

Abstract: Council of Educators in Landscape Architecture

Title: Iterative Mappings: Spatial Analysis and Community Food Resilience

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Community-level food resilience can be understood as an effort to anticipate change and strategically build adaptive responses, with the goal of reducing vulnerability to food shortages and interruptions in the supply chain. Long-term resiliency responses may include shortening supply lines, creating redundancy in critical areas, and/or increasing local production and distribution capacity. These responses may be catalyzed through development of community resources, strategic planning, and linkages both within communities and to neighboring communities. This paper uses the case of a community food resilience initiative in San Luis Obispo County (SLO), CA, to explore the role of spatial analysis in defining and supporting resiliency responses.

Food resilience planning is often carried out by multiple activists and community-based organizations, each focused on narrowly-defined initiatives. The formation of a shared framework can be hampered by lack of an overall understanding of how the projects relate, of what assets and patterns already exist in the community, and of articulated common priorities. Yet a common framework is critical to managing resources and optimizing outcomes from community efforts.

Mapping and spatial analysis are well-documented instruments for strategic action, from warfare to logistics management. In recent times, the use of spatial analysis as an iterative and generative process has been explored in the fields of landscape architecture and urbanism. This approach to spatial analysis focuses on discovery of relationships between parts; on reconciling ecological, economic and socio-cultural patterns; and on identifying flows and systems within a geographic area. Combining both strategic and iterative approaches to mapping can yield a holistic understanding of food systems, and holds potential for enabling development of framework approaches to food resilience planning.

Over the past year food activists and planners in SLO have undertaken a hybrid spatial analysis that moves beyond inventory to address flows, distribution patterns, and physical and social food systems infrastructure, in order to create a shared framework for resilience planning. In this presentation I will describe and evaluate ongoing efforts in SLO to use spatial analysis as an instrument for creating shared frameworks and goals; and offer recommendations for the use of spatial analysis to inform the development of community food resilience strategies.

Measuring the Social Performance of Food Production Landscapes: Towards Establishing a Framework & Metrics

Advocates of integrating food production landscapes within urban, suburban, campus and other design typologies cite multiple and integrated benefits of food landscapes. These include enhanced food security and quality; land access for small farmers; psychological and social benefits such as community building; educational opportunities for environmental, health and nutrition issues; and green

infrastructure contributions, among others (Philips 2013; Ackerman 2012; Hodgson et al 2011; Hou et al 2009; SAGE 2005).

If performance can be understood as “the fulfilment of a claim, promise, request” (Merriam Webster 2015), then landscape performance measures for food production would ideally encompass the overall range of cited goals and benefits. Yet in current practice the performance of food production landscapes tends to be measured in limited ways, most often by weight of harvest and/or consumer value of harvest. One reason that designers privilege these measures is the availability of online calculators that estimate yields by weight and consumer price equivalent, and a concurrent lack of easily accessed metrics for other benefits. While measuring performance by weight and consumer value may be appropriate in some cases, there are several drawbacks with this approach, including undervaluing other outcomes.

This paper examines potential metrics for evaluating the social performance of food production landscapes and generates recommendations for assessment methods. Criteria from the Landscape Architecture Foundation (LAF) case studies on the social performance of landscape guide the scope, organization and critique of relevant literature across diverse fields, including nutrition, epidemiology, geography, planning, and landscape architecture. This paper builds a framework which improves the link between performance assessments and desired social outcomes, positions food production landscapes as complex and regenerative eco-social systems, and suggests methods for assessing performance across the range of benefits produced.

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Title: The Role of the Creative Class in Small Town Regeneration: A Case Study of Kinston, NC

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Keywords: small town regeneration, rural small towns

Abstract:

Small towns are subject to decline as industries migrate to other regions or countries (Fuguitt, G. et. al., 1989). One such case is Kinston, NC. Kinston was established as an English settlement in 1762 (Johnson & Hollomon, 1954) and thrived through textiles and tobacco. Decline began in the 1960's with the export of these industries. Kinston has since struggled to regain an economic foothold. Poverty rates for Lenoir County rose above 25% by 2011 (US Census, 2012). Recent events appear to be prompting economic development. An embryonic arts and culinary movement are finding purchase in the city. Several restaurants have started to transition Kinston into a food tourism destination, one of which is the subject of a PBS series, *A Chef's Life*® (Severson, 2015; Howard, 2015). An artist community is being established with several new galleries. The city planning department recently created an artist zone overlay in part of downtown with the intention of offering low cost live/work space to an entrepreneurial creative class (Satira, 2014).

The purpose of this study is to determine if the rise of a creative class is serving as the catalyst for recent

change and if not, what factor or factors have contributed to these changes? Creative industries have been shown to increase tourism and regeneration (Wood and Tayler, 2004; Bell, 2005). This research fills a gap in the literature in that there is a paucity of research into small town regeneration in the United States. Much of the existing research occurs internationally. Still, international and domestic research concludes that the greatest success in small town regeneration results from public/private partnerships that leverage existing assets at both local and regional scales. (Brown, 2013; Cebulla, et. al., 2000; Flora, et. al, 1992; Jeannot and Goodchild, 2011; Lewis, 1998; MacDonald and Jolliffe, 2003; Nel and Stevenson, 2014; Osborne, et. al., 2004). This study will add to this literature by detailing the mechanisms that have led to regeneration in Kinston and will add to landscape architects understanding of the issues at play when approaching small town regenerative efforts.

A case study of this regenerative process will be presented that will include a literature review, overview of the issues, and interviews with city officials, non-profits, business owners and other key players. Findings about cooperative partnerships between public and private interests and the role that artists and creatives are having in this effort will be presented.

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Title: A strategy for locating constructed wetlands as part of a watershed management plan

Authors: Miran Jung Day and David Kovacic

Abstract:

This paper presents the Lake Bloomington Watershed Project as a case study for the feasibility of locating constructed wetlands to improve water quality of Lake Bloomington, Illinois using Geographic Information Systems.

The diminishing quality of drinking water in Bloomington, Illinois is one of the water challenges many Midwest communities that receive their water from streams draining agricultural watersheds face. Lake Bloomington historically exceeds EPA's drinking water standard of 10 ppm for nitrates and is listed as impaired due to excessive nitrate and phosphorus loadings (IEPA, 2006). Similar to many drinking water reservoirs throughout the Midwest, tile drainage is a major cause of nitrate loading in Lake Bloomington (LBWP, 2008). Research has shown that wetlands are one of the most effective practices removing the tile nitrate load (Crumpton et al., 2008; Kovacic et al., 2006). These studies indicated that the strategically located wetlands establishment are critical and urgently needed.

Approximately 1,000 acres of constructed wetlands are theoretically needed to treat the water with nitrate load flowing from the entire Lake Bloomington watershed through the surface and subsurface. The project proposes relatively smaller size wetlands to be strategically located throughout the watershed close to targeted areas considering effectiveness of the management practices and implementation. The study aims to identify and connect current monitoring activities to geographic locations to comprehend data gathered within the watershed. It is also to explore hydrological characteristics and patterns to locate surface and subsurface drainage locations. Lastly it is to develop a framework to identify suitable locations utilizing the data and characteristics of landscape in the watershed. The study, first, develops its own identification system for basin models utilizing current hydrologic unit codes (HUC) to systemically link between the current scientific data and geographical locations. Next, the study creates a hydrological model for the Lake Bloomington watershed using historical data and digital elevation model (DEM) to find preliminary wetland locations reflecting the site conditions. Once preliminary locations are identified, the study also utilizes other factors affecting creation of the constructed wetland on the targeted location accepting surface and subsurface water. The study provides guidelines for a feasibility study of small constructed wetland sites. It also offers additional support for the water quality management research and particularly contributes to feasibility studies for water quality improvement practices in other agricultural settings in the Midwest.

Key words: feasibility study, GIS, constructed wetland, water quality improvement, landscape ecology

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water quality in the Midwest – Lake Bloomington case study. *Ecological Engineering*. 28: 258-270.

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Learning Outcomes:

Understand importance of relationships between scientific data and geographical locations

Learn function of hydrological models generated using GIS in finding potential wetland sites

Learn how various factors are utilized in the site selection process

Authors' bio:

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Miran J. Day is interested in Geographic Information Systems (GIS); feasibility study; development of strategies for environmental planning and design; and landscape ecology.