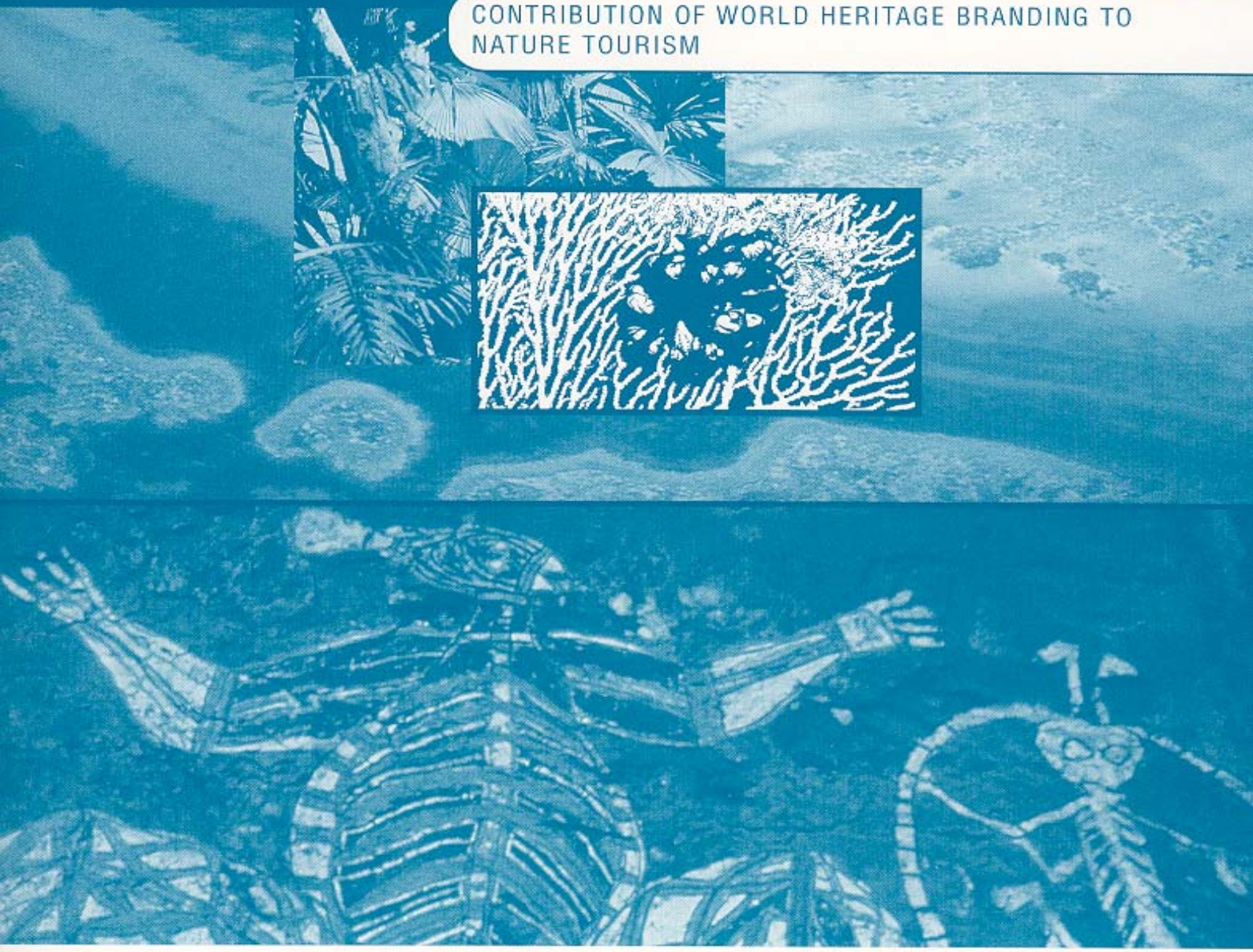
World Heritage Icon Value

CONTRIBUTION OF WORLD HERITAGE BRANDING TO NATURE TOURISM



Professor Ralf Buckley

AUSTRALIAN HERITAGE COMMISSION

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World Heritage Icon Value:

Contribution of World Heritage Branding to Nature Tourism

Ralf Buckley
Director
International Centre for Ecotourism Research
Faculty of Environmental Sciences
Griffith University
Queensland

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ABSTRACT

World Heritage listing signifies globally outstanding natural and / or cultural heritage: a "top brand" in marketing terms. Does this branding as heritage icons confer economic value through increased tourism expenditure, and if so, by how much? To test this, we need to compare growth in visitor expenditure at World Heritage Areas, pre-and post listing, with unlisted but comparable destinations nearby. World Heritage listing involves a bundle of factors that may include actual differences in natural or cultural attractions as well as the recognition and marketing of those differences and, sometimes, increased infrastructure and ease of access. It is more critical to obtain time series of comparable data, than precise point measurements of current expenditure. Using a travel-cost approach, the two principal variables influencing aggregate expenditure are total visitor numbers and the distribution of visitor travel distances. For historical data, the only generally available surrogate for travel-distances is the proportion of international to domestic visitors recorded. Even for such basic parameters, data for Australian World Heritage Areas and control sites are rather sparse, more so than for Europe or North America. We compiled data for six Australian World Heritage Areas with reasonable control sites: Fraser Island; Kakadu National Park; Uluru Kata-Tjuta National Park; Tasmanian Wilderness; Shark Bay, Western Australia; and Central Eastern Rainforest Reserves (Australia) (CERRA). Results are as follows.

1. Total visitor numbers at World Heritage Areas are commonly up to an order of magnitude higher than at comparable control sites, both pre-and post-listing.
2. For most Australian World Heritage Areas, data are inadequate to determine whether there is a significant World Heritage icon value.
3. For the few Australian World Heritage Areas with adequate data to test, World Heritage listing does seem to have a positive effect on measures of tourism expenditure, particularly by increasing the proportion of international visitors quite significantly.
4. It would be useful to address the same question through a stated-preference approach, where total tourist expenditure is determined from new site surveys, and the proportion attributable to World Heritage listing estimated by asking visitors what they would do under various alternative scenarios.

INTRODUCTION AND METHODS

World Heritage and other international listing tells tourists that a site exists and is worth visiting. In the nature and cultural tourism market it is the top brand, a guarantee of superior quality. It is also a collectable set: it gives a certain social cachet to visit additional World Heritage sites. Tour companies and tourist accommodation with access to World Heritage areas commonly advertise that fact in their marketing material; and tourism developers and entrepreneurs preferentially pursue opportunities in and around World Heritage areas. World Heritage designation may therefore increase the number of tourists who know about a site, the number who want to visit it and the amount each will pay to do so. The same applies, to a somewhat lesser degree, to equivalent national and regional listings.

Here we attempt to quantify such values for Australian sites, by comparing tourist numbers and expenditure at sites before and after they were designated as World Heritage, and at similar sites with and without World Heritage status. World Heritage designation, however, is granted only to sites of high natural and cultural value, and these sites may well attract and support tourism irrespective of heritage listing. The critical issue, therefore, is to distinguish the marginal economic contribution of World Heritage listing, additional to the level of tourism activity which would occur without listing.

In practice, visitor expenditure data are extremely sparse, and certainly not available in time series sufficient to compare values pre-and post-listing. Using a travel-cost approach, the best available surrogate is the distribution of visitor points of origin and travel distances. In practice, the only parameter commonly available is the breakdown between domestic and international visitors. We therefore focused our data collection on obtaining as detailed time series as possible, from as many sources as possible, on (a) total visitor numbers and (b) the proportion of international visitors.

Sites were selected on two main criteria: existence of a control site and the likelihood that both pre- and post-listing visitor data would be available. In practice, the latter applies only for sites which have been relatively well-known for decades or longer, and which were listed as World Heritage Areas at least five or ten years ago. Six of Australia's 14 World Heritage Areas meet both these criteria: Fraser Island, with Moreton Island National Park as a control site; Kakadu National Park, as compared with Lakefield National Park; Uluru Kata-Tjuta National Park as compared with Purnululu National Park; Tasmanian Wilderness as compared with Mt Field National Park; Shark Bay as compared with Ningaloo Marine Park; and the Central Eastern Rainforest Reserves (Australia) (CERRA), as compared with the national parks of southwest Western Australia. One additional area, the Great Barrier Reef Marine Park, meets the second criterion but does not have an adequate control site. For all these sites, we collected data on total visitor numbers and the relative proportions of domestic and international visitors, from a wide variety of sources, for as many years as available.

Data were obtained from reports, databases and personal communications from parks and tourism agencies at federal, state and local level, and from published sources where available (Table 1). Multiple sources were used where possible to provide an indication of reliability. For most sites, data were incomplete and intermittent. For some World Heritage Areas, total visitor numbers were available only by summing data from multiple subsites or entry points. At some, visitor monitoring techniques changed over time, e.g. from automatic vehicle counters to staffed entry booths, with different errors and biases. Different areas record either total visits, total visitors, or total visitor days. Detailed on-ground visitor surveys were available for many of the sites, but only at sporadic intervals. In addition, many covered only short time periods, not necessarily during peak visitation. For some World Heritage Areas, data on international visitor numbers were also routinely compiled by the Bureau of Tourism Research, but often these are very different from the results of on-ground surveys.

Obtaining primary data and assessing its reliability is hence far from straightforward. With assistance from the many agencies mentioned above, however, we were able to obtain almost 1000 data points on total, domestic or international visitor numbers at particular sites in particular years. We compiled these as site-by-site graphs. Where raw data suffered from minor deficiencies such as missing months or subsites, we made appropriate adjustments by reference to other years. For larger disparities such as different data sources, we have shown each source independently. No attempt has been made to smooth or standardise graphs.

In addition to deficiencies in data, there are statistical difficulties in comparing the pre- and post-listing trends in visitor numbers and origins at listed and control sites. Firstly, we do not know precisely what pattern we are searching for. Are we testing for changes at the listing date itself; or prior to listing, because of associated controversy; or subsequent to listing, because of time taken for listing information to reach tourists?

Are we looking for a single inflection point, where the rate of increase in total or international visitors becomes significantly higher and stays at the higher rate subsequently? Or do we expect a double inflection, with a short-term increase in numbers around the listing date, but no long-term effect on growth rates? And are we testing for change in a linear growth rate, with the same absolute number of visitors added each year; or an exponential growth rate, with the same proportional increase in visitors each year? Since we don't know in advance, we have to search for patterns in the observed data and test significance *a posteriori*, with reduced statistical power.

Secondly, how do we compare growth rates between listed and control sites? In a strict statistical sense, we can't. The controls are not true replicates of the listed sites, and the "treatment" of World Heritage listing was not allocated randomly between sites. Even ignoring these issues, however, there is a practical statistical difficulty in that the World Heritage Areas typically receive many more visitors than the control sites. Some form of proportional standardisation is therefore required, but there is no single measure which is appropriate for all the various patterns and periods of data available, particularly since early historical visitor numbers at some control sites were close to zero. In practice, therefore, it is pointless and potentially misleading to draw conclusions from direct quantitative comparisons between growth-rate figures, however standardised, at listed and control sites.

In addition to the effects of listing itself, however, visitor numbers at World Heritage Areas may be affected by a wide range of economic, logistic and market factors. Some of these, such as large-scale economic upturns and downturns, changes in oil prices, pilots' strikes, or major national tourism marketing campaigns, are likely to affect both listed and control sites equally. Short-term peaks and troughs in visitor trend lines that occur simultaneously at control sites as well as World Heritage Areas, therefore, are unlikely to be due to World Heritage listings. Comparing listed and control sites can therefore help to distinguish the icon value effect of World Heritage status from the many other large-scale factors which may influence visitor numbers and origins.

The main reason for using control sites, however, occurs when there have indeed been significant historical changes in visitor growth rates at World Heritage Areas, at or around listing dates. If similar changes occurred at control sites, then the effect cannot be attributed to World Heritage listing.

Table 1. Sources of data

Parks	Published data sources	Pers comm 2001
Fraser	Beckmann *et al.* (1996), BTR (2000), EA (2000a), ES&S (1988), FIDO (1989, 2001), FIRB (1986, 1987, 1998 a,b), Hundloe *et al.* (1990), QCI (1990 a,b), QDE (1996,1997,1998), QDEH (1990, 1992, 1993, 1994, 1995), QDECT (1998), QDF (1987), QEPA (1999, 2000), QPWS *et al.* (1999), QRAMB (1991), Ward (1999)	Jen Holt, Brett Keough, Eleanor McDonnell, Brent Randall, John Ward
Moreton	A. A. Heath & Partners P/L (1976), Bushing (1990a-d, 1991), ES & S (1989), Harris & Webster (1986), QDE (1996, 1998), QDEH (1994, 1995), QEPA (1999, 2000), QPWS (2000), QNPWS (1981), QRAMB (1991, 2000), Taylor (1996),	Chris Artiemiew, Moreton Island ferry operators
Kakadu	EA (1999, 2000c), ES&S (1994), Knapman (1991), Lea & Stanley (1990), Preece (1989), Press *et al.* (1995), Ryan (1998), WCMC (1998)	Tanja Brugman, Sarah Pizzey
Lakefield	Bushing (1990a,b,c,d, 1991), QNPWS (1994a,b,c,d)	David Briggs
Uluru	Altman (1987), AHRSCEC (1973), ANPWS (1982), ANPWS & UKBM (1986, 1991), ANCA (1991), Breeden (1994), BTR (2000), CLR (1992), Davey *et al.* (1986), EA (2000d), ES&S (1991), Kerle (1995), Kinnaird Hill deRohan & Young P/L (1972), Moon & Moon (2000), Ovington *et al.* (1973), UKTBMPA (1999, 2000), WCMC (1995).	
Purnululu	Hassal (2000), Moon & Moon (2000), WACALM (1989a, 1995)	Chris Done, Catherine Peart, Annick Potter, Jenny Wilksch
Tasmanian Wilderness	EA (2000e), Moon & Moon (2000), Sloan & French (1991), WCMC (1997b)	
Mt Field	Moon & Moon (2000), Waterman & Waterman (1980)	Sue Rundle
Shark Bay	EA (2000f), Moon & Moon (2000), WACALM (1994, 1996a, 2000, undated a, b), WCMC (1996)	
Ningaloo	Cary *et al* (2000, Dowling (1992, 1993), EA (2000g), Moon & Moon (2000), WACALM (1988, 1989b, 1996b), Williams & Wood (2000)	David Charles, Kim Cream, Rick Karniewilz, Luisa Liddicoat
CERRA	Moon & Moon (2000), QPWS (1999), WCMC (2000)	David Briggs, Steve King, Kate Melzer, Alison Ramsay
SWWA	Albone *et al.* (1990), Schmidt (1980)	Carl Beck, Luisa Liddicoat

Table 2. Total numbers of visitors, and percentages of international visitors, at critical dates for Australian World Heritage Areas and comparable control areas.

Sites, Areas, Listing Date(s)		Year of Data	Total number of visitors, 000's		Proportion of Overseas visitors, %	
WHA **World Heritage Areas**	**Control** **Comparable non-WHA protected area**		**WHA**	**Control**	**WHA**	**Control**
Fraser 1840km² 1992	Moreton 198km²	**1986** **1992** **2000**	160 235 320	50 35 75	8 na 30	0 na ~0
Kakadu 1980km² 1981 / 87 / 92	Lakefield 5370km²	**1975** **1982** **1987** **2000**	?20 60 180 200	na na 8 co 8 co	na 10 19 50	na na 3 co 9 co
Uluru 1325km² 1987 / 94	Purnululu 3200km²	**1961** **1984** **1987** **2000**	~5 100 180 380	na na 4 17	na na ~20 22 ogs 65 ivs	na na 6 og 12 og
Tas Wilderness 13836km² 1982	Mt Field 163km²	**1972** **1882** **200**	>50 ?270 >500	~140 ?140 ~140	na na ~25	na na na
Shark Bay 23000km² 1991	Ningaloo 4300km²	**1991** **2000**	?350 ~350	55 135	10 41	8 36
CERRA 3100km² 1986 / 94	SWWA 715km²	**1986** **1994** **2000**	~300 ~550 510	na ?690 d 860 d	2 lam 6 lam 12 lam	na na 21

~ = approximately: ? = estimate only, uncertain; d = visitor days (otherwise shown as visits or visitors); co = campers only; ogs = on-ground surveys; ivs = International Visitor Survey (BTR); lam = Lamington NP only, not entire CERRA WHA; na = not available; og = on-ground (ie excl. overflights).

Table 3. Controversies associated with World Heritage listing

Area	Controversial issues prior to listing
Fraser	Logging and sand mining as compared to conservation
Kakadu	Uranium mining as compared to conservation and Aboriginal land rights
Uluru	Aboriginal land rights as compared with recreation
SW Tas	Hydroelectric dams as compared with conservation
Shark Bay	No major controversies
CERRA	Logging as compared to conservation, but for some subsites only

RESULTS

Fraser Island World Heritage Area

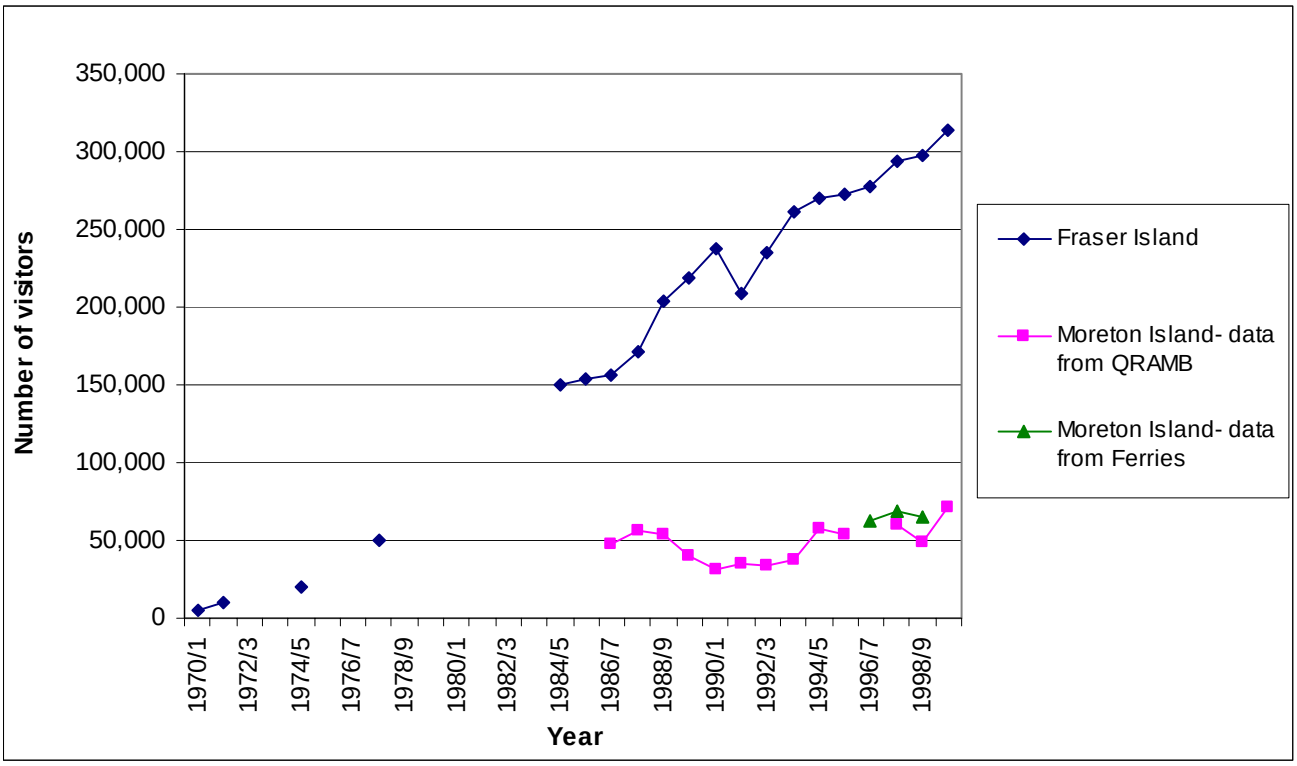
Fraser Island is a large sand island off the coast of southeast Queensland. It was listed as World Heritage in 1992 after considerable and protracted controversy, following a prior history of mining and logging in some parts of the island. It is known for its forests, heaths, dune lakes and fresh water creeks. It has a long history of recreational 4WD use, particularly by fishermen on its eastern beaches. There are private in-holdings with residential and tourist accommodation.

The control site, Moreton Island National Park, is a similar but considerably smaller sand island a little further south. It is approximately 1/9 the area of Fraser Island, and receives approximately 1/4 as many visitors: i.e., around twice as many visitors per unit area. It is closer to the State capital city of Brisbane, and more easily accessible. Much of its terrain and vegetation are very similar to Fraser Island, including heaths, dune lakes and beaches, but it lacks the famous satinay forests and freshwater creeks.

Parts of Fraser Island have been logged since 1963. The island was declared a recreation reserve in 1894. The first commercial tour operations started in the 1930's but did not prove commercially viable. Sand mining commenced in the 1960's. A commercial car ferry began operating in 1968, and an airstrip was built in 1969. Part of the island was declared a national park in 1970, and the protected area was enlarged in 1973, 1977, and the late 1980's. Fraser Island was managed under the *Fraser Island Public Access Act 1985* with access fees from 1986. The *Fraser Island Public Access Act 1985* was superseded by the *Recreation Areas Management Act 1988* (RAM Act). Moreton Island has also been managed under the RAM Act since 1991. Access fees applicable under the RAM Act were increased in July 1997 on both Fraser and Moreton Islands. Fraser Island was listed as World Heritage in 1992.

A survey of visitors to Fraser Island carried out in the late 1980's (Hundloe *et al.* 1990) found that if access had been restricted, then Moreton Island would be the most popular second-choice destination, nominated by 16% of visitors. For visitors to Moreton Island, however, the most popular second-choice destinations would be North and South Stradbroke Island, with Fraser Island visited fourth. From a visitor perspective, therefore, there is some asymmetry in the substitutability of these two sites.

Figure 1. Total visitor numbers, Fraser Island WHA & Moreton Island NP



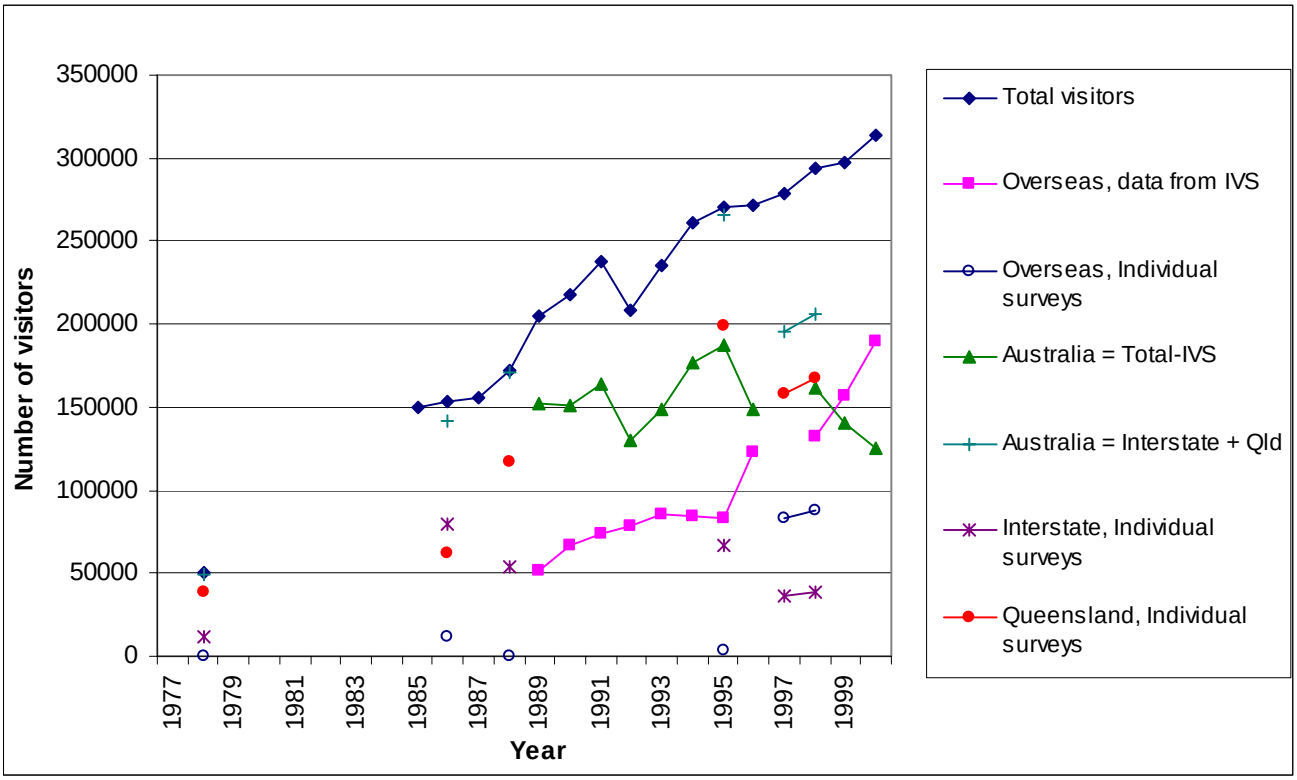
Intermittent data on total visitor numbers to Fraser Island are available since 1970, with annual data available since 1986. These figures do not include visitors who stay entirely at Kingfisher Bay Resort and do not enter the national park itself. There has been a steady and approximately linear growth in total visitor numbers, at a rate around 12,500 visitors per year (Table 2, Fig. 2), but with no significant change in this rate of growth at or around the listing date. By the late 1990's Fraser Island was receiving over 300,000 visitors annually. The upward trend was broken by a sharp but small and short-lived dip in 1991/2 (Fig. 2). The most probable causes were a general economic recession in 1991, coupled with cyclones in December 1991, and January and March 1992. Over the same period, total visitor numbers at Moreton Island have fluctuated but have not grown significantly.

There are various sources of data for the proportion of overseas visitors at Fraser Island, but they are conflicting. In particular, numbers reported by the International Visitor Survey are 3 times as high as those derived from on-ground surveys in the same years (Fig. 1). Both these sources of data indicate that the proportion of international visitors has grown over time, but neither is adequate to detect any possible effect of World Heritage listing. At Moreton Island there are very few international visitors.

Fraser Island is currently a very well-known destination for international visitors to Australia. For the international backpacker market, indeed, it is considered a "must-see." It is certainly much more widely known than Moreton Island. Current and recent growth in the number of overseas visitors seems to be simply as a well-known tourist attraction, with the controversies of the past now reduced to part of the interpretation programs.

Historically, however, it seems to have been these environmental controversies (Table 3), and notably the efforts of organisations such as the Fraser Island Defenders Organisation, which first drew international attention to the value and plight of the satinay forests, and triggered the growth in international nature tourism as an addition to domestic recreational fishing. World Heritage listing was one of the outcomes of this controversy, and the growth in visitor numbers and international visitors seems to have started at the time of the controversy rather than the time of listing.

Figure 2. Visitor origins, Fraser Island

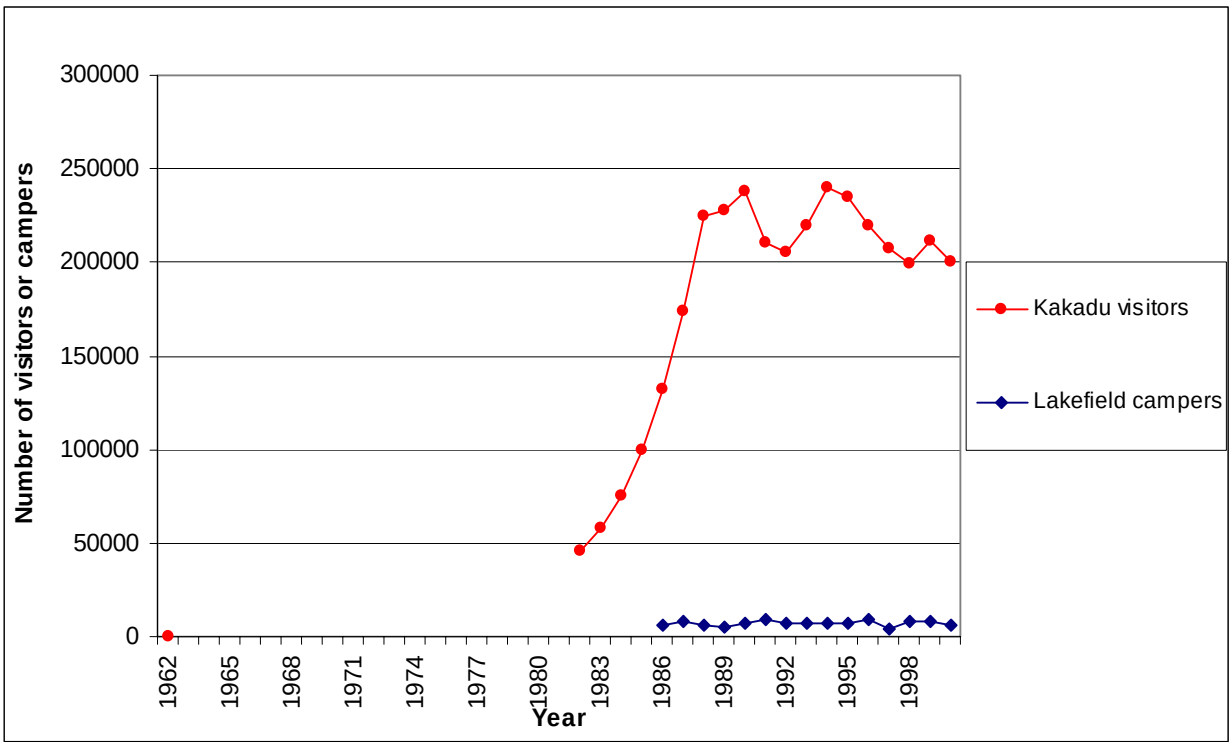


Kakadu National Park World Heritage Area

Kakadu National Park is a large and internationally known national park in the wet-dry tropics of the Northern Territory. It is famous for wildlife and waterfalls and for its Aboriginal history and culture. The control site, Lakefield National Park in tropical Queensland, is at similar latitude and has similar environments, but is only 1/4 the size and much less well-known. Historically, Queensland Parks did not record total visitor numbers, but only those applying for camping permits. For Kakadu National Park, intermittent data on total visitor numbers are available before 1982, and annual data since 1982. There are no data on the proportion of overseas visitors prior to 1982. A number of local on-ground surveys were carried out between 1982 and 1990, and data from the IVS are available annually from 1989 to 2000. Unlike Fraser Island, figures from the IVS at Kakadu National Park do seem to match those from on-ground surveys.

Kakadu National Park World Heritage Area was listed in 3 stages, with various degrees of controversy over each. Controversy over uranium mining began in the early 1970's. The Ranger Inquiry was carried out in the mid 1970's and mining commenced in 1979. The national park was declared in 3 stages, in 1979, 1984 and 1987. Prior to Stage 1 World Heritage listing in 1981 total visitor numbers were relatively low, less than 50,000 per annum. Between Stage 1 and Stage 2 listing in 1987, visitor numbers grew considerably, increasing by 4 times in five years (Table 1, Fig. 3). The pre-1982 data, however, are too patchy to determine whether there was a statistically significant change at Stage 1 listing, or simply a continuing exponential growth. Following Stage 2 listing, however, growth in

Figure 3. Total visitor numbers, Kakadu National Park WHA and Lakefield NP

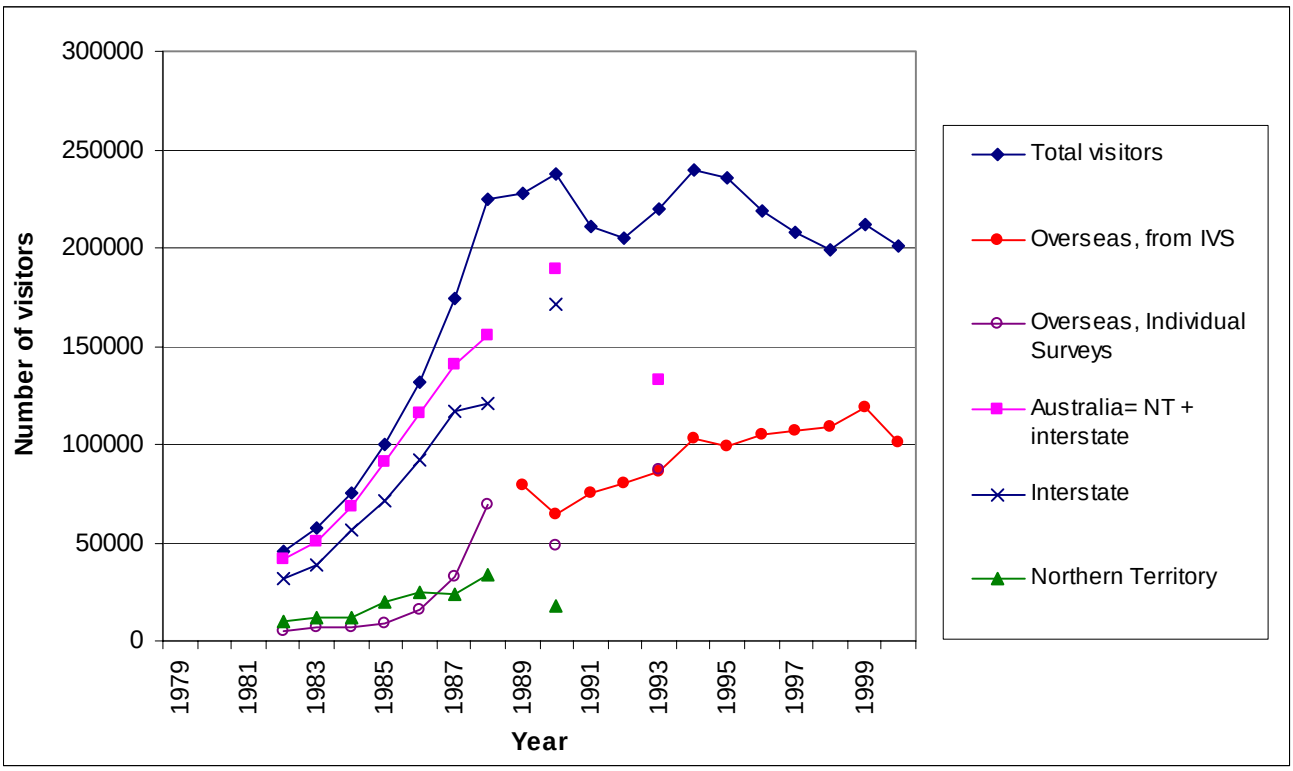


visitor numbers was abruptly truncated, and numbers remained stable for the following 13 years, with a slight dip prior to Stage 3 listing in 1993, and a slight increase subsequently. By the late 1990's, Kakadu National Park was receiving around 200,000 visitors per year, similar to the number of visitors at Stage 2 listing in 1997. At that time, the number of visitor days was around 600,000, indicating an average visit of 3 days.

The number of campers at Lakefield also remained stable during this period, with minor fluctuations matching those at Kakadu National Park. The latter, including those at Stage 3 listing, were therefore presumably due to external factors at a regional or larger scale. There are no figures from Lakefield for the period corresponding to rapid growth between Stage 1 and Stage 2 listing at Kakadu National Park.

The proportion of international visitors at Kakadu National Park has increased steadily from 10% in 1982 to over 50% by the late 1990's, with some fluctuations in the years immediately following Stage 2 listing (Table 2, Fig. 4). There are fewer international visitors amongst the campers at Lakefield, but the proportion has also increased steadily, from around 3% in 1986 to around 9% in the late 1990's. During the period between Stage 1 and Stage 2 listing at Kakadu National Park, there was intense and widespread political controversy over the likely environmental and cultural impacts of mining in the area. There was also conflict, in international fora, between the Commonwealth and Northern Territory governments of the time. During the late 1990's a similar controversy arose over the proposed Jabiluka mine.

Figure 4. Visitor origins, Kakadu National Park WHA

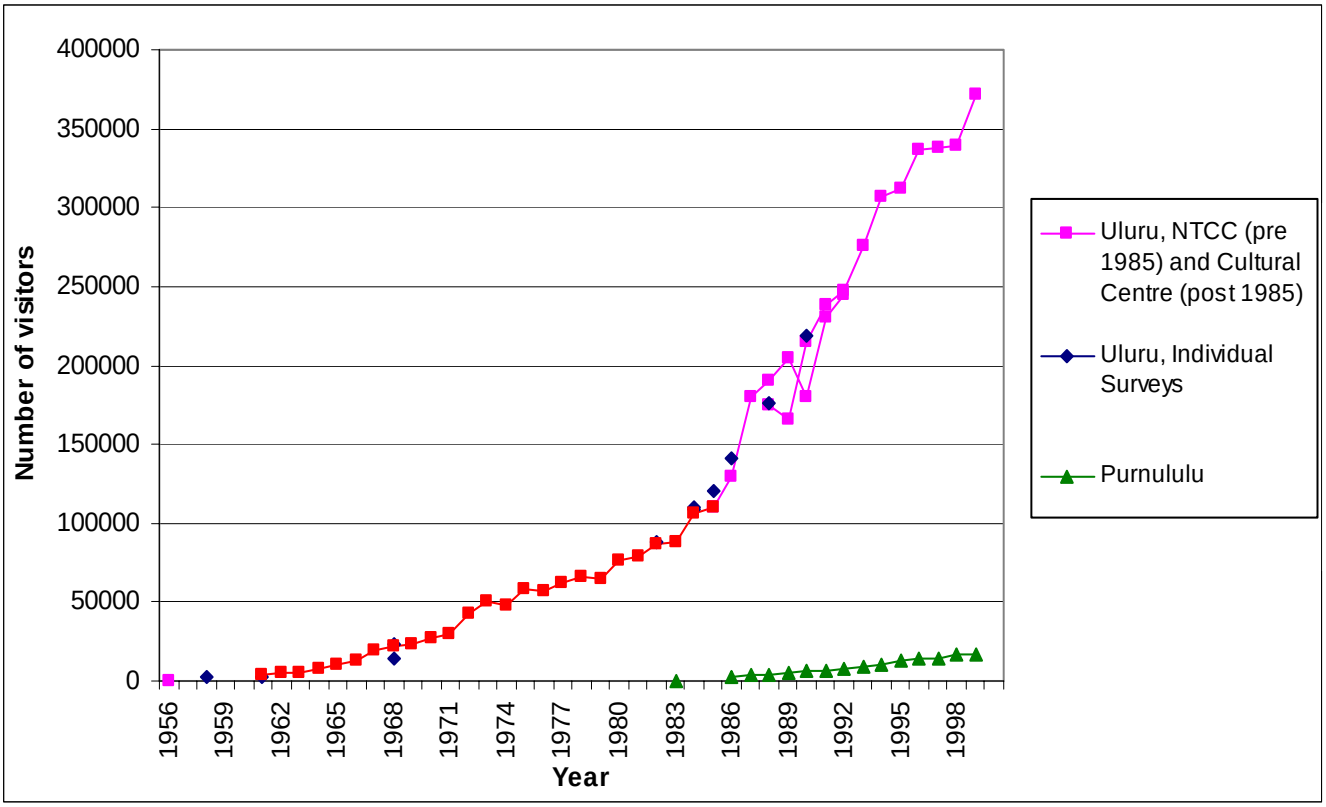


Uluru Kata-Tjuta National Park

Arguably one of Australia's most famous international icons, Uluru Kata-Tjuta National Park is by far the most heavily visited national park in the country's central arid zone. Purnululu National Park, the control site, is also famous for red rock formations surrounded by sand dunes. It lies further north and west, in the southeastern Kimberley region, at a similar distance from the nearest large city. Purnululu NP is 2.5 times as big as Uluru Kata-Tjuta National Park World Heritage Area, but receives 1/25 as many visitors on the ground. It is somewhat unusual in that many visitors see the park only from the air, typically through early-morning or late-afternoon overflights from Kununurra.

The first tourists reached Uluru in 1936, and the first commercial tours began operations in 1950's. The area was established as a national park in 1958, and regazetted in 1977. Joint management with traditional Aboriginal owners started in 1983, and converted to a freehold leaseback arrangement in 1985. The Yulara Resort commenced operations in 1983/84, and the connecting road was sealed in 1983. The area was listed as World Heritage in 1987.

Figure 5. Total visitor numbers, Uluru-Kata Tjuta WHA and Purnululu NP

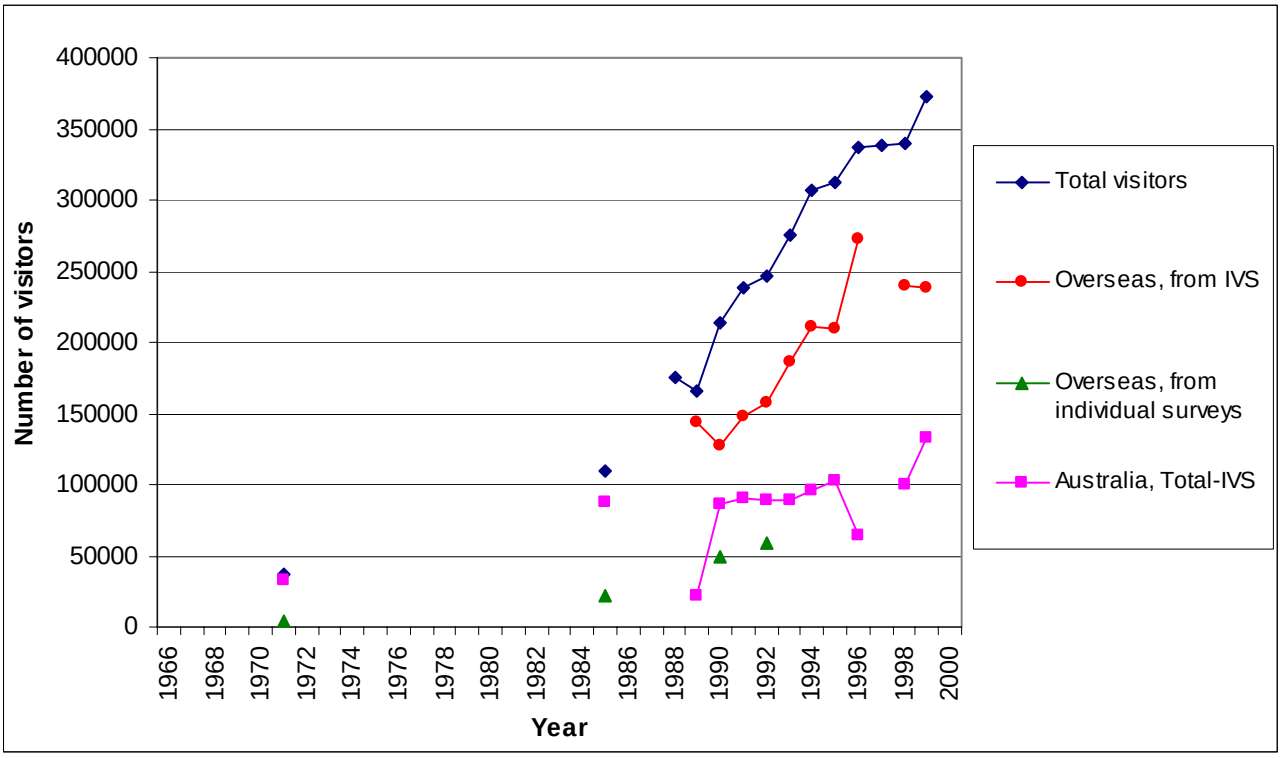


Data on total annual visitor numbers at Uluṟu are available since 1961. These are derived from a range of different but generally consistent sources. Historically, two phases can be discerned. From the 1960's until about 1984, there was a steady linear increase of around 4,300 additional visitors each year, with the total doubling in 12 years. From 1984 to 1988 the rate of increase was much greater, with over 21,000 additional visitors each year, and the total doubling in five years (Fig. 5). This increased rate has been sustained, with linear growth continuing until 2000, at an average rate of around 17,500 additional visitors per year. By the late 1990's, Uluṟu was receiving close to 400,000 visitors each year.
The period of increased growth, however, commenced in 1984, four years prior to World Heritage listing. Hence it was probably due to two factors: completion of the Yulara Village, upmarket tourist resort accommodation; and the conclusion of an agreement between the Australian Commonwealth Government and the Anangu Aboriginal people in 1985, under which ownership was handed back to the Anangu, who then leased the area to the Commonwealth Government under a co-management arrangement. This agreement followed considerable public debate and controversy over ownership and management. These factors seem to have had a more powerful influence on visitor numbers than the technical act of World Heritage listing. Indeed, visitor numbers fell briefly in 1989/90 immediately after listing. This, however, was almost certainly due to a domestic airline pilots' strike in that year. Numbers also fell at Kakadu National Park, for example, in 1989/90.

The Purnululu area has been settled for cattle grazing since the late 1800's. The Ord River Irrigation Dam was constructed in 1967. The scenic landscape features that form the principal tourist attraction were first shown on a TV documentary in 1982. The area was gazetted as a national park in 1987. A helipad was constructed in 1988.

No data on visitor numbers are available from Purnululu during the 1960's and the 70's, the early slow-growth period at Uluṟu. During the later rapid-growth period at Uluṟu, the total number of on-ground visitors at Purnululu has increased steadily from close to zero in 1983, to around 17,000 in 1999 – a linear growth rate of approximately 1,000 additional visitors each year. A similar number of visitors see the area from scenic overflights only.

Figure 6. Visitor origins, Uluṟu–Kata Tjuṯa WHA



Information on the proportion of international visitors at Uluṟu is available both from on-ground surveys and from the IVS, but the figures are very different (Table 2, Fig. 6). Only one year's data are available prior to listing, in 1971, so the effect of listing cannot be tested. Figures from the IVS indicate that the proportion of international visitors has increased over the period since listing; but figures from on-ground surveys indicate that it has not. At Purnululu, international visitors made up 5% of the total in 1987 and 15-25% in 1999 and 2000. In the absence of any intermediate data, however, it is impossible to determine whether this represents a long-term trend.

Tasmanian Wilderness

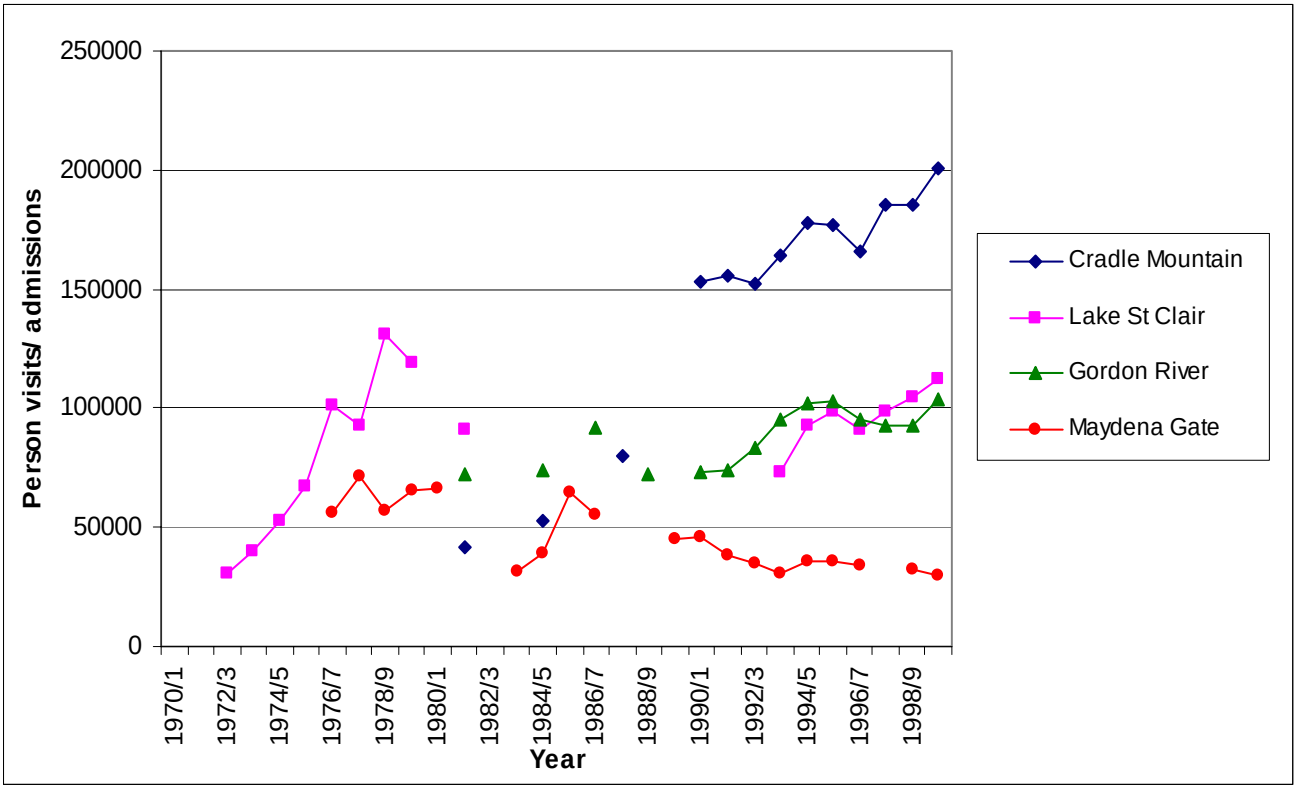
The Tasmanian Wilderness World Heritage Area was dedicated in late 1982, amidst enormous controversy which put the constitutional powers of the Australian Commonwealth Government to the test, and also brought the area into the limelight throughout Australia and internationally. Mt Field National Park, the best available control, has been a protected area for much longer and has a generally uncontroversial history. It is very much smaller, only 1.2% the area of the World Heritage Area, but it received almost 1/3 as many visitors: over 23 times as many visitors per unit area.

Data on visitor numbers to the Tasmanian Wilderness World Heritage Area are available since 1970, but only from individual sub-sites, and with some major gaps in the records, particularly around the date of listing (Fig. 7). In addition, it is not known how many people visit more than one sub site. The total number of visitors in the late 1990's is hence at least several hundred thousand per year, and possibly up to 500,000. At Lake St. Clair and Marakoopa Cave, total visitor numbers grew more rapidly before listing than afterwards; whereas at Cradle Mountain, growth was more rapid after listing. Whilst it is clear that the total number of visitors to the World Heritage Area is growing significantly over time, the data are inadequate to detect any possible subsidiary trends during different time periods.

Data are also available since 1970 for Mt Field NP. Though intermittent, they suggest that there has been little change in the total number of visitors throughout this entire period. During the 1970's, there were far more visitors to Mt Field than to the Southwest, presumably since it was far better known and far more accessible. In the late 1990's Mt Field received around 140,000 visitors annually. During the late 1990's there have been many more visitors to the World Heritage Area, presumably since it is now at least as well known and accessible, and larger.

The Tasmanian Visitor Survey provides annual data on the origins of visitors to various destinations in Tasmania, but it combines interstate and international visitors. At Cradle Mountain and Lake St Clair, this proportion fell from around 80% in 1980 to around 50% in 1990, and rose again to around 80% in 2000. Data are hence inadequate to determine whether World Heritage listing had any effect on the proportion of international visitors.

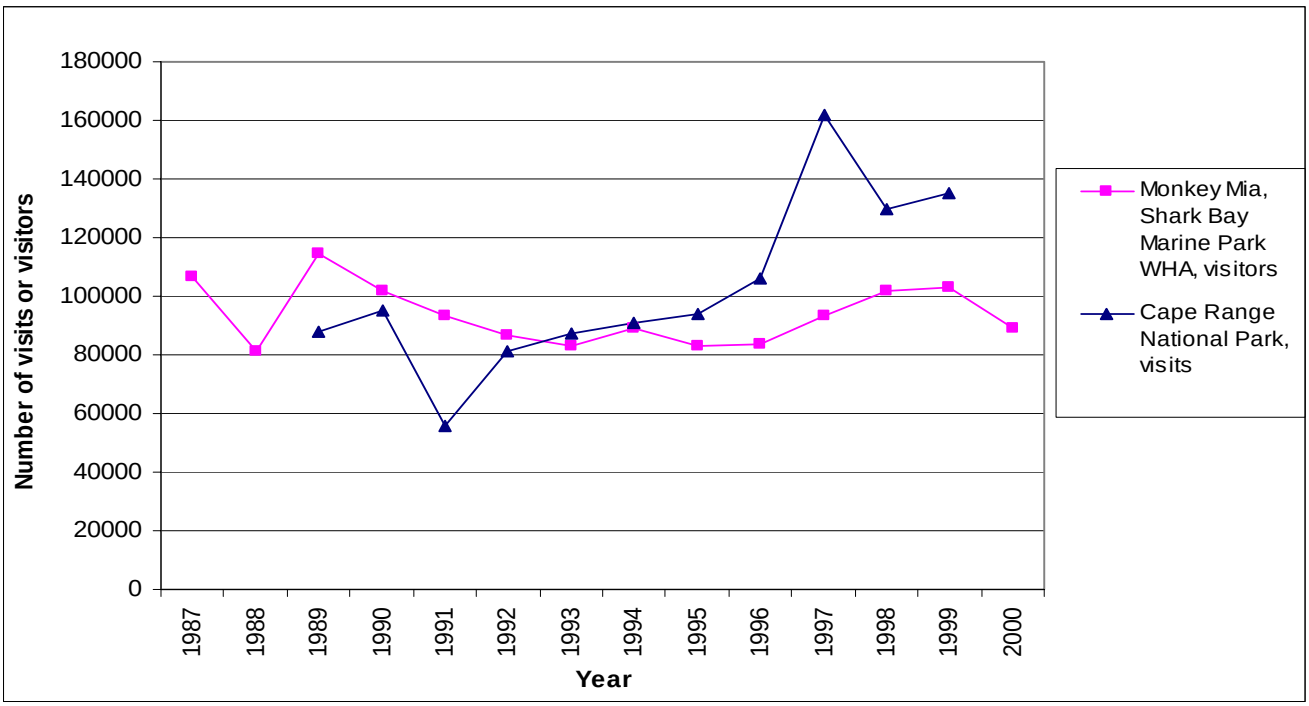
Figure 7. Total visitor numbers, subsites of Tasmanian Wilderness WHA



Shark Bay

Shark Bay is a large embayment half way up the arid west coast of Western Australia. For many years it has been famous for the dolphins of Monkey Mia, which swim into the shallows amongst tourists. Historically, tourists could also feed and touch the dolphins, though these practices have now been greatly curtailed because of concerns over the dolphins' health. Ningaloo Marine Park is a little further north on the same coastline, offshore from Cape Range National Park. It is known for its coral reefs, and for the opportunity to snorkel with the whale sharks during April, May and June. It is about 1/5 the size of Shark Bay World Heritage Area, which was listed in 1991.

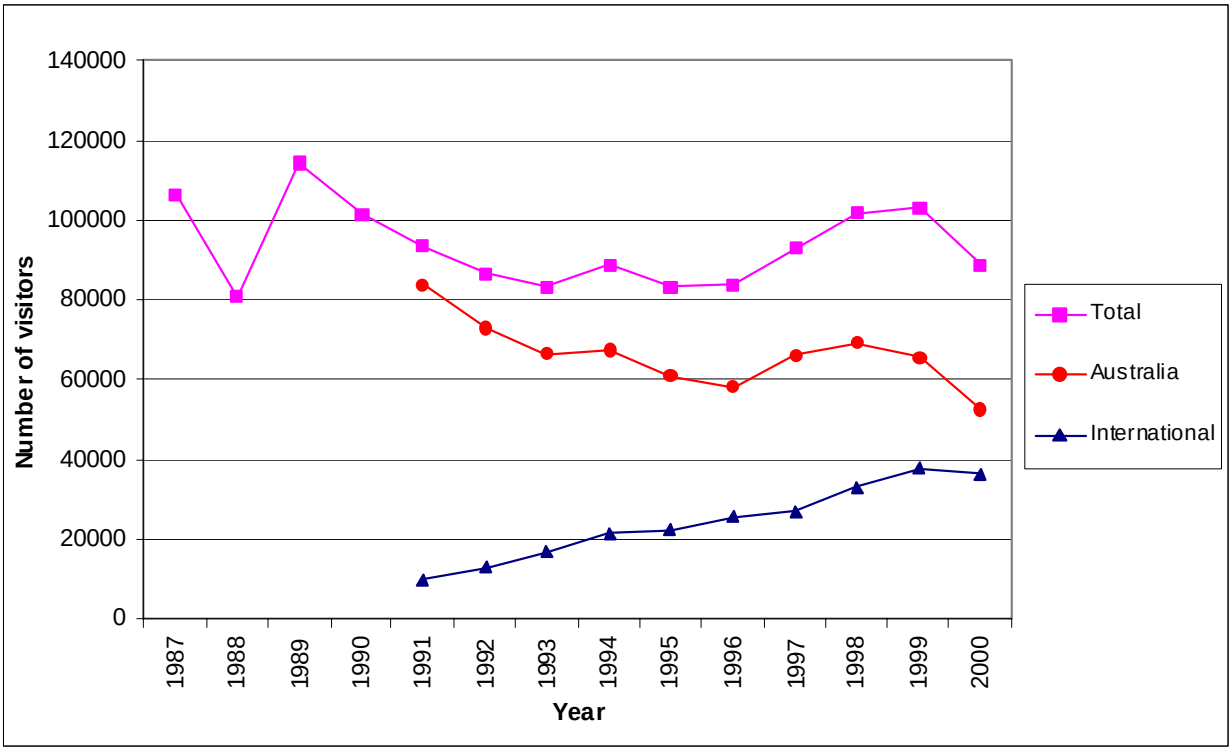
Figure 8. Visitor numbers, Monkey Mia and Cape Range



Visitor numbers are available for Monkey Mia and Cape Range since the late 1980's. Both show a slight long-term increase, but this is small compared to year-to-year fluctuations, due principally to factors such as cyclones. For the last three years, visitor numbers have been available for five separate sub-sites within Shark Bay World Heritage Area, but it seems likely that the same individual people visit each of the five sub-sites.

The proportion of international visitors at Monkey Mia has been recorded annually since 1991 (Fig. 8). During this period it has increased steadily by around 3% per year, from 10% to 40% (Fig. 9). The proportion of international visitors at Ningaloo is only known for three years: 8% in 1991, 32% in 1997, and 36% in 2000. Again, the same individual people may well visit Shark Bay and Ningaloo on the same trip. Overall, data from Shark Bay are insufficient to determine whether visitor numbers or origins were affected significantly by World Heritage listing, but the indications are that it was not.

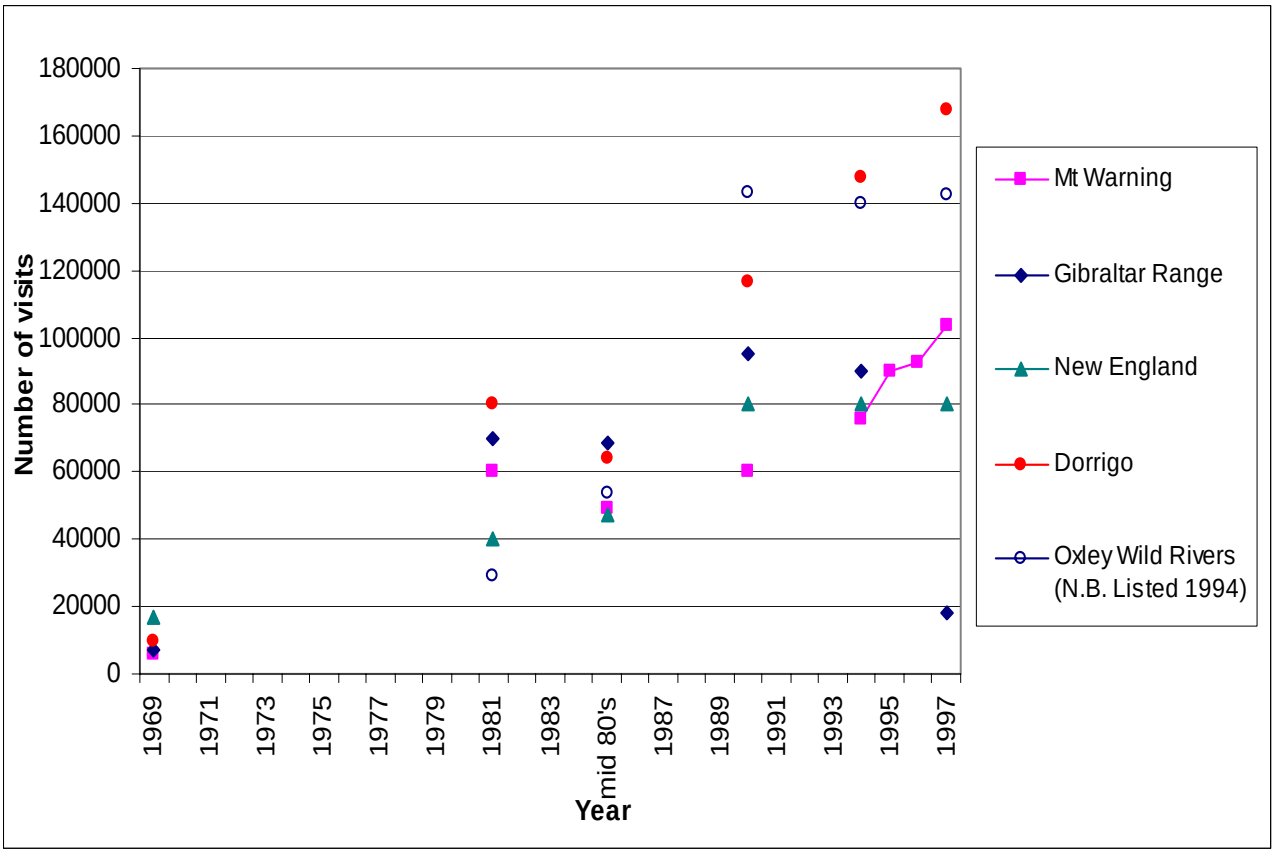
Figure 9. Visitor origins, Monkey Mia



Central Eastern Rainforest Reserves (Australia) (CERRA)

The Central Eastern Rainforest Reserves (Australia) (CERRA) World Heritage Area consists of a set of discrete national parks and other reserves in northeastern New South Wales and southeastern Queensland, which together contain most of the remaining rainforest remnants of subtropical eastern Australia. The forests of southwestern Western Australia, used as a control, are temperate rather than subtropical, and extend through a series of parks and forests, variously used for logging, recreation and conservation. The total area of the national parks in Southwest Western Australia is about one quarter that of the CERRA reserves. Visitor numbers are recorded differently: the Southwest Western Australia parks currently receive about 60,000 visitor-days annually, as compared to approximately 520,000 visitors annually for CERRA.

Figure 10: Total visitor numbers, CERRA WHA Subsites



Data on visitor numbers for the New South Wales subsites of CERRA are available for only six individual years in the period 1969-1998 (Fig. 10). Total numbers have increased over time, but patterns are not clear. The totals for the three years' data prior to World Heritage listing are all lower than for the three years after listing, but the data are inadequate to distinguish whether this reflects a steady long-term growth, or an increase associated with listing. For the Queensland subsites of CERRA, a long time-series of annual data is available, but only for campers rather than total visitors. There does not seem to be any significant change at or around 1994, when the Queensland Parks were added to the CERRA World Heritage Area.

Annual figures for total visitors to five individual national parks in Southwest Western Australia are available since 1992, but only patchy information before that. Two of the major destinations, Walpole-Nornalup and the Valley of the Giants were closed to visitors in 1994 to 1997, for construction of visitor facilities.

Historical information on the proportion of international visitors is apparently not available for the New South Wales parks in the CERRA World Heritage Area, or for the parks of southwest Western Australia. In Lamington National Park in the Queensland portion of CERRA World Heritage Area, annual data on visitor origins are available, for campers only, since 1986. During this period, the proportion of international visitors has increased steadily from 2% in 1986 to 12% in 1999, an increase of around 0.77% per year. There is no indication that this rate of increased changed at or around 1994, when Lamington NP was added to the CERRA World Heritage Area.

CONCLUSIONS

The major conclusions are as follows.

1. Even for Australia's largest and best-known World Heritage Areas, past data on visitor numbers and origins are generally too incomplete to track historical trends except at the broadest scale.

2. Control sites are valuable to differentiate the effects of external factors such as economic cycles and airline strikes, but the available control sites are too different from the World Heritage Areas to identify specific effects of World Heritage status by comparing the two.

3. Most of the World Heritage Areas considered here received several times more visitors than the control sites, but it is not clear whether the difference is because the World Heritage Areas are larger, because they are better-known, because they are listed as World Heritage, or because they contain features of natural or cultural heritage which the others do not.

4. For those World Heritage Areas where distinct historical changes in the rate of growth of total visitor numbers can be discerned, the precise patterns and their relation to listing data differ between sites.

5. The proportion of international visitors seems to have grown steadily since listing at all the World Heritage Areas studied. At some sites, however, it was already growing prior to World Heritage listing; and similar growth has also occurred at some of the control sites.

6. In so far as can be determined from available data, any significant increases in the growth of visitor numbers at World Heritage Areas seems to have coincided more closely with periods of major environmental controversy rather than the date of World Heritage listing as such, though there are too many other factors and inadequate data to establish this pattern definitively. i.e., it seems that environmental activism helps to market nature tourism destinations as well as protecting them.

7. It seems unlikely that any significant additional insights could be gained by further analysis of historical time series for Australian World Heritage Areas, because of limitations in data.

8. To determine the significance of World Heritage listing to the tourists of today, therefore, a stated-preference rather than a revealed-preference approach will be required. This could be done by interviewing tourists visiting Australian World Heritage Areas, those visiting nearby non-World Heritage Areas, and those from major originating countries who are planning to visit Australia, with a structured questionnaire to determine how their travel plans and expenditure relies on World Heritage Areas and how these would change if the areas were not listed as World Heritage Areas.

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