fall2012

M SNRE

Stewards

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

DO WE STILL HAVE THE HEART?

ENVIRONMENTAL JUSTICE CONFERENCE EXPLORES THE FUTURE WHILE CELEBRATING CAREER OF BUNYAN BRYANT

features:

UNIVERSITY OF MICHIGAN

'Yes' to Environmental Justice

As a student and as a professor—which constitutes most of my time on Earth—the "new year" has always started for me in the fall. The return of friends from far-flung spots around the world, the anticipation of new classes, the beginning hint of crispness in the air all have a regenerative quality. Despite the fact that I do most of my work electronically, I find myself craving blank, pristine notebooks and all the limitless promise they represent.

The perennial renewal with each academic new year and the opportunity to work with bright and motivated students and faculty keeps me devoted to the academy. At SNRE, great things seem possible; daunting problems become opportunities for innovation. We are joined in a community where we all support one another in our daily commitment to fighting the good fight. As I begin my first new year as a dean, I have a new, wonderful vantage point to take in the excitement of the life of the university, and SNRE in particular.

One of my most memorable academic years came in 1982-83. I was studying for my undergraduate degree in Durham, North Carolina, where I had a close view of the pivotal moment in the start of the Environmental Justice movement: the Warren County landfill protests. A trucking company had illegally dumped PCB-laced oil along 210 miles of NC roadways. When this environmental crime was discovered, the state scraped up the contaminated soil and had to find a place to dispose of it. Warren County, with a highly economically disadvantaged and predominantly minority population, was chosen as the site for the landfill.

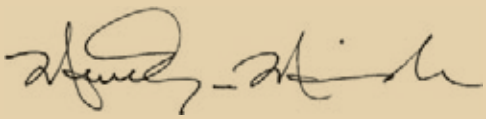
Protests ensued. And in fact, the first arrests ever made in our country of people protesting a landfill occurred in Warren County. The protests and the underlying issues represented—disproportionate exposure, disenfranchisement, racism—became the cornerstones of what we know today as Environmental Justice, whether viewed through the lens of an activist or researcher. As the legal and moral challenges ensued, several individuals rose to national prominence to give the field voice and shape. **Bunyan Bryant** was one such leader.

Having followed and admired Bunyan's work throughout my professional life, I consider myself extremely fortunate that I gained him as a colleague when I joined SNRE. Bunyan and his good friend and colleague (and former SNRE dean) Jim Crowfoot are synonymous with the Environmental Justice program at SNRE. Through his record of publishing, mentoring and support of activists and academics alike, Bunyan became and remains a leading figure in Environmental Justice.

So, I am excited and honored to have SNRE play the lead role in offering a fall conference in Bunyan's honor. The Oct. 4-6 event (see related stories, starting on page 16) is a chance for activists, academics, and community leaders to celebrate his achievements as he nears retirement after 40 years at SNRE. More importantly, in deference to Bunyan's wishes, the event has a larger purpose: participants will help develop a white paper—part playbook, part call to arms—that identifies the critical issues in Environmental Justice in the next 25 years and articulates an action plan for addressing those issues. This white paper, which will be distributed widely, will ensure lasting impact from the conference.

Please join us in Ann Arbor for this important event.

Go Blue!



mlm

Mission:

The School of Natural Resources and Environment's overarching objective is to contribute to the protection of the Earth's resources and the achievement of a sustainable society.

Stewards

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

12
An Amaizing Legacy

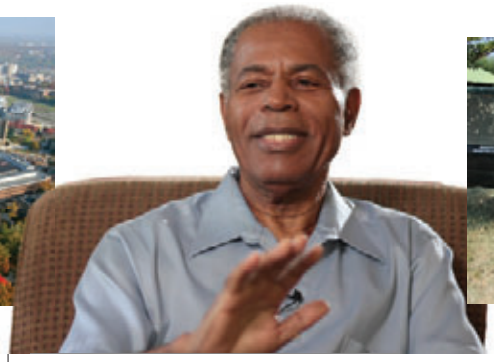
A 2002 master's project became the catalyst for a transformation of the university's sustainability agenda. The progression of that agenda mirrors the objectives outlined in the students' original 400-page report.

16
Justice is Served

As Professor Bunyan Bryant prepares to retire after four decades at SNRE, he examines his mark on the field as a fall conference celebrates his contributions and examines the future of Environmental Justice.

20
Seeding New Frontiers

From developing citizen scientists in Africa to future scientists in Saginaw Forest, SNRE faculty are testing a range of new theories with funding from an unusual source: the school itself.



Stewards

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BEACHES SUCH AS GRAND HAVEN STATE PARK MAY ISSUE FEWER INACCURATE SWIM ADVISORIES UNDER A TOOL BEING DEVELOPED BY SNRE RESEARCHERS.

BEACH PATROL

New forecasting tool would reduce health-related swimming closures at Great Lakes beaches

Great Lakes beachgoers could spend a lot more time in the water if a beach forecasting tool under development by University of Michigan researchers and their colleagues is adopted throughout the region. The tool would significantly reduce the number of days that Great Lakes beaches are unnecessarily closed to swimming due to inaccurate assessments of E. coli bacteria levels, according to **David Rockwell** of SNRE.

"My estimate is that 23 percent of the time that swimming is prohibited at Great Lakes beaches due to high bacteria levels, those decisions are actually mistakes," said Rockwell, a beach water quality forecasting coordinator at the Cooperative Institute for Limnology and Ecosystems Research (CILER), a collaboration between U-M and the National Oceanic and Atmospheric Administration (NOAA) and housed at the School of Natural Resources and Environment.

"This new tool helps us make better beach-management decisions so we can get the situation called correctly," Rockwell said. Early testing of the forecasting tool, called the Forecast Decision Support System, showed that it was more accurate than current beach-monitoring techniques about 70 percent of the time, Rockwell said.

The U.S. Environmental Protection Agency funded the tool with a $140,000 grant through the federal Great Lakes Restoration Initiative. The project is a joint effort between U-M and NOAA's Great Lakes Environmental Research Laboratory in Ann Arbor.

The tool is undergoing extensive testing this summer at five Michigan beaches. Using equations generated by the forecast tool, water-quality forecasts for the five beaches are issued four times a day by the National Weather Service. After the swimming season closes, those forecasts will be compared with actual bacterial levels in water samples collected at the beaches throughout the summer to determine the system's accuracy.

The water-quality forecasts are for North Beach Park and Grand Haven State Park beaches in Ottawa County, Bay County State Recreation Area Beach in Bay County, and Memorial and Metro beaches in Macomb County. The forecasts are provided to the health departments in the three counties.

In 2010, swimming advisories or closures were posted at Great Lakes beaches a cumulative total of 3,136 days. Most often, advisories and swimming closures are issued after heavy rainstorms wash bacteria-contaminated water into lakes.

The standard beach monitoring and notification method, often called the persistence model, is based on laboratory culturing of E. coli colonies from water samples. The colony-culturing technique can take up to 24 hours to complete, which means that swimming advisories and closures are often issued a day or more after a contamination event has occurred. Since bacterial concentrations in water can vary over periods of less than a day, the persistence model can result in unnecessary advisories or closures.

"In most cases, the bacterial levels have dropped by the next day, yet swimming at the beach remains closed," Rockwell said. In some cases, the persistence model has been shown to be inaccurate more than half the time in predicting when waters are safe for swimming, he said.

Based on early successes with the Forecast Decision Support System, NOAA recently decided to expand testing of the technique to Lake Superior and Lake Ontario beaches.

"This support system is a wonderful tool for health departments, municipalities and beach managers, reducing the uncertainties and economic impacts of needless beach closures. This success story is only possible because of the U.S. EPA's funding through the Great Lakes Restoration Initiative," said SNRE Professor **Allen Burton**, CILER's director and principal investigator on the grant funding the project.

– JIM ERICKSON

EARLY ALERT

The new **Forecast Decision Support System** predicts E. coli levels up to 60 hours in advance by looking at nearly 100 environmental variables. Data on rainfall amounts, cloud cover, wind direction and speed, the direction and speed of currents in the lake and wave heights are fed into an equation that generates an E. coli forecast specific to each beach.

briefs

Grese project one of six aiding Detroit's Focus: HOPE

A project of which Landscape Architecture Professor **Bob Grese** is part has received funding to help Detroit-based Focus: HOPE rebuild neighborhoods. SNRE students in Grese's "Landscape Ecology Design Studio" will build upon work being done by other U-M teams this summer around the themes of "play and grounds." The Graham Environmental Sustainability Institute is funding the project, which incorporates social, economic and environmental strategies to develop a comprehensive plan for the HOPE Village Initiative, a 100-block area immediately surrounding the Focus: HOPE campus.

Climate conference report explores understanding of risks, choices

What can the social sciences contribute to the public debate about climate change? To answer that question, the Erb Institute for Global Sustainable Enterprise and the Union of Concerned Scientists gathered 90 leading scholars, business leaders, policy makers, advocates, religious leaders and journalists on campus this year. Together, they explored how to better communicate climate science to a skeptical public and mobilize progress. The organizations released a summary report this spring, distilling the collective wisdom of the two-day event. View the report at erb.umich.edu.

Center for Geospatial Medicine receives federal innovation award

The Center for Geospatial Medicine is working to reduce death and disability from Type 2 diabetes under a grant announced as part of the nation's 2010 health care law. The center is part of a multi-state research team examining Type 2 diabetes, the most common form of the disease, in at-risk populations in four, underserved counties in North Carolina, Mississippi and West Virginia. The center uses systematic, spatially-based methods for analyzing environmental threats to people and communities and is part of the Children's Environmental Health Initiative at SNRE. Kathleen Sebelius, Secretary of the U.S. Department of Health and Human Services, made the Health Care Innovation Award announcement. The project that U-M is a part of received $9.8 million and is led by the Duke University Medical Center. More than 3,000 proposals were submitted; 26 were chosen in the first round.

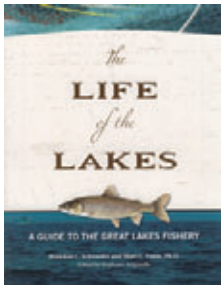
NEW BOOKS

The Oxford Handbook of Business & the Natural Environment

SNRE Professor Andrew Hoffman and Pratima Bansal
Oxford University Press (2011)

In this volume, Hoffman and Bansal gather leading scholars on issues surrounding "corporate environmentalism," which has been constantly redefined in the past four decades from roots in regulatory compliance to more recent management conceptions such as "pollution prevention," "total quality environmental management" and "industrial ecology." In the process, an understanding of the intersection of business activity and environmental protection has become increasingly complex. But a focus has emerged in academic research on business decision-making, company behavior and the protection of the natural environment. This volume reviews the state of the field as it grows into a mature area within management science, as well as its achievements and future avenues of research. The book brings together original contributions in the field along several lines of inquiry. (Co-author Bansal is a professor at the University of Western Ontario.)

The Life of the Lakes: A Guide to the Great Lakes Fishery



Brandon C. Schroeder and Shari L. Dann
Edited by Stephanie Ariganello
Michigan Sea Grant College Program (2012)

Did you know commercial fishing on the Great Lakes was born out of necessity to support the fur trade? Or that water quality in the lakes began to decline in the 1800s? Will it be at risk when invasive species like Asian carp move in? *The Life of the Lakes*, the latest book from the Michigan Sea Grant College Program, addresses these and many more questions about the ecology, history, culture and economy of the Great Lakes.

The topics, style and tone of the book are great for anyone interested in Great Lakes issues and geared toward classroom use. This third edition provides up-to-date information on the fishery, exploring its management, ecology and history, as well as the present and future of the lakes from a regional perspective. It features a new full-color design and updated graphics. Michigan Sea Grant is housed under SNRE and co-administered with Michigan State University. Educational discounts are available. To order, visit www.miseagrant.com.

FOOD FOR THOUGHT

SNRE students using innovation funds

Last year, U-M President Mary Sue Coleman announced the creation of the Planet Blue Student Innovation Fund. Its purpose: offer competitive grants up to $50,000 for large-scale, student-initiated projects that promote environmental sustainability. This spring, 22 project proposals were submitted and four inaugural recipients selected. Naturally, two are led by SNRE students. Here's a summary of those projects and the good organizers hope to achieve.

Project: Reusable takeout container

Team: Phel Meyer, Rich Grousset and David Yang (all dually enrolled at SNRE and the Ross School of Business)

The Reusable Takeout Container Project is an effort to study the potential economic and lifecycle environmental benefits of offering reusable to-go containers (pictured, left) in university food service facilities. The Innovation Fund is sponsoring the project's first phase, during which the team is piloting a small-scale program in the Michigan Union's University Club Cafe. Beginning this fall, U-Club Cafe to-go customers will have the option to use sturdy, recyclable, microwave-safe, dishwasher-safe, BPA-free #5 PET plastic clamshells and soup containers instead of single-use containers. The team's goal is to use what they learn from the pilot to design a program that can be expanded to additional campus locations.

Project: Campus farm at Matthaei Botanical Gardens

Team: Lindsey MacDonald, SNRE master's student, and Lauren Beriont, an undergraduate in the Program in the Environment

The farm's purpose is to encourage students to learn about agriculture, food systems and, potentially, how to harvest fruits and vegetables for campus residence halls. A small pilot farm at Matthaei already is established; next year, the team will use up to two acres in the same location. Its current challenge is securing funding for a full-time farm manager. Once this funding is secured, they will have access to a $42,000 grant for start-up costs. With next spring's planned groundbreaking, the group will roll out more programming, events and experiential education. Meanwhile, they are setting up an advisory board, developing operating procedures and engaging people across campus. They also have developed the U-M Sustainable Food Program, which will be the umbrella organization for all sustainable food topics on campus.

SNRE STUDENT LINDSEY MACDONALD LEADS THE PROJECT TO DEVELOP A CAMPUS FARM AT MATTHAEI BOTANICAL GARDENS.

Photo by Dave Brenner

events

Sept. 14: Bill McKibben presents "350: The Most Important Number in the World." McKibben is one of the nation's preeminent environmentalists. This Erb Speaker Series talk is free, open to the public and co-sponsored by SNRE, the Graham Environmental Sustainability Institute, the Interdisciplinary Committee on Organizational Studies, the Department of Organizational Studies and the Barger Leadership Institute. 4:30-6 p.m., Rackham Auditorium.

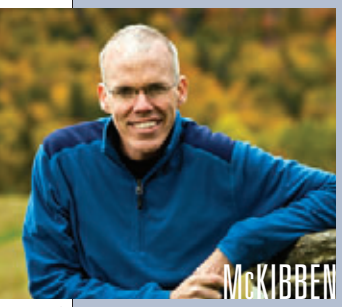
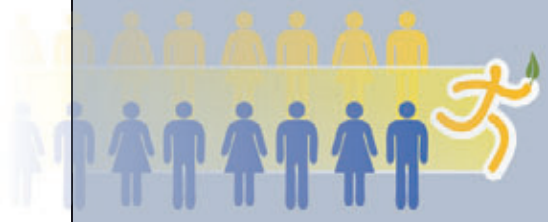


Photo by Nancie Battaglia

Sept. 28-29: The annual reunion hosted by the Erb Institute for alumni of the dual-degree program between SNRE and the Ross School of Business. Ann Arbor.

Oct. 4-6: "Honoring the Career of **Bunyan Bryant**: The Legacy and Future of Environmental Justice." Academic conference and public tribute to Professor Bryant, retiring after a 40-year SNRE career (see story, page 16). To register, visit snre.umich.edu/bryant.



Oct. 11: "Speed Networking" event. Alumni return or dial in from cyberspace to help today's students with questions about careers. Dana Building and Palmer Commons (see story, page 28).

Oct. 12: Class of 1962 Reunion. Part of Homecoming Weekend celebration campuswide. Events include luncheon and Saginaw Forest campfire (see story, page 29).

Oct. 25: SNRE alumnus **Bill Sullivan (Ph.D. '91)** returns to give a Rackham Centennial Alumni Lecture. Sullivan is a professor of Landscape Architecture at the University of Illinois at Urbana-Champaign. The title of his talk is "A Dose of Nature." The lecture is one of many organized this year by the Rackham School of Graduate Studies as it celebrates its 100th anniversary. The lectures showcase the intellectual legacy of the university's graduate community. 5 p.m., Room 1040, Dana Building.

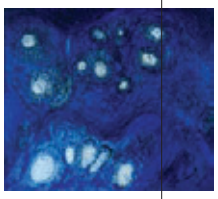
Nov. 12: Don Miskell, managing director of Boffa Miskell, a multidisciplinary environmental consultancy in New Zealand, gives the school's annual JJR Lecture. He will discuss planning for the redesign and rebuilding of Christchurch, the third-largest urban area in New Zealand. 5 p.m., Room 1040, Dana Building.

Dec. 7: Winter Master's Project Symposium. Dana Building. Student teams present their research projects to clients, the university community and public. The spring symposium is April 18-19.

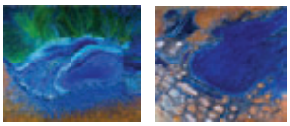
2013

Jan. 14: Graduate Career Fair. Employers from around the country discuss career opportunities with SNRE master's and doctoral students. 1-4 p.m., Ford Commons, Dana Building. Register today at snre.umich.edu/career_services/career_fair.

GOTTA HAVE ART!



Mid-October: Sara Adlerstein, an artist and associate research scientist at SNRE, presents her work in an exhibit titled "Water Blues." The work appears in the Art & Environment Gallery in the Ford Commons, Dana Building.



Nov. 15. SNRE co-sponsors "Chris Jordan: Running the Numbers," an exhibit running Oct. 26-Nov. 20 in the Slusser Gallery, Art & Architecture Building. Jordan is known for his large-scale works depicting mass consumption and waste, particularly garbage. His "Cans Seraut" (below) will be displayed this fall in the Dana Building. His Nov. 15 lecture is part of the Penny W. Stamps Speaker Series. 5:10 p.m., Michigan Theater, 603 E. Liberty St.

Feb. 2, 2013: SNRE co-sponsors "El Anatsui: When I last Wrote to You about Africa." The 60-piece show runs through April 28 at the University of Michigan Museum of Art. It is a major retrospective of El Anatsui's work and his transformation of discarded materials into forceful visual statements that refer to global, local and personal histories.

EL ANATSUI, "SACRED MOON," 2007, ALUMINUM AND COPPER WIRE. PHOTO COURTESY OF JACK SHAINMAN GALLERY

samplings

"The United States will become energy independent when … the sun ceases to shine."

John DeCicco, SNRE professor of practice, in a feature dubbed "Mad Libs: The Geopolitics of Energy," in the July/August issue of *Foreign Policy*

"This is the first time anyone has been able to show the actual concentrations have either not changed or actually increased when we're supposed to be reducing the loads. Whatever conservation practices have been put in place are not enough."

Don Scavia, SNRE professor and director of the Graham Environmental Sustainability Institute, in *The Times-Picayune* (New Orleans, La.), on the decades-long build-up of nitrates in the Mississippi River

"Addressing the diabetes epidemic is an enormous challenge but this grant provides us with an enormous opportunity to fundamentally rethink how we deploy health care resources in this country."

Dean Marie Lynn Miranda, in an interview with *Healthcare IT News* regarding a $9.8 million innovation project that SNRE's Center for Geospatial Medicine is part (see story, page 5)

"We're saying that biodiversity does things that are really important. There's really strong evidence that if we lose biodiversity, it will, among other things, affect food production and fresh water supplies and increase the frequency of pests and diseases that affect crops and animals."

Bradley Cardinale, SNRE associate professor, on the effects of species loss and biodiversity in an interview with Climate Central's Michael D. Lemonick (see story, page 11)

BY THE NUMBERS

Incoming class: 195 Graduate Students

age/gender

Average age: **26**

- Age range: 21 – 44
- 57 percent female

geography

In state: **21%**

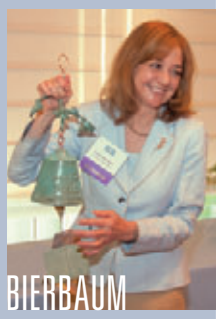
- 23 percent international (14 countries: Brazil, Canada, China, India, Iran, Japan, South Korea, Mexico, Pakistan, Peru, Spain, Switzerland, Taiwan and Thailand)
- 31 U.S. states, including the District of Columbia

degrees / majors

6 PhD **25** MLA **164** MS

- More than 100 undergraduate majors, from agriculture and anthropology to physics and water supply and drainage engineering
- 11 Returned Peace Corps Volunteers
- 2 veterans of America's armed forces

ACCOLADES


BIERBAUM

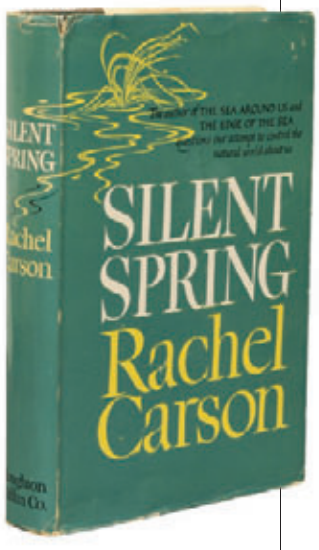
- **Rosina M. Bierbaum**, SNRE professor and dean from 2001-11, received the Helen and William Milliken Distinguished Service Award from the Michigan Environmental Council (MEC). She was honored for her contributions to protecting the state's natural resources and public health. "From freshmen to U.S. presidents, Rosina has helped shape sane environmental policies. We're proud she's accepted our honor," said MEC President **Chris Kolb (B.S. '82)**.
- Students **Lauren Cline** and **Ben Johnson** received prestigious research awards from the federal government this spring. Johnson (M.S. '12) accepted an appointment as a Presidential Management Fellow, where in his first rotation he is working with the USDA Forest Service in the Coronado National Forest in Tucson, Ariz. Cline, a doctoral student, was awarded a National Science Foundation Pre-Doctoral Fellowship. She is working with SNRE Professor **Don Zak** on research that seeks to understand the ecological forces that structure microbial communities in soil.
- The Council of Ministers of the Central American Commission for Environment and Development (CCAD) named Professor **Ivette Perfecto (Ph.D. '89)** a founding member of its new biodiversity science council. The Scientific Council on Biodiversity for the Central American Integration System will ensure the technical quality of work plans of the Regional Institute of Biodiversity, the technical body of the CCAD. Perfecto joined SNRE in 1989; in 2009, she was named the George W. Pack Professor of Natural Resources at SNRE.
- Professor **Dorceta Taylor** received the University of Michigan's HR Johnson Diversity Service Award. Taylor also directs the Multicultural Environmental Leadership Development Initiative, a research and outreach center she founded. Taylor joined SNRE in 1993. The award honors Harold R. Johnson, dean emeritus of the U-M School of Social Work. It recognizes faculty whose service contributes to the development of a culturally and ethnically diverse campus community.

SILENT NO MORE

THE BOOK LARGELY CREDITED WITH LAUNCHING THE ENVIRONMENTAL MOVEMENT TURNS 50 THIS YEAR

Rachel Carson's *Silent Spring* was published Sept. 27, 1962, by Houghton Mifflin. Her research on pesticides and pollution appeared months earlier in *The New Yorker*, where it was first serialized.

Neither the University of Michigan Bentley Historical Library nor the Yale University Beinecke Rare Book and Manuscript Library, where the Rachel Carson Papers are housed, have any record of Carson giving a speech in Ann Arbor. But her work, nonetheless, has had an impact on the SNRE community. Here are a few of those reflections:



"I was first exposed to Silent Spring *during my undergraduate days. It had a tremendous impact on me. Carson's elegant style of taking complicated concepts like contamination and pollution and breaking them down to more heart-wrenching stories like the loss of song birds and insects was very moving, and it helped turn me into an environmentalist. I have continued to occasionally read parts of that book, and at times assigned it to the students in my former intro class, "Ecological Issues." I think many of them were as touched as I was by that work and the story of her life and battle against the odds with the chemical industry. I would say that Rachel Carson and Jacques Cousteau were the two most influential people in my early days that led me to where I am today."*

– SNRE Professor Jim Diana

"The publication of Silent Spring *created a turning point in how society viewed the world and the role of technology in altering it. She did not discover the dangers of DDT nor was she the first to write it. But, writing as a scientist, as an author of eloquent style, and at a time when people were open to hear her message, her book had unusual power to convince and persuade. Also unusual about this book is that it was written by a woman, one of the few female marine biologists of her day, and researched and prepared without any institutional or academic backing.*

Carson's specific target was DDT, arguing that by barraging the environment with this synthetic pesticide, we were also poisoning the entire food chain and ultimately ourselves. But, her more general target was what she referred to as the "arrogance of man." Introducing the concept of the "web of life" in which all parts of the ecosystem are interconnected, she raged against the idea that, with our technology, we could possibly subdue nature without causing irreparable harm to the overall ecosystem of which we are a part."

– SNRE Professor Andrew Hoffman, awarded the 2001 Rachel Carson Prize from the Society for Social Studies of Science for his book, *From Heresy to Dogma*

inquiry

Promoting diversity, naturally

Urban nature, including residential gardens, can promote biodiversity and increase human well-being. Understanding factors that encourage the spread of gardening within cities may help planners facilitate healthier and more biodiverse urban communities. In this article by Associate Professor **MaryCarol Hunter** and Professor **Dan Brown**, they studied the spatial distribution and attributes of gardens found in easement areas of Ann Arbor. Spatial analyses of these privately managed public spaces provide evidence of clustering for both the presence of gardens and their aesthetic quality. Data collected on the location and attributes of easements from 22,562 properties showed that 11 percent held an easement garden.

Results of multiple spatial analyses, each targeting a different aspect of garden distribution, showed that the most intense easement garden clustering occurs among neighbors with direct visual access to the nearest neighbors' easement areas; it is 2.4 times as likely that a property holds an easement garden if a property within 100 feet holds one; although clustering is measurable for all neighborhood sizes up to 2,000 feet from home, peak clustering happens within 300 feet of a home; and easement gardens are clustered in terms of quality (appeal) with the greatest clustering between pairs of adjacent neighbors.

While larger-scale factors may play a role in where a garden cluster is initiated, the dominant occurrence of relatively small cluster sizes indicates that social contagion is in play. The article discusses the potential value of social contagion as a mechanism to spread sustainable behaviors that support ecological resilience in urban areas.

Hunter, M.C. and D.G. Brown. 2012. "Spatial contagion: Gardening along the street in residential neighborhoods." *Landscape and Urban Planning.* 105:407-416.

Turn on, plug in, look out

Plug-in hybrid electric vehicles (PHEVs) are a promising technology for addressing concerns around petroleum consumption, energy security and greenhouse gas emissions. However, the type of vehicle technology used, the way the vehicle is driven and the time of vehicle charging all impact the uncertainty about PHEV impacts on energy consumption and pollutant emissions.

The authors present a methodology to simulate PHEV charging and gasoline consumption based on driving-pattern data from more than 170,000 vehicles in the U.S. Department of Transportation's National Household Travel Survey (NHTS). The method monitored each simulated PHEV through the day to determine the timing and quantity of electricity and gasoline consumption for a fleet of PHEVs. (Authors were **Jarod Kelly**, an assistant research scientist at the Center for Sustainable Systems (CSS); **Jason MacDonald (M.S. '11/ M.S.E. '11)**, a CSS research assistant; and SNRE Professor **Greg Keoleian**.)

They developed scenarios to examine the effects of charging location, charging rate, time of charging and battery size. Additionally, demographic information was examined to see how driver and household characteristics influence consumption patterns. Results showed that a compact vehicle with approximately a 42-mile all-electric range (range of distance traveled on battery electricity alone) travels between 62.5 and 75.7 percent of its distance on electricity, depending on charging scenario. The percent of travel driven electrically (Utility Factor, UF) in a baseline charging scenario increased from 64.3 percent using 2001 NHTS data to 66.7 percent using 2009 data. The average UF was 63.5 percent for males and 72.9 percent for females and in both cases they are highly sensitive to age.

Electric utilities can use this information to inform PHEV electricity-rate schedules and predict peak electrical demand as PHEV ownership increases. The differences in demographic charging profiles and consumption can be used by electrical utilities to better plan when and where they add infrastructure to best meet the needs of users. The demographic information also can assist manufacturers in understanding which user groups could gain the most benefit from purchasing a PHEV, thereby improving their ability to appropriately design and market vehicles.

Kelly, J.C., J.S. MacDonald, and G.A. Keoleian. 2012. "Time-dependent plug-in hybrid electric vehicle charging based on national driving patterns and demographics." *Applied Energy.* 94: 395-405.

Stressors: a holistic approach

For at least 60 years, environmental regulatory programs in the United States, Europe and other developed countries have relied heavily on various forms of assessing chemical risk to manage and protect ecosystems. Water quality, primarily focused on chemical regulation, emerged from the need to control water pollution problems caused by poor or nonexistent wastewater treatment. The result has been largely a single chemical approach to environmental management and regulatory programs, writes Professor **Allen Burton** and six other co-authors.

To protect aquatic life uses, many countries developed water-quality criteria for selected priority compounds. Legally enforcing these criteria has undoubtedly reduced chemical pollution, and many aquatic systems have benefited. Abundant information demonstrates, however, that single chemical standards are just one approach to assess, manage and regulate aquatic systems.

For example, toxicity testing has been used successfully to help assess effects of chemical interactions and the effects of unknown chemicals that may be present. Such testing, however, addresses only direct toxicity effects. Many aquatic systems are impaired by non-chemical stressors, including invasive species, habitat degradation from agriculture and urbanization, and flow modifications, or are influenced by complex interactions among chemicals and other stressors that are not addressed using either a single chemical approach or mixture toxicity testing.

Holistic approaches to assessing stressors and managing aquatic ecosystems should be the rule; instead, they are the exception. Disjointed, overlapping and competing environmental regulatory actions—all with the noble mission of protecting and restoring the environment—can no longer be justified.

Using a suite of indicators that address many stressors or sources of ecological impairment is critical for improving environmental management. Approaches that integrate information obtained from different indicators that lead to a sensible and efficient plan resulting in improved environmental conditions are needed.

Burton, G.A., De Zwart, D., Diamond, J., Dyer, S., Kapo, K. E., Liess, M. and Posthuma, L. 2012. "Making ecosystem reality checks the status quo." *Environmental Toxicology and Chemistry.* 31: 459–468.

20 YEARS AFTER RIO EARTH SUMMIT:

ECOLOGISTS CALL FOR PRESERVATION OF PLANET'S REMAINING BIOLOGICAL DIVERSITY

BY **JIM ERICKSON**

Twenty years after the Earth Summit in Rio de Janeiro, 17 prominent ecologists, including SNRE Associate Professor **Bradley Cardinale**, called for renewed international efforts to curb the loss of biological diversity, which is compromising nature's ability to provide goods and services essential for human well-being.

Over the past two decades, strong scientific evidence has emerged showing that loss of the world's biological diversity reduces the productivity and sustainability of natural ecosystems and decreases their ability to provide society with goods and services like food, wood, fodder, fertile soils, and protection from pests and disease, according to an international team of ecologists led by Cardinale.

Human actions are dismantling Earth's natural ecosystems, resulting in species extinctions at rates several orders of magnitude faster than observed in the fossil record. Even so, there's still time—if the nations of the world make biodiversity preservation an international priority—to conserve much of the remaining variety of life and to restore much of what's been lost, according to Cardinale and his colleagues.

The researchers presented their findings in the June 7 edition of the journal *Nature*, in an article titled "Biodiversity loss and its impact on humanity." The paper was a scientific consensus statement that summarizes evidence that has emerged from more than 1,000 ecological studies over the past two decades.

"Much as the consensus statements by doctors led to public warnings that tobacco use is harmful to your health, this is a consensus statement by experts who agree that loss of Earth's wild species will be harmful to the world's ecosystems and may harm society by reducing ecosystem services that are essential to human health and prosperity," said Cardinale, who also has an appointment with the U-M Department of Ecology and Evolutionary Biology.

"We need to take biodiversity loss far more seriously—from individuals to international governing bodies—and take greater action to prevent further losses of species," said Cardinale, the first author of the paper. An estimated 9 million species of plants, animals, protists and fungi inhabit the Earth, sharing it with some 7 billion people.

The call to action came as international leaders prepared to gather in Rio de Janeiro June 20-22 for the United Nations Conference on Sustainable Development, known as the Rio+20 Conference. The conference marked the 20th anniversary of the 1992 Earth Summit in Rio, which resulted in 193 nations supporting the Convention on Biological Diversity's goals of biodiversity conservation and the sustainable use of natural resources.

The 1992 Earth Summit caused an explosion of interest in understanding how biodiversity loss might impact the dynamics and functioning of ecosystems, as well as the supply of goods and services of value to society. In the *Nature* paper, Cardinale and his colleagues reviewed published studies on the topic and listed six consensus statements, four emerging trends and four "balance of evidence" statements.

The balance of evidence shows, for example, that genetic diversity increases the yield of commercial crops, enhances the production of wood in tree plantations, improves the production of fodder in grasslands, and increases the stability of yields in fisheries. Increased plant diversity also results in greater resistance to invasion by exotic plants, inhibits plant pathogens such as fungal and viral infections, increases above-ground carbon sequestration through enhanced biomass, and increases nutrient remineralization and soil organic matter.

The work was supported by grants from the National Science Foundation and funding from the University of California-Santa Barbara and the state of California.

A WOMAN STUDIES AN INSTALLATION OF RECYCLED PLASTIC BOTTLES REPRESENTING FISH, CREATED ON BOTAFOGO BEACH IN RIO DE JANEIRO. THE INSTALLATION WAS SET UP AT THIS SUMMER'S CONFERENCE ON SUSTAINABLE DEVELOPMENT, RIO+20.

Photo by Christophe Simon/AFP/Getty Images

AN AMAIZING

2002 master's project helped to shape the university's sustainability agenda

THE BIG DAY: A GROUP SHOT FROM APRIL 2002 SHOWING TEAM MEMBERS (FROM LEFT) MATT ROMAN, SAMANTHA STURHAHN, SANDRA RODRIGUEZ AND ELIZABETH TERRY. THEIR RESEARCH WAS A CATALYST FOR A TRANSFORMATION OF THE SUSTAINABILITY AGENDA AT THE UNIVERSITY OF MICHIGAN.

LEGACY

BY **KEVIN MERRILL**

The team master's project has been a part of the School of Natural Resources and Environment for nearly 30 years. The projects bring together between four and six students to examine a real-world challenge from an interdisciplinary perspective. To highlight the value of students' research efforts, *Stewards* is beginning a series of profiles showcasing the lasting impact of their projects.

Matt Roman faced a haunting question the morning of his group master's project presentation: What if no one came … or worse?

"I think my most vivid memory is the fear that nobody was going to *read* this report," said Roman (M.S. '02/M.B.A. '02), one of four members of the 2001-02 project team.

Fortunately for the University of Michigan, Roman and other team members' fears were unfounded. In fact, the group's April 2002 report was a catalyst for a transformation of the university's sustainability agenda.

Building on the concept of a university sustainability report first discussed at a Wege Foundation conference in 1999, the SNRE students spent a year collecting data and working with 30 offices across the university. The prototype sustainability report they compiled was the first of its kind at U-M. The environmental indicators they analyzed became the basis for a 2003 task force created by President Mary Sue Coleman. That task force called for, among other things, creation of an annual sustainability report. In 2009, President Coleman created the Office of Sustainability and after a year-long integrated assessment effort, the university announced last fall its first-ever set of measurable goals to lower greenhouse gas emissions and reduce its carbon footprint.

The progression of the university's sustainability agenda since April 2002 mirrors the objectives outlined by the students in what would become their 400-page report, officially titled "Sustainability Assessment and Reporting for the University of Michigan's Ann Arbor Campus." (To view a copy of the report, visit snre.umich.edu/masters_projects.)

The students, their advisors and U-M officials who worked on the project all acknowledge the obvious: the university had a long history of making investments in conservation. For example, at the time of President Coleman's 2003 task force, an estimated 200 environmental stewardship projects were ongoing, from alternative-fuel vehicles and storm water management to Energy Star programs. Its recycling programs began in 1989 and were successful at capturing roughly 30 percent of the solid waste stream. In recognition of those efforts, U-M received the National Recycling Coalition's 2001 outstanding School Program award.

But project advisors, SNRE professors Jonathan Bulkley and Greg Keoleian, said the team's foundational work in data collection, establishing metrics and developing a prototype sustainability report were key in establishing standards and direction for the university. "I don't think a lot that has happened subsequently would have happened had this report not been done," Bulkley said.

"The prototype report established a standard by which a future sustainability report could be issued," Keoleian said. "So in many ways, it was very unique, and kind of a sea change for the university."

The group formed, as many do, during a master's project class in the winter of 2001, uniting around the idea of producing a university-based "sustainability report" as presented by Keoleian and Bulkley. In addition to Roman, other members were Sandra Rodriguez, Samantha Sturhahn and Elizabeth Terry. The group recently united on a conference call to reflect on the project and its consequences. Since graduating, Rodriguez (M.S. '02) is an attorney advisor working with the Social Security Administration in Washington, D.C.; Roman is an environmental health and safety affairs manager at Visteon Corporation in Michigan; Sturhahn (M.S. '02/M.B.A. '02) is a stay-at-home mom in Colorado; and Terry (M.S. '03/M.B.A. '03) is strategic planning manager at Duke Energy in North Carolina.

Their client was the Department of Occupational Safety and Environmental Health within U-M's Facilities & Operations Division. The project's goal was to propose a definition and framework for sustainability, use the framework to evaluate a

An Amaizing Legacy

set of sustainability indicators and highlight those findings in a prototype sustainability report. Andrew Berki, manager of the U-M Office of Campus Sustainability, said the need existed in 2001 for a more methodical approach to data collection and reporting. "Yet the task was so large that it seemed like it would be onerous and difficult for us to kick off by ourselves on the operational side without having those four students willing to put in fourteen hours a day," Berki added. "There was a lot of work that had to be done in order to create that template for us to move forward. And it would have cost the university a lot of money if we took it on ourselves."

"I don't know if the end product would have been as good," he added. "The fact that students were the ones that built it helped to get it accepted by the institution."

The world of corporate sustainability reporting was still evolving in 2001 as the students began their research. At the time, models and metrics to measure universities were even less developed. Building on the Global Reporting Initiative, a tool available at the time, the students' first task was to identify the social, environmental and economic indicators they wanted to track as the basis for a sustainability report.

"There wasn't that much corporate reporting at that point. It was all still pretty new," Sturhahn recalled. "A lot of the corporate examples didn't seem to apply to us that well. I remember finding a few universities that were reporting, but very few, and they tended to be pretty small."

Plus, the students encountered a university at times unclear of what their objectives were, why they needed the information requested and frustrated at the students' lack of knowledge about the complexity and breadth of the Ann Arbor campus.

"It's extremely difficult to assess a university that you yourself are a part of," said Terry. "We were four graduate students, and there were occasions when we did receive pushback from people, like, 'Why do you want to measure that? We don't want to share that information. Who's going to be reading this?' Oftentimes, people were extremely helpful. Many times the data just were not available. But there were a few conversations, too, that were a little bit tense."

The students had to work to sustain their client's support as the project unfolded. "The problem has always been that prior groups of students never recognized what we actually were accomplishing on campus," said Terry Alexander, executive director of the Office of Campus Sustainability, who with Berki, worked closely with the students on the project. "So we were always under constant pressure to do more, do more, do more, and we had no way to track what we were doing. We had no way to measure how well we were doing.

"And it would go in cycles. We'd get a group of students with a huge amount of interest. We'd educate them and they'd feel good about things, and it would drop off for a year or two," Alexander added. "Then we'd get a whole other group of students coming in who didn't know the history, and we'd start over."

Early on, the students worked with Alexander and Berki to determine the scale of the project, in hopes of making the end product something that could one day become operational on a yearly basis. "What we were really trying to do was set up measurements to guide, not really tell, people what to do, a guide to know what's working and what's not, as opposed to sort of judging

Key Dates in U-M Sustainability Efforts

Timeline

April 1999: Development of a sustainability framework for universities is discussed at "Economicology Conference 1.5," attended by representatives from the University of Michigan and nine other universities and colleges and held at the Wege Foundation in Grand Rapids, Mich.

April 2000: Preliminary research on creating a sustainability report template for universities is published in the National Wildlife Federation's *Connection* newsletter. The work was undertaken by **Benjamin L. Nicholson (M.S. '00)** on behalf of SNRE's Center for Sustainable Systems (CSS).

January 2001: The idea for a master's project focused on creation of a campus-wide sustainability report is proposed by SNRE faculty **Jonathan Bulkley** and **Greg Keoleian** to SNRE master's students.

April 2001: **Sandra Rodriguez**, **Matt Roman**, **Samantha Sturhahn** and **Elizabeth Terry** take on the project, finish their formal proposal and begin collecting data on behalf of their client, the Department of Occupational Safety and Environmental Health within U-M's Facilities & Operations Division.

April 18, 2002: The students present their final project at the spring Master's Project Symposium. Among its recommendations: production of an annual sustainability report.

June 2002: The project team makes a similar presentation and introduces its sustainability report prototype in a meeting with interim U-M President **B. Joseph White**.

December 2002: The students' work is presented to then-new President **Mary Sue Coleman**.

January 2003: President Coleman establishes the Environmental Task Force (ETF) to develop a plan for U-M to create a more sustainable future. It is charged with identifying 10-12 indicators that "best measure the university's progress with respect to environmental stewardship and to investigate how these indicators might best be measured and included in a periodic University report."

April 2004: The ETF, co-chaired by SNRE Dean **Rosina M. Bierbaum**, releases its advisory report, developed with CSS staff support, to President Coleman.

June 2005: A CSS research team of **Sarah Deslauriers**, **Colin McMillan (Ph.D. '10)** and **David Spitzley** releases a report titled "Environmental Reporting for the University of Michigan Ann Arbor Campus: the U-M Environmental

what's better or what's worse," Roman said.

As they established their own credibility and as the project came into sharper focus, students set out to find the data behind the 136 social, economic and environmental indicators they wanted to measure as the framework for a future sustainability report.

"A lot of the data was not being reported on and was scattered in online databases. The social data was just an example," Rodriguez said. "We had to be creative, determined, persistent and committed to our goal of reporting on the three spheres of sustainability [environmental, social and economic]. U-M could still learn more about our project or refer to it regarding the economic and social indicators."

But their persistence and professionalism paid off. Eventually, more doors were opened. The students often kept pushing for data until finding it, whether in old bound books or forgotten file cabinets.

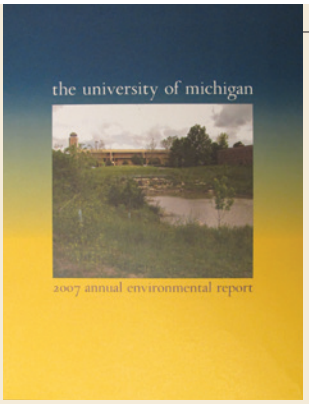
"They really had to work with a lot of different people at the university. And they did it with a positive attitude all the time," Berki said. "They had great people skills. They were able to get everything they needed without a lot of coaching from me or additional phone calls or interaction."

One of the early payoffs from the effort came from an analysis of campus energy use. "Prior to that report, we really didn't have a lot of data that showed the environmental impact of our transportation fleet. The report showed us that 99 percent of the emissions on campus were from heating and cooling our buildings," Berki said. "Less than 1 percent is from our transportation fleet. So it gave us an ability to make an informed decision that it would not make good environmental sense or business sense to invest millions of dollars at that time into hybrid-electric buses. Instead, we should take that money and invest it in reducing our energy consumption at the building level, and it would have a much greater impact on our emissions."

The students presented their master's project to fellow students and other assembled guests, including Fred and Barbara Erb, on April 18, 2002. A few months later, they presented their prototype sustainability report to B. Joseph White, who was then interim president of the university. The prototype was eventually presented to President Coleman, who a few months after starting her presidency, established the Environmental Task Force, co-chaired by SNRE Dean Rosina M. Bierbaum.

"What the students' prototype did was provide an institutional-level look to the task force of where we stood from an environmental footprint standpoint," Berki said. "It enabled the task force members to come together at the table and talk about long-term strategy and long-term goals. You could see trend data in that report. You could see areas that we were doing really well at the time. You could see areas that we were lacking in."

"The students were able to go out, sort through all this data, and figure out some useful metrics that we could use to measure, which we've instituted now and do every year," Alexander said. "They made the greatest impact in giving us a tool that we can use to educate the rest of the campus ongoing into the future about what we're doing and how well we're doing it."



Data Repository," which included baseline results for 2004 operations. The environmental data repository (EDR) was developed to facilitate data collection and analysis for the environmental sustainability indicators recommended in the ETF advisory report.

NOVEMBER 2006: Data from throughout the university was recorded for 2004 and 2005 via the EDR, and a report titled, "A Technical Update on Environmental Reporting for the University of Michigan Ann Arbor Campus: The U-M Environmental Data Repository," was issued by CSS in November 2006. Responsibility for maintaining the EDR and generating an annual environmental report was transferred to the university's OSEH Environmental Stewardship Program for 2007 and beyond.

DECEMBER 2007: U-M releases the 2007 Annual Environmental Report, the first of its kind, which measures eight performance indicators and more than 50 operational metrics.

DECEMBER 2008: U-M releases its 2008 Environmental Report.

OCTOBER 2009: President Coleman elevates the university's commitment to sustainability when she creates the Office of Sustainability (OCS) and the Sustainability Executive Council. The council soon thereafter commissions a "Campus Sustainability Integrated Assessment," co-managed by the Graham Environmental Sustainability Institute and OCS.

NOVEMBER 2009: U-M releases its 2009 Environmental Report.

JANUARY 2010: Graham Institute and OCS begin the year-long research project. CSS leads the Energy Team to investigate renewable energy technologies for campus; its Phase I and 2 reports provide a basis for the U-M greenhouse gas emissions reduction goals set in 2011.

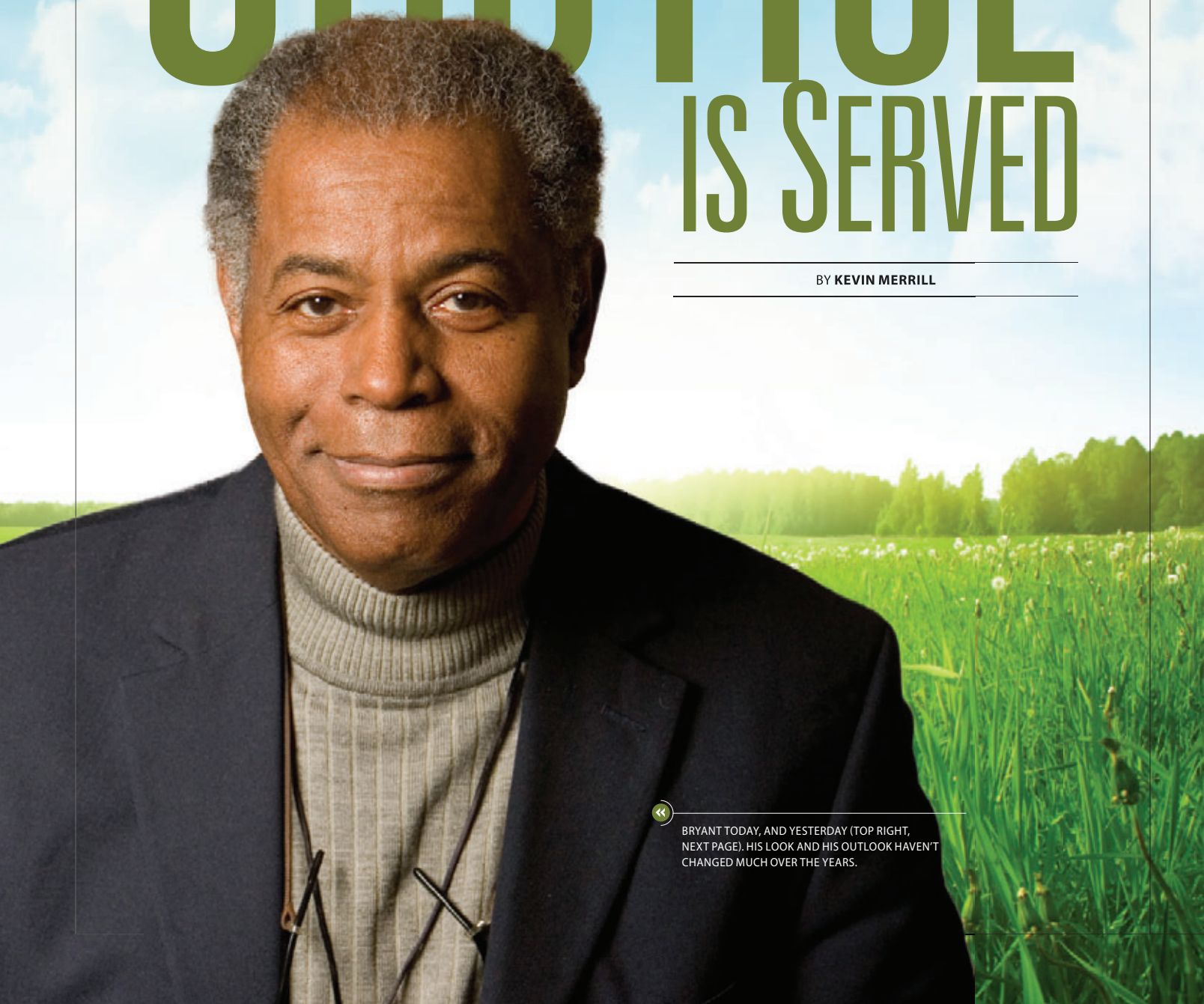
DECEMBER 2010: U-M releases the 2010 Annual Sustainability Report, introducing "Planet Blue: the Sustainable Difference" as the theme for sustainability at U-M.

SEPT. 27, 2011: President Coleman announces a university investment of $14 million in sustainability and the adoption of sustainability goals, including reducing university-generated greenhouse gas emissions by 25 percent (the equivalent of removing more than 41,000 cars from the road) by 2025. "We carried out this evaluation because we must, and we will, reduce our footprint," President Coleman said. "This is one time I want the University of Michigan to do less rather than more."

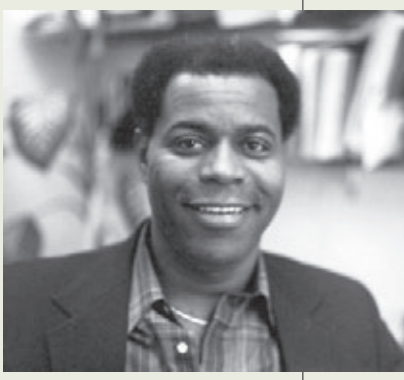
JANUARY 2012: U-M releases its 2011 Sustainability Report.

JUSTICE IS SERVED

BY **KEVIN MERRILL**



BRYANT TODAY, AND YESTERDAY (TOP RIGHT, NEXT PAGE). HIS LOOK AND HIS OUTLOOK HAVEN'T CHANGED MUCH OVER THE YEARS.



As BUNYAN BRYANT says good-bye after 40 years at SNRE, a conference takes stock of the Environmental Justice movement

As an 8-year-old growing up in his hometown of Little Rock, Arkansas, Bunyan Bryant was taught by his mother to be proud of his heritage and how to survive in the segregated South. Teaching him the social conventions of the time, she advised him that when dealing with white people, step out of the way when sharing a sidewalk, avoid eye contact, use "Sir" and "Ma'am", and always move to the back of the bus. Professor Bryant, now 77 and nearing retirement, has for decades taught students to challenge those social conventions in their multiple forms, by instead stepping confidently into the fray, not looking away, making yourself heard, and finding a seat wherever you can, whether at the table or on the bus.

Challenging social conventions has become Bryant's calling card, whether receiving a disorderly conduct citation for trying to get a haircut in a barbershop that only served whites, or submitting a list of hiring demands that he dared his prospective employer, the School of Natural Resources, to meet. Bryant hopes a new generation is ready to pick up where he is leaving off after helping to define the field of Environmental Justice and serving four decades as a researcher and mentor.

"Things have changed, but for me, they haven't changed enough," Bryant said, reflecting upon his upcoming departure from the University of Michigan.

To honor him and promote the change he has long sought, the School of Natural Resources and Environment is organizing an academic conference Oct. 4-6 in his honor. While the event includes a Friday tribute dinner, its focus is on bringing activists and academics together to create a roadmap for the movement. Organizers hope the October conference has an impact as lasting as a 1990 conference Bryant organized with SNRE colleague **Paul Mohai** (see story, page 18).

In 1958, after graduating from Eastern Michigan University with a bachelor's degree, Bryant spent a year in Bethesda, Md., working for the National Institute for Mental Health on a special project involving the treatment of five mentally disturbed boys. Before and after his later graduation from the U-M School of Social Work, he was a youth counselor, social worker and program director at several Michigan-based agencies.

As he completed his doctorate in educational psychology at Michigan, he was part of a generation of student activists who helped to alter and reshape the nation's consciousness. He was part of the civil rights and peace movements, and witnessed the women's, countercultural and environmental movements that shattered time-honored conventions both on campus and across the country. In 1970, the ecology teach-in and the Black Action Movement takeover of campus showed such actions were necessary to gain the attention of decision-makers, so student pain and grievances could be felt and heard. "What these movements had in common is they were all anti-establishment," Byrant said. "This was a tumultuous time."

In a sense, those events set the stage for him to become an SNRE faculty member.

SNRE seemed an unusual place to welcome Bryant and the type of social advocacy that would help define the Environmental Justice field. SNRE Professor William Stapp established the school's international reputation in environmental education—a program which had its intellectual roots in the school's historic role and leadership in conservation studies. The leap to environmental advocacy was looked upon warily, or so it seemed to Bryant, who received a call while working at U-M's Institute for Social Research. The school, looking to integrate the environmental enthusiasm spreading on campus and across the country, was interested in using the environment as the focal point for organizing. It wanted him to teach students the community organizing techniques he learned as a social work student and community organizer in the civil rights movement.

"I said, 'You've got the wrong guy. I don't have any background in natural resources,'" Bryant recalled.

But the wooing continued, and he eventually made two presentations to faculty and students as a part of the hiring and interview process. When the offer came from SNRE Dean James McFadden, Bryant submitted a list of hiring-related requests. Included was a special $10,000 fund—$55,000 in today's dollars—to finance placing students in the field to practice advocacy. "I packed in as many

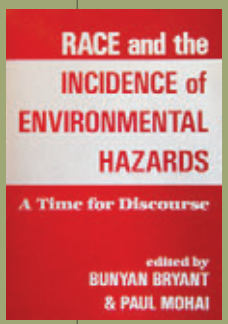
JUSTICE IS SERVED

CLINTON'S EXECUTIVE ORDER: 1990 CONFERENCE REVISITED

Courtesy, William J. Clinton Presidential Library

PRESIDENT CLINTON SIGNS AN EXECUTIVE ORDER FEB. 11, 1994. IN THE ROOM WERE MANY ATTENDEES OF THE 1990 SNRE CONFERENCE.

Organizers of the conference honoring Bunyan Bryant this fall hope it has an impact as lasting as a 1990 conference he co-organized with SNRE colleague **Paul Mohai**. The "Conference on Race and the Incidence of Environmental Hazards" occurred Jan 25-28, 1990, in the Dana Building, and sparked letter-writing campaigns and high-level government meetings over the next four years. It was the first academic conference that brought together researchers, activists and government administrators. It also was the first where a majority of presenters were people of color. The papers submitted were edited by Bryant and Mohai in *Race and the Incidence of Environmental Hazards: A Time for Discourse*, published in 1992.



Participants proudly note that the conference, and the follow-up conversations that occurred across two presidential administrations, directly contributed to President Clinton signing his groundbreaking Executive Order on "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." It focused federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities, according to the EPA. It directed federal agencies to develop Environmental Justice strategies to aid agencies in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies and activities on minority and low-income populations.

ideas as I could," Bryant recalled of the list. A month went by, and then the school called. They said yes to everything, but countered on the student funding request with $5,000. Bryant said yes, and joined as an assistant professor in the fall of 1972, along with **Jim Crowfoot**, where the two built the environmental advocacy program.

In the decades that followed, he would write books, win awards, serve on national boards and councils and advise doctoral and master's students. He also found time to found the Environmental Justice Initiative (EJI), a research and outreach center; organize Environmental Justice Poetry Slams; establish the Environmental Justice Theatre Troupe; organize retrieval and dissemination conferences; and along with colleague Elaine Hockman, EJI's research director, create a database from which to publish books and articles.

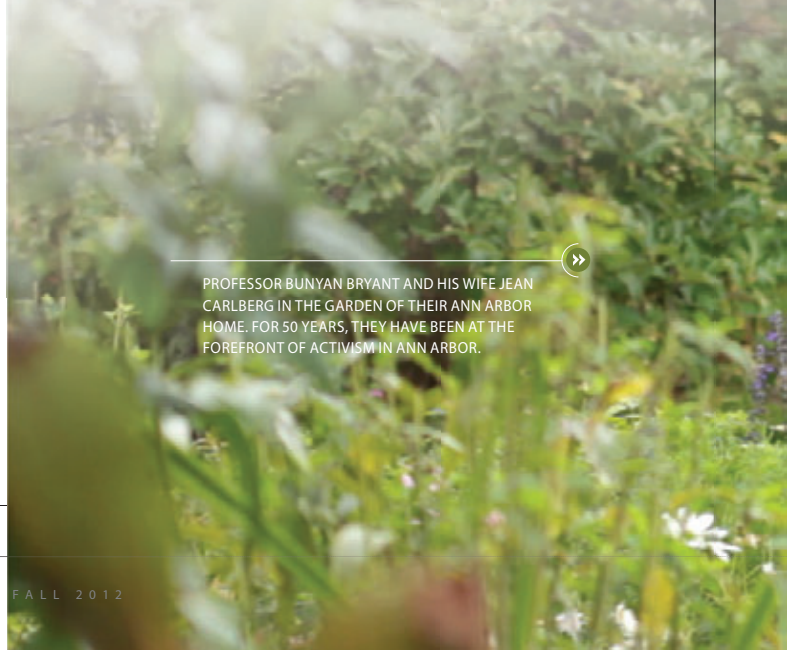
He would still be teaching and mentoring today, he says, if not for the worsening effects of Parkinson's disease. Diagnosed in 2002, he has learned to live with the tremors and other side effects, but the battle is never-ending. It has prematurely brought on his retirement, which becomes official in December. "It's a monster. I'd like to have taught a few more years. I'd like to have taught another five years. My heart is there, but physically, I'm not," he said.

He looked very determined and steady in April, when he was selected to give the 2012 Commencement address to graduating SNRE students at Rackham Auditorium. Mixing verse and rhyme with his trademark optimism, he inspired and humored the 600-plus guests. (To read his speech, visit snre.umich.edu/bryant.)

But his contributions to SNRE and Environmental Justice may not have happened if he first had not met Jean Carlberg.

"I was race conscious at a very early age," Bryant said. "I knew blacks lived in inferior neighborhoods, in inferior housing, and their education system wasn't as good as those available to whites. That was the nature of the beast. That was the norm. I didn't challenge those norms until I started at U-M and until I met Jean."

They met at a Michigan Fresh Air Camp staff party, where Bryant had been a counselor. For 50 years they have been at the forefront of activism in Ann Arbor. Only Carlberg, however, has spent a night in jail, in the early 1960s, for protesting in favor of the city adopting a fair housing ordinance. In 1994, that same Jean Carlberg was elected to the Ann Arbor City Council and would serve for 12 years.



PROFESSOR BUNYAN BRYANT AND HIS WIFE JEAN CARLBERG IN THE GARDEN OF THEIR ANN ARBOR HOME. FOR 50 YEARS, THEY HAVE BEEN AT THE FOREFRONT OF ACTIVISM IN ANN ARBOR.



Whatever the source of the initial attraction, she had another purpose for furthering the relationship. As a member of the local chapter of the Congress of Racial Equality, Carlberg supported Bryant in pursuing a test case to demonstrate that despite a fair housing ordinance on the books, racial discrimination was rampant in Ann Arbor. Bryant had been denied an apartment in Ann Arbor, and together they organized a response, using the resources of CORE.

The organization sent two white students to inquire separately about apartment rentals at a particular building. Each was told a vacancy existed. Bryant went in alone after and before the other students, and was told no vacancies existed. The Congress of Racial Equality later discovered that the University of Michigan held the mortgage on the building, but was using a private, separate business to manage it.

"As a student, I was paying tuition. As a student employee, I was paying taxes to the state, which helped subsidize the university," Bryant said. "It was almost as if I was paying for my own discrimination. That mobilized me. To this day, I still have some ambivalent feeling toward the university over the issue."

Bryant's housing discrimination case helped to provide the initiative for the state Supreme Court to determine if the city's fair housing ordinance could co-exist with housing as a civil right as embodied in the state constitution. The court supported the legitimacy of Ann Arbor's ordinance because it did not conflict with the new state constitution. Because of a legal technicality, Bryant was never able to rent the apartment.

Despite that verdict, Bryant has had a long and fruitful relationship with SNRE. To support its students, he and Carlberg in 2007 established the Bunyan Bryant Scholarship Fund in Environmental Justice. "When I came to the University of Michigan, I was used to looking at the world through a certain frame. That frame was civil rights," he said. "When I got to SNRE, it offered me another frame, and that was the environment. The two morphed for me."

"The simple definition of Environmental Justice has always been 'Close down the incinerator' or 'Close down the landfill' or 'Close the sewage treatment plant'—basically, reacting to someone else's agenda," Bryant said. "It has to be more than that. We must become more proactive and that's harder to do. We must become visionaries and take the battle to the next steps."

The next steps, he says, are to act on his definition of Environment Justice, even though what he describes sounds like a community of the future.

"If we aspire to make real Environmental Justice, we need to have hope," he said. "Hope gives meaning and direction to our visions and actions; it reaffirms our existence and gives us confidence in what we can become and the kind of communities we can build for ourselves and for our children. Hope is important because without it, we are lost."

The Legacy and Future of Environmental Justice

Honoring the Career of Bunyan Bryant

october 4-6, 2012

Ann Arbor Sheraton Hotel

- **Thursday, Oct. 4** – Evening reception
- **Friday, Oct. 5** – Day-long workshop and tribute dinner to Bunyan Bryant
- **Saturday, Oct. 6** – Half-day workshop, event concluding at noon

REGISTER ONLINE:
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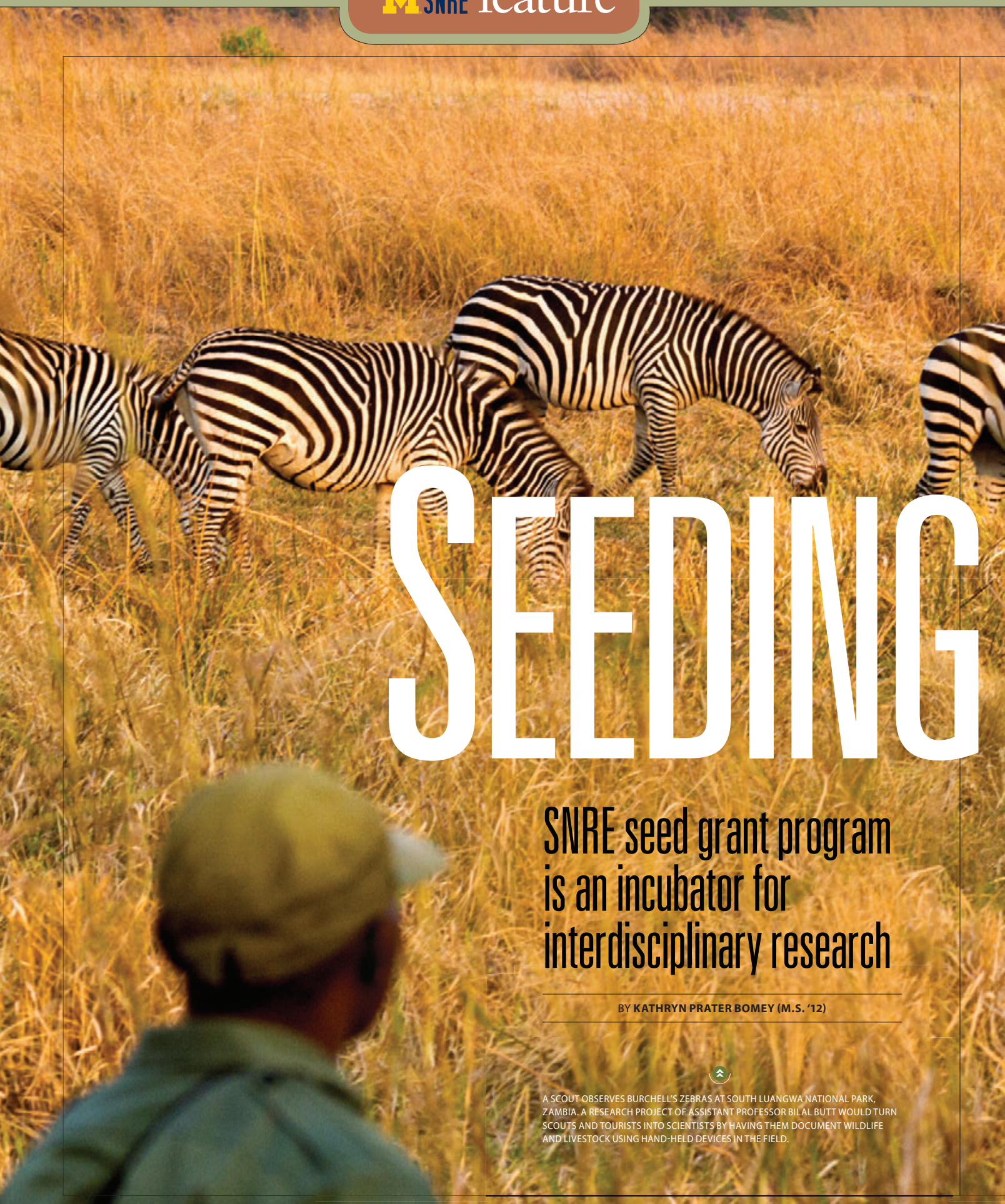


SEEDING

SNRE seed grant program is an incubator for interdisciplinary research

BY **KATHRYN PRATER BOMEY (M.S. '12)**

A SCOUT OBSERVES BURCHELL'S ZEBRAS AT SOUTH LUANGWA NATIONAL PARK, ZAMBIA. A RESEARCH PROJECT OF ASSISTANT PROFESSOR BILAL BUTT WOULD TURN SCOUTS AND TOURISTS INTO SCIENTISTS BY HAVING THEM DOCUMENT WILDLIFE AND LIVESTOCK USING HAND-HELD DEVICES IN THE FIELD.

NEW FRONTIERS

From developing citizen scientists in Africa to future scientists in Saginaw Forest, SNRE faculty are testing a range of new theories with funding from an unusual source: the school itself.

The SNRE Seed Grant Research Program helps faculty get promising research ideas off the ground. This year, the school awarded nearly $86,000 to four projects and six faculty:

Arun Agrawal: "Does adaptive capacity enable adaptation? Learning from the poor." Grant: $16,100.

Bilal Butt: "Science, practice, and public participation: Natural resource monitoring in African protected areas." Grant: $19,940.

Ines Ibanez and **Michaela Zint:** "Showcasing SNRE research at Saginaw Forest: A proposal to enhance local formal and informal environmental science education opportunities to strengthen the 'Broader Impacts' of SNRE research." Grant: $20,668.

Ming Xu and **Josh Newell:** "Advancing the science of infrastructure ecology by exploring and explaining universal regularities of urban sustainability indicators." Grant: $29,138.

The one-year grants enhance the breadth of SNRE's interdisciplinary and collaborative research, said **Michael Moore**, professor and associate dean for research. "Many of the problems we tackle require an interdisciplinary focus," he said. "Making it easier for faculty to work with each other is a good thing."

The program targets projects ineligible for other funding sources. By doing so, it increases the school's competitiveness in securing external funding, Moore said. "It allows us to pursue topics of inquiry which aren't necessarily funded through conventional sources, and allows us to develop theories, methods and concepts that are likely to attract future funding," said Butt, one of this year's recipients.

Proposals can range from $5,000 to $30,000. A five-person internal committee has selected four to five projects annually for about five years, typically awarding $80,000 to $100,000 each year, Moore said. The committee received nine proposals this year.

"It can give faculty the little push they need to do something new," Moore said. "For them, it opens doors."

Photo by Yvette Cardozo/Getty Images

ARUN AGRAWAL

Does adaptive capacity enable adaptation? Learning from the poor

Some researchers believe people living in poor, rural communities need external support to adapt to future climate change. Others believe such people will successfully adapt by themselves if they have money or government connections. But actual adaptation pathways might be a more complex set of strategies.

Arun Agrawal, an SNRE professor, said a mismatch could exist between the actual ways people adapt and the ways governments attempt to strengthen people's abilities to effectively respond to climate change, known as "adaptive capacity." This disconnect could lead to wasteful government investments and citizens ill-equipped to adapt, he said.

Agrawal received a $16,100 SNRE seed grant to investigate the connections between adaptation strategies and adaptive capacity. The funds have helped him collaborate with prominent researchers working on adaptation and push forward work he started through a Gates Foundation grant focused on adaptation coping strategies.

This summer, Agrawal organized a research workshop in India at which adaptation scholars discussed their work and his proposed project. Together, they will train students to collect additional field data as part of a pilot program. Collectively, these efforts will lay the groundwork for a more substantial proposal on adaptation being planned for submission to the National Science Foundation.

"This (seed grant project) will examine the relationship between factors that are supposed to help adaptation and the actual adaptations that people pursue," Agrawal said. For example, if a climate change-induced hurricane occurs, some research indicates people would migrate, move in with relatives and switch occupations, he said. Other research shows people with money and connections to government officials can better cope with climate change.

"But we don't know if having money or having government connections allows people to migrate, or go to the homes of their relatives or adopt new occupations," Agrawal said. "We don't know the connections."

If decision-makers have a better grasp of which interventions promote the adaptation strategies people actually use, then they can design more effective programs, he said.

The seed grant-funded work constitutes the intermediate stage of a larger research project. Agrawal previously collected adaptation data from 660 households in 22 villages in Himachal Pradesh, a poor, mountainous province in India. He funded that with grant money from the World Bank in 2009. Agrawal will work with SNRE doctoral student Christoph Nolte and master's student Jessica Whittemore, among other SNRE students and research colleagues, to analyze these data plus future data he hopes to collect in India.

"Climate change will lead to more variable and less predictable weather patterns," Nolte said. "Societal outcomes will depend in no small measure on the capacity of social institutions and actors to adapt to unanticipated change and shocks."

Farmers and pastoralists are among the most vulnerable to climate change impacts, which could include drought and varying rainfall levels, Agrawal said. "They are going to be affected the most, and we have an ethical responsibility to try to support their efforts at adaptation more effectively," he said.

Agrawal plans to apply for external grants to fund new rounds of data collection in India to examine how households for which data is available responded to a recent decline in rainfall.

Noah Seelam/AFP/Getty Images

AN INDIAN WOMAN ARRANGES PLASTIC CONTAINERS FILLED WITH DRINKING WATER FROM A COMMUNITY TAP IN A RESIDENTIAL COLONY IN HYDERABAD IN MARCH ON WORLD WATER DAY.

BILAL BUTT

Science, practice, and public participation: Natural resource monitoring in African protected areas

Through **Bilal Butt's** new research project, tourists on African safaris will do more than snap photos of lions and elephants—they'll contribute to scientific research.

Butt, an SNRE assistant professor, received a $19,940 seed grant to design and pilot a citizen science program in which nonscientists, such as tourists, tour drivers and guides, will use iPhones, iPads or other mobile devices to document the locations of wildlife and livestock while sightseeing in Kenya.

"Traditional monitoring methods on where wildlife and livestock are distributed across the landscape are logistically difficult and expensive," he said. "But this is a tourist landscape. There are tons of tourists traveling all over the place looking at wildlife. They're able to traverse a much larger area over longer and more sustained periods of time."

Data collected through the program will help determine whether wildlife and livestock living in east African grasslands compete for natural resources or actually help each other, Butt said. Some researchers believe they compete over grass, while others believe cattle eat the tall parts of grass, shortening it to a height attractive to wildlife. Conservationists and pastoralists often debate this issue, Butt said.

"If we know where animals are at certain times, we'll have a really good picture of how often wildlife and livestock are together and how that changes when the forage conditions are different," he said.

Butt said he would like an SNRE graduate student to develop an easy-to-use mobile application allowing users to record what animals they see, pinpointing their locations using the device's GPS.

"This is a way by which you can bridge the gap between the scientist who collects the data and the citizen, who has a very large role in all this but is rarely recognized as part of the scientific process," he said.

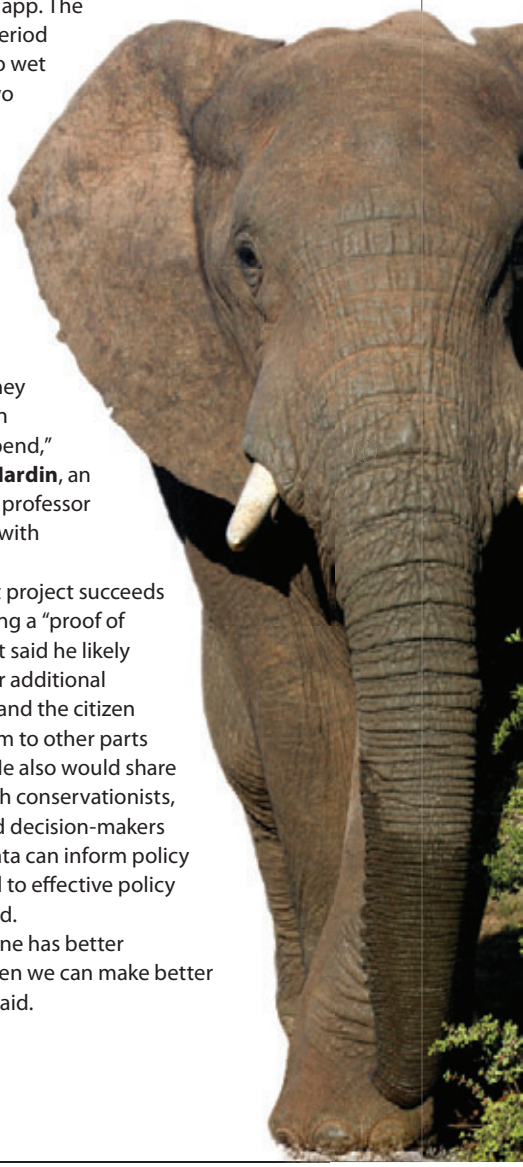
To test the protocol, Butt will equip about six safari vehicles each with a mobile device that has the data collection app. The yearlong test period will include two wet seasons and two dry seasons, he said.

"It incorporates local actors in the process of better understanding the systems within which they function and on which they depend," said **Rebecca Hardin**, an SNRE associate professor who is familiar with Butt's work.

If the pilot project succeeds —demonstrating a "proof of concept"—Butt said he likely would apply for additional funding to expand the citizen science program to other parts of east Africa. He also would share his findings with conservationists, pastoralists and decision-makers in hopes the data can inform policy debates or lead to effective policy changes, he said.

"If everyone has better information, then we can make better decisions," he said.

ASSISTANT PROFESSOR BILAL BUTT WORKS WITH COLLEEN PARENTEAU, A TOURIST FROM BOSTON, TO USE A DATA-COLLECTION DEVICE DURING A SAFARI STOP IN MAASAI MARA, A LARGE GAME RESERVE IN WESTERN KENYA WHERE HE CONDUCTS HIS FIELD RESEARCH.



IBANEZ & ZINT

Showcasing SNRE research at Saginaw Forest: A proposal to enhance local formal and informal environmental science education opportunities to strengthen the 'Broader Impacts' of SNRE research

Inspiring children to pursue scientific careers is critical to the advancement of science itself, **Ines Ibanez** said.

Ibanez, an SNRE assistant professor, and Associate Professor **Michaela Zint** hope an education initiative they are developing will do just that. The researchers received a $20,668 seed grant to design a program that teaches the scientific process, raises awareness about the impacts of climate change on forests and showcases Ibanez's research at Saginaw Forest. "It's a way to make school children interested in science because they are the future scientists," Ibanez said. "We'll have better science if we have more people working in it."

The grant allowed them to hire two SNRE master's students to help develop sample lesson plans and activities, Zint said. The researchers will seek additional funding to test, improve and produce the materials.

"There's a need for greater climate literacy," Zint said. "There's an interest in providing opportunities for students to learn more about how real science gets done and engaging them in the process of science."

The programs likely will focus on three of Ibanez's ongoing research projects:

- A 2009 experiment for which she collects tree cores to determine annual tree growth rates and then analyzes how they correspond with weather patterns to predict how forests might respond to climate change-induced weather variations.
- A 2010 study for which she analyzes biomass, such as leaf litter, to measure the amount of carbon that trees store through carbon sequestration—the process by which plants take up atmospheric carbon dioxide through photosynthesis and store it, creating carbon sinks and offsetting activities that increase atmospheric carbon dioxide, such as burning fossil fuels.
- A 2010 project for which she studies differences in characteristics, such as invasive species infestations, among forests surrounded by different landscapes, from urban to rural. Saginaw Forest, for example, is a suburban forest.

The education program for middle school students could include downloadable lesson plans for local teachers to implement in class and at Saginaw Forest, where they could explain the research and teach students to collect data, Ibanez said. The lessons will align with Michigan Grade Level Content Expectations and with the forthcoming national Next Generation Science Standards, Zint said.

Besides school groups, Saginaw Forest, an 80-acre SNRE field research area near campus, receives visitors such as U-M students, summer campers, community members and families. To reach these audiences, an informal education component could offer self-directed, hands-on activities that individuals or groups could download and take with them to Saginaw Forest, Zint said.

"We want informed citizens," Ibanez said. "It's important that they understand the importance of scientific findings and how science works so they trust it and understand the impact it has on them."

Currently, Ibanez, Zint and their master's students are developing instructional materials for middle school teachers to help their students understand the value of forest ecosystems and the impact of climate change on these resources. Through the program, called, "Down to the Core," students learn to collect data on tree growth rates from tree rings, relate them to past climate and use the outcomes to predict future growth under different climate scenarios.

In addition, the master's students carried out pilot activities at local summer camps—including those run by U-M's Women in Science and Engineering program, ECO Girls, U-M's Museum of Natural History and a local science center—and are working with six middle school teachers already committed to the project to assess the lesson plans.

SNRE STUDENTS MEGHAN KELLY (LEFT) AND LINDA ISAKSON DEMONSTRATE GROWTH AND CORING TO STUDENTS USING A TREE "COOKIE" DURING A PILOT PROJECT OF THE NEW CURRICULUM.

MEGHAN KELLY PRESENTS THE SAMPLE LESSON PLAN IN A DANA BUILDING CLASSROOM THIS SUMMER.

Photos by Dave Brenner

XU & NEWELL

Advancing the science of infrastructure ecology by exploring and explaining universal regularities of urban sustainability indicators

Everything in an ecosystem is connected. So is everything in a city, **Ming Xu** said.

Through an idea known as infrastructure ecology, Xu and **Josh Newell**, both SNRE assistant professors, hope to apply ecological theories to urban infrastructure as a way to improve the sustainability of cities.

The researchers received a $29,138 seed grant to collect data to compute sustainability metrics for various cities. After identifying patterns, deviations and their causes, they will link their findings to ecological concepts.

"We'll use ecology as metaphors and try to explain how individual infrastructure components interact and generate systems-level phenomenon," said Xu, the project's lead investigator. "Individual components are like species. These species will have different interactions with each other. In a city, different components will have interactions with each other, as well."

For example, increasing green space by converting developed land into a park would reduce impervious surfaces in a city, which would decrease stormwater flow and therefore lessen the size of the wastewater treatment system needed, Newell said. All of this ultimately would reduce the amount of energy used for stormwater management.

"It's really about intervening in one infrastructure system and understanding the ripple effects," Newell said. "One of the potential future benefits is using this as a conceptual framework to think about how to more efficiently build, design and reshape urban infrastructure systems. The outcome would be that we can actually improve the sustainability of cities."

The grant covers the cost of acquiring city infrastructure data from public sources and academic collaborations, traveling for presentations and conferences and hiring a doctoral student to conduct research.

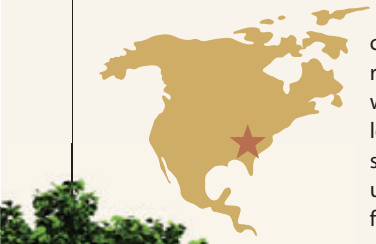
The researchers currently are collecting data about sustainability metrics, such as water consumption and greenhouse gas emissions, in cities with different characteristics. For example, Detroit will serve as a case study of a declining city, and Atlanta will represent a growing city.

ATLANTA

"Although cities are very different from each other in terms of economic development, population, location, size and culture, you can always find some regularities," Xu said. Knowing what leads to regularities and outliers could help decision-makers better achieve sustainability outcomes through infrastructure development, he added.

After completing data collection and analysis this year, the researchers likely will apply for additional funding to test their theories in actual cities, Newell said. The entire study will take three to four years, Xu added.

The researchers will collaborate with faculty from SNRE's Conservation Ecology field of study and other U-M departments, such as the departments of Ecology and Evolutionary Biology and Civil and Environmental Engineering, to match patterns with ecology theories. They also will work with other universities to obtain and discuss urban infrastructure data, Xu said.



ASSISTANT PROFESSOR JOSH NEWELL SAYS ADDING PARKS IN URBAN AREAS IS ONE EXAMPLE OF A BROADER GREEN INFRASTRUCTURE STRATEGY THAT ALSO INCLUDES URBAN AGRICULTURE, BIOSWALES AND GREENWAYS.

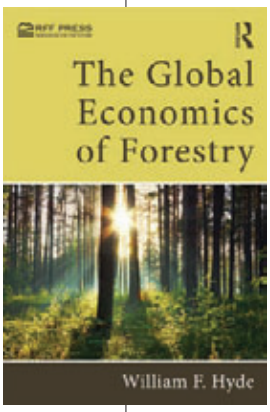
classnotes


SHARIK

Terry Sharik (M.F. '64, Ph.D. '70) is the new dean of the School of Forest Resources and Environmental Science at Michigan Technological University. Sharik taught at MTU from 1986 to 1993, when he left for Utah State University, where his most recent appointment was as a professor in the Department of Wildland Resources within the College of Natural Resources. While at Michigan in 1968, he was named a University Distinguished Teaching Fellow.

H. Kenneth Crasco, FASLA (M.L.A. '67), retired recently as chief landscape architect for the Boston Parks and Recreation Department. He received the 2011 Lifetime Achievement Award from the Boston Chapter of the American Society of Landscape Architects.

Richard Wolfson (M.S. '71) published the second edition of his undergraduate textbook *Energy, Environment, and Climate* with W.W. Norton (2012). Unlike earlier energy texts, this one is written from the ground up on the premise that climate change is the most significant impact of human energy use. After receiving his master's degree from SNRE, Wolfson taught high school for two years before getting his Ph.D. in physics at Dartmouth. Since then, he's taught physics and environmental studies at Middlebury College. Wolfson also has produced a video course on climate change, "Earth's Changing Climate," for the Teaching Company's "Great Courses" series.



William F. Hyde (M.S. '75, Ph.D. '77) recently had a new book, *The Global Economics of Forestry* (2012), published by Resources for the Future. It traces the economic and biological pattern of forest development from initial settlement and harvest activity at the natural forest frontier to modern industrial forest plantations. It builds from diagrams describing three discrete stages of forest development, and then discusses the management and policy implications associated with each, supporting its observations with examples and data from six continents and from both developed and developing countries. It is his ninth book in the field of natural resource and environmental economics. Hyde previously was a senior associate at Resources for the Future and at the Center for International Forestry Research in Indonesia. He was a faculty member at Duke University and Virginia Tech.

Andrew Cherry (B.S. '83) was the lead lawyer and negotiator for the U.S. Environmental Protection Agency on two consent decrees under the Clean Water Act that will reduce municipal sewage pollution by more than 17 billion gallons annually. In Missouri, the Metropolitan St. Louis Sewer District agreed to make improvements to its sewer systems and treatment plants at an estimated cost of $4.7 billion over 23 years. The settlement with Cleveland's Northeast Ohio Regional Sewer District (NEORSD) requires it to spend about $3 billion to install pollution controls over 25 years. Both settlements significantly advance the use of large-scale green infrastructure projects to control


CHERRY

REMEMBERING A FRIEND

Friends and former classmates of the late Paul Strauch returned to campus in April to be part of the annual Paul L. Strauch "Spirit of the Studio" Award presentation, held each year as part of the Landscape Architecture Awards Luncheon. Paul's friends and family established the award in 2004; it is given to a second-year master of Landscape Architecture student, as voted upon by peers, who embodies Paul and his upbeat and generous "Spirit of the Studio." This year's co-recipients were Rachel Visscher and Catherine Dennis.

CAPTURING THE SPIRIT: PICTURED FROM LEFT AT THE LUNCHEON ARE ALUMNI BILL SCHNEIDER (M.L.A. '94), MIKE DEVRIES (M.L.A. '94), VISSCHER, RICHARD HITZ (M.L.A. '95), DENNIS, CHRIS KUNKLE (M.L.A. '00) AND PETE TER LOUW (M.L.A. '01).

wet weather-sewer overflows by requiring the sewer districts to invest in innovative projects to prevent stormwater from getting into the combined sewer system. Both settlements also contain programs and projects focused in environmental justice communities to help revitalize disadvantaged neighborhoods and provide cleaner air, water and green space. Cherry has been with the EPA for more than 25 years after earning his law degree from Lewis & Clark.

Ellen M. Airgood (B.S. '88) has written a new book, *Prairie Evers* (The Penguin Group, 2012). In it, the eponymous character is a sweet, spirited 10-year-old embarking upon the adventure of first friendship.

Andrea Urbiel Goldner (B.S. '98, M.L.A. UC Berkeley '04), a local landscape architect in practice and a longtime lecturer in SNRE's MLA program, has received a Fulbright Scholar award. She will be investigating community spaces while living in Asilah, a small city on the west coast of Morocco. Most of the study subjects, such as neighborhood ovens, are spaces that arose out of a need to share resources but seem to persist for social reasons beyond the original need. Urbiel Goldner says she'll be measuring indicators of place resilience and vibrancy, as well as exploring each space's influence on its neighborhood in terms of culture, ecology and urban form. The project is funded by the Fulbright Program of the U.S. Department of State.


GOLDNER

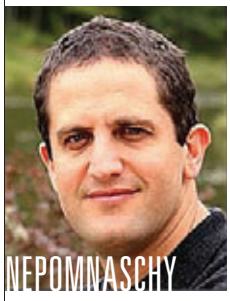
Stephanie Hitztaler (M.S. '03, Ph.D. '10) authored a blog for the IREX website discussing the fate of Russia's forests. She traveled to Russia in 2011 as a participant of the U.S. Embassy Policy Specialist program, which gives U.S. scholars the opportunity to serve as researchers-in-residence at embassies, consulates and USAID missions in Eurasia. Her M.S./M.A. degree was joint between SNRE and the Center for Russian and East European Studies.


HITZTALER

Kara (Hartigan) Whelan (M.S. '04) was recently named director of conservation programs for the Westchester Land Trust in Bedford Hills, N.Y. She is leading outreach efforts to secure conservation easements and acquisitions, and is leading conservation programming for the public, conservation groups and municipalities. She will help lead and be an integral part of the creation of a new communications platform to support the group's fundraising, outreach and programming. Whelan has worked in conservation outreach for several organizations, including the Greenwich Land Trust, the U.S. Environmental Protection Agency, City Parks Foundation and the Trustees of Reservations.


WHELAN

Pablo Nepomnaschy (Ph.D. '05) received a 2012 Career Investigator Award-Scholar from the Michael Smith Foundation for Health Research. Nepomnaschy is an assistant professor at Simon Fraser University and previously served as a postdoctoral fellow at the Epidemiology Branch of the National Institute of Environmental Health Sciences. His specialization is in ecological perspectives on human reproduction, growth and development. While at SNRE, he earned a Distinguished Dissertation Award in 2005. His doctoral program was joint between SNRE and the Department of Anthropology.


NEPOMNASCHY

Jennifer A. Dowdell (M.L.A. '07), LEED AP, an ecological landscape designer at Biohabitats in Baltimore, received an Honor Award from the Texas chapter of the ASLA for her company's work on the Galveston Island State Park Master Plan.

Brian Swett (M.S. '08/M.B.A. '08) has been named the city of Boston's new chief of environment and energy by Mayor Thomas M. Menino. Swett, who also is a member of the SNRE Visiting Committee, will lead the next phase of Boston's sustainability efforts, which are already improving its neighborhoods in significant ways and have pushed the city into the top tier of green cities nationally.


SWETT

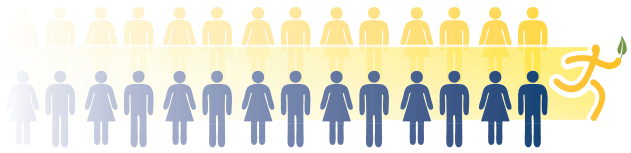
SNRE ALUMNI RETURNED TO TAKE PART IN A SPECIAL ANN ARBOR-AREA RECEPTION APRIL 26 AT MICHIGAN STADIUM. PARTICIPANTS WERE ABLE TO VENTURE ONTO THE FIELD, WHERE EVENT CREWS WERE BUSY SETTING UP FOR THE UNIVERSITY'S SPRING COMMENCEMENT. FOR MORE PHOTOS FROM THE EVENT, VISIT FLICKR.COM/PHOTOS/SNRE/SETS/.

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, SNRE's 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, Mich., 48109-1041. We're looking forward to hearing from you and spreading your good news.

STUDENTS CONNECT WITH ALUMNI — IN 8 MINUTES OR LESS

WORKING THE VROOM



BY **KEVIN MERRILL**

For SNRE alumni **David Hobstetter** and **Kathryn Kohm**, helping today's students is only a few mouse clicks away.

Both are participating via Skype at the Oct. 11 inaugural "Speed Networking" event, which unites alumni and current students in person or over the internet to talk careers. Kohm (B.S. '86, M.S. '88) said she's giving back because SNRE played a key role in shaping her environmental journalism career. For Hobstetter (M.S. '07), SNRE provided the outlet he needed to pursue his passion for nature while also earning his law degree from the University of Michigan.

The event format is simple. Either in person or over the internet via Skype, alumni provide feedback to today's students during eight-minute networking sessions. Alumni will discuss their owns careers with students, address skills required in today's job market and provide feedback on students' own career "elevator speech."

"Alumni have been very gracious with their time, and the students are eager to hear from them and establish additional professional contacts," said Marika McCann, a student career counselor in SNRE's Office of Academic Programs. The office piloted the event last year and based on its success, decided to make it an annual fall event.

OAP is sponsoring a welcome dinner for participants starting at 5 p.m. in the Dana Building; at 6:30 p.m., the event moves to nearby Palmer Commons, where the in-person and online networking sessions take place.

Kohm will dial in from Seattle, Wash., where she is editor of *Conservation*, a quarterly magazine (see story, page 29).

"I came to Michigan in 1982 as a general studies student in LSA, and literally wandered into the Dana Building one day," Kohm said. "And I thought, 'These are my people.'"

Later, as a graduate student pursuing studies in forestry, she received a graduate assistantship that placed her in editorial roles with the then-titled *Endangered Species Technical Bulletin Reprint*. Enamored with the topic and the field of journalism, she was given the latitude to rename the journal to the *Endangered Species Update* and redesign it. That year-long assistantship opened her eyes to the world of publishing, and she quickly found her home. "It was clear to me that this is what I want to do in the environmental field," she added.

Hobstetter, who will dial in from his office in San Francisco, also came to SNRE after first enrolling at another U-M school. He was a first-year law student when a professor recommended that he consider SNRE as an outlet for his additional interests in science and policy. "I always wanted a career where I could make a positive difference," said Hobstetter, who is a staff attorney with the Center for Biological Diversity, an NGO based in Tucson, Ariz.

At the center, he uses his law, science and policy knowledge to protect species and the habitats they depend on. "I have always felt we have a responsibility to be good stewards of the Earth," he said.

FOR A LIMITED TIME ONLY...

Conservation magazine, which traces its history back to the School of Natural Resources and Environment, is offering a special subscription price to SNRE alumni and students.

The magazine explores topics from novel angles without preaching, pleading or bias, said its editor, **Kathryn Kohm** (B.S. '86, M.S. '88). It is published under the auspices of the University of Washington along with nearly a dozen government and non-governmental organizations, including The Nature Conservancy and World Wildlife Federation.


KOHM

The magazine started as a journal of the Society for Conservation Biology, an academic association that also traces its roots back to SNRE. The society evolved out a 1985 conference sponsored by the school's Wildlife Management Center. At the conclusion of the conference, attendees voted the society into existence under the leadership of Michael Soulé, who was an adjunct and visiting professor at SNR from 1984-89. In 2000, its members launched *Conservation* magazine in an attempt to make conservation biology tools, techniques and case studies more accessible to practitioners, policy makers and others.

When the society's publishing priorities changed, Kohm—then the editor of the journal—volunteered to keep it alive by finding a new home and financial backers. It became independent of the society in January 2012, and is now based in Seattle.

LEARN MORE ABOUT THE OFFER:
snre.umich.edu/alumni

IN 2000, MEMBERS OF THE SOCIETY OF CONSERVATION BIOLOGY, WHICH HAD ITS START AT A CONFERENCE AT SNRE, LAUNCHED THE MAGAZINE.

CLASS OF 1962 REUNION

LUNCHEON, CAMPFIRE AWAIT RETURNING ALUMNI

For graduating seniors and graduate students, 1961-62 was unique in school history: it marked SNR's first academic year in its then-new home, the Natural Resources Building (later to be named the Dana Building). The school's enrollment was 246, including 94 graduate students. Such traditions as the Paul Bunyan Ball, Michigan-MSU Liars' Banquet and Fall Field Day were in full swing.

That memorable year and the Class of 1962 take center stage Friday, Oct. 12, as SNRE salutes them as part of the university's 2012 Reunion Weekend. To help relive those memories, 1962 graduates and a guest are invited to a lunch at the school, a talk by the new dean and evening picnic and campfire at Saginaw Forest.

Alumni should register at the university's main reunion website at reunions.umich.edu or by calling 866.799.0002. The university-wide celebration runs four days, beginning Thursday, Oct. 11, with a gala dinner and presentation of Emeritus pins. Other weekend events open to reunion registrants include:

- exciting talks and lectures across campus
- bus and walking tours of campus
- festive tailgate with classmates, followed by the Michigan vs. Illinois game.

Contact Heather Leszczynski, SNRE's assistant director of development and alumni relations, at hnlutz@umich.edu, or go online to learn more.

LEARN MORE ABOUT SNRE'S PLANS:
snre.umich.edu/reunions

Paying It Forward

Students raise money to expand connections with alumni

SNRE students raised more than $17,000 this spring and now need alumni to help spend it.

The Class Gift money, donated by master's and doctoral students and graciously matched by an SNRE alumnus, created the Student-Alumni Engagement (SAE) Fund. Payments from the fund will cover costs associated with such events as alumni-focused career talks, academic workshops, networking lunches or outreach work by regional chapters. The catch? Each funded engagement idea has to be co-sponsored by a current SNRE student.

"The primary purpose of the SAE Fund is to help alumni and students connect with one another," said **Kate Harris (M.S. '12)**, who ran this year's Class Gift program as a member of SNRE Student Government.

To encourage the widest possible involvement, the fund will allow proposals to be submitted by any member of the SNRE community, including friends and donors, current students, staff, faculty, prospective students and, of course, alumni. "We chose to define this broadly to establish flexibility and encourage participation from a large cross section of the community," said Harris, who is working toward master's degrees at SNRE and the School of Education.

The funding request form is available at snre.umich.edu/alumni. The SNRE Office of Alumni Relations (snre.alumni@umich.edu) can help match applicants with current students.

As part of the two-month-long Class Gift campaign, Harris and other students used email, social media, printed fliers and special events to raise awareness and promote participation. The SNRE alumnus, who asked to remain anonymous, created a gift-match incentive to encourage student philanthropy. Thirty percent of graduates made a donation; individual gifts ranged from $1 to $500. In a community where generosity is not reserved for special occasions, it was not surprising that nearly a third of gifts came from non-graduating students.

Students who donated said they were motivated by the opportunity to further interaction between current students and alumni. "In the end, it's all about the connections, ecologically, academically and professionally," said **Solomon R. David (Ph.D. '12).**

"I want to be able to help those that come after me in navigating their way through this magnificent (and arduous) journey, while at the same time have the opportunity to draw on the inexhaustible amounts of inspiration and knowledge present in all those that call themselves SNREds," said **Steven Rippberger (M.S. '12).**

JUMPING INTO ACTION: THE CLASS OF 2012 RAISED MORE THAN $17,000 THROUGH ITS CLASS GIFT EFFORT TO PROMOTE ALUMNI INTERACTIONS. MEMBERS OF THAT CLASS CELEBRATED WITH ALUMNI AT THE APRIL 26 "BIG HOUSE RECEPTION" AT MICHIGAN STADIUM. JUMPING FOR JOY IN THE ENDZONE WERE (FROM LEFT) ANTONIA CHAN (M.S. '13/M.B.A. '13), MORGANE TREANTON (M.S. '12), JOHN WILLARD (M.S. '12), AJAY VARADHARAJAN (M.S. '11/M.S.E. '11), COURTNEY LEE (M.S. '12), NICOLE LABUTONG (M.S. '12), SETH FEDERSPIEL (M.S. '12) AND JANET MOSELY (M.S. '12).

Photo by Dave Brenner

Graham Brown (M.S. '12/M.B.A. '12) said he contributed because doing so supported the building of stronger links between students and alumni. "It feels like the right way to give back to a community that has given me plenty," he said.

"Giving to the Class Gift is simply another extension of what each of us contributes to the SNRE culture each day," said **Becky Brown (M.S. '12)**. "It's been a tremendous experience to try to share the spirit of SNRE with prospective students, and my gift guarantees that I can continue to share with each SNREd that comes after me."

The idea for the fund evolved from a winter 2012 survey of current students, which polled them on ideas for student philanthropy and alumni engagement. The survey results also lead Student Government to create the SNRE Alumni Gateway, a student working group to develop future ideas.

Graduating students have a history of raising money and allocating it for use by future students. For example, the 2011 Class Gift campaign raised money to help student working groups organize conferences and workshops as a way to strengthen work within fields of study.

– KEVIN MERRILL

briefs

Climate Prize honors Bierbaum

A group of friends and admirers of former Dean **Rosina M. Bierbaum** have created the Rosina M. Bierbaum Award in Climate Adaptation and Mitigation. The award recognizes one or more SNRE students whose research examines innovative means to adapt to and/or mitigate the effects of climate change. Awardees may be engaged in interdisciplinary scholarship in SNRE or any of its joint programs.

After a one-year leave, Professor Bierbaum returns to SNRE this year to teach a climate change adaptation seminar.

MORE INFORMATION: snre.umich.edu/giving

Nolte named first Weinberg Fellow

Christoph Nolte, an SNRE doctoral student, has been selected as the first recipient of the Marshall Weinberg Population, Development, and Climate Change Fellowship. Weinberg, a longtime supporter of U-M, established the fellowship with a gift last year.

The award, jointly administered by SNRE and the Population Studies Center at the Institute for Social Research, supports research at the intersection of climate change, demography and development. Nolte is studying the economic tradeoffs of land conservation in the Amazon rainforest in Brazil. He is using Brazilian census data from 2000 and 2010 covering 30,000 Amazonian census tracts to tackle one of the core questions of conservation: To what extent does setting aside land for conservation impact global economic opportunities?

READ MORE: snre.umich.edu/weinberg

Bertschy joins SNRE as development director

Scott Bertschy has joined the SNRE community as director of development. He and his team implement SNRE's fundraising, stewardship and alumni relations programs. He joins from the University of Michigan-Flint, where he served as executive director of development and alumni relations for three years.

"I'm excited to join SNRE and to work with the dean and the school's alumni and friends," said Bertschy. "The school has an extraordinary rich history and am proud to have a role in shaping its future."

For more than 20 years, he was director of development at Detroit Country Day School, a private preparatory school in Bloomfield Hills, Mich. During his tenure, Country Day had three successful capital campaigns. He earned a B.A. in economics from McGill University and an M.B.A. from the Eli Broad Graduate School of Management at Michigan State University.

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