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PAPER ABSTRACTS

Balm, Roger, Rutgers University, Department of Geography.
Thomas Moran and the Visual Rhetoric of the Yellowstone Region

Many characterizations of the American West through the 1860s, including landscape representations, are seen as underwriting creationist dogma. This paper advances a contrarian reading and argues that artists of that time were instrumental in destabilizing religious insinuations. Expeditionary artists, specifically, were a force for secularist re-representation in helping loosen the grip of natural theology and propelling the Khunian revolutionary shift that occurred between the 1850s and 1870s in the field of earth science. This was not the primary objective of artists but rather the outcome of political and economic agendas that positioned expeditionary artists as field surveyors. Landscape vantage points were (and remain today) sites of privilege. They are socially constructed phenomena defined in large part by institutional imperatives against which neither notions of Heaven, nor its infernal other, could be allowed to prevail.

Bellows, Anne C., acbellow@rci.rutgers.edu, Department of Nutritional Sciences, Rutgers, The State University of New Jersey.
Labors of Nutrition: Negotiating Food Systems with the (Un)Common Skills and Everyday Praxis of Food Work

Public health and nutrition as well as land use that can support and sustain nutritious diets are a function of public policy, commodity relationships, and household-based skills and praxis that link and govern relationships between producers and consumers. This presentation posits that a practical mastery of the daily needs of households and the negotiative practices that mediate household needs within society, what Van Esterik (1999) has called feminist food praxis, play an under-recognized role in tangible physical landscapes and nutrition-related health outcomes. The deskilling of consumers' food work practices is a product of public policy and the agro-food industry and carries consequences for consumer sovereignty and health (Lang et al. 1999; Jaffe and Gertler 2001). Feminists and food systems activists and academics contribute to this deskilling by not addressing the gendered labor of food praxis – the former, because encouraging skills places increased burdens on women without acknowledging their labor; the latter, because a gendered analysis of the food system is interpreted as possibly divisive in a fragile political movement. A case study of one skill, cooking, will be presented as a product of and actant on public policy and commodity relationships in food systems, public nutritional health, and land use patterns.

Blumler, Mark A., Department of Geography, SUNY-Binghamton, Binghamton, NY 13902-6000.
Dispersal of slender wild oat genotypes along railroads and highways.

Railroads and highways frequently serve as corridors for dispersal of alien species. An example is the invasion of slender wild oat (*Avena barbata*) into Oregon from California. Slender wild oat is a lowland, grassland species; mountains and forests are natural barriers to its dispersal. Railroads and highways — especially interstate highways, with their grassy verges and median strips — have enabled the species to overcome those barriers to a considerable extent. Hence, it is beginning to invade natural vegetation in Oregon as well as becoming a roadside weed.

Early twentieth century dispersal of slender wild oat's "xeric" genotype along railroad tracks had little impact as the genotype is poorly adapted to Oregon conditions. Then, new genotypes evolved in the San Francisco region. Those genotypes subsequently spreading into Oregon along railroad lines appear to be too xeric to escape. In contrast, the "mesic" genotype, invading along I-5, poses a threat to Oregon ecosystems. There may still be time to limit its spread, by replacing grassy strips with woody vegetation along roads in forested areas, and by changing the timing of mowing of those grassy verges that remain. This example illustrates also that alien species can evolve, and alter their invasiveness.

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Rebuilding Wall Street: Will Investment Advisory Firms Return to Downtown Manhattan?

Traditionally, the institutional investment advisory industry has been concentrated in the financial district of New York City. However, in the wake of September 11, 2001 a number of firms have been forced to relocate their operations outside of downtown Manhattan. Will these firms return? What are the issues and factors involved?

Boorstein, Margaret F., Earth and Environmental Science Department, C.W. Post College of Long Island University
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Geographical Perspectives of National Parks in the Gaspé

Forillon National Park and Bonaventure Island and Perce Rock National Park, on the Gaspé Peninsula, Quebec, established in the 1970s, mesh unique geologic landscapes, biogeographic ecosystems, and human geographic environments. While Forillon is a Canadian national park, Bonaventure Island and Perce Rock, though actually a Quebec provincial park, is referred to as a Quebec national park, a reflection of the political geography of Canada.

Forillon was formed to protect colonies of seabirds and marine mammals, arctic-alpine plants, and ten different rock formations in one narrow strip as well as artifacts of the cod-fishing economy. Bonaventure Island Park, also designated as a national bird sanctuary, is the home of the largest colony of northern gannets in North America as well as geologic formations of the Devonian and Carboniferous periods.

The parks allow the public to appreciate geology, marine life, and cultural history. They are spectacular examples of physical and human geography. Operation of the parks involves the delicate maneuvering of local, provincial, and national politics to satisfy residents, visitors, and taxpayers. One often thinks of national parks as natural entities, but their perpetuation as ecologically-balanced entities involves proper management from a human and a natural perspective.

Brown, Natalie, and Kelly M. Frothingham, Department of Geography and Planning Buffalo State College, 1300 Elmwood Avenue Buffalo, NY 14222

Identification of Geomorphological Structures in Streambed Topography along the Longitudinal Profile of a Stream

There has been a growing need in the fields of ecology and geomorphology to combine efforts in order to get an enhanced understanding of the streams in our environment. Fluvial geomorphologists study the stream flow, sediment movement, and channel morphology of a river, whereas ecologists focus on the biotic factors of a river. The primary goal of this study was to objectively define the geomorphological conditions in a streambed that serve as habitat for aquatic organisms. This study was conducted on the East Branch of Cazenovia Creek, one of three tributaries to the Buffalo River. Three sites were surveyed in the East Branch using a total station. To put a quantitative value on the geomorphological structures in the stream the bed form differencing technique (bdt) developed by O'Neill and Abrahams (1984) was used. The bdt uses differences in bed elevation to define bed forms (i.e., riffles and pools) that may serve as habitat for fish. Six bed forms were identified in two of the reaches and two bed forms were identified in the third reach. The two sites with six bed forms were in meandering reaches of the stream and the site with two bed forms was in a straight channelized reach downstream of a bridge. In the

past, other studies have shown that as geomorphological complexity increases the amount and quality of physical habitat increases. Future work may involve sampling the fish communities in the straight and meandering reaches to determine if more fish are present the reaches with more bed forms.

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Estimating Missing Values in a Geographical Data Base: Regression Applied to European Transport Statistics.

This study uses stepwise linear multiple regression analysis to estimate missing values in a data matrix of transportation variables for 47 European countries. It employs the exploratory aspects of regression analysis to deal with unknown values and problems such as selection of independent variables, choice of cases in the cohort, and choice of critical values in the statistics. The results indicate that existing data are not equally credible for all variables and suggest remedies for the most egregious inaccuracies. Some variables produce such poor statistics that they should be removed from further analysis, others may benefit from selective estimation of values for particularly troublesome cases. The results also indicate which transportation characteristics are relatively more or less tied to the Soviet legacy for the countries of central and eastern Europe.

The analysis procedure needs refinement. The theoretical justification could be improved by identification of additional useful non-transport variables. Also, more systematic selection of analogous countries would provide a better check of the results. Nevertheless, the study makes explicit certain philosophical choices in the research, particularly the trade off between precision and certainty, that are relevant to data estimation in other empirical contexts.

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A Study of Suburban Asian Spatial Assimilation in the New York Metropolitan Region

The 1990s brought dramatic increases in Asian population in the greater New York metropolitan region. With the growth of the Asian population in the New York metropolitan area, the traditional ethnic enclaves could no longer hold most of the Asians, so Asians had to relocate to new places, especially to suburban New Jersey. In this paper, I conduct a detailed spatial analysis of neighborhood-level changes in terms of the segregation of the Asian population in New York City and its suburbs, drawing on data from the 1990 and 2000 Census of Population and Housing. I present the results of an analysis of neighborhood segregation and spatial assimilation of Asians in the New York City and North and Central New Jersey. My purpose is to describe changes in the spatial pattern of Asian population concentrations, and to examine the relationships between these current patterns and the developments in the trend of spatial assimilation. With the increase of the suburban Asian population, integration would be created, but the phenomenon might be a temporary transition from a predominantly non-Hispanic White neighborhood to a predominantly Asian neighborhood.

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The Climatology of Heat Stress and Urban Mortality in South Korea.

The normal and extremes of heat stress in South Korea were examined by analyzing intensity, frequency, and duration of 6 hourly heat indices for the period of 1973 to 1998. In addition, influence of excessive heat stress on the mortality of six large cities of South Korea was assessed. The high frequency of daily maximum heat index exceeding each threshold (26.7°C, 32.2°C, and 40.6°C) appeared in the central western and southern eastern and western inner regions of South Korea. Excessive heat index in the nighttime frequently occurred mainly in industrialized urban areas as well as along the southern costal regions including Jeju Island. The number of long lasting heat index event at each threshold increased significantly in the 1990s in comparison to previous decades. Remarkably high heat index episodes extended for two weeks in July and August of 1994. This heat event doubled human mortality in urban areas. The elderly death rate noticeably increased with 3-7 days time lags after heat

index abruptly soared. Abnormal expansion of subtropical high pressure and typhoon were favorable meteorological causes of extreme heat index events related to this soaring mortality.

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Modeling Canopy Reflectance with the Compact High-Resolution Imaging Spectrometer (CHRIS) over SW US Desert Grasslands and Shrublands

CHRIS (the Compact High Resolution Imaging Spectrometer) is a new imaging spectrometer that was launched in October 2001 on board a novel, agile European Space Agency space platform called PROBA (Project for On Board Autonomy). CHRIS was developed by the UK company Sira Electro-Optics Ltd. with support from the British National Space Centre and provides multiple view angle (MVA) reflectance data over selected target sites through tilting the satellite during the course of an overpass. The mission centres on 21 core sites around the world selected for the study of atmospheric aerosols and the land surface. The USDA, ARS Jornada Experimental Range near Las Cruces, NM, is one of these sites and represents the desert grasslands and shrublands of the Southwestern USA. The research presented describes recent efforts to prepare for the interpretation of MVA data sets from CHRIS through modeling canopy reflectance using multiangular data collected from the air. These data were used together with a sophisticated radiosity model driven with plant maps from field survey to validate a simple geometric model (SGM). The SGM parameterizes the canopy-soil complex as an assemblage of shrubs of variable number density, average size and foliage volume over an understory with a prespecified directional scattering properties. It performed extremely well with respect to the radiosity model and has shown some potential for inversion (retrieving mean plant number density and canopy height when adjusted against MVA data). Such a simple model might be useful in estimating absolute shrub density as a means of quantifying water losses via transpiration, or in mapping community types. It might also be used with data from other MVA sensors such as NASA's MISR (the Multiangle Imaging Spectro-Radiometer) and future multiangular remote sensing devices.

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Getting watershed management to work: A framework for understanding interorganizational relationships

While studies have examined several factors that contribute to a watershed management group's success, little attention has been paid to the relationships between a watershed management group and existing organizations. Many watershed management groups are based on a cooperative approach; lacking regulatory authority they must rely on the influence and support of other groups to meet their goals. As a result, interorganizational relationships can greatly impact whether the watershed management group succeeds. This paper presents a framework to identify organizations relevant to a watershed management group and the types of relationships between these groups. The relevant organizations identified fall into five categories: 1) the watershed management group, 2) land use regulators, 3) water resources regulators, 4) non-profit organizations, and 5) public land managers and private land owners. There are four possible interorganizational relationships: 1) enabling, 2) constraining, 3) influencing, and 4) supporting. The Barnegat Bay Watershed, in New Jersey, is presented as a case study illustrating how the framework can be used to determine other organizations with aligned or competing goals, identify partnerships, and highlight pathways for action.

Dalton, Craig, Geography Department, Vassar College, Poughkeepsie, NY, 12604

GIS and Local Democracy

Since its inception, GIS has gradually become used by a larger and larger group of people with less and less GIS education. Given the ability of a minor GIS to crunch massive amounts of information and the widening number of potential users, some experts believe that GIS will eventually be used directly by the public to make better informed geographic decisions. So many people having access to the power of GIS would level the playing field of local and regional planning, creating a more democratic planning process. This past summer, I worked in a county GIS office and a regional planning agency's GIS department. These experiences and additional research have revealed both possibilities and issues associated with public GIS. There have been several case studies of public-access GIS for local planning, and the potential for greater public understanding and comment is exciting. However, several

serious issues arise concerning public domain and privacy. The widespread use of public GIS is also a long way off due to many practical reasons.

Diamond, Adam, adiamond12@earthlink.net, Department of Geography, Rutgers, The State University of New Jersey. ***Happy Cows or Sweatshop Bovines: Constructing the Organic Dairy Commodity Chain***

Recently there has been a great deal of interest in commodity chains in the geography literature on agro-food systems. The commodity chain conceptual framework has the potential to be a very powerful tool to elucidating the connections between global and local processes, producers and consumers, and the impacts of commodity production and consumption on the environment. This paper looks at the recent emergence of the organic dairy commodity chain in the Northeastern United States and its contradictory character stemming from the interaction between markets and standards. In general organic foods grew out of concern for health, environment and family farms. Organic milk, however, is actually more dispersed in its production and consumption than more regionally based conventional milk production. This presents challenges to claims of sustainability, both in the social and ecological dimensions.

In the production of the organic dairy commodity chain, various discourses are used by farmers, marketers, and consumers to legitimate this new form of production. The discourses may conflict with each other as the interests of the different actors in the chain diverge depending on their relative position in the chain. Utilizing both commodity chain and discourse analysis demonstrates the complexity of alternative food systems such as organic dairy. This complexity forces us to rethink how we might reach a socio-ecological vision encompassing agro-ecological integrity, economic well-being of farmers, and healthy food for consumers.

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The Appropriateness of “High-Tech” Urban Economic Development: Issues and Approaches in New Jersey Cities.

In the pursuit of economic development, many cities have turned to the generation of “high-tech” activity as a way to revitalize urban neighborhoods and jumpstart ailing economies. The technology boom of the late 1990s led to increasing confidence among urban planners and policymakers in the perceived panacea of high-tech development. Bolstered by numerous programs at the state and federal levels, municipalities began to devote time, resources, and land to the creation of “cyberdistricts”, technology incubators, and the attraction of high-tech businesses. Nevertheless, cities that strive to become the next Silicon Valley or Seattle are often sadly disappointed. The recent bursting of the technology bubble has cast further doubt on the appropriateness of high technology as a sustainable economic base. This paper uses the examples of municipalities in New Jersey to investigate how cities have pursued high-tech development, and with what expectations. It concludes that the appropriateness and efficacy of technology-led economic development is closely connected with how cities understand “high tech” and whether they conceive technology as distinct from or part of their broader economies.

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Exposure and Response to Natural and Man-made Disasters

A survey was disseminated to undergraduate students in introductory World Geography classes at a liberal arts college in New Jersey, located in the New York metropolitan area, to compare exposure and response to a natural disaster, Tropical Storm Floyd, and a man-made disaster, the terrorist attacks on September 11, 2001. Tropical Storm Floyd caused extensive damage along the east coast of the United States and throughout New Jersey in September 1999. The terrorist attacks on September 11, 2001 destroyed the World Trade Center buildings in New York City and damaged the Pentagon in Washington, D.C. Most of the 92 respondents dutifully filled out the survey within the guidelines but one unsolicited response was noteworthy; “The 2 topics are completely unrelated by the way – No one cares about storms, buddy!”. My response is that relationships exist between natural and man-made disasters and moreover that geographers are suited to explore these relationships. Few students had direct personal experience with either disaster but most students knew people who were injured or lost property, with

more responding to the terrorist attacks. Students now consider terrorism a more serious threat than tropical storms than they did before the disasters occurred and rate their understanding of the terrorist attacks higher than their understanding of Tropical Storm Floyd. While students have made more behavioral changes as a result of the terrorist attacks, they are more confident in the ability of the United States to mitigate disasters like the terrorist attacks than tropical storms.

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Evidence of urban source metal contaminants in NY/NJ Harbor.

Sediment cores were collected at three stations in the NY/NJ Harbor in December 1991, May 1992, September 1992, and May 1993 for studying heavy metal contaminants (Ag, Cd, Cu, Pb and Zn). Anthropogenic metal contaminants were found present in >10 cm of surface sediments in marginal and depositional areas and in the upper 2 cm sediments in the navigational channel areas. In this study, contaminant concentrations in the Harbor were found 1.4 ± 1.0 ppm for Ag, 1.2 ± 0.6 ppm for Cd, 90 ± 37 ppm for Cu, 102 ± 53 for Pb and 182 ± 45 for Zn. Silver (Ag) is used as an urban source tracer in this study to examining the sources of heavy metal contaminants (Ag, Cd, Cu, Pb and Zn) to the Harbor. It is found that the distributions and variations of anthropogenic Cd, Cu, Pb and Zn were coupled with anthropogenic Ag, suggesting that the urban source input such as municipal sewage and waste waters are the important sources of these contaminants to the harbor.

FitzGerald, Randall W., Montclair State University, School of Conservation
Field Studies in Environmental Science as a Vehicle for Teaching Science and Math Skills

A summer training program designed to show teachers how to use urban parks for teaching a variety of math and science concepts was implemented and evaluated. Seven 5th and 6th grade teachers from the Jersey City School District in New Jersey were trained during a two-week residential experience at Montclair State University's School of Conservation. During the following academic year, students from the experimental classes were compared to a control group of students at 8 and 23 weeks after the implementation of the academic program. Students exposed to the experimental program scored significantly higher on post-test assessments.

Frothingham, Kelly M., Department of Geography and Planning, Buffalo State College, 1300 Elmwood Avenue, Buffalo, NY 14222.
Application of the Areal Difference Asymmetry Index in a Human-modified Stream System.

Stream channel morphology is influenced by the interaction among flow properties, sediment transport, and bed and bank material. Past research has shown that channel cross sections in natural meandering channels exhibit varying degrees of asymmetry. Pools generally have more asymmetrical cross section shape, while riffles tend to have symmetrical cross sections. Conversely, cross sections in channels with straight planforms are symmetrical. A quantitative measure of cross section shape is the areal difference asymmetry index (A^*) developed by Knighton (1981). This asymmetry index compares cross-sectional area on either sides of the channel centerline. The objective of this research was to use the areal difference asymmetry index to quantify cross section shapes in three stream reaches with different channel planforms.

Geomorphological data were collected in three reaches on the East Branch of Cazenovia Creek, NY: two reaches were meandering and one reach was straight and stabilized with rock rip-rap. Between 16 and 19 cross sections were surveyed in each reach during summer low flow conditions and the areal difference asymmetry index was applied to the data. Results indicate that more cross sections in the two meandering reaches were asymmetrical (71 and 73% of the cross sections) versus 47% of the cross sections being asymmetrical in the straight stabilized reach. These results support previous research that has found that channel planform and cross-sectional shape are linked and that as channels progress from straight to meandering cross-sectional asymmetry increases. Moreover, cross-sectional asymmetry is associated with pool and riffle bed forms, which are the fundamental elements of meandering streams.

Fulford, John, Marlo Kovacs, and Natalie Brown, Department of Geography/Planning, Buffalo State College, Buffalo, NY 14222, and **Paul Fuhrmann**, Ecology and Environment, Inc., Lancaster, NY 14086
Collecting and Visualizing Baseline Data to Identify Critical Habitats for Restoration

The Seneca Bluffs is an approximately 15 acre site owned by the City of Buffalo and is adjacent to the Buffalo River. The Buffalo River is a Great Lakes "Area of Concern" due to use impairments that include loss of habitat. The Erie County Department of Environment and Planning was the recipient of state and federal funding to address the restoration and protection of the Seneca Bluffs site. Before any kind of restoration can take place, baseline habitat data need to be collected at the site. A baseline vegetation survey was performed over a period of months to identify all native, introduced, and invasive species. These data were used along with existing soil surveys to classify habitat. The three soil types identified at the Seneca Bluffs site are Hamlin Silt Loam, Fluvaquents and Udifluvents, and urban fill. These soil catenas formed the spatial boundaries for categorizing and mapping vegetation using ArcView 3.2. Numerous UTM coordinates were recorded using a GPS to geocode vegetation points and areas, and a species richness index was developed to provide a quantitative assessment of the habitat diversity. A total of 44 native vegetation species were identified at the site. Invasive species predominantly were Japanese Knotweed (*Polygonum cuspidatum*), Garlic Mustard (*Alliaria officinalis*), Common Mugwort (*Artemisia vulgaris*), Purple Loosestrife (*Lythrum salicaria*), and Common Reed (*Phragmites australis*).

The interpretation of aerial photographs dating from 1927 to present also was done to get an impression as to the history of land use at the site. There was a distinct transition from agriculture in the 1920's to the site's current condition as a combination of open upland, floodplain, and fill area. The aerial photographs show that the Buffalo River immediately upstream of the site was straightened (i.e. a major meander bend was removed) between 1927 and the mid 1940's. The channel straightening may have led to downstream changes in channel morphology in the area of the Seneca Bluffs, including greater erosion in a cutback area and size reduction of a channel bar.

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Mapping Ethnic Geography in Urban America.

Urban America provides a veritable social laboratory for the study of ethnicity. Long-term shifts in the spatial distribution of ethnic groups— defined primarily by race, language, religion, and national origin—allow the geographer to analyze critical cultural, socio-economic, political, and other issues. This paper examines the evolving ethnic geography of San Francisco, a city known for its social diversity, as a case study in urban segregation. Although many San Francisco neighborhoods are racially integrated, ethnic groups exhibit distinctive citywide residential distributions. GIS analysis of 1950-2000 census data, coupled with historical and contemporary research, reveal the contrasting geographies of four major ethnic blocs: non-Hispanic whites, Asian-Americans, African-Americans, and Latinos. Representative examples of community flux illustrate widespread ethnic changes in 20th-century American cities.

Holcomb, Briavel, Dept. of Geography, Rutgers University.

Art as Tour Agent in the Hudson Valley.

The Hudson River School was a stimulant to the growth of tourism in the Nineteenth Century. The depiction of "sublime wilderness" and the beginnings of the domestication of landscape drew visitors to the valley and today the School continues to be a significant attraction for contemporary tourists.

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Health Crises and Alternative Visions: Migrant Farmworker Women's Perspectives in New York State.

Using information obtained from my year long internship with the Rural and Migrant Ministry and sister organization CITA (Centro Independiente Trabajadores Agricolas), in the Mid-Hudson Valley, this research explores the impact of migration and ethnicity and particularly with regards to gender relations, upon the outlooks and health outcomes

of two groups of New York State migrant women: African-American women who migrated to New York State from the South in the early 1960s and 70s, and more recent migrants from Mexico. Data were collected during work with two migrant community organizations: The Daughters of Sarah and the Farmworker Women's Institute. Through analysis and research I gained a sense of migrant women's notions of victimization in all areas of health care, more specifically reproductive and preventative health care. What therefore, are the factors that promote positive health outlooks and outcomes among migrant women in the Mid-Hudson Valley? What policies can be implemented to improve health outlooks and outcomes without jeopardizing the few existing delivery services that are now available?

Medical and health services location and utilization are the key maladaptive issues among women from both migrant populations. My data suggest that despite language barriers and limited network of kin, Mexican women experience greater degrees of hope, energy and accomplishments than their African American counterparts. This paper suggests that differences between these two groups can be attributed to differences in migration experience, health care delivery and ways these groups experience racism. The discussions on restrictions, limitations and marginalization in health care systems are not unique to women in the Mid-Hudson region. By examining the roles of women in this region one can begin to understand and compare the lives of other women and the way their experiences impact not only the local community but also the world.

Keywords: migrant, women, health, New York State, development

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Assessment of the Land Use Transformation in the Northern New Jersey Metropolitan Area, Focusing on the Highway Impacts on the Regional Urban/Suburban Development.

The objective of this study is to determine whether an association exists between highway improvements and urbanization/suburbanization in the northern New Jersey metropolitan area. The study's main focus is on association between land use impacts (e.g., land use change) and highway improvements along Interstate Route 78 and its environs. The study area includes older and densely populated metropolitan suburbs of Essex and Union counties and the more recently and actively growing suburban frontiers of Morris, Somerset, Hunterdon, and Warren counties. References are made to other three major traffic corridors, Interstate Routes 80 and 287 and U.S. Route 22, which also pass through the study area.

With the aid of a Geographic Information System (GIS), the related geographical information on land use change within a regular time frame over the past three decades was collected and analyzed. These investigations consisted of three phases: Phase I and Phase II, which examine land use change with respect to I-78 in the study region as a whole and at a county level respectively, and Phase III, which examines urbanization/suburbanization rates in the area by evaluating socio-economic factors (e.g., population redistribution, the median year of housing construction, and the median value of housing). Three different types of buffers along I-78 were created to examine each of the relationships of land use change and/or urbanization between (a) proximity to I-78, (b) accessibility to the highway, or (c) proximity to New York City.

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Johnstown, Pennsylvania: A Case for Consolidation.

The city of Johnstown, located in the south-west corner of Cambria County, Pennsylvania, has experienced dramatic population losses in the past five decades. In 1920, the city's population reached a high of 67,327; in the year 2000, it stood at 23,906. The city still had 63,232 people in 1950 when the downward slide began. Over the next five censuses, the city lost an average of 17.5% of its population in each decade. One of the consequences of these drastic losses was the changing age composition of the city's resident population. As the younger age groups moved out, the proportion of the elderly in the city's total population increased. In 2000, nearly one-fourth of Johnstown's population was 65 years old or older, and two-thirds of the population in the city's Central Business District was elderly. Surrounding the city are 19 townships and boroughs with a total population of nearly 50,000 residents. The consolidation of these municipalities with Johnstown would give the new city a combined population of 73,000 making it the seventh largest in Pennsylvania ! Since 18 of the 19 municipalities also had population losses between 1990 and 2000, combining the municipalities into an expanded Johnstown would give the region

political clout, make it more attractive for developers and businesses, bring more federal and state funding and save revenues on duplicated operational costs. The paper will elaborate on these and other issues along with giving the demographic background of the region.

Lincoln, Jonathan, & Roberta McIntyre, Earth and Environmental Studies, Montclair State University, **and Stanley Walling**, Department of Classics and General Humanities, Montclair State University
Geophysical Investigation of a Middle Kingdom Pyramid Site, Dahshur, Egypt

A team from Montclair State University recently joined the Metropolitan Museum of Art's ongoing investigation of a pyramid complex and its immediate surroundings at Dahshur, Egypt for the purpose of employing geophysical testing to locate buried ancient features. The team used ground-penetrating radar and resistivity to investigate several areas within the massive, 4000-year-old pyramid complex of Pharaoh Senwosret III in order to define hidden or obscured funerary architectural elements, such as burial chambers, cache deposits, mastaba walls, pyramid foundations, and burial shafts. The applicability of these techniques to the archaeological investigation of Egyptian pyramid-complexes, including the identification of signatures for several features, is discussed.

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Methods for assessing long-term rates of deforestation: Applications of archival data and GIS.

Forest loss continues at high rates throughout the world. Most studies of deforestation have examined the process over short (10-30 year) time frames. The cumulative history of deforestation and anthropogenic disturbance often extends back decades and even centuries for many regions. Archival land records, early forest inventories, and aerial photography provide resources that can be used to extend histories of deforestation rates considerably. These archival sources, when combined with current datasets and GIS, also provide a method for assessing the extent of secondary forests and long-term trends in habitat fragmentation and perforation. A case study of colonial and modern deforestation in St. Vincent, W.I. illustrates the effectiveness of these methods and the potential for expanding the temporal resolution of deforestation studies.

Keywords: Deforestation, habitat fragmentation, archival studies

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Investigating the Water Quality Impacts of Future Land-Use and Climate Changes in the Little Miami River Watershed.

In this paper, we examine the combined water quality impacts of future land-use and climate changes in the Little Miami River Watershed in southwestern Ohio. Quantification of these impacts is important because it provides insight on the magnitude of the adjustments that need to be made to current water resource allocations in order to cope with future conditions. Future land-use conditions in the watershed were postulated from the existing future land-use development plans of the eleven counties comprising the watershed. Future climate changes were simulated using results from recent Global Circulation Models. By calibrating and validating an integrated watershed-scale hydrological model (Soil and Water Assessment Tool), we are able to quantify the changes in runoff and nonpoint source pollution which would occur under the projected future environmental conditions. Model results indicate that, under future land-use and climate conditions, average pollutant loads and daily concentrations are reduced. The total phosphorus concentration decreased from 3.0 mg/L to 1.21 mg/L, demonstrating that sound land-use management schemes can work to reduce the eutrophication problem. In the Little Miami River, eutrophication is caused by an overabundance of phosphorus. However, the fact that the new phosphorus concentration level still exceeds EPA's suggested limit indicate that other practices, in addition to land-use changes, will be needed to mitigate the adverse water quality impacts of climate change.

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Sprawl or Sustainable Development Rhetoric and Reality in the Mid-Hudson Region

The 2000 census data confirmed the current expansion and further urbanization of the outer suburbs in southern New York State. The development of the outer suburban ring has been spurred by a number of factors, including low interest rates, the migration of employment, and the desire for a higher quality of life. This has led to the rapid increase of construction in these outer suburbs, as well as rising prices for existing homes. Development pressures have led to a variety of responses that propose to channel or curb growth, through a variety of innovative techniques. Broader perspectives invoke state, regional or county visions of conservation and the protection of agricultural or open space resources. Using examples from New York's Mid-Hudson region, this study examines the background and issues in the current development crisis confronting municipalities, explores the range of questions raised by the mission of sustainable development, and comments on the inherent problems in development control.

Marr, Paul, Department of Geography and Earth Science, Shippensburg University, 1871 Old Main Drive, Shippensburg, PA 17257

Shippensburg and the Development of Overland Transportation in the Cumberland Valley, Pennsylvania: 1748 – 1792.

Overland transportation routes played an important role in the early development of Pennsylvania's Cumberland Valley. The Virginia path (a major north – south overland route) and Raystown path (the southern extension of the east – west Allegheny path) met in the valley and were major regional trade routes. At the junction of these trade routes was the small town of Shippensburg. Founded in the mid-1730s by Philadelphia merchant Edward Shippen, Shippensburg was envisioned as a trading center that would help to link the eastern plains with the Ohio Valley. Its location in the center of the Cumberland Valley at the junction of these important overland routes should have allowed the settlement to prosper as raw materials flowed east and finished goods flowed west. However, within a few decades of its founding Shippensburg's role as regional trading center had all but ceased. By the late 1700s east – west trade had been diverted away from Shippensburg by Carlisle to the north and Chambersburg to the south. As the rival towns of Carlisle and Chambersburg continued to grow, Shippensburg was relegated to a secondary role in subsequent regional development. This paper traces the development of overland transportation within the Cumberland Valley and the impacts changes in regional trade routes had on Shippensburg.

McGlinn, Lawrence A., Dept. of Geography, SUNY - New Paltz, New Paltz, New York.
Chinese Population and Landscape in Northern New Jersey

The Chinese population in northern New Jersey has risen dramatically during the last two decades. The region's high-tech economy and proximity to New York City have made suburban northern New Jersey an attractive destination for well-educated, often affluent Chinese-Americans and immigrants. Although this dispersed population blends into the residential landscape, its impact on the commercial landscape is more concentrated and more visible. Chinese language signs identify shopping centers and offices which are nodes in a far-flung population of immigrants and Chinese-Americans who still use Chinese products or services. Commercial ethnic enclaves are no longer found only in inner-city neighborhoods. They are becoming an important part of the landscape of suburban northern New Jersey.

Mitchell, Jerry T., Department of Geography and Geosciences, Bloomsburg University, **Susan L. Cutter**, Department of Geography, University of South Carolina, **Melanie Baker**, Environmental Systems Research Institute, **Arleen Hill**, Department of Geography, Bucknell University, **and Steven Jones**, Department of Geography, University of South Carolina
Transitory Trouble: Inter- and Intra-state Hazardous Materials Flows in South Carolina

This paper details the purpose, method, and results of a hazardous materials commodity flow analysis commissioned by the South Carolina Emergency Management Division for the state's interstate highways. A three-year hazardous materials placard and vehicle manifest survey was conducted to provide emergency management

officials and other responders with a baseline assessment of South Carolina's highways. The implications of this study for preparedness and response capabilities to handle hazardous materials incidents will be discussed.

Keyword: Hazardous Materials, Transportation

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Responding to the Challenges of Africa's Urban Explosion

Many African countries have witnessed a very rapid rate of urbanization, which can correctly be termed as an explosion. In Africa, the situation is such that there are too many people assembled too quickly in insufficient places, with few resources at their disposal. Consequently, the cities are overwhelmed in terms of providing infrastructure, housing, employment as well as other necessary amenities. Thus, urbanization in Africa poses numerous challenges which must be addressed.

The purpose of the paper is threefold; namely:

1. Identification of the major characteristics of African urbanization
2. Examination of the role of urbanization in transforming contemporary Africa
3. A look into the future in terms of responding to the present challenges

In the face of contemporary challenge, the "informal sector" seems to be providing a viable solution in terms of providing the desperately needed jobs and services.

Consequently, the paper gives an in-depth examination of this sector. Other suggestions on dealing with the extremely rapid rate of urbanization will be offered.

Owusu, Thomas, Department of Environmental Science & Geography, William Paterson University, Wayne, New Jersey 07470

Some Preliminary Observations on the Economic Status of Immigrants in Paterson, New Jersey

Using 1990 census Public Use Microdata Sample (PUMS), this paper examines the economic status of immigrants in Paterson, New Jersey. The economic status of immigrants is measured in terms of several variables including employment income, labor force participation, occupation, rate of unemployment, and rate of poverty. Also, differences in the economic conditions of immigrants and non-immigrants and among immigrants groups are examined and explained in terms of educational attainment, ability to speak English language, age, gender, race, and period of immigration.

Pendras, Mark, Dept. of Geography, Rutgers University.

Private Property and the Public Good, Underlying Philosophical Contradictions of the Property Rights Movement.

The passage of the Endangered Species Act (ESA) in 1973 ushered in a new era of land use policy and politics in the United States, providing a powerful mechanism for environmental conservation and land use planning. But it also supplied new fuel to long standing and often fiery conflicts between property rights advocates and land use regulators. This has led property rights advocates to intensify their challenges to the legitimacy of governmental regulations and to push for measures to "protect" property owners against the regulatory "taking" of private property for public use/benefit. Based on the success of such efforts, the property rights movement is poised to present a very active and powerful (and even potentially crippling) challenge not just to environmental conservation, but also to the general practice of which environmental conservation is an example: government regulation in pursuit of a perceived public good. While opponents attempt to battle the property rights movement in the courts, I argue that such efforts, though practical and necessary, address only the symptoms of the problem and leave unexamined the more foundational reasoning behind, and the political environment that supports, the actions taken by property rights advocates. In this paper I move beyond the courtroom by critically analyzing the political-philosophical foundations of the property rights movement in order to provide a better understanding of what long-term strategies might be employed in the effort to resolve not just the symptoms but also the ultimate causes of land use conflict.

Pipkin, John S., Geography and Planning, University at Albany, State University of New York, Albany, NY 12222
The Moral High Ground in Albany: Elite Purposes and Assessments of Washington Park, 1860-1988

Washington Park in Albany, NY is a justly admired gem of mid-nineteenth century landscape design. It is fundamentally Olmstedian, though it was also distinctively shaped by its long-time superintendent, William Egerton. This essay examines several elite texts about the park for their thematization of esthetics, social control, historicism, morality, and the purposes of public space. They include newspaper excerpts and proposals, including one by Olmsted himself, that predate the park, articulating the familiar mid-nineteenth century concern for social disorder and faith in the pacifying effects of nature. We then examine Proceedings of the Board of Commissioners that made the park a reality, when moral visions were laid aside for harder issues of expropriation, financing, and construction. Insiders' and outsiders' assessments are drawn from accounts of Egerton himself, and from a team of planner-architects including Arnold Brunner who wrote a comprehensive plan for Albany in 1914 in the language of the City Beautiful movement. We then turn to modern assessments of the park including a preservation plan from 1988 and contemporary planning statements for Albany as a whole. These discourses of 150 years fall into three phases. The first is an expansive elite discourse linking "scientific" assumptions, moralizing, and auratic expertise to explicit agendas of social control. The second expresses similar agendas in more muted terms, stressing visual "neobaroque" treatment of urban space. The third, modern, discourse, is extremely reticent on social agendas, esthetics, morality, and the purposes of public space, organizing its most forceful claims around "historical integrity."

Pope, Gregory A.,¹ **William D. Solecki**¹, **Cynthia Rosenzweig**², **Vera Lazar**¹, and **Maria Clark**¹, ¹Department of Earth & Environmental Studies, Montclair State University, and ²Goddard Institute for Space Studies/NASA.
Transects and Textures in the Urban Heat Island: Camden, New Jersey and Environs.

For urban heat islands of large metropolitan areas, local variations within the regional trend are easily recognized (for instance, over water bodies or large parks). However, there is relatively little emphasis in studying these smaller scale anomalies. Fine scale analysis of urban heat island trends can pick up on specific factors that may affect a neighborhood or suburb. In this study, the local scale focus is on Camden, New Jersey, as a subset of the greater Philadelphia urban heat island.

A specific location such as Camden has unique characteristics within the greater heat island. High-resolution satellite imagery (such as TERRA/ASTER) is ideal for pinpointing anomalies in the thermal trend. The central core of Camden is notable for its extent of "hot" area that contributes to the metropolitan heat island. Camden contrast markedly with neighboring suburbs, and vegetation cover appears to be the strongest determining factor. In addition to the hot high-emissivity surfaces expected in an urban core, composite satellite imagery (thermal IR + near IR vegetation) identified "cool" urban surfaces (no vegetation, but low emissivity), as well as "warm" vegetated surfaces. Detailed examination of these local anomalies can provide a more specific assessment of urban heat island impact on smaller segments of the metropolitan area.

Quinn, Ruth Rubenstein, Teatown Lake Reservation, Ossining, New York.

Let's Get Together: Environmental Education that Makes a Difference.

As our communities grow, so does the serious problem of water pollution. When you consider that over 50% of our drinking water comes from surface water sources, the problems associated with non-point source pollution are real. A recent study completed in 2000 by Trout Unlimited and other local conservationists identified 50 seriously eroded sites throughout the Croton Watershed.

The financial resources simply do not exist to allow government agencies to collect data regularly on all the streams within a watershed. Yet this information is vital for planning decisions. Through the collaboration of volunteers, schools, local municipalities, the county, and local non-profits we have been working to collect water quality data on streams within the Croton Watershed, which supplies NYC with drinking water. The testing protocols conform to Department of Environmental Conservation standards and were established by the Hudson Basin River Watch in an attempt to make the data collected by schools usable for government agencies.

Youths, in particular, Middle School and High School students can make a difference within their communities. The key

is collaboration, with other non-profit organizations, and governmental agencies. The Water Quality program is an experience-based program that explores current water issues and terminology and embodies the very essence of learning to action. Students literally make a difference within their watershed by collecting data on streams that the local and county governments can use within their planning process. This program is diverse enough to fit into academic studies ranging from math, economics, language arts, all of the sciences, and even drama and art. This program helps to facilitate the goal of better water quality management by partnering schools and government agencies to collect data that will help protect our water resources.

Rengert, Arlene, Dept. of Geography and Planning, West Chester University.
Community College Roundtable

Those who teach Geography in community colleges sometimes have situations and concerns that benefit from discussion with others in similar situations. The Association of American Geographers has established a committee on community college geography in part to contribute to those discussions, to be helpful when able. All who have experience with and interest in community college geography are invited to this round table. This invitation includes people from four-year undergraduate institutions that are recipients of transfer students from community colleges.”

Rengert, George, Dept. of Criminal Justice, Temple University, **and Arlene Rengert**, Dept. of Geography and Planning, West Chester University
How Safe is a Campus? Approaches to Evaluating Aspects of Crime and Security.

Parents of college students are very concerned with the safety of the campuses they are sending their son or daughter to. There are several sources of information considered by parents. One is the quality of the environment the college is located within. Especially important is the difference between inner city and suburban and rural campuses. Another is the quality of student the college attracts. It is assumed that colleges who skim the cream of the graduating high school crop will be the safest. This paper is an examination of these propositions using national data as well as data from the Delaware Valley.

Reynard, Jennifer, Earth & Environmental Studies Department, Montclair State University, **Renata J. Bailey**, Department of Chemistry & Biochemistry, University of Regina, **Andrew Marinucci & Joseph Marchesani**, Bureau of Environmental Evaluation and Risk Assessment, Site Remediation Program, New Jersey Department of Environmental Protection, and **Paul Sanders**, Division of Environmental Planning and Science, New Jersey Department of Environmental Protection.
Feasibility of Filtration in the Analysis of Lead in Groundwater

This study examines the use of filtration (25 to 0.45 micron pore sizes) for the analysis of transportable mobile metal species in groundwater. The analysis focuses on determination of lead in groundwater collected with a low flow purge pump (LFP) and bailers at wells located at the Denzer-Schaefer and Picatinny Arsenal sites in New Jersey. Samples collected at the Denzer-Schaefer site had high sediment loadings with both sampling methods (>8900 mg/L) as compared to Picatinny Arsenal with LFP samples (4.3-10.5 mg/L) and bailers at 4300-6500 mg/L particles > 25 microns.

Filtration of bailer samples at both locations showed that a large portion of sediment particles could be removed with filtration using a 25 micron filter. Filtration of groundwater samples collected with LFP technique from two compliance monitoring wells with lead levels higher than the historic background lead levels at Picatinny Arsenal resulted in a decrease in measured lead from 2.4-3.0 ppb to 0.3-0.8 ppb Pb. Filtration of bailer samples through a 25 micron filter resulted in a decrease in lead levels from 734 ppb and 1110 ppb in the unfiltered water, respectively to 0.4 ppb and 3.0 ppb in the filtrate. A small decrease in lead levels was observed when the sample was filtered through 10 micron filters. Concentrations of lead from samples taken with bailers and LFP remained relatively constant when filtered through 5, 3, 2, 1.2, 0.8, and 0.45 micron filters at both wells.

At the Denzer-Schaefer site, filtration of ground water samples collected by both methods through 25 to 3 micron pore size range from well 5S which had the highest particle mass resulted in a decrease in lead levels. These lead

levels appear to be associated with the fine clay particles in the ground water. The largest portion of particles were removed by passing the ground water sample through 25 and 10 micron filters. The levels of lead in the bailer sample decreased from ~400 ppb to 63 ppb after filtration. Filtration through 2 micron filters also removed soil-derived particles and levels of lead decreased to ~6 ppb. After 3 micron filtration, there were similar levels of lead in the bailer and the LFP sample. Analysis of lead concentrations in the particles remaining on filters from the bailer sample showed that levels of lead per mass of particles were relatively constant for filter sizes 25 through 2 microns (3 micron was not completed). The particulates remaining on the filters appear to be associated with fine clay particles. The greatest mass of particles were found on the 25, and 10 micron filters. Subsequent filtration of the LFP sample with 3 and 2 micron filters showed that there were still fine clay particles left in the 10 micron filtrate; the majority of the particles removed when this filtrate was passed through the 3.0 micron filter as compared to the 2 micron filter. Suspended particles were removed on 2 micron filters and the lead concentration per mass of particles increased on these filters; however, only a small total mass of particles was removed (< 2 mg/L).

Similar trends were also observed at well MW3 at Denzer-Schaefer, with the major portion of particle mass and lead removed on the 25 and 10 micron filters. Concentrations of lead in bailer and LFP samples decreased from 42.5 and 11.5 ppb to 20.4 and 9.5 ppb, respectively after the sample was passed through a 10 micron filter. Similar changes in the concentration of lead were measured for 3.0 to 0.45 micron filtration steps (3 to 0.4 ppb) for samples collected with both methods.

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Religious Plurality Amongst Finnish-Americans: The Impact of the Finnish Salvation Army

This presentation explores the Finnish Salvation Army movement in the United States in the early 1900s, most notably in New England and the New York City areas. Research at the Salvation Army National Archives in Arlington, Virginia and in Helsinki, Finland, along with personal contacts with former Salvationists in the United States has provided material for this on-going research. Beginning as early as 1908, the work amongst the Finns peaked during the 1920s, when up to 8 cities in the country were home to Salvation Army corps. However, by the end of the 1920s, most of these locations had closed down, with the last Army corps in Brooklyn lasting into the 1950s. By using historical photographs, maps, and slides, the aim of this multimedia presentation is to uncover some of the reasons for the rise and decline of this forgotten chapter of the Finnish religious experience in North America.

Ruis, Catherine A., Geography Department, East Stroudsburg University, East Stroudsburg, PA 18301
Physical and Social Links

How has the spatial distribution of the Native Americans during the colonial period of North America made a difference in their economic advancement in the twenty-first century? Along with the attachment to homeland, what was the attachment to culture, societal and family structures? What outcome precipitated from experiences during the birth of this new nation? Did changes forced upon the Native American culture influence how they adjusted and endured; or quite contrary, did their culture facilitate adjustment to their sometimes unwanted, undesirable, unpleasant, and forced changes by the introduction of the Europeans to America.

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Urban Redevelopment in Jersey City, 1991 - 2002.

For much of the 20th Century, Jersey City was synonymous with political patronage, corruption, and from the 1960s, with urban decline, failing schools and spiraling crime rates. This popular conception of the city shifted dramatically in the last decade, to the extent that the city now bills itself as "America's Golden Door", "Wall Street West" and "Silicon Valley East." The paper traces this transformation paying particular attention to the costs and benefits associated with the development strategy employed by the Schundler administration (1992 - 2001). The paper also evaluates the effects of 11 September 2001 on the economic trajectory of the city.

Schneider, Dona, Department of Urban Studies and Community Health, Rutgers, The State University of New Jersey, New Brunswick, New Jersey 08901-1958, donas@rci.rutgers.edu, and **Susan M. Macey**, Department of Geography, Southwest Texas State University, San Marcos, TX 78666, sm07@swt.edu
Foundlings, Asylums, Almshouses, and Orphanages: Early Roots of Child Protection.

Today, the United States has entire industries devoted to clothing, educating, feeding, and amusing children. Most Americans agree that the physical and emotional health and welfare of children should be a national priority, yet this was not always the case. Social concern for the plight of children, including their very survival, is a relatively recent phenomenon. To appreciate this phenomenon and the concomitant rise in the number of facilities devoted exclusively to the care of children in the contemporary United States, this paper explores the roots of child protection. It begins with events such as the fall of the Roman Empire and the rise of Christianity and proceeds through changing economic and social expectations as exemplified by the rise of cities and the early part of the Industrial Revolution.

Scipione, Paul A., School of Business, Montclair State University.
GIS as a Business: Origins, Size and Growth

What business category has grown to exceed \$10 U.S. billion, at a rate of growth nearly 10 times GDP, now employs more than 100,000 Americans, and touches the lives of nearly every American citizen every day? The answer is the *GIS* industry. The biggest riddle of all is why one of the most dynamic parts of the national economy has been nearly totally ignored by Wall Street securities analysts. After an extensive review of historical documents, interviews with industry leaders and a detailed evaluation of the mix of hardware, software, technical services and end-user applications that make up the *Geographic Information Systems* category, the author describes how this dynamic industry got started, its current dimensions, and the directions it is likely to grow in next.

Singh, Harbans, Robert W. Taylor, John Thiruvathukal, and Rolf Sternberg, Dept. of Earth and Environmental Studies, Montclair State University, Upper Montclair, NJ 07043
Panel Session: Energy and the Environment

As geographers, we recognize the vital role energy resources play in the economic growth and vitality of countries and societies. Assured, uninterrupted supplies of energy at stable prices are essential to the growth and smooth functioning of the global economic system and the economies of the energy importing countries. For instance, the United States imports 60 percent of its daily petroleum consumption. The United States and other industrialized countries rely heavily on Middle Eastern oil.

The rise of Islamic fundamentalism, dictatorships encompassing theocratic tenets and other social conditions render the Middle East a politically unstable region. There is a genuine concern about the heavy economic cost the interruption of oil from the Middle East can impose on the U.S. economy. The panel intends to explore various initiatives to cope with the current and future energy demand.

Solecki, William D.¹, Gregory Pope¹, Cynthia Rosenzweig², Vera Lazar¹, and Maria Clark¹, ¹Department of Earth & Environmental Studies, Montclair State University, and ²Goddard Institute for Space Studies/NASA.
The Potential Mitigation of the Urban Heat Island Effect in the Greater Newark, New Jersey Region

The objective of this research was two-fold: 1. Analyze the effectiveness of mitigation strategies of the urban heat island phenomenon in the city of Newark, New Jersey Region currently and within the context of climate change, and, 2. Examine the implications of urban heat island and its mitigation on a suite of related public policy issues such as land use change, climate change adaptation and mitigation, and energy efficiency.

Mitigation strategies for the urban heat island effect, including increased urban vegetation and lighter-colored surfacing, were explored using CITYgreen™, a GIS application developed by the American Forestry Association. In analyzing attempts to mitigate the urban heat island, the benefits provided by urban trees increase over time. As the trees are maturing, their canopy shades a larger area, directly reducing energy demand and cost. Urban

forestry programs also would promote the reduction in energy consumption and resultant savings, but also by the reduction in greenhouse gas emissions, esthetic value of urban forestry, and the increased quality of human health. The impact of potential cool roofing strategies also was assessed.

Somogye, Erica¹, K.N. Irvine¹, and G.W. Pettibone²

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Turbidity, Suspended Solids, and Bacteria Relationships within the Buffalo River Watershed

Numerous studies have examined the relationship between turbidity and suspended solids for the purpose of providing a more continuous data record in evaluating watershed-scale geomorphological responses. Other studies have looked at the relationship between suspended solids and indicator bacteria such as fecal coliform. This paper summarizes results of sampling that has been done in the Buffalo River, NY watershed over the past decade and specifically makes links between levels of turbidity, suspended solids and fecal coliform using least squares regression. Fecal coliform levels in the Buffalo River are high enough to be of concern and there is local interest in developing BMPs to improve water quality. An understanding of sediment and bacteria interactions is important in developing appropriate BMPs. Samples were collected at eight sites under both dry weather and storm event conditions, but the sampling did not occur at all sites contemporaneously. The correlations between suspended solids and turbidity or suspended solids and fecal coliform were strong, ranging between 0.4 and 0.97. The slopes of all regressions were significantly different from 0, although in the case of the suspended solids vs. fecal coliform regressions some variability was observed in the slope and intercept of the equations for the different sites. Nonetheless, these turbidity-suspended solids-fecal coliform relationships can be used to produce reasonable planning level estimates of the frequency of high fecal coliform levels (>200/100 mL).

Sternberg, Rolf, Department of Earth and Environmental Studies
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Slide and Field

Geography and field observation can be considered in most instances synonymous. The camera is the visual technique to record field observations. Furthermore, revisiting the same site and taking more pictures of the same site, transforms the picture into an archival document, especially when the place is in transformation, as the building of a large project or the transition of an urban place. Another approach is the comparative one, comparing such urban sites as Greenbelt, MD, Radburn, NJ, and Columbia, MD. The camera serves as an assistant in the field and it should be used actively. Slide use brings fieldwork before the audience and illustrates the dynamics of the spatial system. Such presentation gains significantly when complemented with carefully chosen cartography and data to provide the spatial-temporal context.

Key terms: fieldwork, photography, spatial system

Tang, Tao, and Daniel Kenny, Department of Geography and Planning, Buffalo State College
Spatial Interpolation of Sewer Capacity and Population Change in the Towns of Lancaster and Cheektowaga, Western New York

While population declined in West New York by 1.9% over the last ten years, movement out of the City of Buffalo into suburban areas has increased due to shift of economic activities and urban sprawl. The current study attempts to spatially relate the population change and the capacity of sewer utility networks in the near suburban towns of Lancaster and Cheektowaga of the region.

AutoCAD drawings and diameter width of sewer pipelines were collected from Erie County Department of Environment and Planning. Population distribution data was collected from the U.S. Census Bureau. The drawings were converted into ArcGIS format, and the width of each of the sewer line segments was incorporated into the database. 1990 and 2000 population data of the towns was joined with the base map of the Census block group. Diameter of sewer lines and population distributions of 1990 and 2000 were thematically mapped. The pipeline

layer, then, was overlaid on to the 1990 and 2000 population distributions to visualize the impact of population change to sewer transportation capacity.

The results indicated that a population migration from west to east, or from near downtown to further away from downtown exists. Meanwhile, population decreased from 1990 to 2000. While the trunk routes of the sewer network only serve to the center of the study area, the capacity of the transportation was sufficient in 1990. However, sewer transportation capacity might be over abundant in the west and under the demand in the east in 2000.

Key words: spatial interpolation, sewer capacity, population change

Thomas, William H., New Jersey School of Conservation, Montclair State University

Back to the Future: Combining Tradition, Technology and Global Markets for Forest Conservation in New Guinea

The island of New Guinea is one of the planet's last bastions of cultural and biological diversity. It also contains the largest stands of tropical forest in the Pacific. Since the inhabitants of New Guinea's forests have land rights that are constitutionally protected, any conservation plan must combine the needs of local people with biodiversity conservation. This paper incorporates the indigenous knowledge of the inhabitants of New Guinea's largest inland wilderness into a dynamic conservation plan that would take advantage of the emerging international market for carbon dioxide sinks. Using indigenous knowledge to map the relationship between traditional human activity and biodiversity, this paper outlines a conservation plan for the area wherein local people can tap the global CO₂ market for compensation and international donors can monitor forest cover through satellite technology.

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Phragmites australis: A Landscape Scale Invader that Alters the Biodiversity and Ecological Functions of Coastal Marshes

In the past 50 years, *Phragmites australis* has become the dominant macrophyte in many brackish marshes of the mid-Atlantic seaboard expanding its coverage on the marsh plain by 1%-6% per year. For example, more than 16,000 ha of brackish salt marsh are presently covered with a near monoculture of *Phragmites* on the Delaware side of the Bay, and the magnitude of coverage is similar on the New Jersey side. Invasion trends are examined here for a 1600 ha salt marsh system studied by the author over the past six years, Alloway Creek Marsh, which was more than 70% covered with *Phragmites* by 1996. The near monocultures of *P. australis* in many meso-oligohaline marshes is believed to have at least four negative effects on salt marsh function 1) the normal hydroperiod of the marsh is altered; 2) reduced tidal exchange allows *P. australis* to extend its range into lower elevations where it eventually replaces other plants; 3) isolated "islands" of *Spartina* spp. are affected through a general reduction of drainage density, and by fragmentation into smaller habitat patches; and 4) the continuous stands of *P. australis* that surround extensive portions of the marsh appear to restrict both sheet flow and the free movement of aquatic organisms so that some portions of the marsh plain become virtual extensions of the uplands. This last point is also important because certain marsh geomorphological configurations act to reduce or eliminate net detrital export to the estuary). Although the data are few, available published literature suggests that *P. australis* alters the ecology and function of the entire marsh by building up the marsh plain, filling in the microtopographic relief of the marsh surface, and by sequestering nitrogen. These aspects of *Phragmites* invasion are also discussed in this paper.

Welch, Joan M., West Chester University, West Chester PA 19383 **and Josep Vila i Subiros**, Departament de Geografia, Universitat de Girona, Pl. Ferrater Mora 1, 17071 Girona, Catalunya, Spain.

Landscape Homogenization in the Pre-Pyrenees of Northeastern Spain

Landscapes that experience high levels of disturbance often manifest the disturbance processes through fragmentation of land cover. Landscapes that experience low levels of disturbance often manifest the lack of disturbance through homogenization of land cover. Both of these extremes produce the same result: a dramatic loss of biodiversity. Given this reality, it is essential for preservation of important biological resources to analyze the

evolution of landscapes and landscape processes in order to determine appropriate management decisions that will slow down or minimize the incessant loss of biodiversity and landscape diversity. Studies at the local level of environmental change over the last couple of decades can contribute information about landscape processes and trends to be extrapolated into the future. To that end, there are several computer programs that calculate landscape metrics which are valuable indicators of landscape processes and trends. In particular, FRAGSTATS and the ARCVIEW extension Patch Analyst offer landscape ecology metrics such as patch size, shape and number, as well as edge statistics and regional landscape diversity measures. The analysis of the valleys of Hortmoier and Sant Aniol in Catalunya, northeastern Spain over four decades shows that the predominant landscape process is homogenization. From land cover interpretation of aerial photos of the region taken in 1956, 1979, and 1996, forest cover is expanding, and pasture and agricultural field cover is decreasing. There is much less edge habitat and landscape diversity.

Widmer, Tracy, Earth Sciences, Buffalo State College, **Stephen Vermette**, Geography and Planning, Buffalo State College, **Robert Baier**, Industry/University Center for Biosurfaces, SUNY Buffalo, and **Philip Hopke**, Chemical Engineering, Clarkson University

Influence of Peace Bridge Traffic on Downwind Airborne Particles

Concern over the number of asthmatics living in the neighborhoods near the Peace Bridge (Buffalo, NY) has prompted a focused sampling of air quality in the vicinity of the bridge. Idling trucks and passing cars release breathable exhaust fumes and road dusts into the air. Two sites, upwind and downwind of the bridge, were designated for sampling. Airborne particulates were collected using three different sampler types, and the samples were analyzed by size, weight and chemical composition. Results show a higher number and concentration of particulates downwind of the Peace Bridge. Chemical analysis suggests a vehicular traffic source.

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Distractions or Subversions? FairTrade Coffee Consumption and "the Perplexed Consumer"

The idea of an ambivalent, alienated, or veiled relationship between the consumer and the social relations of commodity production would seem to have been undermined by current fetishes for commodities that are organic, "green", gourmet, locally-grown or FairTrade. This paper critiques how theorists such as Harvey (1989), Jameson (1991) and Roseberry (1996) describe consumers and cultures of consumption and proposes new ways of understanding the relationship between commodity and consumer. In an effort to contextualize, instead of theorize, coffee consumerism I focus on the way FairTrade coffee facilitates "subversive" consumption by "educating" consumers about their role as political agents. By demonstrating the theoretical and pop cultural discourses of consumer distraction and/or subversion, I offer an alternative strategy for analyzing the consumption of FairTrade coffee that focuses on the consumer's perplexed location in relation to global coffee production.