

Institute for Environmental Science and Policy

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Institute for Environmental Science and Policy

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UN SPECIAL ENVOY ON CLIMATE CHANGE AND FORMER PRIME MINISTER OF NORWAY TO SPEAK AT IESP EVENT



On September 29, 2011, Dr. Gro Harlem Brundtland will deliver a lecture “Our Common Future: Sustainable Development in a Deteriorating World” at IESP sponsored event. She will discuss sustainable development focusing on poverty reduction and emissions reductions, two most important challenges facing the world today. She will delve into potential solutions and stress the importance of taking the right steps across both the private and public sector to safeguard the planet and move towards a future of sustainable development.

An energetic blend of stateswoman, physician, manager, politician, and international activist, Dr. Gro Harlem Brundtland has always led the world on issues of global significance. For over four decades, she has been dedicated to global interdependence, focusing on promoting sustainable development, increasing environmental awareness, and advocating for good health as a basic human right.

Dr. Brundtland spent ten years as a physician and scientist, and 20 years in public office, including serving as Prime Minister of Norway—the first woman, and the youngest person to ever do so. She was Chair of the World Commission of Environment and Development, and the first female Director-General of the World Health Organization.

Her forward-thinking and global awareness continues to elevate her worldwide profile. She now serves as UN Special Envoy on Climate Change, seeking ways to balance human enter-

prise and the planet’s limits. The guiding force behind the “Brundtland Report” on sustainability over 20 years ago, she maintains her focus on the developmental impact of climate change and global warming.

The lecture will take place at 3:00pm in the Student Services Building, Conference Rooms B & C, 1200 West Harrison Street in Chicago. There will be a Q&A session after the lecture, followed by a reception.

This event is co-sponsored by: Office of the Vice Chancellor for Research and University of Illinois Open Source Textbook Initiative

Additional support provided by: School of Public Health, Environmental and Occupational Health Sciences, College of Engineering, College of Urban Planning and Public Affairs, College of Liberal Arts and Sciences, Office of Sustainability, Office of the Vice Chancellor for Administrative Services, Honors College, and Office of the Vice Provost for Undergraduate Affairs.

MISSION STATEMENT

The mission of the Institute for Environmental Science and Policy (IESP) at the University of Illinois at Chicago (UIC) is to advance multidisciplinary research and scholarship within the environmental and health sciences, engineering, economics, urban planning and the social sciences among UIC's faculty and students, to prepare the next generation of environmental scientists and decision makers, and to transmit workable solutions for environmental problems to the public sector.



Thomas L. Theis

“The Brundtland Report makes it clear that while sustainable development is enabled by technological advances and economic viability, it is first and foremost a social construct that seeks to improve the quality of life for the world’s peoples...”

FROM THE DIRECTOR

In this issue of the newsletter, we profile Gro Harlem Brundtland, M.D., world stateswoman and currently United Nations Special Envoy on Climate Change. Dr. Brundtland has graciously agreed to visit UIC, and on September 29 will deliver an address “Our Common Future: Sustainable Development in a Deteriorating World”. Here I present a bit of background for her talk.

In 1983 the United Nations General Assembly passed resolution 38/161 entitled “Process of preparation of the Environmental Perspective to the Year 2000 and Beyond”, that established a special commission to propose long term strategies for achieving a sustainable environment, and to recommend ways in which concern for the environment may be translated into greater co-operation among developing countries and between countries at different stages of economic and social development.

The commission later adopted the formal name “World Commission on Environment and Development” (WCED), but became widely known by the name of its chair, Gro Harlem Brundtland of Norway, a public health advocate who had served as Norway’s Minister for Environmental Affairs. The commission had twenty-one members drawn from across the globe, half of whom represented developing countries. In addition to its fact-finding activities on the state of the global environment, the commission held fifteen meetings in various cities around the world seeking firsthand experiences on the how humans interact with the environment. The Brundtland Commission issued its final report, “Our Common Future” in 1987.

Although, technically, the Brundtland Report did not invent the term “sustainability”, it was the first credible and widely disseminated study that probed its meaning in the context of the global impacts of humans on the environment. Its main and often quoted definition refers to “sustainable development” as “...development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. It put forth the notion that sustainability involved three interrelated elements: economic well-being, social equity, and environmental quality. The pathways for integration of these may differ nation by nation; yet they must share certain common traits: “the essential needs of the world’s poor, to which overriding priority should

be given, and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs”.

The Brundtland Report makes it clear that while sustainable development is enabled by technological advances and economic viability, it is first and foremost a social construct that seeks to improve the quality of life for the world’s peoples—physically through the equitable supply of human and ecological goods and services, aspirationally through making available the widespread means for advancement through access to education, systems of justice, and healthcare, and strategically through safeguarding the interests of generations to come. In this sense sustainability sits among a series of human social movements that have occurred throughout history: human rights, racial equality, gender equity, labor relations, and environmental conservation, to name a few.

In many ways the Brundtland report is a restatement of the ideals of the enlightenment that figured so prominently in the founding documents of the American republic. Indeed, the National Environmental Policy Act of 1970 (NEPA), which sets forth the legal basis for US environmental policy (and is still the law of the land), lays out remarkably similar terms clearly and unambiguously. NEPA established a national goal to create and maintain “conditions under which [humans] and nature can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans” (italics added). Further, NEPA saw the need for long term planning, to “fulfill the responsibilities of each generation as trustee of the environment for succeeding generations”, for equity “to assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings”, and for economic prosperity as we “achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities”. Although the exact word “sustainable” does not appear, NEPA is in all major respects congruent with the goals of the Brundtland Report that appeared 17 years later, anticipating the need to integrate environmental quality with social and economic needs. Dr. Brundtland’s appearance reminds of who we are, and those ideals that we still seek to attain.

Open Source Textbook on Sustainability

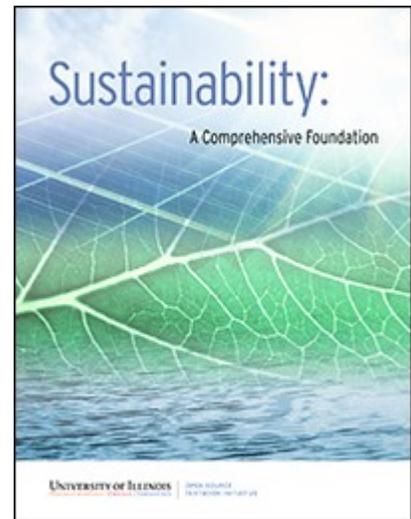
Over 20 faculty members from the three campuses of the University of Illinois (Urbana-Champaign, Chicago and Springfield) have collaborated to create a new online, open source introductory textbook entitled “Sustainability: A Comprehensive Foundation.” The textbook offers first and second-year college students a glimpse into the expanding field of sustainability, and includes essential concepts from the field of engineering and the applied arts, natural and social sciences, and the humanities. The text is a result of the University of Illinois Open Source Textbook Initiative that utilized initial funding of \$150,000 from the U.S. Department of Education Fund for the Improvement of Post-Secondary Education secured by U.S. Senator Dick Durbin. The principal editors of the book are Professor Jonathan Tomkin of the Department of Geology at Urbana-Champaign, and Thomas Theis, Director of the Institute for Environmental Science and Policy at UIC.

The open source textbook is available through the Rice University sponsored Connexions website <http://cnx.org/content/col11325/latest/>. Open source textbooks are free to share (copy, distribute and

transmit) and remix (adapt) with the stipulation that the work be attributed to the author. This allows faculty to customize the learning environment in a way that cannot easily be done with traditional, printed textbooks. Another benefit to the open source textbook is the reduction in cost of textbooks to the students. It is widely recognized that the rising cost of textbooks and associated learning materials have challenged college affordability for many students. The University of Illinois is proud to provide leadership in this emerging form of publishing.

Publication of all chapters for the textbook is estimated to be completed by October 1, 2011. There will be eleven chapters, and each chapter will contain an average of four to five modules. Chapters include Environmental Policy, Climate and Global Change, Environmental and Resource Economics, Problem-Solving, Metrics and Tools for Sustainability, Sustainability Planning and Infrastructure, and Sustainability: Ethics, Culture and History.

This project is spearheaded by University Administration with cooperation from the following departments—Department of Natural Resources and Environmental Scienc-



es at the University of Illinois at Urbana-Champaign, Institute for Environmental Science and Policy at the University of Illinois at Chicago, and Department of Environmental Studies at the University of Illinois at Springfield.

The Open Source Textbook Initiative has a website with further information about the faculty and staff responsible for producing the materials. This website can be found at <http://www.illinoiseducator.illinois.edu/opentxt/default.htm>. For further information contact: Charles V. Evans, Assistant Vice President, Academic Affairs; Director, University Outreach and Public Service, E-mail: cevans4@uillinois.edu; Phone: (217) 333-1460.

Enhancing Stakeholder Participation in Environmental Planning

Moira Zellner, IESP and Urban Planning and Policy joint faculty, assembled a multidisciplinary team to tackle the issue of stakeholder participation in environmental planning. The team is comprised of urban planners and environmental scientists, experts in complexity modeling and spatial analyses for science and policy applications, learning scientists studying how

technology enhances cognitive and decision-making processes, and computer scientists concerned with visualizations and visual analytics.

The team, with Principal Investigator Moira Zellner and Co-Investigators William Dieber (Urban Data Visualization Lab), Charles Hoch (Urban Planning & Policy), Andrew Johnson and Leilah Lyons

(Computer Science), Emily Minor (IESP/Biological Sciences), and Joshua Radinsky (Curriculum & Instruction), received \$249,953 for two years under the Cyberinfrastructure Training, Education, Advancement, and Mentoring for Our 21st Century Workforce (CI-TEAM) program from the National Science Foundation. The project is titled “CI-

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EMILY MINOR STUDIES POLLINATORS IN CHICAGO

Food deserts in Chicago are still a persistent problem affecting especially keenly low-income inner city communities. Urban agriculture, with vegetables and fruits often grown in private and community gardens as well as larger tracts of vacant land, can contribute to urban sustainability and can provide food security to those affected communities. But to flourish, urban gardens need help from insect pollinators. Despite the potential social, nutritional, and ecological benefits for urban agriculture, little is known about the pollination services that support such efforts. Emily Minor, IESP and Biological Sciences joint faculty, with Kevin Matteson from Biological Sciences, received NSF funding for a two-year project to study pollination services in Chicago.



Many crops grown in urban gardens benefit from or are dependent on pollination by insects, especially bees. However, while studies have found some bees to be prevalent in florally-diverse urban habitats, bee diversity or abundance also have been shown to decrease with increasing urbanization. Therefore, pollinator communities may vary across the urban landscape due to local management of floral resources (e.g., flower plantings along city blocks) as well as development intensity at larger spatial scales; these factors may then influence pollination services across the urban landscape.

Emily's group will determine which pollinating insects are present across Chicago and whether all areas of the city receive adequate pollination for wild plants and vegetable crops. They will use an experimental "mobile garden" on the back of a pick-up truck and will systematically move the mobile garden across the city to evaluate changes in pollination service that stem from landscape rather than site factors. At each study location, they will: 1) observe six purple coneflower plants for sixty minutes, 2) determine how long it takes bees to



come and which types of bees come in different neighborhoods, 3) count all other flowers on the block surrounding the purple coneflowers, and 4) take pictures and catch some bees to record which species are present.

"An assessment of pollination services in cities will increase understanding of the potential sustainability of urban ecosystems. This knowledge can be applied to increasing yield in urban agriculture, potentially contribution to food securing in densely populated neighborhoods" says Emily.

MOIRA ZELLNER RECEIVES DISCOVERY FUND FOR MULTIDISCIPLINARY RESEARCH

Moira Zellner, IESP and Urban Planning and Policy joint faculty, with co-investigators Leilah Lyons from Computer Science and Miquel Gonzalez-Meler from Biological Sciences, received Chancellor's Discovery Fund for Multidisciplinary Research. The purpose of this funding program is to foster academic inquiry that draws on the expertise and innovations of multiple disciplines, to nurture the research career trajectories of promising early stage investigators, and to help awardees leverage extramural funding. This project is co-sponsored by IESP and Departments of Urban Planning and Policy, Computer Science, and Biological Sciences.

Moira and her team received the Discovery award for their project "Participatory Modeling and Planning for Sustainable Water Management in the Chicago Region." This project is intended to develop the baseline research to create an application using agent-based modeling (ABM) in the area of planning to facilitate collaborative, non-expert usage. The goal of public participation in urban planning is to reach consensus and decisions on contentious issues, but citizens have difficulty learning about and applying nuanced considerations to issues outside of their expertise. Computer simulations and modeling are often used to assist with planning; however, these tools are designed for scientists and planners, not created with the lay person in mind. The proposed research will have real users assess their ability to interact with the model and interpret its results. This type of ABM could have broader implications for community engagement beyond issues related to natural resources.

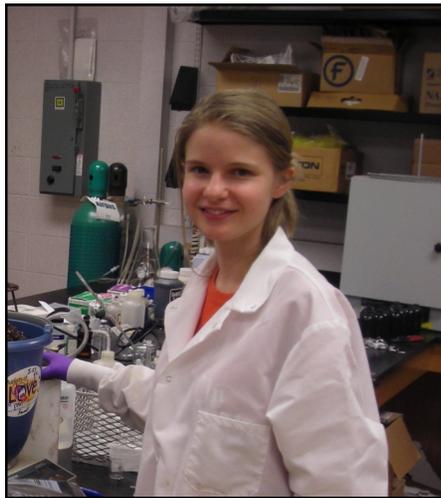
IESP AWARDS THREE PREDOCTORAL FELLOWSHIPS

The IESP Predoctoral Fellowship competition was announced in March 2011, with awards presented in August 2011. The mission of the Predoctoral Fellowship program is to span traditional boundaries among disciplines while helping students develop knowledge and skills for independent research that contributes to advances in environmental scholarship.

IESP received fourteen applications from UIC graduate students enrolled in doctorate programs in varied disciplines of study, including civil engineering, art history, biological sciences, environmental engineering, urban planning and policy, chemical engineering, environmental epidemiology, electrical and computer engineering, and environmental and occupational health sciences. From this pool, three applicants were selected for their interdisciplinary approach to solving problems and research congruency with the mission of the Institute. Each Fellow was awarded \$10,000 for the 2011-2012 academic year to support their research efforts.

The Predoctoral Fellowships were awarded to: Kelly Granberg from the Department of Civil and Materials Engineering, Basil Iannone from the Department of Biological Sciences, and Ryan Lugalia-Hollon from the Department of Urban Planning and Policy.

Kelly's environmental engineering research interests center on contaminant sources as they relate to fate and sustainability of natural resources. Her broad dissertation "Sources of Contaminants in the Chicago Area of Influence: A Multimedia Analysis" is a source apportionment analysis identifying contamination sources and quantifying their contribution to specific sites



with the goal of minimizing environmental contamination risk and supporting sustainable natural resource use. As an NSF IGERT fellow in the LEAP (Landscape, Ecological, and Anthropogenic Processes) program, she is interested in applications of source apportionment to gain emissions information and target sources with control measures, and to improve resource management strategies at the receptor by estimating contaminant bioavailability, identifying weathered, degraded, and new pollution, and recognizing local, regional, and global contributions. She uses a variety of multivariate source apportionment methods including Positive Matrix Factorization and Principal Component Analysis to mathematically predict sources of contaminants based on concentrations measured at the site or receptor. By analyzing multiple environmental compartments including solid media, and a large number of pollutants like hydrophobic organic contaminants accumulated in the environment and biosphere, her results have aided safe reuse of dredged sediment and bio-solids for soil poor locations, assured concerned public of local air quality protection, and helped elucidate the role of contamination in envi-

ronmental processes in Chicago-Illinois. Kelly's research advisor is Prof. Karl Rockne.

Basil's research, which lies at the interface of applied and basic ecology, focuses on understanding the many ways that individual species, community composition, and ecosystem processes interact to influence one another and community change over time, particularly in the context of biological invasions and ecological restorations. He, further, ties to study systems as holistically as possible and have, therefore, become interested in non-reductionist techniques such as multivariate statistics and agent-based models that allow for the detection of significant patterns among the many highly-interrelated



factors that exist in ecological systems. Basil's dissertation project titled "Interdisciplinary and Novel Approaches to Understanding the Ecology of *Rhamnus cathartica* L. (European buckthorn) Invasion and Management" is comprised of five interrelated, interdisciplinary studies that are designed to make inferences about various stages of buckthorn invasion ranging from its initial establishment and spread to the belowground consequences of its removal. Basil's research advisor is Prof. David Wise.

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NING AI, NEW JOINT FACULTY IN IESP AND URBAN PLANNING AND POLICY



A new faculty member, Ning Ai, has joined UIC in August 2011 with a joint appointment in IESP and the Department of Urban Planning and Policy. Ning received her PhD in City and Regional Planning from Georgia Tech and a Master's degree in City Planning from MIT. She also holds a B.A. in environmental economics from Renmin University of China and a B.S. in environmental engineering from Tsinghua University.

Ning's research and teaching interests focus on urban environmental planning and its integration with land use, industrial ecology, and sustainable economic development. Most recently, she was engaged in the socioeconomic and spatial analysis of material and waste management, with a focus on electronic waste, post-consumer carpet, and municipal solid waste. Currently, Ning serves as the Secretary of the Waste Management Technical Coordinating Committees of the Air & Waste Management Association.

Ning has worked for the World Bank, the Massachusetts Bay Commuter Railroad Co., and the Georgia State Department of Natural Resources. Her previous work experiences include the application of GIS in environmental protection, urban and environmental indicators, and the socioeconomic impact analysis of natural disasters.

"I'm excited about the prospect of contributing to the interdisciplinary research at the IESP and helping expand the international collaborations in both research and education" says Ning. She plans to continue her research on multi-disciplinary models, tools, and theories that can be applicable in urban sustainability analysis. She is particularly interested in exploring strategies that may reduce the footprint of urban growth and seeking the synergies among economic, environment, and social systems. Ning will be also involved in developing a new course, Systems Methods for Environmental Policy.

IESP'S NEWEST GRADUATE STUDENT – ANDREA HICKS

Andrea Hicks joined IESP in August 2011 as a graduate research assistant and is pursuing a PhD in the Department of Civil and Materials Engineering under the direction of IESP Director, Thomas Theis.

"I'm excited to be joining IESP and to begin working with Dr. Tom Theis" says Andrea. Her research interests focus on utilizing environmental systems analysis to reduce anthropogenic impacts on the natural world. Her proposed research at UIC will likely focus on the impact of nanomaterials in conventional building materials. Andrea's goal is to utilize environmental systems analysis in the academic, governmental, or corporate setting to minimize impacts on the natural world.

Andrea came to UIC after working eight months as an Oak Ridge Institute for Science and Education Research Associate (through Oak Ridge National Labs) at the Region 5 EPA Office in the Superfund Division. During her time at the EPA, she performed site mapping to support Superfund remediation and review activities, spatial modeling of groundwater data, and worked to implement the interface to the Groundwater Evaluation Optimization System database.

Andrea received her B.S. in environmental engineering from Michigan Technological University in 2009. While working on her B.S. she spent summers interning in the automotive and the cement manufacturing industry. She received her M.S. from Clemson University in 2010, with her graduate research focusing on the modeling of greenhouse gas emissions from conventional small scale wastewater treatment plants. While at Clemson, she was a teaching assistant in the Department of Environmental Engineering and Earth Science, for undergraduate and graduate courses such as, introduction to environmental engineering, drinking and wastewater treatment and design, and pollution prevention.



(Continued from page 5)

Ryan's research project is focused on the public safety system, a dimension of cities that greatly influences how people navigate the outdoor world. He asks the question "How do neighborhood safety dynamics influence the resident-environment relationship?" These safety dynamics include crime, the fear of crime, and government re-

sponses to crime. Ryan's hypothesis is that neighborhood safety concerns constrict the ways that residents relate to both the built and natural environments, and that these constrictions combine to reduce energy-efficient behaviors. He will test this hypothesis through a qualitative research study in the Austin neighborhood on Chicago's West Side, an area with high rates of both crime and incarceration and



thus serious public safety challenges. Ryan's research advisor is Prof. Nik Theodore.

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TEAM Demonstration Project: Enhancing Stakeholder Participation in Environmental Planning with Visualization Tools that Support Complex Systems Learning and Spatial Thinking."

The aim of the project is to enhance existing visualization tools and the social processes in which they are embedded to better support participatory planning addressing complex environmental problems. The complexity of such problems makes it hard to trace causal impacts through the web of interactions, including the effects of individual decisions on the quality of shared natural resources. While visualization tools have been designed to assist stakeholders to plan for these problems, they are usually very elaborate, requiring trained facilitators to manage their inputs and interpret their outputs. Similarly, an increasing amount of relevant sensor and simulation data exists, but in a form that is not accessible or usable for this community. As a result, stakeholders are insulated from the very information they need for their decisions, basing them instead on invalid knowledge and unexamined assumptions. This study will allow to design tools that bring forward the spatial relationships and interac-

tions that are hidden in the complexity of environmental problems, yet making them accessible to stakeholders for routine use in the planning decisions shaping the environmental future of places across the U.S.

To achieve this aim, this interdisciplinary team is working with existing agent-based modeling and geographic information systems software, applying Design-Based Research and Participatory Design methods to create software and evolve the collaborative learning structures needed for its use in this context. They are distilling stakeholder needs and preferences to propose and test alternate user interfaces to support stakeholder input of specialized knowledge and values, interpretation of outputs, and collaborative use of the tools in the social context of participatory planning. They are also exploring ways to capitalize on the data- and opinion-sharing potential of social networking technology to enhance stakeholders collective learning and planning with these tools. Engaging actual stakeholders in the design process thus greatly increases the chance that the software and learning structures will be ultimately adopted by the target demographic upon deployment. A by-product of this research includes the assess-

ment materials to examine how each one of these tools supports different aspects of visual thinking about complex environmental problems, and how they inform planning judgments to address them.

Approaching environmental issues from across the fields represented in this research team provides the appropriate scope for creating infrastructure for the public and for planning practitioners in a way formerly limited to specialists. The main goal is to train citizens with the ability to engage in spatial and complex systems conceptualization of the environmental issues they face, and empower them to chart their own future with a fuller understanding of the impacts of their decisions. A second goal is to develop the curricular and pedagogical materials to train Computer Science students to create effective visualization software and interfaces for this purpose, and Urban Planning students to conduct participatory processes with these tools. A future implementation stage will build on this work to deploy the software, accompanying social practices and supporting cyber-infrastructure in other stakeholder communities dealing with a variety of complex environmental problems, and to incorporate the training modules in the Urban Planning and Computer Science curricula at UIC.

TALKS, SEMINARS, CONFERENCES

Jane Lin:

- Presented a seminar "Modeling Air Quality Impact of Transportation" at the University of Florida, Gainesville, FL, March, 2011
- Presented a webinar "Using MOVES in PM Hot Spot Analysis" at the MOVES Model User Group for Project Sponsors Web Conference sponsored by FHWA, May, 2011
- Presented "An investigation in the feasibility of urban cooperative delivery strategies" at the 2011 INFORMS Midwestern Conference, "Analytics for Competitive Advantage", the Transportation Cluster, Ohio State University, Columbus, OH, August, 2011

Thomas Theis:

- Presented "Life Cycle Analysis and Nanostructured Materials" at the University of California, Santa Barbara, CA, February 2011
- Participated in the NSF Career Proposal Panel at the Association of Environmental Engineering and Science Professors 2011 Conference at the University of South Florida, Tampa, FL, July 2011
- Presented "The Evolution of US Environmental Policy" at the Summer Institute on Sustainability and Energy at the University of Illinois at Chicago, August 2011
- Presented "Consumption, Sustainability, and Social Benefits" at the US EPA/National Science Foundation Workshop on Design of Sustainable Product Systems and Supply Chains, Arlington, VA, September 2011

- Presented "Life Cycle Analysis and Nanostructured Materials" at the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Scottsdale, AZ, September 2011
- Presented "Science Integration for Decision Making" at the US EPA, Science Advisory Board, Washington DC, March 2011

Moira Zellner:

- Invited speaker and instructor for the Inter-American Institute for Global Change Research Training Workshop "Enhancing participatory resource management and planning: Learning with LUCC-ecological models," April 2011 in Paraguay
- Invited speaker at the University of Maryland - Baltimore County Center for Urban Environmental Research and Education (CUERE) Seminar Series. "Applying complexity theory and methods to environmental planning," May 2011 in Baltimore, MD
- Invited speaker to Homeland Security Workshop on Complex Adaptive Systems and Homeland Security Risk, July 2011 in Washington, DC

David Wise:

- Invited speaker at the Symposium on Deciduous Forests, Climate Change and Ecosystem Processes, June 2011 at the University of Oviedo, Spain
- Invited speaker at the 2011 Tyson Research Center Summer Seminar Series in Ecology and Evolution at the Washington University in St. Louis, MO

RECENT SCHOLARLY PUBLICATIONS

- Birkhofer, K., A. Fließbach, D. H. Wise and S. Scheu. (2011). Arthropod food webs in organic and conventional wheat farming systems of an agricultural long-term experiment: a stable isotope approach. *Agricultural and Forest Entomology* 13: 197-204
- Theis, T.L., B. Bakshi, D. Durham, V. Fthenakis, T. Gutowski, J. Isaacs, T. Seager, and M.R. Wiesner (2011). "A Life Cycle Framework for the Investigation of Environmentally Benign Nanoparticles and Products", *Physica Status Solidi* 9: 312-317
- Klein-Banai, C. and T.L. Theis (2011). "An Urban University's Ecological Footprint and the Effect of Climate Change", *Ecological Indicators*, 11 (3): 857-860
- Sengul, H. and T.L. Theis (2011). "An Environmental Impact Assessment of Quantum Dot Photovoltaics (QDPV) from Raw Material Acquisition through Use", *Journal of Cleaner Production*, 19 (1): 21-31
- Minor, E.S. and R.H. Gardner. (2011). Landscape connectivity and seed dispersal characteristics inform the best management strategy for exotic plants. *Ecological Applications* 21(3): 739-749
- Galloway, J.N., T.L. Theis, O. Doering, V. Aneja, E. Boyer, K.G. Cassman, E.B. Cowling, R.R. Dickerson, W. Herz, D.L. Hey, R. Kohm, J.S. Lighty, W. Mitsch, W. Moomaw, A. Mosier, H. Paerl, B. Shaw, and P. Stacey (2011). U.S. Environmental Protection Agency Science Advisory Board. Reactive Nitrogen in the United States: An Analysis of Inputs, Flows, Consequences, and Management Options - A Report of the EPA Science Advisory Board. EPA-SAB-11-013, U.S. EPA Science Advisory Board, Washington, DC

CONFERENCE PROCEEDINGS

- Shelley, T., Lyons, L., Minor, E., & Zellner, M. (2011). Evaluating a paper-based TUI for spatially sensitive simulations, In *Extended Abstracts of the 29th International Conference on Human Factors in Computing Systems (Chi Ea '11)*.
- Minor, E.S. et al. (2011). Chicago ULTRA-ex: Connecting the social and ecological sciences with planners, managers, and the public. U.S. Chapter of the International Association of Landscape Ecology annual meeting, Portland, OR
- Lookingbill, T., E.S. Minor, J. Ferrari, L. Wainger. (2011). Using risk of reinvasion to prioritize invasive plant species management. U.S. Chapter of the International Association of Landscape Ecology annual meeting, Portland, OR
- Belaire, J.A., B. Kreakie, E. Minor, T. Keitt. (2011). A bird's eye view: Analyzing multi-scale landscape characteristics of stopover sites for migrating whooping cranes. U.S. Chapter of the International Association of Landscape Ecology annual meeting, Portland, OR
- Matteson, K., E. Minor. (2011). Shifting direct and indirect effects of land use, vegetation, and floral resources on pollinators across an urbanized landscape. U.S. Chapter of the International Association of Landscape Ecology annual meeting, Portland, OR
- Dribin, A., J.A. Belaire, D. Johnston, D. Lynch, E. Minor. (2011). It's a small world: a network analysis of the culture of conservation in Calumet. U.S. Chapter of the International Association of Landscape Ecology annual meeting, Portland, OR
- Chiu, YC, J. Lin, S. Vallamsundar, S. Bai (2011) Enhancing MOVES Transportation and Air Quality Analysis by Integrating with Simulation-Based Dynamic Traffic Assignment, presented at the 13th TRB Transportation Planning Applications Conference, Reno, NV

2011
IESP
External
Advisory
Board
Meeting:
Friday
September
30th

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- Vallamsundar, S., J. Lin (2011) Transportation Conformity Particulate Matter Hot-Spot Air Quality Modeling, presented at the Conference on Transportation Planning, Land Use and Air Quality, San Antonio, TX
- Szczurek, P., B. Xu, O. Wolfson, J. Lin (2011) Intelligent Transportation Systems: When is Safety Information Relevant, to be presented at the 12th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2011), Lucca, Italy
- Lin, J., Y.C. Chiu, S. Vallamsundar, S. Bai (2011) Integration of MOVES and Dynamic Traffic Assignment Models for Fine-Grained Transportation and Air Quality Analyses, to appear in the Proceedings of the

IEEE Forum on Integrated and Sustainable Transportation Systems (FISTS), Vienna, Austria

- Lin, J., Vallamsundar, S., YC Chiu, S. Bai (2011) Integration of MOVES and Dynamic Traffic Assignment Models for Fine-Grained Transportation and Air Quality Analyses, presented at the MOVES-Transportation Modeling workshop at the 90th Transportation Research Board Annual Meeting, National Research Council, Washington, DC
- Chen, Q., J. Lin (2011) An Investigation in the Feasibility of Urban Cooperative Delivery Strategies, presented at the 2011 INFORMS Midwestern Conference, "Analytics for Competitive Advantage", the Transportation Cluster, Ohio State University, Columbus, OH

CHAIRS, APPOINTMENTS

Emily Minor:

- Elected member of Executive Committee for US Chapter of the International Association for Landscape Ecology

Jane Lin:

- Elected the Chair of the Transportation Research Board Committee on Transportation and Air Quality for the term of April 2011 – April 2014
- Elected the Associate Editor of the Proceedings of the 2011 IEEE Forum on Integrated and Sustainable Transportation Systems
- Elected to the Editorial Board: International Journal of Sustainable Transportation, published by Taylor & Francis Group, August 2011

- Organizing committee member for the Transportation Planning, Land Use, and Air Quality Conference, May 2011 in San Antonio, TX
- Visiting Scholar in the Department of Transportation, University of Valenciennes, France, July 2011

Thomas Theis:

- Chaired Sustainability/Green Nano and Remediation session at the Environmental Nanotechnology Conference, June 2011 in Waterville Valley, NH

David Wise :

- Elected to the Editorial Board of the Journal of Coupled Human and Natural Systems