

Institute for Environmental Science and Policy

OFFICE OF SUSTAINABILITY GREENS THE CAMPUS

Inside

<i>Letter from the Director</i>	2
<i>Current Research: Deconstruction</i>	3
<i>New Faculty: Emily Minor</i>	3
<i>River Health Research: Samuel Dorevitch</i>	4
<i>Green Jobs Research</i>	5
<i>Faculty Achievements</i>	6
<i>Upcoming Events</i>	5-6

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Efforts to make the UIC campus more environmentally sustainable are moving ahead, especially since the appointment earlier this year of Cynthia Klein-Banai as Interim Associate Chancellor for Sustainability. Greening the campus is an effort that began as an initiative of IESP, with IESP Director Tom Theis getting the effort off the ground and co-chairing the Chancellor's Sustainability Task Force and IESP's Susan Kaplan identifying and pursuing resources for adopting more sustainable practices.

Klein-Banai now employs several students and is focusing on three main areas: recycling, energy efficiency, and transportation. The Office of Sustainability also supports the continuing efforts of the Chancellor's Task Force by providing its members with information and data, "using the Task Force recommendations and the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment and Rating System (STARS) to guide us," says Klein-Banai.

In terms of energy

efficiency, Klein-Banai's office is working to implement initiatives that predate the start of the Task Force, tracking efforts and meeting with administrators to report on progress. "A major effort right now is installing meters in the main buildings that consume energy," she notes. In addition, the University is aiming for the renovated Lincoln Hall, which will have a geothermal system, to meet the Leadership in Energy and Environmental Design (LEED) silver standard. The energy subcommittee of the Task Force plans to develop a green building policy and a climate action plan to reduce campus emissions of greenhouse gasses.

Numerous steps have been taken to strengthen UIC's recycling program. The university has purchased new lids for bins with openings in

shapes that reflect the types of recyclable materials that are acceptable, as well as new identifying labels. What to put in which receptacle needs to be clear, since "confusion can be a deterrent," says Klein-Banai. Additionally, the Office of Sustainability will be putting up posters that encourage and provide facts about recycling. The current goal is to increase campus recycling from the current rate of less than 25 to 40 percent.

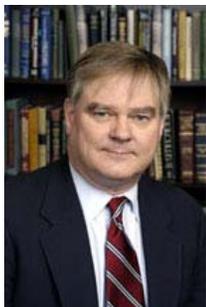
The Office's transportation options intern, Beth Sholtis, is working with both UIC and by the Chicago Department of Transportation, which is contributing to the funding of transportation interns at several Chicago universities. The ultimate objective of her work, Sholtis says, is to establish "an alternative transportation advisory committee within UIC, with the goal of promoting bicycling, walking and transit use." The program also involves developing social events and "fostering a sense of community within the university," says Sholtis.

Keep an eye out for opportunities to be greener on campus .



Mission Statement

The mission of The Institute for Environmental Science and Policy (IESP) at the University of Illinois at Chicago 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, Director, IESP

“The sustainability paradigm is ultimately about making informed choices about tradeoffs that are major and profound.”

- Thomas Theis

FROM THE DIRECTOR

As I write this, the latest issues of *Science* and *Chemical and Engineering News* have arrived, both with featured themes on environmental sustainability, further evidence of the pervasiveness of this important topic in our society. This is a rather broad theme, embracing as it does environmental, economic, and social measures of well-being.

Often, research communities have proceeded cautiously on this topic because, in its purest form, research on sustainability demands an integrated, interdisciplinary, systems approach rather than the more common and reductionist methodologies that have characterized progress on most research fronts. Such an approach has served the academy, and society, well over the years, yet the increasingly complex environmental challenges we face, and especially the proper advising of public policy,

benefit greatly from the broader kind of analysis.

The sustainability paradigm is ultimately about making informed choices about tradeoffs that are major and profound. Just a few years ago had one surveyed a given organization, company, or government agency about their “carbon footprints”, most likely the responses would range from “don’t know” to “what’s that?”. Today, one of the fastest-growing segments of the environmental service industry is greenhouse gas analysis; indeed a simple Google search of the term yields over five million hits. Yet were we to conduct a similar survey on our “reactive nitrogen footprint”, “nuclear footprint”, “ecological footprint”, or “toxicity index,” the results would undoubtedly be far less informed in spite of the importance of the complex issues that comprise each of these

areas of analysis.

In the last issue of the IESP newsletter I talked about the efforts on campus to search out and incorporate more sustainable practices and policies at UIC. Last spring, Chancellor Eric Gislason established the university’s Office of Sustainability and appointed Interim Associate Chancellor Cynthia Klein-Banai as its head. This issue highlights some of the activities of that office. IESP continues to work on advancing the pedagogical agenda of sustainability through sponsorship of a series of “town hall”-style meetings, each with its own theme and panel of faculty and administrators who address the issues at hand. Our next meeting is scheduled for September 25, with a focus on ways to enhance interdisciplinary scholarship at the university.

Finally, at the top of the news for IESP this fall is the arrival of our newest joint faculty member, Professor Emily Minor of the Department of Biological Sciences. The appointment of Dr. Minor is a direct result of UIC being awarded a prestigious IGERT (Integrative Graduate Education and Research Training) grant from the National Science Foundation. The program, termed LEAP (for Landscape Ecological and Anthropogenic Processes), is now in its third year with Professor Mary Ashley as its director. Dr. Minor’s expertise lies in measuring the effects of humans on natural ecosystems, particularly systems that have been heavily altered such as urban landscapes and park systems. More information on Dr. Minor is contained in a faculty profile in this issue.

**Thomas L. Theis,
Director**



Deconstruction Project Focuses on Recycling Buildings

When we think about tearing down a house, we generally picture a wrecking ball, lots of dust and noise, and dumpsters full of debris. But that is not a very environmentally friendly picture, for several reasons. Trucking construction and demolition materials to landfills and burying them there creates a host of environmental and public health risks. By getting rid of reusable materials, we waste the energy that was used in extracting and manufacturing them. And demolition dust can aggravate respiratory conditions of people living nearby.

Some of these materials – which may result from construction, demolition or renovation – are currently recycled. But an even better option is to deconstruct, or dismantle, a building piece by piece. When that is done correctly, a large proportion – some say 95 percent – of the building’s materials can be reused. Building deconstruction and building material reuse is catching on in some parts of the country, especially New England, where landfill space is rapidly diminishing, and the West Coast, where an established green ethic has made these practices more common.

What is the potential for building deconstruction and building material reuse in Chicago, and how can this potential be realized? In order to investigate these questions, Susan Kaplan of IESP, Prof. Rachel Weber of Urban Planning & Policy, and Research Assistant Hannah Sokol are carrying out a study for the Delta Institute, as part of a grant from the Illinois Department of Commerce and Economic Opportunity. Questions being investigated include the market for the materials, market or policy barriers to these practices, and possible incentives to promote these practices.

Based on what we know about practices in other cities and even other countries, some ways of promoting building deconstruction and building material reuse can be regulatory – for example, the State of Massachusetts has banned construction and demolition debris from its landfills. Or they can involve offering incentives or information, such as making information about deconstruction available to those who might otherwise choose demolition.

There are also rich potential educational opportunities in this area for UIC and other educational institutions to teach architects, engineers and other designers to “design for deconstruction” or “design for disassembly” – in other words, to design with the expectation that a building or product will ultimately be reused, rather than demolished or destroyed. This is part of a larger, recent focus in the area of sustainability on taking account of the entire life cycle of a product, from design and manufacture through reuse or disposal – and it is a truly multidisciplinary area and undertaking.

Kaplan hadn’t heard of deconstruction prior to developing this project, but “once you think about it, it’s one of those environmental no-brainers,” she says. “It makes all the sense in the world to try to find opportunities to reuse these materials, rather than sending them to landfills.”

Emily Minor, New Joint Faculty in IESP and Biological Sciences



Emily Minor, Assistant Professor

A new faculty member, Emily Minor, has joined UIC, with joint appointments at IESP and the Department of Biological Sciences. Minor, who received her PhD in Ecology from Duke University, carries out research on human effects on natural systems – especially how species are distributed and how that may be shifting as a result of human-induced changes in environmental conditions. Her dissertation, on forest birds in the Raleigh-Durham area, focused on how birds were distributed in different habitat patches, and human effects on that distribution, she says.

Minor comes to Chicago from a two-year fellowship located at the University of Maryland Center for Environmental Sciences, Appalachian Lab. The fellowship was from National Parks Ecological Research, a joint effort between the Ecology Association of America and the U.S. Park Service aimed at encouraging research on the parks. There, she worked on the spread of exotic plants in battlefield parks. “Exotic plants are a big concern for the Park Service right now,” she

says, as they have expanded rapidly.

Her new project is to develop an economic model for park managers to use in addressing this issue, she says, noting that she is excited to be working with an economist and adding that facet to a project.

Minor explains that exotic species – the term refers to anything that isn’t native – are a concern because some can cause environmental damage, such as changing soil properties or crowding out other plants. They also spread easily – transported, for example, in the wind or even on car wheels. The emerald ash borer is an example that has gotten a great deal of attention in the Chicago area. While people may like how exotic plants look in their yards, “it is a matter of educating the public” about the plants’ environmental downside, Minor says.

Chicago should be an excellent place for her research, Minor explained, because of her interest in urban ecology. She is especially interested in the fact that Chicago is located geographically “on a transition between forest and prairie,” Minor says. “The two habitats are changing a lot, with global warming, fire suppression, and other factors.”

Faculty Focus: Sam Dorevitch Leads Study of River's Health Effects

When the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) wanted to learn whether boating or fishing on the Chicago and Calumet River systems could cause people to become ill, the agency turned to a UIC team to find out. The team from UIC's School of Public Health is led by Sam Dorevitch, MD, MPH, Research Assistant Professor of Environmental and Occupational Health Sciences and Epidemiology & Biostatistics at the School of Public Health and a physician in UIC's Department of Emergency Medicine.

The research question arose when the Illinois EPA proposed that the MWRD treat and disinfect its sewage as if it were going to be released into the supply of drinking water.

The Chicago and Calumet riverways are not swimmable – but what about recreational activities that don't primarily involve contact with the water, which are allowed on them? Are they safe? MWRDGC approached Dorevitch and the UIC group to carry out an epidemiological study to provide some answers. The results could then inform decision-making about the need to undertake the additional disinfection being considered.

The team started collecting field data for the study – entitled Chicago Health, Environmental Exposure, and Recreation Study, or CHEERS – in August 2007. Study participants, who engage in recreational activities on local rivers, channels, lagoons and lakes respond

to a pre-recreation survey, a post-recreation survey, and several follow-up telephone surveys, as well as providing clinical specimens. The researchers aim to determine rates of acute health effects like gastrointestinal illness, eye infections and ear infections. They are also analyzing water samples in order to characterize the relationship between microbes and rates of illness.

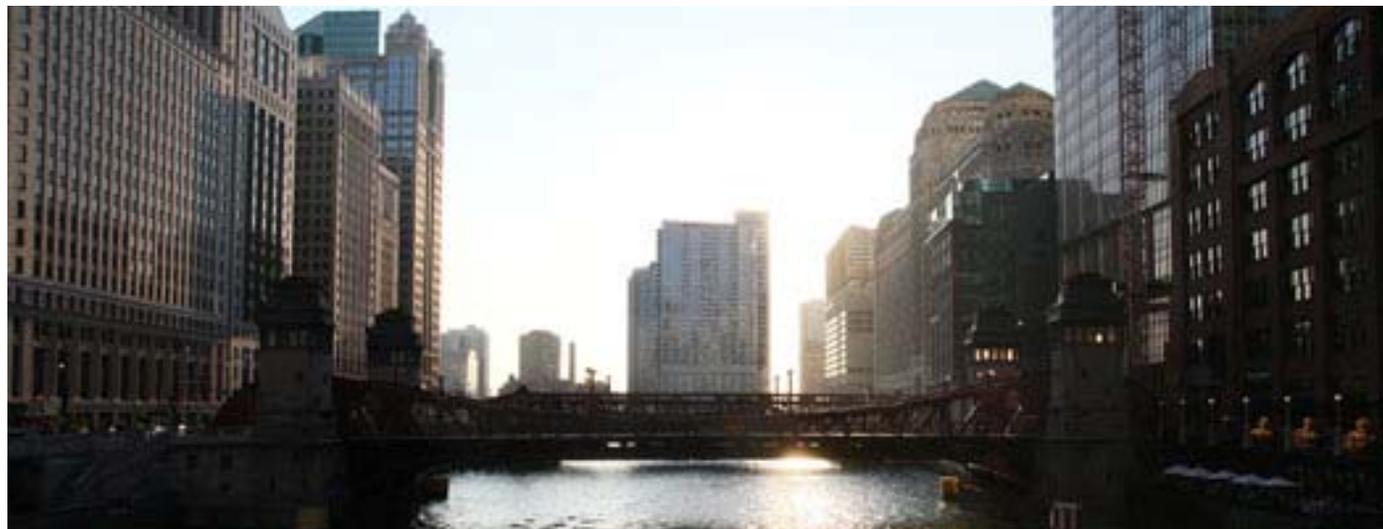
"The project is going very well," Dorevitch notes. The team of nearly 100 research staff started collecting field data in August 2007, enrolling 800 people. They enrolled an additional 5,000 this year, and are on track to reach their planned total of 9,330. How does such a large study stay organized? "We have a lot of very capable and dedicated managers," says Dorevitch, along with field managers, people who directly recruit subjects and conduct telephone follow-ups, and others.

The study will add a great deal of important information to the knowledge base about water quality. In terms of microbials, "our current state of knowledge is limited and we can only identify a small percentage of germs making people sick after recreational activities," Dorevitch notes. "This research will give us a better handle on that." While controlling infectious disease through wastewater management is an enormous public health achievement, disease outbreaks due to water recreation do take place. Some research has shown that swimming in water with high bacteria levels is a health risk, but the health risks for activities like rowing, boating and fishing are currently unknown.



**Samuel Dorevitch,
Research Assistant Professor**

How does this project fit in with Dorevitch's overall interests? "This represents some continuity and some change," he says. He had been doing environmental epidemiology in the area of air pollution, he notes, but "the world of water is new to me, and I am intrigued by it." Water is also a timely issue to be studying, Dorevitch notes, since "it is becoming a more precious resource, with climate and demographic changes driving home this point." He points to the new wastewater recycling program in Orange County, California, noting that such programs are likely to become more common, and will involve both scientific research on water quality, and also public education about conserving water.



Town Hall Meeting: Enhancing Interdisciplinary Environmental Scholarship at UIC

Please join us
September 25 at 12pm, SCE 613

This meeting is the second of a series aimed at developing a plan for the growth of environmental scholarship at UIC over the next decade. The meeting will be structured around brief presentations by a panel of faculty and administrators from across the university, followed by questions and comments from those in attendance.

Panelists:

Paul Brandt-Rauf, Dean of the School of Public Health (tentative)

Penny Hunt, Vice Chancellor for Development

Steven Jones, Associate Dean of the College of Liberal Arts and Sciences

Stephanie Lenway, Dean of the College of Business Administration

Michael Pagano, Dean of the College of Urban Planning and Public Affairs

Paul Schewe, Associate Research Professor, Department of Psychology



Research Aims to Identify Green Jobs in Chicago

As the U.S. moves towards greater sustainability, there is potential to create a greener economy, including “green jobs”. But what are those jobs, where are they, and how can we prepare people to work in them?

Research associates Greg Schrock and Kimary Lee of the Center for Urban Economic Development at the College of Urban Planning and Public Affairs are working to start answering these questions. Their project began when city staff wanted to know what the job impacts and implications might be of environmental programs to address climate change. It is likely that retrofitting buildings for greater energy efficiency will be a program that creates a large number of jobs in Chicago. Others may include programs

that aim to increase sustainable landscaping, urban forestry/horticulture, and materials recycling and reuse. There “is a significant opportunity for the city to build a pipeline for those jobs,” notes Schrock.

The project has several phases, including identifying where the potential job opportunities are; identifying the current educational and training infrastructure, where there are gaps in that infrastructure, how it can be better integrated into a “green economy,” and career ladders leading upwards from entry-level jobs; and getting feedback from employers as to areas in which they are likely to hire in the future.

The researchers are “looking to develop some kind of rule of thumb for

how many jobs” might be created by an environmental program, says Schrock. He notes that several organizations, including one in Wisconsin, have developed a model to project job demand in environmental areas based on various assumptions about the number of workers needed for a particular project, costs and other factors – so this is an area of research that is getting off the ground.

This kind of research is likely to become in greater demand as more policy-makers working to bring together environmental protection and economic and job development seek this kind of information. As with so many other environmental issues, Chicago offers both great opportunity and a real urban laboratory.

Faculty Awards and Appointments

Peter Doran, Associate Professor of Earth and Environmental Sciences, was awarded an Aldo Leopold Fellowship, based at the Woods Environmental Institute at Stanford University. The fellowship, which is awarded to about 20 environmental scientists annually, provides training, expert consultation, and peer networking to better communicate the science associated with complex environmental issues to the media, policymakers, business leaders and other non-scientists.

Asgi Fazleabas, Professor of Physiology and Director, Center for Women's Health and Reproduction, Department of Obstetrics and Gynecology, is currently serving as President of the Society for the Study of Reproduction.

Professor Steve Guggenheim of the Department of Earth and Environmental Sciences was elected a Foreign Member of the Accademia de Lincei (Italian Academy of Humanities and Science).

Michael Iversen, PhD candidate in Urban Planning and Policy, was awarded the Master of Online Teaching Certificate from the Illinois Online Network and University of Illinois. He was also awarded a 2008 Sustainable Design Summer Internship from the Conservation Design Forum, based on a project with the Village of Oak Park entitled "System Model - Scoping, Inventory and Assessment".

Susan Kaplan of the Institute for Environmental Science and Policy was appointed to a four-year term on the Evanston Environment Board, which advises the Evanston, IL City Council on environmental policy.

An Li, Associate Professor of Environmental and Occupational Health Sciences, has received the Excellence in Review Award from *Environmental Science and Technology*, the premier scholarly journal in the environmental field.

Krishna Reddy, Professor of Civil and Materials Engineering, was recognized by the Geo-Institute of the American Society of Civil Engineers for outstanding performance as the chair of the conference, "GeoCongress2008: The Challenge of Sustainability in the Geoenvironment," held in New Orleans in March.

Doctoral student **Hatice Sengul** received the travel award from the Chair's Fund for the Gordon Research Conference, where she presented a poster on her research.

Tom Theis, Director of IESP, gave an invited presentation at the 2008 Gordon Research Conference on Industrial Ecology entitled "Life Cycle of Nanostructured Materials". The conference was held at Colby-Sawyer College in New London, NH August 17-22. The Gordon Conferences provide an international forum for the presentation and discussion of frontier research in the biological, chemical, and physical sciences, and their related technologies. For over 75 years, GRC's meetings have been recognized as the world's premier scientific conferences, where leading investigators from around the globe discuss their latest work and future challenges in a uniquely informal, interactive format.

David Wise, Professor of Biological Sciences, has been appointed to the Oversight Committee, Chicago Wilderness Land Management Research Program.

External Advisory Board
Meeting : September 17

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AT CHICAGO AND POLICY

