

Values and attitudes of the urban public towards peri-urban agricultural land

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ABSTRACT

Peri-urban agricultural landscapes around the world are undergoing rapid transformation due to urban expansion. While some landscape values are being protected by current land-use planning frameworks, we know little about the broader values and attitudes of the urban public shaping this transformation. The structure of the values assigned to peri-urban agricultural landscapes by residents of Melbourne, Australia was explored and related to stated landscape preferences and people's underlying values. Exploratory factor analysis was used to categorise assigned values in multifunctional, food and native biota groups, and stated preferences for photographs into four landscape categories: intensive landscapes, extensive landscapes, high tree cover and plantations. The structure of underlying personal values closely resembled other studies of environmental value orientations. Multiple regression analysis revealed that preferences for all landscape categories were predicted strongly by multifunctional assigned values. Significant relationships were also evident between all assigned value groups and the biospheric underlying value orientation. Attitudes towards residential development approaches were also related significantly to assigned but not underlying values. Assigned values appear therefore to mediate between underlying values and attitudes towards peri-urban landscapes. This research demonstrates that peri-urban agricultural landscapes are perceived as multifunctional systems by the urban public and are valued for a range of functions not typically included in land use policies. This study also suggests that in the context of rapid land use change, a variety of landscape types should be retained on the urban fringe for their benefit to the urban public, and synergies promoted between landscape functions.

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Introduction

Peri-urban landscapes are the fringe regions of cities that are defined spatially and functionally by their intimate relationship with nearby urban metropolitan areas and the rural hinterland (Buxton et al., 2006). They are heterogeneous, highly contested and are undergoing rapid land use change across the globe as a result of urban expansion (Antrop, 2004; Simon, 2008; Zasada, 2011). Their character and function is determined largely by the desires and demands of urban populations for peri-urban landscapes and the products they produce (Robinson, 2004; Simon, 2008). It is critical therefore that the urban public's values and preferences for peri-urban landscapes are understood if they are to be managed effectively into the future (Matthews and Selman, 2006; Dramstad and Fjellstad, 2011).

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Concern about negative impacts of rapid and dramatic peri-urban land use change has led to the development of policies that seek to protect and manage these landscapes for a limited range of values such as food production and biodiversity. Globally, many of the prominent policies implemented relate to the protection of production values of farmland (Alterman, 1997). Mechanisms include restrictive zoning (e.g. BC Canada's Agricultural Land Reserves) and agricultural subsidies and import tariffs (e.g. Israel: OECD, 2010). However, consideration of other landscape values is increasing, as seen in the European Landscape Convention (Selman, 2006). In Australia, biodiversity protection is a key consideration in peri-urban planning (e.g. DSE, 2002), yet the breadth of other values that people assign to peri-urban landscapes is rarely incorporated into landscape policy. For example, new urban growth areas in Melbourne have been determined primarily on economic and infrastructure grounds (State Government of Victoria, 2010). One notable exception is the South East Queensland Regional Landscape Framework (Queensland Government, 2007), which incorporates values such as scenic amenity, landscape heritage and outdoor recreation in planning for future land uses (Low Choy, 2008). However, the strength of policies such as this rests fundamentally on the application of high-quality applied research that identifies these values within a strong theoretical foundation.

The values people assign to rural and urban landscapes are reasonably well understood. These values have been studied from a range of disciplinary perspectives and provide some guidance for understanding peri-urban landscape values. For example, environmental psychologists have explored how people value landscapes (Zube, 1987) and develop attitudes such as preference (Herzog, 1992; Arriaza et al., 2004). Ecologists have adopted the ecosystem services framework to study the socio-economic benefits of landscapes (Daily, 1997; Bolund and Hunhammar, 1999; de Groot et al., 2010). Economists have used various economic valuation techniques to quantify production (Antle and Capalbo, 2001) and amenity values (Rosenberger and Loomis, 1999; Fleischer and Tsur, 2000).

In contrast to urban and rural landscapes, few studies have explored the values of peri-urban agricultural landscapes, partly due to difficulties in delineating their extent (Gallent, 2006; Low Choy et al., 2007). Nevertheless, significant non-marketable benefits have been identified by a number of studies. Vejre et al. (2010) found that for residents of peri-urban regions outside Copenhagen, 'intangible' services such as recreational opportunities and aesthetic values may outweigh more tangible benefits such as the production of agricultural products. Mallawaarachchi et al. (2006) also found a high willingness to pay for unique or rare vegetation and a strong appreciation of the visual amenity of canefields by local residents in South-East Queensland, Australia. However, many existing studies of peri-urban landscape values (including those cited above) have focused on people living in or using these landscapes and we are aware of no other studies exploring the values assigned specifically to peri-urban landscapes by the urban public.

Recognition of the non-monetary services provided by agricultural landscapes has led to the development of the concept of multifunctional agriculture. Defined as "the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture" (OECD, 2003), this approach underpins much of contemporary European agricultural policy (Knickel et al., 2004) and has been extended to peri-urban landscapes as a way of permitting agriculture to persist while traditional productionist functions of the land are in decline (Zasada, 2011). However, the success of such an approach rests fundamentally on an adequate understanding of (i) the values people assign to these landscapes, (ii) the landscape features that are related to these values and (iii) the underlying reasons for why people hold the values they do.

Given a paucity of research on the values and attitudes of the urban public in relation to peri-urban agricultural landscapes, this project was designed as a pilot study to establish the range of values relevant in this context and guide future research. The primary objectives of this study are to:

- (1) Identify the values assigned by urban residents to peri-urban agricultural landscapes
- (2) Investigate the nature of relationships between assigned values and people's preferences for peri-urban agricultural landscapes
- (3) Develop and test a theoretical framework explaining the structure of the relationship between the urban public's values and attitudes in peri-urban agricultural landscapes.

This study makes a novel contribution to research on peri-urban landscapes by considering a breadth of values assigned to these landscapes by the public, rather than the small number typically considered in policy instruments. Moreover, this research is not restricted to peri-urban residents or active users of the landscapes in question, but explores the values and attitudes of urban residents who may or may not interact with peri-urban landscapes directly, but play an important role in influencing policy makers. In

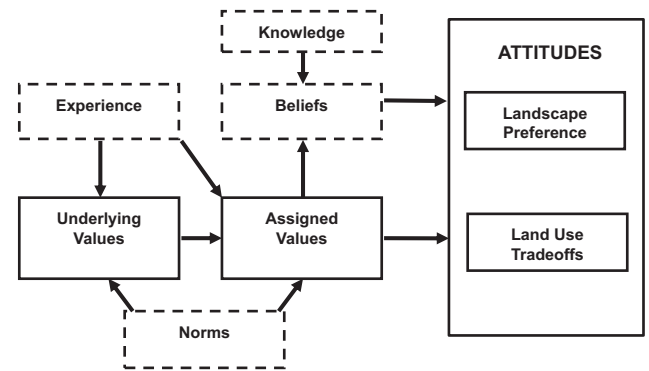


Fig. 1. Hypothesised relationships between various factors contributing to attitudes towards peri-urban agricultural landscapes. Items in solid boxes are measured in this study, while those in dashed boxes are not.

this way, it provides an empirical foundation for the development of planning policies at the city-wide or regional scale.

Theory

This study uses a framework that distinguishes between people's underlying values (general life priorities or guiding principles), assigned values (priorities or principles assigned to a valued object) (Seymour et al., 2010) and attitudes (disposition towards to a particular object after evaluation) (see Fig. 1). This approach is used commonly in environmental psychology to explore people's values in relation to landscapes (e.g. Kaltenborn and Bjerke, 2002; Ford et al., 2009). To assess underlying values we applied the universal value structure used by Schwartz (1992, 1994), who divided general human values into four dimensions: (1) openness to change (including stimulation and self direction), (2) self enhancement (including achievement and power), (3) conservation (including tradition, security and conformity), and (4) self-transcendence (including universalism and benevolence). These value orientations describe dominant goals that function as guiding principles in people's lives, motivate actions and act as standards for judging actions (Schwartz, 1994).

Stern and others have identified a subset of value orientations that influence attitudes and behaviours towards the environment along Schwartz's self-transcendence/self-enhancement axis (Stern et al., 1993, 1995; Stern and Dietz, 1994; Schultz and Zelezny, 1999; Schultz, 2001). These studies expanded the self-transcendence dimension into separate biospheric and altruistic orientations (valuing the environment and the welfare of other people respectively), and identified an egoistic orientation (valuing personal welfare) derived from the self-enhancement dimension. Others however have argued that environmental values are better represented as a spectrum according to 'distance from self' (in increasing distance from self: concern for self, other people, animals and plants) (Schultz and Zelezny, 1999; Schultz, 2001). In relation to peri-urban landscapes, underlying values not included in environmental value orientation frameworks (e.g. tradition and security) may also be important because of the intrinsic associations of these landscapes with notions of food security and cultural practices.

A common method of assessing attitudes towards landscapes is through measuring preference, or how much people 'like' a landscape. While many theories have been proposed to explain peoples' preference for particular landscapes, these have been grouped broadly into evolutionary theories and cultural preference theories (Tveit et al., 2006). Evolutionary theories consider landscape preference to be an evolved trait that allows humans to identify places that are good habitat. For example, general preferences exist for Savannah landscapes that reflect those that humans are thought to

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