

**Middle States Division American
Association of Geographers**

Annual Meeting

**October 28-29, 2022 Virtual Host:
Bloomsburg University of PA**



The Meeting at a Glance

Friday, October 28

12:00 - 12:15 PM Opening Remarks from Dr. Trish Beyer, 2022 Middle States
AAG President, Bloomsburg University of PA

12:20 - 1:40 PM Paper Session 1: Urban Geography
Paper Session 2: Climate Change, COVID-19 and the
Environment

1:50 - 2:50 PM Poster Session

3:00 - 4:00 PM Keynote Speaker: AAG President Dr. Marilyn N. Raphael
Antarctica

4:10 - 5:30 PM Paper Session 3: Higher Education

5.30-6.30 Networking and Happy Hour

Saturday, October 29

9:15 - 9:30 AM Welcome Back

9:30 - 10:40 AM Paper Session 4: Energy, Climate and Hazards

10.45--11.55 AM Paper Session 5: Environmental Challenges

12:00 - 12:15 PM Closing Remarks

MSAAG Virtual Meeting 2022 Program

Schedule of Presentations

Friday 28 October

12.00-12.15 Welcome and Opening Remarks

Trish Beyer, President MSAAG, Bloomsburg University of PA

12.20-1.40 Paper Sessions 1 and 2

Paper Session 1: Urban Geography: Moderator: Michael Davis, Kutztown University

12.20-12.35 *Transfer of Development Rights: An evaluation of Jurisdiction-Level Development Sprawl*, Caroline J Williams, University of Delaware

12.35-12.50 *Using GIS to identify locations for the Development of Urban Ecological Corridors for Birds: A Philadelphia Case*, Maria Morresi, West Chester University

12.50-1.05 *The luxury effect and urban ecology's paucity in theory: How urban political ecology can contribute to urban ecological theory*, Austin Martin, Temple University

1.05-1.20 *Exploring Pandemic-Induced Adjustments to Business Operations among Natural and Cultural Resource Sites in Texas*, Salvesila Tamima, Graduate Research Assistant, Disaster Research Center, University of Delaware

Paper Session 2: Climate Change, Covid and the Environment: Moderator Hamil Pearsall

12.20-12.35 *Green Infrastructure in the Time of COVID*, Megan Heckert, West Chester University

12.35-12.50 *Assessing College Campus Carbon Sequestration Estimation Using i-Tree Canopy, Cortland County, New York*, Bettina Bonfiglio, SUNY Cortland

12.50-1.05 *What about the local scale? Knowledge gaps in local climate change adaptation plans*, Antonia Casellas, Universitat Autònoma de Barcelona & Research Associate-in-Residence Hofstra University, Anna Marin, Universitat Autònoma de Barcelona and Eduard Ariza, Universitat Autònoma de Barcelona

1.05-1.20 *Converging Margins and Crossing Boundaries: Identity and Environmental Activism in Appalachia*, Ryan Rabenold, Temple University

1.50-2.50 Poster Session

The Impact of Disaster Subcultures on Business and Community Preparedness in Coastal New Jersey, Nyla Howell, University of Maryland, Baltimore County, Robin Leichenko, PhD, Rutgers University - New Brunswick, Maravilla Clemens, Rutgers University - New Brunswick, Katie Cann, Rutgers University - New Brunswick, Majorie Kaplan, PhD, Rutgers University - New Brunswick, Jeanne Herb, PhD, Rutgers University - New Brunswick, Malgosia Madajewicz, PhD, Columbia University, William Solecki, PhD, Hunter College

Comparison of Flash Flood Events and Precipitation Trends Between Coastal and Inland New Jersey Counties: 2006 – 2020, James W. Luma, Kutztown University

Land Cover Classification of Ice Jam Flooding using Archived UAS Imagery, Christopher A Badurek, SUNY Cortland

Using High-Resolution LiDAR to Map an Abandoned 19th Century Industrial Landscape, Lee Stocks, Mansfield University

Deadwood Directionality in the Temple Forest Observatory, Grace E. Varnum, Hofstra University

Hydrological Analysis of Change from Proposed Recreational Structure Development on West Branch Lackawaxen River, in Honesdale, PA, Nicole Billard and Benjamin Franek, Bloomsburg University of PA

3.00-4.00 Keynote Speaker AAG President Dr. Marilyn N. Raphael: Antarctica

Moderator Trish Beyer, Bloomsburg University of PA

4.10-5.30 Paper Session 3: Higher Education, Moderator: Benjamin Franek, Bloomsburg University of PA

4.10-4.25 *The impact of the Great Recession on Enrollments and Residency at Public Universities: The Middle Atlantic Region*, John Sharp, SUNY New Paltz

4.25-4.40 *Breaking Barriers at Land Grant Institutions: A Historic Geography*, Carolyn Weinstein, State University of New York, New Paltz

4.40-4.55 *Roll For Initiative: Geofiction and Roleplaying*, Michael A. Davis, Kutztown University

4.55-5.10 *Social Justice, Anti-Racism and Geographic Pedagogy*, Ibipo Johnston-Anumonwo, State University of New York, College at Cortland

5.30-6.30 Networking and Happy Hour

Saturday 29 October

9.15-9.30 Welcome Back, Trish Beyer, Bloomsburg University of PA

9.30-10.30 Paper Session 5 Energy and Environmental Challenges, Moderator Steven Schnell

9.30-9.45 *Urban Change and Development: How Energy Consumption is Changing in the Lehigh Valley, Pennsylvania, USA*, Abby Wheeler, Kutztown University of Pennsylvania

9.45-10.00 *Texans Strong Social Capital and the Perceived Absence of Leadership during Winter Storm Uri*, Adam X. Andresen, University of Delaware

10.00-10.15 *Global Overview of Saltwater Intrusion Impacts on Infrastructure*, Tiana N Thorp, University of Delaware

10.15-10.30 *Creating a Lexicon of Compound Hazards to Improve Theory and Practice*, Logan Gerber-Chavez, University of Delaware

10. 40- 11.45 Paper Session 6: Environmental Challenges: Moderator: Linda Kennedy

10.40-10.55 *Mapping the Law of the Floodplains under Climate Change*, Ju-Ching Huang, Georgetown University Law Center

10.55- 11.10 *Cross-Referencing Alluvial Plains at Oxia Planum, Mars, Through Stream Network Delineation Analysis on ArcGIS Pro: A Geographic Information Systems Approach*, Elpidio Guzman De La Cruz, The West Chester University of PA

11.10-11.25 *New Definitions of Success in Floodplain Development: How One New Jersey Town it Getting it Right with Land Use Decisions*, Elizabeth Shields, University of Delaware

11.25-11.40 *How do spatial factors of green spaces contribute to flood regulation in urban areas? A systematic mapping*, Sina Razzaghi Asi, Temple University

12.00-12.15 Closing Remarks, Trish Beyer, Bloomsburg University of PA

Paper Abstracts

Adam X Andersen, University of Delaware: Texans Strong Social Capital and the Perceived Absence of Leadership during Winter Storm Uri

As energy infrastructure deteriorates across the United States, the likelihood of large-scale failures within these systems is expected to increase. But despite the increasing likelihood of these events, the research on how people are impacted during power outages is considerably smaller compared to other hazards, like heat and flooding. When these failures occur, the focus turns to elected leaders and their response to the event and how communities take action and use their social capital. This research aimed to understand the societal impacts of the blackout caused by Winter Storm Uri. Three newspaper outlets were selected through a stratified random sampling approach, and 77 articles were obtained for the analysis. A media analysis was conducted through a focusing events lens to analyze how Texans were affected by the storm and the anomalously cold temperatures. The articles were selected based on if they covered the impacts of Winter Storm Uri or the ensuing blackout. Through a content analysis, the findings of this research indicate that elected officials did not act in a manner that helped their constituents. While leaders were making media appearances and attributing blame to electricity providers and non-existent policies, Texans demonstrated strong social capital within their communities and utilized this resource to survive. Residents showed their social capital by allowing their neighbors in their homes, despite the concerns of the ongoing pandemic. Findings also demonstrated that leadership must be transparent and consistent in their updates with their constituents.

Sina Razzaghi Asl, Temple University: How do spatial factors of green spaces contribute to flood regulation in urban areas? A systematic mapping,

Flooding is increasing in urban areas around the world, leading to loss of life and property damage, and cities are using urban green spaces (UGS) for flood regulation. The spatial attributes of urban green spaces have an important role in controlling and regulating urban flooding, and there is a need for a systematic review of how the main spatial factors of UGS, such as shape, size, location, or connectivity, impact flooding in urban areas. The objectives of this paper are to analyze and synthesize published material to evaluate the impacts of the spatial dimension of urban green spaces on flood regulation and to identify knowledge gaps and future research directions. To understand the impact of spatial metrics of UGS on flood regulation, pertinent literature was collected and synthesized using the systematic mapping method. The results of this paper show that studies of spatial configuration have focused on how variables such as slope, DEM, green space coverage, and landscape shape index impact runoff reduction. The slope was found to be important, but not determining factor in flood regulation. There is a need for further research on how the geographic context of urban regions, including climatic conditions and land use changes, impacts UGS functionality. Further, there is a need for further research on how the spatial configuration of UGS impacts flood vulnerability and intensity, two under-addressed yet important topics in urban flooding

Bettina Bonfiglio, SUNY Cortland: Assessing College Campus Carbon Sequestration Estimation Using i-Tree Canopy, Cortland County, New York

Carbon sequestration is a significant factor in reducing the greenhouse effect. It is the absorption of carbon dioxide (CO₂) at natural and man-made sinks, reducing the volume of carbon in the atmosphere. This study addressed the possible impact of geographic setting and scale on the estimation of carbon sequestration from trees. This was conducted using i-Tree Canopy 7.1 and ArcGIS Desktop 10.8 for the State University of New York College (SUNY) at Cortland, SUNY Cortland Hoxie Gorge State Forest Preserve, Cortlandville, the City of Cortland, the Town of Homer, the Village of Homer, and Cortland County. Results indicated these municipalities were the most urbanized in the county. Ultimately, Cortland County had the greatest area of tree canopy, therefore the most sequestration and storage. The county had an average of 474,080 and 15,179,990 tons, respectively, while SUNY Cortland had the least with averages of 81.39 and 2,606.15 tons. Additionally, i-Tree Canopy produced reliable estimates with no influence from geographic setting or scale.

Antonia Casellas, Universitat Autònoma de Barcelona & Research Associate-in-Residence Hofstra University, Anna Marin, Universitat Autònoma de Barcelona and Eduard Ariza, Universitat Autònoma de Barcelona: What about the local scale? Knowledge gaps in local climate change adaptation plans

Due to climate change, delta coastal areas are at increasing risk of flooding. To improve its risk-based management, the European Union has provided funds under the Covenant of Mayors Initiative on Adaptation to Climate Change to incentivize the creation of local climate change adaptation plans. These local plans should provide a risk-based management approach to climate change that integrates climate science data with place-based vulnerability assessments. While the former has a regional character, the latter is context-specific and has to rely on integrating local knowledge. The research analyse two local risk climate adaptation plans in the Llobregat Delta in Metropolitan Barcelona, a key economic and social area due to its combination of infrastructure (Barcelona's airport and port), logistics, industry and housing. The research evaluates the quality of the two local vulnerability assessments using a Knowledge Quality Assessment methodology. The findings identify contextual and procedural knowledge gaps, which highlights the needs for improvements in order to have more effective local risk management plans.

Michael A. Davis, Kutztown University of Pennsylvania: Roll For Initiative: Geofiction and Roleplaying,

Geography Departments may have difficulties attracting the 21st century student to their program. Innovative and unique ways of engaging these students and drawing them to geography programs are becoming increasingly critical across university landscapes. One such way that is proposed in this paper is through roleplaying games with emphasis on the geographical aspects. This coming Spring 2023 semester, Kutztown University will be piloting

a course entitled Geofiction and Roleplaying to undergraduate students. This course aims to tap into a pop culture zeitgeist and draw students to the program through examination of fictional maps and roleplaying. Map discussions centered on geographical features and representation in fantasy worlds of literature, film, television, video games, and more will hopefully entice students to this course. In addition to the cartographic analysis of these maps, students will be asked to create their own fantasy worlds along with hand drawn maps to accompany them. The creation of playable characters and roleplaying in small groups, following the Dungeons and Dragons 5th Edition rules, will provide an outlet for expressing and creating ideas in both written and oral formats consistent with the General Education model at the university. This venture may encourage students to take more geography courses, possibly declare a major or minor in geography, and aid in retention of students at the university by forging friendships and a tighter knit campus community. The inspiration and motivation for the development of this course will be discussed.

Elpidio Guzman De La Cruz, The West Chester University of PA: Cross-Referencing Alluvial Plains at Oxia Planum, Mars, Through Stream Network Delineation Analysis on ArcGIS Pro: A Geographic Information Systems Approach

Previous studies at The Oxia Planum region, located on Mars, suggest topographic trends of fluvial sinuous ridges (FSRs) and the presence of clay-bearing minerals. Keeping these findings in mind, this region of interest is analyzed through application of stream network analysis geographic information systems (GIS) techniques using ArcGIS Pro. Data is exported from the JMARS software onto ArcGIS Pro for evaluation. The analysis and results reinforce the presence of fluvial patterns at the FSR regions of the Oxia Planum basin. The analysis furthermore provides with an extensive trend of the fluvial pattern that can be utilized for potential areas of interest by the ExoMars mission.

Logan Gerber-Chavez, University of Delaware: Creating a Lexicon of Compound Hazards to Improve Theory and Practice,

Hazards rarely occur in isolation, but disaster scientists and practitioners are still developing the tools and language to address overlapping hazards. Academics around the world are publishing research on compound hazards in many different contexts but they use a variety of definitions, such that it is hard to know if they are describing the same phenomenon. The different terms (e.g., compound, multi-hazard, simultaneous, complex, natech, cascading disasters) have distinctions that are important for theoretical analysis and practical applications. An accurate typology is critical so that accurate research results can contribute to planning and preparation for these highly complicated disaster situations. This study uses a systematic literature review to develop a comprehensive lexicon of terms and to create a typology categorizes the types of compound hazard combinations that have been studied. There are three overarching categories for compound hazards –compound, cascading, and simultaneous– organized based on their causal relationship. These categories have practical implications because they involve different types of responses and preparations from emergency management practitioners. With ongoing work between researchers and practitioners we can find ways to use these results to improve emergency planning on the

ground. Without common terminology there are issues with communicating results and coordinating improvements in practice. Compound events are not uncommon and need clarity in research and in practice to effectively study, plan for, and respond to these disasters.

Megan Heckert, West Chester University: Green Infrastructure in the Time of COVID

Urban parks and other forms of green infrastructure have a long history of connection to health concerns. Parks and trees are known as the “lungs” of the city, cleaning the air and protecting waterways from pollution. Urban vegetation is known to improve health outcomes – both physical and mental – in surrounding communities. In the early days of the COVID-19 pandemic, with workplaces closed around the world and movement restricted, park proponents argued that now, more than ever, greenspaces were vital components of cities, and park use shot up in many parts of the world. This presentation will present the findings of two review studies exploring the relationship between green infrastructure (GI) and the COVID-19 pandemic, discussing not only the ways in which the pandemic impacted use of GI around the world, but also questioning whether or not GI had any influence on health in the face of a global health crisis.

Mapping the Law of the Floodplains under Climate Change: Ju-Ching Huang, Georgetown University Law Center

Land use and planning laws have evolved over time to accommodate social developments and the changing landscape. However, the pace of this change has traditionally been slow. The relatively rapid pace of climate change, along with its related extreme weather events, challenge the ability (and desirability) of land use and zoning regulations to provide predictability and stability in response to a non-stationary environment. This talk examines a case study of land use, zoning, and waterfront developments in Weehawken, New Jersey, to untangle the complicated laws and land use relationships that define and govern flood-prone lands. The research traces the town's historical land use plans and municipal zoning ordinances in relation to floodplain maps and physical geography, providing a backdrop against which to analyze continuing development plans and ongoing litigation related to floodplain development in Weehawken. The dynamics among the planning board, courts, developers, local government, and residents provide a fascinating case that displays the complexity of floodplain land use decision-making processes. This talk concludes with a discussion of how these complex drivers present both challenges and opportunities for rapid change in the land use legal regime

Ibipo Johnston-Anumonwo, State University of New York, College at Cortland: Social Justice, Anti-Racism and Geographic Pedagogy

Resources for teaching about social justice and anti-racism vary in pedagogical quality and relevance. This presentation reviews a variety of approaches and content used in geography courses about social justice with beginning and upper-level students. It draws on conceptual frameworks and empirical research that highlight diverse intersectionalities and overlapping dimensions of difference. Using case studies from a broad range of locational contexts, the

presentation features differing roles of race, ethnicity, gender, or nationality in analyses of inclusivity, diversity and social equity in geography classes.

Austin Martin, Temple University: The luxury effect and urban ecology's paucity in theory: How urban political ecology can contribute to urban ecological theory

Urban ecology is an inherently interdisciplinary field, but its theoretical scope remains limited to reductive understandings of urban processes. Here, I examine the concept of the luxury effect in urban ecology, or the observed tendency for urban biodiversity to exhibit positive correlations with household income in a given area. Using my own empirical data from sampling of wild bees in the City of Detroit, Michigan, USA and its suburbs, which display a negative correlation between bee genus diversity and household income, I provide a counter-example to the luxury effect and outline alternative theoretical foundations in the sub-field of urban political ecology. Results from this study show a strong negative correlation between median household income and bee diversity. This runs counter to the luxury effect hypothesis, and along with a number of other studies showing similarly anomalous results, it begs for a more robust theoretical foundation towards a better understanding of urban socio-ecological systems. One possible reason for this current lack of explanatory power is that urban ecology's reductive understanding of urban processes do not adequately account for the dimensions of urban land cover change and uneven urban development, which are major components in the socio-ecological makeup of cities. Urban political ecology's framing of political economic drivers would offer a more robust and complete framework for interpreting urban ecological empirical data. Urban ecology and urban political ecology would mutually benefit as academic disciplines if channels of communication were more deliberately opened between the fields.

Maria Morresi, West Chester University: Using GIS to identify locations for the Development of Urban Ecological Corridors for Birds: A Philadelphia Case

As cities begin to turn towards sustainable development and green infrastructure, planners have also turned their eye towards the lack of green accommodations for bird populations in urban environments. In order to address the habitat fragmentation that limits urban bird travel and migration, while still considering the limits of land acquisition and development for local governments, a GIS method was developed that would generate Least-Cost Path (LCP) ecological corridors along which developed green space could facilitate avian presence and travel while seeking to avoid private land. With Philadelphia as a case study, LCPs were generated between city parks depending on a resistance map of the permeability of urban environments for birds. The LCPs were narrowed down to three ideal corridor locations based upon how much of each path resided within Philadelphia Parks and Recreation and/or city-owned land. The benefits and drawbacks of the selected LCPs were discussed within the context of 2021 citizen science bird observations. The proposed GIS method appears promising as the start of a tool to create ecological corridors beneficial to birds and other wildlife without disregarding real-world barriers to green planning projects.

Ryan Rabenold, Temple University: Converging Margins and Crossing Boundaries: Identity and Environmental Activism in Appalachia,

Activism is, at its core, driven by people who identify strongly with a cause. In the case of Appalachia, a region with a rich history of political protest, one would assume that there is a strong, public push against the environmental injustices associated with mountaintop removal mining. In reality, news of this struggle is relatively confined within the region. Research suggests that the root of this issue comes not from a lack of attention, but from representation of the Appalachian identity both in and out of the region. This paper will review the complexities of the Appalachian identity as compared to the popularized version that many people accept as truth, exploring how they impact local environmental activism. Using literature on identity in Appalachia and how it manifests through the lenses of gender, race, class, and intersectionality, as well as data provided by underrepresented members of the region, this paper seeks to establish two key points: A) the identity of Appalachia is misrepresented and B) this misrepresentation prevents the creation of the regional solidarity that is essential to successful environmental activism.

John Sharp, SUNY New Paltz: The impact of the Great Recession on Enrollments and Residency at Public Universities: The Middle Atlantic Region,

The Great Recession led to declining state appropriations for public higher education while simultaneously motivating more students to attend college. Many public universities increased enrollments and sought out-of-state students to offset the decline in state funding. This was especially true for national public universities (primarily R1 institutions), but less so at regional public universities (primarily R2, R3 and master's level institutions). This study finds that in the Middle Atlantic region, both national and regional public universities were able to increase enrollments, but national universities did so at an above average rate compared with their peers, while regional universities trailed the national average in their peer group. With regard to increasing the proportion of out-of-state students, national public universities in the Mid-Atlantic saw a net gain but trailed their peers while regional public universities experienced a decline in out-of-state enrollment unlike their peers who experienced slight gains. In addition to investigating enrollment and residency trends at the regional level, this paper more carefully examines the experiences of Montclair State, New Jersey Institute of Technology, Rowan University, Rutgers-New Brunswick, and Towson University.

Elizabeth Shields, University of Delaware: New Definitions of Success in Floodplain Development: How One New Jersey Town is Getting it Right with Land Use Decisions,

In the last twenty years, the US has seen twenty-three billion-dollar flooding events. The National Centers for Environmental Information estimate these major flooding events cost an average of \$4.8 Billion per event, and are projected to continue rising upwards of 26% in the next 30 years. Higher costs associated with flooding damage are a consequence of ineffective land use practices when risks are overlooked in development. So, how can local land use tools

like buffers and floodplain ordinances mitigate damage to property, and therefore costs, when used effectively? This research explores the adoption and enforcement of planning resources and regulations in towns of Monmouth County, New Jersey where fifteen flooding-related state of emergencies have been declared since 1970. Aberdeen, NJ emerges as a best practice case based on remote sensing data quantifying floodplain development. According to county officials, however, it's not hailed as an exceptional example of such practices, so it is useful to look at how the township has achieved its success. Despite high land value and increasing population density in the township, Aberdeen has opted for redevelopment of existing areas and remediation of brownfield sites to accommodate this growth. Specifically, it has adopted more tools than any other town in the county but maintains poor Community Rating System (CRS) ratings. This exists in stark contrast to other towns in the county, where rapid development of land in the floodplain is ongoing. The Aberdeen case presents evidence to suggest a local government's perception of success does not always reflect reality.

Salvesila Tamima, Disaster Research Center, University of Delaware: Exploring Pandemic-Induced Adjustments to Business Operations among Natural and Cultural Resource Sites in Texas

The COVID-19 pandemic was unexpected and therefore it created many disruptions to businesses and public services, including natural and cultural resources sites. These sites include parks, museums, heritage sites, and other protected places. During the first year of the pandemic, Texas natural and cultural resource sites experienced a range of challenges, and many had to adjust their business operation plans. COVID-19 impacted visitation, revenue, donations, reopening, and programmatic offerings of these entities. There are very few studies which focus on these entities. Therefore, in this study, I tried to explore the adjustments made during the COVID-19 pandemic specifically by natural and cultural resource sites. This mixed-methods study consisted of an online survey with a follow-up semi-structured phone interview. Specifically, this study identifies the adjustment measures undertaken to maintain business operations while reducing the virus spread, factors affecting those adjustments, and examines new business opportunities that emerged from these adjustments. The factors those affected the adjustments were staffing, volunteers, technology, funding, and donations. Surprisingly, new opportunities in business practices emerged while implementing these adjustments such as networking, maintenance, and virtual options. Across all entity types, adopting virtual programs was a key adjustment addressing both fiscal and health concerns. Learning from this study, I provided recommendations for cultural and natural resource sites to implement measures to improve resilience to future extreme events.

Tiana N Thorp, University of Delaware: Global Overview of Saltwater Intrusion Impacts on Infrastructure

Saltwater intrusion - where saline water is introduced to a system (i.e. aquifers, soil, buildings) via processes like sea level rise – is becoming a severe and prevalent problem among coastal communities as climate change causes sea levels to rise. While experts know saltwater

intrusion will occur, there is less consensus on how saltwater intrusion might affect coastal residents, ecosystems, and infrastructure. This research investigates the current literature related to saltwater intrusion and infrastructure globally. Through a systematic review utilizing the Web of Science database, 165 papers were selected and evaluated using descriptive and thematic analyses via keyword search. The descriptive analysis highlights the prevalence of the saltwater intrusion problem, the qualitative nature of current research, and the predominance of research in the United States. In the thematic analysis, six axes were established as future directions of research - infrastructure deterioration, modeling, drinking water, ecosystems & wetlands, agriculture, and sea level rise. The need for improved models for realistic scenarios is emphasized, as well as communicating the dangers of saltwater intrusion to policy makers and government officials. The relationship between saltwater intrusion and sea level rise must be further understood to improve protection of wetlands and their ecosystems; selection of adaptation strategies; and impacts of salinization on coastal aquifers.

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Carolyn S. Weinstein, SUNY New Paltz: Breaking Barriers at Land Grant Institutions: A Historic Geography

The 1862 Morrill Act established the land-grants found in each U.S. state and territories. While there has been previous research done on these colleges in terms of their socioeconomic impact and geographic implications, there has been little research done on African American access to these institutions. This paper focuses on the first African American undergraduates to graduate from these universities and utilizes a constructed database to convey the barriers to higher education by region. Each region is rife with unique stories that demonstrate the influence of location, socioeconomic standing, as well as regional history. The results found across each region suggest that geographic locations of African Americans

and land-grant schools have an impact on the date of each school's first graduation of African Americans undergraduates. Graduation of African American students are consistent across respective regions and conveys unequal access to education influenced by region.

Abby Wheeler, Kutztown University of Pennsylvania: Urban Change and Development: How Energy Consumption is Changing in the Lehigh Valley, Pennsylvania, USA,

The Lehigh Valley, commonly classified as the cities of Allentown, Bethlehem, and Easton, is a major population center of the Commonwealth of Pennsylvania. This modern urban conglomerate relies on a diverse economic portfolio including, but not limited to, commercial, industrial, logistical, and residential drivers. These all require energy to propel the economic engine of the Lehigh Valley. Most often these energy sources have been fossil fuel based. Recently, renewable energy has become more proliferated in Pennsylvania and the local region. In Pennsylvania, consumers of energy have the option of selecting their energy provider and source of energy. This has allowed greater accessibility and opportunity for consumers to switch to renewable sources of energy.

This study examines trends in energy generation and consumption across the Lehigh Valley. Allocation of the energy for specific purposes, such as lighting, heating, cooling, ventilation, hot water, and others, are further examined to understand ever changing energy demands and how much energy is required for these essential property practices.

Caroline J Williams, University of Delaware Transfer of Development Rights: An evaluation of Jurisdiction-Level Development Sprawl

Sprawling development patterns in the United States have caused a reduction in natural landscapes across the country. Transfer of development rights (TDR) programs have been suggested as a potentially useful land use planning tool that both protects sensitive lands and incentivizes denser development using market-based approaches. This study attempts to investigate the degree to which the presence of a TDR program is associated with jurisdiction-level development sprawl. Using a database of 341 existing TDR programs in the US, this study compares the jurisdiction-level development sprawl rate with the national development sprawl rate between 2001 and 2019. The TDR programs analyzed are implemented at three different jurisdiction levels (municipal, county, regional), and vary by program type: conventional, hybrid (urban fringe development), urban (urban infill focus), rural (clustered rural developments). The findings suggest that TDR programs are not associated with lower development sprawl rates, where the mean development rate is 9.3% for jurisdictions with TDR programs, compared to the 8.8% national rate. However, urban TDR programs have a noticeably lower mean development rates (2.7%), as compared to conventional (10.3%), hybrid (11.6%), and rural (10.6%) TDR programs, suggesting that urban TDR programs may be more effective in achieving a community's growth management goals. While this work serves as a stepping stone for future investigations of market-based land use tools and their effectiveness for jurisdiction-level growth management, this study suggests that market-based TDRs are not a useful tool on their own for managing urban land use

Poster Abstracts

Christopher A Badurek, SUNY Cortland: Using High-Resolution LiDAR to Map an Abandoned 19th Century Industrial Landscape,

This poster reports on supervised image classification performed on archived UAS data of the Plymouth, NH ice jam of February 2017. Ice jams are a costly occurrence as noted by the USACE Ice Jam Database (2020) and referred to as 'nuisance flooding' during spring thaws. Data collected with a DJI Inspire 1 with FC550 sensor over four miles of the Pemigewasset River resulted in a final 3 cm resolution mosaic image. We accessed the data set from USGS Earth Explorer and processed it with image processing tools from ESRI. First, we classify the image using a training data set and the maximum likelihood algorithm. We next determine the extent of land cover classes to differentiate ice, snow, mixed snow-water, and water classes. Finally, we perform an accuracy assessment using a random sample to determine accuracy of the land cover map of the ice jam area.

Nicole Billard and Benjamin Franek, Bloomsburg University of Pennsylvania: Hydrological Analysis of Change from Proposed Recreational Structure Development on West Branch Lackawaxen River, in Honesdale, PA,

The Lackawaxen River is known for various recreational activities along its route. The town of Honesdale is planning to add beauty and opportunities to its portion of the Lackawaxen. Honesdale's Revitalization Program includes the placement of a riverfront access stairwell and trails along the banks of the Lackawaxen. Research was conducted to study the rivers hydrodynamics, with computer modeling to observe effects of proposed construction on the reach. Model results support the theory that a structure will change the hydrologic properties within the relative vicinity of the proposed construction. Recommendations for moving forward are provided.

Nyla Howell, University of Maryland, Baltimore County (presenter), Robin Leichenko, PhD, Rutgers University - New Brunswick, Maravilla Clemens, Rutgers University - New Brunswick, Katie Cann, Rutgers University - New Brunswick, Majorie Kaplan, PhD, Rutgers University - New Brunswick, Jeanne Herb, PhD, Rutgers University - New Brunswick, Malgosia Madajewicz, PhD, Columbia University, William Solecki, PhD, Hunter College: The Impact of Disaster Subcultures on Business and Community Preparedness in Coastal New Jersey

The impacts of climate change are becoming more evident in the environment and our society. Extreme weather events affect coastal communities more often, leading to social disruption within these areas. The businesses within these coastal communities are highly vulnerable to disasters and shocks. This study will contribute to the gap in the literature on disaster subcultures and climate resilience for small businesses and communities. The methods for the study entailed qualitative analysis of interviews conducted with small businesses and related stakeholders collected during the Spring of 2022. The preliminary

results of this study confirm that small and medium businesses are an informative unit of analysis that helps identify past disaster subcultures and reveals that disaster subculture elements can influence current business mitigation and preparedness practices and community recovery. Future research may include the relationship between climate gentrification, displacement, and disaster subcultures.

James Luma, Kutztown University: Comparison of Flash Flood Events and Precipitation Trends Between Coastal and Inland New Jersey Counties: 2006 – 2020

Hurricanes and Tropical Storms are known to cause flooding in coastal regions. These natural disasters damage infrastructure and ecosystems and cause economic and societal hardships. In the United States in 2020, the total cost of severe storms and tropical cyclones totaled \$78.2 Billion. The total cost of flood events in 2020 was \$100.2 Billion. Climate change and resulting sea-level rise will increase these damages. However, inland flooding has become a topic of interest over the past few years. Inland flooding is a result of intense precipitation from landfalling coastal storms.

This research compares coastal and inland flash flooding events and precipitation trends. The study zone for this research is New Jersey, from 2006 – 2020. Coastal counties were chosen using data from the U.S. Census Bureau: Coastline Counties (2016). Inland and coastal flash flood events and precipitation trends are compared by year. Inland counties experience more flash flooding and precipitation. The number of flash flood events from inland counties was significantly larger than the number of events from coastal counties ($t = 2.13$, $df = 27$, $p < 0.025$). The total precipitation amount from inland counties was significantly larger than precipitation from coastal counties ($t = 1.87$, $df = 26$, $p < 0.04$). Further testing needs to be conducted to confirm these results.

Lee Stocks, Mansfield University, Using High-Resolution LiDAR to Map an Abandoned 19th Century Industrial Landscape

LiDAR is an acronym for Light Detection and Ranging, a remote sensing technique used to collect high-resolution elevation data of earth's surface. LiDAR data is processed to produce various data including height and location of objects, hillshades, topographic contours, and bare earth Digital Elevation Models (DEM). Using USGS 3D Elevation Program funding a group of state, federal, local agencies and nongovernmental organizations collaborated to produce statewide coverage via LiDAR and orthophotographs. Availability of this Quality Level 2 (QL2) LiDAR data at the statewide level in the spring of 2022 has created new avenues of research and mapping in the geosciences.

This imagery is used in the Fall Brook watershed to support change detection research. The Fall Brook watershed encompasses 8.9mi² in Ward and Union Townships of Tioga County. Much of the area was extensively deep and surface mined for semi-bituminous coal in the late 19th century. In 1862, Fall Brook's peak population was 1400 people. By 1900 coal was exhausted and the town had ceased to exist. Most of the watershed has since been acquired by the state and reforested. The authors utilized these datasets to identify and map a variety of

features associated with the mining including, drifts, railway, tramlines, chutes, residences, stores, and cross-valley trestle bridges. This work was conducted under a research agreement with the Pennsylvania Bureau of Forestry with a view toward creating future undergraduate research opportunities in archaeology, geoarchaeology, and environmental sciences.

Grace E. Varnum, Hofstra University, Deadwood Directionality in the Temple Forest Observatory

On Sept 1st 2022, an EF2 tornado destroyed the Temple Forest Observatory, leaving most trees downed. Data collected by researchers was analyzed using mapping utilities in ArcGIS. A map showing the down trees' species, degree of laying, and diameter were generated. From the data and maps generated, the tree degree laying direction was determined to be southwest, and it was found that the trees were clustered together by species.