Impact of fire on savanna vegetation trends in Madagascar assessed using a remote sensing based statistical analysis

Véronique Jacquin, Véronique Cheret, Goulard Michel

Program and Abstracts

Annual Meeting

Association of American Geographers
Great Plains / Rocky Mountain Division

October 8-9, 2010
University of Kansas
Lawrence, Kansas

Association of American Geographers
Great Plains / Rocky Mountain Division

Dear geographer, guest, or friend of geography:

Welcome to the 2010 Annual Meeting of the Great Plains / Rocky Mountain Division of the Association of American Geographers. As chair of the division and host of this meeting, I greet you on behalf of the GPRM officers and members, the meeting organizers, and my fellow faculty at the University of Kansas.

As this brochure goes to press, we have 216 registrants, 116 papers, 30 posters, and 9 Geography Bowl teams. Your response has been so great, in fact, that we had to double our meeting space from what was anticipated. Thus, we will be running six concurrent sessions all day on Saturday with one extra session in the first time slot on Friday morning. The Geography Bowl will run all afternoon at the Kansas Union just a short walk away.

Everybody loves Lawrence, and I know you will too. Look west, north, or east from the Oread Hotel's upper floor terraces, and you'll see our beautiful Kaw Valley and the I-70 corridor beyond. Hills and forests in every direction belie the popular myth of Kansas as treeless and flat. Turn south and you'll see the rest of Mount Oread, on which we stand, and the campus of KU, recently rated as one of the nation's top five universities in faculty satisfaction. Look down toward the northeast, and you'll see Lawrence, rated this year as one of the nation's top ten small college towns. By the end of this meeting, you'll understand why we love living here and enjoy showing the place off to visitors like you.

On Friday morning some of you will head east to Kansas City, which boasts more fountains than any other city on earth except Rome. We'll take you the country's only World War I memorial plus historic neighborhoods and urban delights including the Country Club Plaza with its buildings, tiles, mosaics, and fountains modeled after Seville, Spain.

Some of you will head west to the Flint Hills to see the nation's largest remaining expanse of tallgrass prairie, Copp's buffalo ranch, and Cottonwood Falls, made famous by William Least Heat Moon's *Prairy Erth*. You'll eat lunch at the Hayes House, established in 1857 to supply wagon trains passing through Council Grove on the Santa Fe Trail.

Others will ramble about Lawrence and vicinity. Starting with Google Earth's Center of the Earth, you will roam our countryside, next visiting the Black Jack Battle Site, where the first shots of the Civil War were fired. Back in Lawrence, you will take a walking tour of the historic downtown with Katie Armitage, author of a new book on the survivors of Quantrill's Raid in 1863, the largest civilian massacre of the Civil War.

There will be a reception on Friday and a luncheon on Saturday, where Ken Foote, president of the Association of American Geographers, will speak on “Toward better support for early career geographers.” The business meeting will follow in the same room.

We are glad you are here. Learn from the meeting’s 25 sessions. Experience a scenic and historic land. Enjoy the Geography Bowl’s blood-stirring competition. Laugh with friends in the conference hotel’s many venues or just a few blocks away in Lawrence.

Thank you for coming and especially for your individual contribution to the success of this event.

Jerry Dobson
Chair, Great Plains / Rocky Mountain Division
Association of American Geographers
Host, 2010 Annual Meeting

Conference and Local Arrangements:

None of this would have been possible without the dedicated efforts of faculty and graduate students at KU and throughout the Great Plains / Rocky Mountain Division.

Foremost among these are program chair Barney Warf and the graduate students who assisted him. Ashley Zung and Aaron Gilbreath deserve much appreciation along with him for soliciting papers and posters and organizing the resulting sessions. Thanks to them and you, we are bursting at the seams, and it was Stephanie Day, our space czar, who found rooms for so many sessions, meetings, and displays.

Grad student Keith French designed and maintained the conference website, which has been so vital to our communications with all of you. Many thanks to him and to all the following:

Grad students Jared Doke and Travis White solicited exhibits and enthusiastically tackled many other miscellaneous, essential tasks.

George McCleary and grad student Hilary Hungerford planned the menus for all food and drink events.

Tom Schmiedeler of Washburn University and grad students Hilary Hungerford and Blake Mayberry organized and led the field trips to, respectively, the Flint Hills, Kansas City, and Lawrence.

Case Allen of the University of Colorado Denver planned and led the Geography Bowl.

Grad student Erin Garrity designed and prepared signs, ballots, name tags, and other essential materials.

Grad student Lynnette Dornak produced the guide of selected eating, drinking, and entertainment establishments in Lawrence.

Graduate students Brett Chloupek, Andy Allen, and Nicole Reiz helped with conference planning especially for the Geography Bowl and Exhibits.

Thanks also to AAG regional councilor Lisa Harrington of Kansas State University for her sound advice and guidance in the planning and execution of this meeting.

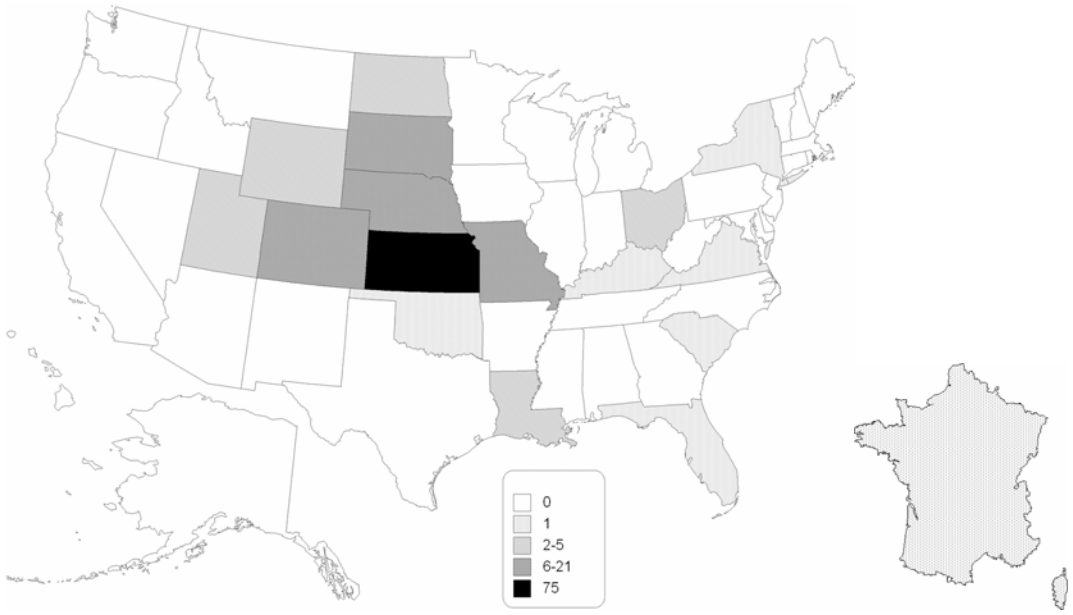
2009 GPRM AAG Officers:

Chair and Host
Jerome E. (Jerry) Dobson
University of Kansas

Vice-Chair
Deborah Thomas
University of Colorado Denver

Secretary and Treasurer
Robert Watrel
South Dakota State University

Past Chair
R. Douglas Ramsey
Utah State University



Origins of First Authors of Paper and Poster Presentations

Meeting Overview

Friday, October 8, 2010

Field Trips: All will depart from the front of the Oread Hotel promptly at 8:00 am and return there at the end of the day.

The Flint Hills 8:00 am to 5:30 pm
Tall Grass Prairie Preserve, Council Grove, and Cottonwood Falls
Leader: Tom Schmiedeler, Washburn University

Kansas City 8:00 am to 5:00 pm
Urban treasures such as the Country Club Plaza, World War I Museum, and River Market District
Leader: Hilary Hungerford, University of Kansas

Lawrence and Vicinity 8:00 am to 4:00 pm
Westward Migration, Bloody Kansas, and the Center of the Earth
Leader: Blake Mayberry, University of Kansas

4:00-5:00 pm **Division Officers Pre-Conference Meeting –** Oread Hotel Lobby

6:30 to 8:30 pm **Reception –** Hancock Room

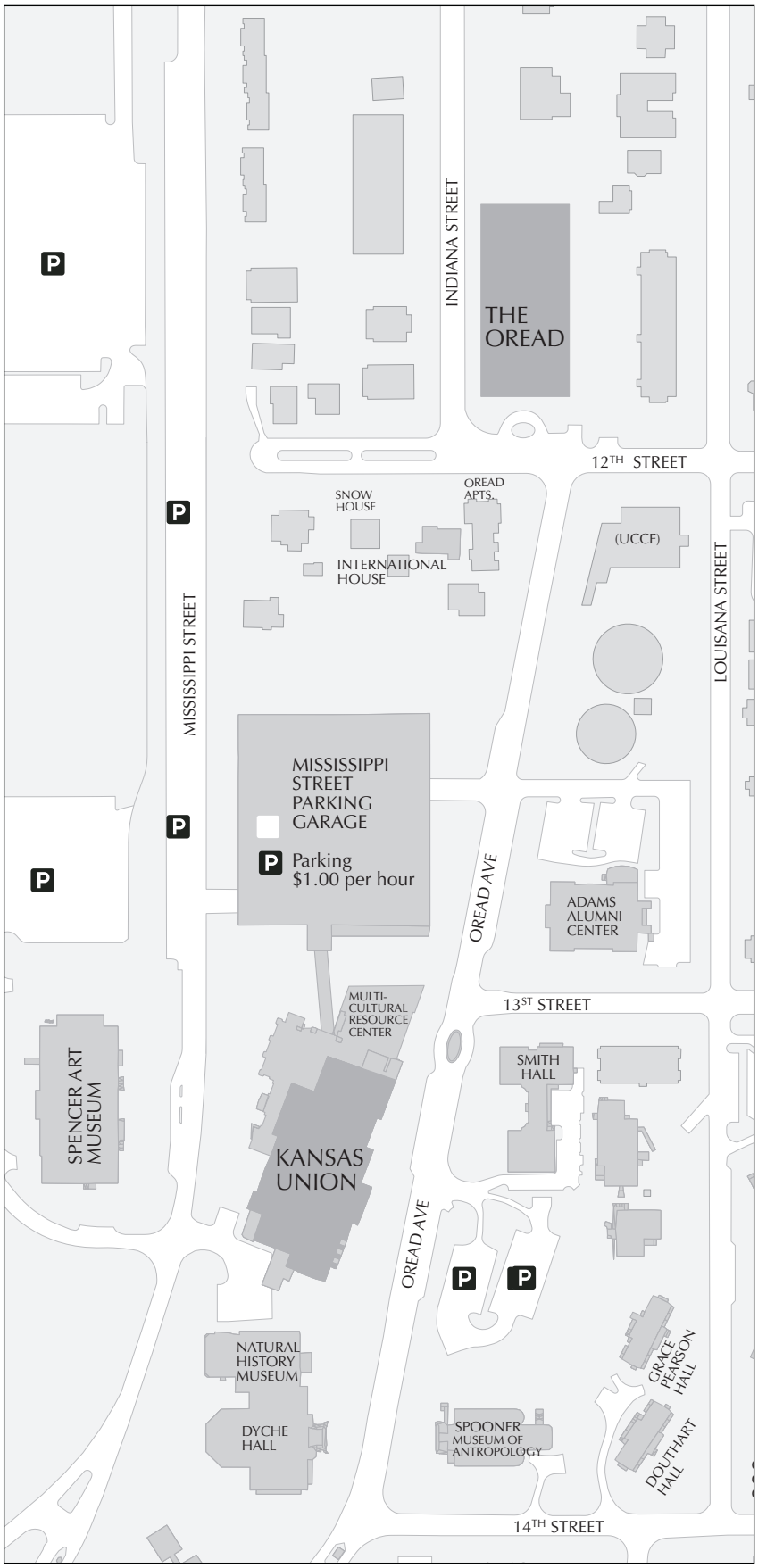
Saturday, October 9

7:30-9:30 Conference Registration
7:00-8:00 Setup Posters and Exhibits
8:00-9:40 Concurrent Paper Sessions I
8:00-9:40 Poster Session with presenters in attendance (posters on display all day)
9:40-10:00 Break
10:00-11:40 Concurrent Paper Sessions II
11:40-2:00 Lunch and Business Meeting Griffith Ballroom
- Featured Speaker: Dr. Kenneth Foote, Geography, University of Colorado, President, Association of American Geographers
- Business Meeting and Elections

2:00-3:40 Concurrent Paper Sessions III
2:20-5:30 Geography Bowl (Kansas Union: International, Walnut, and Pine rooms)
3:40-4:00 Break
4:00-5:40 Concurrent Paper Sessions IV

Conference Program at a Glance
Saturday, October 9

	Hancock Ballroom	Hancock Library	Gathering Room I	Gathering Room II	Gathering Room III	Media Room	Griffith Ballroom	All Seasons Den
Session I 8:00-9:40 am	Political Geog. of Scale & Identity	Cultural Landscapes I	Land-Atmo Dynamics	Env & Society in W. U.S.	Geospatial Technologies I	Political Economy	Development	Posters
Break 9:40-10:00								
Session II 10:00-11:40	Electoral Geog. of the U.S.	Cultural Landscapes II	Stream Geomorph I	Human Geog. of Africa	Exploring Proxy Records I	Forest Cover Change		
Luncheon 11:40-2:00 pm Business Meeting	Featured Speaker: Dr. Ken Foote, President, Association of American Geographers Griffith Ballroom							
Session III 2:00-3:40	Geographic Education	Cultural Geographies Space & Place	Stream Geomorph II	Medical Geog.	Exploring Proxy Records II	Geospatial Technologies II		
Break 3:40-4:00								
Session IV 4:00-5:40	Animal Geographies	Military Landscapes	Geomorph Suite	Native Americans	Socionature			



The GPRM AAG Geography Bowl

The GPRM AAG Geography Bowl will take place Saturday, October 9th from 2:30-5:40 pm at the Kansas Union in the International Room on the Level 5 and the Walnut and Pine Rooms on the Level 6.

Be Part of the World Geography Bowl in 2011!

Parking

The Oread

Valet parking is complimentary for 2 hours and $5 after 2 hours, with a food & beverage or spa purchase. Overnight parking for hotel guests is $12 per car per night. Guests may pull into the circle drive at the front entrance of the hotel, and a parking attendant will assist you.

Kansas Union

Mississippi Street Parking Garage
Entrance from Mississippi and Oread Street
$1.00 per hour

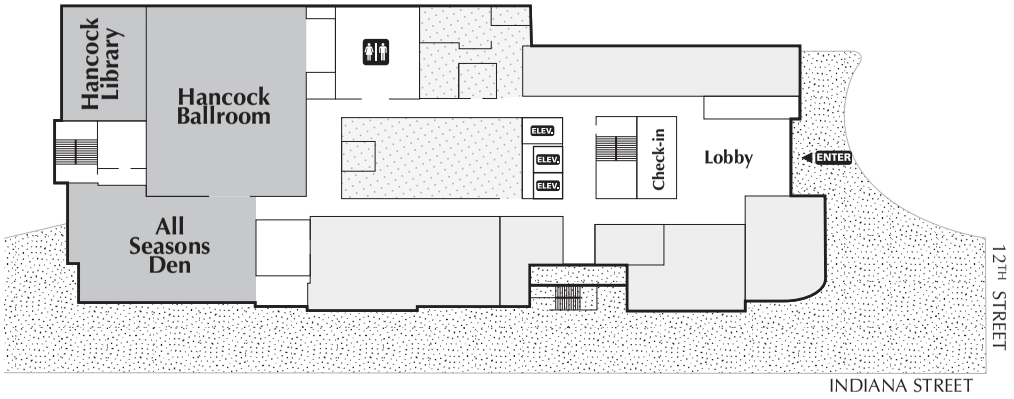
East of Kansas Union across Oread Street lot is open on weekend.

West side of Kansas Union along Mississippi Street is open on weekend.

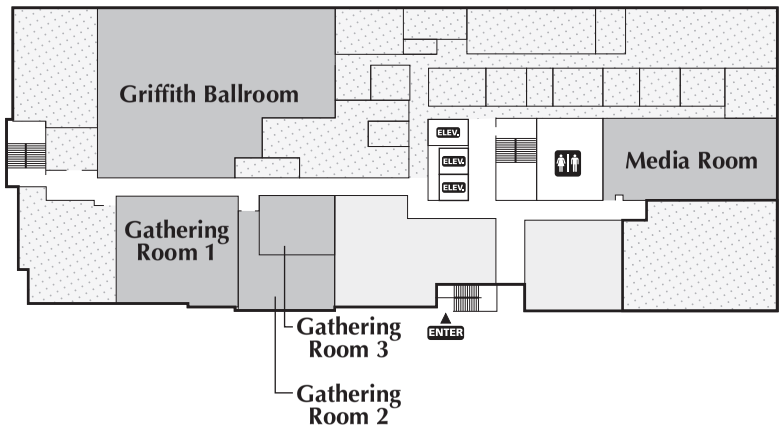
West side of Kansas Union. Memorial Stadium parking lot is open on weekend.

The Oread

Lobby Level

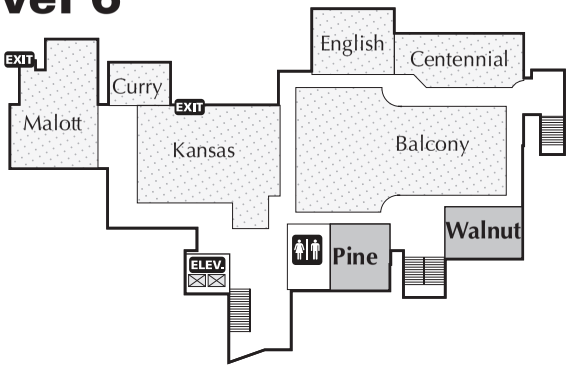


Lower Level

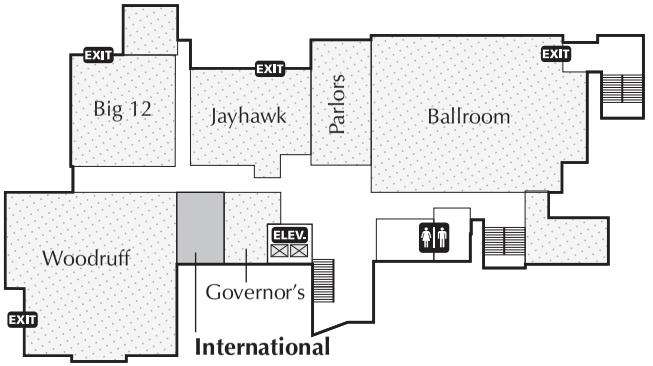


Kansas Union

Level 6



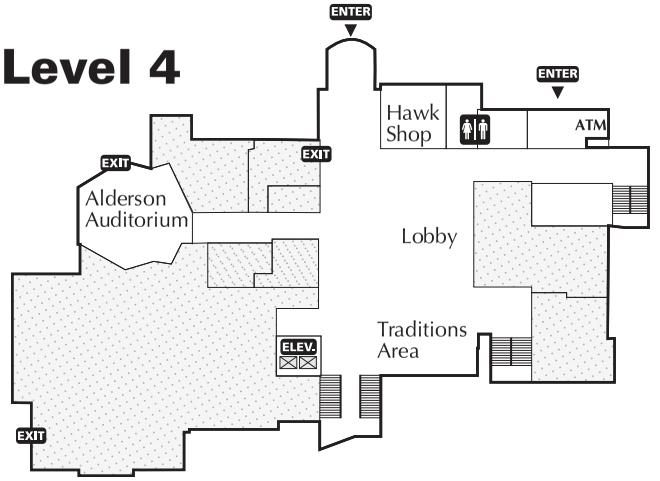
Level 5



Note: Kansas Union Entrance
Level 4: Main Entrance from Oread Street
Level 2: Parking Garage Entrance
Level 1: West Side Entrance from Mississippi Street

OREAD STREET

Level 4



MISSISSIPPI STREET

Poster Session with Presenters (8:00-9:40)

(Posters on display all day)
Location: All Seasons Den

Using Remote Sensing to Detect Differences in Building Age. Alexander Anderson and Jeffrey Parlee, USAF Academy, Colorado

Analysis of Asthmatic Hospital Admissions as Compared to Demographic and Environmental Variables. John Barr, Kent State University

Paleoenvironmental Reconstruction at Four Sites in the Great Plains Based on Biosilicate Analysis. S.R. Bozarth and T.L. Woodburn, Geography, University of Kansas

The Impact of Biofuel Plant Location on Land-use/land-cover Change in Kansas. Chris Brown, Geography, University of Kansas

Large Woody Debris in Ozark Highlands Rivers, Missouri-Arkansas. Scarlet Casey and Robert T. Pavlowsky, Missouri State University

A Review of Waste Disposal Practices in Mwanza, Tanzania. Caroline Croyle, Geography & Environmental Sciences, University of Colorado Denver

Cross Disciplinary Integration of Field-based Geospatial Technology in Data Acquisition and Analysis. Austen K. Cutrell, Geography and Environmental Sciences, University of Colorado Denver

Effects of Land Use on Hydraulic Properties in Upland Landscapes of Eastern Kansas. J.A. Decker, Environmental Studies Program, University of Kansas, and D.R. Hirmas, Geography, University of Kansas

Preliminary Analysis of Search and Rescue Incidents in Yosemite National Park. Jared Doke, Geography, University of Kansas

Aerial Photography Interpretation and Watershed Assessment of the Rock Creek Watershed. Courtney Estes and Rob Daniels, Geography, Kansas State University

Using Remote Sensing to Estimate Common Tansy Distribution: Woodside Prairie Restoration Site, Minnesota. Matthew L. Fahrenbruch and Bradley C. Rundquist, Geography, University of North Dakota

Mapping the Midland Empire: A Missouri Vernacular Region. David P. Fox, Geography, University of Kansas

Spatial Characteristics of Three Subwatersheds within the Middle Smoky Hill River Watershed and Their Relationship to Instream Total Suspended Solids. Dustin A. Fross, Geosciences, Fort Hays State University

Preliminary Analysis of Playa Lake Functionality Using Landsat-5 Infrared Data. Benjamin F. Grover, Geosciences, Fort Hays State University

Estimating Hydraulic Conductivity from Drainage Patterns: A Comparison Case Study in the Cascade Range, Oreon and the Mare Tyrrhenum Quadrangle on Mars. Bartosz Peter Grudzinski, Geography, Kansas State University, and W. Luo, Geography, Northern Illinois University

Different Views of Migration to the U.S. from El Salvador. Thalassa Jones and Teresa Gomez, Geography, Brigham Young University

A Study of the Impact of Snowmelt and Avalanche Bombing at Loveland Ski Area. Masha Gubareva, Geography and Environmental Sciences, University of Colorado Denver

A New Geologic Map of Ford County, Kansas. Scott T. Klopfenstein, Geography, University of Kansas; William C. Johnson, Geography, University of Kansas; Terri L. Woodburn, Geography, University of Kansas; and John W. Dunham, Kansas Geological Survey, University of Kansas

Exploring Children's Perceptions of Physical Activity Patterns in School and Local Communities. Erin Korris, Geography & Environmental Sciences, University of Colorado Denver; Peter Anthamatten, Geography & Environmental Sciences, University of Colorado Denver; and Bryan Shao-Chang Wee, Geography & Environmental Sciences / Curriculum & Pedagogy, University of Colorado Denver

Automated Tools for Integrating Remote Sensing Data into Spatial Epidemiology Research. Aashis Lamsal, Ting-Wu Chuang, Alemayehu Midekisa, Geographic Information Science Center of Excellence, South Dakota State University; Yi Liu, Electrical Engineering and Computer Science, South Dakota State University; and Michael C. Wimberly, Geographic Information Science Center of Excellence, South Dakota State University

Predicting the Distribution of the Coelacanths *Latimeria chalumnae* and *Latimeria menadoensis.* H.L. Owns, Ecology and Evolutionary Biology, University of Kansas

Temperature Trends and Utility Resource Use in Springfield, Missouri: A Climate Change Risk Assessment? Caroline E. Pavlowsky, Missouri State University

Patterns of Public Elementary School Characteristics, Proximity, and Home Values: A Snapshot of Omaha and Lincoln, Nebraska. Lesli M. Rawlings, Wayne State College

Temporal Spectral Change of Kansas Wetlands from (2000-2006) Utilizing NDVI Data and GIS Processing. Dustin Reagan, Fort Hays State University

Remote Sensing of Water Quality on the Sisseton-Wahpeton Reservation. Jim Sampson, South Dakota State University

A Synoptic Climatology of Hypothermia-Fatalities, Cook County, IL, USA, 1979-2004. Jeremy M. Spencer, Kent State University, Jspenc16@kent.edu

The Tornado-Community Vulnerability-Impact Index (TCVII): A Method to Categorize Tornado Events from the Combined Physical and Human Perspective. Mitchel Stimers, Geography, Kansas State University

Miami-Ft. Lauderdale Urban Change and Classification: 1973 to 2003. A. Camille Torielli, USAF Academy, Colorado

Geomorphology of the Lake Shewa Landslide Dam, Badakhshan, Afghanistan Using Remote Sensing Data. Brandon J. Weihs and John F. Shroder, Jr.

Local Ecological Knowledge: Stakeholder Interviews in Kansas. Iris Wilson, Lisa Tabor, Courtney Estes, Brian Nechols, Nathan Owens, Jordan Waechter, and John Harrington, Jr, Geography, Kansas State University

Validation and Calibration of the EUTROMOD Model for Kansas Reservoirs. Lindsey Witthaus, Civil, Environmental and Architectural Engineering, University of Kansas; Ed Carney, Kansas Health and Environment; Val Smith, Ecology and Evolutionary Biology, University of Kansas; Belinda Sturm, Civil, Environmental and Architectural Engineering, University of Kansas

Paper Sessions

Session I: 8:00-9:40 a.m.

1.1 Political Geographies of Scale and Identity
Hancock Ballroom
Session Chair: Jeffrey Smith, Geography, Kansas State University

Politics of Scale in Defining Genocide. Nicole Reiz, Geography, University of Kansas

An Ontological Analysis of States: Organizations vs. Legal Persons. Edward Heath Robinson, Geography, University at Buffalo

Territorial Identity in the North Caucasus: Identifying Trends through Cognitive Maps. Austen Thelen, Geography, University of Kansas

Talibanistan: From Buffer-Zone to Border-Empire. Sami Siddiq, Washington University

Geography and Immigration Reform. Jeffrey Smith, Geography, Kansas State University

1.2 Cultural Landscapes I
Hancock Library
Session Chair: Brett Chloupek, Geography, University of Kansas

On Butch Cassidy's Trail: Representations and Remembrance of an Outlaw in the American West. Mac Blewer, Geography, University of Wyoming

The 1909 Glidden Tour in Nebraska. John T. Bauer, Sociology, Geography and Earth Science, University of Nebraska at Kearney

A Trucker's Life: The Deeper Meanings of American Truck Stops. Stephanie Day, Geography, University of Kansas

The Place of Authenticity. Damon Talbott, American Studies, University of Kansas

Geography and Catholicism in Slovakia, 1498-1989: A Theoretical Framework for the Study of Religion. Brett R. Chloupek, Geography, University of Kansas

1.3 Land-Atmosphere Dynamics
Gathering Room I
Session Chair: Johannes Feddema, Geography, University of Kansas

Simulation Assessment of Climate and Prairie Wetland Complex. Bruce Millett, Geography, South Dakota State University

Effects of Irrigation on Great Plains and Midwest Precipitation Processes. David B. Huber, David B. Mechem, and Nathaniel A. Brunsell. Atmospheric Science Program, Geography, University of Kansas

Leaf Hydrophobicity and Canopy Storage Capacity of Common Species in the Semi-arid Western United States. Curt Holder, Geography and Environmental Studies, University of Colorado at Colorado Springs

Warm Season Precipitating Storms in the Southern Great Plains. Donna F. Tucker and Xingong Li, Geography, University of Kansas

Developing Parameters to Represent Urban Systems in GCMs. Johannes Feddema, Geography, University of Kansas

1.4 Environment and Society in the Western U.S.
Gathering Room II
Session Chair: Blake Mayberry, Geography, University of Kansas

Economics and the Environment: Sustaining West Yellowstone, Montana? Ryan D. Bergstrom, Kansas State University

Conceptions of Authenticity and Nature at the Rocky Mountain Arsenal. David Havlick and Matthew John, Geography and Environmental Studies, University of Colorado-Colorado Springs

The Real Dust Bowl Disaster: The Northern Great Plains during the Dirty >30s. Donald J. Berg, Geography, South Dakota State University, Brookings

A Prototype Decision Support System for Mitigating the Effect of Prescribed Rangeland Burning in the Kansas Flint Hills. D.G. Goodin, Kansas State University

Telling Stories: The Discursive Foundation of the Tallgrass Prairie Restoration Movement. Blake Mayberry, Geography, University of Kansas

1.5 Geospatial Technologies I
Gathering Room III
Session Chair: George F. McCleary, Jr., Geography, University of Kansas

Blending Geospatial Technology and Traditional Ecological Knowledge to Enhance Restoration Decision Support Processes in Coastal Louisiana. Matthew B. Bethel, University of New Orleans Pontchartrain Institute for Environmental Sciences; Lynn F. Brien, Geography, Kansas State University; Emily J. Danielson, Center for Hazards Assessment, Response, and Technology; Shirley B. Laska, University of New Orleans Center for Hazards Assessment, Response, and Technology; John P. Troutman, William M. Boshart Louisiana Coastal Protection and Restoration Authority, Office of Coastal Protection and Restoration; Marco J. Giardino, NASA Stennis Space Center, Applied Science and Technology Project Office; and Maurice A. Phillips, Community of Grand Bayou, Louisiana

Using Remote Sensing in the Investigation of Relict Features in the United States. R. Zane Price, University of Kansas

Spatial and Temporal Variability of Dust Sources on the Southern High Plains and Eastern New Mexico from MODIS Imagery. Mbongowo Mbuh, Geography, Geology and Planning, Missouri State University; Mathew Baddock, Wind Erosion and Water Conservation Research Unit, USDA-ARS, Lubbock, TX; Jeffrey Lee, Economics and Geography, Texas Tech University; and Thomas Gill, Environmental Science & Engineering, University of Texas-El Paso

Location-Allocation of Girl Scout Service Centers Using GIS. Steven Sherwood, Geography / Geology, University of Nebraska Omaha

Utilizing LIDAR Data and Color Aerial Imagery to Automate Development of Planimetric Feature Data. April M. Bowman, Geography, Northwest Missouri State University

1.6 Political Economy
Media Room
Session Chair: Barney Warf, Geography, University of Kansas

Reclaiming the Rails: The Re-publicization of Rail Infrastructure. Jeffrey S. Crick, Urban Design and Planning, City of Columbia, SC, and Timothy J. Brock, University of Kentucky

Ha-Da-Qi Industrial Corridor in Northeastern China. Lianling (Kathy) Su, Geography, Kansas State University

Reluctant Europeans: The Future of Economic Integration in Scandinavia. Andrew Allen, Geography, University of Kansas

Seasonal Work, the H2-A Visa, and Labor Placement: The Resurgence of Labor Brokers in American Agriculture. Jason P. Holcomb, Earth and Space Sciences, Morehead State University, Morehead, KY

Censoring the Chinese Internet. Barney Warf. Geography, University of Kansas

1.7 Geographies of Development
Griffith Ballroom
Session Chair: Max Lu, Geography, Kansas State University

The Implementation of Smart Growth Strategies in Urban Planning. Dennis James, Geography, University of Nebraska Lincoln

Trading Spaces: The New York Stock Exchange and the Shift from Physical to Virtual. Emily Fekete, Geography, University of Kansas

Landscape as a Factor in Electricity Generation Projects: An Atomic Surprise. Henry Way, James Madison University

Uneven "Green" Geographies: Where Does Green Construction Happen and Why? Robert Anderson, Geography, University of Kansas

***Ad Hoc* Regionalism in Rural America: Two Case Studies.** Max Lu, Geography, Kansas State University

Break 9:40-10:00 a.m.

Session II: 10:00-11:40 a.m.

2.1 Political Geographies of the United States
Hancock Ballroom
Session Chair: Gerald Webster, Geography, University of Wyoming

The Urban/Rural Divide: Metropolitan, Micropolitan and Rural Voting in the 2008 Presidential Election. Robert Watrel, Geography, South Dakota State University

Red, White, and Blue: Extreme Midwestern Blizzards and Political Party Affiliation in Federal Disaster Declarations. Christopher Atkinson, Geography, University of North Dakota

Party, Region and District: Geographical Polarization in the United States House of Representatives? J. Clark Archer, Geography, University of Nebraska-Lincoln, and Fred M. Shelley, Geography, University of Oklahoma

Erasing Space: Silencing Protest by Re-Programming Spaces of the May 4, 1970 Shootings at Kent State University. Andrew Shears, Geography, Kent State University

Memorializing Controversy: Custer Place Names on the Western Landscape. Gerald R. Webster, University of Wyoming

2.2 Cultural Landscapes II
Hancock Library
Session Chair: Dennis Domer, American Studies, University of Kansas

Blue Collar Closets: Masculine Expression and Sexual Deviance in Rural Kansas. Brandon H. Haddock, Geography, Kansas State University

The Geography of College Football Player Origins: Football Championship Subdivision (FCS). Theodore L. Goudge, Matthew D. Jundy, and Justin W. Plymell, Geography, Northwest Missouri State University

Conflict and Tension, Music and Sense of Place. Matthew John and Nate Siebert, Geography and Environmental Studies, University of Colorado at Colorado Springs

***Sehnsucht:* A Construct for Place Attachment**. Matthew John, University of Colorado at Colorado Springs

Melting Pot and Mask: Going Inside East Lawrence. Dennis Domer, American Studies and Museum Studies, University of Kansas

2.3 Stream Geomorphology I
Organizers: Melinda Daniels and Robert Pavlowsky
Gathering Room I
Session Chair: Richard A. Marston, Geography, Kansas State University

Evaluating Local Bed Shear Stress Estimates in Meander Bends Using Acoustic Doppler Velocimeter Data. Melinda D. Daniels, Geography, Kansas State University; Grant G. Gritzmacher, Geography, University of Connecticut; and Katie H. Costigan, Geography, Kansas State University

Incorporating Pre-disturbance Discontinuity into Dam Removal and River Restoration Paradigms. Melinda Daniels, Geography, Kansas State University, and Denise Burchsted, Center for Integrative Geosciences, University of Connecticut

Revised Interpretations of Alluvial Terraces and Fills in the Kansas River Basin. Wakefield Dort Jr., Geology, University of Kansas, and Rolfe D. Mandel, University of Kansas, Kansas Geological Survey

Changes in Large Woody Debris in Streams of the Central Oregon Coast Range, 1978-1999. Richard A. Marston, Geography, Kansas State University, and Jonathan D. Ferree, Geography and Recreation, University of Wyoming

2.4 Human Geographies of Africa

Gathering Room II
Session Chair: Ryan Good, Geography, University of Florida

How do the Politics of Conservation and the Growing Tourist Industry (in Conjunction) Affect the Quality of Life for Maasai Pastoralists in Tanzania? Teresa Gotlin-Sheehan, Geography and Environmental Sciences, University of Colorado Denver

An Exercise in Disease Mapping: Recreating the 2007 Outbreak of Ebola Hemorrhagic Fever-Bundibugyo Strain in Uganda Using Geographic Information Systems and Spatiotemporal Epidemiology Modeling. Kathryn Prinslow, Geography, Fort Hays State University

Has Equality Improved in Post-Apartheid South Africa? Matt Laemmli, Geography, University of Central Missouri

Community-Based Natural Resource Management as a Response to Environmental and Economic Change in Lake Victoria Fisheries. Ryan Good, Geography, University of Florida

2.5 Exploring the Diversity of Proxy Records for the Great Plains Environment I

Gathering Room III
Session Organizers: Ashley B. Zung & Terri Woodburn, Geography, Univ. of Kansas
Session Chair: Kendra K. McLauchlan, Geography, Kansas State University

Paleoenvironmental Implications of Ant Nest Trace Fossils in Calcic Paleosols of the Neogene Ogallala Formation, Scott County, Kansas. Jon J. Smith, Kansas Geological Survey; Brian F. Platt, Geology, University of Kansas; Greg A. Ludvigson, Kansas Geological Survey; and Joseph R. Thomasson, Biological Sciences, Fort Hays State University

The Great Plains' Oldest Sand Dunes. A.F. Halfen, Geography, University of Kansas; J.Q.G. Spencer, Geology, Kansas State University; W.C. Johnson, Geography, University of Kansas; P.R. Hanson, Survey Division-School of Natural Resources, University of Nebraska-Lincoln; and A.R. Young, University of Nebraska-Lincoln, Survey Division-School of Natural Resources

Silt Dunes of Panhandle Oklahoma. W.C. Johnson, Geography, University of Kansas; A.F. Halfen, Geography, University of Kansas; S. McGowen, Natural Resources Conservation Service; B.J. Carter, Plant and Soil Science, Oklahoma State University; and L.C. Bement, Oklahoma Archaeological Survey

Geomorphology and Soil Stratigraphy of Farra Canyon, Central Oklahoma. Ashley B. Zung, Geography, University of Kansas and Rolfe Mandel Anthropology, University of Kansas and Kansas Geological Survey

2.6 Land Use and Forest Cover Change
Media Room
Session Chair: William Woods, Geography, University of Kansas

Impact of Fire on Savanna Vegetation Trends in Madagascar Assessed Using a Remote Sensing Based Statistical Analysis. Anne Jacquin, University of Toulouse, Purpan School of Engineers (France); Véronique Cheret, University of Toulouse, Purpan School of Engineers (France); and Michel Goulard, French National Institute for Agricultural Research

Monitoring Tropical Deforestation Using Fourier Analysis. Nicole Wayant, Geography. University of Nebraska-Lincoln

A Land Cover and Land Use Change Assessment of the Philippines' Mangrove Forests: 1990 to 2009. Jordan Long, Geography, South Dakota State University

A Description of the Social/ecological Implications of the *Trueque Chilote*, Potato-Wood Barter Trade Routes in the Chiloé Region of Chile. Richard A. Vercoe, Geography / Environment and Natural Resources, University of Wyoming

Population Nucleation and Environmental Degradation. William I. Woods, Geography, University of Kansas

Luncheon 11:40 a.m. - 2:00 pm.

Griffith Ballroom (lower level)
Featured Speaker: Dr. Kenneth Foote, University of Colorado and
President, Association of American Geographers
"Toward Better Support for Early Career Geographers"

Business Meeting and Elections

Geography Bowl 2:20-5:30

Kansas Union: International, Walnut, and Pine rooms

Session III: 2:00-3:40 p.m.

3.1 Approaches to Geographic Education
Hancock Ballroom
Session Chair: Karen S. Cook, University of Kansas

Three Guidelines for Developing a Geography Curriculum for a Summer Camp. Gabrielle Collins. University of Nebraska at Lincoln

The Benefits of Undergraduate Participation in Field Work. Kaelin Groom, Rachel Poole, Travis Toms, and Felix Zamora, Geography and Environmental Sciences, University of Colorado Denver

Teaching Geography and Gender. Ellen R. Hansen, Geography, Emporia State University

A Winning Formula for Teaching the History of Cartography. Karen S. Cook, University of Kansas

3.2 Cultural Geographies of Space and Place I: Mexico and the Caribbean
Hancock Library
Session Chair: Johnny Coomansingh, Minot State University

Place and Creativity in Frida Kahlo's Post-Revolutionary Mexico. Lis Pankl, Kansas State University

Mexico in Western Cinema. Travis Smith, Geography, Kansas State University

Land Tenure Transformation in Peri-Urban San Luis Potosi, SLP, Mexico. Andrew Norris, Geography, University of Kansas

Exploring a Transnational Newspaper Space: *The Barbuda Voice.* Amy E. Potter, Geography and Anthropology, Louisiana State University

Rotting Away: The Tourist Product in Trinidad and Tobago. Johnny Coomansingh, Minot State University

3.3 Stream Geomorphology II
Organizers: Melinda Daniels and Robert Pavlowsky
Gathering Room I
Session Chair: Claire Ruffing, Geography, Kansas State University

Integrating Citizen Science and Web Delivery to Create a Virtual Stream Assessment Portal for the Kansas River. Heidi Mehl, Geography, Kansas State University

Catastrophic Incision and Debris Fan Formation of the Bluefields River Due to Extreme Rainfall in Southwestern Jamaica. Robert T. Pavlowsky and W. Patrick Dryer, Missouri State University

Historical Channel Changes along the Lower Big River, Eastern Missouri. Ben Young and Robert T. Pavlowsky, Missouri State University

A Study of the Roles of Geomorphology and Perception in the Implementation of Stream Restoration Projects. Claire Ruffing, Geography, Kansas State University

3.4 Medical Geography from Diverse Vantage Points
Gathering Room II
Session Chair: Aaron Gilbreath, Geography, University of Kansas

Perception of HIV/AIDS Vulnerability of Female College Students in Kolkata, India. Sohini Dutt, Geography, Kansas State University

Developing a Collaborative Health Geographic Information Systems (GIS) at Bugando University College of Health Sciences (BUCHS) in Mwanza, Tanzania. Deborah Thomas, Geography and Environmental Sciences, University of Colorado Denver; Kendall Krause, MD; S.E. Ngallaba, MD; D.J. Makerere; Charles Musiba; C.C. Magori, MD; Mange Manyama, MD; Eveline T. Konje, MD; and Benjamin Mayala

Identifying Potential Habitat of *Triatoma sherlocki*, a Vector of Chagas Disease in Bahia, Brazil, Using GIS and Remote Sensing Techniques. L. Lynnette Dornak, Geography, University of Kansas; Carlos E. Almeida, Laboratório de Biodiversidade Entomológica, Instituto Oswaldo Cruz/FIOCRUZ (IOC/Fiocruz), Rio de Janeiro; Elaine F. Ramos, Departamento de Engenharia e Meio Ambiente (DEMA), Universidade Federal da Paraíba, Paraíba; Jane Costa, Laboratório de Biodiversidade Entomológica, Instituto Oswaldo Cruz/FIOCRUZ (IOC/Fiocruz), Rio de Janeiro; and A. Townsend Peterson, Natural History Museum and Biodiversity Research Center, University of Kansas

Environmental Model Cities and Cancer Villages in China. Lee Liu, Geography, University of Central Missouri

Who Put the Benzedrine in Mrs. Murphy's Ovaltine? Amphetamine Production, Diversion and Abuse in the United States 1932-1975. Aaron Gilbreath, Geography, University of Kansas

3.5 Exploring the Diversity of Proxy Records for the Great Plains Environment II
Session Organizers: Ashley B. Zung & Terri Woodburn, Geography, Univ. of Kansas
Gathering Room III
Session Chair: Bill Johnson, Geography, University of Kansas

Stratigraphy and Paleoenvironment Characteristics of the Brady Soil in Southwestern Nebraska. T.L. Woodburn, W.C. Johnson, and S.R. Bozarth, Geography, University of Kansas

The Potential and Problems of Multi-proxy Methods for Interpreting Hunter-Gatherer Landscape Interactions in the Great Plains, U.S.A. Laura R. Murphy, Kansas Geological Survey, University of Kansas

Tallgrass Prairie Pollen Assemblages from the Flint Hills of Kansas, USA. Kendra K. McLauchlan, Geography, Kansas State University, and Julie L. Commerford, Geography, Kansas State University

The Pleistocene-Holocene Transition in the Central Great Plains: A Multi-Proxy Approach to Reconstructing Paleoenvironments. Rolfe D. Mandel, Kansas Geological Survey; Carlos E. Cordova, Geography, Oklahoma State University; and James L. Theler, Sociology and Archaeology, University of Wisconsin-La Crosse

3.6 Geospatial Technologies II: Environmental Applications
Media Room
Session Chair: Michael E. Houts, Kansas Biological Survey

Exploring Landslide Risk Modeling with GIS. Felix Zamora and Peter Anthamatten, University of Colorado Denver

A Cost Benefit Analysis of Broiler Litter vs. Commercial Fertilizer Application: A Comprehensive Modeling Approach Using GIS and Visual Basic Programming. Keshav Bhattarai, University of Central Missouri, and Krishna P. Paudel, Louisiana State University

Documenting the Geography of Water: Using GIS to Inventory Water Resources in Northeastern Montana. Andrew Stickney

Minimizing Landscape Disturbance in Wyoming Oil and Gas Development Sites through GIS Analysis. Arjun Dongre, Geography, University of Wyoming

Establishing Data Standards in a Web Mapping Application to Facilitate Informed Natural Resource Decisions. Michael E. Houts, Kansas Biological Survey; Eric R. Johnson and Murray K. Laubhan, Kansas Wildlife and Parks

Break 3:40-4:00 p.m.

Session IV: 4:00-5:40 p.m.

4.1 Running Wild with Animal Geographies

Hancock Ballroom
Session Chair: John E. Davis, Jr., University of Colorado at Colorado Springs

Climate and Communities in Crisis. Julia Brandes, Economics, University of Kansas; Laci Gerhart, Ecology and Evolutionary Biology, University of Kansas; Rebecca Crosthwait and Adam Sundberg, History, University of Kansas

Born to be Wild? Exotic Pet Mammals in the United States. Gabrielle Collins, University of Nebraska at Lincoln

Using Scientific Workflow Management Software for Species Distribution Modeling. C. J. Grady, Aimee M. Stewart,, and James H. Beach, Biodiversity Institute, University of Kansas

Object-Based Land Cover Mapping of Eastern North Dakota Bird Survey Routes using High-Resolution LiDAR and Multispectral Aerial Imagery. Peter A. Metzger, Bradley C. Rundquist, and Kyle L. Wikstrom, Geography, University of North Dakota

Resplendent Quetzal Nesting Site Availability on a Private Preserve in the Sierra de las Minas, Guatemala. John E. Davis, Jr., Univ. of Colorado at Colorado Springs

4.2 Military Landscapes

Hancock Library
Session Chair: J.M. Shawn Hutchinson, Geography, Kansas State University

Modeling a Hypothetical Bioterrorist Incident Involving an Aerosolized Agent Using the Spatiotemporal Epidemiological Modeler (STEM). Thomas C. Schafer, Geosciences, Fort Hays State University

Redefining Military Training Land Sustainability. Thomas John Vought, Jr., Geography, Kansas State University; John A. Harrington, Jr., Geography, Kansas

State University; J. M. Shawn Hutchinson, Geography, Kansas State University; Lisa M. B. Harrington, Geography, Kansas State University; and Stacy L. Hutchinson, Biological and Agricultural Engineering, Kansas State University

Feasibility of Green Energy Sources at Scott Air Force Base, Illinois. Thomas Dowell, USAF Academy, Colorado

Rapid Monitoring and Assessment of Military Training Land Sustainability at Fort Riley, Kansas. J.M. Shawn Hutchinson, Geography, Kansas State University; S.L. Hutchinson, Biological and Agricultural Engineering, Kansas State University; Philip B. Woodford and Christopher Otto, Fort Riley Integrated Training Area Management Program

4.3 Geomorphology Suite

Gathering Room I
Session Chair: Casey D. Allen, Geography & Environmental Sciences, University of Colorado Denver

Late-Quaternary Paleoenvironment and Playa-Lunette System Evolution on the Central High Plains. Mark W. Bowen and William C. Johnson, Geography, University of Kansas

Scaleless Geomorphology: Integrating Fieldwork on an Urban Campus. Casey D. Allen, Geography & Environmental Sciences, University of Colorado Denver

4.4 Indigenous Landscapes

Gathering Room II
Session Chair: Jay T. Johnson, Geography, University of Kansas

Climate Sovereignty, Sami Reindeer Herding, and the Rights of Indigenous Peoples. Paula Smith, Geography, University of Kansas

Government Endorsement of Tasmanian Aboriginal Tourism: Motivations and Impacts. William Price, Geography, University of Kansas

The Linguistic Landscapes of the Lakota. John Patrick Harty, University of Wyoming

A New Harvest: Solar-Powered Biodiesel Refining. Michael Dunaway, Geography, University of Kansas

Indigeneity, Autochthony and Place. Jay T. Johnson, Geography, University of Kansas

4.5 Socionature
Gathering Room III
Session Chair: John H. Kelly, Geography, University of Kansas

Religious Affiliation and the 2004 Indian Ocean Tsunami. Bimal Kanti Paul, Geography, Kansas State University

Perennial Crops for Food, Fuel and Electricity. Trish Jackson, Geography, University of Kansas

The Las Vegas Urban Cooling Island: A Temperature and Land Cover Analysis. Robert McCleary, Brigham Young University

Incorporating Spatial Dependency and Economic Demography into Stochastic IPAT Estimations: A Local-level Case Study in the U.S. Intermountain West. Tyler D. Roberts, Geography, University of Colorado at Boulder

Water Production and Land Ownership in Water-Rich Places. John H. Kelly, Geography, University of Kansas

4.6 Geospatial Technologies in the Classroom
Media Room
Session Chair: Richard Lisichenko, Geosciences, Fort Hays State University

Investigating Thematic Mapping in Virtual Globe Environments. Travis White, Geography, University of Kansas

Videogames as Geographic Educational Tools. Jeremy Aber, Geography, Kansas State University

Obstacles and Opportunities for Integrating Geo-technology into K-12 Education. Steve Jennings, Geography and Environmental Studies, University of Colorado at Colorado Springs

Integrating Instant Electronic Student Feedback into the World Geography Classroom. Richard Lisichenko, Geosciences, Fort Hays State University

The Role of the Elements and Principles of Graphic Design in the Map Design Process. George F. McCleary, Jr., Geography, University of Kansas

Abstracts: Poster Presentations

(organized by first author's last name)

Using Remote Sensing to Detect Differences in Building Age. Alexander Anderson and Jeffrey Parlee, USAF Academy, Colorado. C11Alexander.Anderson@usafa.edu

We analyzed ASTER data of London to evaluate various classification techniques to identify spectral diversity within urban areas and determine if it is correlated with building age. We classified buildings built pre-WWII as old, and post-WWII as new. Our use of unsupervised classification showed that urban areas consisted of several spectral components. Next, we conducted Principal Components Analysis (PCA) to accentuate subtle spectral differences highlighting clusters of buildings that significantly differed from the rest of the city. We developed an expert classifier that isolated these clusters of spectrally different buildings; 72% of our pre-WWII buildings matched these isolated clusters.

Analysis of Asthmatic Hospital Admissions as Compared to Demographic and Environmental Variables. John Barr, Kent State University, jbarr14@kent.edu

The prevalence of asthma in the United States has been increasing in the past few decades. A number of explanatory factors have been examined in the past; however varying degrees of certainty have resulted from these different types of research. This project looks to examine both demographic and environmental factors that may affect the prevalence of asthma in Mississippi from 2003 to 2005. Geographic Information Systems and spatial statistics will be employed to determine correlations and trends in asthmatic hospital admissions as related to the defined variables. Correlations will be examined both spatially and temporally in order to gain a better understanding in the shifts of the disease.

Paleoenvironmental Reconstruction at Four Sites in the Great Plains Based on Biosilicate Analysis. S.R. Bozarth (sbozarth@ku.edu) and T.L. Woodburn, Geography, University of Kansas.

Biosilicates (opal phytoliths, algal statospores, diatoms, and sponge spicules) are generally well preserved in the fossil record of the Great Plains. Phytoliths (microscopic silica bodies formed in plants) are the most common type of biosilicate in the region and are the most useful for paleoenvironmental reconstruction. Vegetative histories and paleoenvironments have been reconstructed at twenty five sites in the Great Plains by the senior author. Results of four of these sites (one in Nebraska, two in Kansas, one in Texas) produced notable paleoenvironmental data based on biosilicate analysis for the late Pleistocene and Holocene.

The Impact of Biofuel Plant Location on Land-use/land-cover Change in Kansas. Chris Brown, Geography, University of Kansas, jcbrown2@ku.edu

There are currently 14 biofuel plants distributed across the state of Kansas. Another 14 are in various states of construction or are currently idle. Each of the existing plants requires some form of feedstock, mostly corn or sorghum, for the production of ethanol. Given the potential for biofuel plants to affect farmers' land-use decisions, with

subsequent effects on water use, water quality, and climate, we ask the basic question: Does the presence of a biofuel plant impact land use and land-cover in areas surrounding biofuel plants? If so, in what ways? This poster presents preliminary analysis of biofuel plant and field-level land-use/land-cover change data from 2005-2009 for the state of Kansas. Our interdisciplinary team of researchers is one small group that is part of a much larger Kansas NSF-EPSCoR-funded initiative involving 60 researchers, entitled the AClimate Change and Energy: Basic Science, Impacts, and Mitigation Science Initiative.

Large Woody Debris in Ozark Highlands Rivers, Missouri-Arkansas. Scarlet Casey (Casey427@live.missouristate.edu) and Robert T. Pavlowsky, Missouri State University

Few studies evaluate relationships between large woody debris (LWD) and channel morphology in Ozark streams. This study quantifies LWD characteristics in ten reaches located in the Upper White River Basin and evaluates the influence of basin area, riparian buffer characteristics, and land use on LWD distribution in the channel. Drainage area ranges from 310 km^2 to 2,563 km^2 and maximum elevation ranges from 476 m to 655 m. LWD piece counts vary from 2 to 8 and volume from 4 to 382 m^3 per 100 m. Comparisons will be made to other regions.

Geography and Catholicism in Slovakia, 1498-1989: A Theoretical Framework for the Study of Religion. Brett R. Chloupek, Geography, University of Kansas, chloupek@ku.edu

This paper focuses on the development of a conceptual framework for studying religion from a spatial perspective, utilizing themes and methodologies from human geography. The goal of this research is to help reconnect the geography of religion as a subdiscipline with broader themes in the discipline. Catholicism in Slovakia between 1948 and 1989 is utilized an empirical study to examine how the Church utilized and organized geographic space, how it crafted a Catholic sense of place, and how the communist government in Slovakia competed with the Church for authority and control within these spatial realms.

A Review of Waste Disposal Practices in Mwanza, Tanzania. Caroline Croyle, Geography & Environmental Sciences, University of Colorado Denver. caroline.croyle@email.ucdenver.edu

Solid waste disposal is a challenge in any major city and those in developing nations are faced with significant challenges in terms of alternatives and costs. At the same time, people consume less in these settings and often find alternative uses for many items, increasing the life cycle of the product. The options for waste disposal in Mwanza, Tanzania, the second largest city in Tanzania, are rather limited with trash dumps scattered around the city and waste often openly burned. While there is systematic waste removal, many streets are still lined with waste piles and the rivers and streams around the cities are littered. The affects of burning waste, especially plastics and medical waste, is highly toxic for both the environment and human beings. Using a sustainable development framework, this poster will review some of the challenges of waste disposal based on field observations in summer, 2010, that will undoubtedly affect Mwanza as the population and economy continue to grow.

Cross Disciplinary Integration of Field-based Geospatial Technology in Data Acquisition and Analysis. Austen K. Cutrell, Geography and Environmental Sciences, University of Colorado Denver. austen.cutrell@email.ucdenver.edu

Advancements in portable geographic information system (GIS) technology have fueled a movement in transitioning from archaic paper-based data acquisition techniques to field-based GIS data acquisition. Field GIS technologies allow for more efficient data collection capabilities, as well as improved post field data transfer and analysis with ArcMap, previously unavailable. Field researchers are in the mix of a paradigm shift from paper data acquisition to digital data acquisition using handheld GPS computers loaded with ArcPad. Here I examine and apply the use of field based GIS technology to three different scenarios requiring three different and specific data collection needs.

Effects of Land Use on Hydraulic Properties in Upland Landscapes of Eastern Kansas. J.A. Decker, Environmental Studies Program, University of Kansas (jdeck@ku.edu) and D.R. Hirmas, Geography, University of Kansas (hirmas@ku.edu)

In recent years, there have been increased efforts aimed at regaining depleted soil organic carbon (SOC) pools through the use of appropriately chosen management practices. Management decisions of land use, however, also affect soil hydraulic properties that govern the rate of accumulation and distribution of SOC and the potential for erosion. We show that several land-use scenarios (i.e., springtime burning, grazing, mowing, conversion to CRP land, untreated, and native prairie) vary widely with respect to their water retention, infiltration, and hydraulic conductivity properties and affect the potential for soil erosion in upland landscapes of eastern Kansas.

Preliminary Analysis of Search and Rescue Incidents in Yosemite National Park. Jared Doke, Geography, University of Kansas. jdoke@ku.edu

Yosemite National Park, known for its spectacular views and dramatic waterfalls, is visited by over three million people every year. As a result, Yosemite and Search and Rescue (YOSAR) responds to approximately 250 search and rescue emergencies annually. These emergencies range from minor traumas to multi-day large incident searches for lost hikers in the back-country. This preliminary analysis examines exactly where and when these incidents occur, focusing specifically on lost, separated, and overdue parties.

Aerial Photography Interpretation and Watershed Assessment of the Rock Creek Watershed. Courtney Estes (c22389@ksu.edu) and Rob Daniels, Geography, Kansas State University

According to the Kansas Unified Watershed Assessment, the Lower Kansas River Watershed has the highest need for watershed restoration in the state. A watershed assessment was conducted on Rock Creek in the Upper Wakarusa watershed for the Watershed Restoration and Protection Strategy. This identified areas for Best Management Practice implementation, with regard to fecal coliform bacteria, excess nutrients and silt. Aerial photography was examined to identify animal feed operations and lagoons that exist near the stream network. Additionally, aerial photography was

utilized to identify areas along the stream bank that lacked forested riparian corridor for potential rehabilitation and stabilization.

Using Remote Sensing to Estimate Common Tansy Distribution: Woodside Prairie Restoration Site, Minnesota. Matthew L. Fahrenbruch and Bradley C. Rundquist, Geography, University of North Dakota. matthew.fahrenbruch@und.edu

This study attempts to detect patches of the invasive plant species, *Tanacetum vulgare* (Common Tansy), using low spectral resolution/high spatial resolution aerial imagery by taking into account the flower's yellow color. Aerial imagery over the U.S. Fish and Wildlife Service's Woodside Prairie Restoration Site was collected in July 2009 using the four-band AEROCam system, flown by the Upper Midwest Aerospace Consortium at UND. A mosaic of the imagery was produced. Several classifications were performed, and evaluations of the resulting classifications were done, using an error matrix, to determine the effectiveness of the methods.

Mapping the Midland Empire: A Missouri Vernacular Region. David P. Fox, University of Kansas, davidfox@ku.edu or david.fox@park.edu.

In 1980 Wilbur Zelinsky called on geographers to take up the task of expanding our knowledge of North America's vernacular regions. Thirty years hence, relatively few have answered his call. This poster is the author's first attempt to formally take up Zelinsky's challenge. The Midland Empire is a vernacular regional label regularly used by citizens of the city of St. Joseph, Missouri, and several surrounding communities, including a handful in northeast Kansas. A variety of clubs and organizations utilize this regional name in their titles. Mapping their locations and self-described service areas yields a first glimpse into the core and peripheral areas of this vernacular region. The intent, therefore, is to conduct a study of northwest Missouri in order to identify and delineate its most commonly used vernacular labels and their meaning. Specifically, the study area will include the state's 19 northwestern-most counties, from Platte to Carroll on the south (with the Missouri River forming the southern boundary) and Atchison to Mercer on the north (all located along the Missouri-Iowa border). In addition, because of the nature of some of the vernacular regions I hope to delineate, I also intend to include at least the three northeastern-most counties in Kansas as well as the southeastern-most county in Nebraska. Ideally, the specific outcome will be the content for an introductory section of my dissertation, which could also be published as a major article.

Spatial Characteristics of Three Subwatersheds within the Middle Smoky Hill River Watershed and Their Relationship to Instream Total Suspended Solids. Dustin A. Fross, Geosciences, Fort Hays State University. dafross@scatcat.fhsu.edu

As the storage capacity of lakes and reservoirs in Kansas fill with sediment, it is becoming increasingly important to determine what characteristics contribute to the increase in total suspended solids (TSS). This study looked at three HUC 12 subwatersheds and statistically compared land cover, urban factors, agricultural practices, and geomorphological attributes. Data used in this study included established datasets, such as NRCS soil properties, census data, and elevation data, as well as a newly created dataset consisting of driving transects to assess current infield conditions using a custom GIS assessment tool. It was determined that the primary factors that led to increased TSS

concentration included an increase in the number of fields exhibiting visible erosion, increased mean slope, increased population density, increase in impervious surfaces, and a greater proportion of highly erodible soils.

Estimating Hydraulic Conductivity from Drainage Patterns: A Comparison Case Study in the Cascade Range, Oregon and the Mare Tyrrhenum Quadrangle on Mars. Bartosz Peter Grudzinski, Geography, Kansas State University, gobhawks@k-state.edu, and W. Luo, Geography, Northern Illinois University, wluo@niu.edu

This study introduces a new method of estimating hydraulic conductivity on Mars from drainage dissection patterns. This method was first tested on Earth in the Oregon Cascades and provided accurate results in terms of orders of magnitude and spatial distribution. The estimates of hydraulic conductivity are also consistent with previous studies for Mars and the method has solid theoretical foundation in Darcy's Law for groundwater flow. Along with providing a direct measurement of hydraulic conductivity this study also shows spatial variability in hydraulic conductivity for the first time on Mars.

Different Views of Migration to the U.S. from El Salvador. Thalassa Jones and Teresa Gomez, Geography, Brigham Young University. willowm11@hotmail.com

We enrich traditional migration theories by highlighting different points of view of family members as parts of greater family units concerning the decision to migrate from El Salvador to the United States and the impact such migration has had on families. We do this through semi-longitudinal interviewing of different family members of the same family units living in Utah, Los Angeles, and El Salvador. As one part of this research we address attitudes and beliefs of family members living in the United States and El Salvador on the effects of migration on the family unit by asking some of the following questions: how do you view the migration of (blank) to the United States?; do you believe the benefits of (blank) moving offset the risks of migrating and the disadvantages of being separated?; what informs the original decision to migrate, who made the decision, and did everyone agree?; and, how have migration and circumstances surrounding it affected the family unit? Preliminary results indicate significant differences in opinions based on location and family status.

A Study of the Impact of Snowmelt and Avalanche Bombing at Loveland Ski Area. Masha Gubareva, Geography and Environmental Sciences, University of Colorado Denver. Mariya.Gubareva@email.ucdenver.edu

This on-going study analyzes basic water quality parameters of Clear Creek along Loveland Pass, Colorado for anomalies that may be present due to Loveland Ski Area usage and avalanche bombing. Situated on the Continental Divide, the study area lies upstream of both the Atlantic and Pacific watersheds, and could therefore affect water quality of subsequent streams. Water samples from snowmelt were recorded at different elevations at the ski area in March, May, June, and September, and analyzed for pH, conductivity, TDS, salinity, and temperature. These results were then compared to USGS samples of remote locations around Colorado.

A New Geologic Map of Ford County, Kansas. Scott T. Klopfenstein, Geography, University of Kansas (sklop@ku.edu); William C. Johnson, Geography, University of Kansas (wcj@ku.edu); Terri L. Woodburn, Geography, University of Kansas (terriw@ku.edu); John W. Dunham, Kansas Geological Survey, University of Kansas (dunham@kgs.ku.edu)

This surficial geology map of Ford County in southwest Kansas is the first new geologic map of the county since 1942 and includes formations deposited from about 70 million to less than 1,000 years ago. Loess (wind-blown silt) deposited in the last 100,000 years covers much of the surface. The map can be used to identify lithologic units and their stratigraphic relationships, delineate surficial materials such as alluvium, and show their spatial orientation. It includes a stratigraphic column depicting characteristics of geologic units and descriptions of the units. An east-west cross section shows the vertical relationship of the rock units.

Exploring Children's Perceptions of Physical Activity Patterns in School and Local Communities. Erin Korris, Geography & Environmental Sciences, University of Colorado Denver, erin.korris@ucdenver.edu; Peter Anthamatten, Geography & Environmental Sciences, University of Colorado Denver, peter.anthamatten@ ucdenver.edu; and Bryan Shao-Chang Wee, Geography & Environmental Sciences / Curriculum & Pedagogy, University of Colorado Denver, bryan.wee@ucdenver.edu

There is an urgent need to address obesity by understanding perceptions of physical activity, particularly from the child's perspective. The objective of this study is to examine children's perceptions of physical activity using drawings, photographs and interviews. A total of four classrooms (two each from third and fifth grade) in an urban, lower-income, highly Latino/a neighborhood in Denver were sampled, resulting in a final sample of 15 students. Qualitative data were analyzed inductively. Most children in this study perceived play in an unstructured form occurring in informal settings. 3rd and 5th graders also exhibited different conceptions of play.

Automated Tools for Integrating Remote Sensing Data Into Spatial Epidemiology Research. Aashis Lamsal (aashis.lamsal@sdstate.edu); Ting-Wu Chuang, and Alemayehu Midekisa, Geographic Information Science Center of Excellence, South Dakota State University; Yi Liu, Electrical Engineering and Computer Science, South Dakota State University; and Michael C. Wimberly, Geographic Information Science Center of Excellence, South Dakota State University

Satellite remote sensing provides valuable information that can be used to map infectious diseases and forecast future health risks. However, amassing and managing the geographic information from diverse datasets is difficult and time-consuming. Therefore, there is a need for a geoinformatics system that integrates the acquisition, processing, management, and analysis of geospatial data sets from various sources. Here, we present our software model for automated data capture and processing of satellite remote sensing data for public health applications. The system incorporates land surface temperature and vegetation indices from MODIS precipitation data from TRMM, and a novel measurement of actual evapotranspiration.

Predicting the Distribution of the Coelacanths *Latimeria chalumnae* and *Latimeria menadoensis.* H. L. Owens, Ecology and Evolutionary Biology, University of Kansas, hannah.owens@gmail.com

Coelacanthiformes, the link between lungfishes and tetrapods, were originally known only from over 80-million-year-old fossils. In 1938, the first extant coelacanth was discovered off the coast of Africa; in 1998, a second species was discovered in Indonesia. This study sought to generate hypotheses for additional coelacanth localities using a technique known as ecological niche modeling (ENM). Data including coelacanth specimen localities and environmental data were analyzed using two ENM algorithms; the results were used to generate maps of the occurrence likelihood of coelacanths worldwide. The results suggest that the range of the coelacanths could extend far beyond their currently described distribution.

Temperature Trends and Utility Resource Use in Springfield, Missouri: A Climate Change Risk Assessment? Caroline E. Pavlowsky, Missouri State University, Caroline417@live.missouristate.edu

This study evaluates the relationship between monthly temperature trends and energy/water use in the Springfield, Missouri metropolitan area. A five year record of temperature is correlated with natural gas, electric, and water use. Understanding the day to day changes in weather and its effect on daily life should be a more pressing concern to the public as global climate patterns shift. By relating rates and cost of utility resource use to temperature extremes, predictions of the influence of climate change scenarios on human lifestyle can be evaluated.

Patterns of Public Elementary School Characteristics, Proximity, and Home Values: A Snapshot of Omaha and Lincoln Nebraska. Lesli M. Rawlings, Wayne State College LeRawli1@wsc.edu

Omaha Public Schools (OPS) and Lincoln Public Schools (LPS) differ in terms of the types of school districts that surround them and their relationships with other jurisdictional boundaries. These differences make the Omaha and Lincoln metropolitan areas distinct case studies, which provides a basis for insights regarding their impacts of public elementary school characteristics and school proximity on the spatial variation of home sales prices in the two areas. Elementary school characteristics are mapped by attendance zone. Bar graphs visualize the relationship between actual home sales prices and distance from the home sale location to their assigned elementary school. Lastly, multiple regression models using several control and school experimental variables are developed to estimate house prices. The maps in both study areas reveal disparities in terms of exam performance, race, and meal program eligibility. Interestingly, bar graphs show that home sales prices tend to increase with increasing distance from their assigned elementary school in OPS and non-OPS attendance zones, except when house age is controlled. In LPS the relationship between house prices and school proximity are similar to OPS, however in non-LPS zones propinquity appears to be an amenity. Regression results show that most school variables in OPS and LPS do have an impact on house prices.

Temporal Spectral Change of Kansas Wetlands from (2000-2006) Utilizing NDVI Data and GIS Processing. Dustin Reagan, Fort Hays State University, dpreagan@scatcat.fhsu.edu

Kansas wetlands are represented by several areas with the most prominent being Cheyenne Bottoms and Quivera National Park. Utilizing the National Wetland Inventory (NWI) GIS map layer and Normalized Difference Vegetation Index (NDVI); the vegetative spectral output of Kansas wetlands was plotted over a period of six years (2001-2006). The time period with the most variability (2003-2005) was visualized using GIS. NDVI data from 2003 was assigned blue and 2005 data was assigned red. Analysis identified more vegetation in 2003 than in 2005. Visualization showed eastern areas of Cheyenne Bottoms and central areas of Quivera to have significant spectral variability between the time periods.

Remote Sensing of Water Quality on the Sisseton-Wahpeton Reservation. Jim Sampson, South Dakota State University, james.sampson@sdstate.edu

The poster shows the process of combining Landsat imagery and Secchi disk measurements to assess the feasibility of using Landsat imagery to determine water clarity in reservation lakes. Local tribal college students were trained to assist with data collection, image processing and spatial analysis. Watershed land use data were acquired via field trips and satellite imagery classification/interpretation to explore possible causes of the variation in water quality.

A Synoptic Climatology of Hypothermia-Fatalities, Cook County, IL, USA, 1979-2004. Jeremy M. Spencer, Kent State University, Jspenc16@kent.edu

This research assessed Cook County, IL, hypothermia fatalities from 1979-2004, for the monthly period from October-April. Centers for Disease Control and Prevention hypothermia data, and weather data from O'Hare International Airport were analyzed using a clustering routine to delimit air mass characteristics associated with hypothermia deaths. Descriptive statistics were utilized to determine fatality frequency and the victims' demographic characteristics. A total of 650 fatalities occurred during the study period. The results suggest that the elderly, males, and blacks have a greater risk of perishing from hypothermia. The clustering technique resulted in 12 air mass types, with one winter air mass associated with nearly 30% of the fatalities.

The Tornado-Community Vulnerability-Impact Index (TCVII): A Method to Categorize Tornado Events from the Combined Physical and Human Perspective. Mitchel Stimers, Geography, Kansas State University, stimers@k-state.edu

When the public tries to understand the severity of a disaster event, it is useful to provide a measurement that speaks to the movement away from everyday life; recovery and adjustments to an extreme event are not a part of the routine of a community (Kates 1996). For example, in terms of physical strength, the Richter scale (Boore 1989) and Moment-magnitude scale (Singh and Havskov 1980) both provide a quantitative rating that allows people to understand the power of a particular earthquake. But like the Enhanced Fujita Scale, the Richter and Moment-magnitude scales do not give complete information concerning how badly an area has been affected (although the Mercalli scale

for earthquakes accomplishes this goal to some degree). This is the focus of this poster; to display preliminary results of the Tornado-Community Vulnerability-Impact Index (TCVII) which will allow both the public and those in charge of recovery to understand the severity with which a tornado event has affected a specific community. There is currently no scale in operation that addresses this issue, and it is hoped the TCVII can fill this gap.

Miami-Ft. Lauderdale Urban Change and Classification: 1973 to 2003. A. Camille Torielli, USAF Academy, Colorado. C11Adrienne.Torielli@usafa.edu

This study used two Landsat scenes (1973 and 2003) of the Florida Everglades to create a repeatable classification of urban areas and measure urban change. Classifications of urban land cover are challenging because it encompasses spectrally different materials. Principal Components Analysis compressed the image spectral differences into three bands - bands 1, 2, 3 - visually discriminating urban, vegetation, Everglades respectively. An expert classifier was developed using bands in percent reflectance that maps urban and can be used on other scenes. The expert classifier required four separate urban classes as one urban category did not encompass all the necessary spectral variation.

Geomorphology of the Lake Shewa Landslide Dam, Badakhshan, Afghanistan Using Remote Sensing Data. Brandon J. Weihs and John F. Shroder, Jr. (jshroder@mail.unomaha.edu), Geography and Geology, University of Nebraska Omaha

Lake Shewa in northeastern Badakhshan, Afghanistan, was dammed sometime in antiquity when a large rock avalanche (sturzstrom) from the fault-shattered and strongly weathered Archean gneisses of the Zirnokh peaks to the north moved into the Arakht River valley. This rock avalanche dammed up the river and its tributaries to a dam thickness of ~400 m, producing a 12-km-long lake that is as much as 270 m deep, leaving ~80 m of freeboard to the top of the dam. At least four separate instances of slope failure have been mapped at the site of the landslide dam, as well as a rock glacier, using remotely sensed data, historical maps, and Google EarthJ. Spring seepage through the dam face has caused several recent subsidiary debris slides, which if continued at a large enough scale for long enough, or with additional seismicity from the active strike-slip faults that cross beneath the landslide dam, could threaten its integrity. Otherwise the clean water that emerges from the dam face could be the source of an unvarying mini-hydroelectric power source, in addition to the agricultural irrigation that it provides at the present time.

Local Ecological Knowledge: Stakeholder Interviews in Kansas. Iris Wilson (iewilson@ksu.edu), Lisa Tabor, Courtney Estes, Brian Nechols, Nathan Owens, Jordan Waechter, and John Harrington, Jr, Geography, Kansas State University

In order to inform more effective responses to climate change, this study’s goal is to better understand what stakeholders know about factors that influence ecosystem health and how best to use that knowledge. The study covered seven counties in north central Kansas. Forty-two stakeholders were identified/contacted using the "snowball" effect and engaged in a dialog using a semi-structured interview format. It was found that

farmers and ranchers have a large respect for maintaining a healthy, clean environment. Stakeholders are seeing changes in the environment over time, such as warmer winters and increase in deer, but are not overly concerned.

Validation and Calibration of the EUTROMOD Model for Kansas Reservoirs.
Lindsey Witthaus (lwitthaus@ku.edu), Civil, Environmental and Architectural Engineering University of Kansas; Ed Carney, Kansas Dept. of Health and Environment; Val Smith, Ecology and Evolutionary Biology, University of Kansas; Belinda Sturm, Civil, Environmental and Architectural Engineering, University of Kansas

EUTROMOD is a spreadsheet-based model that estimates nutrient loading and predicts water quality from watershed land-use data, local soil characteristics, and hydraulic characteristics of lakes and reservoirs. Thirty Kansas reservoirs were modeled, and predicted water quality outputs from the model, including total phosphorus, total nitrogen and chlorophyll *a* concentrations, were plotted against measured values obtained from a long-term reservoir water quality database from the KDHE. Validation and calibration of EUTROMOD is the first step towards a larger goal of modifying the EUTROMOD framework to include nutrient export from different agricultural crops (e.g., corn vs. wheat vs. soy) and integrating Geographic Information Systems (GIS) technology. EUTROMOD can then be applied as a new predictive tool to model the impacts of farmers' crop choices on reservoir water quality, as they switch from food production to cultivating biofuel crops.

Abstracts: Paper Presentations

(organized by first author's last name)

Videogames as Geographic Educational Tools. Jeremy Aber, Geography, Kansas State University. aber@ksu.edu

Videogames are played by millions of people every day, all across the world. Games are outlets for fun, creativity, and competition, but they also teach. Players internalize spatial knowledge from game environments, as well as geographic concepts, although these may not be presented to players as such. In the early days of games, hardware constraints led to crude representations of life. Games today are still limited by hardware, but the limits are much closer to human experience than the stick figures of the 1970s. This talk discusses the various ways modern games use spatial concepts and provides examples of how they might be used to teach geographic concepts.

Reluctant Europeans: The Future of Economic Integration in Scandinavia. Andrew Allen, Geography, University of Kansas. agallen@ku.edu

Over the past few decades, the Scandinavian nations (defined as Denmark, Iceland, Norway, and Sweden) have been reluctant to participate fully in economic European integration through the European Union. While recent attempts were made in Denmark and Sweden to eliminate exemptions, the economic crisis has put these plans on hold. Iceland's application for EU membership is a departure from past foreign policy. Looking at recent developments, the future of European integration in Scandinavia will be examined and what the future holds for these nations.

Scaleless Geomorphology: Integrating Fieldwork on an Urban Campus. Casey D. Allen, Geography & Environmental Sciences, University of Colorado Denver

Like geography in general, fieldwork stands at the heart of geomorphology. Yet when money gets tight, such as in our current struggling economy, fieldwork and especially the field trip often represents the first item cut from budgets, perhaps forcing a more local (and mediocre) approach to field experiences. Non-urban areas may seem to have the most well-suited field sites for a *physical geography*-based course. Yet the urban setting can also shine because, when discussing form and process, scale is irrelevant. This presentation outlines an example of "scaleless" geomorphology pedagogy, using the urban environment as a field-based teaching tool.

Uneven "Green" Geographies: Where Does Green Construction Happen and Why? Robert Anderson, Geography, University of Kansas, eldiadelaluna@gmail.com

As concerns over anthropogenic climate change increases in the public mindset and fears of rising energy costs factor into the budgets of governments and large corporations, so called "green" construction projects have begun to climb. Understanding where these projects are located and under what circumstances could aid in reducing the greater footprint of buildings across the entire U.S.. This presentation will use LEED building certification to examine the distribution of "green" buildings for the entire U.S. and correlate that data with state policies on net-metering, zoning laws, building codes and voting data to access political attitudes towards "green" initiatives. LEED or

Leadership in Energy and Environmental Design is the principle standard in the U.S. for evaluating buildings' ecological footprint and it is administered by the U.S. Green Building Council. There are many variations on how a construction project can earn a LEED status which has led to many criticisms of the standard. This presentation will problematize the LEED standard and attempt to reconfigure our notions of what a "green" building could be. However, the presentation will rely on the LEED certification as a sample to evaluate the diffusion of "green" construction and the conditions of possibility in which they are most common. Several case studies of individual buildings will be examined to describe how they acquire a "green" status. Several important clusters of "green" buildings will be used to illustrate the characteristics of the distribution within individual urban centers. Greensburg Kansas and a few other anomalies of green clusters will also be discussed. Comments on the future of green design will also be made.

Party, Region and District: Geographical Polarization in the United States House of Representatives? J. Clark Archer, University of Nebraska, Lincoln, and Fred M. Shelley, University of Oklahoma

In the "Federalist Papers" the "Founding Fathers" promoted territorial representation as an essential defense against both the reestablishment of monarchial tyranny, and the potential "mischiefs of faction" which might arise under "republican government." More recently, political scientist Daniel Elazar characterized territorial representation as the "most neutral kind" of indirect democracy. But recent trends evidenced in roll-call votes in the U.S. House of Representatives reveal little "spirit of bipartisan compromise," appear to challenge the current validity of Elazar's assessment, and threaten intensified mischiefs of faction. This research employs cartographical and statistical methods to study the outcomes of selected key roll-call votes from the 1st Session of the 111th US House of Representatives (2009) for evidence of systematic variations in terms of partisan, sectional and district cleavages between Representatives. Even after controlling for the influences of divisions by party, geographical cleavages at sectional and district scales are found to be statistically significant for most of the key roll-call votes studied.

Red, White, and Blue: Extreme Midwestern Blizzards and Political Party Affiliation in Federal Disaster Declarations. Christopher Atkinson, Geography, University of North Dakota. christopher.atkinson@und.edu

Between September, 1966, and May, 2008, there were 145 extreme Midwestern blizzards. Of these storms, twenty-three produced severe conditions sufficient to be deemed disasters by the federal government. Previous work by the author (Dissertation, University of Kansas, 2010) suggested that disasters are not necessarily linked to the climatology of blizzards; rather, these storm declarations may be politically driven. By using the record of political party affiliation at the federal level (President and Congressional Representatives), this talk will explore the connection between these federal representatives, the state areas they represented, and the Midwestern counties declared disasters in these blizzards.

The 1909 Glidden Tour in Nebraska. John T. Bauer, Sociology, Geography and Earth Science, University of Nebraska at Kearney. bauerjt@unk.edu.

July, 2009 saw the one hundredth anniversary of the most popular and spectacular of the Glidden Tours, an annual series of automobile reliability runs held from 1905 to 1913. The 1909 tour was a grueling nineteen day, 2,637 mile adventure beginning at Detroit and ending at Kansas City. This paper examines the historical geography of the tour as it passed through Nebraska. Using period newspapers accounts and articles from early automobile trade magazines, it reconstructs the tour's route and the public's reaction to the contestants. For many Nebraskans, the 1909 Tour was their first opportunity to see an automobile. The route of the tour closely approximated that of the Lincoln Highway, which formed in Nebraska four years later.

The Real Dust Bowl Disaster: The Northern Great Plains during the Dirty >30s. Donald J. Berg, Geography, South Dakota State University, Brookings. Donald.Berg@sdstate.edu.

Considerable attention has been directed over the years to the U.S. Dust Bowl of the 1930s, focusing on the southern Great Plains with its environmental devastation and human costs. This paper posits that the situation in the Northern Plains was comparable, if not worse, in some of its characteristics. Drought, high winds, dust storms, and grasshopper plagues, along with a national financial collapse, especially impacted the Dakotas' terrain and rural population along with sections of adjacent states. Data from northern Great Plains historical sources and contemporary studies were reexamined, highlighting the situation in South Dakota as exemplar of the region. The 1930s Dust Bowl and Depression experience continues to cast a long shadow upon the land and life of the northern Great Plains region even into the 21st century.

Economics and the Environment: Sustaining West Yellowstone, Montana? Ryan D. Bergstrom, Kansas State University. rbergstr@k-state.edu

The Greater Yellowstone ecosystem has long been known to researchers as an ideal location to study the interactions of economic growth and environmental protection. To facilitate community objectives towards sustaining the natural environment, while simultaneously sustaining economic activity, it is imperative that the perceptions of local communities regarding their natural environment be documented, as well as the ways in which those perceptions are prioritized and acted upon. As such, the objective of this study was to determine how the amenity-driven, gateway community of West Yellowstone, Montana perceived, prioritized and acted upon issues of sustainable community development and natural resource management.

Blending Geospatial Technology and Traditional Ecological Knowledge to Enhance Restoration Decision Support Processes in Coastal Louisiana. Matthew B. Bethel, University of New Orleans Pontchartrain Institute for Environmental Sciences; Lynn F. Brien, Geography, Kansas State University (lbrien@k-state.edu);; Emily J. Danielson, Center for Hazards Assessment, Response, and Technology; Shirley B. Laska, University of New Orleans Center for Hazards Assessment, Response, and Technology; John P. Troutman, William M. Boshart Louisiana Coastal Protection and Restoration Authority,

Office of Coastal Protection and Restoration; Marco J. Giardino, NASA Stennis Space Center, Applied Science and Technology Project Office; and Maurice A. Phillips, Community of Grand Bayou, Louisiana

This research investigates the feasibility of integrating remote sensing and geographic information systems mapping products with traditional ecological knowledge (TEK) of an indigenous Louisiana coastal population to assess the impacts of current and historical ecosystem change to community viability. The primary goal is to provide resource managers with a comprehensive method of assessing localized ecological change in the Gulf Coast region that can benefit community sustainability. To achieve this goal, vulnerability/sustainability mapping products developed from remotely sensed imagery dating from 1968 to 2009 and scientific datasets relating to marsh vegetation health and vulnerability characteristics were prioritized with TEK.

A Cost Benefit Analysis of Broiler Litter vs. Commercial Fertilizer Application: A Comprehensive Modeling Approach Using GIS and Visual Basic Programming.
Keshav Bhattarai, University of Central Missouri, and Krishna P. Paudel, Louisiana State University

Poultry production is one of the largest animal industries in many states of the US. It generates large incomes from farm revenue and value-added products, and provides employment to many people. However, these economic activities also translate into a huge amount of broiler litter (manure) as a byproduct. Broiler litter is both a valuable resource and unavoidable byproduct that must be disposed of because of several environmental concerns. Broiler litter contains 13 essential plant nutrients, but farmers apply broiler litter to their lands based mainly on nitrogen, phosphorus and potash content. Though broiler litter has a market value due to its nutrient enrichment, if broiler litter is over-applied or applied for a long time without considering the nutrient needs of the crop grown, the nutrients, such as phosphorus, build up in soil. During rainy weather, phosphorus leaches out into shallow groundwater or runs off into nearby water bodies, causing the problem of an increase in dissolved phosphates and the depletion of dissolved oxygen. One alternative to alleviate this problem is to apply litter to fields farther away from where it’s produced. However, when it is applied to fields, due to its bulky nature, it becomes very expensive and environmentally problematic. This research analyzes environmental and economic concerns while applying broiler litter to various fields, and compares cost associated with the application of broiler litter and commercial fertilizer. It uses ArcGIS for land use analyses, and Visual Basic for the development of various modules involved in the applications of broiler litter and commercial fertilizer to different crops under irrigated and unirrigated conditions having different slope and soil conditions. The ultimate goal of this research is to develop a regional model to compare the cost associated with the applications of broiler litter/compost with commercial fertilizer to various types of crops under different management regimes and topographical conditions.

On Butch Cassidy's Trail: Representations and Remembrance of an Outlaw in the American West. Mac Blewer, Geography, University of Wyoming, jblewer@uwyo.edu

Today we have an image of Butch Cassidy (Robert LeRoy Parker) as an anti-hero celebrity with a Robin Hood flair, an outlaw who stole from the rich and gave to the poor, all the while winning gun-battles against overwhelming odds. While this image has been popularized by writings and films, to what degree does this image hold true in the communities and landscapes that he lived and worked in? Also, to what degree is he etched in the physical landscape, if at all, or is he as elusive as his legend? Does his past in these areas help form a sense of place? An overview is given of how Robert LeRoy Parker is memorialized in cities, towns and rural landscapes of the American West based on data from my preliminary field investigations for my Masters research.

Late-Quaternary Paleoenvironment and Playa-Lunette System Evolution on the Central High Plains. Mark W. Bowen (mwbowen@ku.edu) and William C. Johnson, Geography, University of Kansas.

Playas are small, ephemeral wetlands, and lunettes are dune-like features that form downwind of some larger playas. Two playa-lunette systems (PLSs) in western Kansas were investigated to reconstruct paleoenvironment throughout PLS evolution. Both PLSs are composed of sediment spanning >40 kyrs. PLS stratigraphy represents a continuum of the uplands High Plains loess sequence, though deposits are altered by playa hydrology. Geomorphic processes alternated between fluvial- and eolian-driven as climate changed, yet playas were at least partially inundated most years. Due to the aggradational environment and sensitivity of PLSs, high-resolution records of environmental change throughout their evolution are preserved.

Utilizing LIDAR Data and Color Aerial Imagery to Automate Development of Planimetric Feature Data. April M. Bowman, Geography, Northwest Missouri State University, S250163@nwmissouri.edu

Developing and updating digital county base maps has been an integral part of county property mapping for many years for larger metropolitan counties. Digital feature and topographic vector GIS data is part of the foundation of these county base maps. Traditional Photogrammetric methods of manually updating digital GIS feature data such as building outlines, edge of pavement, forests, and water is costly and time consuming. This study tests different classification methodologies to determine the best way for automating and extracting real world features. Source data will consist of color aerial imagery and LIDAR data. Some of the features to be extracted include buildings, pavement, agricultural lands, forests, and water.

Climate and Communities in Crisis. Julia Brandes (juliabra@ku.edu), Economics, University of Kansas; Laci Gerhart, Ecology and Evolutionary Biology, University of Kansas (laci@ku.edu); Rebecca Crosthwait (rcrosw8@ku.edu) and Adam Sundberg, History, University of Kansas (ads135@ku.edu)

The Monarch Butterfly Biosphere Reserve (MBBR) in central Mexico protects the overwintering grounds of the monarch butterfly. Climate change threatens the environmental rationale, the economic stability, and the political necessity of this current

conservation system. Should monarch colonies collapse and ecotourism fail, current restrictions on logging and mining in place due to conservation will further exacerbate the condition of already marginal communities. If monarchs establish new overwintering sites in pre-existing protected areas, political conflict and economic hardship may be avoided. Using projections of potential migration changes, climate interpolation, and social statistics, we examine the current and future biocultural viability of the MBBR.

Born to be Wild? Exotic Pet Mammals in the United States. Gabrielle Collins, University of Nebraska at Lincoln. gabrielle3@cox.net

The importance of pet animals to the well being of people is well established. Exotic pets, however, are a special problem. Safety, health and welfare issues are a concern for both the animals involved and the general public. Exotic pet ownership is a neglected field of study, despite estimates of upwards of 20 million exotic pet owners estimated nationwide. A compilation of state laws pertaining to selected exotic pet species has been mapped showing interesting regionalization of the most commonly owned animals, and a preliminary survey has also been summarized as part of a larger, nationwide research project.

Three Guidelines for Developing a Geography Curriculum for a Summer Camp. Gabrielle Collins. University of Nebraska at Lincoln. gabrielle3@cox.net

The University of Nebraska at Omaha's Aim for the Stars Camp is a summer camp designed to provide a large number of campers a fun and educational opportunity to learn about science. The Geography camp was created to confer a basic foundation in both physical and human geography to children from the 4^{th} through 8^{th} grades. Local opportunities, the need for flexibility, and feeding on the natural interests of children were all factors when determining curriculum content. Challenges in writing this type of program had to be considered in each of these areas, while establishing a comprehensive and engaging curriculum.

A Winning Formula for Teaching the History of Cartography. Karen S. Cook, University of Kansas. kscook@ku.edu

Since 1996 George McCleary and I have been developing our history of cartography course, searching for a better approach to the subject for us and our students. Our solution is to focus on the interdependence of cartography and geography. Looking at maps as tools for interacting with different environments, we build each of 15 three-hour classes around the timeline for a different type of wayfinding or environmental management or a different aspect of mapmaking. We tie these chronological strands together by detailed group study of archetypal maps, each representative of a particular use, time period, geographical environment and cultural context.

Rotting Away: The Tourist Product in Trinidad and Tobago. Johnny Coomansingh, Minot State University. johnny.coomansingh@minotstateu.edu

Trinidad and Tobago is experiencing an unprecedented crime problem. Murders are occurring on a daily basis. Banditry, illegal drug running, and police corruption is rampant. Several countries including Britain, the United States, Canada, and New

Zealand have issued travel advisories to their citizens concerning the worsening crime situation against tourists in Trinidad and Tobago. This paper sums up personal observations during annual visits to the islands from January 2004 to January 2009. Several articles extracted from local, regional, and international newspapers have also been sourced for pertinent information relevant to crimes against both domestic and foreign tourists in the country.

Reclaiming the Rails: The Re-publicization of Rail Infrastructure. Jeffrey S. Crick, Urban Design and Planning, City of Columbia, SC (jscrick@gmail.com), and Timothy J. Brock, University of Kentucky (tim.brock@uky.edu)

The past 30 years have seen the rise of neoliberal public policy, most notably in the realm of urban transportation infrastructure. However, there is one major reversal in this tide of infrastructure privatization. The rising interest in local commuter rail coupled with the scarcity of existing rail right-of-ways has created a scenario whereby quasi-public regional transit authorities are seeking to gain rights to privately-held rail easements. This paper will examine the historical context of US rail policy, and the issues surrounding current attempts by quasi-public rail authorities to buy privately-held rail right-of-ways.

Incorporating Pre-disturbance Discontinuity into Dam Removal and River Restoration Paradigms. Melinda Daniels, Geography, Kansas State University (mddaniel@ksu.edu), and Denise Burchsted, Center for Integrative Geosciences, University of Connecticut.

The conventional paradigm of dam removal is largely based on the conceptual model of streams articulated by Vannote and others in the River Continuum Concept (RCC), in which headwaters are small, narrow, straight water bodies with relatively large mineral sediments, relatively high water velocity, organic matter dominated by terrestrial inputs, and a continuous longitudinal gradient of form and function from headwaters to higher-order watercourses. However, the pre-dam longitudinal profile of many headwater streams is not that of the stereotypical RCC continuously steep gradient, but rather a more stepped profile including high gradient transport-regime reaches interrupted by lower gradient depositional reaches. In regions where these conditions are present, significant costs and delays associated with unnecessary sediment stabilization and or sediment removal are preventing the timely restoration of our headwater systems.

Evaluating Local Bed Shear Stress Estimates in Meander Bends Using Acoustic Doppler Velocimeter Data. Melinda D. Daniels, Geography, Kansas State University; Grant G. Gritzmacher, Geography, University of Connecticut; and Katie H. Costigan, Geography, Kansas State University

Bed shear stress is a fundamental variable in fluvial geomorphology that can be difficult to estimate in natural channel environments. This paper reviews methods of estimating bed shear stress (turbulent kinetic energy (TKE), turbulent kinetic energy vertical velocity (TKE*w'*), Reynolds and logarithmic profile methods) and assesses their applicability to natural channel flows by using a 3-D velocity data set collected in three bends of a channel. Results show substantial variation in spatial patterns of bed shear

stress between the techniques. The TKE and TKE*w*' methods appear to be most appropriate for application in complex natural channel environments.

Resplendent Quetzal Nesting Site Availability on a Private Preserve in the Sierra de las Minas, Guatemala. John E. Davis, Jr., University of Colorado at Colorado Springs, Jdavis3@uccs.edu

Deforestation throughout Central America has eliminated habitat for many species of plants, animals and birds. Cavity nesting avian species such as the Resplendent Quetzal (*Pharomachrus mocinno*) are further imperiled because of their need for dead, decaying trees or snags in which to raise their young. Researchers who have studied the Quetzal disagree about the role snags play in limiting the population of this species. The purpose of the study was to determine snag prevalence on a private preserve in Guatemala and determine the suitability of those snags for nest site establishment, in order to address this disagreement.

A Trucker's Life: The Deeper Meanings of American Truck Stops. Stephanie Day, Geography, University of Kansas. slday@ku.edu

Long-haul drivers have a unique relationship with truck stops because of the mobile nature of their occupation. Through field observations and interviews with drivers during the summer of 2008, four themes emerge that encapsulate their feelings and perceptions: varying attachments to home, mobility, the reciprocal shaping of people and place, and existence of an insider/outsider dichotomy. Together these themes help to inform a unique sense of place.

Melting Pot and Mask: Going Inside East Lawrence. Dennis Domer, Director of Graduate Studies, American Studies and Acting Director of Museum Studies, University of Kansas. domer@ku.edu

East Lawrence, a 19th-century working class neighborhood, presents a melting pot of exterior facades and house styles that conceals architectural history, tells us almost nothing about the social and economic histories behind the houses, and masks the multiple meanings of generations of people who struggled to live there. Going inside the 45 houses, and putting measured plans, spatial arrangements, architectural and interior details, structural systems, and changes over time together with archival research creates a rich, previously unknown history of this place. Based on three years of research, the author shows how detailed fieldwork remedies the weaknesses of typical survey methodologies.

Minimizing Landscape Disturbance in Wyoming Oil and Gas Development Sites through GIS Analysis. Arjun Dongre, Geography, University of Wyoming. arjun.dongre@gmail.com or adongre@uwyo.edu

Wyoming rangelands contain large oil and gas reserves which are being developed at a fast pace to meet increasing demand. Roads are a major component of development, but tend to disturb and fragment rangeland ecosystems. This research supports road planning in Wyoming rangeland oil and gas extraction sites in a manner that minimizes ecological disturbances and landscape fragmentation. Using traditional

cost surface modeling with a network-based minimum spanning tree, the approach results in cost-effective and ecologically favorable roads. Analysis for a particular site indicates that resultant roads are approximately 35% more efficient, and reduce overall fragmentation by about 3%.

Identifying Potential Habitat of *Triatoma sherlocki*, a Vector of Chagas Disease in Bahia, Brazil, Using GIS and Remote Sensing Techniques. L. Lynnette Dornak, Geography, University of Kansas, picoides@ku.edu; Carlos E. Almeida, Laboratório de Biodiversidade Entomológica, Instituto Oswaldo Cruz/FIOCRUZ (IOC/Fiocruz), Rio de Janeiro; Elaine F. Ramos, Engenharia e Meio Ambiente (DEMA), Universidade Federal da Paraíba, Paraíba; Jane Costa, Laboratório de Biodiversidade Entomológica, Instituto Oswaldo Cruz/FIOCRUZ (IOC/Fiocruz), Rio de Janeiro; and A. Townsend Peterson, Natural History Museum and Biodiversity Research Center, University of Kansas

Chagas disease is a prominent epidemiological concern throughout Central and South America. The disease is caused by a protozoan parasite, *Trypanosoma cruzi*, which is transmitted through contact with a vector. Within the semi-arid regions of Brazil, the *Triatoma brasiliensis* complex is the dominant vector, of which *T. sherlocki* is the most newly described and unexplored member. Previous work identified the importance of exposed rock as a critical habitat feature. Here, we present the first land cover map that specifically delineates exposed rock in this region. Combined with slope and ecological niche models, we offer new perspectives on the distributional ecology of *T. sherlocki.*

Revised Interpretations of Alluvial Terraces and Fills in the Kansas River Basin. Wakefield Dort Jr., Geology, University of Kansas, and Rolfe D. Mandel, Kansas Geological Survey, University of Kansas

Numerous remnants of terrace systems occur along the Kansas River and in the valleys of tributaries. During the mid- through late-1900s, geomorphologists presented terrace nomenclatures for the main stem of the Kansas River and often extended them into the tributary valleys with minimal or no age control. Subsequent studies with robust ^{14}C data sets have yielded new information about the terrace systems and underlying fills in the Kansas River basin, especially for tributaries. These studies have demonstrated that the terrace systems are much more complex than previously described, and that there is considerable time transgression among Holocene terrace fills.

Feasibility of Green Energy Sources at Scott Air Force Base, Illinois. Thomas Dowell, USAF Academy, Colorado. C11Thomas.Dowell@usafa.edu

Geospatial techniques combined with an understanding of basic engineering concepts is effective in optimizing green energy utilization. This report investigates and recommends the ideal type of alternate energy for Scott Air Force Base (AFB), Illinois. Alternate energies investigated include: geothermal, landfill gas, solar, wind, and hydroelectric. Scott AFB provides a unique geospatial challenge due to security concerns, its human and physical terrain, and stringent Air Force budget and policy regulations. No single type of energy was found adequate for powering the base; a combination of all previously listed options was proposed to leadership to meet the base's energy needs.

A New Harvest: Solar-Powered Biodiesel Refining. Michael Dunaway, Geography, University of Kansas, Michael.Dunaway@ku.edu

Native Americans reservations have the lowest standards of living in the United States. On the Sioux and Navajo reservations there are still homes that are not connected to the electrical grid. The people who live in these homes still have to use their cars to buy groceries or to get to work. With rising fuel costs, these Native Americans are overly impacted by high fuel costs. Some tribes have moved towards making biodiesels. These fuels are made from the oils from crops like corn, sugarcane and wheat. Most of the reservations have strong farming communities that can sustain biodiesel refining without impacting their food source. Biodiesels are easy to make and people can make them in their garage with little training and no specialized equipment. The main drawback of biodiesel refining is that it still costs money to put the energy from fossil fuels to produce biodiesel. I propose that instead of burning an ancient sun to create biodiesel, people begin to use the solar power is available right now in order to refine biodiesels. Tribal reservations are located in the best areas for harnessing solar power.

Perception of HIV/AIDS Vulnerability of Female College Students in Kolkata, India. Sohini Dutt, Geography, Kansas State University, sohini1.dutt@gmail.com

The purpose of this study is to gain an in-depth understanding of HIV/AIDS vulnerability perception among female college students in Kolkata, India. A host of socio-economic and behavioral variables were studied to understand the norms and beliefs of these students along with the effectiveness of existing preventive measures. From the results it is evident that religion and age play a role in perceived vulnerability of the respondents. The need for effective formal education of students about the disease becomes evident. The study has important public health implications because the information collected can be used to design effective HIV prevention interventions.

Developing Parameters to Represent Urban Systems in GCMs. Johannes Feddema, Geography, University of Kansas, feddema@ku.edu

Most people presently live in urban settings, locations that are known to have significant impacts on local climate conditions. To better understand the impacts of climate change on people, it is important to consider the combined impacts of global and local scale changes urban climate conditions. However, urban characteristics and resulting urban climate conditions can differ significantly based on the characteristics of urban settings. This paper will describe an initial attempt to characterize urban settings globally, and demonstrate the impacts of such a parameterization on urban climate simulations in the National Center for Atmospheric Research Community Climate System Model.

Trading Spaces: The New York Stock Exchange and the Shift from Physical to Virtual. Emily Fekete, Geography, University of Kansas, emilyfekete@gmail.com

Virtual spaces have become increasingly important for conducting daily activities. Activity on the New York Stock Exchange (NYSE), once characterized by the hustle and bustle of people on the trading floor is becoming more subdued as virtual trading spaces are replacing physical trading spaces. The physical floor of the NYSE is in the process of

becoming a symbolic representation of the economy, while the actual spaces of trade are becoming virtual.

Who Put the Benzedrine in Mrs. Murphy's Ovaltine? Amphetamine Production, Diversion and Abuse in the United States 1932-1975. Aaron Gilbreath, Geography, University of Kansas, ahg@ku.edu

The family of drugs known as amphetamines, which includes methamphetamine, has a long and complicated history in this country. This paper explores amphetamine production, diversion and abuse in the Unites States between the introduction of Benzedrine by Smith, Kline & French in 1932 and the years immediately after the drug's reclassification as a schedule II substance in the 1971 Controlled Substance Act. It is my thesis that this era laid the groundwork for the methamphetamine epidemics of the 1990s and 2000s.

Community-Based Natural Resource Management as a Response to Environmental and Economic Change in Lake Victoria Fisheries. Ryan Good, Geography, University of Florida. ryangood@ufl.edu

The political ecology of fishing in Lake Victoria has been evolving rapidly during the last two decades, driven by the thriving Nile Perch. Massive human population increases, pollution, commercial competition, and foreign investment have changed the physical and social landscapes for fishermen in all three countries sharing the Lake. As traditional artisanal fishing methods have become less viable, new strategies have appeared, including community-based management of lake resources. This presentation is a rough overview of my planned dissertation research on this management, based in Mwanza, Tanzania.

A Prototype Decision Support System for Mitigating the Effect of Prescribed Rangeland Burning in the Kansas Flint Hills. D.G. Goodin, Kansas State University. dgoodin@ksu.edu.

Rangeland burning is a widely used land management practice in the Kansas Flint Hills. Prescribed burning (typically at intervals varying from 2 to 4 years) suppresses the invasion of woody species and maintains palatable forage for cattle, facilitating weight gain and contributing to the overall economy of the cattle production industry in Kansas. However, burning also produces large quantities of particulate matter and other pollutants which have been implicated in air quality degradation in the airsheds of urban areas surrounding the Flint Hills. Proposed changes in air quality standards may exacerbate this problem, making it more difficult for urban areas to maintain air quality within legally defined criteria. In response to this, the State of Kansas has been tasked with developing a smoke management plan, which will mitigate the effect of agricultural burning while maintaining its economic benefits. This paper will describe one component of this smoke management plan, a spatially based decision support system for assisting burn managers and others by providing forecasts of potential smoke behavior from prescribed burns. The DSS consists of a number of components, including a smoke plume model, an ecosystem productivity model, and a remote sensing model for mapping burned areas. This paper

will describe each component of the system, how the components are integrated, and how forecast scenarios will be used to assist fire management decision makers.

How Do the Politics of Conservation and the Growing Tourist Industry (in Conjunction) Affect the Quality of Life for Maasai Pastoralists in Tanzania? Teresa Gotlin-Sheehan, Geography and Environmental Sciences, University of Colorado Denver, Teresa.Gotlin-Sheehan@email.ucdenver.edu

A veritable war is being waged on the Serengeti Plain of northern Tanzania between conservationists and indigenous peoples. While the Maasai people have inhabited the northern plains and highlands of Tanzania for centuries, existing as a part of the ecosystem, conservationists remain convinced these nomadic pastoralists who refuse to assimilate are contributing to nature's destruction. Conservationists insist their motives remain to protect these ecosystems and the splendid, rare wildlife inhabiting themCor is their true purpose the preservation of Africa's very own Apristine myth for the benefit of the tourist industry, and at what cost to the Maasai people? This paper will explore how the politics of conservation and the growing tourist industry affect the quality of life for Maasai pastoralists in the Ngorongoro Conservation Area, Tanzania.

The Geography of College Football Player Origins: Football Championship Subdivision (FCS). Theodore L. Goudge, Matthew D. Jundy and Justin W. Plymell, Geography, Northwest Missouri State University, Maryville. tgoudge@mail.nwmissouri.edu.

Sport and geography share a common spatial bond. Boundaries, delineation, demarcation, territorial control, spatial interaction, distance decay, etc. are essential elements of both. The role sport plays in the American way of life is inescapable. How many ESPN channels are there? Thus, academic investigation into the cultural geography of sport, sport landscape and sports impact on society is a data-rich subfield that poses unlimited possibilities. College football provides a significant focus for such investigations. Earlier studies (Rooney, Goudge) have identified spatial patterns of football player origins at the professional, major college, small college (Div. II & III) and high school level. The purpose of this project was to examine the geography of college football at a different level to determine if similarities and/or differences exist. A geographic database consisting of the Football Championship Subdivision (FCS - formerly known as Div. I-AA) programs was generated. A first time attempt to measure success at the FCS level was also constructed. The variables that were assessed to determine program success included: attendance, poll rankings, and post-season success. The resulting maps provided insight into the regionalization of football involvement and comparisons drawn from the earlier work regarding the geography of American football.

Using Scientific Workflow Management Software for Species Distribution Modeling. C. J. Grady (cjgrady@ku.edu), Aimee M. Stewart (astewart@ku.edu), and James H. Beach (beach@ku.edu), Biodiversity Institute, University of Kansas.

Lifemapper 3 (LM3, www.lifemapper.org) is a global archive of species occurrence data and predictive range models. LM3 synthesizes the known distributions of terrestrial organisms and predicts future distributions based on IPCC climate change

scenarios. Vistrails (www.vistrails.com) is a scientific workflow management system. We are implementing a Vistrails interface for LM3 that will allow biogeographers and macroecologists to easily assemble and run large numbers of environmental niche models to compare the impact of climate change scenarios on potential species distributions. We will demonstrate the use of Vistrails for assembling modeling jobs and for high-throughput computation and visualization of the results.

The Benefits of Undergraduate Participation in Field Work. Kaelin Groom (Kaelin.Groom@email.ucdenver.edu), Rachel Poole, Travis Toms, and Felix Zamora. Geography and Environmental Sciences, University of Colorado Denver

As undergraduate researchers we applied the Rock Art Stability Index (RASI) to petroglyphs in Petrified Forest National Park, AZ. This project fostered academic, professional and cultural growth. We discovered how hands-on fieldwork personalizes the research process and offers an applicable understanding of the subject matter and passion for geography. This involvement embedded a deeper appreciation for the culture and history of southwest Pueblo tribes and cultural heritage/resource management. Collaboration with National Park Service personnel and other undergraduate students from different institutions also enhanced our perception of proper professional communication.

Preliminary Analysis of Playa Lake Functionality Using Landsat-5 Infrared Data. Benjamin F. Grover, Geosciences, Fort Hays State University, bfgrover@scatcat.fhsu.edu

A playa lake's ability to retain moisture and water is one of several factors which affect its functionality. In this study, several areas of high moisture presence will be determined using AMSR-E microwave data. After determining the spatial and temporal resolution of these areas, at least two playa lakes will be analyzed within each AMSR-E pixel; one of which will be a known functioning playa, and the other a known non-functioning playa. Landsat-5 TM infrared data (bands 4, 5 and 7) from the same area and time will then be used to measure the duration of time the moisture is present within both the known functioning and non-functioning playa lakes. After observation and comparison of these results is completed, it is hypothesized that Landsat will be able to detect the differences in soil moisture levels between functioning and non-functioning playa lakes.

Blue Collar Closets: Masculine Expression and Sexual Deviance in Rural Kansas. Brandon H. Haddock, Geography, Kansas State University, bhaddock@k-state.edu

Popular perceptions within Feminist and Gender Studies place the study of masculinity within a precarious framework of demonization and inconsequentiality. Yet, the imagery of the masculine forms; and to a certain extent, performance; continues to be a driving force in the self-image and mystique of many gay male sub-cultures. Particularly within the rural gay culture, masculine identity and performance is a vital mechanism of survival within a hostile environment. This work examines how masculine emulation is at once a product of the rural environment and an eroticized cultural identifier of the gay male in rural Kansas.

The Great Plains' Oldest Sand Dunes. A.F. Halfen, Geography, University of Kansas; J.Q.G. Spencer, Geology, Kansas State University; W.C. Johnson, Geography, University of Kansas; P.R. Hanson, Survey Division-School of Natural Resources, University of Nebraska-Lincoln; and A.R. Young, University of Nebraska-Lincoln, Survey Division-School of Natural Resources

Several dune fields, including the Kansas River dunes, have been investigated to better define periods of Great Plains megadrought. Using OSL, the most recent episode of dune activation was dated between 35.2 and 31.0 ka, which places dune activation within the latter part of MIS 3. Interdune sediment dated to ~6 ka which suggests an erosional response to the Holocene Altithermal. Although research is ongoing, data thus far are significant. Not only do the data lack a widespread response to prehistoric megadrought, but the ages alone document the Kansas River dunes as the oldest dated dunes in the Great Plains.

Teaching Geography and Gender. Ellen R. Hansen, Geography, Emporia State University. ehansen@emporia.edu

In spite of advancements women have made in education and employment equity with men, gender is not taught across the geography curriculum. This is in part because gender roles and relations have not been included in university curricula and teaching materials; it also reflects a lack of readily available information to aid in lesson planning; it highlights a lack of knowledge about gender within and outside the US. This paper is based on a chapter in a recently published volume of teaching methods in geography, and focuses on teaching about gender, using a case study example of teaching about women in Islam.

The Linguistic Landscapes of the Lakota. John Patrick Harty, University of Wyoming, jharty@uwyo.edu

Geographers have long recognized the importance of language in preserving a group's culture. Many groups have fought to maintain this part of their culture by encouraging the use of a language in everyday life. However, even within a given people group there can be marked differences in the use of a language on the landscape. This paper examines the use of the Lakota language on the landscape by various groups and how these uses differ on and among reservation and non-reservation lands.

Conceptions of Authenticity and Nature at the Rocky Mountain Arsenal. David Havlick, Geography and Environmental Studies, University of Colorado-Colorado Springs (dhavlick@uccs.edu) and Matthew John, Geography and Environmental Studies, University of Colorado-Colorado Springs

A recurring challenge in ecological restoration is how to determine an authentic reference condition for a given site. We describe an ongoing survey at the Rocky Mountain Arsenal (RMA) National Wildlife Refuge to assess visitor expectations of ecological restoration goals. As a site of former chemical weapons production and storage, the RMA represents a complex landscape that wildlife managers and Army contractors are working to restore as native prairie. We report on preliminary data that

illustrates how visitors to the RMA privilege certain conceptions of authenticity and nature in the context of restoration activities and public use.

Seasonal Work, the H2-A Visa, and Labor Placement: The Resurgence of Labor Brokers in American Agriculture. Jason P. Holcomb, Earth and Space Sciences, Morehead State University, j.holcomb@moreheadstate.edu.

Known in the late 19th and early 20th centuries for their procurement of harvest labor in the Great Plains, private labor agencies were charged with deceptive practices. State free employment bureaus were established to provide the same services at no cost to the unemployed. Private labor brokers are now used to procure foreign labor for custom harvesting and many other seasonal jobs in agriculture by way of the H2-A visa. Their services and locations vary. Emphasis is on job types, employee payment, and transportation to work sites for those working in the Great Plains.

Leaf Hydrophobicity and Canopy Storage Capacity of Common Species in the Semi-arid Western United States. Curt Holder, Geography and Environmental Studies, University of Colorado at Colorado Springs. cholder@uccs.edu

The repellency of a water droplet by a leaf surface (i.e., leaf hydrophobicity) is a common adaptation among plant species in habitats exposed to daily precipitation. Leaf hydrophobicity may be an important variable that influences canopy storage capacity during a rainfall event. Canopy storage capacity is the amount of water held by the canopy during a rainfall event before water starts to drip as indirect throughfall. Species with highly repellent leaf surfaces may increase the quantities of throughfall at a site and result in greater hydrological inputs beneath the canopy. This paper examines the extent to which leaf hydrophobicity influences canopy storage capacity in common species of the semi-arid Western United States. Specifically, the objectives of this paper are to determine if leaf hydrophobicity and canopy storage capacity differs between species with contrasting leaf habits and growth forms, to compare methodologies that calculate leaf hydrophobicity and canopy storage capacity, and to determine if leaf hydrophobicity influences canopy storage capacity on a leaf area basis.

Establishing Data Standards in a Web Mapping Application to Facilitate Informed Natural Resource Decisions. Michael E. Houts, Kansas Biological Survey (mhouts@ku.edu), Eric R. Johnson, Kansas Wildlife and Parks, and Murray K. Laubhan, Kansas Wildlife and Parks

Although the increased availability of spatial datasets and ease of access provides new opportunities for developing tools for conservation planning, these data were often collected for purposes other than natural resource conservation. Therefore, understanding how the data were collected and processed is critical to avoid providing misleading information during the decision-making process. The Natural Resource Planner web application utilized data inclusion criteria to create a streamlined and transparent tool that provides an unbiased and useful tool and incorporates the best scientific data available to provide policy makers, planners, and the public with the information necessary to make informed decisions.

Effects of Irrigation on Great Plains and Midwest Precipitation Processes. David B. Huber (dbh409@ku.edu), David B. Mechem, and Nathaniel A. Brunsell. Atmospheric Science Program, Geography, University of Kansas

The effects of irrigation on boundary layer dynamics, mediated by the partitioning of flux between sensible and latent heat, suggest the possibility of influencing precipitation and lower tropospheric flow behavior above and downwind of irrigated sites. This study employs a regional climate modeling framework in order to identify the dynamical mechanisms by which irrigation influences precipitation and the low-level jet (LLJ) over the Great Plains and Midwest United States. The Weather Research and Forecasting (WRF ARW) model is integrated over the relatively climatically average months of June and July 2001, taken to be representative of synoptically-forced and unforced flow regimes, respectively. The WRF simulations represent limiting cases of heavily irrigated and non-irrigated soil moisture conditions. In the irrigated simulation, soil moisture at model grid cells classified by the USGS as either irrigated crop and pasture or irrigated crop/grassland mosaic is nudged daily toward field capacity. Irrigation cools both land and lower atmosphere over the irrigated region and decreases the diurnal temperature range. Little change in precipitation is evident over the irrigated region itself, but increases in precipitation are found downstream of the region. Thermodynamic feedbacks associated with irrigation tend to weaken the LLJ and reduce meridional water vapor transport. Results from these limiting cases support further study employing more realistic parameterizations of irrigation.

Rapid Monitoring and Assessment of Military Training Land Sustainability at Fort Riley, Kansas. J.M. Shawn Hutchinson, Geography, Kansas State University; S.L. Hutchinson, Biological and Agricultural Engineering, Kansas State University; Philip B. Woodford, Fort Riley Integrated Training Area Management Program; and Christopher Otto, Fort Riley Integrated Training Area Management Program

The U.S. Army ITAM program is charged with maintaining high quality training lands for military use. Landscape monitoring that depends upon field methods are time intensive and expensive, and often do not provide results in a timely manner. By enhancing traditional field data collection methods with remote sensing techniques and automated sensor data, it is possible to provide military leaders with assessments multiple times per year and when they are most useful. Through continuous monitoring and assessment, installations can better understand the environmental impact of training exercises and reduce safety risks to soldiers and equipment from environmental hazards.

Perennial Crops for Food, Fuel and Electricity. Trish Jackson, Geography, University of Kansas, trish@ku.edu

Proponents of biomass as a renewable energy resource are faced with potential complications including soil degradation, competition with food, and land use issues. Perennial crops can address these issues, offering a sustainable option for growing biomass for food, fuel, and electricity. These crops increase soil health, leading to carbon sequestration, resistance to pests and disease, lower water requirements, and higher yields with fewer inputs. Consequently, perennial crops offer greater food security, energy

security and national security while at the same time providing environmental services to give us cleaner air, and more abundant and higher quality water and wildlife habitats.

Impact of Fire on Savanna Vegetation Trends in Madagascar Assessed Using a Remote Sensing Based Statistical Analysis. Anne Jacquin, University of Toulouse, Purpan School of Engineers (France); Véronique Cheret, University of Toulouse, Purpan School of Engineers (France); and Michel Goulard, INRA (French National Institute for Agricultural Research)

In the context of land degradation prevention, this study clarifies the impact of fire on savanna vegetation in northwestern Madagascar. The role of fires in shaping trends in savanna vegetation cover was addressed though a landscape-scale analysis of a fire regime indicator, which combined fire seasonality and frequency, and an indicator of vegetation cover change derived from MODIS time series data. For each type of savanna vegetation cover, multivariate regression models were fitted to the observed trends. While fires are a savanna management tool, their seasonal usage and frequency should be adapted according to land use (agriculture, pastoralism, protected area).

The Implementation of Smart Growth Strategies in Urban Planning. Dennis James, Geography, University of Nebraska Lincoln, dennisaj10@yahoo.com

The purpose of this presentation is to explore how smart growth strategies have been and are being incorporated into urban planning and growth management practices across the United States in response to urban sprawl. The presentation provides an introduction to and explores the relationship between the concepts of urban sprawl and smart growth and examines important elements of smart growth strategies. It also provides an example of an American city, Portland, Oregon, that has successfully incorporated smart growth strategies and is considered to be at the forefront of the smart growth management movement.

Obstacles and Opportunities for Integrating Geo-technology into K-12 Education. Steve Jennings, Geography and Environmental Studies, University of Colorado at Colorado Springs, sjenning@uccs.edu

Even though twenty-first century skills in K-12 education are much more than computer and information technology oriented, GIS and remote sensing have the potential to become important parts of teachers' toolboxes. These are part of higher education and well integrated into the curriculum. At the K-12 level educators find the integration of this suite of tools to be challenging. I will discuss strategies designed to increase the usage of geo-technologies in K-12 classrooms. Strategies like partnerships between GIS industry representatives, higher-education faculty and school districts to develop workshops for teachers are important in building competency and capacity.

***Sehnsucht:* A Construct for Place Attachment.** Matthew John, Geography and Environmental Studies, University of Colorado at Colorado Springs, matthewhjohn@gmail.com

In the discourse on place attachment, there seems to be little agreement on general terms and categories. Serviceable constructs would be helpful. The German concept of

Sehnsucht C a longing (and addiction to that longing) for something that cannot be had C may be such a construct. This paper explores the possibility that attachment to a particular natural landscape (the place type considered in this study) is based, in part, on longing for a transcendent, un-possess-able kind of beauty that is evoked by the subjective beauty of that natural landscape.

Conflict and Tension, Music and Sense of Place. Matthew John (matthewhjohn@gmail.com) and Nate Siebert (msiebert@uccs.edu), Geography and Environmental Studies, University of Colorado at Colorado Springs

While some sense of place literature acknowledges that a strong sense of place need not entail a deep satisfaction with that place, the majority pays short shrift to the role of negative emotions and experiences in sense of place formation. We argue that contemporary folk music often tells stories of conflict and tension surrounding places and that it thus provides material from which connections between negative emotions and sense of place could be explored. This paper considers a few of those songs in an effort to get an idea of what role negative experiences and emotions play in developing a strong sense of place.

Indigeneity, Autochthony and Place. Jay T. Johnson, Geography, University of Kansas, jaytjohnson@ku.edu

Over the past several decades, a few philosophers, anthropologists, and geographers have published work geared toward rewriting the Enlightenment metanarrative which has served to separate humanity from nature and place. This placelessness has been described by some as the >modern malaise'. Responses to placelessness have implored settler-societies to work toward becoming native to >their place'. Encouraging and mentoring the creation of a place-based identity, one that springs from a reciprocal relationship with place, I would argue is to encourage an autochthonous identity. Indigenous authors have been writing in a similar direction, reminding the academic community that Indigenous epistemologies are largely place-based and that the place-based politics of Indigeneity are grounded within these knowledge systems. Indigenous academics and those working with Indigenous communities have recognized that activating places, cultures and natures are one way to move beyond the chronic realism of established modes of analysis. This paper will attempt to bridge these two place focused discourses; finding ways in which activating places, cultures and natures can encourage and further settler societies efforts to rewrite the metanarrative leading to its placelessness.

Silt Dunes of Panhandle Oklahoma. W.C. Johnson, Geography, University of Kansas; A.F. Halfen, Geography, University of Kansas; S. McGowen, Natural Resources Conservation Service; B.J. Carter, Plant and Soil Science, Oklahoma State University; and L.C. Bement, Oklahoma Archaeological Survey

Unique dunes consisting, not of sand, but rather of silt and clay-dominated sediment occur in Beaver County of Panhandle Oklahoma. Blue Mound, one of the more prominent dunes in the area, was investigated to document stratigraphy and to derive a chronology. Cores (~13 m) pulled from the crest produced pedologic, rock-magnetic,

particle-size, and other evidence of episodic soil development. A well-developed basal soil (3ABtg1b3), radiocarbon dated to 22.7 21.3 k cal yr BP, is at the same elevation as the surrounding loess-mantled landscape, and therefore appears to represent the soil surface across which the dune migrated.

Water Production and Land Ownership in Water-Rich Places. John H. Kelly, Geography, University of Kansas, jkellyma@ku.edu

The links between easily transported *natural resources* (such as oil, diamonds, and even trees), and the *land* where they are found, has always been lucrative or contentious for the land owners. Does the same hold true for *water*, which is increasingly valuable, yet rarely transported long distances? This paper will briefly explore the physical and legal interactions between water production and land, and begin a discussion on what this means for probable future source-regions for long-distance water transport.

Has Equality Improved in Post-Apartheid South Africa? Matt Laemmli, Geography, University of Central Missouri, mrl52720@ucmo.edu

South Africa officially ended the apartheid era in 1994. Along with democracy and economic progress came huge hopes for improving the quality of life for all South Africans. Social and economic theories tend to associate better equality with democracy and economic growth. Based on my field research this spring and summer, I examine whether equality has increased with democracy and economic grow, and if not, why it has not been so in South Africa. I examine both the spatial and racial aspects of inequality and find that income inequality has actually grown and poverty remains, despite improvement in social equality.

Integrating Instant Electronic Student Feedback into the World Geography Classroom. Richard Lisichenko, Geosciences, Fort Hays State University, rlisiche@fhsu.edu

World Geography courses, designed to foster global and regional geographic literacy, are often comprised by a substantial amount of geographic content, concepts and assignments. Due to the time and effort required to adequately address each aspect of the course, exploring new approaches that enhance learning assessment and student participation are beneficial. The Fort Hays State University Department of Geosciences has adopted the use of instant electronic student feedback in several sections of World Geography. This approach has yielded positive results, along with unexpected obstacles.

Environmental Model Cities and Cancer Villages in China. Lee Liu, Geography, University of Central Missouri, laliu@ucmo.edu

This paper examines the geographic characteristics of China's environmental Model Cities and cancer villages in the context of dynamic human-environment and place-place (urban-rural) interactions to describe and explain the relationship between industrial transfer from Model Cities and pollution in rural areas. It raises questions about conventional wisdom on human-environment relations by examining the geographic dimension of sustainability, contributing to the growing literature in geographic studies

of environmental justice and sustainability. It argues against the Agrow (pollute) first and clean up later approach to development because pollution causes irreversible damages and the clean up leads to pollution in other places.

A Land Cover and Land Use Change Assessment of the Philippines' Mangrove Forests: 1990 to 2009. Jordan Long, Geography, South Dakota State University jblong@jacks.sdstate.edu

Within the Philippines, large areas of mangrove forests have been converted to aquaculture development and other land uses in the past half century; however, the rate of mangrove deforestation is uncertain. Current, accurate, and reliable data regarding the rates of change in mangrove area does not exist for the Philippines. The objective of this investigation is to accurately map the spatial distribution and quantify the areal extent of the Philippines' mangrove forest from 1990 to 2009. This study presents a decision-tree learning method for identifying mangroves in the Philippines using moderate resolution Landsat TM and Landsat ETM+ imagery. High resolution QuickBird and IKONOS data, as well as ground truth points, will be utilized to perform an accuracy assessment on the classification results. This study will provide the most current, accurate, and reliable data regarding the Philippines mangrove extent and spatial distribution and determine where, why, and when mangrove loss has occurred in recent decades.

***Ad Hoc* Regionalism in Rural America: Two Case Studies.** Max Lu, Geography, Kansas State University. maxlu@ksu.edu.

Rural communities in the United States have been rethinking their development strategies and actively pursuing regional partnerships. *Ad hoc* regionalism is a politically feasible way for rural communities to pool their resources and reach the critical mass necessary to tackle regional issues and take advantage of new economic development opportunities. The two case studies discussed in this paper - the western Kansas Rural Economic Development Alliance (wKREDA) and the San Juan Forum (SJF) in the Four Corners Region - show that *ad hoc* regionalism offers several advantages over rural communities working independently but also poses challenges in its implementation.

The Pleistocene-Holocene Transition in the Central Great Plains: A Multi-Proxy Approach to Reconstructing Paleoenvironments. Rolfe D. Mandel, Kansas Geological Survey (mandel@kgs.ku.edu); Carlos E. Cordova, Geography, Oklahoma State University (cordova_carl@yahoo.com); James L. Theler, Sociology and Archaeology, University of Wisconsin-La Crosse (theler.jame@uwlax.edu)

Multi-proxy data obtained from stream valleys in the Central Great Plains provide new evidence for environmental change during the Pleistocene-Holocene transition. Studies included gastropod, phytolith, and ^{13}C analyses. On the High Plains, gastropod assemblages indicate moist conditions between 12.4 and 11 ka. Soon after 11 ka and continuing until 9 ka, aridification occurred, with aquatic snails quickly disappearing. The phytolith record suggests that at 12.4 ka there was open parkland that included pooids and conifers. By 11 ka and continuing through the Younger Dryas, there was a decline of pooids in favor of chloridoids, and conifers disappear by 10 ka. The warming/drying trend continued into the early Holocene, a pattern supported by ^{13}C

values determined on soil carbon. Trends in the paleoenvironmental data for the east-central Plains are similar to those for the High Plains.

Changes in Large Woody Debris in Streams of the Central Oregon Coast Range, 1978-1999. Richard A. Marston, Geography, Kansas State University (rmarston@ksu.edu), and Jonathan D. Ferree, Geography and Recreation, University of Wyoming

The purpose of this study was to describe and explain changes in large woody debris in forested streams of the central Oregon Coast Range. Measurements of channel morphology acquired in 1978 were repeated in 1998 along 85 km of streams in basaltic terrain of the Siuslaw National Forest. These data include: mass movement in the form of debris torrents, bankfull width, bankfull depth, channel unit types, substrate particle sizes, large woody debris (LWD), and sediment stored behind LWD. Key factors explaining change were: 1) change from widespread clearcut logging to commercial thinning; and 2) a 100-year, 24-hour rainfall event that occurred on 31 December 1996.

Telling Stories: The Discursive Foundation of the Tallgrass Prairie Restoration Movement. Blake Mayberry, Geography, University of Kansas, bmayberry@ku.edu

Stories are one of the most fundamental ways in which human beings understand, perceive, and relate to the world around them. Stories are also often the discursive foundation for alterations that people make to the landscape. In this paper I will examine how stories, how discourses, guide the actions of individuals, non-profit organizations, and governmental entities in their quest to return the landscape of the Midwest and Great Plains to what they perceive to be a more "natural" or "presettlement" condition. In particular, I will focus on what I call the Aprairie epiphany stories often told by individuals who work in the prairie restoration movement the time they first became enamored of the prairie landscape and decided henceforth to work to protect it. These stories mark a change in people, from passive observers of the landscape, to active participants in its making, and for that reason they are immensely interesting from a geographical perspective.

The Spatial and Temporal Variability of Dust Sources on the Southern High Plains and Eastern New Mexico from MODIS Imagery. Mbongowo Mbuh, Geography, Geology and Planning, Missouri State University; Mathew Baddock, Wind Erosion and Water Conservation Research Unit, USDA-ARS, Lubbock, TX; Jeffrey Lee, Economics and Geography, Texas Tech University; and Thomas Gill, Environmental Science & Engineering, University of Texas-El Paso

The Southern High Plains of Texas and eastern New Mexico are some of the most significant sources of dust in North America. Like other major aerosol hot spots, the study area exhibits spatial variability in emission within the region, and also inter-annual variability in the amount of dust activity. Using MODIS satellite imagery this study has identified the origin of 676 dust plumes for a period 2000-2009 and characterized the geomorphology of these sources. For the ten study years, meteorological data were also used to model a published index of potential erosion (*Ew*) over a 37 county area. The

ability of *Ew* to explain observed variation in the mapped source points is examined and areas with high *Ew* index did not always coincide with high dust sources.

The Role of the Elements and Principles of Graphic Design in the Map Design Process. George F. McCleary, Jr., Geography, University of Kansas, mccleary@ku.edu

In *The Look of Maps* (1952), Arthur H. Robinson examined three Avisual characteristics of the cartographic technique: lettering, structure, and color. Recognizing that because map making is so diverse in terms of both goals and products, although there would never be Astandard procedures, there could be procedures Abased on sound principles that would lead to a clear, unequivocal, and legible cartography. Given the diversity of perspectives with respect to the *elements* and the *principles* of graphic design and the constraint of the intellectual function of cartography, it will be a challenge to organize graphic design components into the map design process.

The Las Vegas Urban Cooling Island: A Temperature and Land Cover Analysis. Robert McCleary, Brigham Young University, rjmii@byu.edu

The urban/suburban portions of the Las Vegas valley have been shown to exhibit a net cooling effect instead of the normal urban heat island effect. This probably occurs because of increased urban/suburban vegetation as compared to the surrounding desert land. This study examines the relationship between urban/suburban temperature in Las Vegas using remote sensing data (ASTER Product 8 Surface Kinetic Temperature) and a vegetation index (Normalized Difference Vegetation Index) to determine how temperature varies with vegetation. Preliminary results show the urban/suburban areas have a net cooling effect between two and three degrees Celsius, and a greater variation in temperatures.

Tallgrass Prairie Pollen Assemblages from the Flint Hills of Kansas, USA. Kendra K. McLauchlan, Geography, Kansas State University (mclauch@ksu.edu) and Julie L. Commerford, Geography, Kansas State University

To improve interpretation of tallgrass prairie vegetation in North America from pollen assemblages, we report data from a surface sample set collected in the Flint Hills ecoregion of Kansas. The surface sediments of 25 ponds contained 84 pollen taxa. These sites are dominated by grassland vegetation: the percentage of nonarboreal cover within 1000 m radius of each pond averages 89%, ranging from 59 to 100%. Arboreal pollen percentages range from 17 to 62% and do not correlate with woody cover among sites. We calculated squared chord distance to compare these surface samples with fossil pollen assemblages from nearby sediment cores at Cheyenne Bottoms and Muscotah Marsh.

Integrating Citizen Science and Web Delivery to Create a Virtual Stream Assessment Portal for the Kansas River. Heidi Mehl, Geography, Kansas State University, heidim28@k-state.edu,

The Kansas River is the largest prairie-based river system in the world. Many of the communities along its length rely on it for drinking water, as well as hunting, fishing, and recreation. In 2008 a comprehensive survey was completed for the entire main branch of the Kansas River. The researchers performed the assessment by kayak during a

3-week float from Junction City to Kansas City. The survey recorded river-mile photos using a Ricoh GPS camera. Pictures were also recorded for major structures, points of discharge, bank stabilization structures, and areas in need of clean-up. The photos and associated notes have been stored in an online database, available at URL https://sites.google.com/site/kansasriverinventory/home. This inventory will serve as the basis for future studies, including an analysis of riparian vegetation and bank erosion on the Kansas River.

Object-Based Land Cover Mapping of Eastern North Dakota Bird Survey Routes Using High-Resolution LiDAR and Multispectral Aerial Imagery. Peter A. Metzger, Bradley C. Rundquist, and Kyle L. Wikstrom, Geography, University of North Dakota, peter.metzger@und.edu

Land cover maps for four USGS North American Breeding Bird Survey routes in eastern North Dakota were created from high-resolution digital elevation models (3 m) derived from LiDAR and four-band aerial imagery (1 m) using an object-based approach in eCognition 8.0. LiDAR data were used to create digital surface and bare earth models based on first and last returns. These elevation models were compared to form normalized digital surface models (nDSM). Decision trees were developed, based on characteristics of the object segments created from the nDSMs and multispectral imagery, to classify land cover types.

Simulation Assessment of Climate and Prairie Wetland Complex. Bruce Millett, Geography, South Dakota State University, Bruce.Millett@sdstate.edu

Northern prairie wetland complexes are composed of diverse permanence types and vary in number across the glaciated prairies. A model WETLANDSCAPE was used to simultaneously simulate wetland surface water, groundwater, and vegetation dynamics of the wetland complex, including multiple permanence type. Simulations projected major losses of water volume and shortening of hydroperiods for the 3 permanence types under both 2° C and 4° C warming scenarios. Model projections showed reductions in productive wetlands used by waterfowl for breeding and nesting. Wetlands in the western PPR became too dry and the most vulnerable to climate warming. Wetlands in the eastern PPR has the fewest undrained wetlands and the least amount of waterfowl nesting habitat within the PPR.

The Potential and Problems of Multi-proxy Methods for Interpreting Hunter-Gatherer Landscape Interactions in the Great Plains, U.S.A. Laura R. Murphy, Kansas Geological Survey, University of Kansas, murphy15@ku.edu

Geoarchaeologists use multi-proxy methods such as stable isotope, phytolith, pollen, and soil characteristics to reconstruct the paleoenvironment at archaeological sites. The interpretation of local climate and vegetation from the data are used to infer Native American behavior and subsistence strategies. This paper explores the potential of multi-proxy paleoenvironmental research to understand hunter-gatherer landscape interaction across the Great Plains. Problems with sampling strategy and anthropogenic mixing cause misinterpretation of the data, while lack of an archaeological theoretical framework hinders understanding about hunter-gatherer behavior. Case studies from the

Northern High Plains, Central High Plains, and Southern High Plains illustrate the potential and problems.

Land Tenure Transformation in Peri-Urban San Luis Potosi, SLP, Mexico. Andrew Norris, Geography, University of Kansas, andy1212@ku.edu

Since the transition from social property to privatization in 1992 through reformations to Article 27 of the Mexican Constitution Mexico has seen dramatic changes across its landscape. The growing rural to urban migration complex has increased substantially and urban centers are growing faster as a result. Stakeholders in peri-urban social properties are now faced with the choice to sell their land and relocate or become engulfed by the expanding city around them. Simultaneously recent migrants struggle to incorporate themselves into the local economy and obtain services for their informal settlements. This paper examines the processes and programs that enable/disable land tenure transformation in the city of San Luis Potosi, Mexico.

Place and Creativity in Frida Kahlo's Post-Revolutionary Mexico. Lis Pankl, Kansas State University. epankl@k-state.edu

Mexican painter Frida Kahlo (1907-1954) is a highly contested historical, artistic, and cultural figure. She came of age in a radical political, social, and intellectual milieu which she subsequently challenged and fundamentally altered. In this paper, I examine how the conceptual umbrella of >place and creativity' is instrumental to a robust understanding of Kahlo's oeuvre and image. I place Kahlo within the context of post-revolutionary Mexico, specifically identifying Mexico City as metropolis for a burgeoning Mexican nationalism and highlighting Kahlo's disruptive presence within that ideal.

Religious Affiliation and the 2004 Indian Ocean Tsunami. Bimal Kanti Paul, Geography, Kansas State University, bkp@ksu.edu

This paper explores religious interpretations among survivors for the cause of the 2004 Indian Ocean Tsunami and examines whether religious motives played a role in distribution of emergency assistance by faith-based aid organizations. Although distinct in some aspects of their theology, there are commonalities as well as notable differences in religious interpretations of the causes of the 2004 tsunami. Buddhist, Hindu, and Muslim survivors alleged that some Christian-based relief organizations had a religious agenda that created inter-religious tensions. These tensions did not turn into religious conflict; instead, an unprecedented solidarity among different religious groups was reported during post-tsunami period.

Catastrophic Incision and Debris Fan Formation of the Bluefields River Due to Extreme Rainfall in Southwestern Jamaica. Robert T. Pavlowsky (bobpavlowsky@missouristate.edu) and W. Patrick Dryer, Missouri State University

This study investigates catastrophic incision and debris fan deposition by the Bluefields River in 1979 along the southwestern coast of Jamaica. While extreme rainfall is the primary cause of the flooding, other factors such as the karst mountain setting, sea level rise, and colonial road and pond construction may have contributed to 10 m of

channel incision and several large debris flows. Geomorphic and archaeological evidence and witness interviews are used to determine the patterns and processes of channel response. Colonial map analysis suggests that the reoccurrence interval of this geomorphic event is >300 years.

Exploring a Transnational Newspaper Space: *The Barbuda Voice.* Amy E. Potter, Geography and Anthropology, Louisiana State University. apotte2@lsu.edu

From 1969 to 1990, *The Barbuda Voice* newspaper informed Barbudans living all over the world of the happenings on and off the island of Barbuda. This paper incorporates content analysis to examine the first five years of publication of this monthly newspaper to explore rich themes of Barbudan identity and land tenure preservation. This paper will suggest that the newspaper facilitated greater transnational migrant involvement on the part of many Barbudans living abroad and that this newspaper served as a catalyst to maintaining and protecting the unique common property regime on the island. *The Barbuda Voice* questions the assertion that faster modes of communication have facilitated more meaningful transnational ties.

Government Endorsement of Tasmanian Aboriginal Tourism: Motivations and Impacts. William Price, Geography, University of Kansas.

The Australian national and state governments have promoted Aboriginal involvement in tourism since the 1960s, citing both its economic and cultural benefits. In 2007 the Tasmanian Government released an Aboriginal Tourism Development Plan echoing these claims. Given the extinction discourse that has surrounded the Tasmanian Aboriginals since the 1870s, propagated first by the British colonial government and then the Tasmanian government, this tourism plan is of particular significance. There have been a number of academic case studies performed with mainland Australian Aboriginal communities which illustrate that the actual social impacts of tourism are mixed, with results often not matching the national and state government's assertions. This paper provides an overview of academic literature pertaining to the analysis of Australian government tourism policy and Tasmanian tourism, laying the framework for a project that will analyze the motivations of the Tasmanian government tourism policy and broader issues associated with Tasmanian Aboriginal tourism.

Using Remote Sensing in the Investigation of Relict Features in the United States. R. Zane Price, University of Kansas, pricerz@ku.edu

Geography has a history of being interested in historical topics and landscapes. Carl Sauer introduced the concept of relict features, *The Morphology of Landscape* (1925). Following Sauer, the concept frequently appears in the literature. Remote sensing is important for investigating relict features as it offers one an alternate view. In this study, I used NAIP imagery to examine ghost towns and railroads in Johnson, Lafayette, and Saline Counties in Missouri. By combining historic data, remotely sensed data, and GIS data, a geographer can accurately create a modern GIS representation of the location and distribution of relict features.

An Exercise in Disease Mapping: Recreating the 2007 Outbreak of Ebola Hemorrhagic Fever-Bundibugyo Strain in Uganda Using Geographic Information

Systems and Spatiotemporal Epidemiology Modeling. Kathryn Prinslow, Geography, Fort Hays State University, kaprinslow@scatcat.fhsu.edu

On November 5, 2007, the Uganda Ministry of Health received a report of the deaths of 20 people in Bundibugyo district of Uganda from an unknown source. By November 29, 2007, the Centers for Disease Control and Prevention declared that this illness was Ebola Hemorrhagic Fever (Wamala, 2010). This outbreak was cause by a new strain of Ebola Hemorrhagic Fever. This research will map the outbreak using the information obtained from public health sources and use a spatiotemporal epidemiology model to identify the outbreaks potential of causing an epidemic across Uganda, if there has been no quarantine. A static map will be use to identify the areas that were hit by the virus and spatiotemporal maps will map the reconstructed outbreak from August 2007, the index case, to February 2008, the end of the epidemic.

Politics of Scale in Defining Genocide. Nicole Reiz, Geography, University of Kansas, nreiz@ku.edu

It has long been a cause of disagreement within genocide scholarship that there is not one definition of genocide. Within these discussions, the issue of whether a definition is inclusive and narrow or broad and encompassing is often raised. For this study, the specific issue of scale will be addressed. Just as scale itself is often seen as "natural," certain scalar levels can also be seen as naturally having certain inherent qualities. For instance, social justice and ecological sustainability are seen as more easily attained through decision-making at the local scale than, say, the global scale. The ability for scales to appear to have inherent qualities presents a situation in which they can be used as an expression of power. Actors can choose at what scale they examine a particular issue or phenomenon. This choice can lead to inclusion or exclusion, and choosing at what scalar level an analysis will be undertaken can itself be an expression of power. The ability of social actors to choose the scalar level at which to examine a problem or phenomenon leads to the issue at hand: what are the implications of privileging the state scale over other scalar levels in definitions of genocide? This paper aims at identifying these implications towards a wider discussion.

Incorporating Spatial Dependency and Economic Demography into Stochastic IPAT Estimations: A Local-level Case Study in the U.S. Intermountain West. Tyler D. Roberts, Geography, University of Colorado at Boulder. tyler.roberts@colorado.edu

The STIRPAT model is a commonly used analysis tool in ecological economics. As the stochastic adaptation of the I'PAT identity model, it is designed to empirically test the validity of using population, affluence, and technology as determinants of environmental degradation. We apply the STIRPAT model at the county level in the US Intermountain West. The results of our research indicate that total population and household income are significant and unit elastic determinants of CO2 emissions. Furthermore, quadratic effects for population and income, as well as the presence of the mining industry are statistically significant.

An Ontological Analysis of States: Organizations vs. Legal Persons. Edward Heath Robinson. Geography, University at Buffalo. ehr@buffalo.edu

The purpose of this paper is to argue states are not organizations, but rather objective legal persons of international law. By drawing upon literature in political geography and international law, ultimately shows that states cannot be organizations because states can survive the destruction of their organizational structures. Bottazzi and Ferrario's ontology of organizations is of specific interest because it provides "The State of Italy" as an example of an organization that fits their ontological structure. It is argued that a state's government may be an organization, but the state must be an entity independent from its government or socio-political structure.

A Study of the Roles of Geomorphology and Perception in the Implementation of Stream Restoration Projects. Claire Ruffing, Geography, Kansas State University, cruffing@k-state.edu

Stream restoration is a popular management technique for addressing degraded freshwater resources in the United States despite the scientific evidence questioning its effectiveness. The implementation of restoration projects has created the need for administrative structures at the local and regional scale which influence public and scientific contributions in the planning process. This study uses a questionnaire to investigate the perceptions of the public members of a local watershed partnership in southwest Missouri to better understand their awareness and support for restoration projects. The findings indicate that while there are conflicts between public perceptions of restoration and stream systems there are also promising avenues for resolution which can improve restoration planning.

Modeling a Hypothetical Bioterrorist Incident Involving an Aerosolized Agent Using the Spatiotemporal Epidemiological Modeler (STEM). Thomas C. Schafer, Geosciences, Fort Hays State University. tschafer@fhsu.edu

This study sought to model the spread of a hypothetical Class A agent after an aerosol deployment, using the HYSPLIT plume modeling program, and the Eclipse Foundation's Spatiotemporal Epidemiological Modeler. The scenario outlined a plume release over Los Angeles under optimal conditions, and modeled the spread of the disease under several different mitigation strategies. It was found that the outbreak quickly produced non-contiguous secondary disease foci under most circumstances, causing a rapid spread of the agent to most parts of North America. The study highlights the importance of early and effective mitigation strategies in dealing with any potential bioterrorist incident.

Capillary Flow Dynamics above an Oscillating Water Table: Influence on Surface Moisture Content Evolution. Phillip P. Schmutz, Louisiana State University, phillip.schmutz@gmail.com

Within the beach environment the tidally-induced cyclic fluctuations of the groundwater system play a crucial role in regulating capillary water flow dynamics and ultimately the evolution of beach surface moisture. This study through a series of laboratory experiments seeks to document and model capillary flow dynamics above an oscillating water table and its influence on surface moisture content evolution. Laboratory settings involve the fluctuation of water levels within a tank of water to mimic oscillations within the

groundwater system. The resulting changes in moisture levels within a sediment column are measured using Delta-T probes place at various elevation increments. Results illustrate that water content is increasingly dampened and shifted in time with distance from the upper boundary of the water table.

Erasing Space: Silencing Protest by Re-Programming Spaces of the May 4, 1970 Shootings at Kent State University. Andrew Shears, Geography, Kent State University, ashears1@kent.edu

On May 4, 1970, a group of Ohio National Guardsmen fired into a crowd of Kent State University students protesting the U.S. invasion of Cambodia. In the span of 13 seconds, 67 shots were fired, resulting in the deaths of four students, while nine additional students suffered injuries. News of the shootings shocked the nation and further galvanized the popular peace movement against the Vietnam War. At Kent State, final exams were cancelled and the university closed for six weeks. The incident prompted a number of attempts to change the university's newly acquired dubious image; indeed, spaces on campus were changed as well. The location of the shooting lacked a formal memorial until 1990, some 20 years later. In the 38 years since the event, the university has greatly changed the landscapes of the events of May 4, rendering spaces unrecognizable to students who attended the university at that time. Through carefully designed memorials and changes to the campus, Kent State University has actively sought to erase space, specifically that of the May 4 shootings, and re-program these spaces from those of active protest to reflect a softer, bureaucracy-driven imagination of the events.

Location-Allocation of Girl Scout Service Centers Using GIS. Steven Sherwood, Geography / Geology, University of Nebraska Omaha. ssherwood@unomaha.edu

The Girls Scouts of Nebraska wish to re-organize the way they utilize their resources and services. The current system that is in place is made up of service centers displaced in various areas around the state. It has come to their attention that this system is being under-utilized and they are looking for an alternative way to allocate their resources. A combination of location models, quantitative survey results and geographical information systems (GIS) software will be used to allocate the most efficient sites for these resources.

Talibanistan: From Buffer-Zone to Border-Empire. Sami Siddiq, Washington University, samisiddiq@gmail.com

The tribal territory of northwestern Pakistan has been transformed from its intended geographic function as a nineteenth-century buffer-zone, separating Afghanistan and former British India, to a border-empire at present where pro-Taliban warlords exercise territorial control in rejection of Pakistani sovereignty. This paper traces the strategic role this transborder region has played in destabilizing geopolitical events, from the Soviet-Afghan war of the 1980s through the 2001 fall of the Taliban to the ongoing Western military involvement in Afghanistan. This frontier warlordism is examined to explain how this isolated space was redefined into a territorial base for pro-Taliban insurgents and transnational terrorists.

Geography and Immigration Reform. Jeffrey Smith, Geography, Kansas State University. jssmith7@ksu.edu

According to the Department of Homeland Security, the number of people living in the United States without proper immigration documentation increased from 8.5 million in 2000 to 11.8 million in 2007. Two years later, as the U.S. economy battled the Great Recession, the unauthorized foreign population decreased by one million people. Conventional wisdom tells us that a vast majority of undocumented immigrants originate from the country of Mexico. Because the U.S. government has failed to adequately address the immigration issue, various states have attempted to provide a patchwork of legislation (e.g., California's Proposition 187, Arizona's SB1070) to curb the flow of Aillegal immigrants crossing America's southern border. At the national level immigration reform has been plagued by partisan bantering with neither side of the aisle willing to tackle the issue head on. Is it because neither side has a complete understanding of the issues surrounding U.S. immigration? This paper recasts light on the immigration issue by calling to center stage the role of geography. I discuss some of the major reasons why a geographic perspective can aid in our understanding of this highly complex issue.

Paleoenvironmental Implications of Ant Nest Trace Fossils in Calcic Paleosols of the Neogene Ogallala Formation, Scott County, Kansas. Jon J. Smith, Kansas Geological Survey; Brain F. Platt, Geology, University of Kansas; Greg A. Ludvigson, Kansas Geological Survey; and Joseph R. Thomasson, Biological Sciences, Fort Hays State University

Calcic paleosols in the Ogallala Formation are characterized by carbonate nodules, root traces, and thick paleophreatic calcretes. Ant nest ichnofossils composed of vertically tiered, horizontally oriented pancake-shaped chambers connected by vertical, small-diameter shafts are preserved within and below calcrete beds as $CaCO_3$-filled casts weathering in full relief, or as powdery $CaCO_3$ in sunken relief. The nests are nearly identical to those of extant seed-harvester ants. Such ants are specialized granivores and prefer sandy soils in arid to semi-arid regions. The nests likely predate calcrete formation and suggest extended periods of depositional hiatus and well-drained vadose conditions during their construction.

Climate Sovereignty, Sami Reindeer Herding, and the Rights of Indigenous Peoples. Paula Smith, Geography, University of Kansas

The proposed study addresses the UN Universal Declaration on Human Rights and The Rights of Indigenous Peoples in relation to sovereignty through self-determination. The aim is to explore Sami's self-determination to develop a model for climate sovereignty for adaptation in the face of climate change. To investigate this study I will combine climate records, traditional ecological knowledge, and Geographic Information System (GIS) data to map the reindeer migration. Further, as a participant in a reindeer migration, spring 2011, I will conduct interviews with Sami traditional herders and with Sami scientists and academicians to understand Arctic indigenous peoples' perceptions of climate change and its relationship to issues of Indigenous rights and environmental adaptation.

Mexico in Western Cinema. Travis Smith, Geography, Kansas State University, tws8337@ksu.edu

Cinema has the power to create, reinforce and perpetuate cultural stereotypes, as well as to provide a vicarious experience for the viewer. Westerns are particularly rife with place defining images that can shape the way we think about a location or a culture. Identifying these images are important to our understanding, use and perception (or misperception) of place. While previous scholarship has focused on Hollywood's images along the U.S./Mexico border (Dell'agnese, 2005), this research identifies five images of Mexico based on sixteen Westerns released between 1948 and 2005, all of which are completely or partially set in Mexico.

Documenting the Geography of Water: Using GIS to Inventory Water Resources in Northeastern Montana. Andrew Stickney, stickneyal@gmail.com

The Bureau of Land Management is committed to restoring and preserving water resources to meet the requirements of the Clean Water Act. During the 2010 Field Season, the agency took a significant step forward in achieving those goals by creating a digital inventory of water resources and their related water rights on BLM land in northeastern Montana. This paper describes the methods used by a team of three seasonal cartographic technicians (including the author) to perform the inventory, including a new method for recording relationships between water resources and water rights in Montana, and the inventory's future water resource applications.

Ha-Da-Qi Industrial Corridor in Northeastern China. Lianling (Kathy) Su, Geography, Kansas State University. kathysll@k-state.edu

Regional development in China is uneven. When the People's Republic was founded in 1949, with the help of the Soviet Union, Northeast China used to be the heavy industrial base, and played an important role. However, like the Ruhr, this area suffered from regression after the open door policy began. In September 2003, the Chinese government came out with an idea to recover the old industrial areas in Northeast China. In September 2005, a new plan called the Harbin-Daqing-Qiqihar (Ha-Da-Qi) Industrial Corridor was carried out in the southwest of Heilongjiang Province. This area lies along the railway line of Harbin-Manzhouli, including the provincial capital city of Harbin, China's largest petroleum city Daqing, and the heavy equipment industry city Qiqihar. The purpose of this plan in Heilongjiang province is to make this corridor into a key area for the revitalization of the old industrial base. This corridor is the biggest plan in Heilongjiang province now, still one of the planned regions of the strategy to rejuvenate the Northeast old industrial base. Broad acknowledgement of this corridor does not exist. It offers a good chance for us to take a look at it now, what is going on there, and how they try to recover its economic base. Whether or not it is a good idea to revitalize the area around this corridor, given globalization and the policy of the Chinese government, we still have a lot to study.

The Place of Authenticity. Damon Talbott, American Studies, University of Kansas, dtalbott@ku.edu

As a cultural keyword authenticity is ebbing, increasingly used as the claimed trait that distinguishes persons, products, principles, as well as places. My paper seeks to extend recent interrogations of authenticity (DeLyser 1999, Schnell 2003, Knudsen and Waade 2010) by critically reflecting on this term's relationship to geography. Is there something unique about place that moderates its relationship with the discourse of authenticity? Does the articulation of authentic places differ from the performance of authentic social identities or the production of authentic handcrafts? To what extent do other authentic practices contribute to the process of authenticating a place?

Territorial Identity in the North Caucasus: Identifying Trends through Cognitive Maps. Austen Thelen, Geography, University of Kansas. thelenau@ku.edu

The North Caucasus region separates Russian and non-Russian space. It also constitutes meeting point for Christianity and Islam. The practice of ethno-federalism has worked to engrain various conceptions of these divisions into the region's political geographies by assigning different statuses of political autonomy to the territories of the North Caucasus: *krais* and republics. I used a cognitive mapping exercise to explore conceptions of homeland by respondents of the local ethno-national groups from Stavropol *Krai* and the Republic of Karachay-Cherkessia. Comparing cognitive maps based on ethno-national group, religion, territory, gender, and urbanization illuminates trends in perception regarding political geographies territorial identities.

Developing a Collaborative Health Geographic Information Systems (GIS) at Bugando University College of Health Sciences (BUCHS) in Mwanza, Tanzania. Deborah Thomas, Geography & Environmental Sciences, University of Colorado Denver (deborah.thomas@ucdenver.edu); Kendall Krause, MD; S.E. Ngallaba, MD; D.J. Makerere; Charles Musiba; C.C. Magori, MD; Mange Manyama, MD; Eveline T. Konje, MD; and Benjamin Mayala

Contemporary work in global health has focused on local capacity building and infrastructure development. This model can be further applied to the support of health care and public health training programs, especially in building an area of concentration around a technology-based methodology for supporting evidence-based decision-making. The University of Colorado Denver and the Department of Community Medicine at Bugando University College of Health Sciences in Tanzania have formed a collaborative partnership to build an area of concentration around health GIS and evidence-informed decision making. Currently, no health institution in Tanzania is utilizing and applying GIS as a research tool and so this project focuses on supporting local needs, while incorporating best practices in the fields of global health, community health, and geographic approaches to analyzing population health. This poster will present the current status of this effort, which includes several successful research projects, curriculum development and education.

Warm Season Precipitating Storms in the Southern Great Plains. Donna F. Tucker and Xingong Li, Geography, University of Kansas

We use a multisensor gridded precipitation product to examine the interannual and intraseasonal variability of precipitating storms during the months of April September of 1996 -2006 in the Arkansas-Red River Basin. We designate regions of contiguous precipitation which we consider to be individual storms. Our data set has a total of 519,562 storms whose numbers vary by year and month. Assuming all storms to be convective, we can divide the storms into single ordinary thunderstorms, multiple thunderstorms (includes supercells), and Mesoscale Convective Systems (MCS). Results will be presented for all storms as well as for individual storm types.

A Description of the Social/ecological Implications of the *Trueque Chilote*, Potato-Wood Barter Trade Routes in the Chiloé Region of Chile. Richard A. Vercoe, Geography / Environment and Natural Resources, University of Wyoming, rvercoe@uwyo.edu

An endemic barter system known as *Trueque Chilote* has been in place between the big island of Chiloé, surrounding islets and mainland communities of Patagonia for hundreds of years producing unique nature and culture relationships based on primary food production and natural resource needs. This paper presents initial field observations based on semi-structured interviews with inhabitants describing the trade networks between the islands and the more recently settled mainland forest communities. It appears that the Chiloé island potato wood barter system provides an important role in maintaining the independent non-monetary peasant lifestyles that characterize the region with a limited effect on the forest ecology of the mainland.

Redefining Military Training Land Sustainability. Thomas John Vought, Jr., Geography, Kansas State University; John A. Harrington, Jr., Geography, Kansas State University; J. M. Shawn Hutchinson, Geography, Kansas State University; Lisa M. B. Harrington, Geography, Kansas State University; and Stacy L. Hutchinson, Biological and Agricultural Engineering, Kansas State University

The U.S. Department of Defense is one of the most influential land stewards in the world. With over 10 million hectares of land to monitor, environmental sustainability and best management practices weigh heavily on military land managers. These issues become complicated given that most of the land under the care of military land managers has already been significantly altered from its natural state to support the training of combat soldiers. This presentation represents the first phase of research agenda aimed at examining and restructuring the U.S. Army's training land management policy to more closely match the sustainability discourse in academia.

Censoring the Chinese Internet. Barney Warf. Geography, University of Kansas. bwarf@ku.edu

With 420 million internet users in 2010, China has the world's largest group of netizens. Chinese internet users also suffer the most severe censorship on the planet. The government deploys a vast array of measures collectively but informally known as the Great Firewall. This paper explores the changing nature of Chinese internet censorship and the various means by which the government attempts to limit access to online information, which includes patrols of internet cafes; monitoring of chat rooms, blogs,

networking services, search engines, and video sites; filtering software; and physical harassment and imprisonment of bloggers and internet activists. It also addresses its international implications, including restrictions on foreign firms operating in China (most famously Google), U.S. complicity in Chinese censorship (e.g., via sale of software surveillance programs), and China's role as a model for other governments that seek to limit access to information in cyberspace. Finally, it turns to resistance against Chinese censorship from groups such as Falun Gong.

The Urban/Rural Divide: Metropolitan, Micropolitan and Rural Voting in the 2008 Presidential Election. Robert Watrel, Geography, South Dakota State University robert.watrel@sdstate.edu.

This paper examines the political polarization of rural, micropolitan, and metropolitan counties. Over the past several elections, rural areas tended to support the Republican Party, while urban counties have tended to support the Democratic Party. This paper focuses on the pattern of national, regional, and state voting returns of the 2008 presidential election. The results suggest the there is a strong polarization among urban and rural counties, but that there are exception, depending at which scale is examined.

Landscape as a Factor in Electricity Generation Projects: An Atomic Surprise. Henry Way, James Madison University, wayha@jmu.edu

The coming years are sure to see an increase in the number of electricity generation projects proposed or enacted, as our demand for new energy expands and older plants are replaced. This paper draws on two case studies in the UK to suggest that geographers and energy policy-makers should look carefully at the question of landscape, and consider more critically the NIMBY phenomenon in relation to proposed power plants. This problem, I suggest, goes beyond simply visual disamenity and toward a conundrum of scale, power, and cultural iconography.

Monitoring Tropical Deforestation Using Fourier Analysis. Nicole Wayant, Geography, University of Nebraska-Lincoln. nwayant@notes.unl.edu.

Tropical forests, an essential part of global biogeochemical cycles, are experiencing rapid deforestation. In northeast Paraguay, the Atlantic Forest originally covered 1.2 million km^2 but only 100,000 km^2 today. Typically land cover is monitored with satellite-derived imagery. Due to steady cloud cover in the tropics it's difficult to obtain clear, constant images. This research examines a new methodology for mapping tropical deforestation. Paraguayan NDVI imagery was obtained for 1982-2002. Fourier analysis techniques were used to group pixels into forest or non-forest classes, resulting in categorizing 85% of the pixels correctly, providing a new automatic way of classifying deforested areas.

Memorializing Controversy: Custer Place Names on the Western Landscape. Gerald R. Webster, University of Wyoming, gwebste1@uwyo.edu

The purpose of this paper is to examine the geography of place names in the United States using Custer, after George Armstrong Custer. Due in large part to Custer's death at the Little Big Horn in1876, he was memorialized by the widespread naming of streets and other features including 557 streets and 226 landscape features. While Custer place names are found nationally, the highest concentrations are in the West, and frequently in places associated with controversial actions by Custer.

Investigating Thematic Mapping in Virtual Globe Environments. Travis White, Geography, University of Kansas, tmwhite@ku.edu

Virtual 3-D global representations of the earth such as Google Earth, Microsoft Virtual Earth, and NASA World Wind have over the past five years become nearly as ubiquitous as traditional 2-D flat maps. Because of their newness and popularity, it is necessary for cartographers to re-examine the current cartographic design framework and study the appropriateness of thematic mapping in virtual globe environments. The purpose of my study is to determine if virtual globes are an effective medium for displaying thematic data and, if so, to then establish guidelines for determining appropriate methods of thematic data representation on virtual globes.

Stratigraphy and Paleoenvironment Characteristics of the Brady Soil in Southwestern Nebraska. T.L. Woodburn, W.C. Johnson, and S.R. Bozarth, Geography, University of Kansas

The Pleistocene-Holocene transition is distinguished on the central Great Plains by development of the Brady Soil between ~14-10 ka in upland loess deposits. New proxy data from biosilicates and particulate charcoal show detailed characteristics of the environmental changes taking place at the end of the Last Glacial Maximum. High-resolution phytolith analysis reveals quantitative shifts of plant taxa from Pooideae (C_3) dominant grasses in the late Pleistocene to Chloridoideae (C_4) dominant grasses in the early Holocene with *Stipa*-type Pooideae appearing at this climate shift. Charred phytolith counts and preliminary particulate charcoal analysis indicate an increase in localized fire occurrence during the early Holocene.

Population Nucleation and Environmental Degradation. William I. Woods, Geography, University of Kansas, wwoods@ku.edu

Cahokia, the largest pre-European settlement in North America, was situated on the Middle Mississippi River floodplain and flourished for approximately three hundred years from the 10^{th} century AD onward. The site was favorably located from an environmental standpoint, being proximal to a diversity of microhabitats including expanses of open water and marshes from which the essential, renewable fish protein could be procured. More importantly, the largest local zone of soils characterized as optimal for prehistoric hoe cultivation lay immediately to the east. Here, on the floodplain and along its bordering alluvial fans, the large maize outfields were situated, while the multi-crop house gardens were placed within the habitation zone on soils that had often been culturally enriched by prior occupation. As successful as this strategy might have been for small, dispersed populations in such a plentiful environment, nucleation of large numbers of people at Cahokia provided a different adaptive context

that ultimately led to ruinous consequences. The seeds for the city's destruction centered on anthropogenically produced environmental degradation. Demands on wood resources for fuel and construction were enormous and agricultural field clearance was in forested rather than prairie settings. The resultant watershed deforestation produced greatly increased rates of erosion, runoff, and unseasonable downstream flooding during the summer growing season. The economic and social consequences of declining production and localized crop failures proved disastrous for this city of farmers.

Historical Channel Changes along the Lower Big River, Eastern Missouri.
Ben Young (Young1323@MissouriState.edu) and Robert T. Pavlowsky, Missouri State University

Historical mining operations were responsible for the large-scale contamination of floodplain deposits along the lower Big River of eastern Missouri. Government agencies need to better understand the role of bank erosion as a long-term source of metal contamination to the river. This study uses GIS assessments and field surveys to identify spatio-temporal patterns of bank erosion along 25 km of the lower Big River. Seventy years of aerial photographs show that bank erosion occurs in localized disturbance reaches representing about 35% of the study reach. Bank erosion is presently the major contributor of metal contamination to the study reach.

Exploring Landslide Risk Modeling with GIS. Felix Zamora (felix.zamora@email.ucdenver.edu) and Peter Anthamatten (Peter.anthamatten@ucdenver.edu), University of Colorado Denver.

Landslides are natural hazards that continually divert funds from states, counties and individuals to repair the damages caused by such events. Improved understanding of these events would facilitate better landslide management and prevention with substantial monetary savings. Incorporating GIS as a management tool can facilitate identification of historical landslides and the geographic characteristics associated with them. By integrating these physical and social landscape characteristics into a GIS, landslide vulnerability can continually be modeled as landscapes change. With this information, resource managers can address the potential threats of landslides through tailored policy.

Geomorphology and Soil Stratigraphy of Farra Canyon, Central Oklahoma. Ashley B. Zung, Geography, University of Kansas (azung@ku.edu), and Rolfe Mandel Anthropology, University of Kansas and Kansas Geological Survey, mandel@kgs.ku.edu

Sandstone canyons in central Oklahoma contain alluvial fills with multiple buried soils and tree stumps that date to the late Pleistocene and late Holocene. We recently studied the soil stratigraphy and the valley fill in Farra Canyon, which resembles soil-stratigraphic sequences described in other canyons in the region (e.g. Nials 1977). The soil stratigraphy in Farra Canyon includes three, weakly developed buried soils and a basal deposit possibly analogous to the lower Domebo formation. Based on preliminary results, buried soils preserved in Farra Canyon may yield information that can be used to reconstruct late-Quaternary paleoenvironments of the Southern Rolling Plains.