as the two groups generally display different travel modes and different seasonality. Again, filter 1 represents responses of 'having visited' while filter 2 represents 'having visited or intending to visit' WNP. Figure 19 shows that the data indicates that there were drops in the propensity to visit WNP in 2000-2001 but it has since recovered. Overall, the proportion has not changed much in the seven-years period.

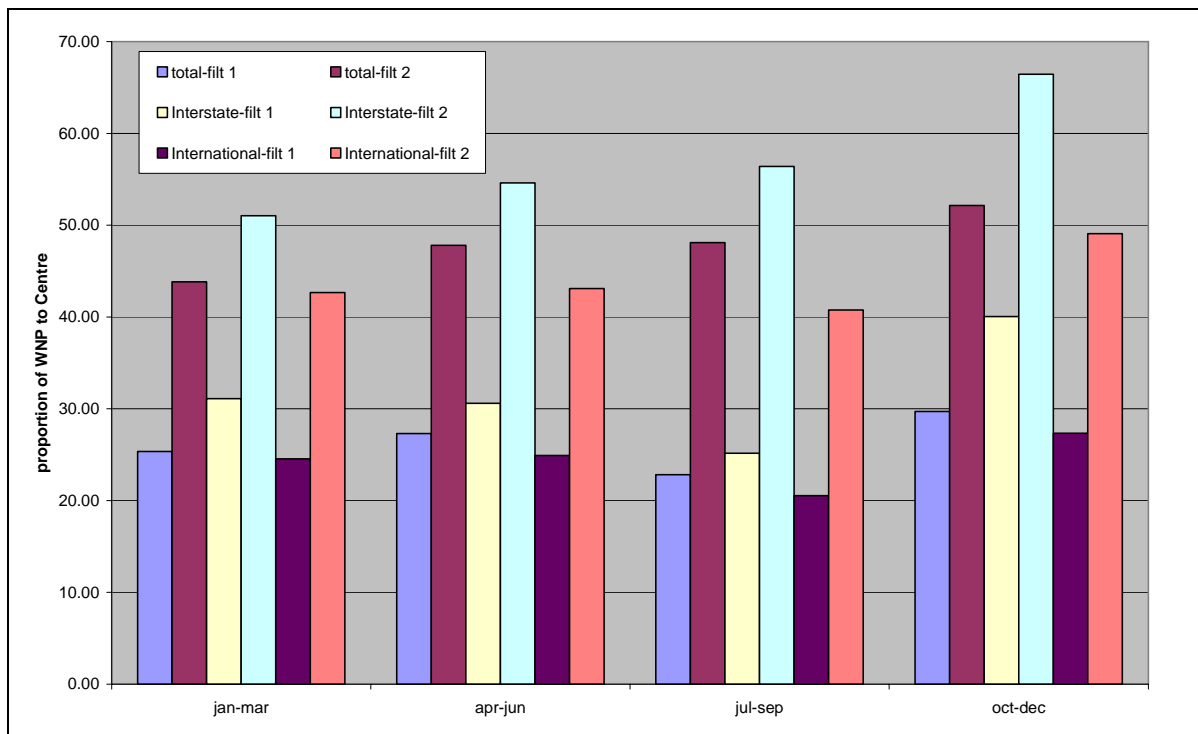
Figure 19: Propensity of Centre respondents by origin to visit WNP by segment and by year (1998-2004) (percentage)



Seasonality

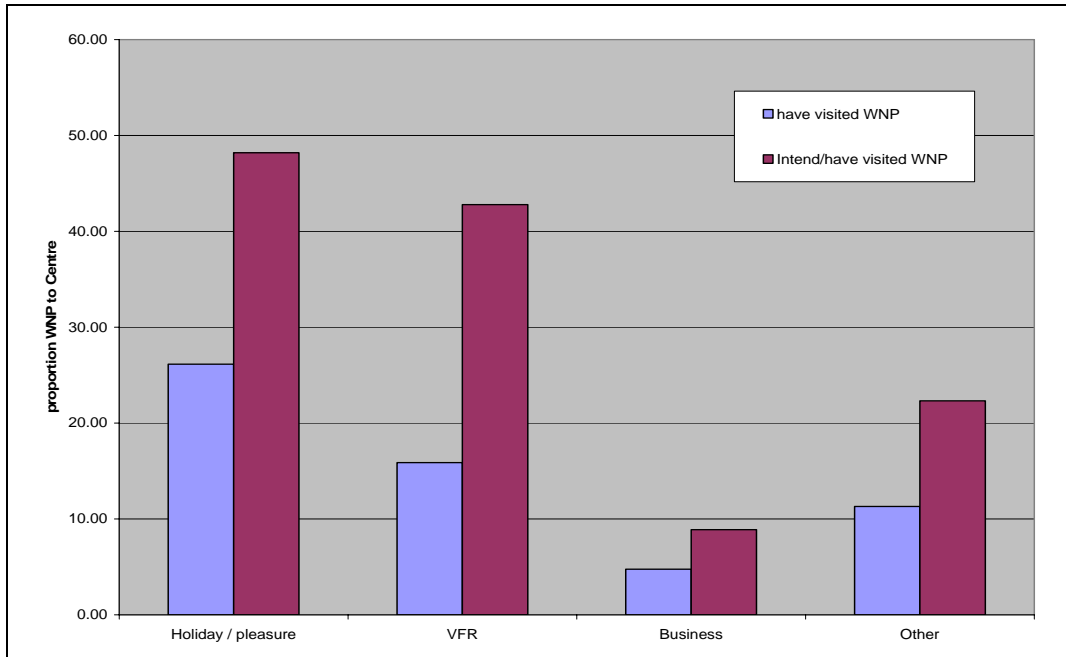
Figure 20 (showing data for 1998-2004) suggests that the propensity to visit WNP by Centre holiday visitors follows predictable seasonal patterns with a greater propensity to visit WNP in the October-December period, which is mainly driven by the presence and behaviour of Interstate visitors.

Figure 20: Propensity by origin to visit WNP by season (percentage)



It is useful to review the average propensity to visit WNP (by Centre respondents) for each main trip motive.

Figure 21: Propensity to visit WNP by motive (percentage)

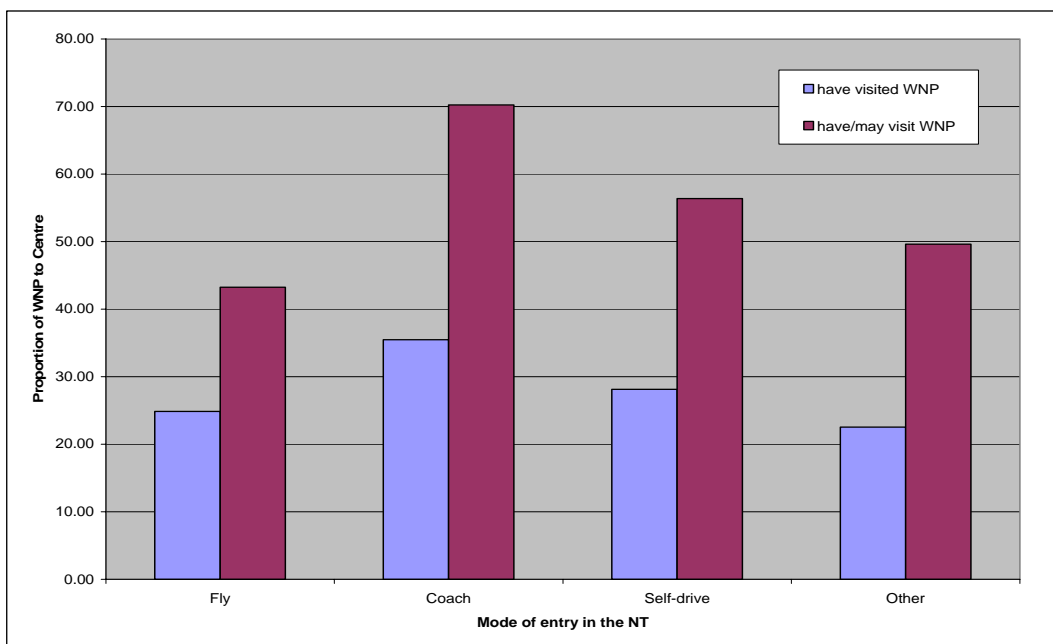


The data above makes clear that Centre respondents signalling holiday/pleasure as their main motive are most likely to visit, have visited and intend to visit WNP, while those in the Centre for business are the least likely. Those visiting friends and relatives or for other purposes (including events, educational, etc.) with a greater ratio of ‘intending’ to actual visit – signalling they are interested in but not necessarily in a position to do so possibly because of time or budget constraints or logistical limitations.

Entry Mode into NT

Figure 22 examines the propensity to visit WNP by Centre visitors entering the NT by various means. It shows that the likelihood of visiting WNP is relatively higher for visitors entering the NT by coach and for those driving themselves. For coach entry, this can be explained by the fact that travellers are highly likely to be with extended tours including WNP on the itinerary. The lower propensity of air entry (relative to self-drive and other categories) is partly due to the fact that it includes shorter stays taking advantage of discount packages into Alice Springs or Uluru, and the latter visit less WNP.

Figure 22: Propensity to visit WNP by mode of NT entry 1998-2004 (percentage)



Data is available to examine historical data for the main modes of entry in the NT (by Centre visitors) comparing the modes using filter 2. The time series (see Figure 23) show there have been no clear patterns of change in the propensity to visit WNP by NT entrants with holiday/pleasure motives. Variations occurred probably because of changes in the Interstate/International mix. The category other represents mainly respondents who entered the NT by rail.

Figure 23: Propensity to visit WNP by entry mode (into the NT) by year (1998-2004) (percentage)



Descriptive Overview of Watarrka National Park Visitors Using Commercial Accommodation Survey (CAS) Data

The purpose of this section is to provide a summary profile of tourists who visit WNP using the accumulated seven-year time series available in the NTTM. In this section again, the CAS data only has been singled out for analysis, for the reasons outlined in the previous section. The data is purely based on visitors staying in commercial accommodation and does not include:

- visitors staying only with friends and relatives during their NT visit;
- visitors undertaking free camping only during their NT visit; or
- visitors who visited WNP but did not spend a night in the park.

The three groups listed above constitute a small proportion of total visitation and are considered of lesser interest for marketing purposes. The following technical comments are also useful to depict the sample represented in this section:

- Visitors included in the sample are those who declare 'having visited WNP' in the particular trip where they are interviewed for. The filter-criterion corresponds to the filter 1 used above which applies to respondents who indicated they 'have visited' WNP during the trip for which they were interviewed. Location of interview does not have to be WNP but must be in the Centre region.
- While the data is judged to be of good quality overall, the analytical focus below is not on absolute values (numbers) but on the relative proportions for the main visitor attributes (percentages). This provides very useful marketing information and an appropriate overview.
- It was decided to exclude the analysis respondents who 'may' visit WNP as their intentions cannot be relied on and this does not provide a measure of strength. Furthermore, whenever useful, the analysis includes changes through time and an assessment of implications.

Characteristics of Travel Parties

Origin

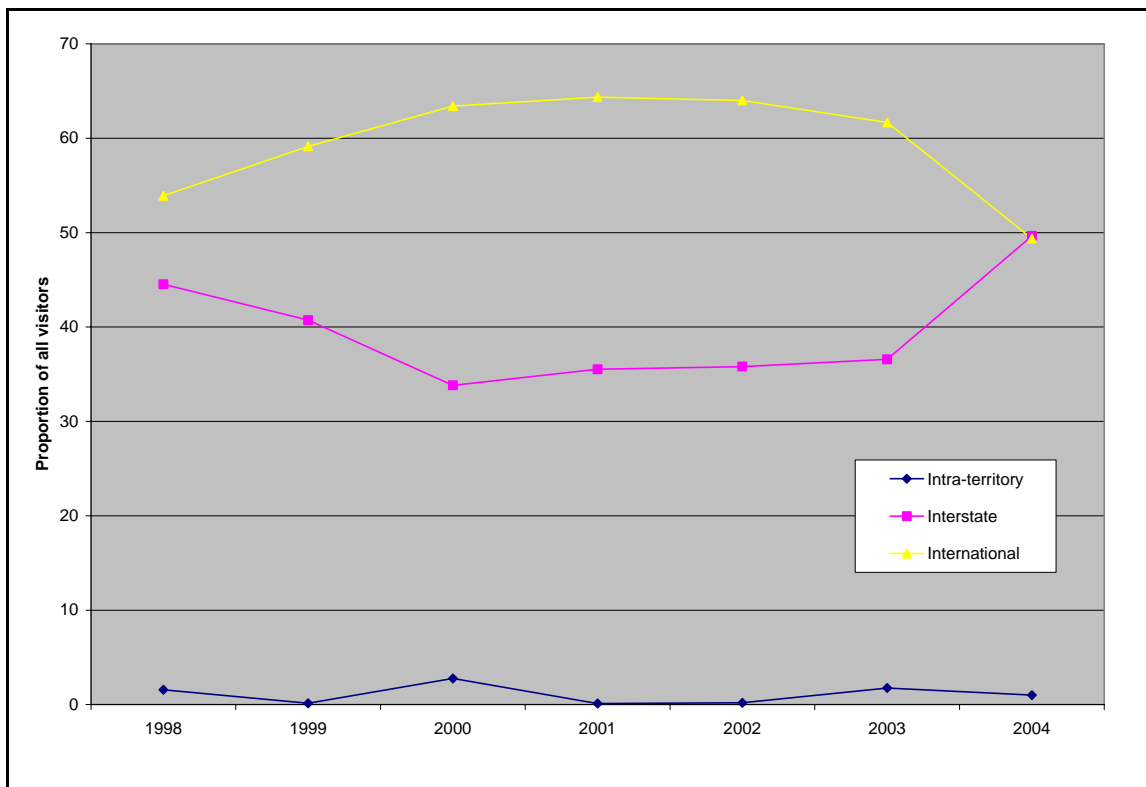
According to the CAS, 60% of visitors to WNP generally (in 1998-2004) originated from overseas, with almost 40% from interstate. Few visitors overall originate from within the NT. It is possible that a larger proportion of Territorians and Interstate visitors would be accounted for if those not staying in commercial accommodation could be included in the sample (see Table 2).

Table 2: Percentage of visitors to WNP by origin (1998-2004 average)

Origin	%
Intra-Territory	1.04
Interstate	38.58
International	59.39
Total	100.00

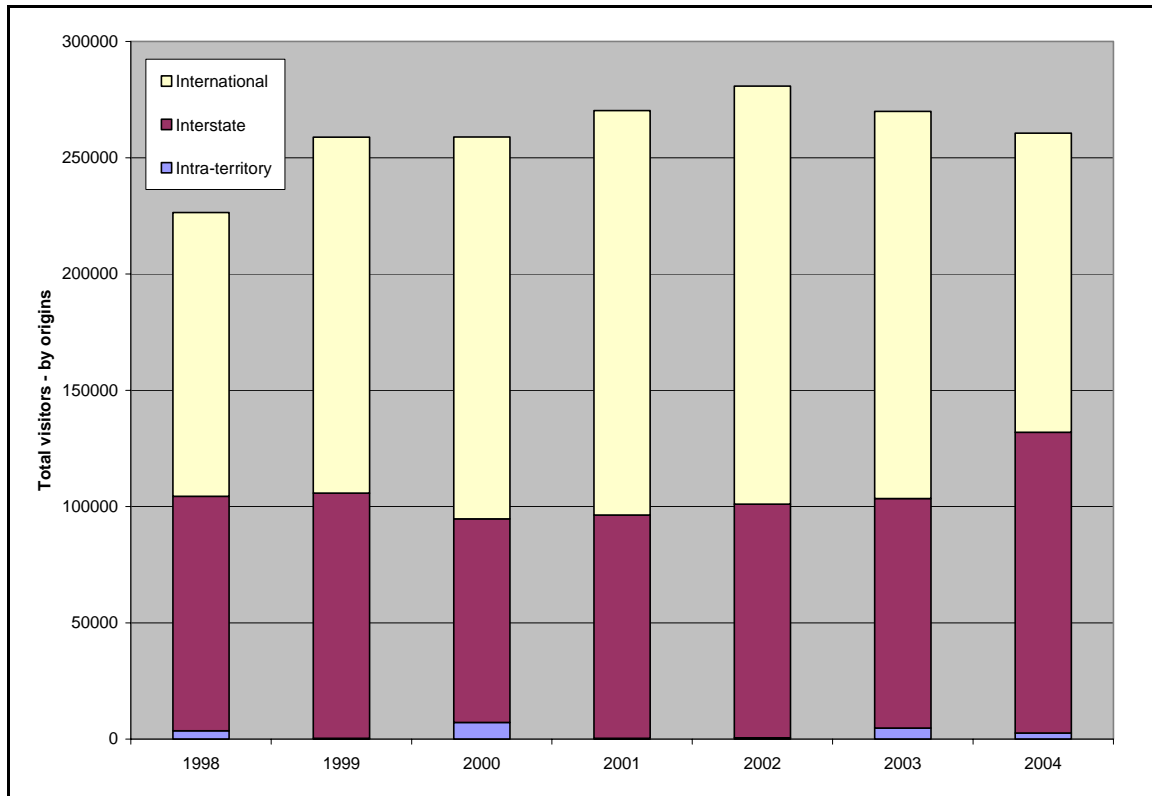
Figure 24 shows that traditionally, the international visitors dominated the statistics but there has been a recent decline, parallel to the NT-wide drop in overseas visitors.

Figure 24: Proportion of visitors from each origin group by year (1998-2004)



Applying these proportions to the total numbers of visitors provided by Parks and Wildlife Service suggests the following overall time series (see Figure 25).

Figure 25: Visitors from each origin group by year (1998-2004)



Data gathered from the WNP Visitor Survey in 2005 describe seemingly different proportions. The March survey produced a sample in which 13% respondents came from Interstate, 4% were from the NT and 80% were from Overseas (and 2.2% not stated). In the June 2005 survey, the proportions had changed to 57% from Interstate, 2% from the NT and 41% from Overseas, reflecting the high seasonality of the interstate market. Eventually, overall differences seem to mainly reflect seasonal variations and are comparable to the NTTM data. But they could also be explained by different propensities to respond by various groups, different biases in either of the two surveys and possibly structural change in travel behaviour from 2004 to 2005.

Composition

Most travel parties, regardless of their origin, consist of approximately two adults. Children make up a relatively small proportion of total visitors to WNP (see Table 3).

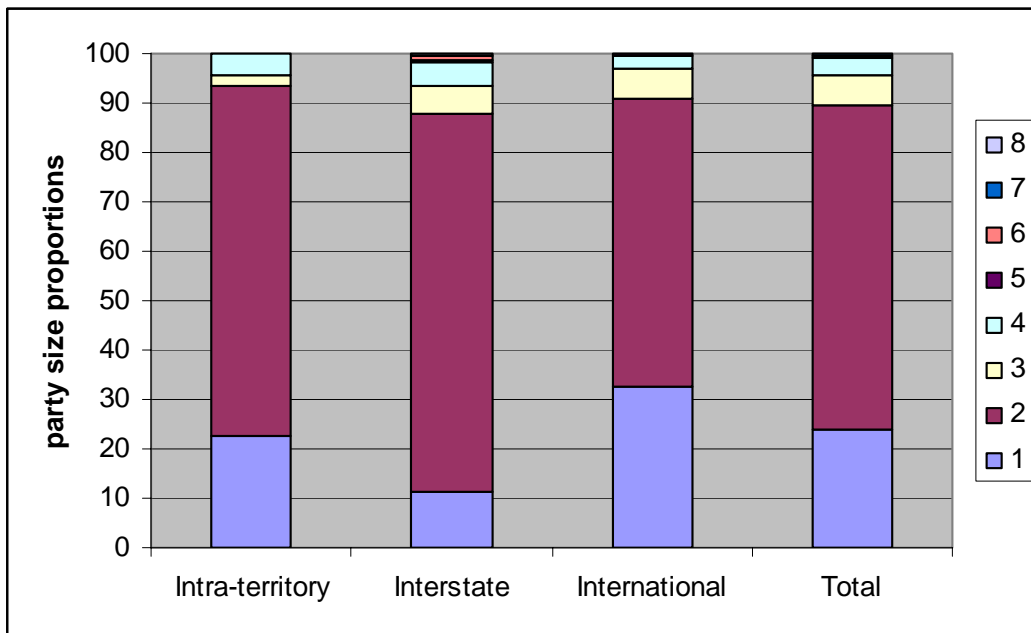
Table 3: Travel parties by origin

Origins	Average No. Adults	Average No. Children
Intra-Territory	1.88	0.19
Interstate	2.22	0.18
International	1.83	0.04
Total	1.99	0.10

Size

The proportions of parties of consisting of one or more individuals are illustrated in Figure 26. For all origin groups, couples dominated by far.

Figure 26: Size of travel parties by origin (percentage)

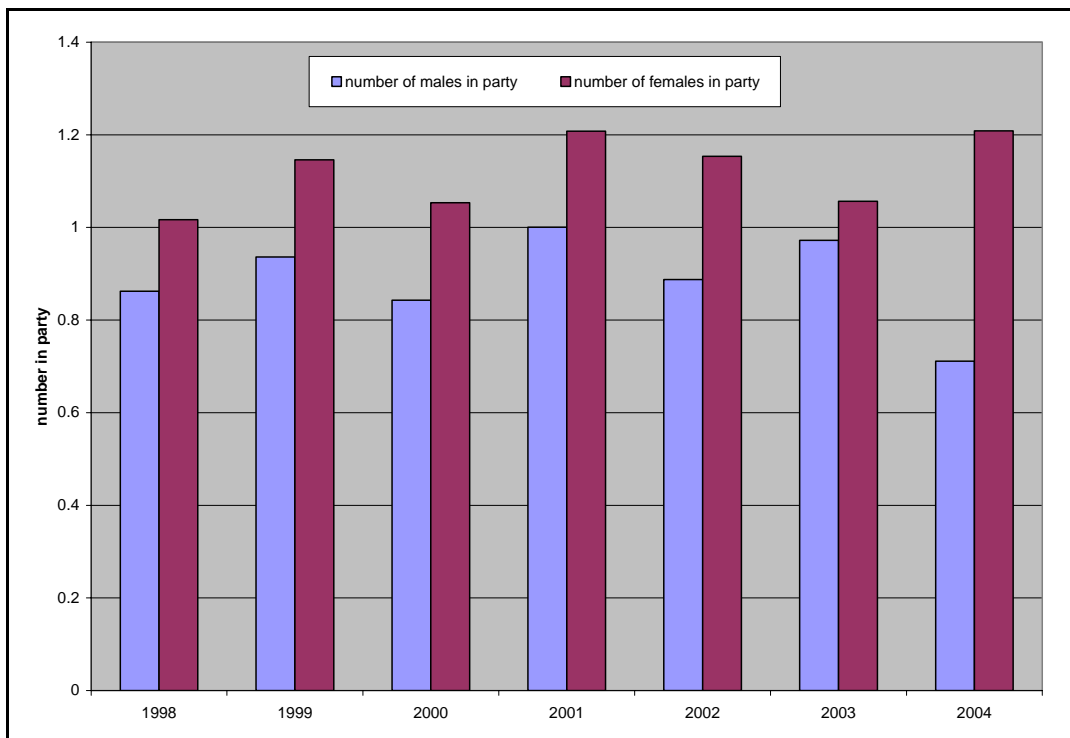


Examination of data by year shows no obvious trend. The overall balance seems to depend on the proportions of domestic and international visitors, with relatively more couples in the former market and singles in the second.

Gender

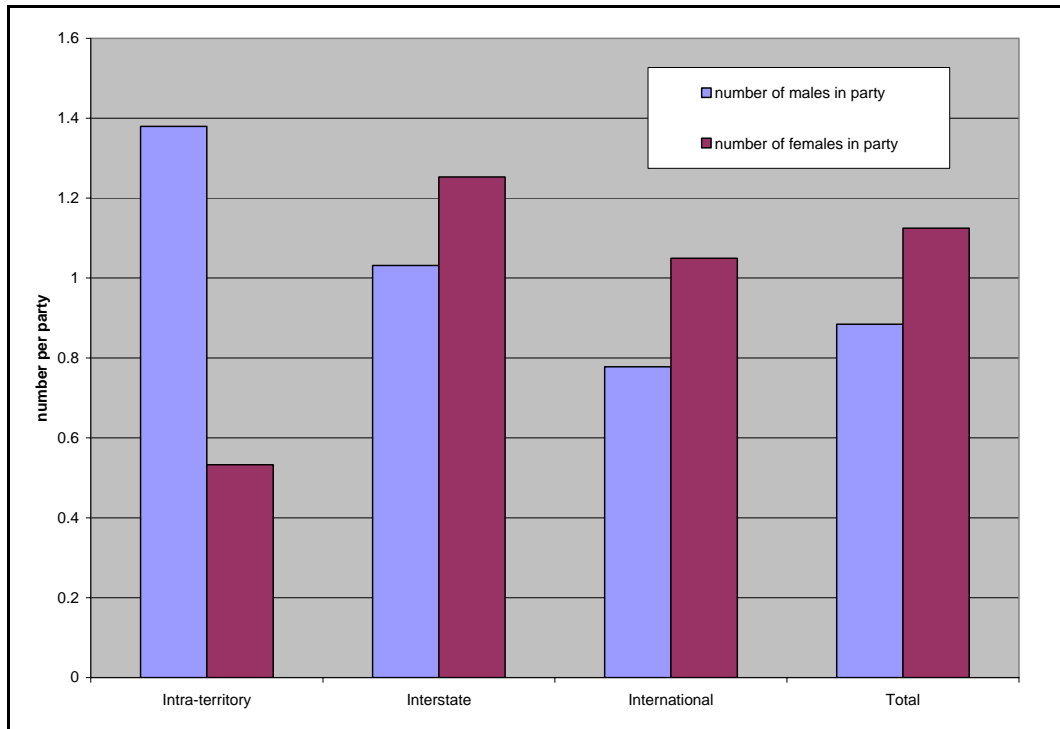
The numbers of males and females in each travel party is reasonably consistent, with a significant surplus of females in all years by around 10-25%. In 2004, results suggest an even greater split between the two (see Figure 27).

Figure 27: Gender of travel parties by year (1998-2004)



An analysis of gender by origin reveals that the excess of women is most obvious in the international travel parties, while males and females are more evenly represented in the interstate market (displaying many couples) and that males account for a greater proportion of Territorian parties (see Figure 28).

Figure 28: Gender representation by party by origin (1998-2004)



Travel party type

The NTTM data suggests that an increasing proportion of travelling parties are unaccompanied and that the share of couples has declined slightly. A greater share of unaccompanied respondents is usually found among overseas respondents (see Figures 29 & 30).

Figure 29: Travel party type by year (2002-2004) (percentage)

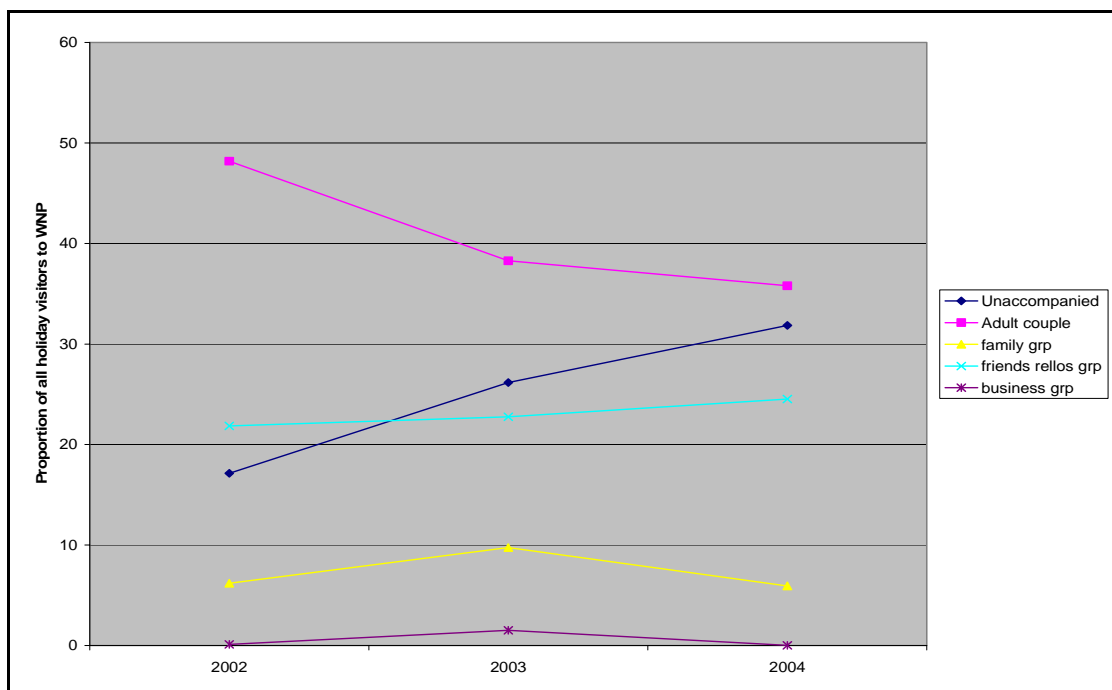
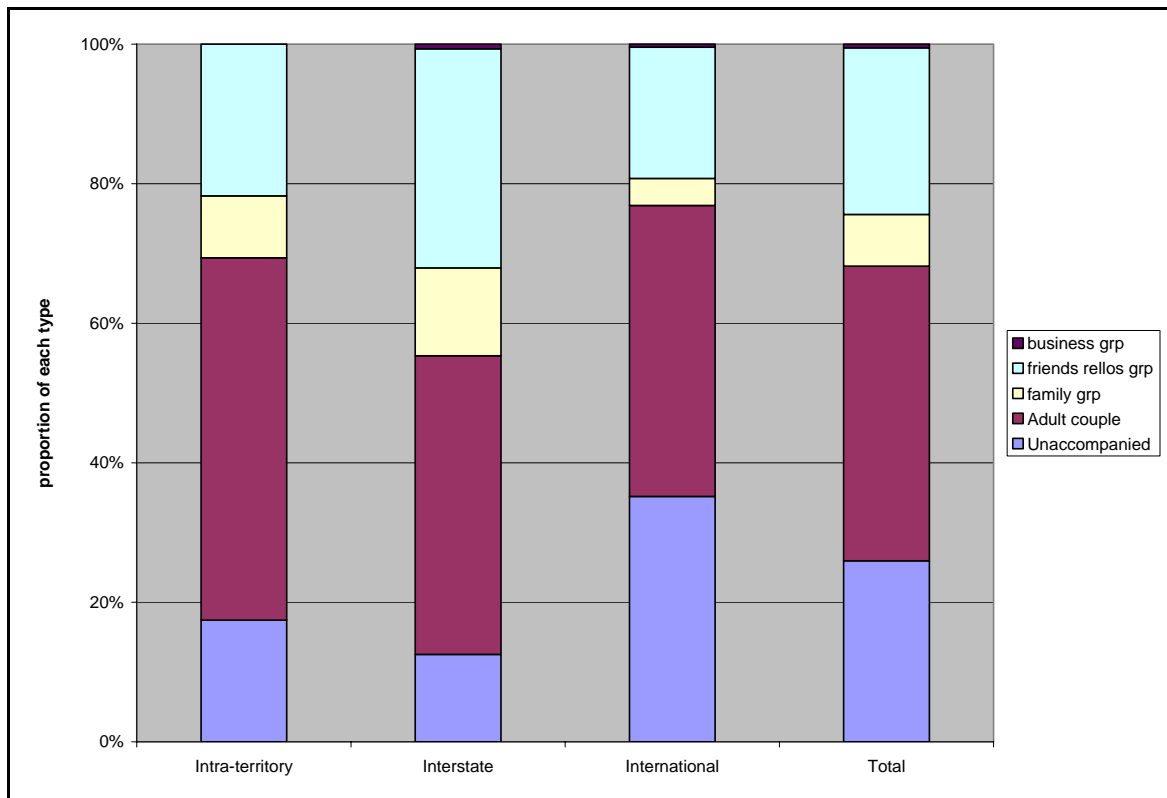


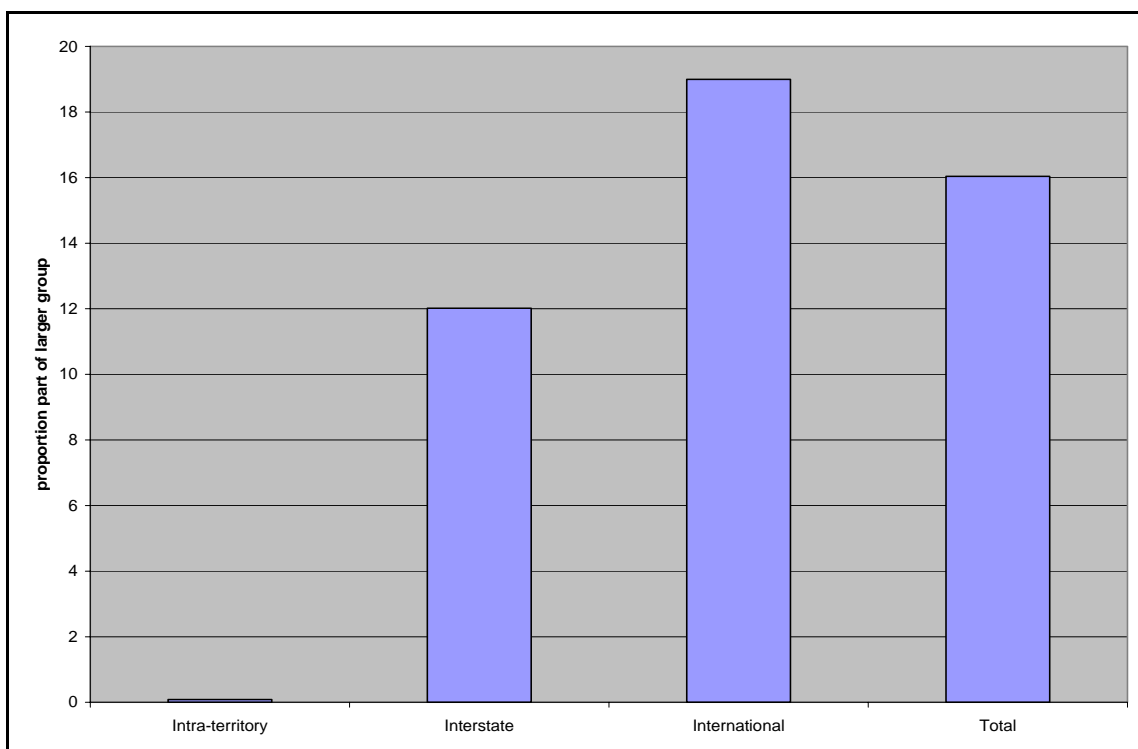
Figure 30: Travel party type by origin (percentage)



As components of larger groups

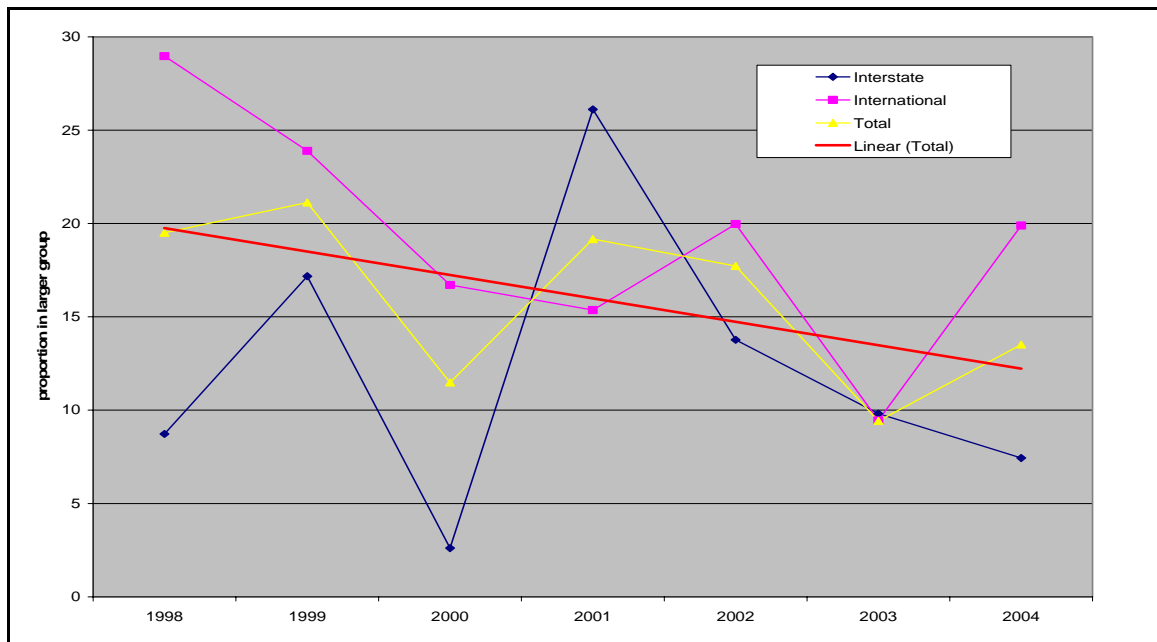
Relatively few travel parties were attached to larger groups (around 16 overall). International visitors to WNP were the most likely to travel as part of a larger group. It must be noted that this refers to the entirety of their journey within the NT, not only to the WNP component. Those from the NT were the least likely to travel in the NT in larger groups and interstate visitors occupy a middle position, indicating the relative influence of the self-drive market on this sub-market (see Figure 31).

Figure 31: Percentage of travel parties that identify as components of larger groups by origin



The large fluctuations with respect to intra-Territory values suggest that these are not reliable, due to their small magnitude and the possibility that specific events have large local impacts (see Figure 32). The data overall seems to indicate a relative decline of travel parties being part of larger groups (as seen on the trendline associated with the proportion of all visitors).

Figure 32: Percentage of interstate and international travel parties in larger groups (1998-2004)

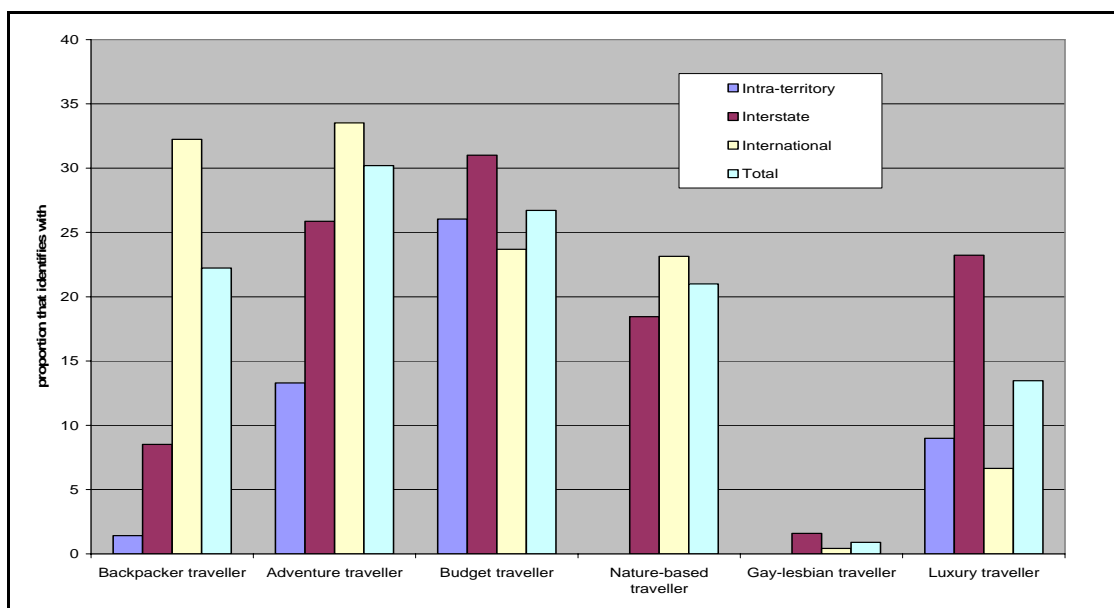


Segment self-identification

To help the NTTC with market segmentation of travellers to the NT, respondents have been asked if they identify with any particular interest groups, and if they could identify with more than one. Results appear in Figure 33, where they show the percentage of visitors self-identifying with each category. Overall, Centre respondents identify with the following segments in declining order: ‘adventure’, ‘budget’, ‘backpacker’, ‘nature-based’, ‘luxury’, and of much lesser relative importance ‘gay/lesbian’.

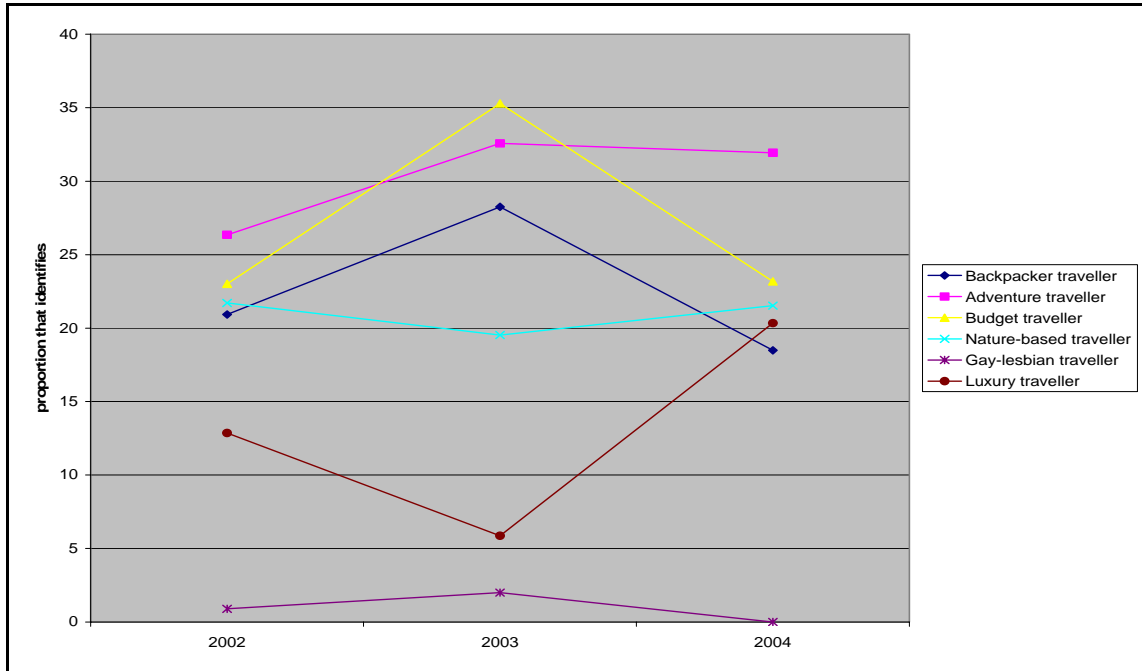
There is an expected correlation between visitor origin and some of these segments. For instance, international visitors account for the majority of those who identify with the ‘backpacker’ segment but they also dominate ‘adventure’ and ‘nature-based’ categories. Interstate visitors dominate ‘luxury’ self-identification category while an equal proportion of all groups identify with ‘budget’. Intra-Territory visitors identify overall much less with these conventional segments, except for the ‘budget’ category.

Figure 33: Self-identification of market segments (average for 2002-2004) (percentage)



As this data was only collected over a three-year period, it is not possible to examine whether it suggests changes over time. The categories of ‘budget’ and ‘luxury’ display fluctuations that might reflect changes in markets of origin. By all means, the year 2003 seems to have been atypical (see Figure 34).

Figure 34: Self-identification of market segments (by year) (percentage)

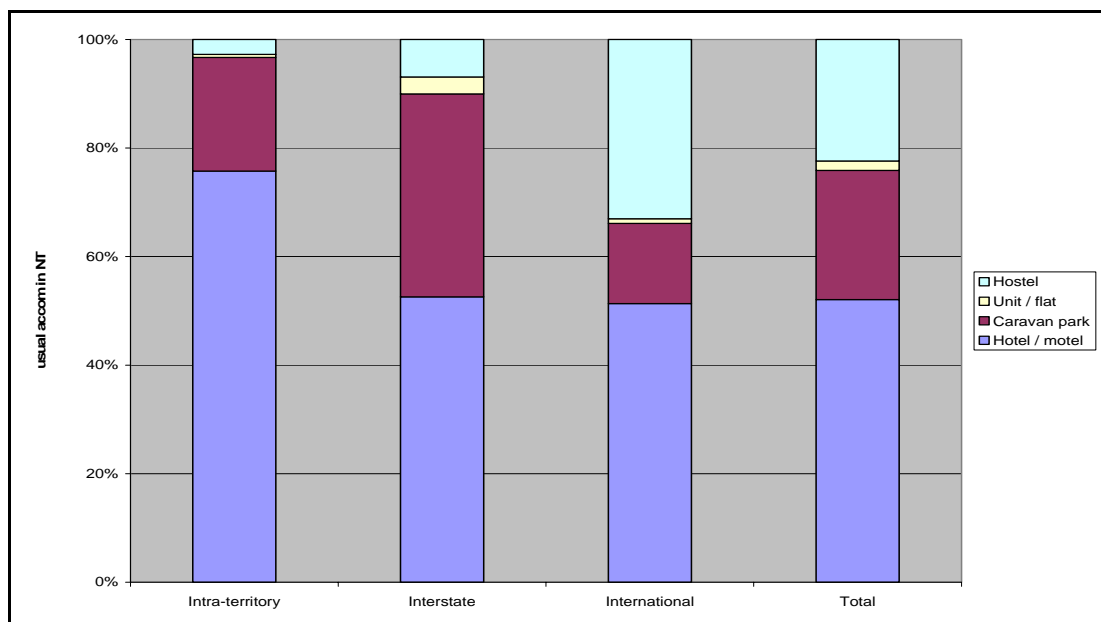


Trip Attributes

Accommodation choices

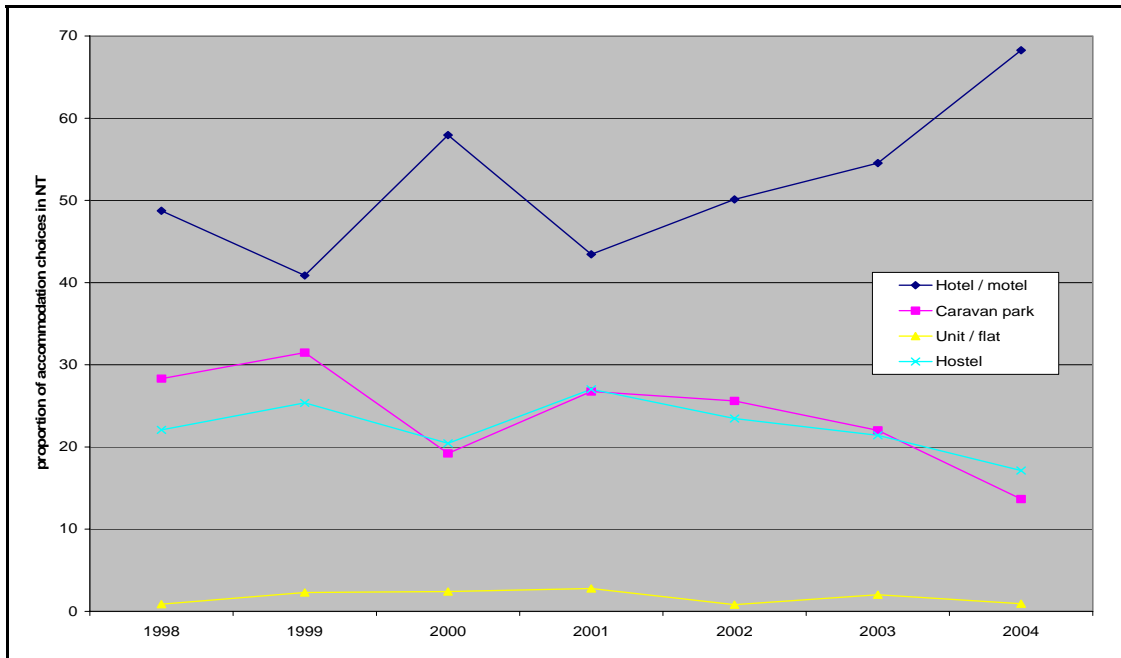
Figure 35 refers to the main accommodation categories used by WNP respondents wherever they were at the time of interview. It provides a simple picture of accommodation use at that time which does not necessarily reflect accommodation use around WNP, nor the distribution of visitor-nights in those establishments.

Figure 35: Main type of accommodation used (1998-2004) by origin (percentage)



It must be noted that respondents may use a variety of accommodation types during the course of an entire journey. It is useful to examine accommodation use by the three main origin groups. Figure 36 shows the percentages of the main accommodation type used, over a seven year period WNP visitors when in the NT. It shows the increasing proportion of hotel use in the Centre region and the relative decline of hostels and caravan parks for that set of respondents.

Figure 36: Accommodation choice in NT – WNP visitors (1998-2004) (percentage)



Season of visit

The following two figures represent a seven year summary of seasonal distribution for visitors of various origin. In Figure 37, it is possible to examine the behaviour of each origin group. International visitors dominate the October to March period while interstate visitors gain a larger market share during the Australian winter.

Figure 37: Seasonal split of respondents by season (percentage)

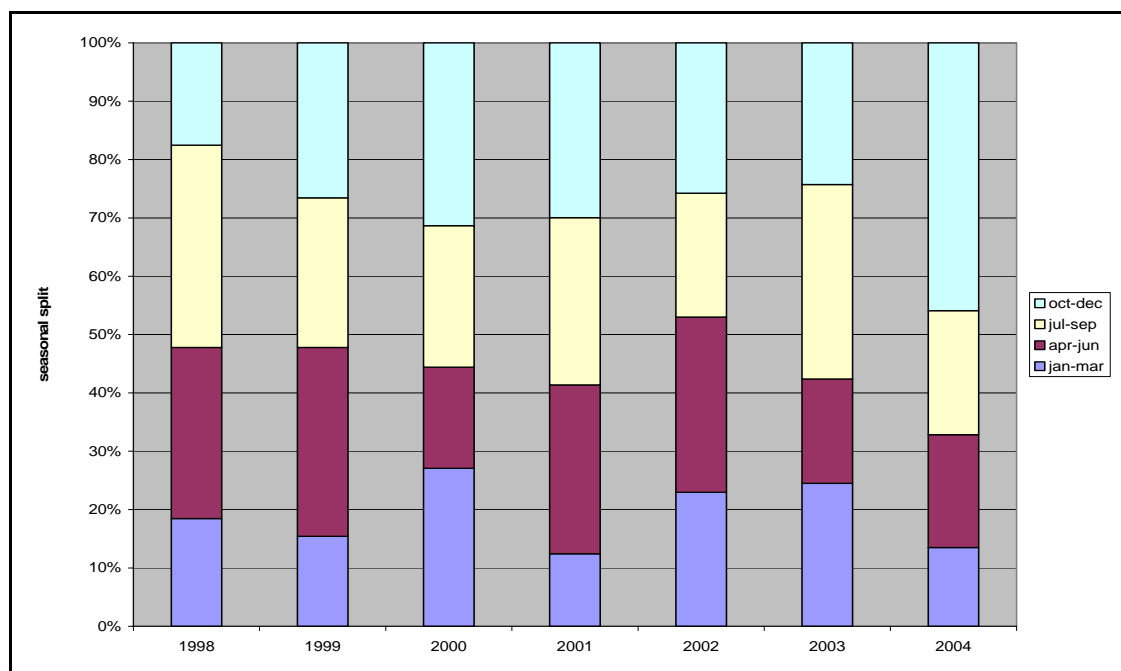
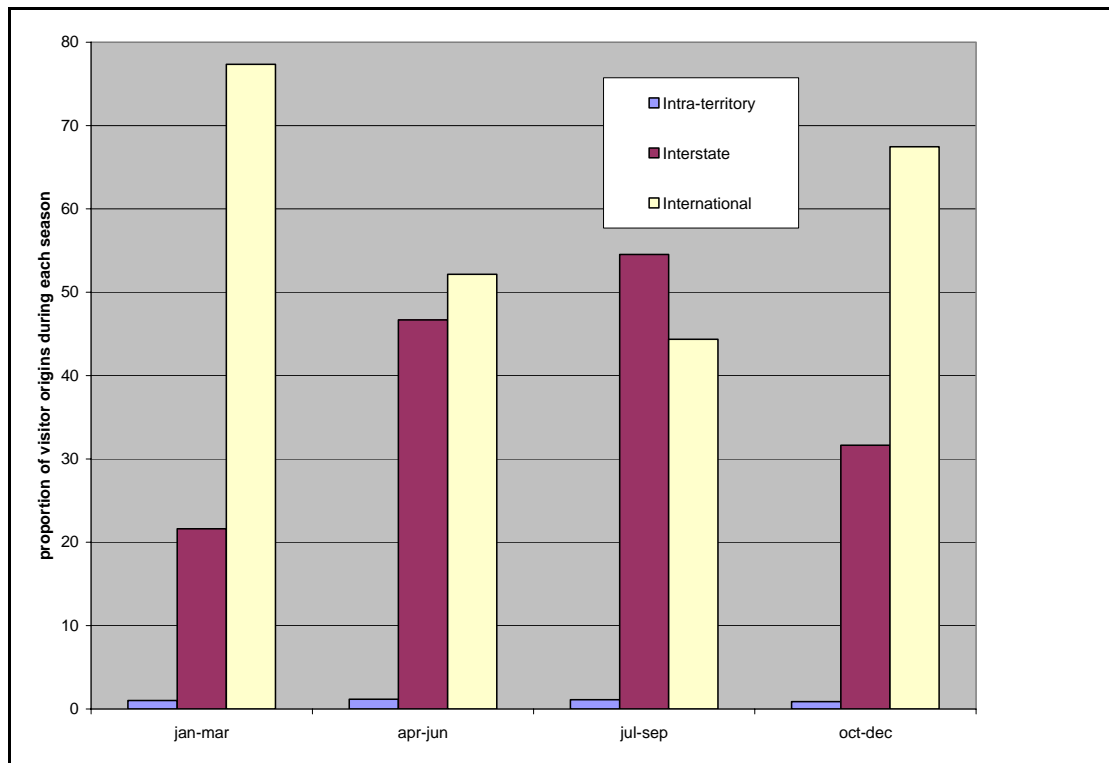


Figure 38: Proportion of visitor origin by season



Entry mode into the NT

Figure 39 shows how WNP visitor groups entered the NT over the seven-year period. International and domestic flights entry dominate, with the proportion of self-drive being significant for interstate respondents.

Figure 39: Mode of entry into NT by origin (percentage)

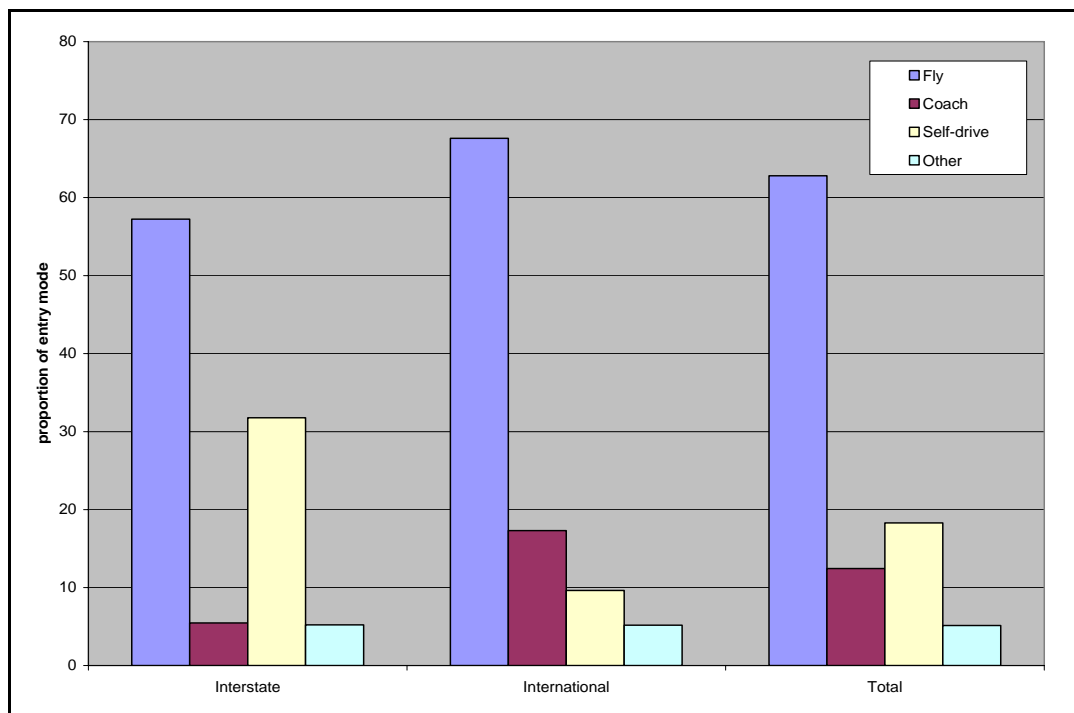
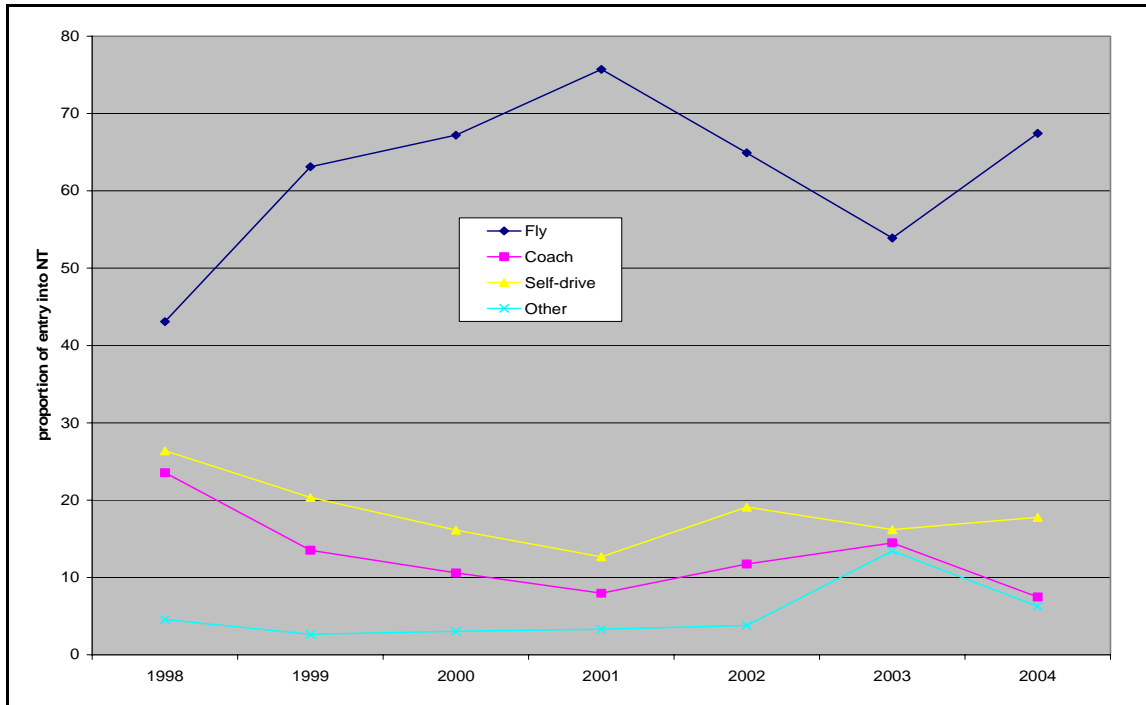


Figure 40 shows how the proportions of WNP visitors entering the NT by various modes changed over the years. It shows that the share of WNP visitors entering the NT by air has increased, at the expense of self-drive visitors (measured in visitors). Coach entry into the NT has also declined and other entry has always been low, except in 2004. The latter is probably due to the resurgence of popularity with the Ghan operations.

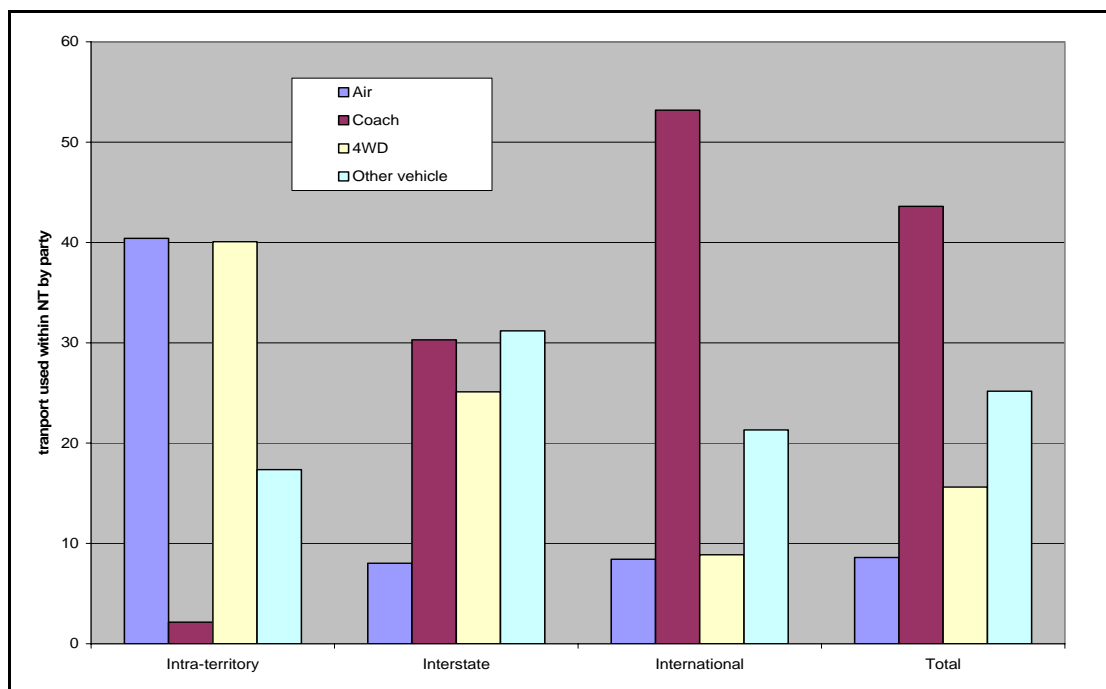
Figure 40: Mode of entry into NT (by year)



Transport within the NT

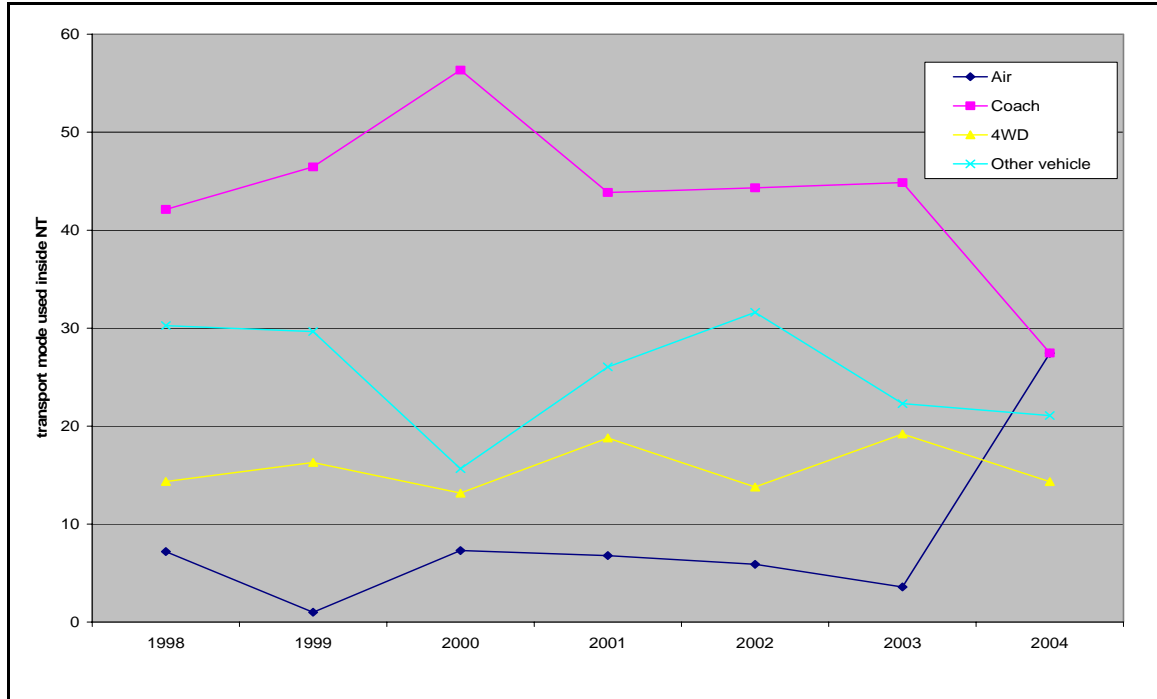
The main form of transport used by WNP visitors from 1998 to 2004 within the NT varies also across market segments (see Figure 41). Intra-Territory visitors are more likely to use 4WDs, and indicate the fact that many flew from Darwin. Interstate visitors use most forms of transport within the NT while international travellers use coaches relatively more.

Figure 41: Main form of transport within NT by visitor origin



Looking at the data over the seven years, the slow decline of coach/bus travel even within the NT is visible. In 2004 air travel within the NT has become relatively more important – this might be due to increased use of Yulara airport or signals tours and independent travellers linking Darwin and Alice Springs by air (see Figure 42).

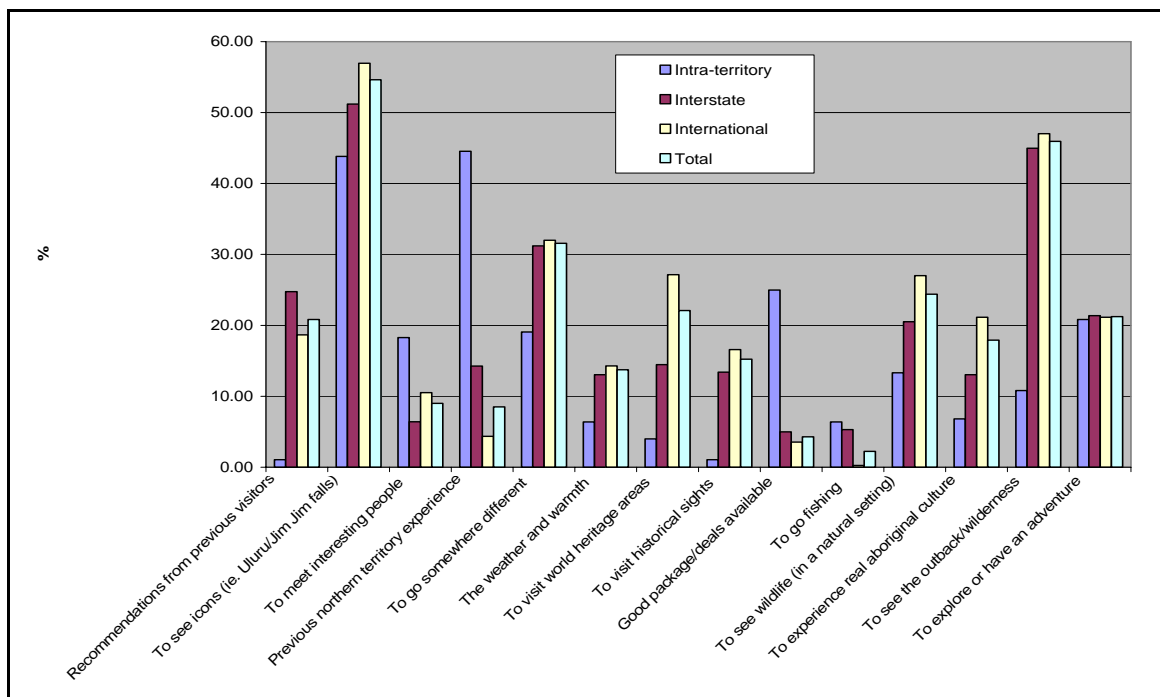
Figure 42: Main modes of transport within the NT (1998-2004)



Motivations/influences

Visitors whose main purpose to visit the NT was either holiday or pleasure were asked what influenced their decision to holiday in the NT (from 2000 to 2004). Respondents were presented with a list of things to do, see or experience (multiple reasons allowed). Over the five years since this question was introduced, WNP visitors provided the following reasons for deciding to travel in the NT (see Figure 43).

Figure 43: Motivations and influences by origin (percentage)



Although a vast range of motivations were recorded the dominant choices for interstate and international travellers to visit the NT were seeing/experiencing the ‘icons’, ‘outback’, and see ‘something different’. To a secondary extent (between 20% and 30%), ‘seeing wildlife’, visit ‘World Heritage’, ‘recommendations’ and ‘adventure/explore’ were also significant. To ‘experience real aboriginal culture’ attracted 6.82% of Territorians, 13.06% of Interstate and 21.13% of International respondents. As these respondents were not necessarily in WNP at the time of responding, it must be remembered that place of interview might have an impact.

Visitor Behaviour – actual and intended

Interests and activities

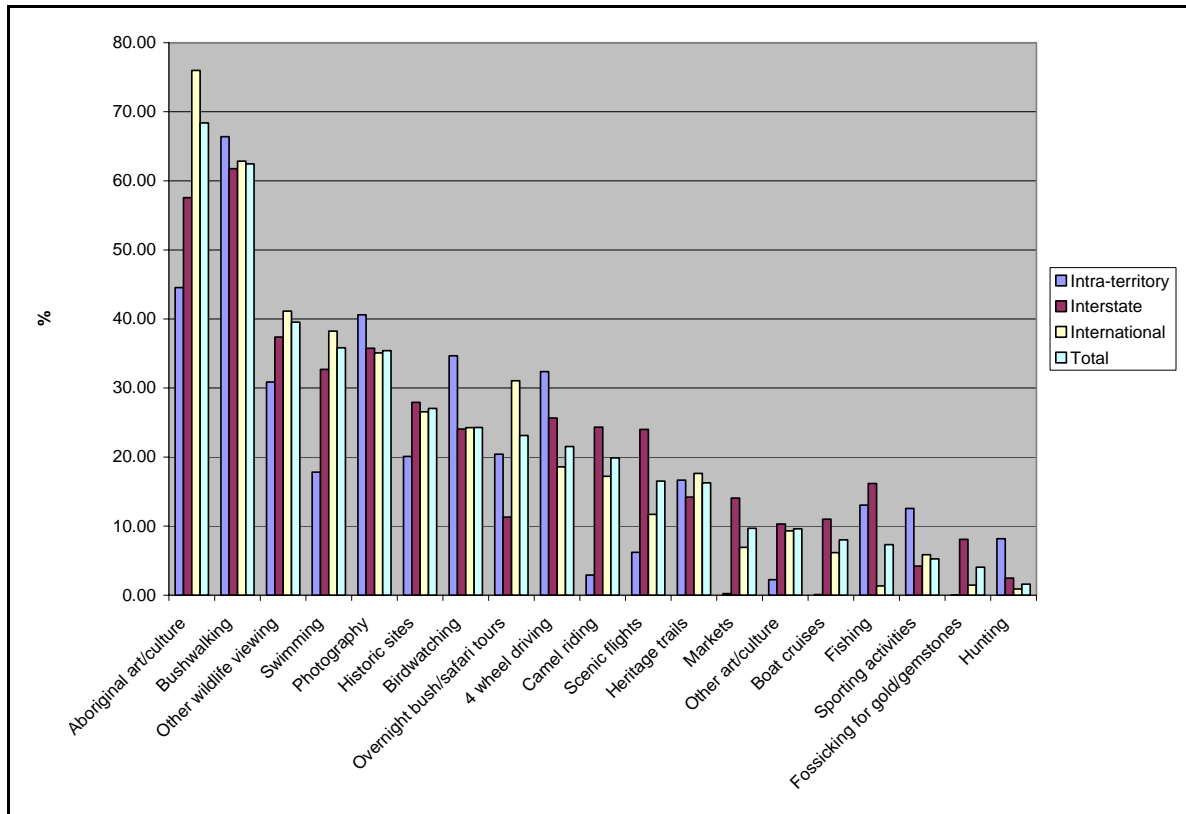
The NTTM also queried respondents about activities included in ‘this NT trip’, not specifically during their visit to WNP. Table 4 shows the percentage of WNP visitors (divided by origins) who said the activity/interest was included in this NT trip (over the period of time a specific item was included in the survey).

Table 4: Interests and activities by origin (percentage)

Activity	Intra-Territory %	Interstate %	International %	All %
Aboriginal art/culture	44.55	57.57	75.99	68.37
Bushwalking	66.39	61.75	62.84	62.45
Other wildlife viewing	30.87	37.38	41.14	39.55
Swimming	17.81	32.70	38.24	35.84
Photography	40.60	35.75	35.08	35.40
Historic sites	20.10	27.92	26.56	27.03
Birdwatching	34.67	24.05	24.26	24.28
Overnight bush/safari tours	20.42	11.30	31.05	23.13
4 wheel driving	32.37	25.65	18.59	21.53
Camel riding	2.93	24.33	17.23	19.89
Scenic flights	6.22	24.02	11.71	16.52
Heritage trails	16.66	14.20	17.63	16.26
Markets	0.24	14.06	6.93	9.69
Other art/culture	2.25	10.30	9.31	9.63
Boat cruises	0.09	11.00	6.16	8.02
Fishing	13.05	16.17	1.34	7.33
Sporting activities	12.57	4.22	5.85	5.28
Fossicking for gold/gemstones	0.06	8.08	1.45	4.06
Hunting	8.19	2.48	0.92	1.61

Some results might seem unexpected and require interpretation with respect to the survey context. It is known that some activities are interpreted quite loosely by some visitors. For instance, the high scores associated with ‘Indigenous art/culture’, bushwalking, swimming, birdwatching and photography is likely to reflect a broad range of participation in those activities. Many tourists might regard seeing some rock art as sufficient to qualify in the first activity, or to undertake a few minutes’ walks to qualify as bushwalking, or to jump in a waterhole to relax as swimming and seeing birds on a wildlife cruise as birdwatching and/or photography.

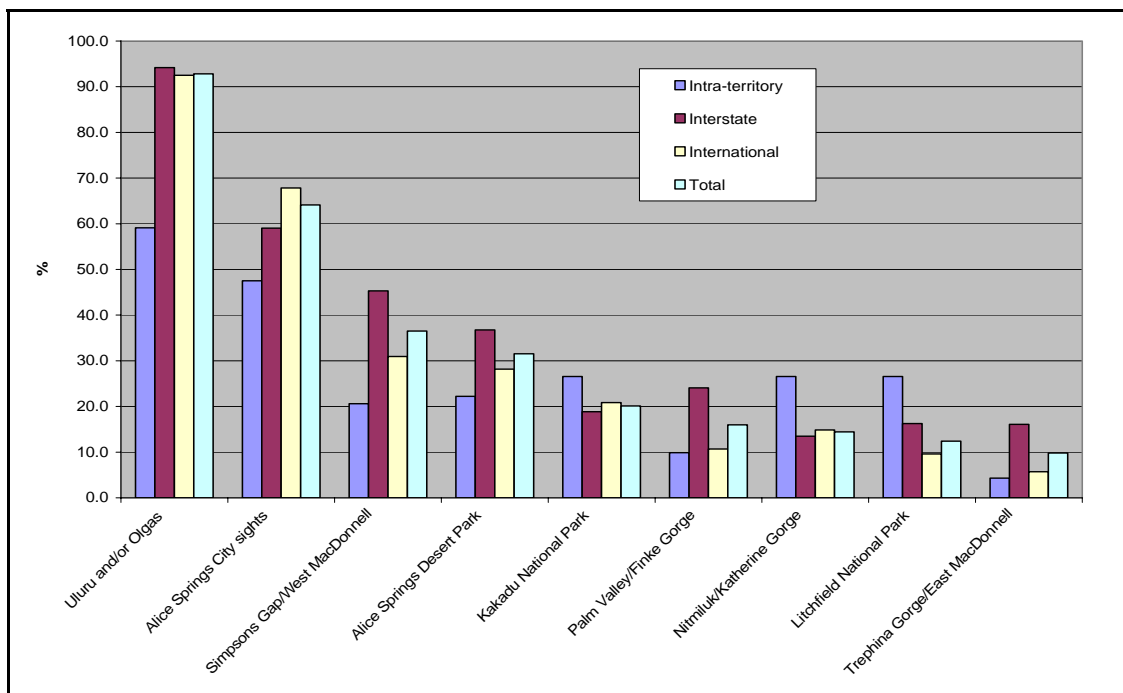
Figure 44: Interests and activities by origin (percentage)



Places visited at time of interview

The NTTM provides respondents with a list of places they might have visited and asks them to indicate where they have already been at the time of interview. Figure 45 represents the proportion of WNP visitors who had visited a number of other significant places at the time of interview. The list does not include WNP as the latter variable is the filter that was used to select the sample analysed in this section.

Figure 45: Places visited by origin (percentage)

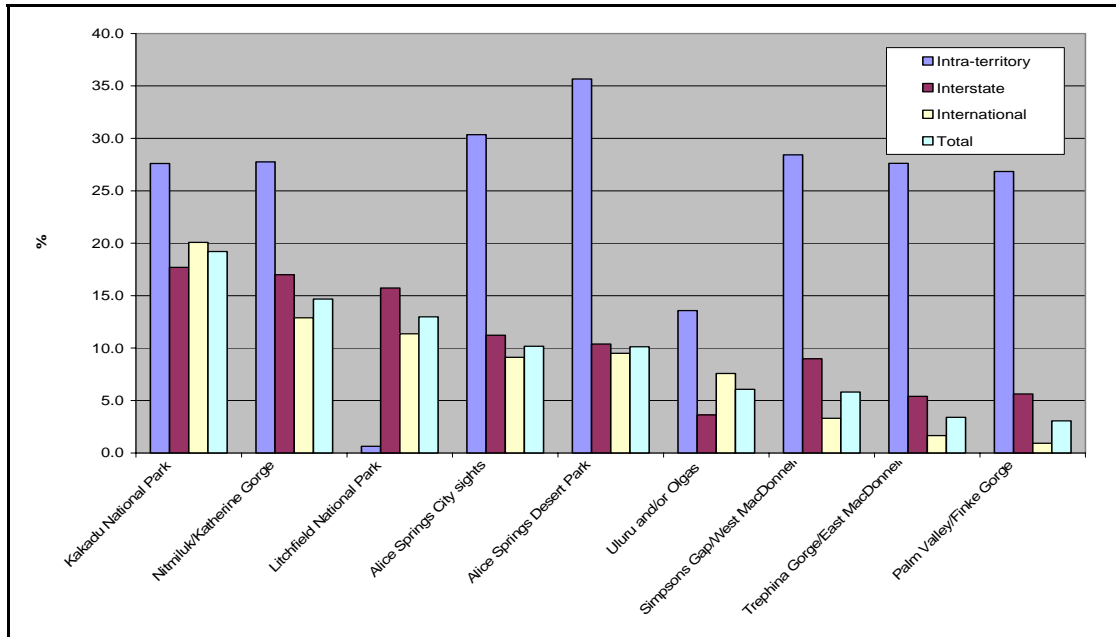


The main places identified by WNP visitors (above 30% in the present NT trip) included Uluru and Olgas, Alice Springs, the West MacDonnell region and the Alice Springs Desert Park. This suggests a fair amount of complementarity between the close locations mentioned and the fact that they constitute components on mainstream itineraries is easily established.

Places intended to visit

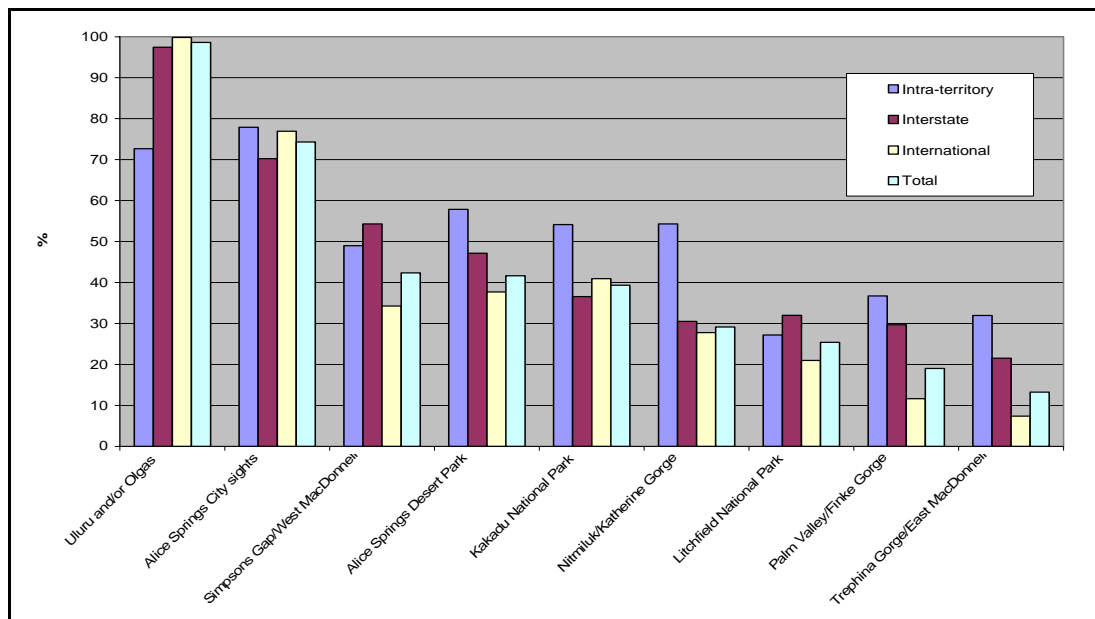
A similar question (offering the identical choices) pertaining to places intended to visit is included in the NTTM. For that question, a different pattern of answers was obtained (see Figure 46). The dominant places that WNP visitors in the Centre region indicated they intended visiting in the NT (during this trip – but had not already done so) were the icons found in other regions – mainly the Top End (Kakadu NP, Nitmiluk NP, Litchfield NP). This probably indicates that they have little extra time to visit other Centre region attractions (in this trip).

Figure 46: Places intended to visit by origin (percentage)



For the sake of providing a different picture, independent from the timing of the survey in respondents' itineraries, the data of places visited and intentions was merged. Table 47 combines places visited and of interest for WNP visitors during their trip in the NT. The figure is quite similar to that of places visited and is therefore uncontroversial.

Figure 47: Places visited or intended to visit by origin (percentage)

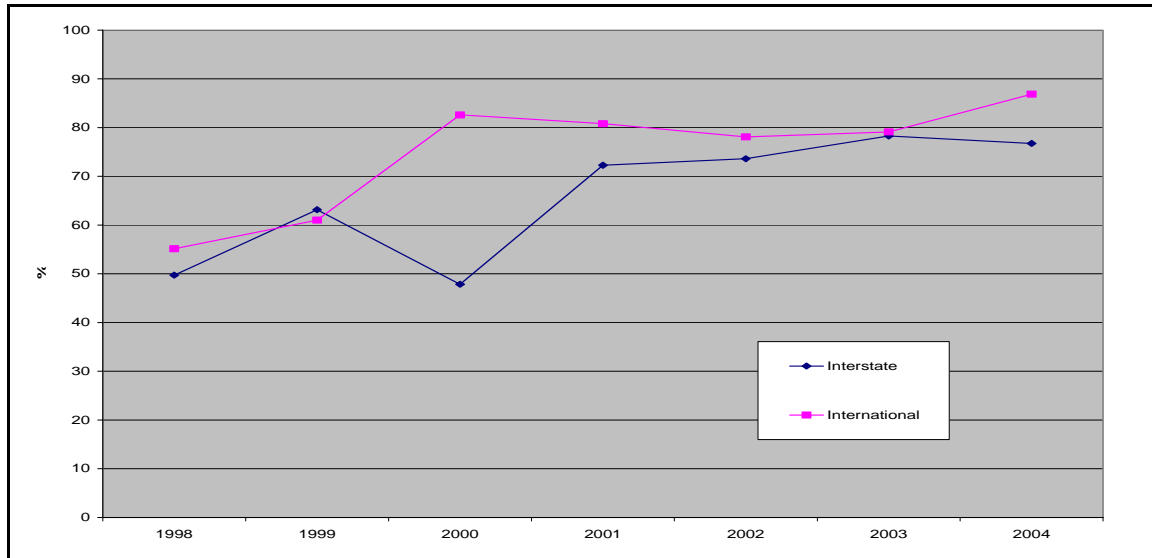


Travel Decisions

Bookings

NTTM respondents were asked if they had pre-booked any part of their trip. Figure 48 shows pre-booking patterns for interstate and international WNP visitors over the seven year period.

Figure 48: Pre-booking patterns (1998-2004) by origin (percentage)



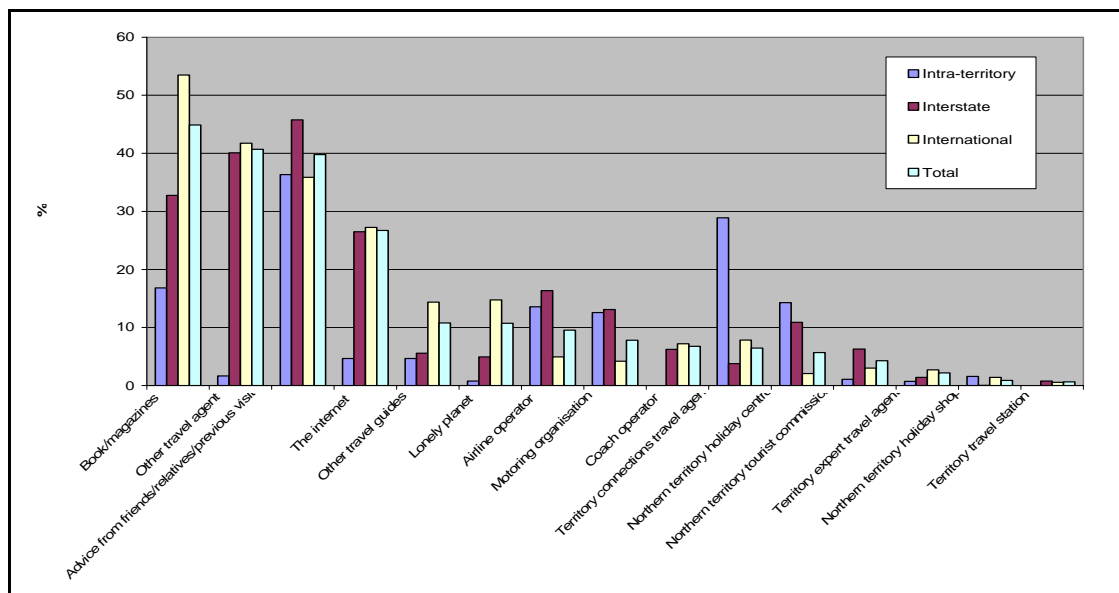
As expected, international visitors have a greater propensity to pre-book something in the NT than their interstate counterparts. Pre-booking behaviour also seems to have increased over time.

Examination of the specific items that were pre-booked by WNP visitors while in the NT is feasible for the last few years since the introduction in the CAS survey of questions relating to this aspect of their behaviour. The data for this item for the past five years shows that all manner of pre-booking is volatile. However, pre-booking of accommodation (either partially or in full) is the one item that has increased over time. This trend may be related to growing awareness in the marketplace of accommodation shortages in parts of the NT during the peak season.

Information sources

Data in Figure 49 represent a seven year average of information sources used for the NT by WNP visitors. Over time, the items 'books and magazines', 'advice from friends and relatives' and 'travel agents' rate as the most abundant sources of information for the majority of WNP visitors planning a trip to NT.

Figure 49: Information sources used by origin (percentage)



Chapter 3

EVALUATING THE ECONOMIC VALUE OF TOURISM IN WATARRKA NATIONAL PARK

Methodological Considerations

For a number of philosophical and practical reasons discussed in Chapter 1, the general method used to estimate the economic value of tourism in KNP emulates that applied by Carlsen and Wood (2004) to protected areas in Western Australia. The methodology used is described in detail in that report and it integrates principles of justifiable attribution with data reliability pragmatism. Carlsen and Wood essentially use visitor expenditures data to estimate the average expenditure per visitor per day for the regions of interest. This is combined with secondary data on annual visitation (and average length of stay by visitors to a region) to produce annual expenditure of all tourists in a region.

As discussed in Chapter 1 as well, the focus of that approach is on the spending contributions of tourists, which can be directly attributed with the existence of the ‘park-asset’. It deliberately puts aside considerations of economic linkages associated with inter-industry connections (or other more sophisticated equilibrium models) which would differentiate between types of expenditures according to their pervasiveness in the system and the likelihood that it generates long-term economic capacity or translates into improved standards of living. Assessing the latter in general assumes vast amounts of prior knowledge about flow-on effects of tourists’ expenditure and requires thorough supply-side investigation of regional economic flows. It is deemed more useful to direct the spotlight towards the role a tourism asset, such as a park, plays in attracting ‘net tourists’ in a region and the opportunity costs and opportunity benefits it provides through tourism – as measured by tourists spending. While no prominence is given to whether (how, when, why and how much) the monetary contributions are retained in the region, there is a genuine emphasis on ascribing appropriate degrees of connection between the resource (a ‘park’), its use (‘tourism’) and the role it plays as a driver in the visitor experience. For that reason, the Carlsen and Wood methodology places the stress on ‘substitution factors’ and ‘attribution factors’ which provide a quantitative assessment of the centrality and potential substitutability of that resource, which is hypothesised to have played a role in attracting the tourists and making them spend money in its surroundings.

In a way, these factors constitute proxies in the process of establishing the share of consumer surplus the region has been able to extract from tourist spending due directly and exclusively to the presence of the park as an economic asset (in the context of tourism only – it is clear that other uses and values exist). These figures are by necessity imperfect and involve subjective and negotiated estimations, which were admittedly designed to be conservative in the Carlsen and Wood report. A tourism asset might play a greater role than that associated with direct expenditures, would generally have values other than recreational (including educational, social, cultural and other) and can play an indirect role in branding the region altogether, aspects which will be discussed further due to their relevance to WNP. In all cases, the estimate provided by the present method is considered to constitute a lower boundary of potential contribution through tourism rather than an upper boundary of what might be.

Although the general approach is endorsed, the background data used by Carlsen and Wood (2004) or by Tremblay (2006) in the application to KNP was not collected in the present case and the basis of the present exercise was to assess the minimum data scope and reliability needed to apply the methodology. Furthermore, a number of differences in the context of WNP create needs for interpreting this protected area within the context of a broader attractions system.

The following general differences are worth noting (and will be discussed in more detail throughout the following analysis):

- While the concept of ‘regions’ might have had a clearer meaning in the Western Australian case studies, the context of WNP is analytically complicated due to its connections with a closely located international icon (Uluru) and the fact that the former generates a whole spatial network of tourism activities and services, of which WNP can be considered to be a satellite. Therefore, it creates some methodological difficulties:
 - It becomes imperative to distinguish the economic contribution of tourism in WNP to the region, to the Centre and to the NT, as these have different implications and are hypothesised to both differ and matter from a political viewpoint.
 - It is unclear to which extent the terms ‘Watarrka’ or ‘King’s Canyon’ hold value for the domestic market, which might go beyond the direct contribution of WNP measured through tourists expenditures in ‘the region’ if the latter is too narrowly defined.

- The availability of the NTTM historical collection provides an opportunity to integrate valuable (and otherwise difficult to obtain) some information about past visitation patterns around WNP, by origins and modes of travel. It also provides partially comparable data about expenditures.

The following approach described, therefore, follows the broad steps depicted in the Western Australian and Kakadu studies, and it highlights the differences between methods which arose from the different contexts.

Steps for Calculation

Step 1: Calculation of average expenditures per party

Although imperfect, the NTTM provides basic expenditure data which can be used as the basis for the discussion on this variable. The CAS survey queries about party expenditures in the ‘last 24 hours’ for a number of categories, including accommodation, food and beverages, tours of various types, Aboriginal art and artefacts, shopping and entertainment, etc. There have been changes over the years in the survey details but the building blocks have always been the same and could provide a useful comparison basis for total expenditures. Before looking at mean and median values for these categories, it is useful to discuss the filtering and processes undertaken in this report to obtain reliable values.

In a first instance, cases were selected which held the following properties:

- Respondents in the Centre region at the time of the survey.
- Respondents ‘have visited’ WNP (filter 1=1) at the time of the survey.
- Respondents in the sub-region Peterman at the time of the survey (sub-region = 44).

As it is not possible to gather expenditures in/around WNP with the NTTM, the above conditions ensure that average values were gathered for respondents located in the Uluru–Watarrka–Stuart Highway corridor, which is the chief itinerary for WNP visitors, and also that they were WNP visitors.

The following data cleaning approach was adopted:

- Tables/figures were first produced that included all values as reported by respondents for the sake of providing the total picture. This ‘raw’ data was examined.
- A number of values were odd or excessive so a typical rule (such as eliminating values more than two standard deviations away from the average) was used to determine the proportion of these that were cleaned out for the sake of subsequent calculations and WNP value assessment. The tables and figures referred to as ‘cleaned’ therefore exclude them. Combined rules to decide on exclusion were as follows:
 - values for total expenditures more than two standard deviations away from the mean;
 - number of cases where detailed examination suggested inconsistent answers in other categories – due to possible deliberate miscalculation, carelessness, or misunderstanding of questions;
 - number of expenditure categories in which no answer was entered; cases retained include all answers (or only one missing – in which case the value is recoded as ‘\$0’). Any respondent-case with more than 1 expenditure category missing was eliminated.
- As the sample size for each item differs and sub-groups (when crosstabs are applied by origins or other travel party attribute) vary, weighed sub-sample sizes can differ. It stems from the detailed examination that there have been difficulties arising in particular with respect to respondents associated with larger tours, as they were seldom aware or capable of estimating their share of group expenditures. This means that they can be slightly under-represented in some of the samples examined in this section.

Table 5 features these results.

Table 5: Expenditures per party by origin (mean & standard deviation)

EXPENDITURES PER PARTY	Intra-territory		Interstate		International		Total	
	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Food & Drink	135.36	114.21	86.01	138.08	66.95	92.19	75.41	113.97
Transport/tourism in NT	107.08	172.87	55.96	120.32	65.34	158.35	61.90	144.31
Aboriginal Art	89.06	164.14	16.45	69.14	20.15	121.49	19.30	104.13
Shopping	29.17	38.01	42.20	75.17	20.04	60.00	29.20	67.35
Entertainment	29.01	44.30	20.15	48.79	8.51	17.56	13.47	34.75
Other Incidentals	6.83	13.41	36.28	73.30	12.57	40.09	22.22	57.20
Accommodation	110.80	118.12	164.86	214.45	121.09	145.47	139.87	178.22
Party – Total Exp.	507.32		421.91		314.66		361.37	

Data analysis examined differences between mean and median values stemming from the variance in party size, which is a legitimate source of differences in the context of such surveys. Many category medians were '0', reflecting the fact that for some expenditure categories, a majority of respondents do not participate at all, or are involved in tour groups and their viewpoint is that some expenditures might be subsumed to the broader tour activities. An analysis of each expenditure category could justify more details if it was the objective of this report to produce dedicated primary data on economic implications. Instead, the aggregate, party total expenditure values are those which matter for this section and the NTTM provides a reasonable estimate of behaviour in that region.

As the data about visitor numbers provided by Parks and Wildlife NT is based on individual visits, the total expenditure variables previously (expressed per visiting party) need to be adjusted. The only source of data on party size is the NTTM, which can be combined with that on expenditures as it results directly from the same survey methodology. The following information in Table 6 was described in Chapter 2.

Table 6: Travel parties by origin

Origins	Average No. Adults	Average No. Children	Party Size for WNP visitors
Intra-Territory	1.88	0.19	2.07
Interstate	2.22	0.18	2.40
International	1.83	0.04	1.87
Total	1.99	0.10	2.09

The data from Tables 5 & 6 can then be combined and the average expenditures per person are calculated, as shown in Table 7.

Table 7: Average expenditures per party by origin

EXPENDITURES PER PARTY	Intra-territory	Interstate	International	Total
	Mean	Mean	Mean	Mean
Party - total exp.	507.32	421.91	314.66	361.37
Party size	2.07	2.40	1.87	2.09
Total Exp./Person	245.08	175.80	168.27	172.90

The data on Intra-Territory visitors might seem odd at a first glance. Examination of the details provided by the NTTM data shows that the probable causes are:

- For that category sub-sample numbers are small but standard deviations high for some expenditure items, therefore values on some items were retained that were quite high – in particular Aboriginal art and some accommodation and food & drink.
- A proportion of Territorians appear to fly into the region and out from their previous location in the NT (often Darwin), which increases the 'last 24 hours transport expenditures category. They are also likely to combine such short stays with treats in the area of food and beverages, which makes them relatively big spenders when they visit that sub-region.
- The overall number of Territorians is fairly small and this will have a small impact on the overall final figures.

Step 2: Calculation of average length of stay

The estimated length of stay in the park plays a critical role in the estimation of expenditures by various types of visitors. It is not possible to use the NTTM for this data as it only provides a profile for the region, not for WNP. As visit patterns at the WNP are predictable, the Parks and Wildlife visitor surveys and secondary data from resort operators provide a relatively reliable and consistent picture. The latter confirmed that for those spending at least a night in the park, the mode and median length of stay would be '1' and the average not far above.

The only source available to estimate the proportion of those not spending a night in WNP are the two WNP visitor surveys for 2005 (March and June). The data is extracted into Table 8.

Table 8: Length of stay using WNP surveys (March & June 2005)

WNP surveys – length of stay	Day trip	One night	Two nights	Three nights or more
March 2005	37%	45%	15%	3%
June 2005	43%	27%	25%	5%
Yearly	40%	36%	20%	4%

The yearly figures are derived for this report and strive to strike a balance between the part of the year dominated by overseas visitors and that dominated by independent self-drive domestic travellers. These fit well with the secondary data obtained during the field trip where local businesses were consulted. The final aggregate value to be combined with visitation figures from the WNP data is therefore:

$$(0.4*0)+(0.36*1)+(0.2*2)+(0.04*3.5) = 0.9 \text{ nights (or spending days) per visitor}$$

Step 3: Attribution factor

Carlsen and Wood (2004) use a range of motivational, behavioural and importance variables from the surveys to estimate the attribution factor. They argue that by identifying the proportion of visitors that select relevant attributes of the park (for instance ‘natural environments’ - national parks, natural environments, natural attractions, are some of the items used for the Southern Forest region of WA) as their main purpose, it is possible to undertake a first cataloguing of those tourists who had a close affinity to that asset and can legitimately be assumed to have been ‘attracted’ by it. They acknowledge that this method is somewhat rudimentary in approach but argue that in the absence of accurate and reliable data on the attribution of individual tourist expenditure to specific protected areas (and other local attractions); it provides a useful estimate which has been tested in other studies including those in the national parks of Canada by Eagles, MacLean and Stabler and in the public estate of northern New South Wales (Australia) by Carlsen.

One of the difficulties in examining visitor profiles and trying to establish and measure the compatibility between visitor interests and what an asset such as a park has to offer lies in the unavoidable limitations imposed by supply-side limitations on consumer choices. Typically, observations about activities undertaken by tourists in an area reflect availability rather than abstract preferences. This is why Carlsen and Wood (2004) decided in their primary data collection to design a question which focuses on ‘reasons’ that have an immediate impact on visitors’ decision to include the studied region in their itinerary:

Please indicate the reasons why you originally decided to come to this region on your holiday. Tick one or more reasons and prioritise them in order of importance to you with ‘1’ being ‘most important’.

As the main argument for the assessment of WNP needs to be connected to its drawing power to the region as well as its contribution to length of stay, it is clear that this variable loses its relevance in the present context, given the connection between WNP and surrounding attractions. The reasons include:

- Activities in the region are very limited and by nature are constrained to the landscape. For these reasons, the presence of tourists at WNP is dependent on main attractions, which are very similar to each other – what you can do in WNP is typical of what you do in the whole region.
- It was shown in Chapter 2 that the dominant motivations for interstate and international travellers to visit the NT were seeing/experiencing the ‘icons’, ‘outback’, and see ‘something different’. To a secondary extent (between 20% and 30%), the motives ‘seeing wildlife’, visit ‘World Heritage’, ‘recommendations’ and ‘adventure/explore’ were also significant. It stems from this that WNP fits perfectly in with the range of primary motives expressed by respondents who have visited WNP but so do most attractions found in the surrounding areas.
- It is not possible to be sure of how visitors to WNP on tours from Yulara or Alice Springs (or elsewhere) decide on their itineraries but it is likely to be based on a combination of price-content combination (where content is the selection of places visited) and product attributes (transport quality, accommodation quality, ancillary activities, etc.) are operator-specific. To the extent that Watarrka has become a quasi-standard feature of such trips (but many travellers have the choice to pick packages not including it) and that almost all operators in that region would include it in at least one package, it can be assumed that those who visit WNP do it because the area fits perfectly with their expectations (of the region) as far as landscape and activities are concerned.
- The ‘activities’ available in the Park are limited in scope and by the nature of the place. Independent visitors and those guided by various tours are acquainted with the unique scenery it has to offer (from prior knowledge, movies, reading or tourist information) and the expectation of many are linked with the ‘rim walk’ and access to the Canyon cliffs (Parks & Wildlife NT - March and June 2005 reports). It could in fact be assumed that there are two types of visitors for the sake of the argument:

- those who were looking for the exact attributes found in WNP – where attribution is 100% due to prior knowledge of WNP; and
- those whose presence is explained by the availability of amenities or because this is where their tours brought them.

In the latter case, WNP is simply part of the greater experience of Central Australia and a complement to Uluru and other iconic attractions. For different reasons but based on a similar logic, WNP perfectly fits the scope of activities expected in the region. Given all these considerations, it seems reasonable to assume a perfect fit for WNP visitors and place more emphasis on the next factor.

Step 4: Substitution factor

In the Carlsen and Wood approach, the substitution value can be assessed in a number of ways. First, when Western Australian residents would have substituted an interstate or international trip for their intrastate holiday. It also occurs when interstate and international visitors choose to holiday in Western Australia in preference to another state or country because of the specific asset. The substitution value is estimated by apportioning the value of direct tourism expenditure that would otherwise have not occurred if the park examined did not exist. Accordingly, to identify the substitution factor Carlsen and Wood devised, in their primary survey, a scenario question investigating the likely holiday destination choice of respondents if the park-asset did not exist. That question plays a central role in the final analysis. But this is not the type of information that appears in secondary data (for instance found in visitor surveys run by Parks or Tourism agencies) and there are few substitutes to asking respondents directly what role a park played, however imperfect this may be.

Another issue is the region of reference that the protected area supposedly attracted the tourists. From the above description, it is clear that Carlsen and Wood take the perspective of the whole of Western Australia in assessing the contribution of specific protected areas to tourism expenditures – and this fits the viewpoint of the Western Australian Treasury, which participated in the process. The choice of the jurisdiction relevant for the evaluation depends on the issues of interest justifying the study. In the case of WNP, it is necessary to frame the arguments in the context, which is most useful from a protected areas management viewpoint and from a tourist destination concept viewpoint. In the study on KNP (Tremblay 2006), it has been argued that the contribution of that Park to the Top End region is the more meaningful reference, as visitation to the Centre of the NT is a separate process and visitors are likely to visit the Centre irrespective of the existence of Kakadu but the true importance of the latter is in attracting them to the Top End. In many ways, the Top End and the Centre should be considered as different destinations for many submarkets visiting the NT and the relevant attractions in each region are meaningful in those contexts. The present report also takes the view that WNP ought to be evaluated in the way it contributes to the Centre region, and the complex issues are linked with attempting to dissociate WNP from other neighbouring iconic protected areas belonging to the ‘Centre of the NT’ as the region of reference.

Since the substitution factor is critical to the Carlsen and Wood method and cannot be obtained from alternative sources, a number of working hypotheses need to be investigated to provide a reasonable scenario:

- One way to gauge the substitution rate of WNP and attribute a proportion of its visits to its ‘existence’ could be through its contribution to length of stay in the region. A number of issues need to be considered:
 - An upper boundary for such an exercise would be to hypothesise that the proportion of visitors who spend at least a night in WNP contribute by the value of the expenditures associated with an extra day/night in the Centre region. It would equally be assumed that those who do not spend the night (but might stop on their way between Yulara and Alice Springs) have not contributed any new expenditures to the Centre region as such.
 - This would likely lead to an exaggerated marginal contribution linked with the existence of WNP as it is unlikely that the full attribution (of the WNP nights) could be justified when using the Carlsen and Wood method.
 - It is worth reflecting on what would likely be found if primary data had been collected with a scenario question. It is unlikely that many respondents would argue that WNP was a chief motivation for them to be in the broad region and that they would not have visited the Centre at all if WNP did not exist.
 - At the same time, it is arguable that many respondents would be unwilling to separate it from the Uluru experience (as would be the case if they had been asked to decide how much Uluru and how much Kata Tjuta (the Olgas) contributed – which many would find absurd). In fact, it could be argued that they conceive of the whole circuit-itinerary as the ‘experience’, and would view WNP as an essential but not separable component.
 - It is also quite possible that they would display *a posteriori* greater or lesser satisfaction with various components of the combined experience.
 - Even if respondents picked a tour (say from Alice Springs) which included WNP as a component, it is highly speculative whether in the absence of WNP, they would have substituted it for an

alternative tour of the same duration (because the latter is convenient and provides a good overview of the region) or a shorter tour because they ‘know what they want’ alternatives were not of interest. With more detailed knowledge of tourists movements and the directional flows that characterise the region, further sophisticated assumptions could be explored – but this approach to substitution would remain based on the assumption that visitors see the regional destination as a set of attractions, evaluates rationally the value of each component and selects an optimal ‘package’ that is likely to satisfy their objective needs. The main argument below will suggest that it is difficult to see how many tourists can distinguish the various components of that connected regional landscape and how they would be in a position (especially before the visit) to make claims about the value of discrete sets of resources in the context of that region. Attributing an extra day/night across the whole sample (of visitors primarily attracted to Uluru) would lead to a gross exaggeration. Similarly, not attributing any of the expenditures of the traffic into WNP would seem equally unsatisfactory.

Using the NTTM, some tests were run to investigate local behaviour but their value for this analysis is limited by the short time series on the variables of interest (2003-2004) – and it was therefore not possible to investigate whether the number of nights in the Petermann sub-region has changed in a way connected to developments in WNP. Regional operators who were interviewed did not identify specific changes in duration of stay patterns.

Table 9 shows the medians from two different sets of NTTM (CAS) data related to length of stay in the NT and in Australia. In the former case, medians by origin segments were calculated only for those who visited WNP in 2003 and 2004. In the second case, a comparison is undertaken between those who visited WNP and those who did not. It simply shows that visitation of WNP is positively associated with longer stay in the NT. But it does not prove causality as the reverse logic is possible – that time-rich visitors are more likely to make a detour to visit WNP or take longer tours when in the region.

Table 9: Median number of nights spent in the NT and Australia 2003-2004 (CAS) by origin and visitation or not to Watarrka National Park

2003-2004	Median number of nights spent in...	
	Northern Territory	Australia
Intra-territory	2	0
Interstate	8	7*
International	6	25
Total	7	19
Did not visit WNP	4	13
Visited WNP	7	19

* median value ambiguous and dubious, mean much larger and standard deviation excessive.

From an examination of the performance of the region (Centre) overall in the last few years, it appears that length of stay in the Centre has not increased significantly while WNP visitation has been clearly on the rise (from NT Parks and Wildlife data). This suggests that WNP has contributed little in terms of a net increase in length of stay in the Centre region as such.

- An alternative angle, is to consider how WNP affects **specific expenditures types** by playing a role in circumventing supply-side constraints. This is a more subtle claim and one that does not necessarily fit well with the Carlsen and Wood methodology. It could be assumed that WNP contributes to tourism in the Centre in a large part by allowing other nearby resorts who are reaching quasi-full capacity to divert some of that capacity into the neighbourhood. It could, for instance, be hypothesised that WNP contributes in large by keeping tourists in the region for a ‘worthwhile’ time (especially during high season), given the fact that they must put forward time and expenditures to travel there in the first place. It would be tricky to demonstrate conclusively such an assertion but it could be hypothesised that without WNP and its infrastructure:
 - There would be bottlenecks in Yulara during the high season and it would not be possible to accommodate and service the full demand – hence a share of the high season nights (July-October) in the broader region should be attributed to the present set of tourist infrastructure around WNP, and the latter has been made possible because of the natural context of Watarrka, which makes it an attractive destination in its own right.
 - There would be some crowding-out around Yulara and negative externalities on tourists suffering from over-exposure in an environment which many imagined as remote and far from tourism hubs.
 - The impact of not having ‘WNP’ (its natural features, its location and its infrastructure) could be represented in many ways:
 - need to spend more in Yulara to cope with capacity;

- decline in length of stay of visitors in the region; and
- decline in visitor numbers due to lesser satisfaction and decreasing reputation.

Such an approach would suggest that mainly during high season, a proportion of the expenditures of all visitors to the Centre region could be attributed to WNP. But again, the choice of that proportion would be quite arbitrary and there is insufficient basis presently to decide how to implement such an approach.

Lastly, WNP contributes to satisfaction about the whole region and could claim a share of the total visitation in the Centre on similar grounds as above. While this assumption is quite plausible and complements that above, it is not really connected to the marginal-opportunity contribution of WNP and is difficult to demonstrate, quantify and operationalise. The following could conceivably be considered:

- The extent to which the broad Petermann and Tanami regions have been considered ‘activities’-poor provides a basic rationale. There have been statements made about the need to rejuvenate circuits in those regions and that many of the landmarks were by-passed with direct flights to Yulara airport (Carson 2006).
- Suggested changes in the linkages between regional attractions (in the form of protected area boundary re-design, road infrastructures investments and support for product development) suggest that Uluru and the infrastructure of Yulara are critical but incapable of satisfying tourist segments looking for more than the resort and viewing ‘the Rock’ experiences. The ‘open’ comments sections found in the WNP visitor surveys and the NTTM both suggest that many respondents found greater satisfaction in their Centre trip from having visited WNP – which is sometimes placed in contrast to disappointment with Yulara or Uluru. But this is in itself an inadequate basis to assess WNP on its own. It must be noted that if the latter was to become more developed, it would face the same dilemmas and criticisms as Yulara.
- It might be argued that for some sub-markets (residing within a reasonably short distance from the Centre), the existence of WNP could be assumed to contribute to repeat visitation as some visitors probably do an initial Uluru-focused trip in the region, become aware of the wealth of alternative attractions through their detour to WNP (both substitutes and complements) and this eventually increases both the awareness and scope of possible alternatives associated with the region.

At the end of the day, the two protected areas (WNP and Uluru-Kata Tjuta National Park) are intrinsically linked in many ways which ought to be reiterated:

- in the visitors’ mind, as many tourists do not appear to differentiate these ‘places’ as has been argued above and see them as a connected landscape – with dispersed activities; in other words different attributes or fragments of a total scenic outback experience;
- in a marketing sense, as tourism images and other materials (for promotion purposes) often link and sometimes mix them to create the promotional imagery which moulds tourists’ perceptions; and,
- in the commercial sense:
 - the management, marketing and operations of accommodation facilities jointly owned in/around both locations;
 - with respect to the design of tours – WNP has also served as a political substitute facilitating messages of respect towards Traditional Owners and linked with the frictions associated with the Rock climb. Tour guides reinforce the notion that scenic views (for those facing the dilemma of not experiencing that aspect and concerned with their impacts) are available elsewhere, and that WNP offers the best alternative.

The ‘Finding the Way’ report (Carson 2006) used TRA data to examine the connections between specific locations visited by respondents in their visitor surveys (see Table 10).

Table 10: Destination pairings, highlighting the close association of regional attractions with Uluru (TRA) (Carson 2006)

Destination Pairings	Unit of Analysis	2002	2003	2004
Uluru	Visited any attraction in the area	83.5%	84.1%	83.5%
Kings Canyon/Watarrka and Uluru	Visited Kings Canyon/Watarrka	96.0%	95.7%	95.4%
Kings Canyon/Watarrka but not Uluru	Visited Kings Canyon/Watarrka	4.2%	4.5%	4.9%
Other Attractions in the region and Uluru	Visited at least one regional attraction other than Uluru	37.1%	35.7%	36.8%
Other Attractions in the region but not Uluru	Visited at least one regional attraction other than Uluru	15.3%	15.0%	15.6%

The data in Table 10 (originating from the TRA National Domestic and International Visitor surveys) reinforces the argument that today, Watarrka and Uluru constitute joint experiences and that if one of the two had to be chosen as the prime attraction, it would have to remain Uluru. The slight increase from 4.2% to 4.9% in the proportion of visitors not including Uluru in their regional visit is based on too short a times series to be considered conclusive but might eventually signal that some repeat visitors are returning to or visiting WNP for the first time and not returning to Uluru.

Interrogating the Centre respondents found in the NTTM provides also relevant results. The results below (Figure 50) apply to visitors stating they have visited or intend to visit the places featured. As can be seen, the results displayed are even more extreme as an average of 98.5% of all those respondents who had spent at least a night in commercial accommodation in Petermann and had visited WNP also had or intended to visit Uluru. The other way around shows that an average of 52.3% of all those respondents who had spent at least a night in commercial accommodation in Petermann and had visited Uluru also had or intended to visit WNP. In the latter case, results display slight variations over the year, probably attributable to the changing mix of Interstate and International visitors.

Figure 50: Watarrka and Uluru dual visitation 1998-2004 (percentage)

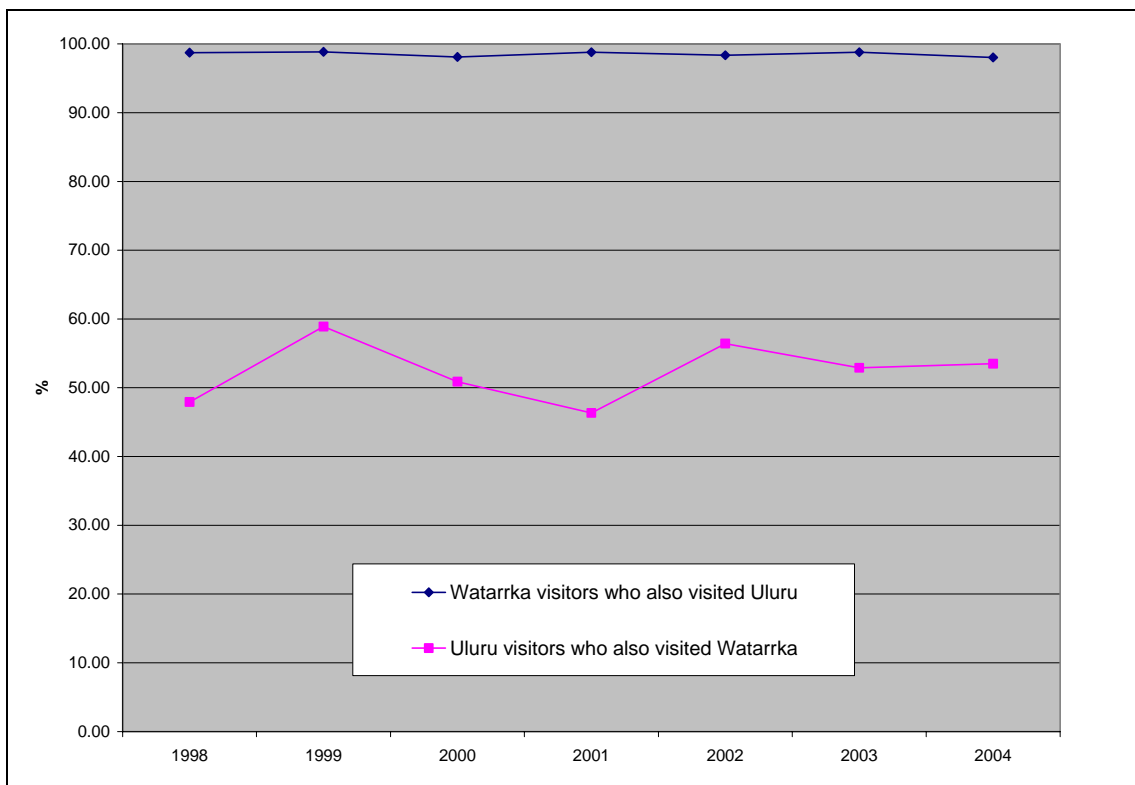
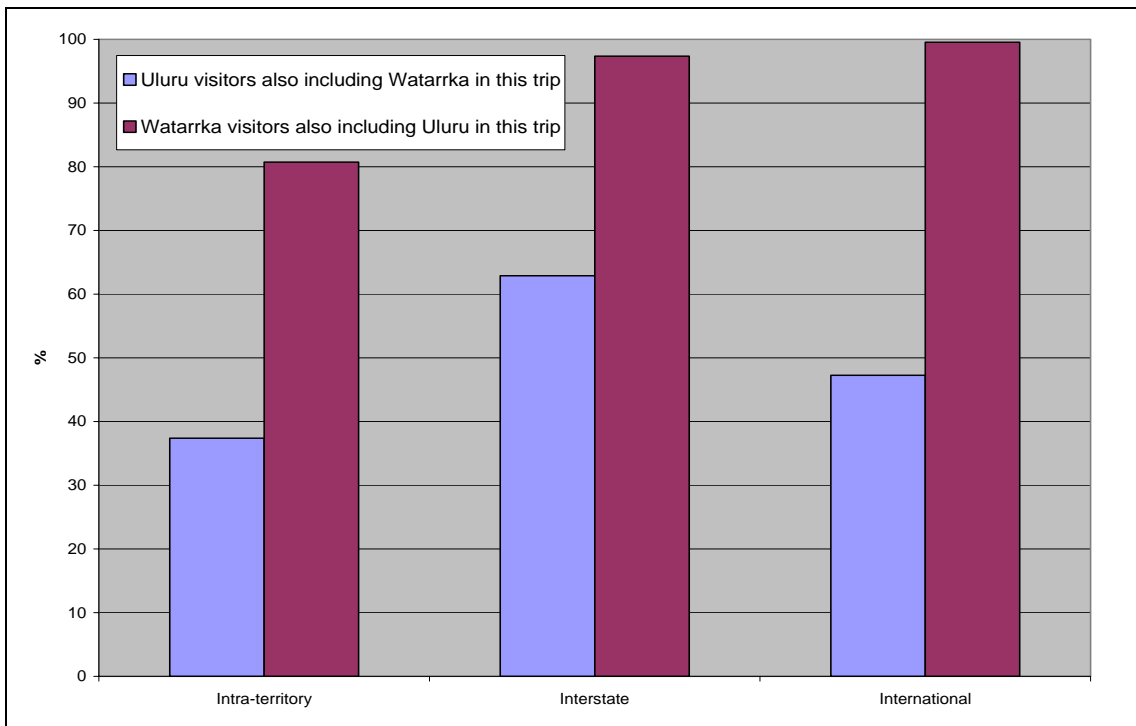
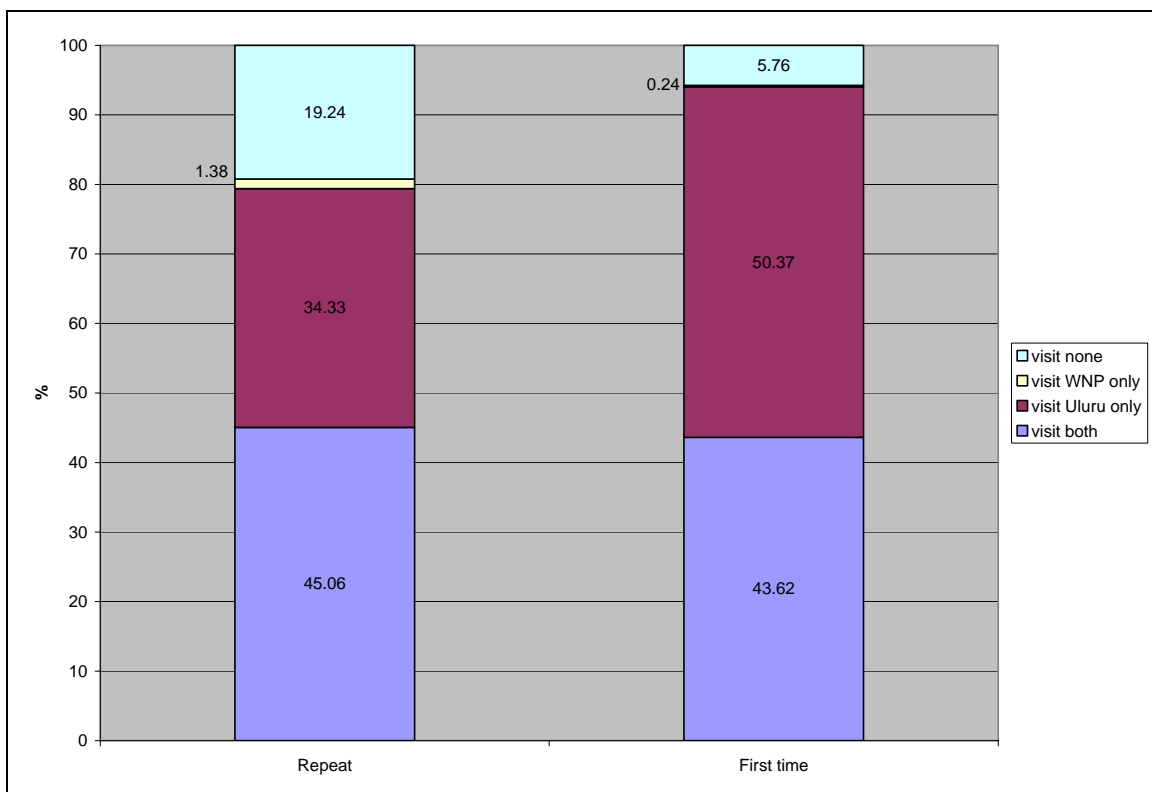


Figure 51: Watarrka and Uluru dual visitation by origin (1998-2004) (percentage)



That data set confirms that Watarrka is either a better known attraction for domestic visitors, or that there is a greater likelihood for the latter to be visited by repeat visitors. It is likely that both hypotheses are true and contribute to the observed behaviour. NTTM data on Petermann respondents was also tested with respect to prior visits to the NT (not necessarily to the Centre but still a useful proxy) and it was found that there is some slight evidence to support the above.

Figure 52: Repeat and first time visitation characteristics of Petermann respondents to Watarrka and Uluru – none, either or both (NTTM) (1998-2004) (percentage)



The data above suggests that repeat visitors are much more likely to visit WNP but not Uluru though it remains a small proportion of total visitors overall. The fact that many more repeat visitors do not visit either of these locations suggests that they are visiting more remote places, and are likely to be independent, domestic travellers (as the sample originates from Petermann, where the likelihood of visiting nothing other than Friends and Relatives is low). It was also found in the Carson (2006) report that Uluru has the lowest rate of repeat visitors of any key site in the NT and suggested that this might be a symptom of maturing and declining destination. This study reports that in addition to declining visitor numbers and a low repeat visitor rate, the region has also experienced declines in the average length of stay of visitors in the past five years. This is the basis for arguments supporting the need to create alternative experiences, provide different types of infrastructure and attempting to retain different visitor markets.

In conclusion to this discussion of the substitution factor in the case of WNP, it is clear that it cannot be established on the basis of secondary data alone and that the final choice of the factor is going to be arbitrary. A compromise can be suggested, which takes into account some of the facts discussed above, as well as the experience encountered in the Western Australian and Kakadu studies. As it has been argued that adding one night for all visitors that stayed in WNP for at least one night (as evaluated through the Parks & Wildlife NT data) would constitute a gross exaggeration of the true loss if WNP did not exist, a proportion of this value needs to be recommended.

It is suggested that the proportion ought to be based on 3 criteria:

1. As for the Kakadu study, it is based on contribution to the Centre region, not the whole of the NT.
2. It should be suitable when contrasted to those found for the Southwest Forest in WA, Ningaloo (WA) and Kakadu National Park.
3. It should incorporate the hypothesis that domestic visitors are aware of WNP and the latter plays a role in their decision to visit the region while it is of much lesser importance for international visitors.

Table 11 reflects an adequate compromise encompassing the NTTM data on visitation to WNP and the results of the Parks & Wildlife NT visitor surveys.

Table 11: Percentage of visitation to Watarrka National Park by origin (1998-2004)

Origin	%
Intra-Territory	2
Interstate	38
International	60

Table 12 reflects the substitution factors derived from primary survey data for protected areas where the Carlsen and Wood method has been applied.

Table 12: Substitution factors derived from primary survey data using Carlsen and Wood method

Area Studied	Substitution Factor Calculated
Southwest Forest (WA)	9.2%
Ningaloo – Gascoyne region (WA)	18.5%
Kakadu NP (Top End of NT)	30.9%

It will be assumed that the following substitution factors for WNP are reasonable and sufficiently conservative, and reflect the relative importance of the origins segments (see Table 13). The factor obviously applies to nights in WNP only.

Table 13: Substitution factors for Watarrka National Park by origin

Origin	Weights (%)	Substitution Factor	Weighted Factors
Intra-Territory	2	10%	0.2%
Interstate	38	10%	3.8%
International	60	5%	3.0%
TOTAL			7.0%

Given the convoluted discussion above, the values presented are hypothesised to constitute a fair factor estimate representing the overall situation for WNP at present, given the market mix of visitors and the relationship between WNP and surrounding attractions. It is consistent to have a smaller substitution factor (following the Carlsen and Wood methodology) than those found in the more standalone and iconic parks featured in Table 13, notwithstanding all the observations made above regarding the hidden role WNP might be playing in supporting the region and diversifying its product for specific target markets. Secondly, it must be kept in mind that it counter-balances the high 100% attribution rate given in the previous subsection, based on different arguments.

Step 5: Calculation of economic contribution

The development of the general method is straightforward.

Table 14: Direct tourist expenditures calculation method applied to WNP

Direct Tourist Expenditure	Watarrka National Park
Average expenditure per day per person	172.90\$
WNP visitors (X)	X visitors
Average length of stay	0.9 days
Total direct expenditure (\$million)	\$(155.61)*X
Attribution factor (%)	100%
Attribution of visitor expenditure (\$million)	\$(155.61)*X
	For Centre of NT
Substitution factor (%)	7%
	\$(10.89)*X

Table 14 describes the Carlsen and Wood approach. It provides a clear and simple statement of the rationale of the procedure, and can easily be applied to any 'X' number of visitors. The roles of attribution and substitution ratios in the procedure appear clearly.

Table 15: Application to Watarrka National Park 2004 data

Direct Tourist Expenditure	Watarrka National Park
Average expenditure per day per person	172.90\$
WNP Visitors (value for 2004)	260,589 visitors
Average length of stay	0.9 days
Total direct expenditure (\$million)	\$40.55m
Attribution factor (%)	100%
Attribution of visitor expenditure (\$million)	\$40.55m
	For Centre of NT
Substitution factor (%)	7%
	\$2.84m

Discussion

It is important to reiterate that the estimates above provide a lower boundary for the direct and non-substitutable contribution of WNP to tourism in the Centre region of the NT. This study attempted to replicate the method developed by Carlsen and Wood without the benefit of new primary data to evaluate the economic contribution through tourism of an important protected area increasingly perceived as an iconic attraction for domestic markets. The approach is consistent with crude Cost-Benefit Analysis general principles and methodology in that it assesses economic assets in terms of their marginal-opportunity costs and benefits and provides a basis for resource allocation. It suggests that tourism-related assets contribute to public welfare in ways that can be compared for the sake of assessing needs for re-investment.

The discussion above has shown that in the case of WNP, it is conceptually and empirically difficult to separate the role of that Park from that of neighbouring icons, in particular Uluru–Kata Tjuta National Park.

It is clear that the usefulness of the present exercise and its method lies with its ability to suggest funding implications. The figures derived in the present exercise must be contrasted with WNP’s budgetary history, in particular by investigating the split between activities supported by past WNP budgets and the extent to which the latter support appropriate and sustainable tourism activity benefiting selected stakeholders. This might suggest some redirection of public funds towards the maintenance of such critical tourism assets and that ways in which they can further benefit tourism developments in the region.

The methodology developed by Carlsen and Wood has gone a fair way to address the question of how WNP-based tourism contributes economically to the broader Centre region and has shown that the protected area is becoming relatively increasingly important as a driver of regional tourism. In a region such as the Centre where tourism is dominated by natural and cultural assets scattered in an expansive landscape dominated by dispersed icons and where infrastructure maintenance costs are particularly high, it would make sense to understand the differentiated roles played by various protected areas and how they contribute as a grouped asset to tourism. This would allow building a regional typology of protected areas, and would ultimately suggest differentiated tools to monitor their tourism contributions, and help decisions about how best to allocate tourism-specific investments across the system.

This study of WNP constitutes a useful step towards examining the role of protected areas in the NT within the tourism system and establishing where they fit in a tourism and recreation spectrum context. From that viewpoint, this report has shown that WNP is closely aligned (in terms of landscape and infrastructure) with other dominant icons (which made the calculations of substitution thorny) but that it could play a greater strategic role in the context of upcoming regional developments due to its location and perceptions about its distinctiveness.

In concluding the discussion, it is useful to provide some directions about data needs to enhance the applicability of the Carlsen and Wood approach to a protected areas such as WNP. For the sake of providing more robust estimates, the following data would be required to support the claims made about financial contributions. They are listed in order of decreasing importance (see Table 16).

Table 16: Data required to support claims re: financial contributions (listed in descending order)

Variable	Rationale
Visitor expenditures	It would be extremely valuable to obtain data about expenditures directly connected with WNP – most probably for the 24 hours preceding their visit to WNP. It would be important to understand how much (duration and logistics-wise) WNP fits in the overall regional itinerary.
Substitution	In the context of WNP, it would be very useful to have some questions about: <ul style="list-style-type: none"> • The awareness of visitors about Watarrka (or King’s Canyon) prior to their arrival in the NT, in the Centre, in a specific tour. • The role WNP played in visiting the Centre region – including perhaps a question about length of stay in that region if WNP had not existed (as per Carlsen and Wood method)
Visitor numbers	It would be useful to have estimates of break down by International, Interstate and Intra-Territory visitor numbers on a yearly or quarterly basis.
Length of stay	The relative length of stay in WNP, Uluru–Kata Tjuta National Park and other regional destinations would provide a stronger basis for attributing different types of expenditures to WNP.
Seasonality	Might be an important intervening variable for all other variables listed. Balance is needed.
Attribution	Usually based on compatibility between visitor interests and what activities-experiences offered by the asset evaluated. It has in the context of the Centre of the NT limited applicability for WNP due to the constraints on the number of experiences actually available. Involves asking visitors about their motives for being in the broader region (the Centre).

In many ways, WNP belongs to a second strategic tier (close to the primary icons) of protected areas. Its existence might constitute a primary driver for some visitors but many learn about its existence or become interested only once in the region. Secondary parks such as WNP not only help with seasonal bottlenecks but support needed regional diversification and hold the potential of further enhancing sustainable tourism in the Centre region as the region is on the brink of important changes. As an economic driver, the value of WNP will

be better understood and demonstrated if it can be integrated with that of other complementary parks and attractions, present and future. The economic contribution of WNP (and the methodological difficulties it raised), provide a strong case for a regional approach to 'parks tourism' and the development of a regional strategic outlook for nature and culture tourism.

The latter could be greatly enhanced if primary data was collected occasionally for the specific purposes of economic evaluation or if a number of questions were added to the six-monthly visitor surveys. This study and that of KNP have shown that due to the variety of strategic positions associated with protected areas (even within the NT), it is not possible to simply extend values from one park to the other. Decision-makers would benefit from a methodology, which was based on various tiers, with primary attraction protected areas deserving regular primary data collection endeavours (say Kakadu, Litchfield, Nitmiluk, Uluru–Kata Tjuta National Park), second tiers parks (including WNP) receiving occasional efforts to build up the tourism intelligence around their performance on a regional basis and third tier parks receiving only irregular monitoring.

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The Sustainable Tourism Cooperative Research Centre (STCRC) is established under the Australian Government's Cooperative Research Centres Program. STCRC is the world's leading scientific institution delivering research to support the sustainability of travel and tourism - one of the world's largest and fastest growing industries.

Research Programs

Tourism is a dynamic industry comprising many sectors from accommodation to hospitality, transportation to retail and many more. STCRC's research program addresses the challenges faced by small and large operators, tourism destinations and natural resource managers.

Areas of Research Expertise: Research teams in five discipline areas - modelling, environmental science, engineering & architecture, information & communication technology and tourism management, focus on three research programs:

Sustainable Resources: Natural and cultural heritage sites serve as a foundation for tourism in Australia. These sites exist in rural and remote Australia and are environmentally sensitive requiring specialist infrastructure, technologies and management.

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The Cooperative Research Centres (CRC) Program brings together researchers and research users. The program maximises the benefits of research through an enhanced process of utilisation, commercialisation and technology transfer. It also has a strong education component producing graduates with skills relevant to industry needs.

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