



US - IALE

**25th Annual Landscape Ecology Symposium
Is What Humans Do Natural?
Athens, GA | April 5-9, 2010**

ABSTRACTS

theory, discuss relationships between circuit and random walk theories, and describe software (circuitscape.org) that implements circuit theory for conservation planning, landscape genetics, and movement modeling. We'll describe how circuit models are being applied to identify barrier effects, parameterize movement models using genetic data, and to prioritize important connective habitats for conservation. We will discuss the use of circuit theory in quantifying the resistance of landscape features.

Keywords: circuit theory, connectivity, landscape genetics, movement, resistance

82. Community Garden Site Selection in Madison, Wisconsin: Social and Spatial Analysis in a Changing Urban Landscape

Authors: **GREENE**, Robert, University of Wisconsin-Madison, Landscape Architecture Dept; Janet Silbernagel, University of Wisconsin-Madison, Landscape Architecture Dept

Offered Presentations: Landscape Aesthetics I - Tuesday, April 6: 3:40-4:00 - K-L

Abstract: In the last century urban agriculture has occupied a marginal and transient space in regard to land use in U.S. cities. Over the past decade, however, there has been a renewed interest in urban agriculture as a land use mechanism to engage themes of environmental health, community food security, and social justice. Community gardens, as a subset of urban agriculture, provide an opportunity to convert unoccupied or underutilized land in urban environments into a community asset, yet few cities have developed cohesive frameworks for the selection of land for these gardens. The purpose of my study is to identify the social and spatial characteristics that influence such a framework in the context of Madison, Wisconsin. As vacant and underutilized land in Madison becomes increasingly scarce, community garden sites do not necessarily correspond with optimal social and physical settings. The study is designed in the context of this changing urban landscape, and provides unique insight into the correlations between garden site selection criteria and the spatial distribution of community gardens. I use Interviews and archival investigation of a local, collaborative decision making process to identify the most influential factors in the approval of new community garden site proposals. These factors are then represented spatially using geographic information systems, and analyses are performed comparing spaces occupied by existing community garden sites and attributes of site selection criteria on the landscape. Initial results suggest that population centers and demographics have an equal, and in some cases greater impact on site selection than biophysical factors that are more commonly measured in land suitability analyses. Rejections or approvals of new community garden proposals by a garden funding panel in January, 2010 will offer an opportunity to assess the validity of the site selection factors identified in the study.

Keywords: Community Gardens, geographic information systems, land use, Public Space, Urban Agriculture

83. US-IALE Presidency: the Gustafson administration, 2002-2004

Authors: **GUSTAFSON**, Eric, Institute for Applied Ecosystem Studies

Invited Symposium: US-IALE Presidents' Symposium II - Tuesday, April 6: 1:40-2:00 - Masters Hall

Abstract: The focus of the Gustafson administration was 1) advancing the Society into the digital age, 2) improving the administration and organization of our annual meetings and 3) strategic and tactical planning and implementation. We hired a webmaster and made substantive improvements to our web presence, including online membership registration and dues payment, revising the by-laws to allow online voting, member networking services (including job

postings) and enhanced website content (including course syllabi and photo gallery). The primary enhancements to the way we organize meetings were to begin using the services of meeting organizer (Virginia Dale's idea) and to develop an MOU template to use with annual meeting host organizations to specify responsibilities and fiscal arrangements. We charged the Chair-elect (Pete August) to review and revise the 1998 Strategic plan, to provide his administration with ready-made blueprint for action. We also focused a great deal of time and energy on brainstorming and implementing tactical plans for increasing membership, improving services to our members, advancing the relevance of the Society to the landscape ecology scientific enterprise, and improving the administration of the Society. I see three challenges for the future, all related to the fundamental and rapid changes occurring in how people communicate and interact. 1) Sustain and improve our core strength – our annual meeting. 2) Fully exploit the internet as the primary medium for people to get information, network, and create knowledge. If we are not relevant on the web, will we be relevant anywhere? 3) How do we maintain the relevance of our scientific society in the face of instant global access to information and people? To what extent should we embrace electronic media, and how can we create an essential niche to enhance the interpersonal networking that makes our Society critical for the advancement of our science?

Keywords: US-IALE

84. Modeling effects of species diversity on disease risk in an invading forest pathogen system with spatially-autocorrelated observation data

Authors: HAAS, Sarah, University of North Carolina-Charlotte; David Rizzo, University of California-Davis; Ross Meentemeyer, University of North Carolina-Charlotte

Poster #20: Invasion - Tuesday, April 6: 5:30-7:00 - Hill Atrium

Abstract: Epidemiological theory predicts that species diversity of ecological communities affects the prevalence and transmission dynamics of infectious diseases by either dilution or amplification effects. Despite its importance, little has been done to incorporate effects of landscape heterogeneity into models of diversity-disease risk interactions, and most studies have focused on animal or agricultural systems, with less attention on plant pathogens in natural ecosystems. Here, we analyze diversity-disease risk in sudden oak death, an emerging infectious forest disease caused by the generalist plant pathogen *Phytophthora ramorum*. This pathogen is an ideal organism for studying diversity-disease risk because it infects dozens of plant species throughout forest ecosystems in California. We hypothesize that increased plant species richness decreases disease incidence due to asymmetric transmission and susceptibility between host species. We measured forest structure and disease status of all host individuals in 279 randomly located plots in Big Sur, CA across a heterogeneous range of host and abiotic conditions along a gradient of infection exposure. We modeled diversity-disease risk using two approaches: (1) standard logistic regression, and (2) autologistic regression (using the 'spdep' R package), which includes an additional explanatory variable, the autocovariate, used to correct the effect of spatial autocorrelation among observations. We found significant spatial autocorrelation remaining in the logistic regression residuals (Moran's I: 0.234, $p=8.35e-10$), but not in the autologistic residuals (Moran's I: 0.057, $p=0.062$). Both models revealed a negative relationship between species richness and disease incidence, suggesting that forest areas with higher species diversity may have lower disease incidence in this generalist host-pathogen system. This relationship may be occurring in the *P. ramorum* pathosystem through two dilution mechanisms—'encounter reduction' (reduced encounters between susceptible and infected hosts as non-optimal host