

Green Resources in an Urbanising Sea Change Landscape

Dr Renée Fulton, The University of Sydney

Abstract: Urbanising sea change landscapes are commonly associated with people seeking better lifestyles and 'greener pastures', in the process of which consumption of natural resources increases markedly. This paper presents a case study of a regional coastal settlement south of Sydney, NSW that has been subject to rapid 'sea change' urbanisation over the last 50 years. As a result, major changes are evident in land use/land cover, most particularly in the state and nature of green resources which have been affected by urban growth. Spatio-temporal patterns of urban development record an evolving landscape in which human influences have produced a loss of green resources and changes to local ecosystems. These changes have important implications for landscape planning and natural resource management, both directly for urbanising coastal landscapes and indirectly for the potential of these areas to act as a safety valve for growth of Australian capital cities. A brief examination of human-environment interactions in the use and management of green spaces in sea change landscapes will question the notion of 'sustainable development' of sea change destinations. It is argued that maintaining the social and ecological integrity of green spaces is essential for the sustainable planning and management of natural resources in urbanising sea change landscapes.

Introduction

"Here we are in paradise. Not a symbolic one, a real one, in which everything is a riot of green, filled with animals and birds and the odd human. Here we're surrounded by an infinite variety of life forms other than Sydney's cockroaches, pigeons and people." (Hughes 2008, p. 9). In documenting her sea change experience, Hughes' use of the term 'paradise' invokes perceptions of a landscape that is aesthetically and experientially pleasant. Sea change primarily reflects the movement of people from large urban centres to smaller coastal urban or rural localities. It is one of the main drivers for rapid urban development in such coastal landscapes, termed here as urbanising sea change landscapes. One of the main impacts of sea change driven development is the loss and alteration of green resources. At the landscape scale, green resources encompass all forms of vegetation, including green spaces at a more localised scale, which provide ecosystem services to local communities. As these landscapes grow and diversify, the loss of remnant vegetation and ecological integrity becomes increasingly evident, despite the apparent importance of green spaces to those who move to sea change localities.

The utopian connotations associated with the term paradise, when applied to the notion of sea change, usually conjure images of pristine coastal environments – beaches of white sand, lush green rainforests, idyllic countryside settings – that offer an escape from the daily grind of city life. In seeking out these 'greener pastures' however, Hughes acknowledges the impacts of population growth and urban development in the coastal hinterlands: "We've moved en masse into fertile river valleys and subdivided hilly farmland. Every acreage holder...has sunk a bore to water their 'broad-acre landscaping'...Down on the coast, practically every McMansion has a pool and a half-dozen ensuites, and they just keep developing more and more of the once-wetlands..." (2008, p. 42-43).

Hughes' (2008) observations provide a solid argument for the sustainable development of these sea change settlements and preservation of the unique coastal landscapes and valuable natural resources they contain. This is particularly pertinent as these landscapes and resources act as a drawcard to such localities for many sea changers seeking a change in lifestyle and improved quality of life. These motivations, whilst in part attributed to economic drivers such as perceived lower costs of living, are also given impetus by the social and environmental benefits of living in regional towns or villages. Such benefits, including amenity, recreational and social opportunities, health and well-being, cleaner environments, improved land productivity, and for many, simply meeting an inherent desire to be closer to 'nature', are derived from all forms of green resources. These ecosystem services, thus the green spaces that provide them, contribute to the character, identity and subsequently the socio-economic development of a sea change locality. These in turn influence, and are ultimately jeopardised by, population growth and urbanisation in such settlements.

Aims & Methods

Pauleit *et al.* (2005) stress that there is a lack of research on the environmental consequences of urban change and the dynamics of green space, which are crucial for understanding the constraints and opportunities of planned and unplanned urban growth. This paper aims to address this gap through investigating the question of whether sea change and resulting urban development have a

significant impact on green resources. It will question the notions of sustainable development in sea change localities and demonstrate that the social and ecological integrity of green spaces must be maintained to ensure the sustainable planning and management of urbanising coastal landscapes. A literature review will be conducted on the theoretical perspectives of sea change, urbanisation, landscape planning and natural resource management. Human-environment interactions that contribute to structural and functional changes across a coastal landscape, particularly in relation to the use and management of green spaces, will also be examined.

A case study of the Milton-Ulladulla district on the south coast of NSW will be used to demonstrate the impacts of sea change development on green resources in an urbanising coastal landscape. Spatial analysis of land use/land cover change reveals patterns of urbanisation and changes to the state and extent of green resources over time. In addition, observational surveys of public and private green spaces highlight human-environment interactions across local landscapes. The types of green resources that are used in public and private spaces and differences between ways in which they are managed by various individual land holders and public authorities were investigated to identify the influences of different stakeholders on the dynamics of green resources in the Milton-Ulladulla district. The majority of formal and informal public spaces, such as parks, nature reserves, bushland and sporting grounds, were surveyed across the study area to provide an indication of the types of green spaces that were directly or indirectly used or valued by the public. The results of these investigations, particularly relating to the state and extent of green resources, will be presented in this paper.

Sea Change in Australia & the Milton-Ulladulla district

The phenomenon of sea change has been occurring throughout Australia since the 1960s, although it has only recently been documented in research and the media. Metaphorically, sea change is defined simply as a change in lifestyle (Gurran *et al.*, 2005a; Burnley and Murphy, 2004). Although the term does not strictly refer to an actual progression towards the sea, much of the movement from metropolitan to non-metropolitan areas in Australia has been focused within a few kilometres of the coastline, particularly in New South Wales, Queensland, Victoria and Western Australia (Gurran *et al.*, 2005b). Green (2010) describes it as a form of 'amenity migration', where urbanites are attracted to the relaxed lifestyle and recreational opportunities afforded by the scenic and natural environments of a coastal setting.

Population pressure and economic growth associated with the sea change phenomenon in Australia are driven by various factors occurring across interrelated social and geographical systems, identified by Burnley and Murphy (1995, 2004), Gurran *et al.* (2005a, 2005b) and Green (2010). These include the decentralisation of jobs, flexible working hours and locations, and improved transport networks allowing people to work from home and/or commute to cities from more peripheral regions. Advances in communications technology, particularly the Internet, have also made it possible for people to be connected with work, family and friends from a distance. Early retirement and the renewed popularity of holiday homes and weekenders are also significant influences on the growing trend in sea change and urbanisation of coastal localities.

The NSW south coast is undergoing a process of transformation at ever-increasing rates as a result of the sea change movement. Milton-Ulladulla is no exception and is representative of an urbanising sea change landscape. The district comprises a group of coastal settlements that have been subject to rapid urbanisation over the last 50 years as a result of sea change. The socio-economic and environmental character of the Milton-Ulladulla district is influenced largely by its location (Figure 1) and the combination of these sea change drivers. According to the typology of Australian coastal communities developed by Gurran *et al.* (2005a, 2005b), the district can be described as a 'coastal getaway' or 'coastal lifestyle destination' due to its proximity to two capital cities, Sydney and Canberra. These typologies share similar characteristics, as their settlement patterns tend to include clusters of small villages along the coastline and in the surrounding hinterlands, with a small- to medium-sized urban centre (Gurran *et al.* 2005a). Milton-Ulladulla typifies such a growing coastal community due to its accessibility, affordability and lifestyle opportunities for property owners and sea changers including retirees, telecommuters, young families and part-time residents.



Figure 1. Location of the Milton-Ulladulla study area.

The district has grown from approximately 1,000 residents in the 1950s to almost 14,200 residents today (ABS 2011). The annual population growth rate within the region of Milton-Ulladulla and surrounds is currently 1.8%, with the population projected to increase to around 27,000 by 2040 (Shoalhaven City Council 2008). Likewise, the total number of dwellings in the Milton-Ulladulla district has steadily increased from 350 to 8,000 over the last 50 years (ABS 2011). The rate of development is consistent with the increase in population growth rates, and the number of occupied and unoccupied dwellings (72% and 28% respectively, ABS 2011) shows how the district is developing as a sea change destination for both those who permanently relocate and part-time, or temporary, residents.

Results

Urbanising sea change landscapes

Many sea change localities that experience population growth undergo subsequent transformation of existing landscapes, including the addition of new landscapes, in order to accommodate the urban development that ensues. These transitional landscapes are often subject to fast and unplanned growth, undergoing rapid change and creating peri-urban zones, which provide an interface between rural and urban landscapes. Such diversification results in the creation of multifunctional landscapes that have a dynamic combination of land uses and processes and are a growing source of goods and services, termed by Holmes (2008) as production, consumption and protection values. These include the provision of valuable commodities such as food and construction materials, cultural heritage, protection of biodiversity and environmental quality through provision of critical habitats and pollution control, landscape amenity and sites for rural residential development, urban waste disposal and recreation (Simon 2008; OECD 2001).

The Milton-Ulladulla district has been subject to landscape diversification, whereby sea change has encouraged suburban development and rural lifestyle ownership, creating a combination of urban, rural, peri-urban and natural landscapes within the coastal hinterland. Rural lifestyle ownership, identified by Gibson *et al.* (2005) and Gill *et al.* (2010), is an outcome of urban-rural migration (termed as the 'population turnaround' by Hugo and Smailes 1985), which emerged in the 1970s in response to the sea change phenomenon. With rapid population growth and movement across the landscape comes *ad hoc* and unplanned development processes that generate diversity of land use and land cover within the multifunctional landscapes and contribute to the effects of urban sprawl across the district. Areas designated for urban and rural development are prescribed in the 1985 (updated in 2009) *Shoalhaven Local Environmental Plan (LEP)*; however zoning regulations control the location of development but not so much its timing. As a result, development has been opportunistic and fragmented to meet population growth and housing demand over time. This has led to encroachment on natural and rural environments, including damage to and loss of habitats, natural resources and prime agricultural land.

These processes of urban development and subsequent landscape change ultimately resulted in a substantial loss of green resources, particularly remnant vegetation, within the Milton-Ulladulla district. Spatial and temporal land use/land cover changes demonstrated a clear trend in the replacement of remnant vegetation with urban and rural development. The total loss of remnant vegetation area (6.45% of the total landscape) almost directly correlated with the expansion of residential and rural residential areas (5.2% and 2.1% respectively). In addition, over the last 50 years a considerable amount of deforestation took place in several time periods that were followed by phases of substantial

development, particularly between 1959 and 2000 (Table 1). This suggests that there is a time lag between the clearing of vegetation in preparation for future residential growth and the actual development.

Table 1. Land use/land cover change in the Milton-Ulladulla district between 1959 and 2009.

Land Use/ Land Cover	Units	Change in LULC Area (ha & ha/yr)					Total change*
		1959 - 1975	1975 - 1991	1991 - 2000	2000 - 2006	2006 - 2009	
Closed remnant vegetation	ha	-320	-85.6	-26.2	-223.2	-32.4	-687
	ha/yr	-20	-5.3	-2.9	-37.2	-10.8	-13.7
Open remnant vegetation	ha	28	-124.6	-87.3	71.6	-5.4	-118
	ha/yr	1.7	-7.8	-9.7	11.9	-1.8	-2.4
Residential	ha	209	227.9	116.2	81.5	17.7	652
	ha/yr	13.1	14.2	12.9	13.6	5.9	13
Rural residential	ha	27.5	156.1	78.3	2.1	-2.9	261
	ha/yr	1.7	9.8	8.7	0.3	-1	5.2

*A negative sign (-) indicates loss of area and no sign denotes gain in area.

Several processes of fragmentation and changes to local ecosystems were also observed as a result of urbanisation and landscape diversification in the Milton-Ulladulla district. These included the breaking up of remnant vegetation communities into smaller patches, the creation of green spaces and planting of introduced vegetation species, and the accumulation and segregation of urban and rural land use/land cover types across the landscape. Most notably, the green belt between the urban and rural zones of the district has been broken up and replaced with the expansion of residential development and the growth of rural-residential subdivisions and hobby farms within the peri-urban interface (Figure 2). Such land use/land cover transitions negatively influenced the ecological integrity of green resources, with the greatest impacts identified in increased edge effects, loss of green space connectivity and changes to the structure and function of green resources. This shows that land use/land cover changes impacting the state and extent of green resources ultimately affect the sustainability of the local and regional landscape, through challenging resource use and feedback mechanisms in human-environment systems (Turner II *et al.* 2007; Turner II and Robbins 2008).

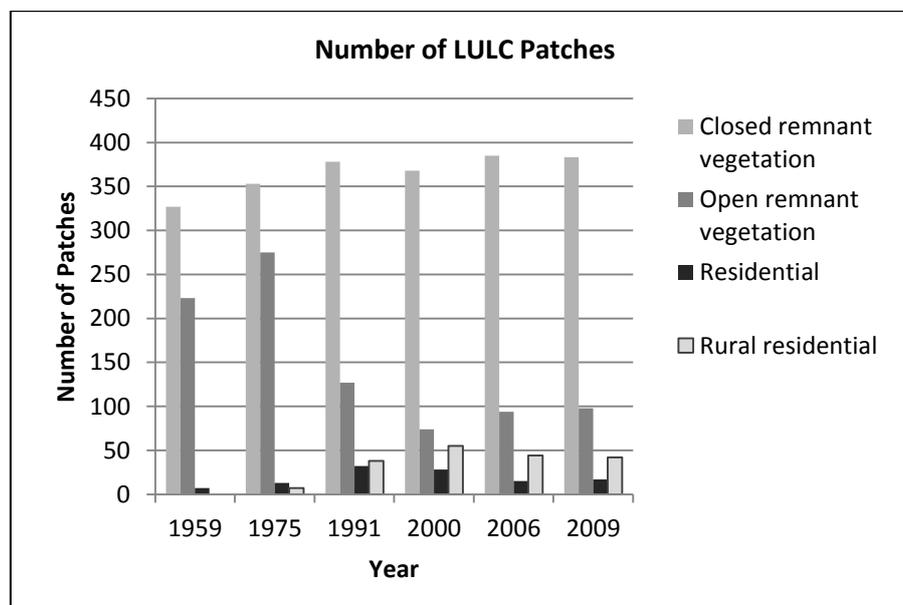


Figure 2. Number of land use/land cover patches in Milton-Ulladulla over the study period (1959-2009).

Use and management of green spaces

Shifting attitudes, beliefs, values and practices among landowners are reshaping ecosystems, particularly in peri-urban, multifunctional landscapes that comprise the coastal hinterland of sea change localities. Land stewardship, which reflects the “norms and values about land and ideas of

appropriate use” (Gill *et al.* 2010, p. 318), is challenged when a region undergoes urban growth and conflicts arising at the urban-rural interface place pressures on the natural resources on which the region is dependent for food production, economic stability and lifestyle values (Gibson *et al.* 2005). The importance of green spaces in both public and private contexts for addressing aesthetic, social, ecological and economic functions in urbanising areas, such as improving quality of life and property value, is also widely recognised (Choumert and Salanié 2008; Cadieux 2011; Esbah *et al.* 2009; Lo and Jim 2010). Furthermore, Cadieux (2011) highlighted that the scale of impacts resulting from amenity migration varies due to differences between the views of residents, who are essentially place-bound, and managers, who have a broader perspective: whilst “residents’ focus on the experience of a nature that is represented primarily as personal and immediate, management discourses tend to deal with regional and aggregate nature” (p. 347).

Public and private spaces within the Milton-Ulladulla district were compared to identify any correlations or differences that may exist between the use and management of green resources within local landscapes of the study area (Table 2). Variables that were measured included type of space (old, intermediate or new for private spaces and open, green or mixed for public spaces), nature and intensity of use, vegetation types and coverage, proportion of native vegetation, ratio of permeable to impermeable surfaces and level of maintenance.

Table 2. A comparison of types of public and private spaces and their average vegetation cover within each urban, peri-urban and rural landscape of the Milton-Ulladulla district.

Local Landscape	Private spaces		Public spaces	
	Type	Vegetation cover	Type	Vegetation cover
Urban	Old Intermediate New	Low-medium Medium-high Low	Mixed open & green spaces	Medium-high
Peri-urban (urban-rural interface)	Intermediate New	Low-high	Open or green spaces	Low-high
Rural	Old	Low	Open spaces	Low-high

Overall vegetation cover is generally medium to high in public spaces and low to medium in private spaces throughout Milton-Ulladulla’s urban, peri-urban and rural landscapes. This suggests that at the landscape scale, the level of greenness of public spaces compensates for a lack of vegetation cover and/or outdoor space in private spaces. This relationship is particularly evident in the urban coastal suburbs and reinforced by the number and accessibility of public spaces throughout the district. At the local scale however, the level of vegetation cover varies between private and public spaces such that some suburbs or neighbourhoods are greener than others, depending on when and where they were developed. Over the 50 year study period, peri-urban areas developed in the 1970s and 1980s (intermediate properties) tended to be ‘greener’ in both public and private contexts than those developed in the more urbanised areas during the 1950s/1960s (old properties) and 1990s/2000s (new properties).

Public spaces in the urban centres are mostly confined to pockets of riparian vegetation or bushland adjacent to developed areas, which act as a counterbalance to the lower levels of vegetation cover in private spaces. Many of these public green spaces are informal and, in addition to public open spaces such as parklands, act as breaks in the urban form. As such, the localities of Ulladulla and Milton display a trend representative of the type of development that occurs in this and other coastal districts, where urban growth forms around existing (albeit shrinking) pockets of remnant vegetation.

The types of vegetation and ground cover present in surveyed public and private spaces reinforce the notion that residents and land managers within the district place great importance on the preservation of natural and cultural character. There is a strong sense of pride in the local environment, as evidenced by a prevalence of indigenous vegetation in both public and private spaces throughout the study area, despite an increasing presence of non-native and invasive species. Private spaces that are highly vegetated indicate an individual’s preference towards green resources. These properties tend to be located in the peri-urban areas that also contain a high proportion of public green spaces and retention of remnant trees, which collectively also reveals a community’s affiliation with their green surrounds. In contrast, many private spaces in the more urbanised areas of the district contain large amounts of grassed areas, suggesting that these residents prefer lawns to trees and gardens on their property, most likely due to their neatness in appearance and ease of maintenance. This is consistent

with the notion highlighted by Head and Muir (2007) that for some, living on the South Coast is like being “in the middle of...a big garden” (p. 40), so there is no need to create their own.

Private spaces are primarily maintained at a medium level; those that are well maintained are generally new residential and rural residential properties situated within the peri-urban interface. In contrast, the majority of public spaces throughout the district, particularly nature reserves and informal pockets of remnant vegetation, are maintained at low levels. Public spaces that are well maintained tend to be located on main transport routes, with high visibility and frequency of use. These observations indicate that whilst there is a clear appreciation for the presence of green resources, the condition and level of maintenance of public and private spaces, which are largely a function of the type of green space and user preferences, do not always reflect this. Generally, the widely divergent values that local residents place on green resources are expressed through the number, greenness and condition of public and private spaces throughout the different landscapes of the Milton-Ulladulla district. This is in line with Head and Muir’s (2007) assertion that the size, composition and use of outdoor space are experienced differently by everyone.

Discussion

Human-environment interactions

Human-environment interactions and linkages between social and ecological systems shape the structure and function of landscapes over time. Humans are integral to landscapes – they drive changes in ecosystem functioning and derive benefits from environmental processes and resources (Johnson and Zipperer 2007). Zube (1987) asserts that humans are both an agent of change and active participant in landscapes, continuously engaging in and responding to landscape patterns and processes, which in turn influence values and perceptions of landscape. Therefore landscapes are not static: they are dynamic systems of interacting natural and human forces, and landscape change is the expression, or outcome, of this interaction (Lioubimtseva and Defourny 1999; Antrop 2005). The relationship between humans and land use/land cover change can be considered a continual ‘cause and effect’ feedback system (Verburg 2006). Consequently, landscapes are spatially and temporally dynamic, with environmental and societal conditions and processes in a constant state of flux.

Cultural, socio-economic and political processes drive changes in land use and land cover, which influence landscape structure and function and lead to landscape change through direct exploitation of resources (Wu and Hobbs 2002; Turner *et al.* 1993; Barbier *et al.* 1994). Just as resources are constructed based on supply and demand (Robbins 2004), institutions have socially constructed formal (legislations, regulations) and informal (behaviours, norms and values) controls that constitute human-environment interactions (Berkes and Folke 1998). Both are important elements of the relationship between humans and the environment, as natural resources and systems are adapted by institutions to meet changing needs (Robbins 2004). In particular, the social system generates change in landscapes and the appreciation of green spaces in both public and private contexts. The changing structure and function of landscapes within the Milton-Ulladulla district is strongly influenced by the ways in which green resources are valued, used and managed. Land use/land cover changes highlighted the degree to which the state and extent of green resources reflected the use and management of green spaces. Furthermore, the composition, condition and maintenance of public and private spaces revealed the importance residents placed on green spaces within the district.

This research has verified numerous studies that have found people’s valuing of green resources and green landscapes is influential in determining the character of a sea change locality; however the processes of sea change and ensuing urbanisation also influence the state and extent of green resources (Kearney and MacLeod 2006; Klepeis *et al.* 2009; Cadieux 2011). This feedback relationship arises from the complex processes and human-environment interactions occurring in the dynamic multifunctional landscapes that arise from urban and peri-urban development. The ecological footprint of these landscapes extends beyond the peri-urban interface due to increasing urbanisation and production pressures on land and resource carrying capacities, particularly in coastal regions (Allen 2003; Shepherd 2005).

Landscape planning and natural resource management

Trends such as sea change and rural lifestyle ownership are accompanied by problems such as the loss of agricultural land, poor land management, adverse visual impacts and land use conflicts between old and new residents (Burnley and Murphy 2004; Argent 2011; Green 2010). Such conflicts can arise through differences in expectations and perceptions of landscape management and outcomes. For example, suburban landscapes in metropolitan and non-metropolitan regions are now being considered a more sustainable form of development than their urban counterparts, due to the notion that they support and encourage greener landscapes. However, rapid urbanisation occurring in

peri-urban interfaces, and the resultant complex dynamics between production, consumption and protection systems, present environmental challenges for appropriate and sustainable planning and development (Simon 2008). Decisions relating to management of public and private spaces in these landscapes can have positive or negative externalities for both users and non-users of such spaces (Choumert and Salanié 2008). Thus a thorough comprehension of how perceptions of green spaces and land use decision-making shape the landscape is necessary for sound planning and management (Esbah *et al.* 2009; Choumert and Salanié 2008), particularly in landscapes undergoing transition such as Milton-Ulladulla.

The Milton-Ulladulla district provides an example of a sea change settlement that is particularly vulnerable to the urbanisation process, as it contains fragile environments, including areas of remnant bushland, riparian vegetation and wetlands, which are sensitive to changes associated with urban development. In addition to environmental degradation, loss of character is a significant issue in sea change areas, as it provides the very foundation on which a settlement is built (Green 2010). Furthermore, Green (2010) states that natural landscape features, fragile ecosystems and indigenous vegetation that are unique to a coastal locality contribute to its distinctive character, which in turn influences social and economic opportunities. Thus it is imperative to conserve these features of natural and cultural heritage to preserve expressions of local character and the qualities that make these coastal landscapes desirable as sea change destinations.

In order to address increasing environmental degradation and retain ecosystem functioning in an urbanising landscape, planners and managers need to understand the spatial dynamics of urban growth and its associated impacts on ecosystems (Batisani and Yarnal 2009). Examination of ecological implications of past, present and future land use/land cover transitions can be used to inform landscape planning processes and natural resource management practices. Used in conjunction with socio-economic data, land use/land cover changes can elucidate certain aspects within the cause and effect feedback mechanism of human-environment interactions, through depicting social, economic and biophysical changes in the landscape (Esbah *et al.* 2009). This in turn helps to understand the dimensions of sustainability and global environmental change (Turner II *et al.* 2007; Turner II and Robbins 2008). The value of such an approach is reflected in the statement by Cadieux (2011, p. 341):

Explicit conversations about the role and representation of nature within residents' and managers' land-use practices and ideologies could create opportunities for dialogue between residents, planners, and academics about the valuation of and preferences for constructing particular landscapes, especially in addressing problematic aspects of the phenomena of "amenity migration" and "sprawl".

Strong statutory planning approaches also need to be adopted and tailored to the local context in order to preserve both tangible and intangible values of green resources affected by rapid urbanisation (Gurran *et al.* 2005a; Burnley and Murphy 2004). Urban and rural zoning is an important component of planning and development in the Milton-Ulladulla district. Strategies have been established in order to manage the development approvals process, minimise the impacts of processes such as subdivision on environmental and aesthetic quality, and prevent unlawful development in certain zones. Planners and developers have adapted housing markets and provision of services to meet the variable requirements of ageing, sea change and non-resident (tourist) populations, all of which Donaldson *et al.* (2009) assert contribute to the expansion and character of the district. The *Milton-Ulladulla Structure Plan* also encourages the phasing of development to keep pace with the provision of infrastructure (Shoalhaven City Council and Monaro Consultants Pty Ltd 1996).

These approaches are important for sea change localities such as Milton-Ulladulla to take the pressure off urban development in capital cities by providing socio-economic opportunities that are necessary to increase the capacity of regional settlements to support a growing population; they are not always adhered to, however. Sustainable landscapes in these localities could then be maintained and a balance between urban development and environmental sustainability achieved if development were regulated such that:

- urban consolidation in already developed areas took priority (though not at the expense of existing green spaces and excluding high-rise development);
- prime agricultural land was protected by appropriate land use zoning;
- *ad hoc* development of estates was limited by proper planning; and
- allowances for retaining remnant vegetation throughout the landscape were provided.

It can be argued that the sustainable development of sea change localities depends on the context in which it is assessed or perceived. On one hand, urbanisation associated with sea change in coastal settlements such as Milton-Ulladulla may stimulate their socio-economic sustainability; on the other, such growth will ultimately have consequences for environmental sustainability in these regions. Land use/land cover change, and associated demand for land and resources, has significant implications for green space planning and management in urbanising landscapes. Proactive and adaptable practices are crucial for governing the diverse and variable role of green resources over space and time. As green resources have played a key role in the formation of the Milton-Ulladulla district, they are significant features of the landscape, hence vital to the maintenance of its character and identity. Therefore ecosystem services and environmental characteristics of sea change localities need to be preserved so as to reduce the cumulative impacts of landscape change on ecosystems and ensure the character and identity of these landscapes are retained. The concepts of ecosystem services and multifunctional landscapes are being increasingly applied in land use planning and management, as they facilitate a balanced delivery of production, consumption and protection values in accounting for the many types of users and activities that exist within a landscape. This in turn will play a role in the promotion of the 'population turnaround' in favour of these coastal localities due to the unique attributes that contribute to their character and make them ideal sea change destinations.

Implications

Sea change localities contain both new and existing dynamic multifunctional landscapes, which has implications for local ecosystems and land management practices. The rising trends in development of rural and urban landscapes in sea change localities reflects the growing importance that people place on living away from the city and preserving open and green space, natural capital, rural character and scenic quality. However, development that occurs as a result of the sea change movement ultimately leads to social and environmental impacts in which conflicts of interest can potentially arise. This paper demonstrates that features of public and private spaces and how they are presented are an expression, either directly or indirectly, of human-environment interactions and the ways in which green resources are integrated into people's everyday lives. Furthermore, the functionality of green spaces relies heavily on the environmental attitudes and responses of those who use and manage them, consciously or otherwise. The complex and dynamic nature of landscape change and green space structure and function requires a holistic, interdisciplinary approach to landscape planning and natural resource management in sea change settlements, especially at the local government level. Approaches such as the examination of land use/land cover changes and surveys of public and private spaces are useful for informing statutory planning processes that are focused on landscape sustainability and the sustainable use of natural resources. Such approaches should take into account the urbanisation processes, varying land management perspectives and intrinsic values of green resources that create the dynamic multifunctional landscapes that are characteristic of sea change destinations such as the Milton-Ulladulla district. This will ensure development in sea change localities remains sustainable for present and future generations.

References

- Allen, A. 2003. Environmental planning and management of the peri-urban interface: Perspectives on an emerging field. *Environment and Urbanization*, 15:1, 135-147.
- Antrop, M. 2005. Why landscapes of the past are important for the future. *Landscape and Urban Planning*, 70, 21-34.
- Argent, N. 2011. Trouble in paradise? Governing Australia's multifunctional rural landscapes. *Australian Geographer*, 42:2, 183-205.
- ABS (Australian Bureau of Statistics). 2011. *Census of Population and Housing*. Commonwealth of Australia, Canberra. Viewed 11 August 2013.
- Batisani, N. and Yarnal, B. 2009. Urban expansion in Centre County, Pennsylvania: Spatial dynamics and landscape transformations. *Applied Geography*, 29, 235-249.
- Barbier, E.B., Burgess, J.C. and Folke, C. 1994. *Paradise Lost? The ecological economics of biodiversity*. Earthscan Publications Ltd, London.
- Berkes, F. and Folke, C. 1998. Linking social and ecological systems for resilience and sustainability. In Berkes, F., Folke, C. and Colding, J. (eds) *Linking social and ecological systems. Management practices and social mechanisms for building resilience*. Cambridge University Press, UK.
- Burnley, I.H. and Murphy, P. 1995. Exurban development in Australia and the United States: Through a glass darkly. *Journal of Planning Education and Research*, 14, p. 245-254.
- Burnley, I.H. and Murphy, P. 2004. *Sea Change: Movement from Metropolitan to Arcadian Australia*. UNSW Press, Sydney.
- Cadieux, K.V. 2011. Competing discourses of nature in exurbia. *GeoJournal*, 76:4, 341-363.

- Choumert, J. and Salanié, J. 2008. Provision of urban green spaces: Some insights from economics. *Landscape Research*, 33:3, 331-345.
- Donaldson, R. and Project Team. 2009. *Integrated Planning and Reporting Project Phase 1: Future Directions – Shoalhaven's Community Strategic Plan 2020*. Shoalhaven City Council, NSW.
- Esbah, H., Cook, E.A. and Ewan, J. 2009. Effects of increasing urbanisation on the ecological integrity of open space preserves. *Environmental Management*, 43, 846-862.
- Gibson, C., Dufty, R. and Drozdowski, D. 2005. Resident attitudes to farmland protection measures in the Northern Rivers region, New South Wales. *Australian Geographer*, 36:3, 369-383.
- Gill, N., Klepeis, P. and Chisholm, L. 2010. Stewardship among lifestyle oriented rural landowners. *Journal of Environmental Planning and Management*, 53:3, 317-334.
- Green, R.J. 2010. *Coastal Towns in Transition: Local Perceptions of Landscape Change*. CSIRO Publishing, Collingwood, Victoria.
- Gurran, N., Squires, C., and Blakely, E. 2005a. *Meeting the Sea Change Challenge: Sea Change Communities in Coastal Australia. Report for the National Sea Change Taskforce*. Planning Research Centre, Faculty of Architecture, The University of Sydney.
- Gurran, N., Squires, C. and Blakely, E. 2005b. Planning for sea change in coastal Australia. *Australian Planner*, 42:4, 10-11.
- Head, L. and Muir, P. 2007. *Backyard: Nature and Culture in Suburban Australia*. University of Wollongong Press, Wollongong.
- Holmes, J. 2008. Impulses towards a multifunctional transition in rural Australia: Interpreting regional dynamics in landscapes, lifestyles and livelihoods. *Landscape Research*, 33:2, 211-223.
- Hughes, A. 2008. *Art Life Chooks: Learning to leave the city and love the country*. HarperCollins Publishers, Pymble.
- Hugo, G.J. and Smailes, P.J. 1985. Urban-rural migration in Australia: A process view of the turnaround. *Journal of Rural Studies*, 1:1, 11-30.
- Johnson, C.Y. and Zipperer, W.C. 2007. Culture, place and urban growth in the U.S. South. *Urban Ecosystems*, 10, 459-474.
- Kearney, F. and MacLeod, N. 2006. Bushland or parkland: vegetation management in landscapes under rapid conversion. Paper to the *Veg Futures 06: The conference in the field, Albury, NSW, 19-23 March 2006*.
- Klepeis, P., Gill, N. and Chisholm, L. 2009. Emerging amenity landscapes: Invasive weeds and land subdivision in rural Australia. *Land Use Policy*, 26, 380-392.
- Lioubimtseva, E. and Defourny, P. 1999. GIS-based landscape classification and mapping of European Russia. *Landscape and Urban Planning*, 44, 63-75.
- Lo, A.Y.H. and Jim, C.Y. 2010. Differential community effects on perception and use of urban greenspaces. *Cities*, 27, 430-442.
- OECD. 2001. *Multifunctionality: Towards an Analytical Framework*. Organisation for Economic Co-operation and Development, Paris.
- Pauleit, S., Ennos, R. And Golding, Y. 2005. Modeling the environmental impacts of urban land use and land cover change – a study in Mersyiside, UK. *Landscape and Urban Planning*, 71, 295-310.
- Robbins, P. 2004. *Political Ecology: A Critical Introduction*. Blackwell Publishing Ltd, UK.
- Shepherd, A. 2005. Special feature: Coastal planning. Challenges for coastal councils. *Australian Planner*, 42:4, 6-7.
- Shoalhaven City Council. 2008. *Revised Population Projections*. Shoalhaven City Council, NSW.
- Shoalhaven City Council and Monaro Consultants Pty Ltd. 1996. *Milton-Ulladulla Structure Plan, Volume 1: Strategy*. Planning Services Division, Shoalhaven City Council, NSW.
- Simon, D. 2008. Urban environments: Issues on the peri-urban fringe. *Annual Review of Environment and Resources*, 33, 167-185.
- Turner II, B.L., Lambin, E.F. and Reenberg, A. 2007. The emergence of land change science for global environmental change and sustainability. *Proceedings of the National Academy of Sciences USA*, 104:52, 20666-20671.
- Turner II, B.L., Moss, R.H. and Skole, D.L. (eds). 1993. *Relating Land Use and Global Land-Cover Change: A Proposal for an IGBP-HDP Core Project. A Report from the IGBP/HDP Working Group on Land-Use/Land-Cover Change*. IGBP/HDP Working Group, International Geosphere-Biosphere Programme and Human Dimensions of Global Environmental Change Programme, Stockholm.
- Turner II, B.L. and Robbins, P. 2008. Land change science and political ecology: Similarities, differences, and implications for sustainability science. *Annual Review of Environment and Resources*, 33, 295-316.
- Verburg, P.H. 2006. Simulating feedbacks in land use and land cover change models. *Landscape Ecology*, 21, 1171-1183.

- Wu, J. and Hobbs, R. 2002. Key issues and research priorities in landscape ecology: An idiosyncratic synthesis. *Landscape Ecology*, 17, 355-365.
- Zube, E.H. 1987. Perceived land use patterns and landscape values. *Landscape Ecology*, 1:1, 37-45.