SPRING 2011

NATURAL RESOURCES AND ENVIRONMENT
UNIVERSITY OF MICHIGAN

Stewards

A magazine for alumni and friends of the School of Natural Resources and Environment

urban EVOLUTION

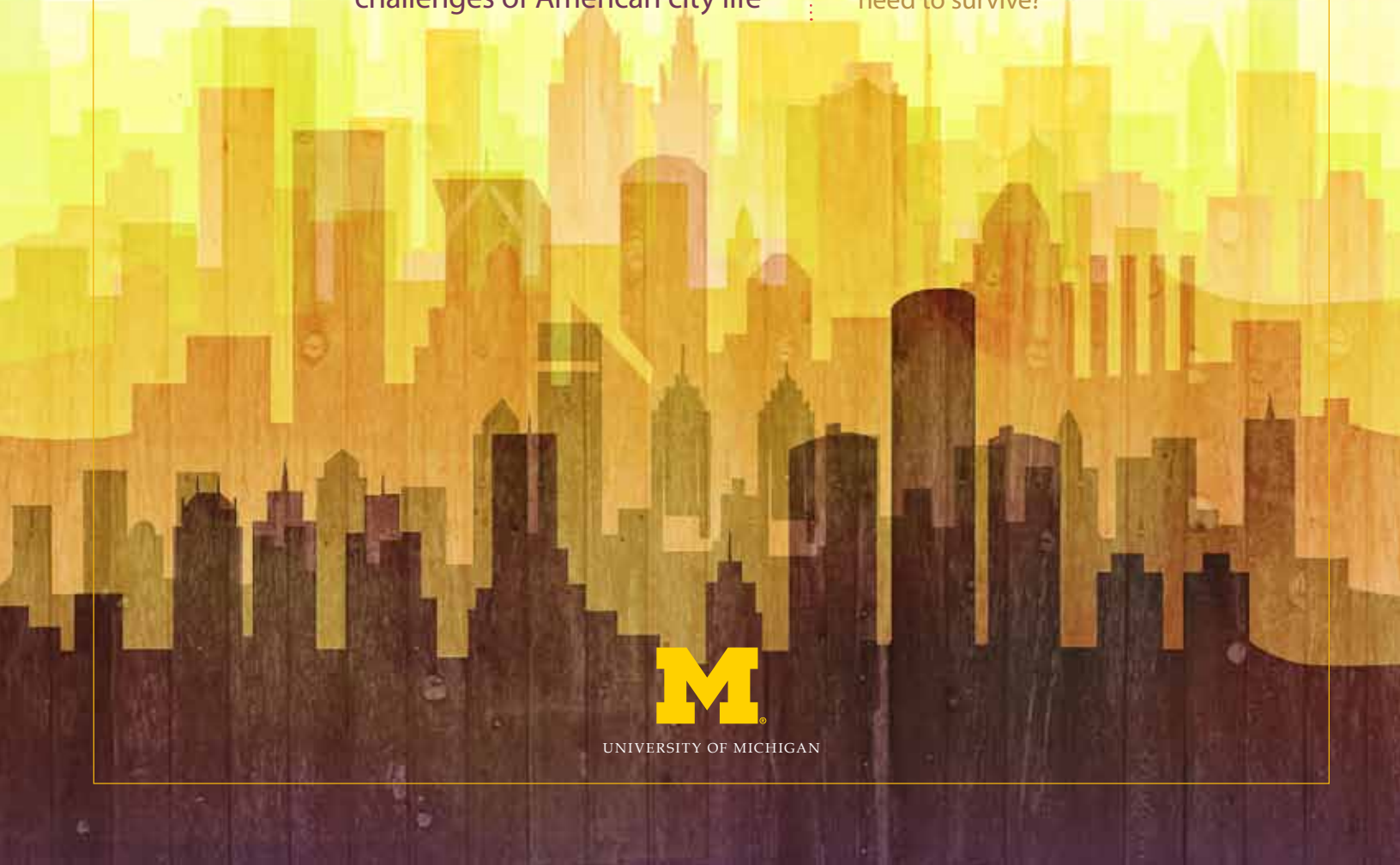
SNRE research examines sustainability challenges of American city life

The Bierbaum Decade

10 years of profound change in environmental studies

Tipping Point

How many species do humans need to survive?



UNIVERSITY OF MICHIGAN

Stewards

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UNIVERSITY OF MICHIGAN

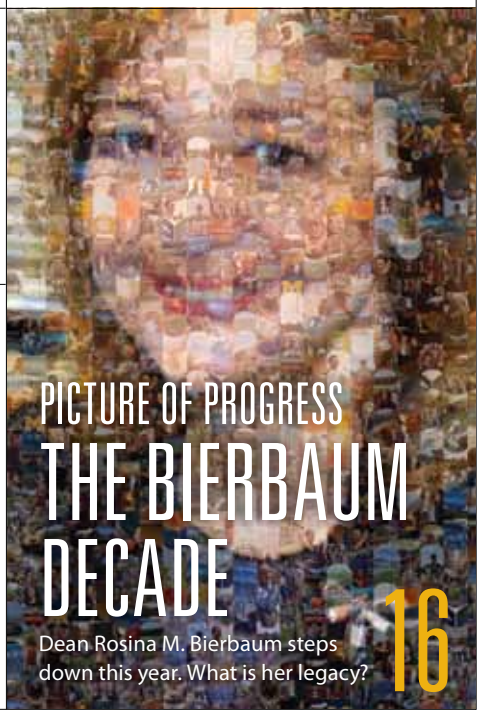
URBAN EVOLUTION: SAVING OUR CITIES

As the world's population becomes more urban, the challenges of sustainability loom larger than ever. SNRE professors, students and alumni are working to design the future.

AMANDA EDMONDS
EXECUTIVE DIRECTOR,
GROWING HOPE

18-25

features



PICTURE OF PROGRESS
THE BIERBAUM DECADE 16

Dean Rosina M. Bierbaum steps down this year. What is her legacy?

To Sustainability, and Beyond

Reflections on 10 years as dean

A decade ago, I left Washington, D.C., for Ann Arbor. Being SNRE's dean has been an exhilarating journey. I had been a generator of knowledge as a researcher in the 1980s, then a synthesizer and user of knowledge for Congress and the White House in the 1990s. It was wonderful to come home to academia—to come "full circle," if you will—to train the next generation of environmental leaders in the 2000s.

On Earth Day 2001, as I contemplated the possibility of joining U-M, I remembered the first Earth Day, in 1970—the day I won my first science fair. How much things had changed since then. Environmental issues had evolved from local to global. It had become well-established that humans were altering the global cycles of water, nitrogen, carbon and sulfur. It was clear that we needed to equip a new generation of environmental problem-solvers with the tools of many disciplines to tackle the increasingly complex environmental issues, and to ***foresee and forestall*** as yet unrecognized ones.

The school's mission statement—"to contribute to the protection of the Earth's resources and the achievement of a sustainable society"—had me at the word "society." The statement reflects the linking of people and the environment as part of the problem, and as part of the solution.

SNRE had been ahead of its time in environmental education for a century. Linking policy with forestry, studying ecosystem-scale changes, developing a program in Environmental Justice, integrating social sciences with ecological sciences and designing beautiful and functional landscapes were just a few ways the school had distinguished itself. I wanted to be part of an institution dedicated to a sustainable society and leading the educational and research agendas of the 21st century.

Much has changed in my time at SNRE's helm. In 2001, discussions of sustainability were not prevalent in D.C. or common in local governments. As a nation, we were not talking seriously about new power grids, Great Lakes water levels, increased frequency of extreme weather events, electric and hybrid cars, wind farms or adaptation to climate change.

Today, environmental and sustainability discussions have become mainstream, occurring in schools, boardrooms and city council meetings across the country. We are helping to lead those discussions and our graduates are using the interdisciplinary skills they gained to make key decisions in government, education, research and nonprofit sectors.

SNRE has attracted world leaders to deliver the Peter M. Wege Lecture on Sustainability, which has taken root as the preeminent environmental lecture at U-M. The interdisciplinary team master's project has blossomed into a signature SNRE academic experience, connecting our students to urgent environmental problems faced by real clients. Despite difficult budget times, we added nearly 20 amazing new faculty to the school and expanded our breadth and depth in many areas including international expertise, engineering and energy research, and urban design, as well as bolstered our historic strengths in ecology, policy and landscape architecture.

Student applications have doubled in the past five years. The school's interdisciplinary foundations are solid, with one in three students pursuing a formal dual M.S. degree with the U-M schools of Engineering, Business, Law, and now Architecture and Urban Planning (see page 8), or creating their own dual degrees with public policy, public health, anthropology and economics. Each year, graduates tap into the rich alumni network spanning the globe to find opportunities to make a difference. The future is brighter because of the 7,500-plus SNRE graduates ready to confront climate change, habitat degradation, water scarcity, poverty and inequity.

The challenges remain vast, complex, daunting and demanding. But I am very proud of what we have accomplished in the last decade, and absolutely confident in the ability of the SNRE community to solve problems in a way that leads to long-term sustainability.

During my sabbatical next year from my Ann Arbor perch, I will continue to advise the White House and The World Bank. But ***my*** main source of advice and inspiration will remain SNRE's students, for whom all things are yet possible, and in whom I have complete confidence to save the planet.

Rosina M. Bierbaum
Dean and Professor, School of Natural Resources and Environment

year of the FORESTS

The United Nations declared 2011 the International Year of the Forests, but since its inception as the University of Michigan School of Forestry, SNRE has had deep roots in the study of forests and in the conservation and management of trees. The body of research at the school continues to grow with the need for a better understanding of forest management.

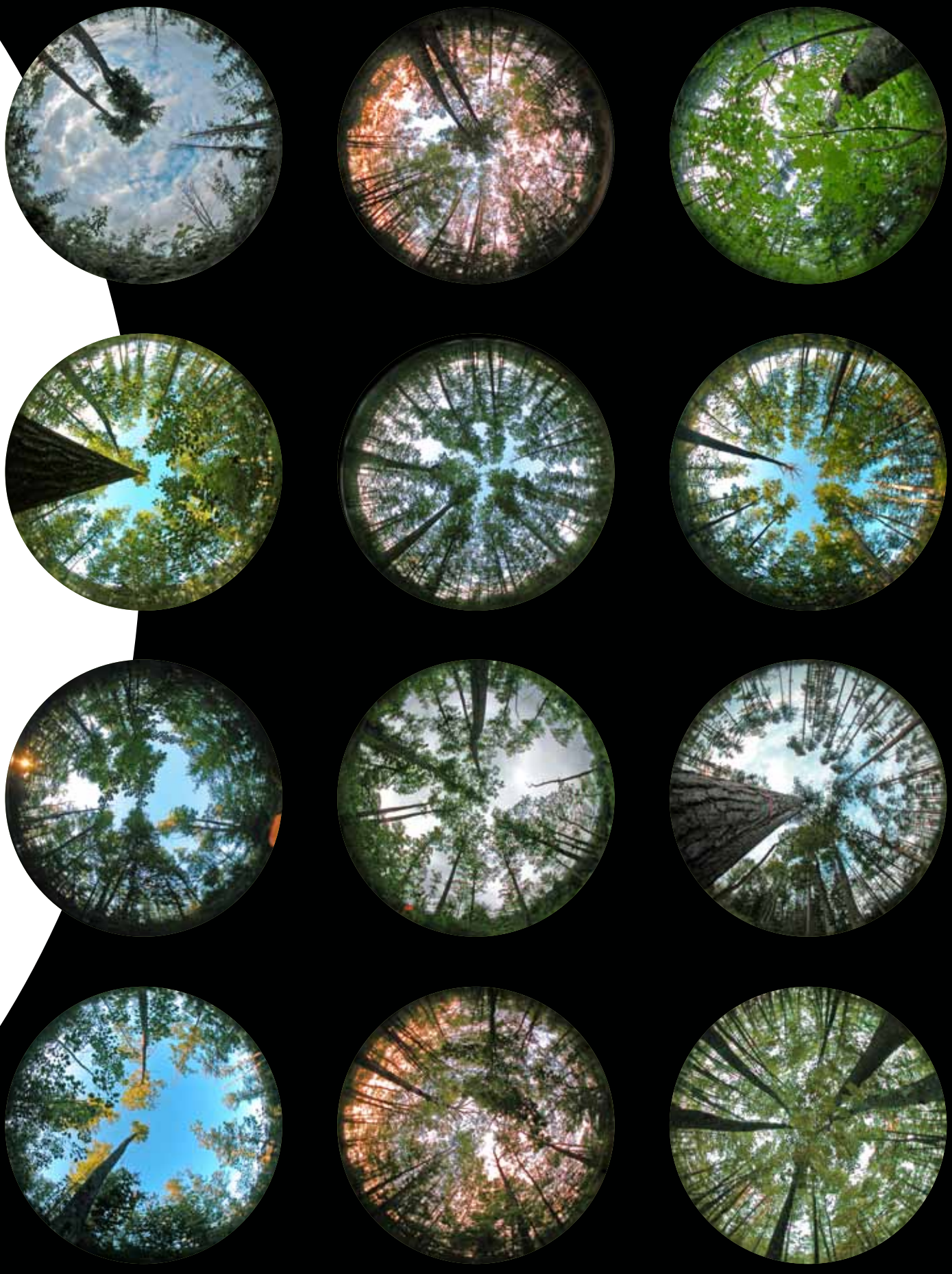
International Forestry Resources and Institutions (IFRI) is an interdisciplinary network of research centers that examines how governance affects forests and the people who depend on them. IFRI's research helps policy-makers and forest-users design and implement improved evidence-based forest policies. Founded in 1992 at Indiana University with Elinor Ostrom as its leader, IFRI has been housed at SNRE and coordinated by Professor Arun Agrawal since 2006. Recently, a postdoctoral research fellow at IFRI, Lauren Persha, with co-investigator Agrawal, received a nearly $400,000 grant from the International Initiative for Impact Evaluation (3ie) to investigate the outcomes of Tanzania's forest-management systems.

SNRE also won a National Science Foundation-supported project on forest governance in Central Africa led by Agrawal. U-M Professors Dan Brown, Tom Lyon and John Vandermeer and Associate Professor Rebecca Hardin are working with Associate Research Scientist Kathleen Bergen on the five-year, nearly $1.5 million project, which began in 2007 and has supported several doctoral and master's research projects in equatorial Africa. Professor Don Zak has published extensively on soils; his current project is a three-year, $1 million examination of atmospheric nitrogen deposition and the role of microbial mechanisms in carbon storage in soil.

"Forests are going to change in the next few decades and we don't know how," said Assistant Professor Inés Ibáñez, whose specialty is forest ecology. "Global drivers [such as] warming, landscape fragmentation, invasive species and the emergence of new pests will all affect forests, and we know very little about how the combined effect of those factors will shape forest ecosystems structure and function."

Student research also looks at forest management strategies. A current master's project co-advised by Hardin and U-M Professor Joe Trumpey of the School of Art & Design is looking at the Spiny Forest in Madagascar; a 2008 project advised by Associate Professor Tom Princen focused on a forest in Puerto Rico.

HEMISPHERICAL CANOPY PHOTOGRAPHS BY SNRE RESEARCH FELLOW NICK REO (B.S. '97, M.S. '02), WHO STUDIES THE PROCESS AND OUTCOMES OF ECOSYSTEM MANAGEMENT ON TRIBAL AND PUBLIC LANDS. PHOTOS TAKEN ON THE LAC DU FLAMBEAU INDIAN RESERVATION AND IN THE NORTHERN HIGHLAND–AMERICAN LEGION STATE FORESTS IN NORTHERN WISCONSIN.



interdisciplinary innovation

CLEAN ENERGY? CHECK.

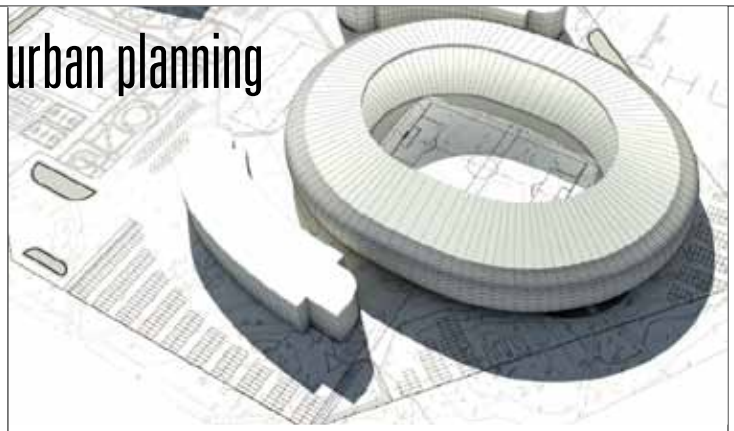
A team of dual-degree SNRE students took second place in the Clean Energy Prize contest for their master's project. "Team Smart Energy" members are Erb students Mike Elchinger, Ryan Flynn and Graham Brown along with Andy Lubershane, who is completing a master's in applied economics in addition to a degree at SNRE. The group won $25,000 for a plan that uses an innovative financing model to retrofit municipal buildings for energy-efficiency savings. The group has also received a $50,000 grant from the Ford Motor Company.

"With cities facing historic budget shortfalls, energy efficiency is an excellent opportunity to trim costs locally without cutting essential services," Lubershane said. "Unfortunately, most small to mid-sized cities don't have the time or expertise to link the technical and financial sides of energy efficiency investment."

Michigan Gov. Rick Snyder spoke at the awards ceremony in Rackham Auditorium Feb. 18. The Clean Energy Prize was established by DTE Energy and U-M in 2008 and is designed to encourage entrepreneurship in Michigan and the development of clean-energy technologies.

LEFT TO RIGHT: ANDY LUBERSHANE, RYAN FLYNN, MIKE ELCHINGER AND GRAHAM BROWN WITH GOV. RICK SNYDER AND DTE ENERGY PRESIDENT AND CHIEF OPERATING OFFICER GERRY ANDERSON AT THE CLEAN ENERGY PRIZE AWARDS EVENT.

urban planning



SNRE, Taubman launch dual-degree program

The Rackham Graduate School has approved a formal dual-degree program between SNRE and the Taubman College of Architecture and Urban Planning to allow students to pursue concurrent work in natural resources and environment and urban and regional planning. Graduates would earn a Master of Science from SNRE and a Master of Urban and Regional Planning from Taubman in six semesters of full-time study.

Students have been able to earn both degrees if they have chosen to pursue them—in fact, about 20 current students are enrolled in a student-initiated M.U.P./M.S. program—but the formal program makes requirements clear and raises awareness among Rackham graduate students of the dual-degree option.

The formalized dual degree focuses on areas of interest common to both SNRE and Taubman, such as management of metropolitan growth, land-use planning and regulation, environmental planning and regulation, brownfield redevelopment, industrial ecology, environmental justice and legislative work.

Pending approval by the U-M Board of Regents, the program would be offered in fall 2011, bringing the number of formal dual-degree options at SNRE to four: Natural Resources in combination with urban planning, engineering, business or law.

Students Recognized For Research, Professional Potential And Excellence In Teaching

Eight SNRE students have been named **Duke Fellows** as future leaders in nonprofit and public conservation: **Maggie Allan** (Environmental Policy and Planning, dual degree with the Ford School of Public Policy); **Parrish Bergquist**, (Environmental Policy and Planning); **Seth Federspiel** (Environmental Policy and Planning); **Kristina Geiger** (Behavior, Education and Communication); **Kevin Li** (Landscape Architecture and Conservation Biology); **Laura Matson** (Environmental Justice, dual degree with the Taubman College of Architecture and Urban Planning); **Maggie Wenger** (Environmental Policy and Planning); and **Gus Winkes** (Sustainable Systems, dual degree with the Law School).

The 2010 **Wyss Scholars**—future leaders in Western land conservation—are **Martha Campbell** (Sustainable Systems) and **David O'Connor** (Conservation Biology).

Three SNRE Ph.D. students—**Irem Daloglu**, **Dan Miller** and **Baruani Mshale**—received **Graham Environmental Sustainability Institute** fellowships.

Kat Superfisky, an M.L.A. student and graduate student instructor (GSI) for Program in the Environment, was one of 20 GSIs who received the **2011 Rackham Outstanding Student Instructor** award.

Faculty Accolades

Professor **Allen Burton** is the new editor of *Environmental Toxicology and Chemistry*. The journal's editorial offices will move to SNRE.

Professor **Andy Hoffman** was one of 20 researchers awarded Leopold Leadership Fellowships for 2011.

Professor **Greg Keoleian** was elected for a two-year term as president of the International Society for Industrial Ecology.

focus: Africa

SNRE WELCOMES ASSISTANT PROFESSOR BILAL BUTT

Bilal Butt joins the SNRE faculty in fall 2011 as an assistant professor, filling a new position in Environment, Information, and Sustainable Development in Africa. A geographer, his interests include cultural and political ecology, pastoralism, livestock mobility, conservation/development, geospatial techniques, rangeland ecology, wildlife-livestock competition, identity and conflict. He is currently a postdoctoral researcher in geography and ecology at the University of Wisconsin-Madison, focusing on scale, competition and interaction between wildlife and livestock in East Africa. He earned his B.A. at Western Kentucky University and his M.A. and Ph.D. at Michigan State University, all in geography.

"I look forward to developing new collaborations amongst the many excellent faculty and students," he said. "I was attracted to SNRE because of the diversity of environmental strengths within the school and the resources available to conduct new, interesting, challenging and socially relevant environment research, in sub-Saharan Africa and beyond. I was very impressed by the school's dedication to examining some of the most pressing environmental issues of our time."

shifting BOUNDARIES

New field of study: Conservation Ecology

In fall 2011, Aquatic Sciences, Terrestrial Ecosystems and Conservation Biology will be consolidated into a single field of study called Conservation Ecology. The change allows students to be more flexible and interdisciplinary in their studies, and gives faculty an opportunity to integrate curricula from the three different areas; no specific course additions or deletions are part of the change. Continuing master's students have the option to remain in specific fields or to transfer into the new field of study. Incoming students this fall who applied under one of the three separate areas will automatically be in the Conservation Ecology field of study.

All the President's Scientists
Capitol Investments

SNRE ASSISTANT PROFESSOR SHELIE MILLER (THIRD ROW, SECOND FROM LEFT) WAS ONE OF 85 RECIPIENTS OF THE 2009 PRESIDENTIAL EARLY CAREER AWARDS FOR SCIENTISTS AND ENGINEERS (PECASE), THE NATION'S HIGHEST HONOR FOR PROFESSIONALS AT THE OUTSET OF THEIR INDEPENDENT RESEARCH CAREERS. THE PECASE CEREMONY HONORING RECIPIENTS WAS DEC. 13, 2010, IN WASHINGTON, D.C.; RECIPIENTS MET PRESIDENT OBAMA LATER THAT DAY.

LAKE STURGEON (TOP), WHITEFISH (MIDDLE) AND WALLEYE (BOTTOM). ILLUSTRATIONS BY EMILY DAMSTRA, COURTESY OF MICHIGAN SEA GRANT

HARBORING life

Two Michigan Sea Grant projects are part of a federal effort to restore the Great Lakes

In fall 2010, Michigan Sea Grant College Program received support from the U.S. Environmental Protection Agency (EPA) for two projects focused on improving the environmental quality of the Great Lakes.

The first is a $1,040,000, two-year project that entails constructing a new underwater reef in the St. Clair River, which separates Michigan's Thumb from Canada, to encourage reproduction of native fish such as lake whitefish, walleye and lake sturgeon. Studies before and after construction will allow biologists to evaluate the impact of the work and improve future habitat restoration efforts.

The second is a $478,262, three-year program in partnership with the Ohio and Wisconsin Sea Grant programs to improve the cleanliness of Great Lakes marinas through improved boat maintenance and repair, sewage handling, petroleum control, use of native plants for stormwater management and disposal of hazardous materials, sewage and fish waste.

"For years, we've used the Great Lakes as dumping grounds—letting pollution from farm fields, sewers and factories flow into the lakes, overharvesting fish and building on valuable wetlands," said Jim Diana, director of Michigan Sea Grant and a professor at SNRE and the projects' principal investigator. "The country has benefited from industrial production in this region, but our environment has suffered.

100 marinas in the Great Lakes region have made the commitment to voluntarily implement best practices as of October 2010.

This initiative is a major turning point for the Great Lakes. We now have some significant funding which enables us to tackle these issues in a comprehensive, coordinated way."

Michigan Sea Grant is a cooperative program of the University of Michigan and Michigan State University. It is part of the National Sea Grant College Program, a network of more than 30 university-based programs in coastal states administered through the National Oceanic and Atmospheric Administration.

A long, strange trip

LARRY BRILLIANT HAS TRAVELED THE PLANET MEETING GLOBAL THREATS

Dr. Larry Brilliant—visionary, guru, iconoclast, techno-philanthropist—delivered the 10th Annual Peter M. Wege Lecture on Sustainability in March. Dr. Brilliant's career has spanned from a Himalayan monastery to the World Health Organization, Google's philanthropic division and a series of nonprofits that have addressed international public health problems.

"Is sustainable humanity possible?" Dr. Brilliant asked.

He went on to compare contemporary activism with movements of the 1960s, but said the major difference between then and now is that threats like climate change are threats to the existence of humanity.

Dr. Brilliant is an alumnus of the University of Michigan (he studied philosophy as an undergraduate and earned a master's degree in public health) and a former faculty member. He also holds an M.D. from Wayne State University. He has won numerous major awards and has written two books as well as dozens of scientific articles on infectious diseases, blindness and international health policy.

The lecture was co-sponsored by the School of Public Health, the Center for Sustainable Systems, SNRE and the Office of the Vice President for Research. The Wege Lecture Series was founded in 2001 in honor of Peter Wege, the retired vice chairman of the board of Steelcase, Inc. Speakers address sustainability challenges, with a focus on improving the systems for meeting human needs in developed and developing countries. Past speakers have included His Holiness the 14th Dalai Lama, Al Gore, John Holdren and Lord Browne of Madingley.

"We are in the midst of another movement, a silent movement. There is a global conspiracy of the good and the great."

—Dr. Larry Brilliant

VIEW THE SPEECH AND FIND MORE INFORMATION ABOUT THE WEGE LECTURE SERIES:
snre.umich.edu/wege_lecture

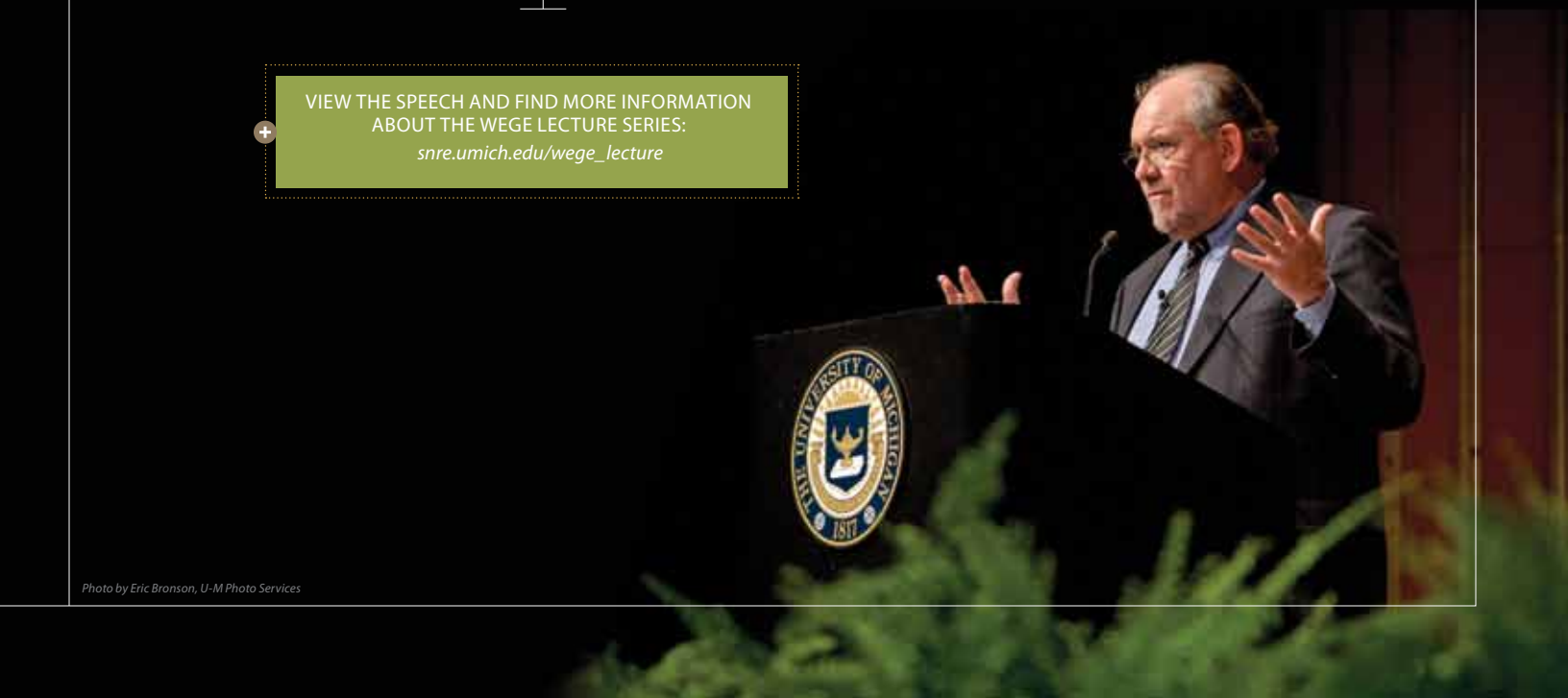


Photo by Eric Bronson, U-M Photo Services

the evolution of SUSTAINABILITY

JONATHAN BULKLEY RETIRES

As a volunteer in a work camp in Ghana in 1960, Jonathan Bulkley, who recently had completed four years of a five-year undergraduate dual-degree program at the Massachusetts Institute of Technology (MIT), helped install a water system in a village in the bush. He had never before been to Africa, or in a place with black mamba snakes, mosquitoes carrying malaria, army ants and kids with swollen stomachs who weren't going to make it past the age of 5, he recalled. It was also the first time in his life the Kansas City native had ever been a racial minority.

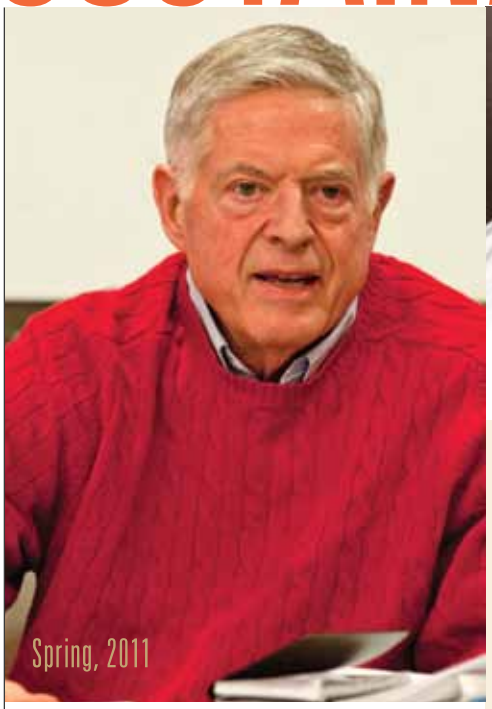
The program, Operations Crossroads Africa, was a precursor to the Peace Corps. Participating was a "life-changing experience," Bulkley recalled. From Ghana he went to graduate school, completing a master's and a Ph.D. at MIT in civil engineering and political science.

Bulkley and his wife, Trudy, moved to Ann Arbor in the late 1960s. He held faculty appointments in the School of Natural Resources as well as in the Department of Civil and Environmental Engineering in the College of Engineering (and was the first professor to hold those dual appointments).

The Bulkleys soon became active in the community, particularly in the issue of a wastewater treatment plant and controversy surrounding a plan to pump the city's waste into the Great Lakes. "We argued on technical grounds, but the political factors carried the day," Bulkley said.

The interplay between technical and political questions continued to define Bulkley's work as he developed research and teaching and served as a leader on water-related issues around the Great Lakes. "We each have a responsibility to be part of the community—local, state, international, wherever one is most comfortable," he said. "We owe something back."

At U-M, Bulkley witnessed the rise of the environmental movement, the first Earth Day and the increasing complexity of environmental research and planning. "We picked the low-hanging fruit first," he said.



Spring, 2011

Fall, 1968

"The more we learn, the more technically challenging things become."

In the late 1980s, collaboration with Greg Keoleian, then a recently minted Ph.D. and now an SNRE professor, led to the establishment of what was then known as the National Pollution Prevention Center, which eventually became the Center for Sustainable Systems. Bulkley also was the first faculty member to be named the Peter M. Wege Professor of Sustainable Systems and was SNRE's commencement speaker in 2009.

While spring 2011 has been Bulkley's last semester teaching at U-M, his engagement with the pressing environmental issues of our time will continue. He is part of the Upper Great Lakes Study Board of the International Joint Commission, which is examining regulations for controls in Lake Superior in terms of climate change, and is involved in local efforts like planning a greenway in Ann Arbor.

"I want to emphasize that it's been a privilege to work with so many bright men and women all these years," he said. "It's been a really good run."

Words of wisdom about Professor Bulkley

"When I was preparing for my doctoral defense, Jonathan advised me not to get rattled if a clear response to a question did not come to mind immediately. Instead, he suggested I should ask for another question and assured me that my mind would be at work, and eventually the proper response would emerge. He was correct, and I have passed that advice on to countless others."

—Susan MacKenzie
Visiting assistant professor of Environmental Studies, Colby College, SNRE Ph.D. '91

"I think it was his basic sincerity, honesty and optimism that have proven to be the most inspirational for me. Some things he said:

- Do not twist the facts to fit your position. (I remember giving him a poster for his office that was the opposite of his philosophy: "Don't confuse me with the facts. My mind is made up.")
- Seek the facts through rigorous data analysis and fact-finding.
- Have a passion for your career choice. Be true to yourself.
- Understand the actors/groups /interests and their interplay.
- Be persistent!"

Sari Sommarstrom, Ph.D.
Sari Sommarstrom & Associates, SNRE M.S. '73, Ph.D. '76

SAVE THE DATE

A celebration of Professor Bulkley's career is planned for Sept. 9. Stay tuned to snre.umich.edu/bulkley for details

bovine INSPIRATION

A New Way To Reuse Food Waste

A Michigan-based business started by a group of SNRE students and a fellow student from the College of Engineering has been gaining significant momentum—and funding—with a business plan and a prototype unit to convert food waste into renewable energy.

ReGenerate, started by Erb students Paul Davis and Hunt Briggs; Nolan Orfield, a Ph.D. student in Sustainable Systems as well as a master's student in the new Engineering Sustainable Systems program; and chemical engineering Ph.D. student Bobby Levine, won first prize in the student division and $25,000 in the Accelerate Michigan Innovation Competition in December, then $27,500 in prizes in the university-run Michigan Business Challenge in February. (Last year the team also took home $7,000 from the DTE Clean Energy prize; see page 8 for this year's winners.)

The company plans to lease the small-scale anaerobic digesters, called Compact Organic Waste Systems (COWS), to supermarkets and school cafeterias. The COWS system is based on the digestive system of cows and converts food waste into methane gas and a nutrient-rich soil amendment. The methane generated will be burned to produce hot water, and the remaining biosolids will be refined into a soil amendment by local composters. ReGenerate will then bag and sell the remaining composting material.

HOW "COWS" WORKS

Illustration by Dave Brenner

Archive Action: Add Your Work

SNRE research is archived in Deep Blue, a University of Michigan library database for student, staff and faculty work, at deepblue.lib.umich.edu. The earliest work from SNRE is a doctoral thesis from 1937 on methods of tagging Michigan fish.

The public can access Deep Blue, but only those with university affiliation may deposit work in the database. The SNRE archive is incomplete, and the communications office at SNRE is working to assemble an archive that includes all historic and current master's projects, dissertations, theses or other relevant work available.

If you have a copy of research work from your time as a student at SNRE and the project is not currently in the Deep Blue database, we'd like to add it. Instructions for gaining permission to deposit documents yourself, or with the help of a library, can be found on the Deep Blue FAQ page: http://deepblue.lib.umich.edu/about/deepbluefaq.jsp

Or, you may scan your project and email it to snre-webmaster@umich.edu and a staff member will add your work to the database. If you'd like to find an alternative method for depositing research in Deep Blue, contact deepblue@umich.edu.

Capstone Recap

THIS YEAR'S M.S. RESEARCH

RED KNOTS (*CALIDRIS CANUTUS RUFA*)

PHIL MYERS, MUSEUM OF ZOOLOGY, UNIVERSITY OF MICHIGAN

Mice on the move

Warmer springs in Michigan have allowed the white-footed mouse (*Peromyscus leucopus*) to move from the Lower Peninsula to the Upper; as temperatures continue to rise, the mammals are likely to move into Canada—bringing along Lyme disease, competing with deer mice and providing prey for raccoons, foxes and raptors.

"Effects of Climate Change on the Distribution of White-footed mouse (*Peromyscus leucopus*), an Ecologically and Epidemiologically Important Species." Martin, Nadia. Thesis advised by Associate Professor Johannes Foufopoulos and Professor Dan Brown

Immunity clues

High levels of inbreeding do not inevitably lead to poor immune health or increased disease susceptibility in isolated populations of deer mice in the Beaver Island Archipelago.

"Integration of Immune Status, Genetics, and Environment in *Peromyscus maniculatus gracilis*." Lalor, Julia. Thesis advised by Professor Bobbi Low, Associate Professor Johannes Foufopoulos and Associate Professor Phil Myers (Ecology and Evolutionary Biology)

Reduced sugar maples

The number of sugar maples, an abundant tree in northern hardwood forests, is likely to decline with the increase of nitrogen in the atmosphere, which leads to a thicker forest floor that is difficult for sugar maple seedlings to penetrate. The growth of established sugar maple saplings is also inhibited at higher levels of nitrogen.

"Simulated N Deposition Negatively Affects Sugar Maple (*Acer saccharum Marsh.*) Regeneration in a Lake States Northern Hardwood Ecosystem." Patterson, Sierra. Thesis advised by Professor Don Zak and Assistant Professor Inés Ibáñez

Air traffic patrol

When red knots (*Calidris canutus rufa*) stop in Delaware Bay on their northern migration, they spend most of their time along the shoreline, except during nighttime high tides, when they move to inland marshes.

"Roost Site Selection by Red Knots (*Calidris canutus rufa*) in Delaware Bay." Zimmerman, Kathryn. Thesis advised by Professors Bobbi Low and Paul Webb

GROUP MASTER'S PROJECTS PRESENTED IN WINTER 2010 AND SPRING 2011

- *Municipal Energy Efficiency Financing: Strategies and Lessons*
- *Campus Energy Management via the IP Network: A Feasibility Study for Achieving Energy Efficiency via EnergyWise*
- *The Potential for Micro-algae and Other "Micro-crops" to Produce Sustainable Biofuels*
- *Mpala Masters Project Group—Building a Sustainable Community in Africa*
- *Urban Revitalization through Art, Community and Ecology: The Heidelberg Project*
- *Green Brewery Project*
- *Aurora Organic Dairy Phase III*
- *Vehicle Electrification Facilitating the Integration of Renewable Energy: An Analysis of the Provision of Ancillary Services via Networked EVs*
- *Climate Change Adaptation Planning in U.S. Cities (see page 23)*
- *Renewing Ranobe for Tomorrow: An Integrated Approach to Sustainable Development in Madagascar*
- *Jocko Valley Trails Master's Project*
- *Ecological Prioritization and Mapping of the Huron Clinton Metroparks*
- *Assisting Great Lakes Coastal Communities with Climate Change Adaptation (see page 23)*
- *The Detroit SUN Project (SUN = Sustainable Urban Neighborhood)*
- *Analyzing Ancillary Impacts of Solar Photovoltaic to Natural Gas Electricity*
- *Sustainability at Banorte: A Comprehensive CSR Strategy for a Mexican Bank*
- *Southern Company Renewable Energy Master's Project*
- *Supply Chain Carbon Management Strategy for Ford Motor Company*

AGRAWAL WINS GUGGENHEIM FELLOWSHIP

Professor and Associate Dean Arun Agrawal was one of 180 recipients of the 2011 Guggenheim Fellowship. The John Simon Guggenheim Memorial Foundation supports scholars, artists and scientists selected from 3,000 applicants on the basis of prior achievement and exceptional promise. He will use the fellowship support to complete a book called Poverty and Adaptation.

"Lost in the shuffle are the real victims of future climate change and contemporary climate variability—the poor farmer, the disadvantaged fisher, the landless laborer, the illiterate sharecropper, the homeless urban resident, and the elderly lower caste woman," Agrawal said. At the same time, he suggests, "There is much to be learned from successful—as well as unsuccessful—adaptations to historically experienced calamities and slow-onset climate disasters." He will be on sabbatical in 2011-12 to pursue his research.

MICHIGAN SOCIETY OF FELLOWS

SNRE will be home to two Michigan Society of Fellows awardees: Kimberley Kinder, a geographer from the University of California-Berkeley, jointly appointed with Taubman College; and Elizabeth Pringle, a biologist at Stanford University, jointly appointed with the Department of Ecology and Evolutionary Biology (within the College of Literature, Science, and the Arts).

The fellowships, in existence since 1970, include three-year appointments as assistant professors with teaching and research responsibilities. Eight fellows are chosen from more than 1,000 applicants university-wide and SNRE is very proud to host two at once.

CITED

A SAMPLE OF RECENT FACULTY PUBLICATIONS

ADVICE FOR FEDERAL ADAPTATION ACTION

The report from the National Climate Adaptation Summit co-chaired by Dean Rosina M. Bierbaum at the request of President Obama's Science and Technology Adviser, John P. Holdren, and organized by the University Corporation for Atmospheric Research (UCAR), can now be found on the UCAR website. Its recommendations on developing a federal strategy on adaptation have been incorporated into the administration's Climate Change Adaptation Task Force Report, available on the White House website, and are being used to inform the design of the next national climate assessment. Dean Bierbaum was named a member of the federal advisory committee to the assessment in April.

ANALYZING THE CLIMATE CHANGE ARGUMENT

Andy Hoffman, SNRE professor and associate director of the Erb Institute for Global Sustainable Enterprise, published a paper in the March/April issue of *Organization and Environment* called "Talking Past Each Other? Cultural Framing of Skeptical and Convinced Logics in the Climate Change Debate," which suggests that the often-heated climate change discussion is a logic schism.

He also participated in a series of workshops addressing behavioral and social science aspects of global climate change. The book, *Facilitating Climate Change Responses*, documents the workshop presentations and discussions and illustrates some of the ways the behavioral and social sciences can contribute to the new era of climate research.

MORE SOCIAL BENEFITS FROM FORESTS?

When local residents are allowed to make rules about managing nearby forests, the forests are more likely to provide greater economic benefits to households and contain more biodiversity, two University of Michigan researchers and a colleague conclude from an analysis of forest practices in tropical developing countries of East Africa and South Asia. Professor Arun Agrawal and researcher Lauren Persha, along with Ashwini Chhatre of the University of Illinois, used evidence from more than 80 forest sites in six tropical countries to test how local participation affects social and ecological benefits from forests. The team's results appeared March 25 in *Science*.

DECLINING DIVERSITY, DECREASING BIOMASS

An issue of the journal *Nature* dedicated to biodiversity featured a meta-analysis conducted by SNRE Assistant Professor Brad Cardinale and colleagues (see profile, page 14). The team looked at nearly 400 articles by a wide range of researchers and concluded that, according to Cardinale, "This summary provides unequivocal evidence that declining diversity of plants and algae in the world's ecosystems will decrease the biomass of plants in natural ecosystems, and degrade their ability to use biologically essential nutrients from soil and water."

ICE-AGE REPTILE EXTINCTIONS EXPLAINED

A wave of reptile extinctions on the Greek islands over the past 15,000 years may offer a preview of how plants and animals will respond to human-caused climate change, according to SNRE Associate Professor Johannes Foufopoulos and his colleagues in a paper in the January edition of *American Naturalist*.

Today, in many places, chunks of natural habitat are surrounded by inhospitable expanses of agricultural and urbanized land, just as the Aegean islands were surrounded by rising seas. The researchers concluded that a similar pattern of extinctions will emerge as the climate warms.

CHANGING OUR WAYS POST-BP SPILL?

In the *Journal of Management Inquiry*, Professor Hoffman and colleague P. Devereaux Jennings of the University of Alberta contend that the aftermath of the April 2010 BP oil spill in the Gulf of Mexico is unlikely to change our views toward fossil fuels, environmental management and energy use.

ENERGY TRANSFORMATION NEEDED

At the request of President Obama, Dean Bierbaum and Professor Dennis Assanis (director of the Michigan Memorial Phoenix Energy Institute) served on a working group to develop a road map for "Accelerating the Pace of Change in Energy Technologies through an Integrated Federal Energy Policy." Recommendations for a quadrennial energy review, increased traineeships for graduate students, a greater emphasis on funding efficiency and renewable resources, and better integration of the social sciences were among the key needs identified to ensure economic competitiveness, environmental stewardship and national security.

SHIFTS IN THE 'ECOSYSTEM' CONCEPT

The "ecosystem" concept is central in ecology and global change research. Now 75 years old, it continues to evolve and shape our thinking about environmental change. An article by SNRE Associate Professor and Associate Dean Bill Currie outlines current important directions and changes in the ecosystem framework, including an increased recognition of complexity and a focus on ecosystem services. In an article in *New Phytologist*, Currie proposed a new view of the biotic hierarchy in which ecosystem processes and socioeconomic processes combine to form coupled social-ecological systems.

MORE FACULTY JOURNAL ARTICLES:
snre.umich.edu/citations

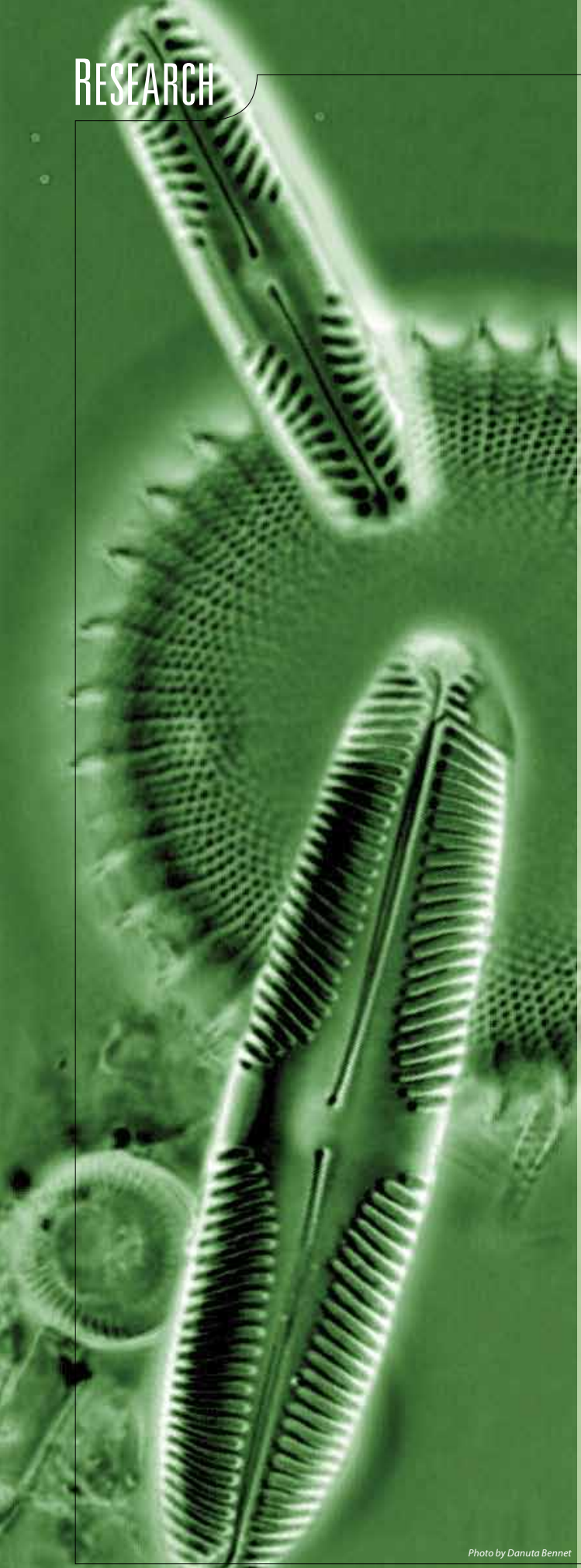


Photo by Danuta Bennet

how many SPECIES does it take to sustain life?

BY LAURA J. WILLIAMS

As a Ph.D. student interested in restoration ecology at the University of Maryland, Brad Cardinale was trying to figure out how to put a damaged ecosystem back together. As he was doing his work, there was an emerging view that biodiversity was crucial to the productivity and sustainability of ecological systems. But Cardinale's dissertation work was showing that many important ecological processes recovered quickly—even when biodiversity could not be restored. He began to wonder whether biodiversity was truly necessary to sustain the fundamental biological processes that ecosystems perform, such as purifying water, producing oxygen or storing carbon.

Two decades later, he is now convinced that biodiversity does, in fact, regulate how ecosystems function.

Cardinale, who joined SNRE in spring 2011 as an assistant professor, was previously on the faculty of the Department of Ecology, Evolution and Marine Biology at the University of California-Santa Barbara. By developing mathematical models, conducting dozens of experiments and summarizing the results of more than 400 biodiversity studies performed around the world, Cardinale has brought into focus the role that biodiversity plays on the planet.

His work suggests that biodiversity may be essential for the functioning ecosystems. This point was illustrated in a recent paper published in *Nature*, which documented how biodiversity of stream algae impacts the removal of nitrate—the most widespread water pollutant worldwide.

By directly manipulating the number and types of algae growing in the biofilms of 150 experimental streams, Cardinale was able to show that each algal species thrived in a specific type of habitat. Some species were best adapted to live and grow in low-flow environments, while others had evolved to grow well in high-flow environments. Some species were specialized at colonizing habitats that were recently disturbed by floods. Others tended to dominate habitats that had never been disturbed. Differences in the ecological niches of the species allowed then to occupy unique and complementary habitat types in a stream, which also ensured that a whole community could produce more total biomass (the sum of all the plant matter) than any single species could alone. In turn, streams with more species took greater advantage of the niche opportunities,

and removed more nitrate from the water than streams with fewer species.

In one sense, Cardinale's experiment is not novel. Darwin proposed more than a century ago that more diverse communities should be more productive and efficient. Since that time, many studies have shown that diverse ecosystems do indeed produce more total biomass and, in turn, are more efficient at reducing nutrient concentrations in soil and water. But there has always been controversy about whether these trends were truly driven by diversity or if diverse communities are simply more likely to contain "super-species" that are particularly good at removing these pollutants. The answer to this debate has major implications for conservation: Do we need to focus only on select species, or is there reason to conserve the full variety of life?

Cardinale's work has produced key insights into mechanisms through which biodiversity per se can help to reduce nutrient pollution in rivers and streams. But he isn't through with algae—or with wading into controversial waters. His future goals include performing experiments and syntheses of data to help determine how diverse ecological systems need to be in order to preserve Earth's life-support functions that humans value, like clean air and water.

Put another way, how many species do we need?

Cardinale isn't asking this question in a vague way. He doesn't mean "need" in an ethical or an aesthetic way. He's seeking an actual number of species that is required to sustain basic life-support processes in the world.

"You can't conserve every species," Cardinale says. "We don't have infinite resources. So we're going to have to prioritize, and to do that, scientists have to start giving us concrete numbers of species that are needed to sustain human life.

"We also need to know which ones deserve the highest priority for conservation," he adds. "If we don't produce these estimates quickly, then we risk crossing a threshold that we can't come back from."

The National Science Foundation (NSF) would seem to agree that Cardinale's question matters. The foundation is funding Cardinale's work with a $2 million, five-year grant for a project that aims to determine how many and which species are required to maintain production of oxygen in lakes, in order to predict the impact of species extinction based on evolutionary relationships among species. Working with two collaborators, a genomic and a phylogenetics researcher, Cardinale hopes to determine if the genetic uniqueness of different species of algae can predict their impacts on oxygen production. If one species dies, can another one that is evolutionarily similar replace it, or is the genetic profile of a species so specific that if the species dies, nothing can take its place?

Cardinale's lab, currently under construction on the ground floor of the Dana Building, will set up a range of simulated lakes in which he will orchestrate a sort of "Battle of the Algae" to determine which species are truly indispensable for oxygen production. The team will then look at sealed communities from real lakes to see if the oldest species are the most productive, then proceed to sample "all the lakes we can get to" to see if the algae species/oxygen relationship is the same.

Theoretically, the number the team finds for algae, based on the relatedness or uniqueness of key species, can then be applied to other ecological communities.

"We can't manipulate every species on the globe," Cardinale points out. "But in theory, we could get a sample of DNA from most everything, and reconstruct the evolutionary relationships and genetic uniqueness of all forms of life."

If these relationships tell us what species do in an ecosystem, he explains, and which are irreplaceable, then we'll have a useful tool for conservation.

The NSF project is not the only way Cardinale is pursuing the how-many-species question. He also leads a working group at the National Center for Ecological Analysis and Synthesis, a research center at University of California-Santa Barbara, to analyze data linking biodiversity to ecosystem function for Earth's major biomes. This could theoretically allow investigators to determine the number of species required not just for a single process like nitrate uptake or oxygen production, but for multiple functions performed by ecological systems.

Ultimately, he says, the research will be able to help conservationists focus strategically on the species that may matter most to humans to preserve biodiversity before it's irrevocably reduced. Cardinale believes we are about 10 years from a rough estimate of the number of species our own needs to survive on this planet.

TOP: BRAD CARDINALE IN HIS ELEMENT

BOTTOM: A GRADUATE STUDENT PREPARES COLLECTION EQUIPMENT THAT WILL CAPTURE DIFFERENT SPECIES OF ALGAE

SPECIES COUNT

Estimated number of species on the planet:

5 to 50 million

Robert M. May. "How Many Species are There on Earth? Science, *1988*

Species listed as "threatened":

at least 33%

International Union for Conservation of Nature's Red List

Number of species described:

2 million

Millennium Ecosystem Assessment, 2005

Photo by Danuta Bennet

Photos courtesy of Brad Cardinale

the picture of PROGRESS

FROM ANTARCTICA AND THE GALAPAGOS ISLANDS TO RIBBON-CUTTINGS AND LECTURE SERIES, THIS COLLAGE CAPTURES IMAGES OF A DEAN AS SHE RESHAPED THE SCHOOL'S VISIBILITY.

BY KEVIN MERRILL

Dean Rosina M. Bierbaum is concluding 10 years of leadership, growth and innovation at SNRE. It's been a whirlwind decade of dramatic change at the school and in environmental education, and through it all Dean Bierbaum guided and sustained SNRE's indisputable position as the premier graduate school in natural resources and environment.

On Sept. 1, she'll relinquish the title of dean and begin a year-long sabbatical before returning to the faculty as a professor and focusing on adaptation to climate change and on sustaining the sustainability momentum both on campus and beyond. She has been invited to spend time at six universities in the United States and Europe, appointed to the new National Climate Assessment Advisory Committee, and selected as one of the first World Bank Fellows, tasked with integrating climate change adaptation into the organization's lending programs. "I hope to bring back many new ideas to share with the 'Leaders and Best,'" she said.

Under her guidance, SNRE's enrollment and research grew tremendously, as did the school's emphasis on interdisciplinarity—whether measured in dual graduate degrees, introduction of core courses, expansion of the master's project program, hiring of nearly 20 new faculty, creation of the undergraduate Program in the Environment or faculty working collaboratively across U-M graduate schools. Also under her leadership, SNRE exceeded its goal and raised $37 million during the Michigan Difference campaign with a focus on increasing graduate student support.

THE BIERBAUM DECADE

Of course, Dean Bierbaum's dedication to environmental issues did not begin with her appointment in 2001. She came to Ann Arbor from Washington, D.C., where for decades she held a variety of leadership roles in federal government and worked to increase public understanding and support of environmental research; she was acting director of the White House Office of Science and Technology Policy before she joined SNRE. And when she arrived at U-M that fall, she became an active force in changing environmental education to keep pace with the needs and demands of society, government and industry.

"For two decades, I worked in Washington at the interface of science and policy as a translator, assessor and user of knowledge," said Dean Bierbaum, a native of Bethlehem, Penn. "It took me a long time to learn the many 'languages' needed to affect policy—science, economics, engineering, behavior."

During her tenure, she encouraged the SNRE community to define and refine knowledge at the intersection of science, policy and design, and she intends to continue to work on sustainable development and global change. "I came to Michigan to educate the next generation of environmental scientists, managers and policy makers in the way I wish I had been trained to tackle those interdisciplinary, interconnected problems," she said. "I am proud of the school's record of accomplishment toward that goal."

The dean search was entering its final phases as this article was written. Get updates at snre.umich.edu/dean_search

DECADE *of* ACHIEVEMENT

2001

May: U-M President Lee Bollinger announces appointment of Rosina M. Bierbaum, then acting director of the Office of Science and Technology Policy in the Executive Office of the President

June: SNRE research budget is $3.1 million

September: Total graduate, undergraduate enrollment is 540

October: Bierbaum starts as dean

October: Peter M. Wege Lecture on Sustainability series established. Dean Bierbaum delivers first lecture

November: Regents approve new joint undergraduate degree between SNRE and the College of Literature, Science, and the Arts, to be called Program in the Environment and starting with the fall 2002 semester

2002

Michigan Sea Grant College Program and the Cooperative Institute for Limnology and Ecosystems Research become part of SNRE

2003

October: Dean Bierbaum named co-chair of President Coleman's task force to measure the university's progress in key areas of environmental assessment

October: SNRE celebrates its centennial during Homecoming

2004

The five-year "Greening of Dana" is completed, making SNRE's home the greenest building on campus. The Gold LEED-certified building provides a comfortable place to learn and work and demonstrates cutting-edge environmentally conscious design

2005

October: Al Gore delivers the Wege Lecture, previews "An Inconvenient Truth"

November: The Graham Environmental Sustainability Institute launches to advance U-M as a global academic leader in sustainability. Dean Bierbaum named first chair of its deans' advisory council

SNRE restructures master's program from three concentrations (Resource Policy and Behavior, Resource Ecology and Management, and Landscape Architecture) to nine specialized fields. Credit hours increase and core requirements expand

Corporate Environmental Management Program renamed the Erb Institute for Global Sustainable Enterprise

2006

June: Dean Bierbaum delivers address to the nation's top sustainability experts at the National Leadership Summit for a Sustainable America

November: Dean Bierbaum delivers the keynote science briefing to the nation's mayors at the second annual Sundance Summit on climate protection

2007

February: Dean Bierbaum co-authors "Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable," the final report of the Scientific Expert Group on Climate Change and Sustainable Development

Michigan Gov. Jennifer Granholm appoints Dean Bierbaum to the Michigan Climate Action Council

May: Dean Bierbaum elected to the American Academy for Arts and Sciences, which recognizes significant contributions in scholarly and professional fields

May: SNRE organizes first national summit on "Coping with Climate Change." The summit was part of its commitment under the Clinton Global Initiative

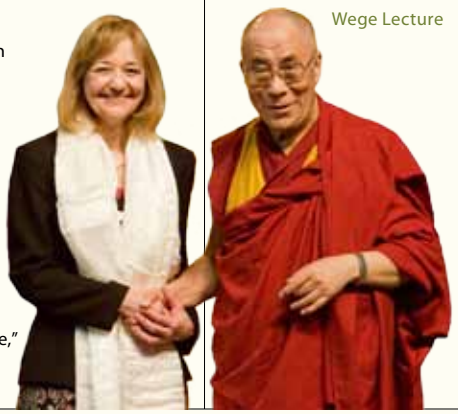
SNRE establishes Peace Corps Fellows/USA program

Dean Bierbaum named to board of the Gordon and Betty Moore Foundation

2008

April: Dean Bierbaum named to co-author, co-direct The World Bank's World Development Report 2010 on climate change and development. Professor Dave Allan named acting dean during her year-long administrative leave

April: His Holiness the 14th Dalai Lama delivers the Peter M. Wege Lecture



SNRE receives the first of three new junior faculty positions, awarded under President Coleman's 2007 hiring initiative

SNRE launches dual degree with College of Engineering, the first of its kind nationally

2009

Dean Bierbaum named by President Obama to the President's Council of Advisors on Science and Technology

2010

April: Dean Bierbaum gives U-M's Cantor Lecture on Diversity

May: Dean Bierbaum co-chairs White House National Climate Adaptation Summit

June: SNRE's research budget reaches $13.4 million

August: Ecological Society of America awards Dean Bierbaum Distinguished Service Citation for her lifelong work in the application of ecology for the public welfare

September: Fall SNRE graduate enrollment is 482; PitE (undergraduate) enrollment is 360

2011

March: Dr. Larry Brilliant delivers 10th Annual Wege Lecture

March: Rackham approves new dual-degree program between SNRE and Taubman College

April: Candidates for dean of SNRE begin interviews on campus

Saving Our Cities

BY LAURA J. WILLIAMS

Rapid urbanization, combined with climate change and dwindling natural resources, presents ever-changing challenges in cities throughout the world. In the U.S., water—too much or too little—promises to be a major issue as communities develop climate-change adaptation plans. Food, a point on which questions of health, justice, economics and environment converge, is an ever-growing research area at SNRE as it is at many schools, and graduates have used their interdisciplinary educations on urban-agriculture projects. The proximity of U-M to Detroit affords opportunities to consider and address many of the most pressing problems of contemporary society, and many SNRE students look closely at the range of urban issues in play in the Motor City, from infrastructure to aesthetics and energy. In these pages, we highlight some of the work by students, faculty and alumni in the service of urban sustainability.

Less than 50 miles from Ann Arbor, Detroit provides an abundance of urban sustainability challenges that SNRE students attack with zeal each year. Current projects include two in landscape architecture: One, a master's project, is lead by Assistant Professor Beth Diamond and focuses on the well-known community art installation, the Heidelberg Project. With her students Sarah Alward, Fai Foen, Dana Petit and Christian Runge, she is developing designs for the proposed Heidelberg Cultural Village and a healing garden, urban farm and commercial corridor to be located at the site.

Landscape Architecture Professor Joan Nassauer teaches a capstone course each spring called Metropolitan Design Dynamics Studio; in it, students design for a specific site 20 years into the future. For spring 2011, she collaborated with community planners in Detroit and with the national landscape architecture firm JJR to select a site defined by its proximity to a massive Chrysler plant and a high proportion of vacant or demolished houses. Her students proposed green solutions to encourage ecological benefits on unused property, reuse resources like rainwater, and improve safety and aesthetic appeal in the area.

Landscape architects aren't the only ones addressing Detroit-centric problems. Environmental Justice Professor Paul Mohai and SNRE research investigator Byoung-Suk Kweon are completing a major project funded by the Kresge Foundation that synthesizes self-reported pollutant data from companies operating in Detroit with maps that pinpoint school locations to study connections between air toxins and student performance. A group of students—Becky Brown, Emily Etue, Elizabeth Fox, Mozhgon Rajaee and Nate Schafrick—collaborated with them this semester on a master's project.

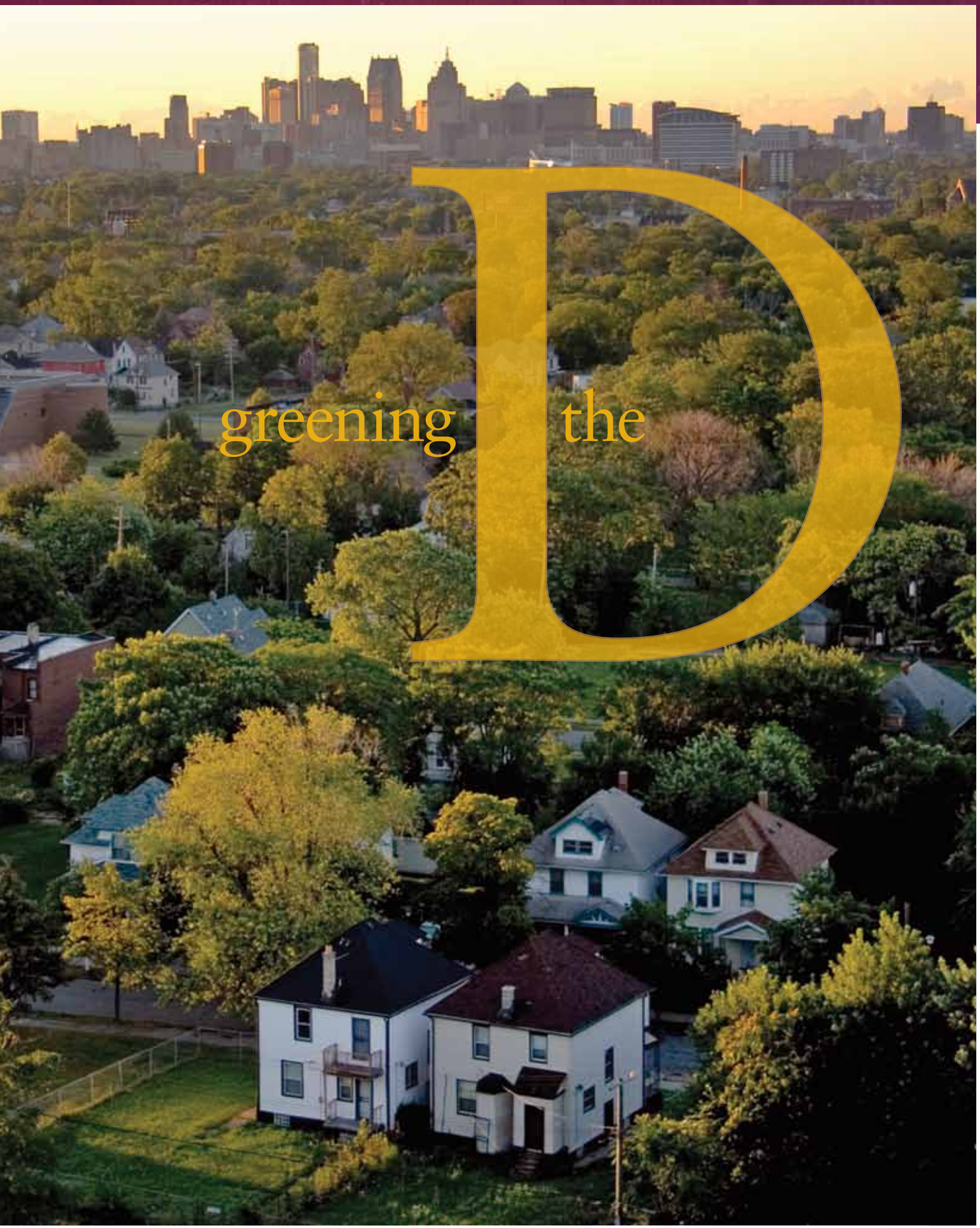
For another 2011 master's project, students Karyn Boldys, Lauren Cooper, Michela Gentile, Melinda Morang and Elizabeth Senecal rented a house in the Morningside neighborhood of Detroit and held a series of environmental education workshops there about home energy and water efficiency and sustainability, using the home as a demonstration tool.

In spring 2010, two Detroit-based master's projects were covered in *Stewards*, one addressing transit-oriented development and the other a business-based revitalization plan for the Jefferson East neighborhood of the city. A video explaining the Jefferson East project is available on YouTube. ("Mastering the Challenge," www.youtube.com/user/umsnre) The *Stewards* articles are online at snre.umich.edu/stewards.

TOP: HEIDELBERG PROJECT

MIDDLE: LANDSCAPE ARCHITECTURE STUDENT DANA PETIT DISCUSSES HER FUTURE NEIGHBORHOOD CONCEPT

BOTTOM: LANDSCAPE ARCHITECTURE STUDENT CHRISTIAN RUNGE DEVELOPED A PLAN TO SHOW HOW POPULATION GROWTH CAN OCCUR IN SELECTED AREAS OF DETROIT


greening the D

full circle

"WE'RE IN THE KIND OF WORK WHERE THERE'S VERY PHYSICAL, VISIBLE EVIDENCE OF MAKING THINGS HAPPEN." —AMANDA EDMONDS (B.A. '00, M.S. '05) EXECUTIVE DIRECTOR OF GROWING HOPE

Photo by Dave Brenner

From SNRE to the hoophouse
and back again, urban farming is on the rise

"Modern agriculture is environmentally unsustainable. A global food system that simultaneously produces hunger and obesity along with collateral environmental degradation is obviously a dysfunctional system," writes Ivette Perfecto, SNRE professor, in the intro to her course Sustainable Food Systems. "It challenges the academic community and society at large to develop viable alternatives . . . These alternatives are emerging from many sectors of society, especially at the grassroots level."

At the grassroots level,

one such alternative emerges. On a cold February afternoon in Ypsilanti, an SNRE graduate with mud on her boots walked among beds of spinach, rosemary and onions in a humid hoophouse on a 1.4-acre farm just a couple of blocks from downtown and explained the nonprofit urban agriculture and healthy food organization she founded eight years ago.

Amanda Edmonds (B.A. '00, M.S. '05), is the executive director of Growing Hope, an expanding organization that provides leadership training, youth programs and other resources to help people in the community grow affordable healthy food.

She and her small staff, many of whom have been AmeriCorps Vista volunteers (as well as several SNRE and Program in the Environment graduates), also started a farmer's market in Ypsilanti. Volunteers build raised beds and seed-starting kits for community members, who in turn contribute seedlings to the farm.

Edmonds came to community gardening as a way to advocate for environmental justice, she said. Arriving in Ann Arbor as an undergraduate, she soon found her niche. "I fell very quickly into the environmental justice movement and Bunyan [Bryant] became a mentor," she said, referring to the SNRE professor. "A friend at SNRE introduced me to the community garden movement."

The symbiotic relationship between community organization and academic researchers continues, as professors and students with a wide range of interests and specialties have connected with Growing Hope. A six-student master's project in 2009, advised by Professor Andy Hoffman, created a financial plan for the organization. And Behavior, Education and Communication Associate Professors Tom Princen and Ray De Young have decided to donate proceeds from their forthcoming book, *The Localization Reader: Adapting to the Coming Downshift*, (MIT Press, January 2012) to Growing Hope.

"Growing Hope is providing a positive response to a new age of biophysical limits," said De Young. "Our book's pragmatic philosophy places well-fed neighbors high on a list of important goals. Growing Hope is improving neighborhoods through gardening, healthy food access and local food security. We can think of no better organization to support nor a better use of the book's royalties."

The connections reach further. Another graduate, Rachel Chadderdon (M.S. '10), manages Double Up Food Bucks, a program funded through the Ann Arbor-based Fair Food Network that allows food stamp recipients to get $2 worth of food at farmer's markets for every one food stamp dollar. Chadderdon was part of the master's project that worked with Growing Hope, and Edmonds is an adviser to Chadderdon's organization.

"I think more and more people are realizing that food represents our most intimate and most constant interaction with the environment—after all, the only thing we humans *have* to do every day is feed ourselves," Chadderdon said. "Food is an accessible entry point into thinking about our impacts on the planet."

The nature of gardens

The work of MaryCarol Hunter, assistant professor of Landscape Architecture, looks at many aspects of urban life, particularly the impact of urban nature on well-being. And that line of inquiry has lead to a very topical subject: urban agriculture in Detroit.

"When you talk to community leaders in Detroit about the neighborhood life, urban agriculture always comes up," Hunter said. "But to date there's little information on the acceptability of city farming from the citizenship at large."

What do people really think, she wondered, about the prospect of farming in a post-industrial city like Detroit? In Hunter's new course, Urban Agriculture, she and an interdisciplinary group of students are investigating if urban farming is a socially acceptable and economically viable alternative to the beleaguered food system in Detroit. For guidance, they focused on North American cities that have four seasons. They also talked to a wide range of Detroit leaders involved with urban farming.

"We learned that there is a lot of support—and some dissent—among citizens and government in Detroit," Hunter said. The class determined that community gardens were viable for providing families and neighborhoods with fresh fruits and vegetables, and possibly as a small business or supplementary source of income.

"Community gardens are the best way to learn skills we dropped a couple of generations ago," she said. "That is the scale of operation people are most comfortable with. It builds community."

Like other forms of urban nature, urban farming has a positive impact on happiness, Hunter said. "We realize how connected we are to nature in the city when we get to play in the dirt," she said.

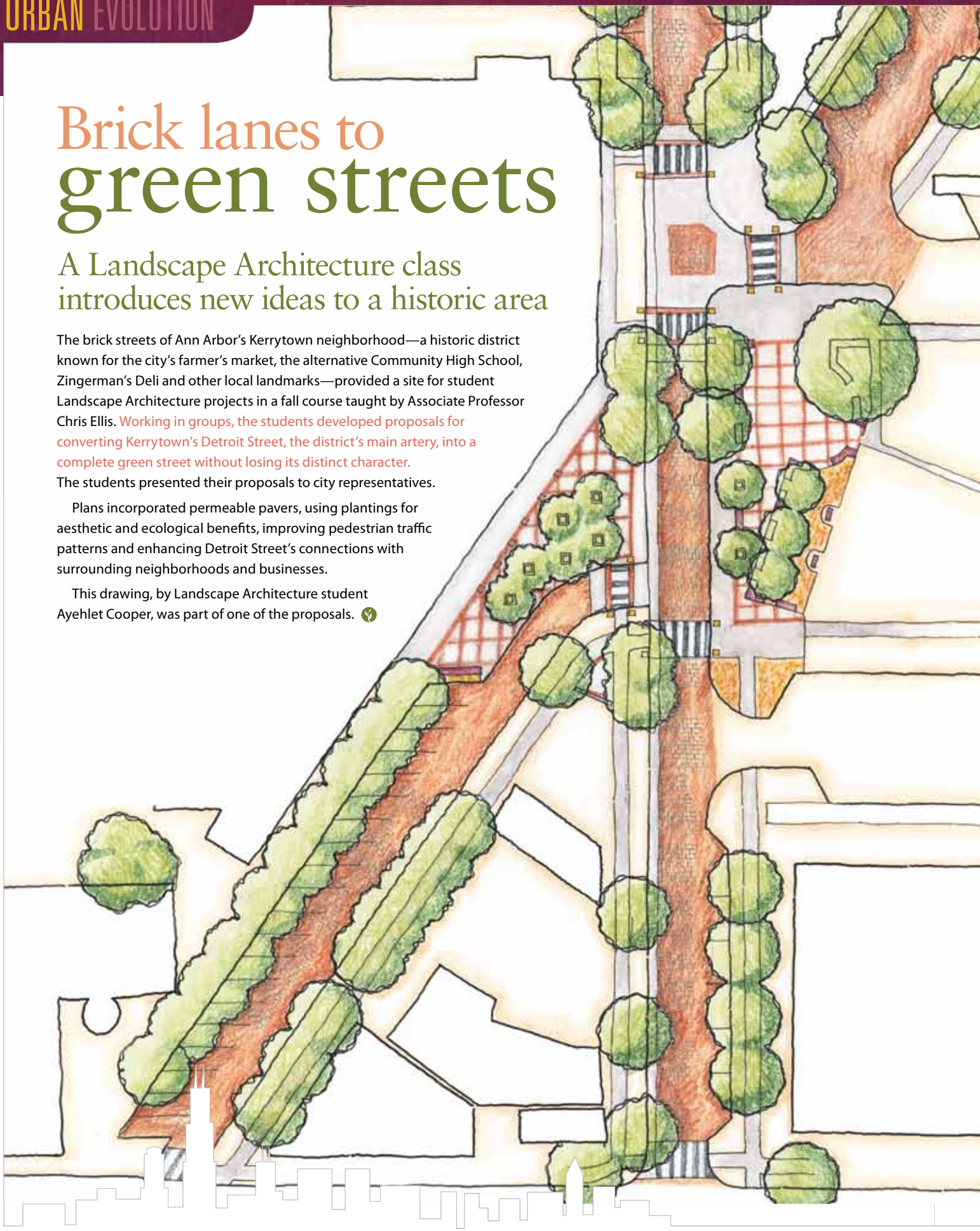
Brick lanes to green streets

A Landscape Architecture class introduces new ideas to a historic area

The brick streets of Ann Arbor's Kerrytown neighborhood—a historic district known for the city's farmer's market, the alternative Community High School, Zingerman's Deli and other local landmarks—provided a site for student Landscape Architecture projects in a fall course taught by Associate Professor Chris Ellis. Working in groups, the students developed proposals for converting Kerrytown's Detroit Street, the district's main artery, into a complete green street without losing its distinct character. The students presented their proposals to city representatives.

Plans incorporated permeable pavers, using plantings for aesthetic and ecological benefits, improving pedestrian traffic patterns and enhancing Detroit Street's connections with surrounding neighborhoods and businesses.

This drawing, by Landscape Architecture student Ayehlet Cooper, was part of one of the proposals.



MASTER'S PROJECTS

In spring 2011, students addressed water and climate change in U.S. cities

THREE CITIES. THREE ADVISERS. THREE GRADUATE SCHOOLS. TWELVE STUDENTS. ONE COMPLEX PROBLEM.

To complete the largest master's project to date in terms of number of participants, a dozen students from a range of disciplines worked under the guidance of SNRE Dean Rosina M. Bierbaum and Professor and Associate Dean of Research Arun Agrawal and Urban and Regional Planning Associate Professor Larissa Larsen from U-M's Taubman College of Architecture and Urban Planning.

The group focused on three cities (Milwaukee, Baltimore and Fresno, Calif.) selected because each represents a different climate zone and geographic region and because each faces a different climate-related threat (intense precipitation, sea-level rise and drought, respectively.) None of the cities currently have in-depth adaptation planning in their climate action plans.

In groups of three or four, the students on the team traveled to the cities to meet local policy makers and survey the site. They were addressing five sectors—energy, water, land use, human health and transportation—and examining how climate change might impact economics, social systems, natural systems and the built environment within those sectors.

"Recognizing that most climate change studies focus disproportionately on temperature-related effects, we have chosen to actively look for water-related impacts and risks," said Kevin McCoy, who is pursuing a master's in urban planning. Collaborating with local climate experts, the group hopes to make "meaningful policy recommendations, including implementation and design strategies, for adaptation to climate change."

Sorted by school, students involved were: **SNRE:** Lani Leuthvilay, Sarah Katherine Pethan, Kailai Zhang. **Taubman College of Architecture and Urban Planning:** Nick Kahn, Kevin McCoy, Peter Sotherland, Tracy Tran. **Dual degree, SNRE and Ford School of Public Policy:** Lauren Cotter, Devi Glick, Frank Szollosi. **Dual degree, SNRE and Taubman:** Kristin Baja. **Dual degree, Ford and Taubman:** Koben Calhoun

CLIMATE AND THE THIRD COAST

Focusing on the Great Lakes region and its many coastal cities and towns, an interdisciplinary student group developed education modules to help local officials develop climate-change adaptation plans for their communities.

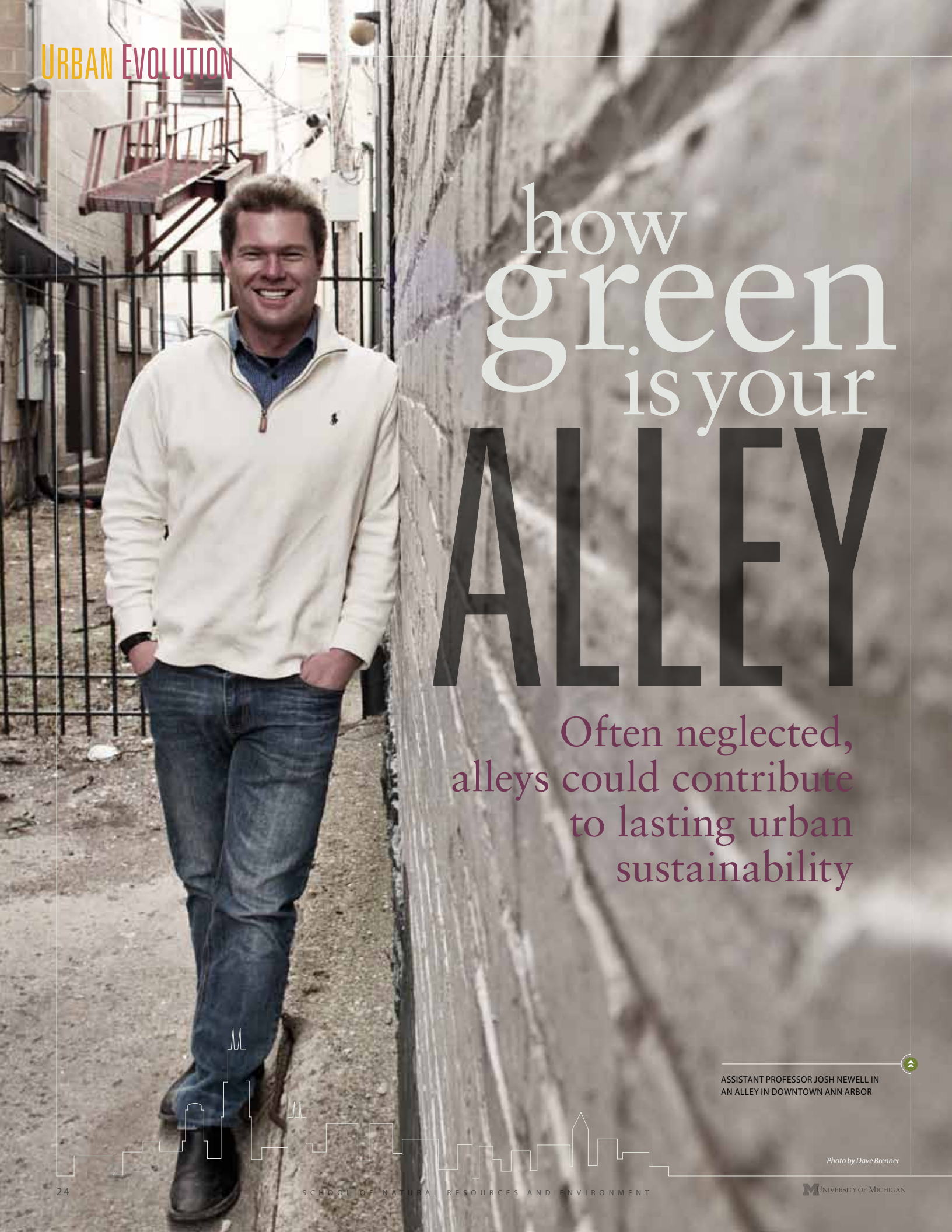
"Planners and decision makers in the Great Lakes need to consider whether their infrastructure and management strategies (for ports and shipping, for example) can handle increased fluctuations in lake levels," said Shauna Casey, one of the students on the team. "Our training modules were designed to help Great Lakes planners and decision makers understand impacts, to help them develop alternative management strategies robust enough to withstand climate changes and to provide a more flexible, adaptive framework for decision making."

Jim Diana, SNRE professor and director of Michigan Sea Grant College Program, was the project's faculty adviser. Clients were the National Oceanic and Atmospheric Administration (NOAA), as well as the Great Lakes Sea Grant Network; Jennifer Day, an SNRE Ph.D. student and Great Lakes regional coordinator with NOAA, worked closely with the students along with Diana. The education modules are delivered to communities through Sea Grant Program extension staff, USDA extension staff, Coastal Zone Management programs and other trained outreach professionals.

GREAT LAKES TEAM MEMBERS AND THEIR FIELDS OF STUDY ARE (LEFT TO RIGHT): DANIELLE FORSYTH: **ENVIRONMENTAL INFORMATICS**; REBECCA HELD: **ENVIRONMENTAL POLICY AND PLANNING**; AND SARA KATICH, CYBELLE SHATTUCK AND SHAUNA CASEY: **BEHAVIOR, EDUCATION AND COMMUNICATION**.

how green is your ALLEY

Often neglected, alleys could contribute to lasting urban sustainability



ASSISTANT PROFESSOR JOSH NEWELL IN AN ALLEY IN DOWNTOWN ANN ARBOR

Photo by Dave Brenner

Josh Newell joined the SNRE faculty in fall 2010 as an assistant professor. Among his research interests related to cities, the built environment and sustainability, he has conducted research specifically on alleys and the potential to use them to increase urban green space, improve ecological services and lead to a more sustainable urban metabolism.

OF ALL ASPECTS OF THE BUILT ENVIRONMENT THAT COULD BE MADE MORE SUSTAINABLE, WHY FOCUS ON ALLEYS?

Alleys are a very interesting way to transform gray urban infrastructure to green, especially in park-poor cities like Los Angeles. There are more than 12,000 alleys in Los Angeles—about 930 linear miles worth—and there's huge potential to revitalize alleys in order to connect neighborhoods and make communities more walkable. Alleys can also connect parks and other isolated green spaces, so you could have biodiversity benefits and enhance the ecological integrity of the city.

In L.A., which most people think of as arid and which gets most of its water piped in from hundreds or thousands of miles away, you also have big storm events. Most of the rainwater during these events goes into the sewage systems, into river basins, and out to the Santa Monica Bay. Rather than waste that precious resource, we could capture the rainwater through greener alleys using permeable pavement, bioswales and trees rather than concrete.

ALLEYS HAVE A PRETTY BAD REPUTATION, DON'T THEY?

In neighborhoods that were built in the early 20th century, alleys were a common and essential component of the urban fabric. But later they became stigmatized, often seen as breeding places of disease. They were places to be avoided. In the neighborhoods in L.A., a lot of the alleys are nuisances. People just dump trash in them.

WHY NOT SIMPLY TURN ALLEYS INTO PARKS?

There are examples of little "pocket parks," but transforming an alley can be very complicated. Ownership and jurisdiction are often unclear; fire, police and sanitary departments need to use alleys for city services; the initial funding for transforming the alley needs to be raised and then there's the question of who will maintain it. You can imagine a vertical garden of tomato plants along an alley, but who's going to take care of it? It seems easier just to pave it, but that has a lot of other ecological, economic and social costs.

HOW DO PEOPLE USUALLY RESPOND TO SUGGESTIONS ABOUT GREENING ALLEYS?

Whenever we received publicity for our alley research, we got phone call after phone call after phone call from people who want to "green" alleys as a means to revitalize their neighborhoods.

BUT DOESN'T EVERYBODY WANT TO IMPROVE THE NEIGHBORHOOD? WHAT IS DIFFERENT ABOUT ALLEYS?

Alleys connect a lot of private owners. An alley might span 20, 30 separate owners. So you have a lot of stakeholders, but also potential for enhancing neighborhoods because of the connectivity.

HAVE YOU EVER LIVED NEAR AN ALLEY?

I lived in downtown L.A. in a converted loft building over a commercial alley near a nightclub. In Tokyo, I lived above a couple of different alleys, where they were intensely used and served as neighborhood capillaries. In the Netherlands I lived above a *woonerf*, an alley-type urban space that roughly translates as "living garden."

HOW CAN ALLEYS BE A PART OF PLANNING IN THE FUTURE?

Planners might not be looking at alleys, but alleys are certainly part of the suite of options to make our cities more sustainable. Most people have strolled through alleys but haven't thought about them and the potential. But for cities in crisis seeking to redevelop and green their urban form, alleys are an attractive possibility. Alleys represent unrealized community assets that could be transformed by urban planners and managers into "green infrastructure" to offer multiple ecological, economic and social benefits—including walkability and mobility, play space and green cover, biodiversity conservation and urban runoff infiltration—and thereby to contribute to a more sustainable urbanism.

Class Notes

Ronald J. McCormick (B.S. '58) was inducted into the Chagrin Falls Schools (Ohio) Achievement Hall of Fame last fall. McCormick tells *Stewards* that he "was very surprised, deeply honored and extremely humbled" by the honor. "The school had previously inducted prominent doctors, scientists and a comedian, and I guess they wanted an inductee from the field of natural resource management and selected this old forester," he said. McCormick retired from the U.S. Forest Service in 1990 after a 33-year career.

Arthur J. Gold (B.S. '73, M.S. '78) returned to campus to be part of a panel discussion exploring the role of student researchers in improving water quality in northern Michigan in the 1970s. Gold and other panelists spoke of how their passion for science outreach crystallized during a summer at the University of Michigan Biological Station and led to the creation of Community and Lakes Environmental Awareness and Research (CLEAR), a three-year research project. The group spawned the Tip of the Mitt Watershed Council, a leading environmental advocacy group now working to maintain freshwater systems at the heart of the upper Great Lakes region. Today, Gold is director and professor of Watershed Hydrology in the Department of Natural Resources Science at the University of Rhode Island. Reach him at agold@uri.edu.


GOLD

David C. Moilanen (B.S. '75) was named director of the Huron-Clinton Metroparks, a regional special-park district encompassing Wayne, Oakland, Macomb, Washtenaw and Livingston counties in southeast Michigan. He had served as the system's deputy director of operations since 2006. He joined the Huron-Clinton system in 1974 as a part-time golf course maintenance worker and later worked as a naturalist at the nature center. He was hired full-time in 1980 as farm manager at Kensington Metropark's Farm Center. In 1991, he became the public relations/information officer and was named chief of interpretive services and public relations in 1999. Currently, 13 Metroparks, covering almost 25,000 acres, serve about 9 million visitors annually. The Metroparks are located along the Huron and Clinton rivers, providing a greenbelt around the Detroit metropolitan area.


MOILANEN

Ellen M. Airgood (B.S. '88) is publishing her first fiction book, *South of Superior* (Riverhead Hardcover). The book tells the story of Madeline Stone, who moves from Chicago 500 miles north to the coast of Lake Superior and finds she isn't prepared for how much her life will change. When not writing, Airgood and husband Rick own and operate West Bay Diner and Delicatessen in Grand Marais, Mich., in the Upper Peninsula near Lake Superior.


AIRGOOD

Brodie Farquhar (M.S. '94) has been hired by the Colorado Bureau of Land Management as a writer/editor for the Dominguez-Escalante National Conservation Area resource management plan/environmental impact statement. Farquhar was a member of the first class of Scripps Fellows for Environmental Journalism, which started at the University of Michigan (but has since moved to the University of Colorado). Farquhar is an environmental journalist who has covered environmental issues in Wyoming, Washington and the northern Rockies.


FARQUHAR

Peter Butler (Ph.D. '94) lives in Durango, Colo., where he works on a number of water-related issues, especially abandoned mine cleanups. He is chair of the Colorado Water Quality Control Commission, which sets all the water quality standards and most of the regulations for implementing the Clean Water Act in the state.

Angela Oonk (B.S. '94) was recently named an assistant director in the University of Michigan's Stewardship Office within the Office of University Development. She is overseeing the university's Presidential Societies and Acknowledgments areas. She previously worked at Vassar College in Poughkeepsie, N.Y., where she was associate director of reunion giving. While a student at SNRE, she worked at the University of Michigan Exhibit Museum and created its successful "Buy a Bone" fund-raising program.


OONK


COUGHLIN

Photo by Andrew Walsh

Chrissy Coughlin (M.S. '99) is an independent environmental consultant specializing in communications strategies, media relations, corporate sustainability and cause marketing. This fall, she founded and is co-host of "Radio Green Talk" on WSMN-AM (1590), in Nashua, N.H. (www.radiogreentalk.com). She and co-host Diana Dehm address critical sustainability issues and the nexus of economic stability, social improvement and environmental impact in a fun and meaningful way. She previously managed the Institute for Corporate Environmental Mentoring at the National Environmental Education Foundation in Washington, D.C. One of her most exciting projects was helping to incubate www.greenbiz.com, a leading green business information website. She is also a singer-songwriter who has produced and recorded two full-length CDs. She can be reached at chrissycoughlin@gmail.com.

"Ginger Murphy brings to her work in Afghanistan not only a rich base of field experience but extensive program management and policy experience as well."

— NRCS Chief Dave White

rebuilding FROM THE GROUND UP

BY KEVIN MERRILL

Ginger Murphy Helps Construct a Viable Agriculture System in Afghanistan

If Afghanistan is to have a secure and sustainable agricultural future, SNRE alumnus Ginger Murphy will be one of its many architects.

In January, Murphy began a year-long assignment for the U.S. Department of Agriculture (USDA), leading a team of field agriculture advisers who are working with local Afghans to create a sustainable agricultural system after nearly three decades of instability and war.

"We're here at the ground level, trying to support subsistence farming and food security," Murphy said in an interview from Kabul. "Once we have food security, we can focus on growing commodities for the marketplace."

For Murphy, who earned her M.L.A. in 2000, the challenge is as important as any facing the Afghan people. Many Afghans live off the land, farming 2-hector plots, called *jarib*, in a dry climate similar to that of Arizona. The country lacks the infrastructure—roads, processing plants and reliable refrigeration—to support food distribution and storage.

In 2003, the USDA began sending employees to Afghanistan to provide expertise in crop production, plant protection, livestock management and natural resources conservation and development.

"The Obama administration has identified agriculture as the top reconstruction priority for the U.S. government in Afghanistan," said Agriculture Secretary Tom Vilsack when announcing Murphy's assignment. "One of the most important ways we can revitalize the country's once vibrant agricultural sector is by sharing the expertise of senior leaders like Ginger who offer their personal passion and knowledge to help protect and restore Afghanistan's vital natural resources."

Murphy earned an undergraduate degree in horticulture from The Pennsylvania State University and worked for the USDA, monitoring animal and plant importations through John F. Kennedy International Airport in New York. She then joined the Natural Resources Conservation Service (NRCS), a multi-billion dollar agency housed in the USDA that provides technical assistance to U.S. landowners, primarily farmers and ranchers, to support conservation.

She left NRCS in 1997 to pursue her interest in design and architecture (she returned to the agency after graduating.) "My passion has always been landscape design, and I chose Michigan because its landscape architecture program is in a school of natural resources," she said. After completing her degree, she was the state conservationist in Maryland and in Delaware before serving in a variety of management roles at NRCS headquarters. Murphy has been associate chief of NRCS since June 2009.

Like many LA students, her fondest memories are of all-nighters preparing for "crit" sessions. "We'd stay up finishing every last thing we could, and at 9 a.m, our projects were critiqued," she said. "It was brutal."

That experience was good practice for Murphy's current work. "A large part of what I do now involves 'seeing' how it could be, then figuring out how to get to that end state," she said. "It's a very similar process to one a landscape architect uses to approach a challenge in a given environment."

Murphy first went to Afghanistan in June 2010 on a short-term assignment to help the Afghan government develop a plan for the country's natural resources. "When I leave here, my hope is that we are that much closer to a sustainable agriculture future and we have provided skills and know-how to people to help them raise food and livestock for themselves," she said. "I have hope because there is no alternative."

PLATER

Photo by Angela Hart/SF Public Press

Brent Plater (B.S. '95) is an adjunct professor in San Francisco State University's Environmental Studies Program and executive director of Wild Equity Institute, a nonprofit organization building a sustainable global community. His group recently commissioned a study of the environmental impact of preserving the Sharp Park Golf Course in San Francisco vs. preserving it as a nature reserve, a cutting-edge conservation issue in the Bay Area. In 2010, he received the Environmental Education Conservation Award from the John Muir Association and was a Fulbright scholar at the University of West Indies in Trinidad and Tobago, teaching in a program on the science and management of tropical biodiversity and drafting regulations to protect the nation's leatherback sea turtle population. Learn more at wildequity.org.

Trish Beckjord (M.L.A. '96) returned to the Dana Building Feb. 1 and spoke to students about how LEED, the Green Guide for Health Care (GGHC), and the Sustainable Sites Initiative (SITES) support provision of outdoor and indoor space that is mentally and emotionally restorative. (Visual and physical connections to indoor and outdoor nature have been documented to have a variety of beneficial effects for patients, families and staff in stressful medical-care environments, and certifying green programs such as LEED, GGHC and SITES are beginning to incorporate design criteria relative to these qualities.) Her talk, based on her work in the health-care arena, capped Portfolio Day, an event for Landscape Architecture students to receive feedback from professional landscape architects. In her career, she has managed several LEED Gold-certified hospital projects in which she has integrated sustainable-site and respite criteria to create healing campus settings. She also has served as project manager or landscape design lead for a variety of other LEED certified projects, including the Omega Center for Sustainable Living in Rhinebeck, N.Y. (LEED Platinum and the first project to be awarded the Living Building Challenge); JCI corporate headquarters in Glendale, Wis.(LEED platinum); and the first LEED Gold-certified McDonald's in the country. She can be reached at tbeckjord@gmail.com.

BECKJORD

Elizabeth Kruska (B.S. '00) is an attorney at Griffin, Marsicovetere & Wilkes P.C., in White River Junction, Vt. She graduated in 2004 from Vermont Law School.

KRUSKA

Michael Wagg (M.S. '04) was named a program analyst by the U.S. Agency for International Development in January. He is the desk officer in USAID's Europe and Eurasia bureau. He previously worked in the Office of Program Evaluation within EPA's Office of Inspector General, where he conducted evaluations of U.S. drinking water and wastewater programs, underground storage tanks and environmental enforcement.

Cynthia Koenig (M.S. '06) created the WaterWheel, a 20-gallon rolling water barrel, and Wello, the business that distributes it in developing countries where clean water is scarce. The product won $10,000 in the Global Social Entrepreneurship Competition at the Foster School of Business at the University of Washington. Koenig, who is enrolled in the MBA program at Michigan's Ross School of Business, developed the WaterWheel with teammate Colm Fay, a dually enrolled SNRE and Ross student at the Erb Institute for Global

ALUMNUS TO ALUMNUS

Heather (Lutz) Leszczynski (B.S. '00) is the new alumni relations and annual giving officer at the School of Natural Resources and Environment. Heather oversees all alumni programming activities at the school, including events, homecoming, reunions and social media. She also directs the school's annual giving activities, including donor stewardship. "I'm excited to be back inside the Dana Building and working together with my fellow alumni to enhance the school's national reputation," she said. She comes to SNRE from the U-M Center for Global Health, where she was a project manager. She also previously served as a program assistant at the Great Lakes Fishery Commission. In her spare time, she is a figure-skating instructor for the Ann Arbor Figure Skating Club. Contact her at hnlutz@umich.edu.

LESZCZYNSKI

SHARE YOUR NEWS

Send us updates and photos about your new job or personal achievements. Visit the SNRE website at **snre.umich.edu/alumni** and fill out our online update form. Or, send your information to Kevin Merrill, director of communications, via e-mail (merrillk@umich.edu) or regular mail. The address is School of Natural Resources and Environment, Office of Communications, University of Michigan, 440 Church St., Ann Arbor, MI, 48109-1041. We're looking forward to hearing from you and spreading your good news.

The WaterWheel allows a single person to carry enough water in a single trip to meet the drinking, personal hygiene and household cleanliness needs of four people.

KOENIG

Sustainable Enterprise. The team's goal is to sell 5,000 wheels in 12 months. Learn more at www.wellowater.org

Nate Engle (M.S. '07, Ph.D. '10) received one of two American Association for the Advancement of Science Congressional Science Fellowships. The program is a cooperative effort of about 30 national scientific and engineering societies. Fellows spend one year on the staffs of members of Congress or congressional committees, in legislative areas that would benefit from scientific and technical analysis and perspective.

Amy Samples (M.S. '10) joined Michigan Sea Grant College Program as a community outreach coordinator, synchronizing efforts related to the Great Lakes Restoration Initiative's Green Marina grant project and other initiatives. While at SNRE, Samples was a Doris Duke Conservation Fellow. Among her experiences is working in conservation planning and outreach as part of the Chesapeake Bay Initiative.


SAMPLES

Revisions

Editing errors from two Class Notes in the last issue of *Stewards* are corrected below.


HAWKER

Lauran (Vincent) Hawker (M.S. '83) is the new principal at John Muir Elementary School in the Martinez Unified School District, northeast of Oakland, Calif. "I studied with William Stapp, who was amazing," Hawker told the *Martinez News-Gazette.* Stapp was an emeritus professor of resource planning and conservation.

Eric Hesse (M.S. '06) was named a Top 40 Under 40 by *Mass Transit* magazine. Hesse is a strategic planning analyst in the Office of the General Manager for TriMet, which provides bus, light rail and commuter rail services in the Portland (Ore.) metro area.


HESSE

CLASS OF 1961, ASK NOT WHAT YOUR REUNION CAN DO FOR YOU . . .

This October, we'll be celebrating the 50th reunion of the Class of 1961. Welcome back!

Friday, October 28, 2011

***12:30-2 p.m.* SNRE Alumni Luncheon.** Celebration of the Class of 1961 and Emeritus Reunion Weekend. Please register to attend.

***4-5 p.m.* Saginaw Forest Tour.** Enjoy a short, guided walking tour of Saginaw Forest to celebrate Reunion Weekend and enjoy the outdoors with fellow alumni enthusiasts.

***5-9 p.m.* SNRE Annual Campfire.** Be part of this family-friendly event, featuring games, music, food, drink and more—you won't want to miss the water races or log-sawing competition! Saginaw Forest, 3900 W. Liberty Road.

REUNION AND REGISTRATION DETAILS
snre.umich.edu/homecoming

broad support, LARGE IMPACT

Annual Fund offers opportunities to make a difference

The 2010-11 annual giving campaign is ending very soon. If you haven't made a gift and plan to, we encourage you to make one today.

As the nation's environmental consciousness continues to expand, sustainability discussions are taking place everywhere, from elementary school classrooms and city council chambers to Fortune 500 boardrooms. As the complexity of environmental challenges grow, the need for integrated, interdisciplinary leaders increases as well. Annual Fund support enables SNRE to educate and nurture those future leaders. This year's campaign goals are to enhance:

- Fellowships and scholarships
- Career development opportunities
- Thesis and master's project support (see story, right)

With your continued support, SNRE can ensure that the environmental challenges of today lead to the visionary solutions of tomorrow.

If you have a question about matching gifts, planned giving or other giving-related issues, please contact Heather Leszczynski at 734.763.1577.

Commencement Connections

Peter C. Mertz, Visiting Committee member and alumnus, delivered this year's Commencement address April 30. Mertz is chief executive officer and co-founder of Global Forest Partners (GFP), one of the largest timber investment management organizations in the world. He has more than 35 years of forest management, analytical and investment experience in the timber business. Prior to founding GFP, he was the managing director of UBS Timber Investors and a division manager for International Paper Company. He is a certified forester and a member of the Society of American Foresters and the World Business Council for Sustainable Development.

pay it forward

SNRE's Visiting Committee challenges alumni, unveils 2-for-1 matching incentive

For more than 25 years, the group master's project has defined the academic experience at the School of Natural Resources and Environment. Over multiple semesters, interdisciplinary teams combining diverse knowledge and experiences—from natural and social sciences to landscape architecture—work on behalf of clients ranging from monasteries to foreign governments.

The environmental challenges addressed are diverse, too, covering everything from ecotourism and sustainable energy to lifecycle assessments and species preservation. Working with a faculty adviser, each team produces a scientific report that is both interdisciplinary in focus and broad in appeal; the work of many of the teams has led to substantive improvements for clients and several of the resulting reports have been published as books.

Recently, the school's Visiting Committee—an alumni advisory board to Dean Rosina M. Bierbaum—recognized the potential for the master's project experience to become a national model of graduate work in sustainability. The committee organized a fund-raising effort to support the growth and enhancement of the master's project experience.

The Visiting Committee Master's Project Challenge launched in December 2010 as a 2-for-1 match and targets the more than 800 alumni with project experience. (The school, dating back to its 1903 origins as a department, has more than 7,100 alumni worldwide.)

Dean Bierbaum and all Visiting Committee members joined the campaign, conceived by members Peter C. Mertz (B.S.F. '74; MBA '81) and Mark Zankel (M.S. '94). The campaign is enlisting current students as well as using social media, annual giving and the SNRE website to reach its alumni fund-raising goal of $50,000.

"Since many clients are looking for pro bono support precisely because they don't have funding, the burden on students to carry out great projects and produce Michigan-caliber science and analysis is becoming greater each year," Mertz said. "As members of the Visiting Committee, we can help to reduce that burden. Through our leadership in financial commitments to capitalize the Master's Project Challenge fund, we hope to inspire other SNRE alumni, foundations and corporations to support master's projects."

Students will draw upon the VC-inspired fund to cover a range of project expenses, from more on-site and in-country research to taking on smaller and less well-funded clients. The campaign's goal is to give students more resources to take on more complex projects, regardless of problem size, client funding or geographic location. Currently, SNRE provides limited funding per student to finance projects; clients also are asked to contribute when possible.

MORE INFORMATION
snre.umich.edu/giving

The Paparazzi of the Dana Building

SNRE in-house photographer Dave Brenner covers nearly every SNRE-related event on campus, and beyond

Many of his photographs appear on the SNRE website or in this magazine, and many more are available to the public online: pics of the annual Solstice Party, the Year of the Rabbit Lunar New Year celebration, the Class of 1960 reunion and 35 other events are on SNRE's Flickr photo stream.

Visit and comment at www.flickr.com/photos/snre

Events

April

- Saturday, April 30
  SNRE Spring Commencement

May

- Thursday, May 5 - Sunday, May 8
  9 a.m. to 6 p.m.
  ICARUS 2
  SNRE's IFRI hosts conference of scholars and activists interested in adaptation to climate change
- Friday, May 20 - Saturday, May 21
  Developing Global Sustainability - U.S./China Partnerships
  SNRE co-sponsors conference on policy and technology for global sustainability, especially related to the U.S. and China

August

- Tuesday, Aug. 9
  6:30-8:30 p.m
  Alumni mixer, Ecological Society of America conference. Austin Convention Center, Austin, Tex.

September

- Friday, Sept. 9
  Celebrate the achievements of Professor Jonathan Bulkley and his students

October

- Friday, Oct. 28 - Sunday, Oct. 30
  Homecoming Weekend
  More details available at snre.umich.edu/homecoming
- Saturday, Oct. 30
  6-8 p.m.
  Alumni reunion, American Society of Landscape Architects conference. Hilton San Diego Bayfront, San Diego, Calif.

NETWORK FOR EVENT NEWS:
snre.umich.edu/social_networks

In Memoriam: Peter Pollack

1939-2010

Landscape architect Peter Pollack, who joined the SNRE faculty in 1973, passed away in December 2010. He was 71. In addition to his teaching, he was a celebrated professional who contributed to a wide variety of projects, especially in the Ann Arbor community, as a volunteer and through Pollack Design Associates, a company he founded with his wife, Eleanor, in 1974. Among his honors, he was named a fellow by the American Society of Landscape Architects and the American Academy in Rome. In the comments on his obituary was one from Jeff Hauptman, president of Ann Arbor-based Oxford Company, who had worked with Mr. Pollack: "Few people I've met have been as kind to people and as passionate about what they do."

PETER POLLACK DISPLAYS HIS PHILOSOPHY (AND ONE OF HIS FAVORITE T-SHIRTS) DURING HIS KEYNOTE ADDRESS AT THE 2010 LANDSCAPE ARCHITECTURE AWARDS LUNCHEON.

Tools of the Field

As part of the SNRE community, alumni have access to eRecruiter, a large, active networking tool for job seekers and employers alike.

potential employers

In the market? eRecruiter provides a valuable resource for employers, with a database of highly skilled people at all levels of experience. To post job or internship openings, sign up for an employer account at erecruiter.snre.umich.edu

eRecruiter job seekers

To access eRecruiter as a job seeker, send an email request to snre.erecruiter@umich.edu with your name and U-M uniqname.
snre.umich.edu/career_services/alumni

NATURAL RESOURCES AND ENVIRONMENT
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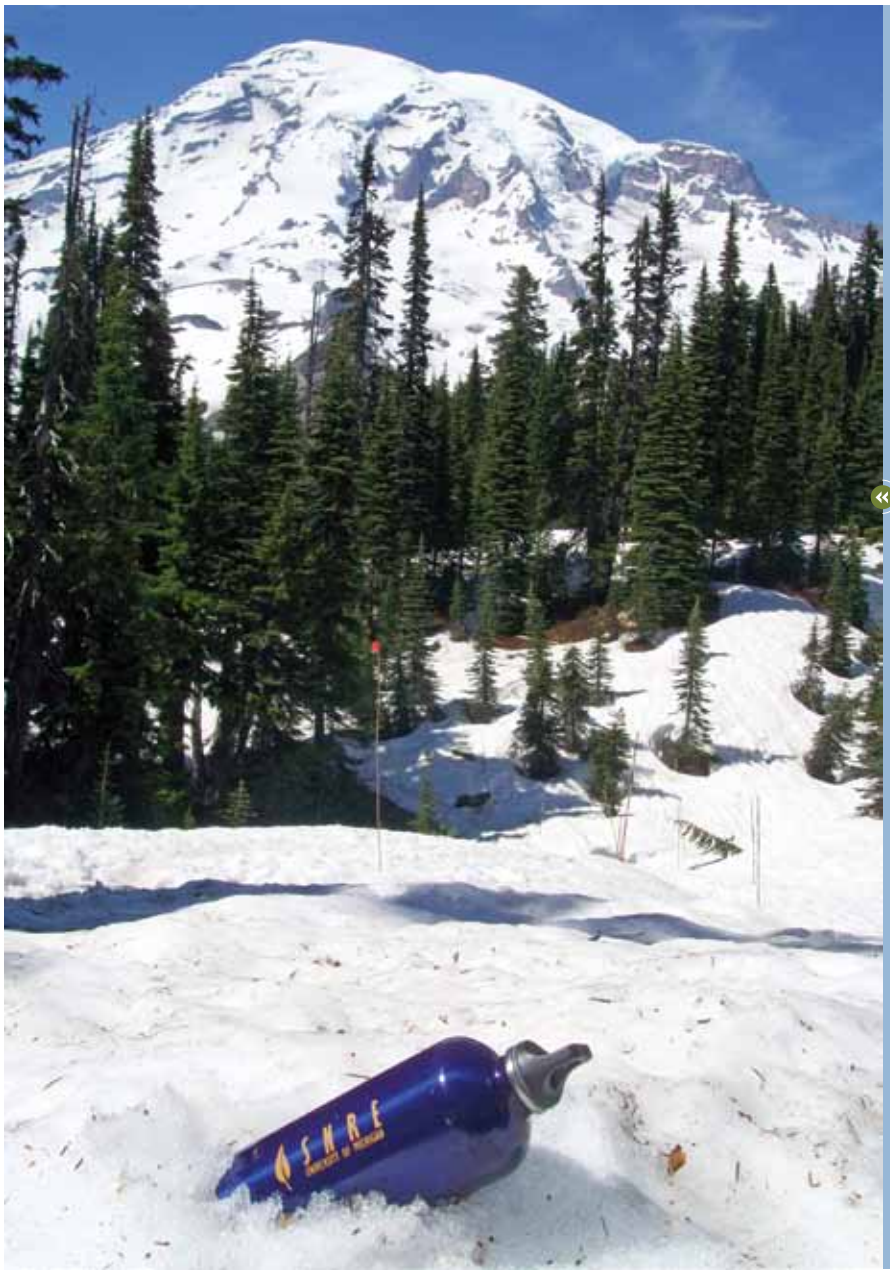

FIELD PHOTO CONTEST

When Catherine Game and John Cawood—both 2010 graduates of SNRE—honeymooned on Mount Rainier last summer, Game snapped this picture of an SNRE water bottle in the snow. Game is an assistant project coordinator in Chicago's Department of Environment, where she develops outreach and communications materials and strategies, and Cawood is an environmental instructor for the Elmhurst Park District.

Inspired by Game and her water bottle, we propose a contest. Between June 1 and June 30, take a photo of your SNRE water bottle, or t-shirt or other item with SNRE branding, in the field and post it on the school's Facebook page. (You have to be a fan first.) The photographer with the most "Likes" will win an SNRE ChicoBag (right).

Submit, check out others' submissions and vote for your favorite at facebook.com/UMSNRE.