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Thinking Space: Can a synthesis of geography save lives in the surf?

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Introduction

Each year an official average of 21 people drown in commonly occurring rip currents, or rips, on Australian surf beaches. The actual number is suspected to be much higher owing to the difficulty of obtaining accurate incident reports (Brighton *et al*. 2013). In addition, 89 per cent of the thousands of surf rescues each year involve rips (Short & Hogan 1994). While the number of rip related drownings and rescues varies from year to year, the average has remained fairly consistent over the long term (SLSA 2012). It could be argued that the long-standing presence of professional lifeguards and volunteer lifesavers and the existence of various rip current awareness and education efforts have been successful in maintaining a 'status quo' of rip current drownings over time. But the obvious question is: why are people still drowning in rip currents in unacceptably high numbers? As a rip current scientist and community beach safety educator for the last 20 years, I have constantly asked that question, and only recently has the answer become apparent. We have never adopted a truly geographic approach to tackling the rip current problem, and doing so will make a difference.

The beach is an obvious example of the interface between physical and human geography. Beaches are places of coastal geomorphology, which provides explanations for the variety of coastal landforms we see and the different processes that act on them, such as rip currents. They are also a place of human geography, being integral to the Australian culture and psyche and a drawcard for locals and tourists. We interact with beaches in many different ways, be it a daily stroll or a yearly holiday, but when someone enters the ocean to bathe, swim, surf or just cool off, the two geographic fields are fundamentally linked. Unfortunately, in the case of rip currents, far too often this simple interaction results in tragedy. Rip current drownings are largely avoidable. If a person doesn't get in a rip, they won't drown in one. Avoidance comes down to awareness and knowledge of the rip current hazard, but how successful have we been at communicating scientific knowledge of rips to the general public?

Physical geographers have been interested in rip currents for a century and our fundamental scientific understanding of them is reasonably sound. This knowledge has influenced various forms of rip education content and messaging developed by beach safety practitioners. However, despite this direct application, our collective efforts have largely ignored the *human* geography of the rip current problem. We might give advice to the public about the danger of rips and what to do if caught in

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In terms of communicating rip current knowledge to the general public, geography has also had a significant impact. For years purple dye has been placed in rip currents by academics during field trips to educate their students about the speed and trajectory of rip currents. Why stop with students? In 2001 I started releasing purple dye as part of my Science of the Surf community seminars and beach safety program (www.scienceofthesurf.com). The dye provides a powerful and engaging visual realisation of what, to many, is an unseen hazard. Furthermore, the media seem to have a love affair with it and purple dye in rips has been shown on numerous Australian television shows and news reports. It has now also spread through social media, particularly the 2008 YouTube video *Don't get sucked in by the rip* which now has over 330 000 views. SLSA has also adopted dye releases as the core component of its Rip Current Awareness Day which began in 2011. While the average person is probably uninterested or bored by a scientific discourse on rip currents, the use of dye is fun and engaging. It is an excellent example of the power of a more synthetic approach: people seem to remember the dye and this recollection might be the difference between life and death when someone wants to swim at an unpatrolled surf beach.

Conclusions

Examples of multi-disciplinary geographic approaches to real-world problems are certainly not new, but how we apply these synergies is an important sub-theme within geography. Gobers (2000) argues that the future of geography lies in the search for synthesis and that geography is well positioned to bridge the major branches of knowledge in the sciences, social sciences and humanities. Murphy (2006) highlights the need for geographers to use their perspectives to enrich public debate where it is largely lacking. In these ways the synthetic geographic approach described here for the rip current problem is a real example of these appeals being successfully put into action. It is also not without benefits. There is some evidence to suggest that rip current drownings have decreased since 2009 (SLSA 2012). While this is a very short period of time and many other factors are involved in rip current drownings, it correlates well with the increased public exposure to rip currents through the proliferation of rip current related mainstream and social media coverage around this time. Finally, this geographic approach is not just restricted in value to rip currents. It can, and should, be applied to other common and serious coastal hazards such as rock fishing fatalities and spinal injuries associated with dangerous beach shore breaks. Both activities involve fundamental interactions between physical processes and human activities and in both cases we know little, if anything, about the people involved or their knowledge of the hazard.

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Family or Enterprise? What shapes the business structures of Australian farming?

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ABSTRACT *Australian farmers navigate their contemporary circumstances through the use of different business and legal arrangements that are shaped by the commercial realities of farming and the aspirations of farm-owning households. In posing the question 'Family or Enterprise?', this paper examines the extent to which various household and farm business indicators are associated with different forms of farm ownership, namely sole proprietorships, partnerships, trusts and companies. Results from a postal survey of farm enterprises in Victoria, Australia suggest that both household and enterprise factors contribute to the business structure used, although the strongest determinants appear to be those factors that are less well understood in the rural geographical and sociological literature: household composition, farmer age and farm size. Greater scrutiny of the business instruments deployed by farmers to manage family and enterprise pressures should inform expectations of the fate of family farming in advanced financialised economies.*

KEY WORDS: *family farming; Australia; agriculture; farm ownership; structures of capital*

The capital structures of Australian agricultural enterprises reflect both commercial and family considerations. Yet there has been very little research on how capital structures manifest in legal forms—the question of what kinds of legal arrangements correlate with what types of farm structures—despite calls for greater research in this arena (Tonts & Black 2002). In posing the question 'Family or Enterprise?' this paper unpacks the respective influences of commercial and family factors in shaping the legal design of farm establishments, and as such seeks to re-open this area of rural social research. Drawing on empirical evidence of farm structures gathered in the course of a survey of farming in rural Victoria, it presents a framework for conceptualising these relationships that is sensitive to the ways in which farm operators incorporate commercial rationales alongside household and lifecycle aspirations.

Questions about how capital is socially organised within the farm sector are both politically and theoretically significant. General interest in drawing new capital vehicles into a farming sector still dominated by family-based ownership (Magnan

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2012) has not to date been matched by detailed examination of their implications for family farming. The need for better understandings of the structures of capital in Australian farming is apposite given the current interest in agriculture as an investment offering the opportunity to profit from the longer term prospects of food price inflation. Moreover, our fieldwork over the years in rural Australia leads us to the view that farmers increasingly rely on legal and financial advisors to inform their decisions about structures that enable the flexible use and management of farm assets (land, equipment and environmental resources) and allow for the formal and informal relationships between the farm business and farm household to make provision for the intergenerational reproduction of the enterprise through succession planning if required. These institutional processes weigh heavily on farmers' decision-making behaviours and mediate the articulation of business strategies with farm family aspirations, opening the possibility of farms operating under a range of different legal structures.

This paper argues that theorisations of family farming can and should give more prominence to the role of business regulation as a structuring device with the potential to subvert, reinforce or transmute the family farming mode of social organisation. A more nuanced appreciation of the ways in which farm families' commercial and lifecycle aspirations are navigated through the intricate terrains of commercial, legal and taxation regulation should inform expectations of the fate of family farming in advanced financialised economies. The article approaches these questions by foregrounding the life-worlds of farmers. In fieldwork, farmers frequently anchor their responses to our questions about why they make the decisions they do with detailed explanations of how their business strategies negotiate around the rigid legal and taxation frameworks in which they operate. In these contextualised stories the farm is typically conceptualised both as a business and, at the same time, something more than a business. In the latter, the farm 'becomes not simply an object but the very part of the farm family that is used by them to express their identities, both to other members of the farming community and to the world in general' (Wilkinson 2009, p. 12). Our interest hinges on this tension; on understanding the interface between the social organisation of capital in farming and its economic function in the business institutional environment. Although the paper considers evidence from Australia, its analysis has global relevance across agricultural domains where farmers have had to respond and adapt to the forces of the market, largely in the absence of any substantive government intervention (Gray & Lawrence 2001; Pritchard *et al.* 2007).

Specifically, this article examines how farm and household characteristics are related to the different legal arrangements under which farm enterprises operate. It reports the results of a survey of a random sample of farms and farm households that was conducted in 2010 in four rural districts of the Australian State of Victoria. The survey was conducted at a time when farms were under stress—as a result of 7 years of drought compounded, in some regions, by changes in water allocation policy—and aimed to build a comprehensive picture of the socio-economic character of farming in these districts as well as to understand the determinants of farm survival and the triggers of farm exit. The survey asked questions about farm legal and financial arrangements, farm management, farms' relationships with farm households and farmers' attitudes to the future of farming.

The remainder of the paper is structured as follows: the next section locates the paper in a literature that explores the tension between farming as enterprise and

The literature on capital formation and legal organisation in contemporary agriculture is sparse. Marsden *et al.* (1989, pp. 7–8) considered the issue tangentially, and concluded that the legal form of farm business ownership did not exhibit a 'uniform pattern' but instead reflected the particular social circumstances of farm families (lifecycle stages etc.). In the Australian context, Lockie (1997, p. 30) observed that farms were most often constituted as partnerships, with the 'life cycles and goals of family members' shaping their size and form. At the individual farm scale, however, the arrangement of capital appears highly idiosyncratic, with neighbouring farms of comparable sizes often structured in quite different ways. In research focused on farm succession and inheritance, McAllister and Geno (2004) and Barclay *et al.* (2007) observed that farm legal arrangements were influenced by the age of the farmer, with younger farmers more likely to adopt more complex (and inherently more collective) forms of ownership such as trusts or private limited liability companies. The way in which age is associated with business structure choice, though, is likely to be more complex in light of the high level of uncertainty surrounding intergenerational succession experienced by many farmers (Reeve 2001; Wheeler *et al.* 2012). In essence, these studies attribute variations in farm legal arrangements to internal farm family demographics, especially their lifecycles, rather than to the external demands of optimally positioning the farm business in a changing economic context. Several defining features of farm business organisation are discernible.

First, and as Lockie (1997) observed, business organisation in Australian agriculture is characterised by its high incidence of (family) partnerships. Between the years 2005–06 and 2009–10, over 40 per cent of taxable entities which declared business income from agricultural activities were constituted as partnerships (see Table 1), compared to less than 7 per cent of all business taxpayers. Conversely, private and public companies are significantly under-represented in agriculture, at 5 per cent of businesses compared to 11–12 per cent of all business taxpayers. Nonetheless, Table 1 shows a gradual change in the structure of farm business with

TABLE 1. Business structures in agriculture and all enterprises, Australia

	Individuals (%)	Partnerships (%)	Trusts (%)	Companies (%)
Agriculture[a]				
2005–06	42.6	43.1	9.1	5.2
2006–07	42.8	42.8	9.3	5.1
2007–08	43.9	41.6	9.5	5.0
2008–09	44.1	41.0	9.8	5.0
2009–10	44.5	40.3	10.2	5.0
All sectors[b]				
2005–06	71.8	6.9	9.4	12.0
2006–07	71.8	6.7	9.7	11.9
2007–08	72.6	6.2	9.7	11.4
2008–09	72.7	5.9	10.0	11.4
2009–10	72.7	5.6	10.3	11.4

Notes:
[a] Not including aquaculture, forestry and logging, fishing, hunting and trapping, forestry support services, and agriculture and fishing support services.
[b] Not including 'salary and wage earners' and 'investment income recipients'.
Source: Australian Taxation Office (2008, 2009, 2010, 2011, 2012).

more influence than farm output or profitability, which makes sense because farm size is not as volatile as these other farm-related variables. However, we have not established cause and effect, and are unable to determine whether large farms tend to use collective forms of ownership because they support more (or more complex) households, or because the complexity of their business dealings is managed more efficiently through collective ownership vehicles. These are issues for future research.

Seen in broader perspective, the issues reported in this paper hold important ramifications for theorising social transformations in rural Australia. Farming remains the economic bedrock for many Australian rural regions, and, historically, these activities have taken place through commercial units anchored in family structures. During the past two decades Australian rural geographers have closely examined the role of external capital in (re)structuring family farm activities (Tonts *et al.* 2012), but have devoted relatively less scrutiny to the business instruments deployed by farmers to manage these pressures. This paper brings to the foreground these questions of agency. Australian farmers are navigating their contemporary circumstances through the use of different legal and business arrangements, in accordance with the structuring effects of family and enterprise contexts. Further examination of these dynamics, especially using qualitative research techniques that tease out their specificities, would provide a potentially fruitful research agenda within Australian rural geography.

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NOTES

[1] These questions were important in Russia because its revolutionary political strategy would rely on peasants rather than an urban working class. For Kautsky, the core of the 'agrarian question' was whether the dynamics of class in agriculture would reproduce those observed in manufacturing, and proletarianise the rural population.

[2] Interested readers are welcome to access the survey questionnaire, detailed descriptions of the sample areas and some data analysis at the project wikispace: http://rural-adjustment-project.wikispaces.com/

[3] The sample was generated with permission from the Australian Taxation Office's Australian Business Number (ABN) database. Questionnaires were mailed to 800 farm addresses in each area, of which 2694 were successfully delivered. After follow-up telephone contact, the survey elicited a total of 505 responses. This represents a response rate across the four study areas of 18.7 per cent. The refusal rate was 11.2 per cent. In this analysis, 116 cases were excluded because the farm had ceased operating, was in the process of winding-up, or had missing data in the relevant fields. Further methodological detail is available from the authors upon request.

[4] These changes were the result of reforms already implemented under the *Water Act 2007* and further anticipated changes under the Murray-Darling Basin Plan.

Eisenhauer *et al.* 2000). Such information is instructive for managers of recreational and leisure settings, as managing places relies on understanding the differing meanings that visitors' ascribe to a setting (Young 1999b). It is especially important for managers of coastal environments, given the increasing levels of visitation and the increased potential for conflicting meanings to occur.

Study site

The Ningaloo Marine Park encompasses Ningaloo Reef, one of the largest fringing coral reef systems in the world (Cassata & Collins 2008; Wilkinson 2008), with only a shallow lagoon separating the Reef from the Australian mainland (Collins *et al.* 2003). It supports a diverse array of marine life including whale sharks, dugongs, manta rays, sharks, migrating humpback whales and several species of turtles (Sleeman *et al.* 2007). The Marine Park was originally established in 1987 to protect the Ningaloo Reef, with the boundaries extended in 2004 to encompass the entire 300 km length (CALM & MPRA 2005).

The nearest capital city (Perth) is over 1200 km distant (see Figure 1), with this remoteness reflected in the low visitor numbers to Ningaloo Marine Park of approximately 200 000 visitors per year (CALM & MPRA 2005). A range of activities are available including swimming, snorkelling, fishing, boating and diving (CALM & MPRA 2005). Visitors can camp along the coast in Cape Range National Park, at a number of pastoral stations (where the main land use is rangeland grazing), and in several caravan and camping parks in the small coastal communities of Exmouth and Coral Bay (Smallwood *et al.* 2011).

A recently completed human usage study of this Marine Park identified that 55 per cent of respondents had visited previously, with 44 per cent of these always staying at the same location (Beckley *et al.* 2010). This is high site fidelity and suggests strong place attachment. As such, three coastal campsites associated within the southern section of Ningaloo Marine Park were chosen as the study sites (see Figure 1), as few studies have been undertaken there given access difficulties due to poor roads and large distances to nearby service centres. The first study site was Coral Bay, which provides camping- and hotel-based accommodation with facilities including a petrol station, supermarkets, bakery and nature-based tourism businesses. Only those camping were included in this study. The other two study sites were located on pastoral stations abutting the coastline of the Marine Park. The 14 Mile Campsite on Warroora Station provides unpowered sites and no other facilities (other than a refuse dump) and 3 Mile Campsite on Gnaraloo also provides unpowered campsites but with basic facilities including showers and toilets.

Methods

This study used photo-elicitation, where participants take their own photographs which are later discussed as part of an in-depth interview (Jacobsen 2007; Loeffler 2004). Pictures or images can evoke emotion and capture large amounts of information within a single representation. When used as part of the research process they can allow participants to reflect on aspects of their lives or prod underlying memories. Photographs can also induce deeper aspects of an experience than words alone, stimulating the release of emotional thoughts and statements

Social situations and ties

Bonding with family and like-minded people was central to this category of meanings. Holidays to Ningaloo coast provided families with the opportunity to reconnect and strengthen bonds. Many participants who were parents mentioned they looked forward to 'just be with the kids, as parents who are time poor at home'. For some, it was the opportunity to spend a significant amount of time with their children, rather than being at work:

> This is a photo [see Plate 2] with my daughter's first fishing rod and it is pink and Dad is teaching her fishing. Dad's massive flannelette shirt, it is very cute. We both work, I don't work full time but I still work, and it is awesome just to spend the two weeks with the kids, just full-time together and enjoying it.

A significant portion of time was spent reconnecting with children through teaching them skills specific to the marine environment. Learning responsibilities such as boat handling and how to clean fish provided a unique opportunity for parents to pass on skills while spending quality time with their children:

> There is a lot of bonding with the kids and teaching them as well, like boat handling, how to catch fish, how to clean fish, skills that they don't often need but they keep up when they come up here. Like we were saying the other night, tying knots with the kids, how to do the boat radio . . .

Other participants commented that trips to Ningaloo allowed them to meet like-minded people, who share similar interests:

> Yeah, people are just really nice because you meet like souls. Because people who like camping and are living this type of life, they are the only ones who come here.

PLATE 2. Participant's photograph taken at Ningaloo of father and daughter with her first fishing rod.

Adelaide in the Murraylands (see Figure 1) has the highest concentration of African refugees in regional South Australia.

Murray Bridge is the fourth largest regional centre in the State, and the major centre in the Murraylands region. It is a service centre for agricultural industry in the region, and a developing hub for the warehousing and distribution of goods across Australia. The majority of employment is in meat processing; the major employer in Murray Bridge is T&R Pastoral, a meat processing plant, which employs over 1000 workers, representing nearly 7 per cent of the residents of the Murray Bridge LGA (Local Government Area). The expansion of the meatworks from 230 employees in 1999 to 1200 in 2007 (Austin 2007) attracted and recruited economic migrants and people from refugee backgrounds, which drove the change in the ethnic composition of the resident population (Taylor-Neumann 2011).

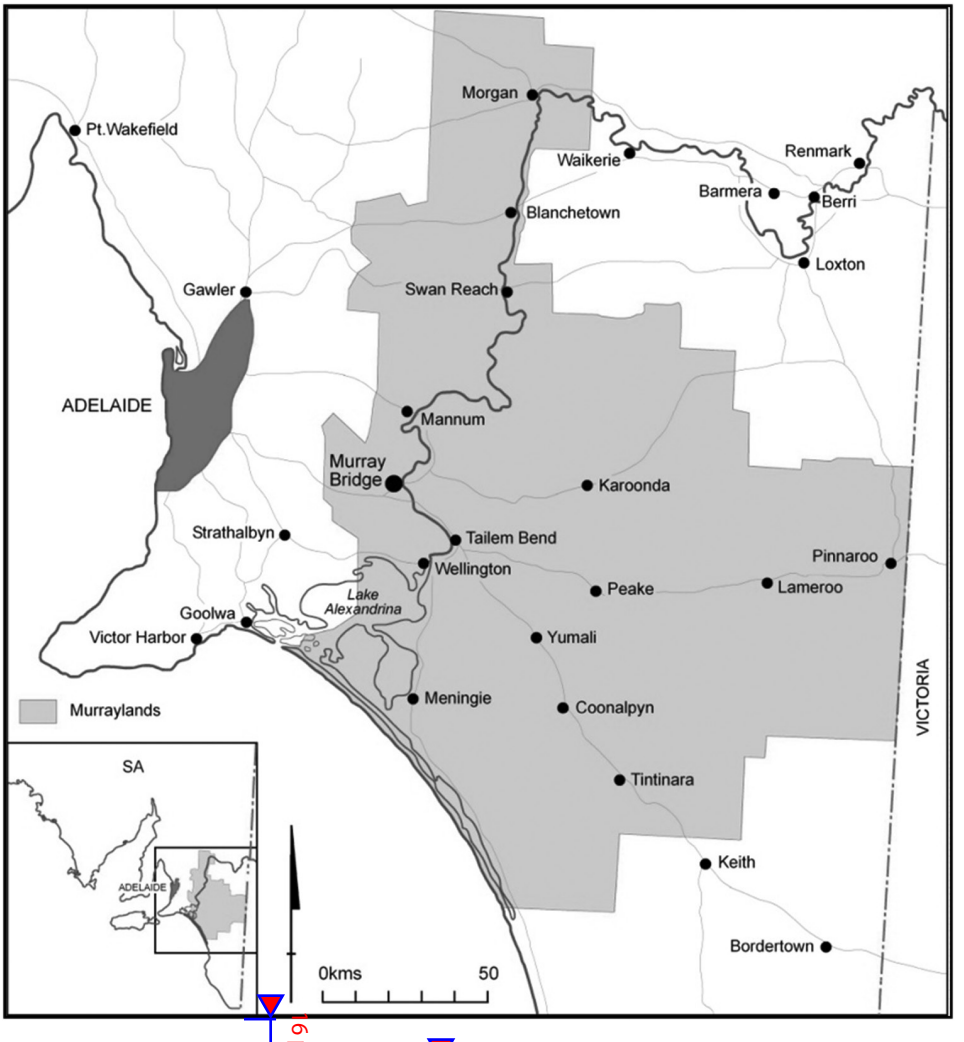

FIGURE 1. Locational map of Murray Bridge, South Australia.
Source: Balasingam (2013).

among five different remoteness areas (s) in order to maximise his/her utility. The probability of migrating can be written as:

$$P_{s=j} = \Pr(U^n_{s=j} > \max U^n_{s=i}) \qquad \forall i \neq j,$$

where s: {major cities (MC), inner regions (IR), outer regions (OR), remote areas (RA), very remote areas (VR)}.[5]

The utility associated with selecting a particular settlement area (s) is assumed to be derived from two components: a deterministic (V^n_s) and a random (ε^n_s) component. Thus, the utility function can be defined as:

$$U^n_s = V^n_s + \varepsilon^n_s,$$

where $V^n_s = \beta^n_0 + \beta^n_1 x^n_1 + \ldots + \beta^n_z x^n_z$.

Since U^n_s cannot be observed, the objective is to estimate how the deterministic part of the utility is influenced by selected individual characteristics x^n_s by estimating the β's coefficients in the systematic utility component V^n_s. This paper estimates the effect of graduates' personal characteristics (e.g. sex and age), attributes of the attended course (subject studied, mode of attendance, degree level, intensive research university and job experience), job attributes (salary, government affiliation, contractual status and self-employment status) and the university location (remoteness classification dummy and State dummy).

The estimated probabilities of choosing a certain remoteness area are relative to a base category (in our case MC). Thus, the estimated probability of a graduate selecting, say, VR as a workplace location is:

$$\beta^n_{s=VR} = \frac{\exp(V^n_{s=VR})}{\sum_s \exp(V^n_s)}.$$

For interpretation purposes, the estimated probabilities are expressed in relative risk ratios, denoting the rise (or decline) in the chances of being in a particular outcome category given a one-unit increase in a particular explanatory variable relative to the respective reference category.

5. Results and discussion

The results are presented in three parts. First, we show a graphic representation of the State-based spatial patterns of migration for the two graduate cohorts before and after the introduction of the graduate visa scheme. Next, we explore movement patterns across remoteness areas before presenting the results of the MLM identifying the influence of personal characteristics on the probability of settling in a particular area after graduation. The MLM model is computed for both cohorts of graduates (i.e. before and after implementation of the graduate visa program).

5.1. Moves at the State level

While most overseas graduates tend to remain in the same State or Territory where they studied, Figure 2 reveals that a large proportion of graduates migrate from Queensland to Victoria and from Victoria to New South Wales post-visa implementation. The percentage of overseas graduates migrating from Queensland

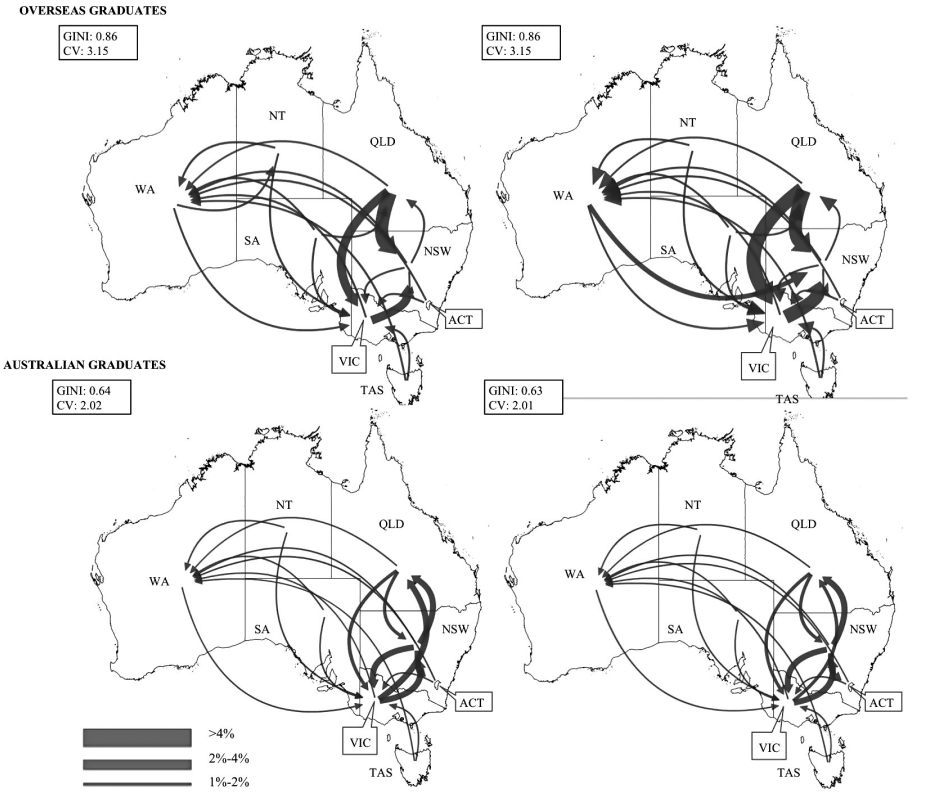

FIGURE 2. Graduate migration flows and their spatial concentration across Australia's States and Territories (the 20 largest flows).

Note: To correct difference in scale, data inputs for the flow maps are based on percentages from the total corresponding to each graduate cohort. For the calculation of the GINI index and Coefficient of Variation (CV), see Bell *et al.* (2002).

Key: Australian Capital Territory (ACT), New South Wales (NSW), Northern Territory (NT), Queensland (QLD), South Australia (SA), Tasmania (TAS), Victoria (VIC) and Western Australia (WA).

to Victoria rose from just 10 per cent of all migration flows of the 2005 cohort to more than 15.5 per cent of all flows of the 2008 cohort, while the percentage flows from Victoria to New South Wales rose from 8.8 per cent for the 2005 cohort to over 10 per cent for the 2008 cohort. This result points to a strengthening of the attraction power of Victoria and New South Wales after the introduction of the 'new' visa scheme. More specifically, this may reflect the increasing attraction of the main cities of these States, especially Sydney and Melbourne—as observed by Bell and Hugo (2000) for the group of recent immigrants.

In contrast to this general pattern, Figure 2 also reveals that migration flows of Australian graduates of the 2005 and 2008 cohorts tended to be spatially dispersed and that a large proportion tended to move away from Victoria and New South Wales to Queensland. Whereas between 3 per cent and 4.4 per cent of Australian graduates moved from Victoria and New South Wales to Queensland, only between 1 per cent and 2.1 per cent of overseas graduates made the same move. As argued by Bell and Hugo (2000) for the group of recent immigrants, the increasing

TABLE 2. Graduates' mobility and retention rates (in parentheses) across remoteness areas: (a) overseas graduates; (b) domestic graduates

(a)

Cohort	University location	Workplace location: Major cities	Inner regional	Outer regional	Remote	Very remote	Out-migration
2005 (pre-visa)	Major cities	(95.5)	10.1	5.6	2.4	0.9	19.0
	Inner regional	34.0	(20.6)	0.4	0.0	0.0	34.4
	Outer regional	44.5	1.3	(6.7)	0.4	0.0	46.2
	Remote	0.0	0.0	0.3	(0.0)	0.1	0.4
	In-migration	78.4	11.5	6.3	2.8	1.1	100.0
2008 (post-visa)	Major cities	(96.2)	7.2	3.0	1.0	0.6	11.8
	Inner regional	39.2	(14.9)	1.1	0.3	0.0	40.6
	Outer regional	45.8	1.1	(6.4)	0.2	0.1	47.1
	Remote	0.0	0.0	0.4	(10.0)	0.1	0.5
	In-migration	85.1	8.3	4.5	1.5	0.7	100.0

(b)

Cohort	University location	Workplace location: Major cities	Inner regional	Outer regional	Remote	Very remote	Out-migration
2005 (pre-visa)	Major cities	(85.0)	28.5	11.9	3.8	2.4	46.6
	Inner regional	33.0	(31.2)	5.6	1.0	0.5	40.1
	Outer regional	6.5	4.3	(38.0)	0.8	0.5	12.0
	Remote	0.2	0.1	1.0	(10.6)	0.1	1.4
	In-migration	39.6	32.9	18.5	5.6	3.4	100.0
2008 (post-visa)	Major cities	(85.8)	28.3	11.0	3.2	2.5	45.0
	Inner regional	34.7	(30.8)	4.9	0.9	0.5	41.0
	Outer regional	7.2	4.2	(38.6)	0.8	0.6	12.8
	Remote	0.3	0.1	0.7	(12.6)	0.1	1.2
	In-migration	42.2	32.7	16.6	5.0	3.6	100.0

Note:
In-migration corresponds to the sum of percentages in the columns, excluding percentages in the diagonal. Out-migration corresponds to the sum of percentages in the rows, excluding percentages in the diagonal

because they do not have social networks in these areas. These networks are likely to facilitate the transition of overseas graduates to the labour market by increasing their changes of finding employment (MacDonald & MacDonald 1964; Portes & Sensenbrenner 1993).

5.3. Influence of individual characteristics on the selection of remote areas among overseas graduates

To analyse the influence of a number of individual-level characteristics on the probability of settling in a remote area, we estimated an MLM where the dependent

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48 pts

Appendix A

Table A1. IIA tests for MLM on overseas graduate data

	Hausman test		Small–Hsiao test	
Omitted category	χ^2	*p*-value	χ^2	*p*-value
2005 cohort (pre-visa)				
Major cities	15.01	0.82	16.23	0.76
Inner regional	1.40	1.00	15.16	0.82
Distant areas	−20.68	–	14.18	0.86
2008 cohort (post-visa)				
Major cities	14.63	0.84	12.65	0.92
Inner regional	−32.34	–	19.86	0.53
Distant areas	−11.73	–	10.89	0.97

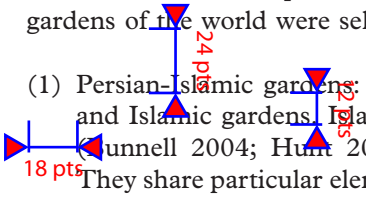
Notes:
Long and Freese (2006) point out that if χ^2 is negative, the IIA is not violated.
H_o: odds (outcome-J *vs* outcome-K) are independent of other alternatives.

experience similar preferences (Kaplan & Herbert 1986; Yang & Kaplan 1990; Yu 1995). Several studies have reported differences in natural environment preferences based on ethnic and background variables (Kaplan & Herbert 1986; Kaplan & Talbot 1988; Schroeder 2007). A study by Zube (1981) compared the perceptions of West Indians and Americans from several ethnic backgrounds on scenic and heritage landscapes, which demonstrated considerable differences between the different cultures. Landscape preferences depended heavily on culture or ethnicity. The extent to which this is also true in Malaysia, in the context of gardens, can now be examined.

Methodology

The Information Processing Model, developed by Kaplan and Kaplan (1982), assumes that humans need information to be mobile in the environment. It suggests that there are two important components which deal with the content and organisation of the environment. The Information Processing Model is rooted in preference reactions, which are assessments of the compatibility of the environment with one's predicted needs and goals (Kaplan 1985). The content of the environment can include water, texture and human intervention, and the spatial arrangement of landscape elements involves the sense-making of settings, including coherence, complexity, mystery and legibility. The content and spatial configuration of these attributes contributes to our understanding of and preferences for landscape.

Previous studies have shown that using photographs as surrogates of actual scenes in testing preferences is reliable and valid (Kaplan & Kaplan 1989; Hull & Revell 1989). Therefore, to test the visual preferences of Malaysian ethnic groups it was necessary to have a collection of garden scenes available for them to consider in terms of content and spatial organisation. Four gardens among the well-established gardens of the world were selected as follows:



(1) Persian-Islamic gardens: the term Persian-Islamic here refers to both Persian and Islamic gardens. Islamic gardens gained their roots from Persian gardens (Brunnell 2004; Hunt 2000; Hobhouse 2002; Faghih 2005; Turner 2005). They share particular elements, history and theory. Jamil (2002) has pointed to the influence of Islamic architecture in Indian architecture and in the creation of gardens in India too. Aside from this, Khansari *et al.* (2004), Hobhouse (2002) and Faghih (2005) have noted that Islamic gardens were used as patterns for creating gardens in India. Hence, for Indian Muslims living in Malaysia, Persian-Islamic gardens might be expected to provide patterns and inspiration for Malaysia's garden development.
(2) English gardens: colonial influences of English garden culture are also noticeable in Malaysian landscape design (MARDI 2005). Because of the cultural influences of English gardens in shaping the earliest Malaysian parks and landscapes, and their particular role in Malaysian colonial history, English gardens have been incorporated into this study.
(3) Chinese gardens: these have also been selected for this study because of Malaysia's large Chinese population and the distinctive identity of these gardens. Chinese gardens are rooted in the ancient history and culture of China, and provide a setting that is a mixture of natural and manmade

Scene 22

Mean=3.45

Std Dev=1.17

Scene 15

Mean=3.42

Std Dev=1.18

Scene 10

Mean=3.38

Std Dev=1.30

Scene 12

Mean=3.34

Std Dev=1.08

Scene 4

Mean=3.06

Std Dev=1.16

PLATE 2. The least preferred garden scenes for Malaysian gardens (overall).

Ideally, Malaysian gardens might be designed and created in such a way that they could be accepted by the country's three main ethnic groups: Malays, Chinese and Indians. Therefore, an analysis of variance (ANOVA) was undertaken to identify the differences of scene preferences among the three races (see Table 5).

As Table 5 reveals, a significant difference existed between the preferences for scene numbers 4, 6, 10, 15, 18, 21, 24, 25, 26 and 28 among the different ethnic groups. From the post-hoc comparison, in these scenes, the mean was significantly different between the ethnic groups. Subsequently, a multiple comparison was undertaken to identify the differences between the three races (see Table 6).

Based on the results presented in Table 6, the nine scenes described below highlight the most significant differences between the three groups:

- Scene 4: this scene is one of those from the Chinese gardens, including many architectural features, rocks and some plants. A significant difference was recorded between the preferences of the Malay and Chinese respondents and the Indian and Chinese respondents for the scene. This scene was also one of the five least preferred scenes among all the ethnic groups; the difference reflected the scene selection sequence.
- Scene 6: this scene belongs to the Islamic gardens, including a big geometric water basin with dark water and fountains. Architectural features in the form of building, basin and pavements are dominant elements of this scene. The difference between the preferences of the Malay and Chinese respondents was

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Book Reviews

Obstacles to democratization in Southeast Asia: a study of the nation state, regional and global order
Erik Paul, 2010
Palgrave Macmillan, Basingstoke
viii + 219 pp. + index. ISBN 978-0-230-22896-2 (hard); 978-0-230-22897-9 (soft)

Democracy is never complete. Erik Paul borrows John Dewey's notion in the opening chapter of the book, noting that democracy is a work in progress. It's a fundamental human struggle towards an inclusive society based on a principle of political and economic equality for all. It is for good reason that the book is not titled *Democracy in Southeast Asia*. Despite achieving steady economic growth, wealth and power remain concentrated in the hands of a few, and people across Southeast Asia continue to struggle for political and economic equality. While the release of Aung San Suu Kyi in November 2010 stirred euphoria and a sense of political freedom in the region, the region is still fraught with daily persecution of religious leaders and political activists, forced relocation and resettlement of citizens in the name of development and prosperity, and repression of and violence against ethnic minorities. Democracy in Southeast Asia is fragile at best and obstacles abound.

Overall, the book provides a snapshot of the political and economic situation in 11 countries of Southeast Asia, and examines the role of regional cooperation frameworks such as the Association of South East Asian Nations (ASEAN) in facilitating a more democratic regionalisation. One of the key questions addressed in the book is whether ASEAN can follow the success of the European Union (EU), and overcome the mounting tendencies towards nationalism and protectionism.

The book is organised by laying out the premise of regionalisation in Chapter 1. Paul claims that regionalisation can transcend nationalism and help build a more peaceful world. Chapter 2 then outlines challenges for Southeast Asian countries in achieving democratic principles based on public participation and the rule of law. Challenges are numerous, from growing regional and domestic economic inequalities to the resurgence of China's economic influence, state control of civil society and increasing militarisation.

Paul further analyses challenges for each country in Chapter 3, which is a whopping 96 pages long. Analysis of 11 countries, from Brunei to Vietnam, suggests all countries—whether they adhere to one-party rule, monarchy or a somewhat democratic form of government—are plagued by political elites' abuse of power. Too often natural wealth (i.e. minerals, gas and oil, forest and land, water, etc.) is squandered, as global capital and local elites collude to accumulate personal wealth at the cost of displacing and impoverishing rural populations. Across Southeast Asia, Paul sees emerging tension between the ruling elites and the growing middle class:

Without doubt the book is useful for political scientists studying regionalisation in Southeast Asia. For geographers and others scholars of countries and sub-regions within Southeast Asia, this book provide a comprehensive perspective on contemporary regional political challenges. Personally, I found the book useful in thinking through ASEAN's limitations in enforcing the principles of democracy in the light of incidents in Laos following the 9th Asian-Europe People's Forum held at its capital Vientiane in November 2012. Following the event, which highlighted the detrimental effects of resource-based investments, a Swiss development worker who participated in the forum was extradited by the Lao government. This was immediately followed by the abduction of Sombat Somphone, an internationally renowned Lao development worker and a winner of the Magsaysay Award, who gave a keynote speech at the forum calling for more equitable development. These incidents placed Laos, one of the poorest countries of ASEAN, in the international spotlight, questioning its commitment to human rights and the rule of law, and triggered a debate on the credibility of ASEAN and its long-standing principle of non-interference. As Paul's book attests, it is indeed a long, thorny road ahead for democracy in Southeast Asia.

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Lifeboat cities
BRENDAN GLEESON, 2010
UNSW Press, Sydney
206 pp. ISBN 978 1 74223 124 2, A$34.95 (soft)

Reading *Lifeboat cities* reminds me of the disaster movie '2012'. In the film, at the time when the Earth was to be shattered by cataclysmic upheavals, the only hope for human survival was to take to the arks. In the book, Brendan Gleeson warns that Australia, as well as the rest of the world, is facing social and ecological threats: 'the storm is already here' (p. 11). Everybody should work solidly for 'immediate survival' (p. 11). The arks that Australia needs to survive are the lifeboat cities which can steer everyone through the catastrophe that will be 'a series of reverberating, interlocking shocks' (p. 128) triggered by sudden climate change, resource crisis and social stress.

Lifeboat cities begins with an introduction and ends with a short afterword where the author offers a message of hope. The 13 chapters in the book are arranged in three parts, along the past-to-future time continuum. Each chapter has a thought-provoking title and some have a epigraph following the title. All of the chapters are roughly the same size, ranging from about 12 to 16 pages, with no sub-headings. The structure of the book is easy to follow, and Gleeson's writing style is easy to read.

The first part of the book dwells on the climate emergency, resources shortage and social stresses that confront Australia. Gleeson explores the root cause of the environmental and social crises—the neoliberal market-based-economy system. Rather than adopting conventional thinking of blaming an over-consumption lifestyle for the problems, Gleeson argues that 'the threat of climate warming, already manifest, is a consequence of over production, not over consumption' (p. 70).

emissions and more 'energy security' because the primary commodities from which biofuels derive, such as wood, crops and agricultural waste products, are readily accessible. However, concerns about the trade-offs between biofuel production, food security—as well as water and other environmental impacts—have resulted in a plethora of detailed assessments (e.g. Pimentel 2003; Dalla Marta *et al.* 2011).

From a nexus perspective, the impacts of the production of some biomass for biofuels on freshwater supplies are particularly concerning. Calculations are available showing that although almost 90 per cent of fresh water used to produce primary energy is used in the production of biomass, this effort in turn accounts for less than 10 per cent of total primary energy generation (Gerbens-Leenes *et al.* 2008). The World Energy Council concluded in 2011 that it is 'highly questionable whether the production and usage of biomass adds any value' (WEC 2010, p. 18). At the very least, the purported economic and environmental advantages of biofuels need to be determined with much more accurate and comprehensive assessments of the resource efficiency of the global biofuels production system (Dalla Marta *et al.* 2011).

Hydropower. Despite contestation over its low-emission status, hydropower has been supported extensively by international and national climate-mitigation policies (Pittock 2010b; Pittock 2011). While there is considerable variation across climatic zones, hydropower generally consumes large volumes of water through evaporation in addition to the (larger) volumes withdrawn for generation and returned to rivers (Gerbens-Leenes *et al.* 2008). Hydropower dams have significant, negative environmental impacts by forming barriers to wildlife migration, resulting in changes to water, sediment and nutrient flows, and lowering water quality (WCD 2000; MEA 2005; Nilsson *et al.* 2005). There are few suitable sites for new, conventional hydropower development in Australia, although potential exists for the expanded development of pumped storage hydropower to back up electricity from intermittent renewable energy generators (Garnaut 2008; Blakers *et al.* 2010). In reoperating existing reservoirs and using new, compact off-river storages, it is often possible for the water and other environmental impacts of pumped storage hydropower to be limited or offset (Blakers *et al.* 2010; Pittock 2010b).

Coal seam gas. The recent commencement of coal seam gas exploitation in Australia has raised concern about the impacts on water resources (RET 2012; Williams & Pittock 2012). In particular, the 'fracking' method used to access many gas reserves—involving the pumping of water, sand and various chemicals into a coal seam—requires large volumes of water and raises questions of pollution. Groundwater that naturally overlays a coal seam may also need to be pumped out prior to fracking to 'de-pressurise' the coal formation so the gas will flow back to the surface (Jones 2011). Water pumped out of these deposits often contains 'a range of contaminants, many of which require careful attention in respect of their use and disposal (DERM 2010). Estimates of the amount of water to be extracted in coal seam gas production in Australia range from 300 to 1500 GL/year (ABC 2011). A number of potential uses exist for coal seam gas water, however, such as agriculture (stock watering and irrigation) and industrial re-use, although the viability of these options depends on water quality levels as a whole (and the possibility of removing

Integrative climate, energy and water policy will ideally involve an enhanced ability to identify and navigate difficult and unavoidable trade-offs where these are found to exist, as well as realising synergies and mutual benefits wherever it is possible to do so. It is important to recognise that there is symmetry in the interdependent relations between climate, energy and water—so that while there is the potential for perverse outcomes and inter-sectoral trade-offs, the climate–energy–water nexus also offers the possibility of gains for multiple sectors. Our research identifies four capacities that can improve integration across the climate, energy and water sectors in Australia:

(a) Combining energy and water data is an essential first step to integrating decision making (Hussey & Pittock 2012), as is quantifying the relationships between climate, energy and water for specific policy measures (such as the carbon sequestration volumes and water requirements of young forests for afforestation policy).
(b) Expanding participation in carbon, energy and water markets could provide consistent price signals for demand management and would prevent consumption of resources such as water from being treated as an externality (NWC 2011; RET 2011a).
(c) Deploying better technologies such as dry cooling can enable the supply of low-carbon energy and conservation of water (Stillwell *et al.* 2010; Spies & Dandy 2012).
(d) Better integrating governance by applying: leadership, legal mandates for institutions to work across sectors, vertical and horizontal integration mechanisms, and accountability mechanisms that monitor and identify problems and enhance performance (Ross & Dovers 2008; Pittock 2011; Henriksen *et al.* 2011).

The conflicts and synergies between climate change, energy and water are symptomatic of similar inter-sectoral governance challenges that have been termed 'wicked problems' (Turnpenny *et al.* 2009). In this paper we have addressed the links between climate change, energy and water but other linkages can also be explored, for instance the nexus between climate change, energy and health (Turnpenny *et al.* 2009), and climate change, water and agriculture (CAoWMiA 2007). The challenge of better integration of policies across sectors bedevils governments (Shergold 2004). Do the solutions offered here provide a framework for better management of other wicked problems?

Conclusion

As a water-scarce nation that is subject to climatic extremes, and as a country with some of the highest per capita GHG emissions in the world, Australia is at the forefront of the climate, energy and water nexus. This research shows that in both the government and business sectors, narrow and single-sectoral policy development on energy, carbon sequestration and water supply is generating perverse outcomes. In focusing on the interconnections between climate change, energy and water we have proposed that conflicts can be minimised and positive synergies realised by linking disparate knowledge, deploying new technologies, encouraging broader markets and enhancing governance. Some resource trade-offs are

disrupt the 'problem' status so often ascribed to migrants in environmental debates, and to undermine the legitimacy of those who exploit environmental concerns to foster prejudice.

Entanglements with 'natural' landscapes and resources: the Indigenous/Anglo-European binary

Where ethnicity has been discussed in relation to Australian environmental issues, it has been mostly to compare Indigenous and Anglo-European attitudes and actions. Indigenous environmental interactions are widely seen as being adapted to Australian conditions, albeit hewn into that relationship over a long time period. Anglo-European Australians, on the other hand, are argued to have misread the Australian environment, attempting to impose a European sensibility and mode of operation onto it (Lines 1991). There are several variations within this theme. Indigenous hunter-gatherer stewardship over tens of thousands of years has been contrasted with the massive and rapid changes wrought by Anglo-European agricultural occupation over the last 200 years (Australian State of Environment Committee 2011). Indigenous impacts via hunting, gathering and the use of fire have stimulated fierce debate and critique (Jones 1969; Flannery 1994; Langton 1998; Head 2000; Horton 2001). Others have pointed to evidence of strong environmental engagement by some colonial settlers (Bonyhady 2000). Debates were heated partly because both the categories 'Indigenous' and 'Anglo-European' are too broad. The former encompasses and glosses over considerable spatial and temporal variability (Lourandos 1997; Keen 2003). So too, the category Anglo-European includes at least two quite different environmental sensibilities; the anti-human wilderness and conservation-focused ethic of colonising New World societies such as the USA (Nash 2001), and the more human-inclusive view of nature characteristic of Britain and north-west Europe (Saltzman *et al.* 2011). Ethnic minority migrants' views of the Australian environment and understandings of 'nature'– including some with long-standing presences in Australia (Chinese, Indian and Afghan)—have largely been omitted from environmental research framed within this binary (exceptions are: Thomas 2001, 2002; Cadzow *et al.* 2010; Goodall *et al.* 2012).

Similarly, while rural geographers in Australia (as in the UK) have begun to debunk suggestions that rural areas are devoid of ethnic diversity (Askins 2009; Panelli *et al.* 2009; Dufty & Liu 2011), research on sustainable land and natural resource management practices has scarcely engaged with this theme (Stratford & Davidson 2002; Missingham *et al.* 2006). Yet, as Alston (2004, p. 40) has noted, 'there is a great deal of ethnic diversity in [Australian] farm families', and this has been present for some time. Stratford and Davidson (2002, p. 433) used the example of a nineteenth-century Chinese settler who wrote, in 1903, about his experiments exploring the climatic suitability of Tinaroo (Queensland) for rubber and cotton growing—but such records are scarce. Today, ethnic minority groups have a tendency to cluster in particular rural locations: 'Indian growers on the NSW north coast and in northern Victoria, and Vietnamese farmers around Perth' (Alston 2004, p. 40). The numbers involved are not insignificant. In 2001, 40 per cent of horticulturists in Victoria's Goulburn Valley, and 33 per cent of those in Sunraysia (spanning south-west NSW and north-west Victoria) spoke a language other than English at home (Missingham *et al.* 2006). And, if we shift attention to

TABLE 1 (*Continued*)

Stages	Descriptors
	• Local ownership increases—more affordable as markets decline • Infrastructure conversion—hotels to condominiums, apartments, retirement homes • Attractive to permanent settlement, tourist slum or lose tourist facility completely
Rejuvenation	• Change in attraction upon which tourism is based • Additional man-made attraction, element of uniqueness • Take advantage of 'untapped' natural resources • Reorientation to 'off' season to make all-year-round attraction • New development becomes feasible, revitalise peak season trade • Combined government/private effort • Attract specific interest/activity visitor groups

shift from one stage to another can be identified simply by observing the historical pattern of the number of tourists', this study applied triangulation with both qualitative data as outlined in the methods section and referencing against quantitative data particularly from 1970 to 2010 (Caldicott & Scherrer 2013).

Methods

Study area

Tweed Shire is the most northerly local government area in New South Wales along Australia's east coast. Its natural attributes include world-renowned surf breaks, large navigable rivers and quiet estuarine fishing reaches surrounded by subtropical littoral rainforest. All set within the ancient caldera and shadow of the landmark peak of Mt Warning, with its associated World Heritage Gondwana Rainforests (listed in 1986), this natural paradise was the birthplace for local tourism development—catering to the early 1800s' allocentrics (Plog 2001). The rudimentary tourism settlement of the Tweed Shire therefore pre-dates the Gold Coast, its northern internationally renowned neighbour with its glitzy resorts, which has since overshadowed Tweed in recent tourism development history. In 2011, Tweed Shire had 32 caravan parks registered under the Shire's Local Environment Plan, the highest proliferation of caravan parks of all shires in New South Wales. Of these, 27 caravan parks collectively hosting 3360 sites were operating within the study's adopted definition of caravan park, while the business model of the other five establishments was not focused on touring caravanners. Low-level camping grounds provided in national parks and state forest areas as well as roadside rest areas that were frequently used as overnight 'freedom camping' places, were also not included in this study.

Methodology

This exploratory study draws on four main sources of data which facilitate triangulation: the popular press, grey literature, unstructured interviews and surveys. Firstly, the popular press, which included a review of historical magazines and newspapers, provided a valuable resource to establish a foundational history of park development dating back to first settlement of the Tweed Shire in 1820.