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Culture, place and urban growth in the U.S. South

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Abstract People's connection to land is an important contributor to identity in traditional southern society. In small southern communities, to know where someone lives is to know who someone is because place assigns biography. Studies have investigated the physical and economic implications of landscape change in the South, but comparatively little research focuses on the impacts to culture of urban growth. We consider how sense of place (as an indicator of culture) may be impacted, over time, by physical and structural changes in a locale. This point of departure examines the temporal dimension of sense of place, or how place perceptions may vary as familiar places and practices are altered by landscape moderations. We review the literature on sense of place and changing Southern landscapes and also offer a conceptual framework for analyzing sense of place over the long-term.

Keywords Sense of place · Urban growth · Landscape change · Southern culture

> We're seeing ways of life disappear among people who have been here for generations because of the changing environment and influx of people from the outside. There's a cultural loss as well as a physical loss taking place.[1]

[1]Focus group participant in Monroe et al. (2003).

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Introduction

Throughout the United States, agricultural and forest lands are rapidly being converted to urban uses. The amount of developed land increased by nearly 50 percent from 1982 to 2003 for the country as a whole (USDA Natural Resources Conservation Service 2006). Land conversion is especially problematic in the Southern United States (Macie and Hermansen 2002). Of the ten states nationally with the greatest amount of nonfederal land converted to developed uses from 1982 to 1997, five were in the South (USDA Natural Resources Conservation Service 2000; Georgia Institute of Technology Center for Quality Growth and Regional Development 2006). This growth is expected to continue into the foreseeable future. The southern region is predicted to have the largest developed area increase by 2025 (between 14.2 and 24 million hectares) (Alig et al. 2004). Also, more than 30 million acres (12.4 million hectares) of forest land in the South are projected to be converted to developed uses by 2040 (Wear 2002).

We consider the long-term impact of increasing urban development on the various cultures of the South[2]. Culture is defined in its broadest sense, as a way of life practiced by ethnic or other socially defined groups (Bodley 1994). Our definition also follows Williams (1958) who emphasized "ordinary culture," as distinguished from culture as elite or "high." Ordinary culture, in contrast, encompasses meaningful celebrations and traditions, habitual work and responsibilities, navigation of familiar places, and day-to-day relations among people. Important for us are the links between cultural identity and landscape change (via urban development),[3] in particular how people's feelings and connectedness to everyday places and practices are altered when the landscape changes from traditional rural and small town features to those more typical of urban and suburban places.

Viewed from the outside, the South has often been depicted as a monolith of backwardness stretching from southern Virginia and Kentucky to East Texas. Indeed, much of the South remained agrarian well into the twentieth century, and on most measures of modern achievement (rates of literacy, poverty, infant mortality, economic output), the South fell miserably short of national averages (Cobb 1984).

Despite its slowness and isolation, or perhaps because of it, distinctive cultures, adapting to the various climates, economies, and topography, flourished in the region (Preston 1991). Among these are mountain cultures of the Southern Appalachians and Ozarks; the African American and white traditions in the former plantation, "Black Belt" region; the coastal communities on the Gulf of Mexico and Atlantic Ocean (Gullah and Geechee African Americans); and the Creoles and Cajuns in Louisiana. These cultures are distinguished by their cuisine, diction, and dialect; yet, there remains a unifying, though not homogenizing, familiarity that subsumes sub-regional differences into a larger South.

Genovese (1994) contends that conservatism—in political, social, and religious terms—has greatly influenced overall southern culture. Havard (1981, p.39) delineates a number of characteristics that set the South apart from other regions—these include a strongly felt "sense of place," or identification with place as home, "down home," a place to which the

[2] Critics may counter that a culture of the South bounded geographically is an imagination (e.g., Hall's [1995] "cultural landscaping"), as culture resists spatial delimitation. This argument is well-taken; still we maintain that there remain cultural mores which distinguish Southerners from those in other parts of the country.

[3] We use the term urban development and urbanization interchangeably. Both refer to urban growth taking place in and around rural areas and small towns. This development typically takes the form of urban architecture replacing rural structures or open agricultural or forested lands and consequential population migrations to these small towns. When landscape change is used in the text, implied is urban development.

sojourner eventually returns.[4] And for those who remain in place, there is the recognition of tradition and how it informs present behavior; interpersonal relations that stress physical, personal and familial relations as opposed to formal or abstract interactions; and an enduring deference to religion. Preston (1991) adds that the "small town" or home community is quintessentially southern; and southerners' attachment to these home places is a defining trait of southern culture.

The concept of "culture loss" is proposed to gauge conceptually how the nonmaterial aspects of culture (symbolism, emotive attachments, cognitions) may be affected when rural landscapes are converted, across time, from traditional uses such as forests and agriculture to developed uses (Snyder et al. 2003). Kirsch (2001) conceptualizes culture loss in terms of "cultural property rights" related to a group's legalistic claims to possessions (e.g., natural resources on which the group subsists) and also to a much more intangible belongingness to, or sense of place (Snyder et al. 2003). For Kirsch (2001), sense of place is an integral component of culture.

Culture loss has been operationalized by anthropologists in investigations of indigenous group responses to human-induced environmental disasters such as nuclear testing and oil spills (Kirsch 2001; Snyder et al. 2003). In these cases, native groups claim a right to tangible natural resources destroyed by outside agents because these resources form the basis of the group's subsistence. Indigenous people have also claimed recompense for deprivation of place connectedness (sense of place) resulting from environmental disasters.

Arguments for natural resources rights, as a component of culture, are more straightforward in subsistence societies because of communal property but would be more difficult to substantiate in Western societies bound by private property rights. If a landowner sells a tract of forest land for commercial uses, it is well within that individual's rights to do so even if this results in a reduction of natural resources for other community members (Hart et al. 2004).

There is also no basis for a legalistic claim to the second component of culture loss, sense of place, in Western societies. People do not have an inherent right to a perpetual connectedness to place although numerous scholars argue that place (however narrowly or broadly defined) is integral to the development of the self (Fried 1963; Relph 1976; Twigger-Ross and Uzzell 1996; Werlen 1993; Buchecker et al. 2003). According to Fried (1963) and Brown and Perkins (1992), if unwanted modifications are made to neighborhood places, such interruptions can cause extended periods of grief and severely threaten self-identity. Working class respondents in Fried's (1963) study displayed long lasting grief and trauma after being forced to migrate from their West End Boston neighborhood. Human well-being, as it relates to objects or places, is detailed by Fried (2000) who asserts that attachments are vital for psychological and social well-being. When people are uprooted in the case of forced migration, serious psychosocial trauma can result. An analogous situation could occur *in situ* when people are forced not to relocate but rather when drastic urban growth occurs in the locale one currently occupies (Rogan et al. 2005).

We address the latter component of culture loss—people's sense of place in the midst of urban development. Place is defined in geographical terms as "...the area where [a] person routinely travels or is aware of in a detailed way, such as...town and environs, small valley/island, or county/district" (Hay 1998). According to the Millennium Ecosystem Assessment (2003, p.57), sense of place is one of the nonmaterial, cultural services provided by

[4] This connection is akin to the concept of *Heimat* in German culture. It connotes rootedness, where the inhabitants of place share a common language, values, and history.

ecosystems.[5] It follows that when these cultural services are altered, the net gain or loss to this service should be inventoried, as would other provisioning or regulating services like food, water, or climate.

Our inclusion of sense of place in landscape analysis rests on the premise that the loss or reduction of an elusive *social construct*, sense of place, should be placed on a par with threats to naturally occurring objects such as animal and plant species. We maintain that the nonmaterial aspect of culture, including people's deep connection to place in the South, should be viewed with similar concern as habitat destruction for the red-cockaded woodpecker, for example. Arguably, cultural services are more difficult to identify than are other services because the former depend to a greater extent on human perception. Still, these ecosystem benefits are strongly defended in situations involving urban growth and development. Bengston et al. (2005) remark that "[a]t the local level,...the core of the debate about sprawl...is the emotional impact people experience when they lose places in their own communities they feel deeply attached to" (Stewart et al. 2004).

This is not to argue for a cultural insularity or fixity; nor are we defending "old South" values or culture. Culture "loss" implies that culture is constant and unaffected by socio-demographic factors or other structural conditions. Better would be to say cultural change. Place definitions, even at a given point in time, are open to multiple interpretations. However, the socio-cultural and psychological response to these changes is not well understood by planners, policymakers, land developers, or physical scientists; yet it is these interests that have primary control of land use decisions.

Ecologists have recognized that defining or valuing a landscape (or place) solely for its ecological function does not capture its full significance (Alberti et al. 2003; Pickett et al. 1997; Horwitz et al. 2001; Redman et al. 2004). A single science conceptualization fails to account for the inter-related and reciprocal aspects of place change. According to Stedman (2003), social scientists have also been remiss in considering the physical component of place because of the emphasis in the social sciences on social processes of place and especially human perception in determining what place constitutes[6] (Warren 2005).

We do not wish to underestimate human resilience in the face of environmental change. Humans have a remarkable ability to adapt to a range of environmental upheavals (Berkes et al. 2003), including urban growth. Still, there is a need to understand better the temporality of urbanization and human adaptability. The lack of long-term social data comparable to long-term ecological assessments of landscape change inspired the present inquiry. The National Science Foundation has instituted at least 24 long-term ecological research (LTER) sites since 1980 (Redman et al. 2004). Because the LTER network was initially established to examine ecological patterns and processes, a similar core area of research for social patterns and processes does not exist. This is problematic for the LTERs because of the need to assess the interrelationship between social and ecological patterns and processes.

Redman et al. (2004) have proposed a similar set of core research areas for examining the social dimensions of change, which include demography, technological change, economic growth, and culture. Of particular interest to us, because of the deep-rooted connection of people to place in the South, are the cultural changes that may ensue longitudinally from urban growth. These changes relate to the social and psychological aspects of culture or place identity.

[5] Ecosystem and place are used interchangeably.

[6] Social constructionism holds that physical "realities" are created largely by human perception.

To address the lack of comparable cultural data corresponding to land use change or urban increase, we present a conceptual guideline for examining sense of place response to urban development over the long term. In doing so, we use urban expansion in the South as an example because of the predicted increases in urban growth in the region. As discussed, measurement of sense of place is much less precise than measuring physical attributes such as water quality; however, by attempting to gauge a community's emotive and symbolic responses to changes in ecological integrity, we believe improved assessments of urban growth and development can be achieved. The next sections review literature on urban expansion in the South, sense of place and sense of place measurement, followed by a conceptual guideline for examining sense of place response to urban development over the long term, and the conclusion.

Urban development across the South

Historians remark that place associations have persisted longer in the South than elsewhere because of the South's lag in industrial and economic development. Both Havard (1981) and Horton (1981) argue that place as *gemeinschaft*, an interlocking community of familiarity characterizing folk cultures, prevailed longer in the South than in other regions because the South remained longer in a pre-industrial state. This lag allowed the region to fend off the automatism and resulting anomie prevalent in industrial areas. Potter (1961, p.150) comments:

> On the face of it, it seems a matter of observation and not of theory to say that the culture of the folk survived in the South long after it succumbed to the onslaught of urban-industrial culture elsewhere. It was an aspect of this culture that the relation between the land and the people remained more direct and more primal in the South than in other parts of the country.... Even in the most exploitative economic situations, this culture retained a personalism in the relations of man to man which the industrial culture lacks. Even for those whose lives were narrowest, it offered a relationship of man to nature in which there was a certain fulfillment of personality.

Conditions have changed appreciably in many parts of the South in the nearly half-century since Potter wrote. On a positive note, the extension of civil liberties to a broader segment of the populace and economic expansion in the 1970s and 1980s helped to improve the socioeconomic lot of millions (Cobb 1984).[7] However, these improvements have not come without some measure of change to the southern sense of place. The relatively rapid expansion of residential, commercial, and industrial development of the past thirty years threatens to usurp traditional folk cultures of southern towns and cities (Boles 1995; Griffin and Thompson 2002; Cordell and Macie 2002; Dubey 2002; Falk 2003).

The reach of non-regional factors is seen clearly in strip mall developments located along interstate highways, in easily reproducible residential and commercial constructions situated within communities throughout the region, and the relocation of multinational corporations, lured by lower tax and wage structures (Bailey et al. 1996). When such growth occurs in a relatively short time span, it can destabilize rural community social, cultural, and environmental/ecological structures. Controversies surrounding optimal land use, class conflicts between longer-term rural residents and newer arrivals, and displacement of

[7] There are still persistently poor places in the South that remain mostly unchanged economically, socially, and politically throughout the region [Carl Vinson Institute of Government (2002)].

indigenous residents often occur (Krannich and Zollinger 1997; Fortmann and Kusel 1990; Smith and Krannich 2000; Hart et al. 2004). This is especially true for rural areas with amenity-rich natural and cultural resources.

As part of the Southern Wildland Urban Interface Assessment, focus groups consisting of natural resource experts and other concerned interest groups were conducted in six states across the South-Virginia, North Carolina, Georgia, Alabama, Florida, and Texas (Monroe et al. 2003). The purpose was to solicit expert opinion regarding urbanizing places across the region. Participants voiced great concern about a loss of cultural identity and rural character ensuing from urban growth. Respondents felt these problems are exacerbated by a southern culture which privileges private property rights, non-interference by a centralized government, and no or low taxation.

Similar trends have also manifested on the South Carolina coastal mainland or "Low country." According to a regional report, urban land use growth outpaced population growth in three coastal proximate counties by a ratio of 6:1 from 1973 to 1994 (Allen and Lu 2003). Such growth is due in large part to South Carolina being one of the top ten retirement states in the U.S.

Rural African American culture in this area may be especially vulnerable to development pressure because of the relative lack of economic power among blacks. The displacement of the Gullah people from the Sea Islands off the South Carolina and Georgia coast are examples of this type of loss. Gullah refers collectively to African American slave descendants brought to South Carolina from the Senegal and Gambia regions of West Africa (Pollitzer 1999). Gullahs, or Sea Islanders, represent a distinct subset of the African American population because they have been better able than other black Americans to retain apparent West African cultural practices. The Gullah (also known as Geechee in Georgia) live along the 250 mile coastal region and Sea Islands extending roughly from Myrtle Beach, South Carolina down to the northernmost tip of Florida at Amelia Island.

Burke et al. (2003) charge that coastal development, recreation, and fire suppression have compromised acreage that was once used for sweetgrass habitat. Sweetgrass (*Muhlenbergia filipes*) is a plant used by the Gullah for basket making, an art form dating from West Africa, that has distinguished the Gullah culture and provided a cottage economy for this group since the late 1800s (Hart et al. 2004).

The instances of urban encroachment cited here are but several examples of processes taking place throughout the region. As indicated, many residents believe these changes are proceeding without significant input of the ordinary citizenry; and while the economic benefit may be welcome, the effect of landscape change on collective and individual identity is also a factor that should be considered by planning boards and real estate developers. Attention to these non-material aspects of location offer a more holistic representation of the ecologist's ecosystem because of the integration of human perception into the study of the environment-place not only as a collection of interchangeable biophysical attributes or economic processes but also as containers of emotion, memory, and meaning.

Sense of place

Sense of place is a broad concept used by psychologists, geographers, sociologists, psychologists, outdoor recreation researchers, and landscape designers among others, to describe meanings humans associate with specific environments (Ley 1989; Steele 1981; Low and Altman 1992; Rose 1995; Relph 1997; Farnum et al. 2005). These constructions provide insight into people's emotive and cognitive connections to places (Schroeder 1996; Kruger and Shannon 2000). Williams and Stewart (1998) define sense of place as a kind of

affective attachment to a place that exceeds its use value. Meaning is central to this definition. Mere space becomes place when given meaning by an individual or group (Tuan 1974). The fundamental indicator of this kind of attachment involves a process of turning physical space into a place endowed with either individual or collective meanings.

Similar to Tuan (1974); Greider and Garkovich (1994); Williams and Patterson (1999) among others, we hold that the senses of place accorded a location varies by perceiver. Meanings are imparted to place based on people's experiences in a setting (Hiss 1990) or information obtained secondhand about a place (Halbwachs 1980).

Much of the writing on place assumes positive relationships between people and places, but negative or indifferent associations can also be held toward a place, even after prolonged exposure (Hummon 1992; Bixler and Floyd 1997). People may grow up in a town, have established relations in the place, but eagerly await an opportunity to leave because they are not bonded with place. In these instances, commercial or residential development may actually help to improve people's sense of the place by ameliorating community cohesiveness and identity. In other instances when there is a strong, positive sense of place for community, residents may still be willing to forego a certain degree of 'place' for improved services—for example, development of open pasture for a hospital (Hester 1985). But the same community may resist residential or commercial development for that same area of land.

Sense of place measurement

Measurement of sense of place and related constructs (place attachment) is conducted using both quantitative and qualitative methodologies although qualitative or phenomenological approaches dominate. This is due to the very definition of 'sense of place,' that its complexity resists exact definition, and attempts to quantify it may miss the point.

A 2003 special issue of *Forest Science* dedicated to place–based theory and measurement includes articles on quantitative investigations of place–related constructs–place attachment and community attachment. Williams and Vaske (2003) examined the generalizability and validity of a two-dimensional measure of place attachment (in this case, attachment to wild land outdoor recreation areas). The dimensions were place dependence and place identity. The former has to do with functional features of place, whether a particular place has the necessary physical features to support desired activities, while identity is designed to gauge the emotional connection to place. Confirmatory factor analyses indicated the scales measuring the two dimensions of attachment were both valid and reliable across study sites.

In the same issue, Clark and Stein (2003) examined the relationship between community attachment and community orientation for two Florida ecosystems. Respondents with a landscape orientation were more likely than those with a social orientation to say living near a public natural area was a primary reason they chose to live where they did. Also, landscape oriented respondents were more likely to visit a local public area more than 12 times per year. The usefulness to planners of these measures is how they correlate with other important variables such as attitudes about urban development or environmental behavior.

Jorgensen and Stedman (2001) developed and tested an attitudinal scale representing three commonly accepted dimensions of sense of place—place identity, attachment, and dependence. Comparisons between unidimensional and multidimensional models of latent sense of place domains (identity, attachment, dependence) were made to determine whether sense of place is explained better by single or multiple factors. Results showed distinctions between the three sense of place dimensions but also indicated the emotive (attachment)

dimension was the stronger factor in the sense of place construct. Johnson (1998) is one of few quantitative studies on place that examines place perceptions across racial groups. In a sample of north Florida residents, African Americans indicated less place attachment than whites to wildland recreation places.

Entrikin (1991) discusses the fundamental problems of accounting for human perceptions as variables in place analyses. The subjective meanings, feelings, and symbols which comprise sense of place are difficult to adequately quantify with standard positivistic measures such as Likert scales. Rather than forcing an elusive construct like sense of place to conform to scales intended to measure natural objects, Entrikin (1991) proposes the use of open-ended narrative as a method of assessing place perceptions. Conceptually, we can understand the emotive response to urbanization by cross referencing representative landscape alterations with representative sense of place items. These can be elicited in narrative form by asking respondents to address these changes as they impact their ordinary lives (Macnaghten and Urry 1998). This is referred to in geographical terms as chorology, a way of assessing the relationship between human culture and the natural environment by focusing on subjective interpretations of place. This assessment would be couched within an individual's or group's total experience of place rather than abstracted as is done with survey research.

The Environmental Protection Agency's *Community Culture and the Environment: A Guide to Understanding Sense of Place*, offers a practical means of assessing sense of place using qualitative methods. The guide outlines six steps in conducting a community assessment project. These involve defining a community's goals and identifying key factors that capture the essence of the place; measurement of community characteristics; analyzing results; and implementing best strategies.

Brandenburg and Carroll (1995) also offer open-ended methods for identifying place meaning and attachment. These methods may involve mapping exercises where residents identify meaningful community places that should be left undisturbed when development is planned. Hester's (1985) discovery of the importance of "Sacred Structure" (meaningful community places) in a North Carolina village's development plans is also instructive. Community members identified meaningful places in the town to be preserved as the village moved towards economic revitalization. Maps of these salient places were then used by the town planning board in negotiations with developers.

Small towns and rural counties in the South experiencing the pressures of urban growth can use similar "visioning" efforts to assess of sense of place. These efforts are intended to identify meaningful places and processes within the community that people want to see either enhanced or preserved. Then, based on these assessments, residents can help to formulate growth plans that aim to optimize the balance between cultural preservation and economic growth (See the "Imagine Jackson" project in Jackson County, Florida at www.imaginejackson.org). These exercises are practical ways of incorporating 'sense of place' into municipal and county level planning. Zoning boards and town councils can use documents derived from such an exercise when considering regulations having to do with proposed development. Such assessments include a 'place' perspective, that is, one that recognizes the importance of individual and community identity in situations involving community change.

Sense of place, urban growth, and the life cycle

While sense of place researchers acknowledge the malleability of place perception at a given point in time, few efforts have been made to monitor the plurality of place meanings

as they emerge over the long term (Fried 2000). The definition of long term is defined loosely but may generally be considered a period of ten years or longer. The impact of environmental change, over time, on sense of place has also not been adequately theorized (Davenport and Anderson 2005; Rogan et al. 2005).

In measuring sense of place response to urban growth over time, we take the perspective of adult life cycle theorists who posit that changes in adult lives are related to significant biological, social, and psychological periods corresponding to age groups (Walsh 1983; Levinson 1978; Levinson and Levinson 1996). An individual's sense of place and response to urban growth may be influenced by one's stage in the adult lifecycle. For instance, the emphasis in early adulthood on exploration, uprooting, and distancing from one's family of origin is likely to shift attention from the local environment and changes occurring on the landscape to challenges of personal worth and growth (Rowles 1983). In the middle years from about 35 to 60, individuals become more settled and are primarily concerned with establishing and cementing a place for themselves in society, whether physically, financially, or otherwise. At this stage in their lives, people have more of a stake in community services and are more likely to desire stable community structures and seek to establish a more clearly defined sense of place.

Inhabitants are also more likely to be cognizant of the long-term impacts of environmental, cultural, and social change on the life structures they have established. Moreover, people are old enough now to remember landscapes of their youth and to evaluate how current processes are affecting these. At this stage of their lives, people's sense of place is likely to be more developed, compared to younger age groups.

The few empirical studies considering sense of place over time have done so using life cycle theory. Hay (1998) draws on this literature to look at sense of place for a sample of indigenous (Maori) and European descent New Zealanders. The life cycle consideration is appropriate for populations that have been relatively stable or dwelled in the same community for most of their lives. Using phenomenological, ethnographic, and survey sampling, Hay (1998) found that respondents became more aware of their environment, specifically the significance of social connections and physical elements as they aged. In middle adulthood, people were most aware of their surroundings compared to younger and older groups although sense of place grew increasingly salient with age. Hay describes those in the "old–old" age category (mid-seventies and older) as being "'part of' their place," that is, entrenched in the place to such an extent that their autobiographies correlated highly with their physical and social environment.

In his examination of a related concept, place attachment, Rowles' (1983) 3-year study of elderly West Virginians showed how place attachment was a component of self-identity. Important here was respondents' selective remembrance or interpretation of the town. Rubinstein and Parmelee's (1992) explication of place attachment suggests that over the life course, people become attached to places because of meaningful events and experiences that occur in a place. Attachment to and also sense of place develops not only as a result of physical proximity to a location but through salient interactions with a place.

Cuba and Hummon (1993) also argue that the formation of place identities or sense of place can be examined in the context of life cycles. They found that younger migrants to Cape Cod, Massachusetts tended to base their place identity on social networks—friendship, family, and emotional well-being; whereas older respondents were more likely to derive their identity with place based on the physical aspects of the environment or past experiences in place. The delineation of social and physical dimensions of place may be useful in cases where the population of interest is migrants. Those *choosing* to migrate would likely be motivated to relocate by idealized images of a

locale and attach themselves to selective or singular attributes of place such as physical properties (amiable climate) or social features (a good education system and parental networking) (McCool and Martin 1994).

However, in situations involving long-time residents of a place (as opposed to migrants), the segmenting of place attachments into physical, social, or any other properties may create false distinctions between place dimensions. The segmenting of place attachments into social or natural dimensions assumes people are able to clearly delineate between these two facets of place. Over time, attachments may be formed to both natural and social features that are difficult to differentiate.

An examination of sense of place over the adult life course is well-suited for our look at place change in the South resulting from urban build out. Significant urbanization impacts are only beginning to be perceived across the region in the smaller towns and rural places.

Our longitudinal consideration of sense of place response to urban growth begins with Lockaby et al. (2005) who stress that economic conditions in land markets propel land use changes. These changes are followed by increases or reductions in *biophysical*, ecological services then again human responses to ecological conditions (demographic shifts, economics, public policy), which re-starts the process of land use change. Lockaby et al.'s (2005) model, however, does not include culture as an ecological service, as is mentioned by Redman et al. (2004) and the Millennium Ecosystem Assessment (2003).

We expand upon Lockaby et al. (2005) to include culture, specifically sense of place, as an ecological function/service (Fig. 1). As such, sense of place can respond to broad scale land cover changes [as conceptualized by Lockaby et al. (2005)] or to specific biophysical attributes indicating urban growth. Table 1 contains examples of three biophysical attributes

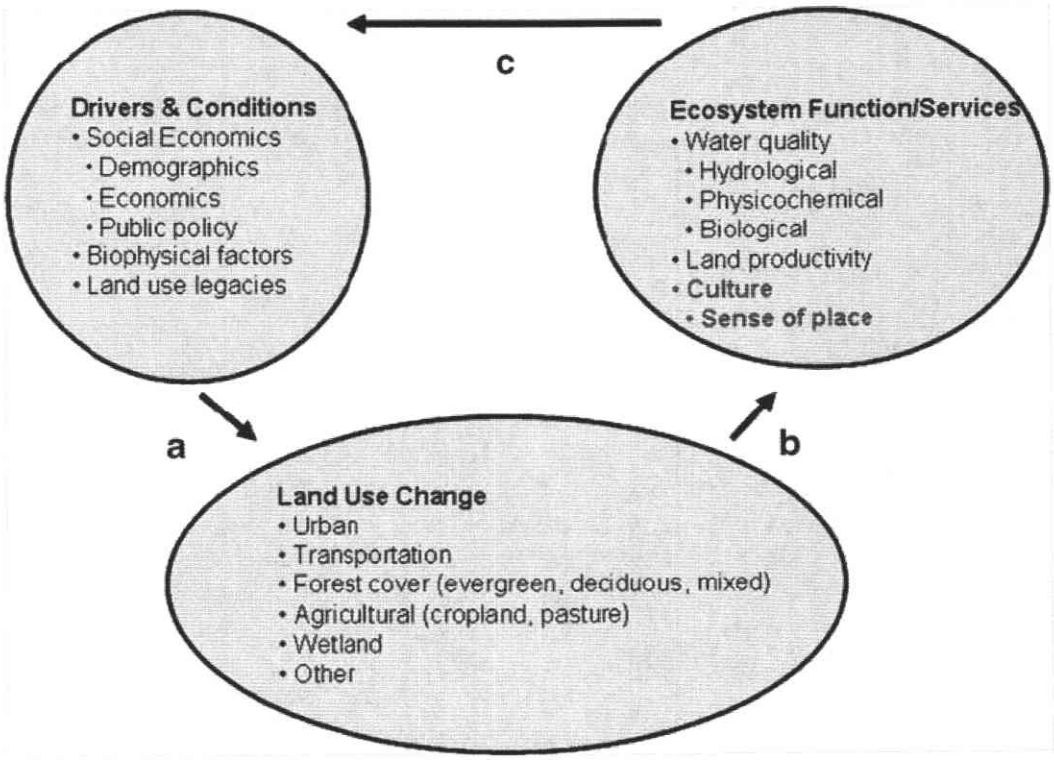

Fig. 1 Modified Lockaby et al. (2005) conceptual model of urban sprawl drivers and responses where **a** Land use model, **b** ecosystem integration model, and **c** feedback mechanisms

Table 1 Examples of three biophysical attributes with accompanying biophysical and social–psychological measurements at the landscape and site levels

Biophysical attributes	Biophysical measurements		Social–psychological measurement (sense of place)
	Landscape	Site	Landscape and Site
Tree cover	Patch configuration	Species richness	Meanings Memories
Tree size and shape	Spatial heterogeneity	Diameter at breast height/ crown condition	Feelings Values
Open space	Percentage allocated to open space	Structure and composition	Preferences Attitudes Symbols

used to monitor urban growth—tree cover, tree size and shape, and open space—and corresponding biophysical indicators of change occurring in these attributes, at both the landscape and site levels (Nowak et al. 2002; LaGro 2001). Also included are possible social psychological responses to changes occurring in the biophysical attributes. These include place meanings, memories, feelings, values, preferences, attitudes, and symbols (Proshansky et al. 1983; Williams and Stewart 1998; Stedman 2002), which can also be assessed at both the landscape and site levels. Collectively, these factors may comprise sense of place.

Urban growth may be indicated by changes in either or all of the biophysical attributes. In biophysical terms, for example, a reduction in the quality of canopy cover at the landscape level may be indicated by changes in patch configuration or by species richness at the site level. The corresponding psychosocial response to these changes could be assessed with open-ended responses from affected citizens about how significant canopy cover changes alter collective and/or individual meanings, memories, or feelings about the landscape or particular tree stands. Again, this examination would assess the extent of "culture loss" (interpreted as sense of place) realized when rural areas change from more rural to urban uses.

Not all sense of place attributes may respond to the same degree. While meanings and memories might be adversely affected by reductions in tree canopy, for instance, symbols and attitudes might be relatively unaffected by such changes; or such changes might actually improve individual or collective sense of place if change resulted in land uses that yield a higher tax base, for instance.

The association between land use change and sense of place may be nonlinear, that is a given change in x (biophysical attribute) may not produce a perceptible change in y (sense of place attribute). As indicated above, the resilience of human communities must be considered. The exact nature of sense of place responses is not known. We have assumed perceptible landscape and site level change would produce a corresponding change in sense of place. While one scenario may be somewhat analogous to a linear model where a given change in x produces a measurable change in y, other associations may be less predictable. It may be that development must occur up to a point [what Lai et al. (2007) refer to as the "threshold of inertia"] before any conscious change in sense of place can be articulated (Berkes et al. 2003).

Figure 2 shows possible sense of place responses to urban growth (percent canopy cover) with a consideration of life cycle (time interval). The cohorts show that perceptions of individuals with similar life shaping experiences can be monitored across time. There is a positive association between sense of place and canopy cover for Cohort X, but a mostly inverse correlation between the variables for Cohort Z. For Cohort Y, canopy cover has no

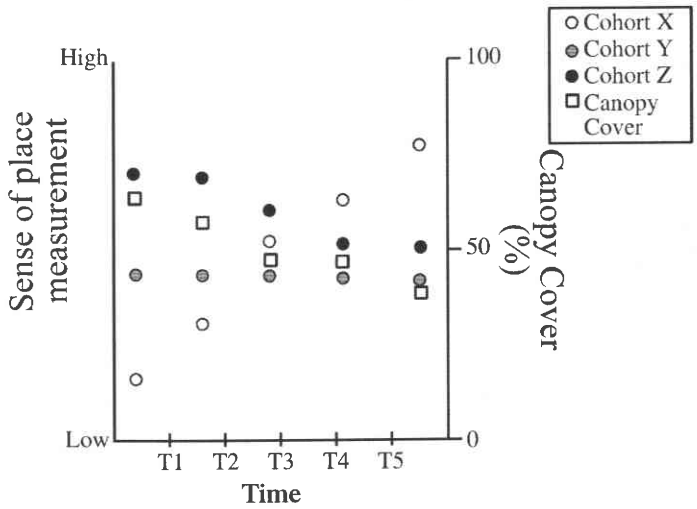

Fig. 2 Three hypothetical cohorts responding to a decline in canopy cover over time as represented by a measurement of a sense of place

effect on sense of place over time. In addition, a vertical assessment of sense of place can be conducted by examining the responses of various age cohorts to urban growth at a given point in time. This would involve an examination of "Cohort *x*" and "Cohort *z*" at T3, for instance.

Lifecycle stage is only one of many demographic variables potentially affecting people's perceptions of urban expansion. Other important sociodemographic influences include race/ethnicity, social class, migration, political orientation, and gender. Given the racial diversity across the South and the history of racial segregation in these areas, it would be instructive to stratify age groups by race and ethnicity whenever appropriate. Of particular interest is the convergence of minority and socioeconomic status, specifically how these combine for alternative responses to landscape change.

Conclusion

The 'culture of the folk' referenced earlier is being replaced, in many parts of the South, with an indistinguishable national culture. As small towns and rural areas in the South continue to urbanize, we have the unique opportunity to document responses to change. Again, we are not arguing for xenophobic protection of closed cultural forms but rather for a consideration of intangible place properties. From an applied perspective, this inquiry is useful in that it can help to ensure planning is effected in a way that includes more of the component parts of place.

A better understanding of the immaterial attachments to place and how these convey identity for Southerners can assist land planners in devising development schemes that have a greater likelihood of being accepted by the public. Too often, attention to the non-tactile or to that which cannot be readily quantified, is relegated to the peripheral of the planning process, if considered at all. Yet it is these "incidental" and oftentimes emotive components of the environment which matter a great deal to constituents.

To be useful to resource planning, it is vital that managers and planners recognize that humans are integral to ecosystems (or place) and that humans derive both physiological and psychosocial health from ecosystems (Horwitz et al. 2001). When these services are diminished, overall human well-being suffers accordingly. We can readily measure environmental toxins that imperil physiological health, such as unacceptably high levels of carcinogens. However, there has been much less attention paid by either practitioners or

scholars to the cultural services provided by ecosystems to human communities. If cultural services such as sense of place or cultural heritage values are impaired via urban development, human well-being is affected. While it is unlikely fatalities would occur because sense of place is altered, it is important to consider that overall life quality could be adversely affected by rapid and undesired development.

We realize the difficulty or even the appropriateness of expecting managers to 'manage for emotion' as well as biophysical health. However, the emotive dimension of place or the recognition of humans as beneficiaries of cultural services provide the relevant *context* in which decisions about more objective science can be made. For example, if an ecological assessment prescribed the restoration of certain plant or animal species; or if an economic analysis suggested a community would benefit from tourism development, attention to the cultural dimension of place would give crucial information about how these prescriptions would fit into the ordinary lives of community members. In some cases ecological restoration projects might augment existing cultural or economic practices, but in others restoration might run counter to current practices although restoration would likely result in longer-term ecological health. We are not suggesting feelings about place should trump scientific reason but rather that science should fit or adapt, in some cases, to a broader conceptualization of place that includes human emotion and cognition. The ultimate success of such projects would depend upon their receptivity by key constituent groups.

We acknowledge that sense of place is political. At any given point in time, there are necessarily competing perceptions of place, which in turn depend upon salient background factors. Indeed, place meanings are more than commensurate expressions of warm, fuzzy feelings about environments but also can involve powerful contestations about what a place means. For instance, memorials to Confederate soldiers in the South would probably not be cherished by African Americans or by the increasing numbers of Hispanics migrating to the area but would be valorized by white Southerners who identified with the confederate narrative.

Because of the contested nature of place, any assessment of sense of place should include as many relevant constituent groups as possible in defining places. It would be impractical to include the senses of place of each individual or even constituent group in an assessment of sense of place. Still, the objective of inclusion helps to promote the important task of environmental justice in terms of land use planning by allowing for multiple landscape interpretations. Sense of place, as both a conceptual and empirical construct, can represent a practical application of environmental justice to groups that might not otherwise take part in environmental decision making. If resource managers or town councils are willing to consider the nebulous or emotive ties people have with places as *bonafide* responses to land use or resource conflict, this would help to move ordinary people from the periphery and into the center of debates about resource use, thus helping citizens to participate more fully in the democratic process of environmental decision making.

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