

A Spatial Method for Assessing Resident and Visitor Attitudes Towards Tourism Growth and Development

Christopher Raymond

*School of Natural and Built Environments, University of South Australia,
Mawson Lakes, Australia*

Gregory Brown

*Natural Resource Management, Green Mountain College, Poultney, VT
05764 and School of Natural and Built Environments, University of South
Australia, Australia*

Few tourism planning methods include spatial survey techniques that explicitly identify place-based development preferences. In this study, we compare attitudes towards tourism development in the Otways region of Victoria, Australia, using traditional survey research questions and a contemporary method for measuring spatial preferences for development. Results from the survey data show conditional support for tourism growth and development in the Otway Hinterland and along the Otway Coast irrespective of residence distance from the tourism core; however, results from spatial attribute data show there are place-specific differences in 'acceptable development' and 'inappropriate development' preferences. We suggest that the spatial attribute method is an inclusive process that can potentially bridge pro-development and anti-development responses that emerge during community consultation by providing development preference data that is scaleable to both local and regional scales.

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Introduction

The Otways region, located along the southwestern coastline of Victoria, Australia, is one of Victoria's fastest growing tourism destinations (VEAC, 2004). The main tourist attraction of the region is the Great Ocean Road (GOR), a world class driving experience that extends 242 km and encompasses coastal views and rugged coastal landforms such as the Twelve Apostles. Placed in the context of Butler's (1980) destination life cycle model, the Otway Coast, the region within 5 km of the coastline (Figure 1), is experiencing accelerated development. Traffic often exceeds the GOR's capacity and poorly planned development threatens the quality of life of coastal residents and the ecological integrity of coastal heathlands (VEAC, 2004).

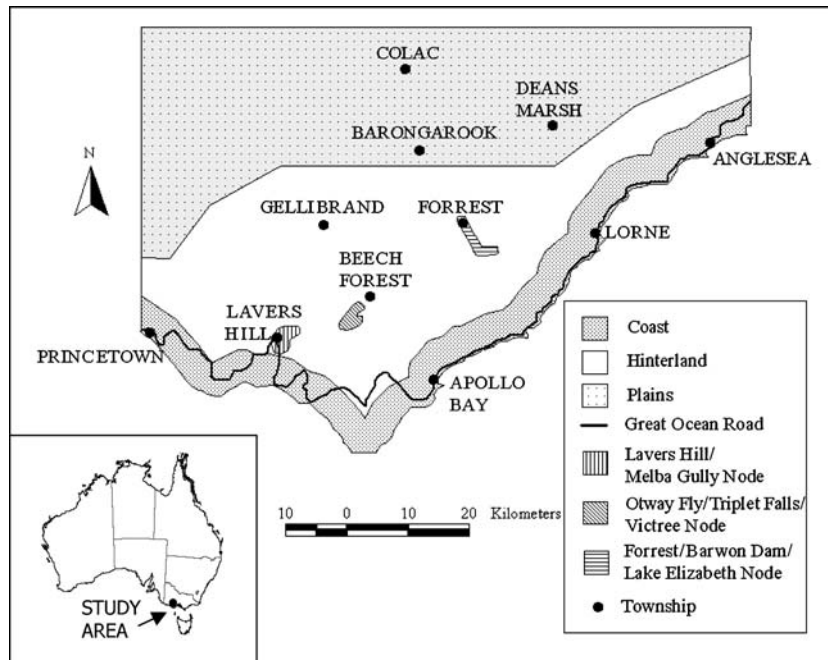


Figure 1 The otways region of Victoria, including subregions of residence and tourism nodes

Conversely, the Otway Hinterland, the area containing the mountains and the forests up to 30 km from the coast, is in a stage of exploration (Butler, 1980). Following a recent state government decision to cease logging of native forests in the region by 2008 (VEAC, 2004), integration of the hinterland into the destination product has been proffered as a means to increase the length of stay in the hinterland, reduce the pressure on the GOR, and convert forestry dependent economies to tourism. The draft 'Tourism Plan for the Public Land within the Otway Hinterland' (DSE, 2003) recommends the development of three tourism nodes. They are: (1) a nature and rural node around Lavers Hill and Melba Gully; (2) a nature-based node around the Otway Fly, Triplet Falls, and Victree site; and (3) a nature and rural node around Forrest, Barwon Dam, and Lake Elizabeth (Figure 1).

The tourism plan has a strong marketing focus and devotes little attention to local citizen values and the social and environmental effects of tourism. The main aim of the plan is to attract more tourists from the GOR into the hinterland and to encourage people to stay longer and spend more by promoting a focus on hinterland experiences (DSE, 2003). Higgins-Desbiolles (2005) argues that the ideology of economic growth and consumer capitalism is squandering the wider benefits of tourism as a social force for the preservation of cultures (Cohen & Kennedy, 2000), for the empowerment of local communities (Garrod, 2003), as a 'spiritual quest' for tourists (Graburn, 1989), and for the restoration and conservation of environments (Inskeep, 1991; Richardson, 1993). This view is supported by Drake (1991) and Brandon (1993) who suggest the tourism

industry's focus on economic benefits has led to an extreme lack of local participation in tourism planning.

Researchers have investigated resident attitudes towards tourism development in recognition that tourism-related activities cannot be planned in isolation of their dependencies on other human activities and natural processes. Resident attitudes have been explored through a variety of methods including socioeconomic factors, distance from tourism core, and economic dependence (Harrill, 2004), and have been measured using a variety of scales and research paradigms including the Tourism Impact Assessment Scale (Lankford & Howard, 1993). These traditional approaches to survey research have been criticised as producing often mixed and conflicting results (Harrill, 2004) that do not account for different spatial scales of valuation (Brown, 2005).

In response to these shortcomings, this paper provides a spatial method for incorporating public values into the destination planning framework. The method distances itself from traditional market-driven and top-down planning approaches (Lawson & Boyd-Bovy, 1977; Getz, 1986; Inskoop, 1988, 1991) and advocates that residents as well as visitors to a region possess invaluable information about the most acceptable types and locations of tourism development. The study builds upon work by Leiper (1990, 1995), Dredge (1999), and Feick and Hall (2000) who propose a systematic and spatial approach to destination planning.

The aim of this paper is to compare resident and visitor attitudes towards tourism growth and development using both traditional survey questions and a contemporary spatial attribute method. This paper will first explore the effect of distance from the tourism centre on attitudes towards tourism using traditional survey questions and, secondly, use a spatial method to investigate the proportional differences between respondent development preferences at selected tourism destinations, including the tourism nodes proposed in the Otway Hinterland tourism plan. Finally, we will compare the results of both methodologies and discuss implications for future tourism planning and community consultation processes in Australia and elsewhere.

Effect of distance from tourism centre on attitudes towards tourism

The majority of tourism research indicates that residents who live close to the core of tourism activity have more negative attitudes towards tourism development (Harrill 2004). Pizam (1978) and Williams and Lawson (2001) found that those people living close to heavy concentrations of tourism facilities and services had more negative attitudes towards the effects of tourism. Similarly, Tyrell and Spaulding (1984) found that residents were supportive of tourism as a whole but more negative towards tourism development near their homes. Harrill and Potts (2003) investigated the relationships between neighbourhood, economic dependency, and tourism, finding that those neighbourhoods close to the tourism core had the most negative attitudes towards tourism while neighbourhoods further away perceived tourism more positively. Jurowski and Gursoy (2003) tested a social exchange theory model developed by Gursoy *et al.* (2002). The test showed that distance from the tourism core effected how residents evaluated the costs and benefits of tourism; people who lived close

to the tourism core and were heavy users of resources were more likely to evaluate tourism exchanges negatively and were less likely to support tourism development.

Conversely, other research has found that residents living close to the tourism core have more positive attitudes towards tourism (Pearce, 1980; Sheldon & Var, 1984; Korca, 1998). Belisle and Hoy (1980) had similar findings; however, Harrill (2004) warns that these results may have been confounded by economic dependency factors where a large portion of the urban population depends on tourism for economic prosperity.

Apart from a study of resident and visitor attitudes towards tourism in the exurban fringe of the Gold Coast Hinterland (Weaver & Lawton, 2004), visitor research has been limited to gauging visitor preferences and levels of satisfaction to improve profitability of tourism operations, as described by Jafari (2001). Weaver and Lawton's work showed that visitors supported tourism in the Gold Coast Hinterland as long as it did not compromise the natural assets of the region. Those respondents who lived near the tourism core (i.e., Gold Coast) were more supportive of sharing the tourism assets than those who lived farther away (i.e., Brisbane).

The role of spatial methods in tourism destination planning

Dredge (1999) developed an integrated model for incorporating travel patterns (Lue *et al.*, 1993), attraction systems (Leiper, 1990), and nodal structure (Leiper, 1990; Gunn, 1993) into tourism destination planning. The model was largely conceptual, but it reinforced the importance of integrating tourism development into the local government planning framework which has statutory provisions for regulating the types and scale of developments. One mechanism for regulating tourism growth is to develop tourism nodes comprising attraction complexes and service components (Leiper, 1990; Dredge, 1999). Attraction complexes are attractions, sights or objects that tourists want to visit while the service component consists of a diverse range of facilities including accommodation, restaurants, and retail outlets that support visitors. The attraction complexes provide the outer area of influence for the tourism node, often referred to as the 'zone of closure' (Gunn, 1993).

Feick and Hall (2000) developed *TourPlan* – a participatory, GIS-based decision support system that allows multiple participants to designate parcels appropriate for tourism-related development or competing land uses. The system allows for some degree of consensus-building in tourism site selection among potentially diverse participants. The system appears most applicable in a tractable decision context involving a limited number of individuals and organizations working to produce one part of a wider development strategy.

Questions remain on how to effectively incorporate potentially diverse public opinion into the planning of service components within tourism nodes. Both the nodal model and *TourPlan* largely focus on the opinions of experts from planning, conservation, and business authorities. In response to this shortcoming, Brown (2005) developed a general public survey technique to solicit perceived landscape values and special places using a simple respondent mapping protocol. Respondents are asked to map landscape values that are special to them

using a typology developed and applied in five planning applications in Alaska (Brown *et al.*, 2002; Brown, 2003; Reed & Brown, 2003; Brown *et al.*, 2004; Brown & Alessa, 2005). The typology was originally validated for a national forest planning application (Brown & Reed, 2000), with the majority of survey participants having little difficulty understanding and responding to the typology.

The survey method and associated typology was subsequently expanded to measure tourism development preferences of residents of Kangaroo Island, Australia, a popular tourism destination (Brown, 2006). In that study, tourism development preferences among residents were most closely associated with recreation, economic, and scenic landscape values while preferences for 'no development' were most closely associated with wilderness, therapeutic, and intrinsic landscape values. A simple tourism development index was generated from the spatial data to display a continuum of place-based development preferences ranging from positive (acceptable development) to negative (no development) values. While traditional survey responses from Kangaroo Island residents show generally favourable attitudes towards future tourism development, the spatial data indicates that favourable development attitudes are highly contingent on development location. The results suggest that the measurement of resident attitudes towards tourism development, without reference to place identification, is unlikely to provide reliable guidance for more consensual tourism development decisions, except by chance.

The research hypotheses – examining resident and visitor attitudes towards tourism development

The first section of this paper explores resident and visitor attitudes towards tourism development using traditional survey questions. We hypothesise that respondents who live close to the tourism core of the Otway Coast would have more negative attitudes towards tourism development than those who live farther away. The distance variable was tested using the distance proxies (Figure 1) of 'coast', 'hinterland', and 'plains' subregions of residence, and 'visitors' (living farther from the tourism core than all residents). The second section of this paper uses the spatial data collected in the survey to examine the proportional differences, if any, between resident and visitor tourism development preferences (inappropriate development vs. acceptable development) at selected tourism destinations. We hypothesise that a higher proportion of both resident and visitor tourism development preferences would be located in or near existing towns, in contrast to development in more natural areas such as national parks and state forests, as proposed in the Otway Hinterland tourism plan.

Methods

Sampling technique

We collected a random sample of Otways residents by examining the 2003 electoral roll for the division of Corangamite, Victoria (Australian Electoral Commission 2003). To ensure statistically useful numbers of respondents across the coast, hinterland, and plains subregions (Figure 1), we randomly selected residents from 44 Otways region communities at an interval of 25, and from a

Table 1 Development preference typology used in the Otways region survey

<p>No development – Use these dots to identify areas where any future development should be permanently prohibited.</p> <p>Tourism accommodation development – Use these dots to identify areas where tourism accommodation could conditionally occur with a good plan.</p> <p>Tourism service development – Use these dots to identify areas where tourism services (e.g., restaurants, entertainment, petrol, and groceries) could conditionally occur with a good plan.</p>

random start point. We oversampled hinterland residents because a proportional sample of the subregion ($n < 40$) would not have provided enough observations for statistical analysis. An introductory letter to the 1500 residents identified 100 undeliverable addresses, reducing the number of participants to 1400.

We collected visitor names and addresses by a convenience sample at the Otway Fly (a hinterland tourist attraction), and Lorne and Maits Rest (coastal tourist attractions) during the peak visitation time of 11 am to 5 pm. These sites were selected in consultation with Parks Victoria staff on the basis of high visitation. At the designated sample sites, all visitors who passed three stationed research assistants were asked to participate in the survey, except minors under the age of 18, and overseas visitors. Due to the convenience sample, the visitor sample is not assumed to be representative of the visitor population; however, it does provide a basis for comparing resident and visitor expectations and it is considered important for determining future tourism threats and opportunities in the region.

Survey procedure

In January 2005, we conducted a mail survey of Otways residents and visitors using a modified Total Design Method (Dillman, 1978). Survey administration involved three mailings: (1) introductory letter informing of the purpose of the research; (2) complete survey packet; and (3) second complete survey packet to non-respondents from the first round.

Of relevance to this study is the part of the survey that asked participants to place mnemonically coded sticker dots representing three development preferences of 'no development', 'tourism service development' and 'tourism accommodation development' on a 1:125 000 greyscale Otways map (Spatial Vision, 2001) provided with the survey. A brief description of each development preference appeared adjacent to the respective row of sticker dots (Table 1).

Each of the development preferences was allocated six sticker dots and labelled by a unique mnemonic code and number ranging from '1' to '6' (e.g. nd1 = 'no development'; ts1 = 'tourism services'; ta1 = 'tourism accommodation'). Respondents were instructed to place as many or few dots on the map as they desired. The survey instructions were silent about whether the numbers represented dot weightings; for example, whether 'nd1' represented stronger feelings about 'no development' than 'nd2' through 'nd6'. It is probable that some respondents assumed the tourism development preference dots were

ordered by importance because other sticker dots in the survey measuring landscape values were weighted, and respondents were provided with instructions informing them that some dots were more important than others. However, there was no specific survey intent for development preference dots to have importance ratings.

Upon return, the development preference locations were digitised using ArcView GIS software; a total of 560 resident responses (40% response rate) and 220 visitor responses (45% response rate) were returned, with 5240 development preference locations digitised for analysis. Development preferences were recoded for analysis as 'acceptable tourism development' and 'inappropriate tourism development' to be compatible with the tourism nodes spatially defined by DSE (2003). These nodes define areas of acceptable and inappropriate development, but do not distinguish between accommodation and service development.

The resident and visitor mail surveys contained questions in seven sections: (1) familiarity with and attachment to the Otways region; (2) potential threats to quality of life or visitor experience; (3) perception of appropriate activities for the Otways region; (4) acceptable growth rates for the Otway Coast and Otway Hinterland; (5) appropriate development options; (6) identification of landscape values, special places and development/no development preferences; and (7) respondent characteristics (e.g., community of residence, age, level of formal qualification, gender, occupation, and association with tourism).

We addressed resident familiarity with the Otways region by asking respondents how long they have lived in the Otways region and how they rated their knowledge of places in the Otways on a 4-point Likert scale, where '1 = Excellent, 2 = Good, 3 = Fair, and 4 = Poor'. Additionally, visitors were asked about their frequency of visitation to the Otways region and what sections of the Otways they had visited on their current or previous trips.

Analysis techniques

We determined similarities and differences in attitudes towards tourism growth and development using a combination of chi-square, t-test, and ANOVA statistical tests performed in SPSS[®] software. We used cross-tabulations with chi-square tests on the categorical dependent variables such as 'development type most likely to contribute to the Otways region's future economic prosperity and community well being', independent samples t-tests to determine overall differences between resident and visitor attitudes towards development options, and one-way ANOVA to determine differences among the three subregions of residence.

To address objective 2 of the study, the proportional differences between resident and visitor tourism development preferences within selected tourism destinations, we established a study area polygon (shape) buffered to 2 km offshore, capturing respondent-identified value locations but excluding obvious point outliers. We then used chi-square analysis to determine proportional differences between inappropriate and acceptable development locations that fell inside and outside the tourism nodes identified in the draft 'Tourism Plan for

the Public Land within the Otway Hinterland' (DSE, 2003), as well as selected national parks, state forests, and Otways townships.

Secondly, we modelled development preferences for the Otways region using density analysis, a process for identifying the spatial distribution and intensity of landscape values for a given region (Brown, 2005). Density maps were generated in ArcView software by selecting a grid cell size (500 m × 500 m) and search radius (2 km) around each grid cell. For each development preference, the number of points falling inside the grid cell, and cells within the search radius, were totalled and divided by the area contained within the grid cell.

The density grid representing inappropriate tourism development preferences was mathematically subtracted from the density grid representing acceptable tourism development preferences. The result is a new grid map with grid cells that reflect the difference between acceptable development and inappropriate development point densities. The difference may be considered a 'development index' that ranges on a continuum from acceptable development preferences (positive values) to inappropriate development preferences (negative values).

Results

Resident and visitor sociodemographic characteristics

The resident and visitor samples contained approximately the same proportion of males and females. There were proportionately more seniors (31.7% vs. 13.0% 60 years and older) and retirees (36.6% vs. 13.9%) in the resident sample, and proportionately less youth respondents (8.7% vs. 16.4% younger than 30 years). The coastal subregion had the highest proportion of seniors (39.0%), retirees (44.4%), and people employed in tourism (12.7%) out of all subregions of residence; this subregion was also least likely to identify with agriculture (7.9%), in contrast to hinterland residents (31.6%).

Resident respondents were older and had completed a higher level of education (37.3% with tertiary or postgraduate degree) than would be expected based on comparable Australian Bureau of Statistics (ABS) statistics. The proportions of male and female respondents were similar to ABS data. The views expressed in the survey appear credible based on the significant collective experience and knowledge of the respondents. The majority of residents indicated good (57.5%) or fair knowledge (24.6%) of places in the Otways, and have lived in the Otways for more than 10 years (79.0%). Visitors indicated less knowledge of places in the Otways than residents, with the majority expressing good (34.3%) or fair (45.5%) knowledge of the Otways. Many respondents have visited the Otways more than 10 times (46.4%); however, a high proportion visited less than 3 times (32.1%).

In summary, respondent characteristics indicate some bias towards older, more educated, and knowledgeable Otways residents. While sample deviations from true population characteristics are generally viewed negatively, this bias can be placed in a positive light because greater knowledge and experience about the Otways is likely to have increased the reliability of the mapping component of the survey.

Attitudes towards tourism potential and visitor growth rates in the Otway hinterland and along the Otway coast

For hinterland tourism (Table 2), proportionately more Otways residents preferred a higher level of tourism development compared to visitors to the region $\chi^2(2, N = 667) = 14.14, p < 0.05$, but both groups supported slow growth, defined as +1% per annum, over any other growth type, $\chi^2(4, N = 679) = 7.72, p \geq 0.05$. Further, all resident subgroups felt the current level of hinterland tourism development was about right, $\chi^2(4, N = 505) = 3.23, p \geq 0.05$, and supported slow visitor growth over any other growth type, $\chi^2(8, N = 491) = 1.17, p \geq 0.05$.

There is uncertainty regarding which economic sector will best contribute to the hinterland region's economic prosperity and community well-being. All resident subgroups preferred a mix between tourism (40.6%) and agriculture (27.2%) in the Otway Hinterland, while plains residents perceived forestry as significantly contributing to the region's economic prosperity (20.9%). The differences in development type perceptions among coastal, hinterland, and plains residents are statistically significant, $\chi^2(8, N = 470) = 20.26, p < 0.05$, but there is general agreement on the most important sectors.

Both residents and visitors expressed more negative attitudes towards tourism growth and development along the Otway Coast compared to the Otway Hinterland (Table 3). Along the coast, 43.0% of residents perceived the current level of tourism development as too much compared to 10.1% for the hinterland. This view was shared by visitors to the region (39.8% coast vs. 7.5% hinterland). A higher proportion of residents and visitors also preferred no growth (defined as 0% per annum) along the coast (30.8% and 35.6%, respectively) compared to the hinterland (24.6% and 28.9%). Despite these findings, Otways residents in general perceive that tourism development is most likely to contribute to the future economic prosperity and community well-being of the Otway Coast (79.9%).

Attitudes towards Otways regional development options

We presented attitudes towards development options on a Likert scale, ranging from '1 = Strongly Favour', '5 = Strongly Oppose', and '3 = Neither Favour or Oppose'. Both residents and visitors were most supportive of nature-based development options (Table 4) of 'nature/visitor centres' ($M = 1.80$), 'nature-based lodges in a natural setting' ($M = 1.88$), and 'designated campgrounds (not caravan parks)' ($M = 1.95$). Both residents and visitors expressed more resistance to the establishment of 'caravan parks' ($M = 2.49$) and there were some differences between subregions of residence $F(2, 540) = 4.07, p < 0.05$, with coastal residents more opposed to caravan parks than plains residents (Bonferroni post-hoc, $p < 0.05$).

Both residents and visitors opposed major hotels in Otways townships ($M = 3.37$), and fast-food outlets ($M = 3.65$); however, there were conflicting attitudes towards harbour developments and commercial/retail centres. Residents mildly supported harbour developments ($M = 2.57$) and commercial/retail centres ($M = 2.95$), whereas visitors mildly opposed these developments ($M = 3.22$ and $M = 3.43$, respectively). We found some differences in attitudes towards harbour developments among subregions of residence, $F(2, 542) = 5.25, p < 0.05$,

Table 2 Resident and visitor attitudes (%) towards Otway Hinterland tourism growth and development

Variable	N	Overall ^a	Resident			X ²	p	Visitor			X ²	p	Resident			X ²	p
			Resident	Coastal	Hinterland			Plains	Resident	Visitor			Resident	Hinterland	Plains		
Tourism growth satisfaction						14.14	0.001				3.23	0.521					
Not enough	216	32.8	35.8	34.0	30.8			21.7			39.7						
About right	388	58.0	54.2	56.0	59.0			70.8			50.2						
Too much	63	9.2	10.1	10.1	10.3			7.5			10.0						
Total	667	100.0	100.0	100.0	100.0			100.0			100.0						
Visitor growth rate						7.72	0.102				1.17	0.997					
+5%/annum	97	14.3	16.3	18.2	14.7			9.1			15.7						
+1%/annum	382	56.3	55.7	53.9	56.0			57.8			56.7						
0%/annum	175	25.8	24.6	24.2	26.6			28.9			24.0						
-1%/annum	18	2.7	2.2	2.4	1.8			3.7			2.3						
-5%/annum	7	1.0	1.2	1.2	0.9			0.5			1.4						
Total	679	100.0	100.0	100.0	100.0			100.0			100.0						
Development type leading to economic prosperity											20.26	0.009					
Residential	44	9.3	9.3	8.9	12.9			n/a			8.2						
Retail/commercial	39	8.3	8.3	5.7	9.7			n/a			9.5						
Tourism	191	40.6	40.6	40.8	43.0			n/a			39.1						
Forestry	69	14.6	14.6	9.6	8.6			n/a			20.9						
Agriculture	128	27.2	27.2	35.0	25.8			n/a			22.3						
Total	471	100.0	100.0	100.0	100.0			n/a			100.0						

^a 1—Residents and visitors overall.
n/a—Visitors not asked this question.

Resident and Visitor Attitudes Towards Tourism

Table 3 Resident and visitor attitudes (%) toward Otway Coast tourism growth and development

Variable	N	Overall ^a	Resident			Visitor			X ²	p	Resident			X ²	p
			Resident	Coastal	Hinterland	Plains	Resident	Coastal			Hinterland	Plains			
Tourism growth satisfaction															
Not enough	85	11.5	13.0	13.9	9.2	7.7	14.2	6.08	0.048	7.25	0.123				
About right	341	46.3	44.1	43.3	38.3	52.6	47.7								
Too much	310	42.1	43.0	42.8	52.5	39.8	38.1								
Total	736	100.0	100.0	100.0	100.0	100.0	100.0								
Visitor growth rate															
+5%/annum	59	8.5	9.5	9.3	11.5	5.8	8.6	5.43	0.246	7.50	0.484				
+1%/annum	373	53.4	53.5	47.7	50.4	53.4	59.3								
0%/annum	224	32.1	30.8	34.9	32.7	35.6	26.7								
-1%/annum	25	3.6	4.1	5.8	3.5	2.1	3.2								
-5%/annum	17	2.4	2.2	2.3	1.8	3.1	2.3								
Total	698	100.0	100.0	100.0	100.0	100.0	100.0								
Development type lead to economic prosperity															
Retail/commercial	41	8.6	8.6	10.3	7.2	n/a	7.6			11.70	0.165				
Tourism	23	4.8	4.8	6.4	5.2	n/a	3.6								
Forestry	382	79.9	79.9	80.8	78.4	n/a	80.4								
Agricultural	20	4.2	4.2	1.3	4.1	n/a	6.3								
Total	12	2.5	2.5	1.3	5.2	n/a	2.2								
Total	478	100.0	100.0	100.0	100.0	100.0	100.0								

^a 1—Residents and visitors overall.
n/a—Visitors not asked this question.

Table 4 Resident and visitor attitudes toward development options for the Otways region

<i>Development option</i>	<i>Overall^a</i>	<i>Resident</i>	<i>Visitors</i>	<i>t</i>	<i>Coastal residents</i>	<i>Hinterland residents</i>	<i>Plains residents</i>	<i>F</i>
Major hotel in an Otways township	3.37	3.31	3.44	1.40	3.44	3.30	3.21	2.02
Small motel in an Otways township	2.35	2.36	2.33	0.49	2.47	2.35	2.29	2.04
Nature-based lodge in a natural setting	1.88	1.99	1.76	4.00	1.97	2.11	1.96	1.19
Serviced apartments	2.89	2.99	2.79	2.45	3.08	3.07	2.89	1.86
Designated campgrounds	1.95	1.99	1.91	1.19	2.10	1.99	1.91	2.56
Caravan parks	2.49	2.43	2.55	1.58	2.61 ^a	2.39 ^{a,b}	2.33 ^b	4.07
Bed and breakfast accommodation	2.13	2.16	2.11	0.86	2.21	2.07	2.17	1.00
Camping with no or very limited facilities	2.51	2.65	2.36	3.24	2.69	2.80	2.53	2.21
Cafes	2.30	2.30	2.29	0.07	2.27	2.26	2.32	0.22
Restaurants	2.44	2.44	2.43	0.03	2.40	2.40	2.47	0.38
Fast food outlets	3.65	3.57	3.73	1.71	3.65	3.57	3.51	0.79
Harbour developments	2.89	2.57	3.22	6.54	2.73 ^a	2.74 ^a	2.39 ^a	5.26
Nature/visitor centre	1.80	1.83	1.76	1.20	1.89	1.88	1.77	1.25
Commercial/retail centres	3.19	2.95	3.43	5.38	3.06	2.93	2.88	1.35
Boutique wineries	2.56	2.45	2.66	2.72	2.40	2.55	2.44	0.93

Bold numbers signify means that are significantly higher for resident or visitor groups based on independent samples *t*-test (non-equal variance assumed, $p < 0.05$).

Superscripts letters indicate that this mean is significantly different from the corresponding mean in the indicated cluster, based on Bonferroni post-hoc testing (where $p < 0.05$).

Means were based on a scale ranging from 1 = strongly favour, 2 = favour, 3 = neither favour or oppose, 4 = oppose, 5 = strongly oppose.

^a1 = Residents and visitors overall.

with coastal residents significantly more opposed to this type of development than plains residents (Bonferroni post-hoc, $p < 0.05$).

Residents and visitors tourism development preferences at selected Otways tourism destinations

Tourism development was generally evaluated as favourable at all three hinterland tourism nodes (Table 5). Residents were significantly more supportive of tourism development than visitors at the three locations ($t \geq 2.83$, $p < 0.05$). When resident subgroups are examined, there were significant differences in attitudes towards development at the Forrest, Barwon Dam and Lake Elizabeth tourism node, $F(2, 545) = 3.83$, $p < 0.05$. Coastal residents were significantly more opposed to future tourism development at this node than plains residents (Bonferroni post-hoc, $p < 0.05$).

The second method of analysis examines the proportional differences of development preference dots placed by survey respondents falling inside and outside tourism destinations identified in the 'Tourism Plan for the Public Land within the Otway Hinterland' (DSE, 2003), as well as selected natural areas and Otways townships. We determined proportional differences between development preferences using chi-square analysis. The results of the analysis appear in Table 6.

Proportionately more residents than visitors supported hinterland development (64.0% vs. 50.5% favour), $\chi^2(1, N = 424) = 25.57$, $p < 0.05$. Development was qualified by a preference for services and accommodation within existing town boundaries rather than at natural attractions found in national parks, reserves, and state forests. From a hinterland tourism perspective, residents and visitors expressed strong support for development in the townships of Forrest (96.6% and 76.0% acceptable) and Beech Forest (94.6% and 88.5% acceptable) and opposition towards tourism development at nature-based attractions including the Otway Fly, Triplet Falls, and Victree node (69.8% and 63.4% inappropriate); Lake Elizabeth (86.8% and 66.7% inappropriate); and Olongalah Flora and Fauna reserve (97.7% and 86.7% inappropriate).

From a coastal tourism perspective, both residents and visitors supported tourism development within township boundaries and opposed development in national parks and reserves. For example, both groups supported development at Apollo Bay (76.8% and 84.6% acceptable), and Lorne (71.4% and 78.2% acceptable), but strongly opposed tourism development in the Otway National Park (83.4% and 98.7% inappropriate), supporting the supposition that a higher proportion of residents and visitors prefer development within existing town boundaries.

Density analysis of resident tourism development preferences (Figure 2) indicates that the proposed tourism nodes in the Otway Hinterland tourism plan span both high density acceptable development and high density inappropriate development zones. For example, the Forrest, Barwon Dam, and Lake Elizabeth node spans across Forrest (highly acceptable development) and Lake Elizabeth (highly inappropriate development); likewise, development is more acceptable around the township of Lavers Hill than the attraction of Melba Gully. Visitor development preferences (Figure 3) closely track those of residents, except for

Table 5 The favourability of tourism development at three hinterland tourism nodes

<i>Tourism location</i>	<i>Overall^a</i>	<i>Residents</i>	<i>Visitors</i>	<i>t</i>	<i>Coastal residents</i>	<i>Hinterland residents</i>	<i>Plains residents</i>	<i>F</i>
Lavers Hill and Melba Gully	2.47	2.37	2.83	4.90	2.45	2.39	2.30	1.20
Otway Fly, Triplett Falls and Victree site (e.g., in Beech Forest)	2.57	2.46	2.89	4.41	2.61	2.50	2.33	3.45
Forrest, Barwon Dam and Lake Elizabeth	2.54	2.47	2.83	3.83	2.65 ^a	2.45 ^a	2.35 ^b	3.83

Bold numbers signify means that are significantly higher for resident or visitor groups, based on independent samples *t*-test (non-equal variance assumed, $p < 0.05$).

Superscripts letters indicate the mean is significantly different from the corresponding mean in the indicated cluster based on Bonferroni post-hoc testing (where $p < 0.05$).

Means were based on a scale ranging from 1=strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree.

^a 1 = Residents and visitors overall.

Table 6 Proportional differences in acceptable tourism development (Development) and inappropriate tourism development (No Development) preferences at selected tourism destinations

<i>Development scale and location</i>	<i>Development preference</i>	<i>Percentage</i>			<i>X²</i>	<i>p</i>
		<i>Overall^a</i>	<i>residents</i>	<i>Visitors</i>		
Region						
Coast	Development	57.8	56.6	60.7	3.82	0.051
	No Development	42.2	43.4	39.3		
Hinterland	Development	61.0	64.0	50.5	25.57	0.000
	No Development	39.0	36.0	49.5		
Plains	Development	93.1	92.5	97.9	1.89 ^b	0.169
	No Development	6.9	7.5	2.1		
Node						
Lavers Hill and Melba Gully	Development	86.7	88.0	82.1	1.90	0.168
	No Development	13.3	12.0	17.9		
Otway Fly, Triplet Falls, and Victree site	Development	33.3	30.2	36.6	0.38	0.537
	No Development	66.7	69.8	63.4		
Forrest, Barwon Dam, and Lake Elizabeth	Development	79.0	81.0	63.9	5.63	0.020
	No Development	21.0	19.0	36.1		
Townships						
Apollo Bay	Development	79.4	76.8	84.6	2.58	0.108
	No Development	20.6	23.2	15.4		
Lorne	Development	74.1	71.4	78.2	1.24	0.265
	No Development	25.9	28.6	21.8		
Beech Forest	Development	93.1	94.6	88.5	2.31	0.128
	No Development	6.9	5.4	11.5		
Forrest	Development	94.4	96.6	76.0	17.93	0.000
	No Development	5.6	3.4	24.0		
Natural Areas						
Olongalah Flora and Flora Reserve	Development	5.1	2.3	13.3	2.84	0.092
	No Development	94.9	97.7	86.7		
Old Otway National Park	Development	11.8	16.6	1.3	11.48	0.001
	No Development	88.2	83.4	98.7		
Lake Elizabeth	Development	15.3	13.2	33.3	1.69	0.194
	No Development	84.7	86.8	66.7		

^a Residents and visitors overall.

^b Statistic represents a count less than 5, not meeting one of the assumptions of the chi-square test.

an obvious preference for tourism development (high densities of acceptable development points) along the coast. In general, both residents and visitors preferred development within existing town boundaries as compared to tourism nodes proposed in the Otway Hinterland tourism plan.

Discussion

The objective of this study was to explore resident and visitor attitudes towards tourism development using both traditional survey questions and a

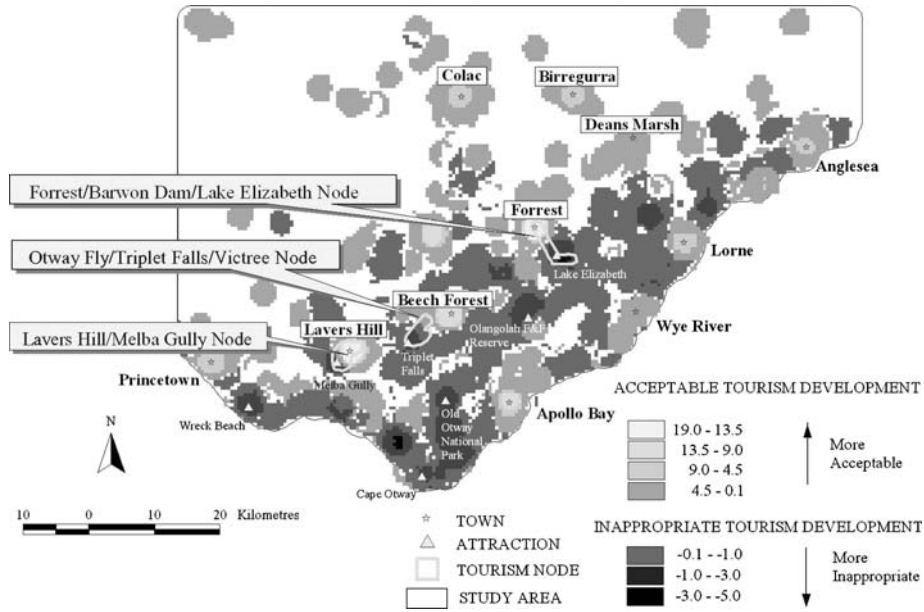


Figure 2 Density analysis of resident acceptable vs. inappropriate tourism development preferences for the Otways region

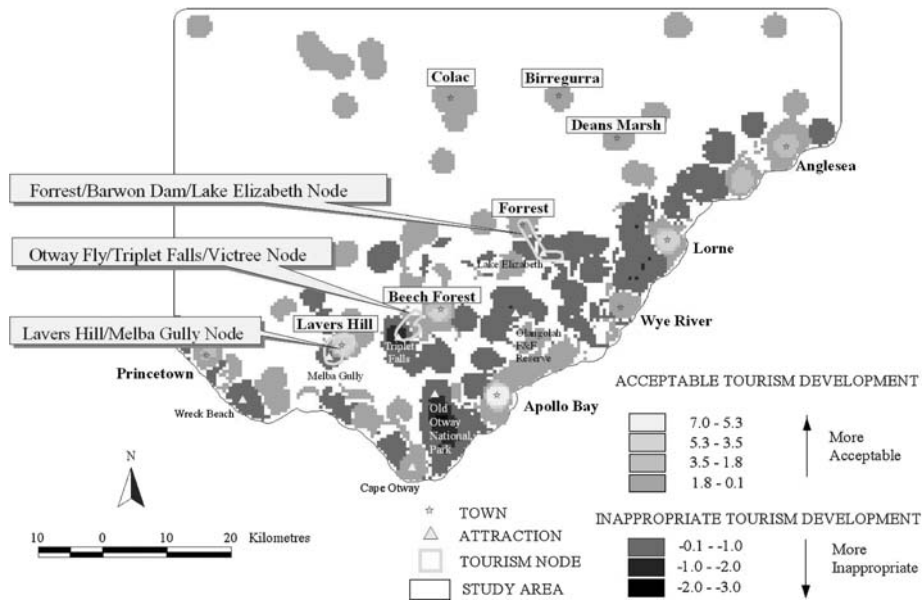


Figure 3 Density analysis of visitor acceptable vs. inappropriate tourism development preferences for the Otways region

spatial attribute method. Responses to traditional survey questions suggest that residents living close to a tourism core will have more negative attitudes towards tourism development because of negative social exchanges (Harrill, 2004). Our study results do not provide strong evidence for this assertion; there was majority support among all regional residents for slow visitor growth with the dominant perception that the current level of tourism development was about right. Examining resident attitudes towards tourism using the distance proxies of 'coast, 'hinterland', and 'plains' subregions of residence results in a high proportion of generalised 'whole region' responses which could lead to the erroneous conclusion that slow visitor growth and nature-based development options is acceptable within all parts of the Otway Hinterland and along the entire stretch of the Otway Coast.

Similar to findings by Weaver and Lawton (2004), visitors supported development in the hinterland as long as it did not compromise the natural assets of the Otways region. Visitors supported slow visitor growth, nature-based lodges, and dispersed camping opportunities, but were more opposed than residents to commercial/retail centres and harbour developments. These nature-based tendencies are consistent with other research findings that describe preferences to be in peaceful surroundings, to see and appreciate nature, and escape the urban environment.

The second part of this paper presented a spatial attribute method as a contrast to traditional survey questions. Spatial attribute research assumes that attitudes towards tourism development are place-specific and vary in both distribution and intensity across a landscape. Both residents and visitors preferred tourism development within existing town boundaries and opposed tourism development in national parks and state forests encompassing many of the nature-based attractions.

Tourism development preferences solicited using traditional survey questions conflict with the preferences generated from the spatial attribute method. While responses to survey questions showed that both residents and visitors expressed more negative attitudes towards tourism growth and development along the Otway Coast compared to the Otway Hinterland, the spatial attribute data clearly indicates there are areas of highly acceptable tourism development areas along the Otway Coast. For example, both residents and visitors showed a strong preference for tourism development at Apollo Bay, Lorne and Anglesea.

And contrary to the findings from the survey data, not all parts of the Otway Hinterland were acceptable for tourism development according to the spatial measures. For example, both residents and visitors indicate that Lake Elizabeth should be off-limits to tourism development, but development is accepted at the nearby township of Forrest. Tourism nodes proposed by DSE spanned both acceptable and inappropriate tourism development areas, suggesting that the proposed location of the service delivery component of the tourism nodes or 'zone of closure' is incompatible with local development preferences.

Hence, the mapping of spatial attributes provides a clearer, if not different picture, than one can obtain from general survey questions about tourism development. Responses to traditional survey questions suggest that tourism development into the Otway Hinterland is supported by both residents and visitors, but the spatial data demonstrates there are place-specific constraints that

need to be addressed in the tourism planning framework. Tourism planning and public consultation processes that do not contain explicit methods for measuring spatial preferences may overestimate or underestimate the degree of local support for tourism development. These results are consistent with those found by Brown (2006) on Kangaroo Island where the spatial attribute data showed significant landscape areas where future tourism development was considered inappropriate by residents, and yet general survey responses showed positive attitudes towards future tourism development.

We believe that some differences in method findings can be attributed to the scale of human perception. Tuan (1974) suggests that the perceived objects of culture fall into a certain range wherein neither the very small or very large objects become part of people's purview unless there are instruments to tap into these extremes. When responding to traditional survey questions, people are responding from their mid view. The spatial attribute method, however, is an explicit mechanism for changing people's perception of scale and focus to the place-specific level. Suddenly, some places become more important for conservation and/or development.

Implications for local governance and tourism planning

Land use and development decisions are consistently among the most important decisions at the local level because they have direct linkages to resident quality of life. One of the larger challenges for tourism development is its integration with local land use planning and political decision-making bodies where actual zoning and development approval decisions are made. The gap between tourism planning processes that originate at regional or state levels, and local government decisions, can be quite large. The spatial survey techniques described herein have the potential to bridge the gap by providing development preference data that is scaleable to both local and regional scales.

The effectiveness of community consultation is highly dependent on the role that locally elected officials assume in the planning and development decision process. One view of local government sees elected officials and planning staff acting as neutral arbitrators, facing the difficult challenge of finding the 'middle ground' or 'public interest' among conflicting community interests. In this view, the use of objective, spatial survey research grounded in representative sampling would enhance community consultation by describing place-specific community preferences that may in some cases, approach consensus. A less benign view sees local government as frequently biased towards development interests to increase the local property tax base and economic activity. In this latter view, survey research represents an uncontrollable and potentially volatile information source to a decision process that is otherwise controlled by local officials. Survey research would be avoided by local officials, but if engaged, would be structured to measure general attitudes about tourism development that could not be directly linked to place-based decisions.

If local government resistance to survey research can be overcome, we believe local governments would benefit from both place-specific and regional

preference information to evaluate tourism development proposals. The spatial data can be used to generate one or more development indices revealing the extent of consensus, conflict, or ambivalence about potential tourism development. Transparent decision rules can be adopted about the acceptability of future development options based on 'development index' values. For example, where the development index goes positive, as a general rule, local governments should be open to further tourism development, and where the development index goes negative, local governments, as a general rule, should restrict further development.

Limitations and further research

Limitations to the spatial attribute method have been discussed comprehensively by Brown (2005). However, a few study-specific limitations are worth noting.

The regional subgroups of coast, hinterland, and plains residents were useful in describing regional trends, but probably missed the potential effects of distance from tourism core on resident and visitor attitudes towards tourism development. Future research could measure attitudes as a function of the average Euclidean distance from a tourism core, such as the township of Lorne. Planners could address the concerns of residents if an explanation for the variance in their attitudes towards tourism could be expressed as a function of distance from the tourism attraction (Jurowski & Gursoy, 2003).

We recognise the spatial attribute analysis presented herein does not explain mapping responses based on heterogeneity in respondent characteristics. Both resident and visitor development preferences were considered on an equal footing, irrespective of length of residence/frequency of visitation, knowledge of the region, and vested interest in the tourism industry, even though past studies indicate that attitudes towards tourism vary according to these factors (see Harrill, 2004 for a thorough review). An analysis of the spatial distribution of point locations indicate that respondent characteristics (e.g. occupation, familiarity, attitudes) may influence the resulting spatial distributions of point patterns (Smith, 2001). Feick and Hall (2000) recognised the importance of participant heterogeneity by selecting participants from different professional identities, including planning, environment, real-estate, and hospitality and land development. But it is still unclear how participant viewpoints influenced their land-use decisions. A next logical step would be to assess respondent characteristics and their potential influence on mapping responses to help develop decision rules for overlaying local development preferences with expert-derived land attributes for a more integrated assessment of suitable sites for tourism development.

However, identifying potential respondent clusters based on shared characteristics will not resolve the larger question of whose development preferences should guide the planning decision outcome. Local government officials, planners, and land managers need to be sensitive to local community and regional values while often having responsibility for landscapes with national public trust interests and obligations.

Conclusions

This article described a spatial attribute method for measuring and integrating local and regional tourism development preferences for tourism planning purposes. Our method expands traditional survey research questions that do not account for spatial variability in survey responses at the place-specific level. The mapped development preferences, if collected using scientific sampling protocols, are also more representative of the target population than spatial decision support systems that rely on small panels of experts and interested publics. The inclusiveness of the survey process can increase local community 'buy-in to the tourism planning process, fostering an appreciation of available development options, and building support for long-term land use and tourism development strategies.

We envision the method becoming part of an expanded community and regional consultation process for local and regional land use planning wherein the GIS data layers generated from the survey data become the basis for iterative adjustment of land use plans through local and expert review processes. In a democratic society, there is, and should be, a powerful presumptive force that accompanies development preference data 'from the people'. However, the greatest strength of the method – the claim that it provides equitable access to the planning process – may also be its greatest weakness. Will local elected officials and planning experts be willing to engage data that is an explicit reminder of the value-laden nature of land use planning and decision-making?

Correspondence

Any correspondence should be directed to Mr G. Brown, Natural Resource Management, Green Mountain College, Poultney, VT 05764 and School of Natural and Built Environments, University of South Australia, Australia (brownng@greenmtn.edu).

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