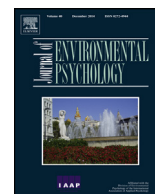


Contents lists available at [ScienceDirect](http://ScienceDirect.com)

Journal of Environmental Psychology

journal homepage: www.elsevier.com/locate/jep

Home is where the heart is: The effect of place of residence on place attachment and community participation

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ARTICLE INFO

Article history:

Available online 4 November 2014

Keywords:

Place attachment
Place identity
Place dependence
Rural communities
Urban communities
Western Australian wildfire

ABSTRACT

This study explores the relationships between place of residence, living in a threatened place and the subsets of place attachment: place identity and place dependence. Six hundred participants living in south-west Western Australia in rural and urban areas with varying degrees of bushfire risk responded to surveys asking about their reasons for living in their local area, their place attachment and their socio-demographic details. MANOVAs revealed a significant effect of place of residence on place identity with rural residents reporting higher place identity than urban dwellers. Urban dwellers reported lower place dependence than rural dwellers except when they lived in a fire prone area, in which case their place dependence was on par with that of rural residents. Socio-demographic predictors of both place identity and place dependence to the home and local area were also explored, these included length of residence, education, and owning one's home.

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1. Introduction

1.1. What is place attachment and what are its effects?

Developing place attachment to one's home and local area is beneficial. It has been linked with many positive health and community participation outcomes. People with higher place attachment report greater social and political involvement in their communities (Mesch & Manor, 1998), and communities comprised of highly attached people are more likely to work together to achieve a desired outcome, such as protecting the environment (G. Brown, Reed, & Harris, 2002) and protecting the social and physical features that characterise their neighbourhoods (Mesch & Manor, 1998).

Place attachment influences both high and low effort pro-environmental behavioural intentions (Ramkissoon, Smith, & Weiler, 2013) and the components of place attachment, place dependence and place identity, are correlated with environmentally responsible behaviour (Vaske & Kobrin, 2001) and advocacy for the environment (Brown & Raymond, 2007). Benefits of place attachment to the individual include a better quality of life (Harris, Werner, Brown, & Ingebritsen, 1995), better physical and

psychological health, more satisfying social relationships, and greater satisfaction with one's physical environment (Tartaglia, 2012). People who do not develop place attachment to their homes, but instead view their new homes negatively when compared to their prior homes, report higher stress levels and more health problems (Stokols & Shumaker, 1982).

While place attachment has been linked to the positive outcomes listed above, it can also have negative side effects. Fried (2000) noted that place attachment can become dysfunctional if it hinders people from considering future alternatives. Twigger-Ross and Uzzell similarly found that people who were attached to their homes were unlikely to leave, even when the place stopped being manageable (Twigger-Ross & Uzzell, 1996). This could be problematic for the elderly who may benefit from moving closer to medical facilities or for people for whom circumstances change and moving is the option that makes the most logical sense; for example people who can no longer afford their homes or who must move for employment opportunities. It can also be of concern for people who live in places prone to natural disasters that they can no longer, for health or monetary reasons, adequately protect, a problem which could lead to the destruction of their homes.

Place attachment can also lead to inter-group conflicts when new people who are different (e.g. culturally, ethnically) from the majority move to a place with a high proportion of attached people (Fried, 2000). The already established residents could perceive the new people as threatening to their way of life and to the physical and social characteristics of the area. A similar argument has been

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used to explain local opposition to new developments such as electricity pylons and wind farms (Devine-Wright, 2009). If people feel that the place they are attached to is threatened and that the landscape could change into a place to which they no longer feel an emotional bond, they could act negatively towards the people or organisations responsible for that change. This has been found in the case of mining companies buying up large swathes of rural land and altering the place to the extent that it starts to become unrecognisable to the people who live there. The resultant mourning for a place that has been altered so dramatically has been termed 'solastalgia' and has resulted in community effort to halt the progress of the mine (Albrecht et al., 2007).

1.2. Problems with defining place attachment

As place attachment has been linked to both positive and negative outcomes it is important for researchers to be clear about what is meant by place attachment. The broad definition, that place attachment is an emotional bond between people and their environments (G. Brown & Raymond, 2007; Jorgenson & Stedman, 2001), is imprecise, resulting in considerable debate in the literature about how to more precisely define and measure it (Lewicka, 2011; Trentelman, 2009). There is currently no clear consensus on whether place attachment is a single order factor, a secondary factor comprised of primary components, or one component of a higher order factor such as sense of place (Hernandez, Hidalgo, & Ruiz, 2013).

Many researchers treat place attachment as a complex multi-dimensional construct, although there is as yet no general agreement about precisely what these dimensions are. Various studies have distinguished place dependence (Williams & Vaske, 2003), place identity (Williams, Patterson, Roggenbuck, & Watson, 1992), social bonding (Kyle, Graefe, & Manning, 2005), community attachment (Sampson, 1988), rootedness (Hay, 1998; Tuan, 1980), bondedness (Hay, 1998), religious attachment, genealogical attachment, economic attachment (Mishra, Mazumdar, & Suar, 2010), and affective attachment (Kyle, Theodori, Absher, & Jun, 2010). Depending on the particular components being investigated, researchers have tended to create their own measures of place attachment, resulting in a plethora of indices (Hidalgo & Hernandez, 2001; Jorgenson & Stedman, 2001; Kyle et al., 2005; Williams & Vaske, 2003).

The lack of clarity about what exactly is being measured can make it hard to generalise from one study to another, this has led to criticism of the paucity of a uniform definition of place attachment (Lewicka, 2011). These problems could be further exacerbated by differences in cultural settings for non-English speaking countries. Many of the constructs include components that aim to measure respondents' bonds with the people with whom they share their environments, such as family, friends or colleagues. One way of simplifying the concept of place attachment is to reserve it for bonds to a physical place, distinct from bonds with people which are better described as community attachment (something often studied by sociologists) or social capital (Trentelman, 2009). Encouraging researchers to use existing questionnaires rather than creating their own might also contribute to reducing the confusion in this field. Something that many of these measures have in common is a distinction between emotional or symbolic attachments to a place and functional or physical attachments (Lin & Lockwood, 2014). These two components of attachment are often referred to as place identity and place dependence (Kyle et al., 2005; Moore & Graefe, 1994; Williams, 2013; Williams & Vaske, 2003) which, while correlated, have been found to have different predictive factors and different outcomes on behaviour (Bricker & Kerstetter, 2005; Kyle et al., 2005; Moore & Graefe, 1994).

1.3. Place identity

One of the dimensions of Williams' place attachment model is place identity (Williams et al., 1992). The term place identity was first used by Proshansky (1978) who defined it as a substructure of self-identity consisting of memories, ideas, feelings, attitudes, values, preferences, meanings, and conceptions of behaviour and experience that occur in places that satisfy an individual's biological, psychological, social, and cultural needs (Proshansky, Fabian, & Kaminoff, 1983). Twigger-Ross, Bonaiuto and Breakwell (2003) have argued that place identity conforms to all the processes outlined in Breakwell's Identity Process Theory (IPT). In IPT, identity structure is theorised to have two dimensions: the content dimension, comprised of our social (groups we belong to) and personal (our values, motives, attitudes, and emotions) identities and the value dimension, referring to our evaluation of each of the things in the content dimension which determine their salience in the identity hierarchy (Breakwell, 1986).

In IPT there are two processes (assimilation/accommodation and evaluation) that are used to organise the identity structure and four principles that guide these processes (Breakwell, 1992). Assimilation refers to incorporating a new component into the identity structure while accommodation is re-arranging the salience hierarchy within the identity structure once the new component has been incorporated; evaluation refers to the meaning given to the new component. The four guiding principles are distinctiveness, continuity, self-efficacy, and self-esteem. Distinctiveness refers to people having a sense of uniqueness, in relation to place and it can be manifested, for example, in the way people decorate their homes. Continuity refers to the idea that as a person grows and changes, those changes are in line with that person's subjective ideas of themselves. Self-efficacy is feeling that one is in control of a situation or place and self-esteem arises from a positive evaluation of the self (Breakwell, 1993). Speller (2000) theorised that place is vital to maintaining and enhancing the four identity principles listed above; places that make us feel unique, in control, good about ourselves, and are consistent with our subjective ideas of who we are, are more likely to be assimilated into the identity structure.

1.4. Place dependence

The other theorised component of place attachment is place dependence. Place dependence arises from a positive evaluation of a place on the basis that it meets an individual's needs and allows them to achieve their goals (Shumaker & Taylor, 1983). If the current place is judged better than the alternatives, the individual will have higher place dependence and will be more likely to want to stay in that place. Place dependence tends to precede place identity (Moore & Graefe, 1994; Vaske & Kobrin, 2001), a place meets a person's needs so they become dependent on it and choose to stay there. The longer a person stays in a place the greater the likelihood of the place being incorporated into the identity structure, especially if that place also provides the individual with feelings of distinctiveness, continuity, self-esteem and self-efficacy.

1.5. Strength of place attachment

The intensity of people's place attachment can differ depending on the amount of contact people have with a place, the size and location of the place, and whether the place is threatened. Place attachment is evident in a variety of settings, from recreational places, including rivers used for white-water rafting (Bricker & Kerstetter, 2005), hiking trails (Kyle et al., 2005; Moore & Graefe, 1994), National Parks (Williams & Vaske, 2003), and wilderness

areas (Williams et al., 1992), to cars, houses, cities and countries (Lalli, 1992; Shamai, 1991). The focus of the current study was on participants' attachment to both their homes and their local areas. Studies have found that people report higher place attachment to their homes than to their neighbourhoods (Hidalgo & Hernandez, 2001; Lewicka, 2010). This could be because the home is a more easily definable space with obvious boundaries, whereas 'neighbourhood' or 'local area' are harder to define as they lack obvious boundaries or property lines. The authors acknowledge that this is likely true of non-indigenous Australians living in the study areas, however it should be noted that Indigenous Australians have ancestral ties to the land which are very different bonds to the ones measured here in relation to home and local area.

1.6. Living in a threatened place

It has been theorised that the associations and commitments that people have to their homes may only become apparent in times of loss and hardship (Relph, 1976) and that experiencing hardship could strengthen attachment. Taylor and Townsend (1976) reported that one third of respondents attributed their feelings for where they live to previous hardships and it was the people who had previously gone through hard times were most attached to the area. Similarly, threats to place identity may make it more salient (Breakwell, 1986). Proshansky and colleagues drew attention to the fact that many scholars only describe people as being aware of their sense of place when the place they are attached to is threatened in some way. They went on to agree that there is little conscious thought given to the places we inhabit on a daily basis (Proshansky et al., 1983).

An increased awareness of attachment to the home could stop people from leaving a place when a threat escalates. Twigger-Ross and Uzzell (1996) found that, compared to non-attached people, attached people were less prepared to leave when there were threats to the functional aspects of the local environment. Attachment to place can also lead to people discounting the risk of living in a threatened area. Billig (2006) found that home attachment accounted for 24% of the variance of risk perception. She found that Israelis living in Gaza who had a strong religious ideology and strong home and place attachment also showed lower risk perception and a stronger desire to stay in place. From these findings it appears that threats to a place may increase people's awareness of their attachment, and this increased awareness of attachment may lower their risk perception and influence them to want to stay in the place they are attached to, despite the place no longer being safe.

1.7. Bushfires and place attachment

Environmental threats are increasing, climate change is resulting in extreme weather events occurring more frequently, which leads to an increase in natural disasters (Ellis, Kanowski, & Whelan, 2004; Hennessy & Mpelasoka, 2007). Australia is prone to a range of natural disasters including floods, cyclones, droughts and bushfires. Of these, bushfires are associated with the greatest loss of life (Ellis et al., 2004). The term 'bushfire' is similar to the American term 'wildfire' and is used to mean any vegetation fire occurring outside of urban environments (Bryant, 2008). Australia is the most fire prone country in the world and fire is a requirement for the regeneration of some native flora. However, the frequency of bushfires is increasing and more people are choosing to live in fire-prone areas, with the result that more people are negatively affected by fire (Bryant, 2008). The Australian Productivity Commission's 2006–2007 report found that emergency services responded to over 54,000 bushfires that season (SGRSP, 2008).

In Australia people are increasingly choosing to move to urban-fringe and rural areas seeking a lifestyle change and wanting to live closer to nature (Kelly & Hosking, 2008). These people are often termed 'sea-changers' or 'tree-changers' and are motivated by the desire for a better lifestyle or climate, more affordable housing, less congestion, to be closer to family or friends or wanting to leave the city upon retirement (ABS, 2014a). In Western Australia, where this study was conducted, urban-fringe areas are the fastest growing areas in the Perth region and the rural areas of Bunbury and Augusta-Margaret River, saw the largest increase and the second fastest population increase respectively for areas outside of the Perth metropolitan area between 2012 and 2013 (ABS, 2014b).

This means that more people are putting themselves at risk of being affected by bushfires. Risk changes from year to year depending on numerous factors such as the amount of rain during winter which affects the amount of vegetation that can fuel fires. There have been a number of serious fires in Australia in recent years. The 'Black Saturday' fires in Victoria in 2009 resulted in 173 fatalities and 2056 houses destroyed (CFA, 2012). A Royal Commission into the fires resulted in changes to the danger rating system and the recommendations made to people living in fire prone areas regarding preparing their properties and having a fire response plan in place. Fires in the study areas, the Perth urban-fringe and Margaret River, in 2011 destroyed 71 and 32 homes respectively. These fires have led to efforts to improve building protection zones in bushfire prone areas. There are actions that people can take in order to prepare their properties to reduce risk and decrease the chances of their homes burning down in a fire (Dunlop, McNeill, Boylan, Morrison, & Skinner, 2014). People living in bushfire prone areas are constantly reminded by the responsible authorities and media coverage during fire seasons that their homes are at risk of damage or destruction. The awareness of this threat may lead residents to think more about their emotional and functional bonds with the places they live, resulting in them reporting higher place identity and dependence.

McCool and Martin (1994) theorised that people seek out places with favourable characteristics and quickly form attachments to them. People who live in rural areas may have greater place attachment than people in urban areas as many people live in urban areas by default due to them being where most jobs are and where the majority of the population lives. Many people who live in rural areas actively choose to live there, despite the hardships that may come from being isolated from services and major employment hubs. People in villages have reported higher place attachment than people in bigger cities (Lewicka, 2005) but, probably due to the increased number of people in urban areas, had fewer social ties and belonged to fewer organisations than urban people (Kasarda & Janowitz, 1974; Sampson, 1988; Theodori & Luloff, 2000).

1.8. Socio-demographic factors predicting place attachment

The strength of place attachment is predicted by certain social and demographic factors, one of which is owning one's home (B. B. Brown, Perkins, & Brown, 2003; Lewicka, 2010). People who own their own homes have invested in their local areas, making it likely that they will live there in the long term, which is also a predictor of place attachment and place identity (Bonaiuto, Aiello, Perugini, Bonnes, & Ercolani, 1999; G. Brown & Raymond, 2007; Hernandez, Hidalgo, Salazar-Laplace, & Hess, 2007; Lewicka, 2005, 2010; McCool & Martin, 1994; Raymond, Brown, & Weber, 2010; Stedman, 2006).

Often linked with length of residence, older people are often found to be more attached than younger people (Bonaiuto et al., 1999; Hidalgo & Hernandez, 2001; Lewicka, 2010; Riger & Lavrakas, 1981; Sampson, 1988). It has been theorised that elderly

people have developed an “insiderness” with a place over time which leads to the place becoming an extension of the self (Rowles, 1983). However, one study has found no correlation between age and place attachment (Rollero & De Piccoli, 2010a). It could be that there are differences in attachment between elderly people who have lived in many places throughout their lives and elderly people who still reside in the places they were born (Rowles, 1983). This has also been found by Hay (1998) who noted that people who had been born in a place reported a higher sense of place than people who had lived there longer but had moved there later in life.

Low income earners and the less educated often have limited choices about where they live which could either increase attachment through cognitive dissonance (lack of choice makes people convince themselves that their home/local area is better than others), or it could decrease place attachment through people wishing that their homes/local areas looked like those they see in other neighbourhoods or in the media. Research has supported both propositions; Taylor, Gottfredson, and Brower (1985) found that people in low income neighbourhoods were less attached than people in middle income neighbourhoods and that higher educated people were more attached than people with less education. In contrast, Williams, et al. (1992) found that attachment was correlated with low income and low education.

Women report being more attached to their homes than men (Hidalgo & Hernandez, 2001; Rollero & De Piccoli, 2010b), perhaps because women usually spend more time on home maintenance and upkeep and more time at home raising children. Prolonged exposure to the home and being the primary maintainer of the home could all result in stronger place attachment. It could also be that, due to societal pressures, men are less willing to express feelings of attachment and emotion.

Place attachment also appears to influence the extent to which people get involved in their communities; people who are attached to their local areas may join clubs and organisations to get to know others who are similarly attached to the area. Research shows that place identity is correlated with involvement in clubs, town meetings and local volunteer activities (Cuba & Hummon, 1993) and place attachment as a whole is correlated with having neighbourhood ties (Lewicka, 2010) and participating in property related recreational and local association activities (Stedman, 2006). Hay (1998) similarly reported that as people grow older and have more time to spend in their community they become more aware of the importance of their sense of place and increase their involvement in the community. This participation may then strengthen place attachment, resulting in a cyclical affect.

1.9. Structure of the empiric study

Given both the potential benefits and negative outcomes of place attachment outlined above, it is important that we further study attachment development, including differences in attachment between different socio-economic groups, people of different ages and between people living in different areas such as the country compared to the city. To do this a two part study was designed: the first part compared place attachments between people who reside in different places and the intensities of attachments to homes and local areas; the second part explored which socio-demographic variables predict place attachment.

The aims of the first part of the study were to discover: if there are differences in community involvement between rural and urban residents, if place of residence and living in bushfire prone areas have effects on place identity and place dependence in relation to both the home and local area, and to replicate previous findings that people are more attached to their homes than to their local areas. It was hypothesised that rural residents would have

greater place attachment (both identity and dependence) than urban residents, that people living in bushfire prone areas would report higher place attachment (identity and dependence) than people in non-bushfire prone areas, that urban residents would belong to more community organisations and that people would be more attached (higher identity and dependence) to their homes than their local areas.

The second part of the study aimed to further investigate the factors predicting place attachment. It was hypothesised that owning one's home, length of residence, being female, and participation in local clubs or organisations would predict place attachment. Due to previous conflicting results, no specific predictions were made for the directions of the relationships between income, education, and age with place attachment. Additional socio-demographic variables were measured, these were: place of residence (urban/rural, bushfire prone/non-bushfire prone), people's reasons for living in the area (close to work, close to family, liked the physical attributes, born there). It was hypothesised that these would be correlated with and predict both components of place attachment.

2. Method

2.1. Participants

There were 600 participants, split into four groups of 150, based on whether they lived in an urban or a rural area and whether or not that area was bushfire-prone. Urban areas were defined as areas lying within the greater Perth metropolitan area, classified as part of a major city by the Australian Bureau of Statistics (ABS), and rural areas were defined as places outside of the metropolitan area, classified as regional areas by the ABS. The ABS bases its measurements of how urban or regional a place is on the remoteness structure. This is a measurement of how far from service centres a place is (APMRC, 2014). Bushfire-prone areas were defined as areas where houses were built within 100 m of native vegetation.

Mean ages, standard deviations, ranges and sex for the four groups are presented in the table below (see Table 1). Participants in the bushfire samples were recruited by telephone as part of a wider study into people's place attachment and bushfire preparedness. Participants in the non-bushfire samples were sent surveys by registered mail. Recruitment for this second sample used mail-out surveys rather than telephone surveys as it enabled faster data collection. There is no reason to believe that the differences in recruiting methods affected results.

The participants all lived in the south-west of Western Australia. Addresses and phone numbers within the study areas were selected at random from publicly available information. Comparisons to census data show that on average the mean ages of our samples were ten years higher than the census average for residents living in those areas over the age of 18.

2.2. Materials

Place attachment was measured using a survey adapted by Brown and Raymond (2007) from Williams and Vaske (2003) who had adapted the questions from Williams and Roggenbuck (1989).

Table 1
Mean ages, standard deviations (in parentheses) and age ranges of the four samples.

Samples	Age (years)	S.D.	Range	Sex
Rural/bushfire prone	56.42	15.49	18–89	58M, 92F
Urban/bushfire prone	59.27	17.35	18–93	66M, 84F
Rural/non-bushfire prone	61.11	14.66	24–90	67M, 83F
Urban/non-bushfire prone	60.19	14.82	31–92	74M, 76F

It consisted of six questions measuring participants' place identity and five questions measuring place dependence which were asked in relation to the participants' homes and their local areas. Responses were measured on a five point Likert scale, ranging from strongly disagree to strongly agree. The highest possible place identity score was 30 and the lowest six. The highest possible place dependence score was 25 and the lowest five. An additional question was added which asked whether participants belonged to organisations or clubs in their local areas. Participants were also asked about their reasons for choosing to live in their local area as well as socio-demographic information such as age, income, education, sex, and whether they have dependents.

2.3. Procedure

Participants in the bushfire samples were contacted by telephone during the south-west bushfire season, calls were made between October 25, 2012 and January 17, 2013. In total 2383 phone calls were made, of these, 581 were answered, 282 who answered declined to participate, leaving a total of 299 people who agreed to complete the survey over the phone. One of these people was below the age of 18 and therefore could not take part in the survey. A total of 298 people completed the survey by telephone. Two additional people completed the survey online for a total of 300 completed questionnaires.

At the beginning of each phone call the researcher identified herself, her research institution, and the nature of the study. At this point the potential participants were asked if they would be willing to participate in the research. If they indicated that they were not then they were wished a good day and the phone call was terminated. If the participants indicated in the affirmative then they were told a little more about the study, including that it had been passed by an ethics review panel. At this point any questions the participants had regarding the research were answered. The place attachment survey was administered as part of a larger survey on the link between people's attachment to place and their bushfire preparedness. The entire survey took around 10 min to administer. At the end of the phone call participants were thanked for their time and asked if they had any further questions about the study.

Paper surveys with an information sheet and consent form were sent by registered mail in March and June 2013 to people living in both rural and urban non-bushfire prone areas. There were 2903

surveys mailed. Data collection stopped when 150 surveys from both the rural and urban areas had been returned. Participants completed the surveys in their own time and mailed them back in reply paid envelopes. All responses were treated confidentially.

3. Results

Mean scores and standard deviations for place identity and place dependence in relation to both the home and local area for each of the four groups are presented in Table 2.

3.1. Effects of place of residence on place attachment

To test for the effects of place of residence and living in a bushfire prone area on place attachment, multivariate analyses of variance were conducted. Prior to conducting the analysis several assumptions were checked. The assumption of multivariate normality was violated for some of the variables so Pillai's Trace was used as when sample sizes are equal it is robust to violations of assumptions (Field, 2009). A MANOVA was conducted with place of residence (urban/rural) and bushfire likelihood (bushfire prone/non-bushfire prone) as independent variables and home place identity and home place dependence as dependent variables. Using Pillai's Trace there were significant multivariate effects for place of residence ($V = .01, F(2, 595) = 3.75, p < .05, \text{partial } \eta^2 = .01$, power to detect this effect was .69), and living in a bushfire prone area ($V = .04, F(2, 595) = 11.51, p < .05, \text{partial } \eta^2 = .04$, power to detect this effect was .99), and a significant interaction between place of residence and bushfire likelihood ($V = .01, F(2, 595) = 3.44, p < .05, \text{partial } \eta^2 = .01$, power to detect this effect was .65). Follow up univariate ANOVAs were conducted with Bonferroni corrections applied. The alpha level was divided by 4, so the results were deemed significant at $p < .013$. There was a significant effect of place of residence on home place identity ($F(1, 596) = 7.47, p < .013, \text{partial } \eta^2 = .01$, power to detect this effect was .78), but no effect of place of residence on home place dependence ($F(1, 596) = 3.13, ns$). There was also no main effect of living in a bushfire prone area on home place identity ($F(1, 596) = 4.51, ns$), but there was on home place dependence ($F(1, 596) = 12.78, p < .013, \text{partial } \eta^2 = .02$, power to detect this effect was .95). There was a significant interaction between place of residence and living in a bushfire prone area for home place dependence ($F(1, 596) = 6.41, p < .013, \text{partial } \eta^2 = .01$, power to detect this effect was .72) but there was no interaction between the two independent variables for home place identity, ($F(1, 596) = .85, ns$) (see Figs. 1 and 2).

A separate MANOVA was used to examine the effects of place of residence and living in a bushfire prone area on local area place

Table 2
Descriptive statistics for place identity and place dependence.

	Mean	Standard deviation	Minimum	Maximum
<i>Rural/bushfire prone</i>				
PI home	24.61	3.69	15	30
PD home	17.91	4.42	5	25
PI local area	23.03	4.74	11	30
PD local area	16.81	4.70	6	25
<i>Urban/bushfire prone</i>				
PI home	23.99	4.24	8	30
PD home	18.19	4.16	9	25
PI local area	21.39	4.99	6	30
PD local area	15.83	4.71	5	25
<i>Rural/non-bushfire prone</i>				
PI home	25.11	4.39	10	30
PD home	17.54	4.52	5	25
PI local area	22.27	4.79	8	30
PD local area	16.31	4.82	5	25
<i>Urban/non-bushfire prone</i>				
PI home	23.84	4.59	10	30
PD home	16	4.44	5	25
PI local area	21.57	4.84	7	30
PD local area	15.13	4.40	5	25

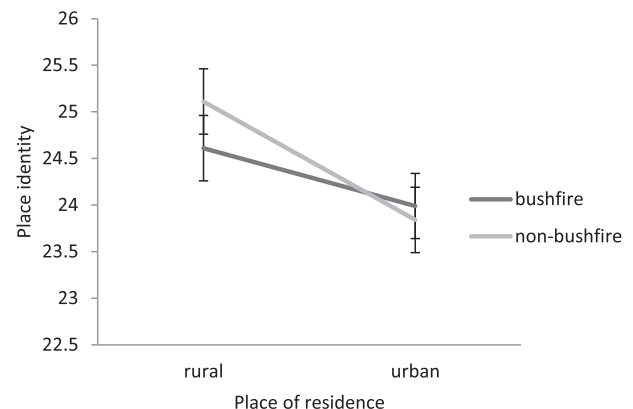


Fig. 1. Effect of place of residence on home place identity with standard error bars.

identity and local area place dependence. Using Pillai's Trace there was a significant multivariate effect of place of residence ($V = .02, F(2, 595) = 4.84, p < .05, \text{partial } \eta^2 = .02$, power to detect the effect was .80), but no effect of living in a bushfire prone area ($V = .01, F(2, 595) = 1.44, ns$). Follow up ANOVAs with Bonferroni corrections revealed that place of residence had an effect on both local area place identity ($F(1, 596) = 8.71, p < .013, \text{partial } \eta^2 = .01$, power to detect the effect was .84) and local area place dependence ($F(1, 596) = 8.06, p < .013, \text{partial } \eta^2 = .01$, power to detect the effect was .81) (see Figs. 3 and 4).

To test the hypothesis that urban residents would belong to more clubs and organisations than rural residents a chi-square test was conducted. There was a significant association between place of residence and belonging to local clubs or organisations, $\chi^2(1) = 15.01, p < .001$. Based on the odds ratio, people who lived in a rural area were 1.91 times more likely to belong to a local club or organisation than people who lived in urban areas (see Table 3).

Lastly, to test the hypothesis that people are more attached to their homes than their local areas Wilcoxon signed-rank tests were conducted. Home place identity levels were significantly higher ($Mdn = 24$) than local area place identity levels ($Mdn = 23$), $z = -11.90, p < .05, r = -.49$. Similarly, home place dependence levels were significantly higher ($Mdn = 18$) than local area place dependence levels ($Mdn = 16$), $z = -9.83, p < .05, r = -.40$.

3.2. Demographic predictors of home place identity

Spearman's Rho correlations between the socio-demographic variables and the four measures of place attachment were conducted (see Tables 8 and 9). Length of residence, sex, age, education, home-ownership, and living rurally were all significantly correlated with home place identity. These variables were entered into a regression model. Length of residence and home-ownership significantly predicted 5.7% of the variance in home place identity, $R^2 = .057, F(6, 593) = 7.00, p < .05$ (see Table 4).

3.3. Demographic predictors of home place dependence

Spearman's Rho correlations between home place dependence and socio-demographic variables were conducted. Length of residence, age, income, education, living where one was born, and living in a bushfire prone area were significantly correlated with home place dependence (see Tables 8 and 9) and were entered into a regression model. Length of residence and education significantly predicted home place dependence, accounting for 10% of the variance, $R^2 = .10, F(6, 593) = 12.04, p < .05$ (see Table 5).

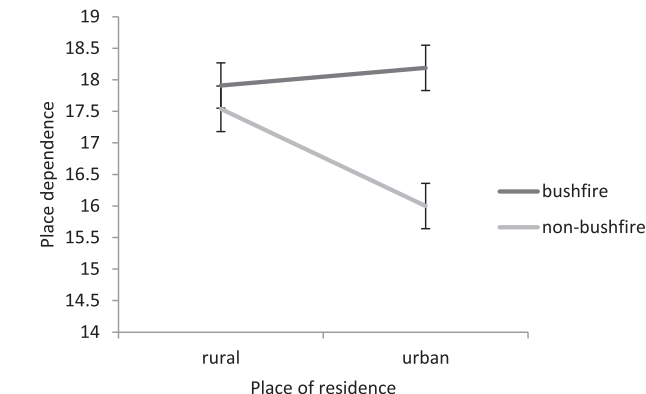


Fig. 2. Local area place dependence significant ordinal interaction with standard error bars.

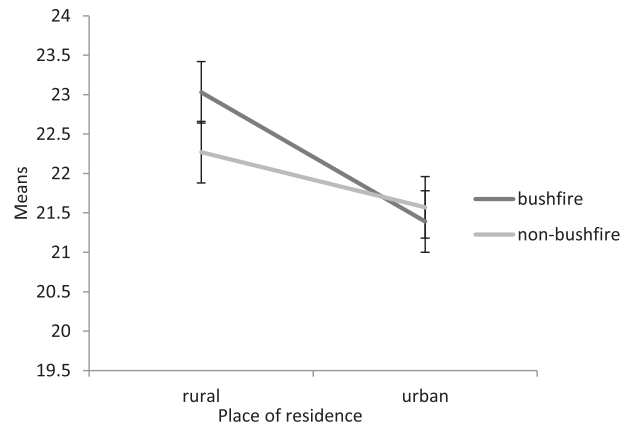


Fig. 3. Effect of place of residence on local area place identity with standard error bars.

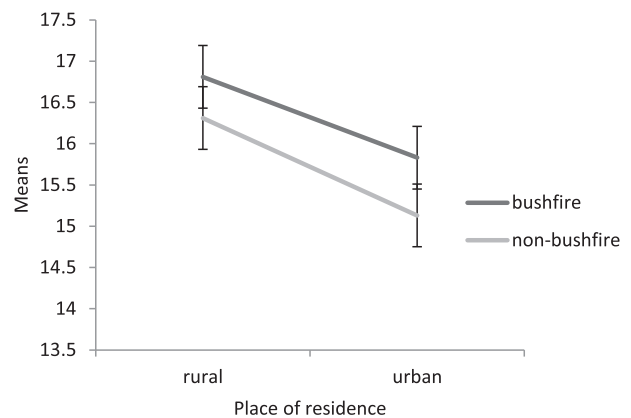


Fig. 4. Effect of place of residence on local area place dependence with standard error bars.

Table 3
Chi-square contingency table.

	Belong to clubs		Total
	Yes	No	
Rural	194	106	300
Urban	147	153	300
Total	341	259	600

Table 4
Regression model for home place identity.

	B	SE	β
Constant	24.80	.97	
LOR	.04	.01	.14*
Sex	.65	.34	.08
Age	.01	.01	.02
Education	-.23	.16	-.06
Home-owner	1.99	.57	.14*
Rural/Urban	.59	.35	.07

* $p < .05$.

3.4. Demographic predictors of local area place identity

Spearman's Rho correlations between local area place identity and socio-demographic variables indicated that length of residence, sex, owning one's home, education, living rurally, belonging to clubs in the local area, living in an area for its physical attributes and living where one was born were all significantly correlated

Table 5
Regression model for home place dependence.

	B	S.E	β
Constant	19.06	1.15	
LOR	.03	.01	.10*
Age	.02	.01	.08
Income	.02	.16	.01
Education	-.81	.18	-.21*
Born	.82	.64	.06
Bushfire	.68	.37	.08

* $p < .05$.

with local area place identity (see Tables 8 and 9). These variables were entered into a regression model and, length of residence, sex, belonging to clubs, living in an area for its physical attributes and being born in an area, accounted for 12.3% of the variance in local area place identity, $R^2 = .123$, $F(8, 591) = 10.35$, $p < .05$ (see Table 6).

3.5. Demographic predictors of local area place dependence

Spearman's Rho correlations between local area place dependence and socio-demographic variables showed that length of residence, age, income, education, living rurally, belonging to clubs in the local area, living in a place for its physical attributes and living in the place one was born were significantly correlated with local area place dependence (see Tables 8 and 9). These variables were entered into the regression model and length of residence, education, belonging to clubs, living in an area for its physical attributes, and being born in an area accounted for 12.1% of the variance of local area place dependence $R^2 = .121$, $F(8, 591) = 11.31$, $p < .05$ (see Table 7).

4. Discussion

4.1. Effect of place of residence on place attachment

As hypothesised, place of residence did have an effect on participants' place attachment (see Table 10). Rural people were more attached than urban people and there was an interaction between place of residence and living in a bushfire prone area for home place dependence.

The results suggest that people who live in the country are more attached to their homes and local areas than people in urban areas. This supports Lewicka's (2005) finding that place attachment was linearly negatively related to community size. On the basis of her findings, one would expect people in rural communities, which have smaller populations than urban areas, to be more attached. People who live in rural areas often choose to do so as they are drawn to the environment in these places. McCool and Martin (1994) theorise that residents who make a specific choice to live in a rural area because of the attributes the place offers may rapidly

Table 6
Regression model for local area place identity and socio-demographic variables.

	B	S.E	β
Constant	23.58	1.03	
LOR	.06	.01	.20*
Sex	1.06	.38	.11*
Home-owner	.34	.64	.02
Education	-.18	.18	-.04
Rural/Urban	.67	.39	.07
Clubs	1.06	.39	.11*
Physical attributes	1.78	.40	.18*
Born	1.42	.66	.09*

* $p < .05$.**Table 7**
Regression model for local area place dependence and socio-demographic variables.

	B	S.E	β
Constant	18.47	1.24	
LOR	.04	.01	.15*
Age	.01	.01	.06
Income	.10	.17	.05
Education	.79	.18	-.19*
Rural	.55	.38	.06
Clubs	.80	.37	.09*
Physical attributes	1.24	.38	.13*
Born	1.65	.66	.11*

* $p < .05$.

develop attachment to the place. In Australia, people seeking a lifestyle change (often upon retirement) choose to move to less populated rural areas to be closer to nature, despite being further from amenities and living in a place with increased bushfire risk. The strong desire to live in these places for their environmental attributes could explain the current finding that people in rural areas reported a higher place identity than people living in urban areas.

Urban residents who lived in bushfire prone areas reported similar place dependence to rural residents. This partially supports previous arguments that people become more aware of their sense of place when the place they are attached to is threatened (Proshansky et al., 1983; Relph, 1976). It would seem that living in a threatened place may increase place dependence or make people more aware of the dependent feelings that they have towards a place. Rural and urban residents living in areas with a high bushfire risk are warned each bushfire season that their homes are threatened. This appears to remind them of the importance of their homes for meeting their needs, leading to an increase in reported dependence but no increase in their place identity. The reason for this reported increase in one place attachment subset but not the other is not clear, though it adds to previous findings that the two are distinct subsets and affect behaviour differently (Bricker & Kerstetter, 2005; Kyle et al., 2005; Moore & Graefe, 1994). Perhaps being reminded that you may lose your home makes you dwell on the functions that your home provides more than the symbolic bond that is place identity. City dwellers, rarely having to face the prospect of losing their homes, report lower place dependence as they have probably not had cause to dwell on the functional aspects of their homes.

Bushfire prone urban dwellers reported a stronger functional bond to their homes than other urban dwellers. Since people with high home place dependence evaluate their homes as being better than any alternatives, losing such a place would be highly distressing. They are not just losing a house but are losing a home that they are attached to, dependent on, and that they get great satisfaction from. This could make people less resilient and less able or willing to rebuild their lives or relocate post disaster.

The MANOVAs revealed significant differences in place attachment between rural and urban groups and a significant difference in home place dependence between the urban bushfire prone and urban non-bushfire prone groups, however, these differences were small as indicated by the correlations in table eight between urban/rural and the place attachment variables and between bushfire/non-bushfire and the home place dependence variable. Due to the small size of these correlations when the variables were entered into the regression models they did not produce significant beta weights. This indicates that while place of residence was related to place attachment, there were other variables that were more strongly related and thus were better predictors of place attachment. These other variables are discussed below.

Table 8
Correlations between socio-demographic variables and place attachment.

	LOR	Sex	Age	Home-owner	Income	Education	Urban/Rural	Bushfire	PI home	PD home	PI local area	PD local area
LOR	1.00	–	–	–	–	–	–	–	–	–	–	–
Sex	.01	1.00	–	–	–	–	–	–	–	–	–	–
Age	.44**	–.06	1.00	–	–	–	–	–	–	–	–	–
Home-owner	.20**	–.08*	.17**	1.00	–	–	–	–	–	–	–	–
Income	–.23**	–.17**	–.39**	–.07	1.00	–	–	–	–	–	–	–
Education	–.26**	–.004	–.26**	–.01	.36**	1.00	–	–	–	–	–	–
Urban/Rural	–.12**	–.05	.03	.07	.09*	.14**	1.00	–	–	–	–	–
Bushfire	–.07	–.06	.07	–.01	.16**	.31**	.00	1.00	–	–	–	–
PI home	.18**	.08*	.08*	–.14**	–.01	–.09*	–.10*	.03	1.00	–	–	–
PD home	.21**	.06	.17**	–.04	–.14**	–.28**	–.08	–.15**	.59**	1.00	–	–
PI local area	.26**	.08*	.04	–.09*	–.001	.08*	–.12**	–.06	.53**	.54**	1.00	–
PD local area	.24**	.004	.16**	–.04	–.09*	–.23**	–.11**	–.07	.40**	.72**	.71**	1.00

* $p < .05$, ** $p < .01$.

Table 9
Correlations between reasons why people live where they do, club involvement and place attachment.

	Work	Family	Physical attributes	Born	Clubs	PI home	PD home	PI local area	PD local area
Work	1.00	–	–	–	–	–	–	–	–
Family	.10*	1.00	–	–	–	–	–	–	–
Physical attributes	–.03	–.03	1.00	–	–	–	–	–	–
Born	–.04	.13**	–.06	1.00	–	–	–	–	–
Clubs	.04	–.02	.06	.01	1.00	–	–	–	–
PI home	.004	–.003	–.05	.05	.01	1.00	–	–	–
PD home	.07	–.01	–.004	.12**	.03	.59**	1.00	–	–
PI local area	–.01	–.01	–.11*	.18**	.13**	.53**	.54**	1.00	–
PD local area	.05	.01	–.08*	.19**	.10*	.40**	.72**	.71**	1.00

* $p < .05$, ** $p < .01$.

Table 10
Hypothesis matrix.

	Home place identity	Home place dependence	Local area place identity	Local area place dependence
Rural people more attached than urban	Supported	Not supported	Supported	Supported
Bushfire prone people more attached than non-bushfire prone	Not supported	Supported	Not Supported	Not Supported
		Significant interaction		

4.2. Socio-demographic predictors of place attachment

Of the dimensions of place attachment measured, home place identity had the smallest amount of variance explained by the socio-demographic variables. This is similar to Lewicka's (2010) finding that the place attachments best predicted by demographic, physical, and social factors were attachments to mid-range places, e.g. neighbourhoods. These also happen to be the places to which people are least attached (Hidalgo & Hernandez, 2001). As outlined in the introduction, places are incorporated into the identity structure if they provide people with feelings of distinctiveness, continuity, self-efficacy and self-esteem. From the results it would seem that socio-demographic factors are less important when it comes to identity to home but more important for the weaker attachments that people have to mid-range places.

Length of residence predicted both subsets of place attachment across both place scales. This supports previous studies (Bonaiuto et al., 1999; Hernandez et al., 2007; Lewicka, 2005, 2010; McCool & Martin, 1994; Raymond et al., 2010; Stedman, 2006) that have found correlations between place attachment and length of residence. As is always the case with correlations it does not tell us about the direction of this relationship, it could be that the longer people reside in a home or area the more attached they become, or that people who are attached are more likely to stay in the area. In this case both are probably true. If a place meets people's needs they will develop place dependence which will likely make them

remain in the area, the longer they reside there, the greater the chance for it to become part of their identities which will increase the desire to continue residing there.

The only other demographic variable that predicted home place identity was home-ownership. Renters, especially in Australia where houses are often rented on short term leases, may not stay long enough in their homes for them to be assimilated into their identity structures. This finding supports Hay (1998) who found that transient residents, who were all renters and planned to move away from the area in a few years, reported having moderate, weak or no attachment, with none of them reporting feeling very attached. People who own their homes are free to decorate and remodel them so that they support the four identity principles, which could increase the likelihood of them being incorporated into the identity structure.

Education predicted both home and local area place dependence; less educated people reported higher dependence. This is contrary to Taylor and colleagues who found that people with more education were more attached (R. B. Taylor et al., 1985) but supported Williams (Williams et al., 1992) who found the opposite. This could be the result of cognitive dissonance, less educated people may have fewer options to move and therefore report that they get more satisfaction from their current home and local area than they would anywhere else. Both of the above mentioned studies also found relationships between income and place attachment. The current study found small negative correlations between income and home

and local area place dependence but it failed to significantly predict either. Similarly, there were small positive correlations between age and home place identity, home place dependence, and local area place dependence but when entered into the regression model age did not significantly predict any of these.

Previous studies have found that women are more attached to their homes than men (Hidalgo & Hernandez, 2001; Rollero & De Piccoli, 2010b). This was not the case in the current study where sex did not predict home place attachment. Sex did, however, predict local area place identity, with females reporting higher place identity than males. This could be because it is often seen as more socially acceptable for women to be sentimental about places, with men being less comfortable expressing their emotions. Women may also be more likely to socialise within their local area as it is often women who take their children to play groups or training/games for local sporting teams. This would make mothers feel that they are part of the local area and could be important to their identities as mothers.

Local area place attachment (both place identity and place dependence) was predicted by people's involvement in local organisations, choosing to live in the area because of its physical attributes and living in the area where one was born. This supports previous findings that involvement in the local area through clubs, volunteering, neighbourhood ties and local association activities is correlated with place attachment and helps people recognise the importance of their sense of place (Cuba & Hummon, 1993; Hay, 1998; Lewicka, 2010; Stedman, 2006). People who are more attached are probably more likely to join clubs and people who join clubs are more likely to feel part of their local areas and thus increase their attachment to them. From the results it would appear that if people move to places because they find them physically appealing they may be more open to forming emotional and functional attachments to that place whereas living in an area because it is close to work or family does not appear to affect the level of attachment to the place. This supports McCool and Martin (1994) who theorised that people who move to an area for its attributes might rapidly form interpersonal connections and a strong attachment to the place. People who still lived in the place they were born reported higher place attachment; this is in line with Hay's (1998) finding that people who lived where they were born reported having a higher sense of place.

4.3. Community activity

Contrary to previous findings, which found that people who live in urban areas have more social ties (Kasarda & Janowitz, 1974) and are more socially active (Sampson, 1988), people in this study who lived in rural areas were more likely than people in urban areas to belong to local clubs or organisations, despite their often being more clubs and organisations to join in urban areas. As discussed above, belonging to clubs in the local area predicted overall local area place attachment. These results suggest attachment to place may affect residents' decisions to join local clubs and organisations. People who are more attached probably take more of an interest in the local area and want to spend time with other attached people, leading to greater local participation and likely increasing their ties to the area. People in country towns are often encouraged to take part in community events and organisations, this could foster place attachment and explain why rural dwellers were almost twice as likely as their urban counterparts to belong to local clubs.

4.4. Attachment to home in comparison to local area

In support of previous studies (Hidalgo & Hernandez, 2001; Lewicka, 2010), people showed higher attachment to their homes

than their local areas this was true of both place identity and place dependence. This could be because people can design their homes to reflect themselves and to support and maintain the four identity principles of distinctiveness, continuity, self-efficacy, and self-esteem whereas people have less control over their local areas. In addition, the home is a more easily definable space with obvious boundaries whereas 'neighbourhood' and 'local area' are harder to define because they lack obvious boundaries or property lines. Sociologists have also reflected on such phenomena, noting that people are more attached to places with clearly defined edges (Gieryn, 2000) and that neighbourhoods are almost impossible to define (Galster, 2001).

5. Implications and limitations

Means ages of respondents in the four different areas were higher than census data. Older people may have more time to answer surveys, or surveys may be given to the oldest member of the household to complete. It is not clear if the higher than average ages had an effect on the results. Age was not a significant predictor of attachment to either the home or local area in this study and previous studies have found conflicting results between age and attachment (Bonaiuto et al., 1999; Hidalgo & Hernandez, 2001; Lewicka, 2010; Riger & Lavrakas, 1981; Rollero & De Piccoli, 2010a; Sampson, 1988).

Respondents in rural areas were more attached to both their homes and local areas than respondents in urban areas, with the exception of home place dependence in the urban-fringe group. This increased attachment needs to be taken into account as people who live in rural and urban-fringe areas are more likely to face, and be negatively affected by, forced relocation or the destruction of their places by bushfires or other natural disasters. On top of this, people in rural areas often have to leave to find jobs or to study since there are limited employment and study opportunities outside of urban areas. Similarly, elderly people and the unwell may have to leave rural areas in order to be closer to medical facilities. People who have been forcedly uprooted have been shown to develop mental health problems as their place identity and attachment bonds have been severed (Breakwell, 1986; Fullilove, 1996). Forced relocation could also have consequences for the towns that these people leave behind. Rural residents were found to be nearly twice as likely to belong to local clubs and organisations; leaving could have a negative impact on the community life in the towns they leave behind.

People being more attached to their homes than their local areas may be an inevitable consequence of the fact that homes are a more clearly defined space and can be individualised to reflect the inhabitants. However, since people who are attached are more likely to come together to defend their areas from outside threats (Mesch & Manor, 1998), to engage in pro-environmentally responsible behaviour (G. Brown et al., 2002) and to be socially and politically involved in their local communities (Mesch & Manor, 1998) steps could be taken to try to increase local area attachment. As the results show, one way to do this is to ensure that the place is physically appealing. This could be done by planting trees and having open areas where residents can gather, and by providing opportunities for residents to become involved in their local areas through clubs and organisations. These things predict local area attachment and will be more likely to encourage people to live in the area for longer, something that was linked to attachment to both the home and local area.

6. Future directions

During the bushfire season people who live in bushfire prone areas are constantly reminded that their homes are threatened.

However, while there are around 50,000 bushfires a year (SGRSP, 2008), people's perception of the risk from bushfires is likely to vary depending on whether and how long ago there has been a fire in their area. The fire-prone areas in this study experienced destructive fires in the year before data collection commenced. Memories of these fires were still salient for many respondents. Future studies varying the time of data collection in relation to when the threat of fire is realised could examine whether the effect of the threat on reported place dependence diminishes over time.

Changes in policies and an increase in public awareness campaigns have aimed to increase people's understanding of risk and how to prepare in order to reduce it. Assessing the risk perceived by individuals in threatened places could add further understanding to the relationships between awareness of threats, place attachment and risk perception. This study found that threats to a place seem to make people more aware of their attachment to it and previous research has found that place attachment can make people not want to leave a threatened place and can also lower their risk perceptions (Billig, 2006; Twigger-Ross & Uzzell, 1996). Future studies investigating the link between perceived threats and lower risk perceptions as mediated by place attachment may be warranted. It would also be of interest to study the relationships between place attachment and other types of threats that are not physical such as the psychological threats that can arise when changes to a place threaten people's identities.

References

- ABS, Australian Bureau of Statistics. (2014a). *Reflecting a nation: Stories from the 2011 census, 2012–2013*. Retrieved 08/08/2014, from <http://www.abs.gov.au/ausstats/abs@nsf/Lookup/2071.0main+features702012-2013>.
- ABS, Australian Bureau of Statistics. (2014b). *Regional population growth, Australia, 2012–13*. Retrieved 08/08/2014, from <http://www.abs.gov.au/ausstats/abs@nsf/Products/3218.0-2012-13-Main+Features-Western+Australia?OpenDocument>.
- Albrecht, G., Sartore, G., Connor, L., Higginbotham, N., Freeman, S., Kelly, B., et al. (2007). Solastalgia: The distress caused by environmental change. *Australian Psychiatry*, 15(Suppl.), 95–98.
- APMRC, Australian Population and Migration Research Centre. (2014). *ARIA (Accessibility/Remoteness Index of Australia)*. Retrieved 11/08/2014, from http://www.adelaide.edu.au/apmrc/research/projects/category/about_aria.html.
- Billig, M. (2006). Is my home my castle? Place attachment, risk perception, and religious faith. *Environment and Behavior*, 38, 248–265.
- Bonaiuto, M., Aiello, A., Perugini, M., Bonnes, M., & Ercolani, A. P. (1999). Multidimensional perception of residential environment quality and neighbourhood attachment in the urban environment. *Journal of Environmental Psychology*, 19, 331–352.
- Breakwell, G. (1986). *Coping with threatened identities*. London: Methuen.
- Breakwell, G. (1992). Processes of self-evaluation: Efficacy and estrangement. In G. Breakwell (Ed.), *Social psychology of identity and the self concept*. London: Surrey University Press.
- Breakwell, G. (1993). Social representations and social identity. *Papers on Social Representations*, 2, 1–20.
- Bricker, K. S., & Kerstetter, D. L. (2005). Level of specialisation and place attachment: An exploratory study of whitewater recreationists. *Leisure Sciences*, 22, 233–257.
- Brown, B. B., Perkins, D., & Brown, G. (2003). Place attachment in a revitalising neighbourhood: Individual and block levels of analysis. *Journal of Environmental Psychology*, 23, 259–271.
- Brown, G., & Raymond, C. (2007). The relationship between place attachment and landscape values: Towards mapping place attachment. *Applied Geography*, 27, 89–111.
- Brown, G., Reed, P., & Harris, C. (2002). Testing a place-based theory for environmental evaluation: An Alaskan case study. *Applied Geography*, 22, 49–77.
- Bryant, C. (2008). *Understanding bushfire: Trends in deliberate vegetation fires in Australia technical and background paper series* (Vol. 27). Canberra: Australian Institute of Criminology.
- CFA, Country Fire Authority. (2012). *About black saturday*. Retrieved 29 August 2014, from <http://www.cfa.vic.gov.au/about/black-saturday/>.
- Cuba, L., & Hummon, D. M. (1993). A place to call home: Identification with dwelling, community and region. *The Sociological Quarterly*, 34, 111–131.
- Devine-Wright, P. (2009). Rethinking NIMBYism: The role of place attachment and place identity in explaining place-protective action. *Journal of Community and Applied Social Psychology*, 19, 426–441.
- Dunlop, P. D., McNeill, I. M., Boylan, J. L., Morrison, D. L., & Skinner, T. C. (2014). Preparing... for what? Developing multi-dimensional measures of community wildfire preparedness for researchers, practitioners and households. *International Journal of Wildland Fire*. <http://dx.doi.org/10.1071/WF13141>.
- Ellis, S., Kanowski, P., & Whelan, R. (2004). *National inquiry on bushfire management and mitigation*. Canberra: Council of Australian Governments.
- Field, A. (2009). *Discovering statistics using SPSS*. London: Sage.
- Fried, M. (2000). Continuities and discontinuities of place. *Journal of Environmental Psychology*, 20, 193–205.
- Fullilove, M. T. (1996). Psychiatric implications of displacement: Contributions from the psychology of place. *The American Journal of Psychiatry*, 153, 1516–1523.
- Galster, G. (2001). On the nature of neighbourhood. *Urban Studies*, 38(12), 2111–2124.
- Gieryn, T. F. (2000). A space for place in sociology. *Annual Review of Sociology*, 26, 463–496.
- Harris, P. B., Werner, C. M., Brown, B. B., & Ingebritsen, D. (1995). Relocation and privacy regulation: A cross-cultural analysis. *Journal of Environmental Psychology*, 15, 311–320.
- Hay, R. (1998). Sense of place in developmental context. *Journal of Environmental Psychology*, 18, 5–29.
- Hennessy, K., & Mpelasoka, F. (2007). Regional climate change projections. In K. Pearce, P. Holper, M. Hopkins, W. Bouma, P. Whetton, K. Hennessy, et al. (Eds.), *Climate change in Australia: Technical report 2007*. Australia: CSIRO.
- Hernandez, B., Hidalgo, M. C., & Ruiz, C. (2013). Theoretical and methodological aspects of research on place attachment. In L. Manzo, & P. Devine-Wright (Eds.), *Place attachment: Advances in theory, methods and applications*. London: Routledge.
- Hernandez, B., Hidalgo, M. C., Salazar-Laplace, M. E., & Hess, S. (2007). Place attachment and place identity in natives and non-natives. *Journal of Environmental Psychology*, 27, 310–319.
- Hidalgo, M. C., & Hernandez, B. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology*, 21, 273–281.
- Jorgenson, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitude towards their properties. *Journal of Environmental Psychology*, 21, 233–248.
- Kasarda, D. J., & Janowitz, M. (1974). Community attachment in mass society. *American Sociological Review*, 39, 328–339.
- Kelly, G., & Hosking, K. (2008). Nonpermanent residents, place attachment, and "sea change" communities. *Environment and Behaviour*, 40, 575–594.
- Kyle, G., Graefe, A., & Manning, R. (2005). Testing the dimensionality of place attachment in recreational settings. *Environment and Behaviour*, 37, 153–177.
- Kyle, G., Theodori, G. L., Absher, J. D., & Jun, J. (2010). The influence of home and community attachment on firewise behaviour. *Science and Natural Resources*, 23, 1–18. <http://dx.doi.org/10.1080/08941920902724974>.
- Lalli, M. (1992). Urban-related identity: Theory, measurement and empirical findings. *Journal of Environmental Psychology*, 12, 285–303.
- Lewicka, M. (2005). Ways to make people active: The role of place attachment, cultural capital, and neighbourhood ties. *Journal of Environmental Psychology*, 25, 381–395.
- Lewicka, M. (2010). What makes neighbourhood different from home and city? Effects of place scale on place attachment. *Journal of Environmental Psychology*, 30, 35–51.
- Lewicka, M. (2011). Place attachment: How far have we come in the last 40 years? *Journal of Environmental Psychology*, 31, 207–230.
- Lin, C., & Lockwood, M. (2014). Forms and sources of place attachment: Evidence from two protected areas. *Geoforum*, 53, 74–81.
- McCool, S. F., & Martin, S. R. (1994). Community attachment and attitudes toward tourism development. *Journal of Travel Research*, 32, 29–34.
- Mesch, G. S., & Manor, O. (1998). Social ties, environmental perception, and local attachment. *Environment and Behavior*, 30, 504–519.
- Mishra, S., Mazumdar, S., & Suar, D. (2010). Place attachment and flood preparedness. *Journal of Environmental Psychology*, 30, 187–197.
- Moore, R. L., & Graefe, A. R. (1994). Attachment to recreation settings: The case of rail-trail users. *Leisure Sciences*, 16, 17–31.
- Proshansky, H. M. (1978). The city and self-identity. *Environment and Behavior*, 10, 147–169.
- Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, 3, 57–83.
- Ramkissoon, H., Smith, L. D. G., & Weiler, B. (2013). Testing the dimensionality of place attachment and its relationship with place satisfaction and pro-environmental behaviours: A structural equation modelling approach. *Tourism Management*, 36, 552–566.
- Raymond, C., Brown, G., & Weber, D. (2010). The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology*, 30, 422–434.
- Relph, E. (1976). *Place and placelessness*. London: Pion.
- Riger, S., & Lavrakas, P. J. (1981). Community ties: Patterns of attachment and social interaction in urban neighbourhoods. *American Journal of Community Psychology*, 9(1), 55–66.
- Rollero, C., & De Piccoli, N. (2010a). Does place attachment affect social well-being? *Revue europeenne de psychologie appliquee*, 60, 233–238.
- Rollero, C., & De Piccoli, N. (2010b). Place attachment, identification and environment perception: An empirical study. *Journal of Environmental Psychology*, 30, 198–205.
- Rowles, G. D. (1983). Place and personal identity in old age: Observations from Appalachia. *Journal of Environmental Psychology*, 3, 299–313.

- Sampson, R. J. (1988). Local friendship ties and community attachment in mass society: A multilevel systemic model. *American Sociological Review*, 53, 766–779.
- SGRSP, Steering Group for the Review of Service Provision. (2008). *Australian productivity commission: Report on government services 2008-part D emergency management*.
- Shamai, S. (1991). Sense of place: An empirical measurement. *Geoforum*, 22, 347–358.
- Shumaker, S. A., & Taylor, R. B. (1983). Toward a clarification of people-place relationships: A model of attachment to place. In N. R. Feimer, & E. S. Geller (Eds.), *Environmental psychology: Directions and perspectives*. New York: Praeger.
- Speller, G. M. (2000). *A community in transition: A longitudinal study of place attachment and identity processes in the context of an enforced relocation*. University of Surrey.
- Stedman, R. C. (2006). Understanding place attachment among second home owners. *The American Behavioral Scientist*, 50(2), 187–205.
- Stokols, D., & Shumaker, S. A. (1982). The psychological context of residential mobility and well-being. *Journal of Social Issues*, 38, 149–171.
- Tartaglia, S. (2012). Different predictors of quality of life in urban environments. *Social Indicators Research*, 113(3), 1045–1053.
- Taylor, R. B., Gottfredson, S. D., & Brower, S. (1985). Attachment to place: Discriminant validity, and impacts of disorder and diversity. *American Journal of Community Psychology*, 13, 525–542.
- Taylor, C. C., & Townsend, A. R. (1976). The local 'sense of place' as evidenced in North-East England. *Urban Studies*, 13, 133–146.
- Theodori, G. L., & Luloff, A. E. (2000). Urbanization and community attachment in rural areas. *Society and Natural Resources*, 13, 399–420.
- Trentelman, C. (2009). Place attachment and community attachment: A primer grounded in the lived experience of a community sociologist. *Society and Natural Resources*, 22(3), 191–210.
- Tuan, Y. F. (1980). Rootedness versus sense of place. *Landscape*, 24, 3–8.
- Twigger-Ross, C., Bonaiuto, M., & Breakwell, G. (2003). Identity theories and environmental psychology. In M. Bonnes, T. Lee, & M. Bonaiuto (Eds.), *Psychological theories for environmental issues*. Hants: Ashgate Publishing Company.
- Twigger-Ross, C., & Uzzell, D. L. (1996). Place and identity processes. *Journal of Environmental Psychology*, 16, 205–220.
- Vaske, J. J., & Kobrin, K. C. (2001). Place attachment and environmentally responsible behaviour. *Journal of Environmental Psychology*, 32, 116–121.
- Williams, D. R. (2013). Beyond the commodity metaphor. revisited. In L. Manzo, & P. Devine-Wright (Eds.), *Place attachment: Advances in theory, methods and applications*. London: Routledge.
- Williams, D. R., Patterson, M. E., Roggenbuck, J. W., & Watson, A. E. (1992). Beyond the commodity metaphor: Examining emotional and symbolic attachment to place. *Leisure Sciences*, 14, 29–46.
- Williams, D. R., & Roggenbuck, J. W. (1989). *Measuring place attachment: Some preliminary results*. Paper presented at the NRPA symposium on leisure research, San Antonio, Texas.
- Williams, D. R., & Vaske, J. J. (2003). The measurement of place attachment: Validity and generalizability of a psychometric approach. *Forest Science*, 49, 830–841.